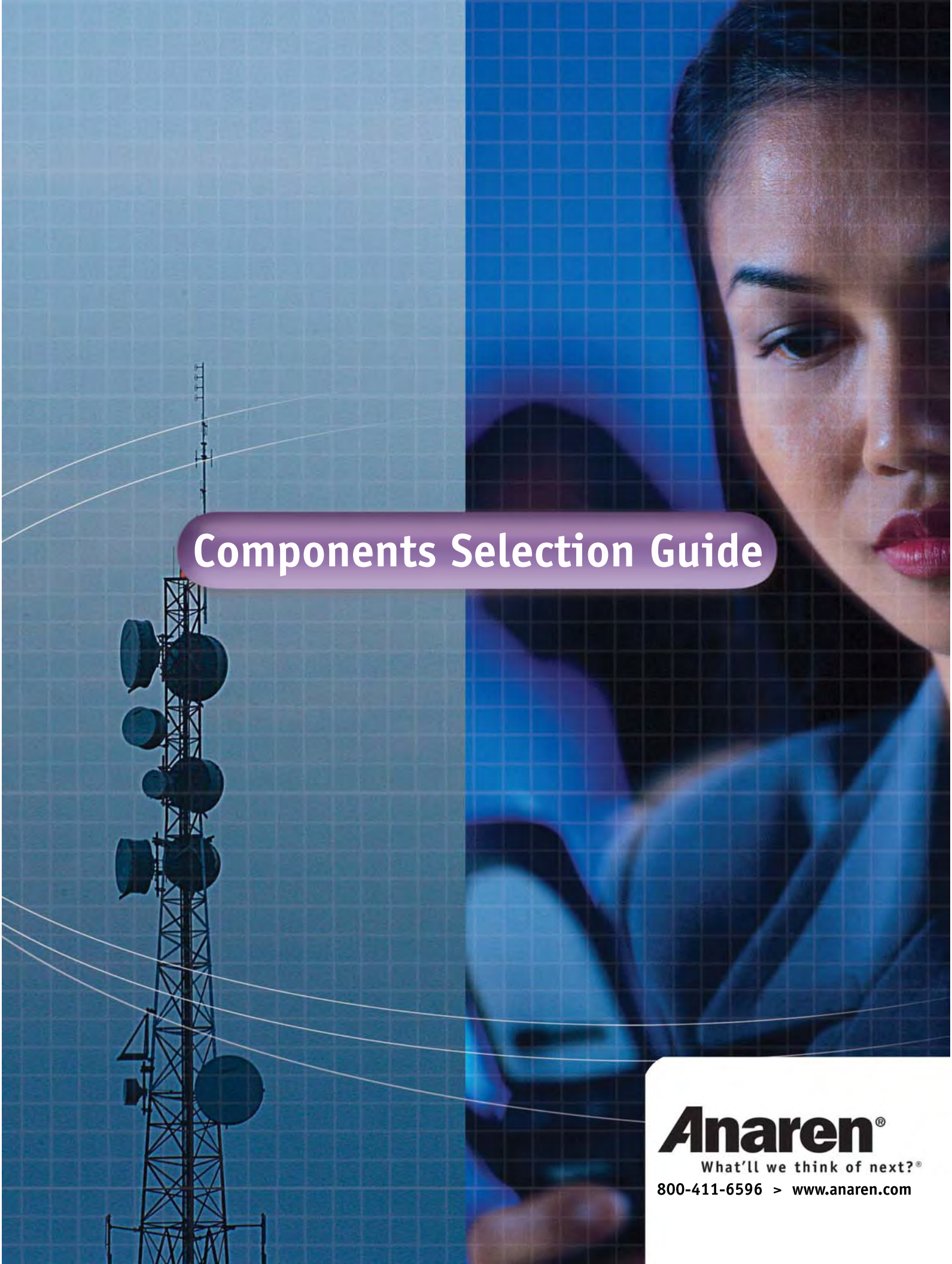

Components Selection Guide

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Xinger II Selection Matrix

3 dB Hybrid Couplers								
Model Number	Package Size [Inch]	Freq. Band [MHz]	Ins. loss [dB max]	Isolation [dB min]	VSWR [max:1]	± Amp. Bal. [dB max]	90 ± Ph. Bal [deg. max]	Avg. Power [W max]
XC0450A-03	0.56 x 0.35	410 - 480	0.36	23.0	1.22	± 0.15	90 ± 3.5	45
XC0450L-03	0.65 x 0.48	410 - 480	0.20	23.0	1.15	± 0.15	90 ± 2.0	200
XC0450E-03	0.56 x 0.20	460 - 470	0.35	20.0	1.22	± 0.35	90 ± 3.0	100
1F1304-3	0.65 x 0.48	670-860	0.40	21.0	1.25	± 0.50	90 ± 3.0	100
XC0900P-03	0.25 x 0.20	800 - 1000	0.40	20.0	1.22	± 0.30	90 ± 4.0	25
		824 - 849	0.35	20.0	1.22	± 0.30	90 ± 4.0	28
		869 - 894	0.35	24.0	1.15	± 0.20	90 ± 4.0	28
		925 - 960	0.37	25.0	1.17	± 0.20	90 ± 3.0	27
XC0900E-03	0.56 x 0.20	800 - 1000	0.22	21.0	1.19	± 0.20	90 ± 3.0	70
		869 - 894	0.20	23.0	1.17	± 0.15	90 ± 2.0	80
		925 - 960	0.21	23.0	1.17	± 0.15	90 ± 2.5	75
XC0900A-03	0.56 x 0.35	811 - 1000	0.15	23.0	1.15	± 0.20	90 ± 2.0	175
		869 - 894	0.12	25.0	1.12	± 0.14	90 ± 2.0	225
		925 - 960	0.12	25.0	1.12	± 0.14	90 ± 2.0	225
XC0900L-03	0.65 x 0.48	800 -1000	0.12	25.0	1.12	± 0.13	90 ± 2.0	225
S03B888N3	1.00 x 0.50	815 - 960	0.15	20.0	1.25	± 0.30	90 ± 1.5	300
11305-3	0.56 x 0.35	1000-2000	0.45	20.0	1.30	± 0.55	90 ± 3.0	60
XC1400P-03	0.25 x 0.20	1200 - 1600	0.32	23.0	1.20	± 0.30	90 ± 4.0	30
		1215 - 1240	0.23	23.0	1.17	± 0.30	90 ± 3.0	40
		1563 - 1588	0.32	23.0	1.20	± 0.30	90 ± 4.0	30
1P503	0.25 x 0.20	1700 - 2000	0.25	18.0	1.28	± 0.30	90 ± 3.0	30
XC1900E-03	0.56 x 0.20	1700 - 2000	0.12	23.0	1.17	± 0.13	90 ± 2.0	120
		1805 - 1880	0.12	25.0	1.12	± 0.10	90 ± 2.0	120
		1930 - 1990	0.12	25.0	1.12	± 0.10	90 ± 2.0	120
XC1900A-03	0.56 x 0.35	1700 - 2000	0.15	25.0	1.15	± 0.13	90 ± 2.0	150
		1805 - 1880	0.12	27.0	1.12	± 0.10	90 ± 2.0	150
		1930 - 1990	0.12	27.0	1.12	± 0.10	90 ± 2.0	150
S03B1960N3	1.00 x 0.50	1930 - 1990	0.15	20.0	1.25	± 0.25	90 ± 1.5	300
XC2100E-03	0.56 x 0.20	2000 - 2300	0.12	23.0	1.17	± 0.15	90 ± 2.0	95
		2110 - 2170	0.12	25.0	1.12	± 0.10	90 ± 2.0	100
XC2100A-03	0.56 x 0.35	2000 - 2300	0.15	23.0	1.15	± 0.15	90 ± 2.0	105
		2110 - 2170	0.12	25.0	1.12	± 0.10	90 ± 2.0	145
S03B2150N3	1.00 x 0.50	2000 - 2300	0.15	20.0	1.25	± 0.25	90 ± 2.0	300
XC2650P-03	0.25 x 0.20	2650 - 2800	0.25	20.0	1.20	± 0.15	90 ± 3.0	50
XC2500E-03	0.56 x 0.20	2300 - 2700	0.15	22.0	1.17	± 0.15	90 ± 3.0	80
XC2500A-03	0.56 x 0.35	2300 - 2700	0.13	25.0	1.14	± 0.15	90 ± 4.0	150
		2300 - 2400	0.10	25.0	1.14	± 0.15	90 ± 4.0	200
JP503	0.25 x 0.20	2000 - 2300	0.30	20.0	1.20	± 0.25	90 ± 3.0	25
11306-3	0.56 x 0.35	2000 - 4000	0.35	20.0	1.30	± 0.55	90 ± 5.0	60
1P603	0.25 x 0.20	2300 - 2700	0.30	20.0	1.20	± 0.25	90 ± 3.0	25
1M803	0.40 x 0.20	4800 - 6000	0.25	20.0	1.21	± 0.30	90 ± 3.5	20
XC3500P-03	0.25 x 0.20	3300 - 3800	0.25	21.0	1.20	± 0.25	90 ± 3.0	55
XC3500M-03	0.40 x 0.20	3300 - 3800	0.25	21.0	1.20	± 0.25	90 ± 3.0	70

Nomenclature Chart

XX XXXX X - XX X X

Function	Frequency (MHz)	Size (Inches)	Coupling Value	Plating Finish	Packaging
XC = Coupler	0450 = 410 - 480	A = 0.56 x 0.35	03 = 3 dB	P = Tin Lead	T = Tube
	0900 = 800 - 1000	B = 1.00 x 0.50	05 = 5 dB	S = Tin Immersion	R = Reel
	1500 = 1000 - 2000	E = 0.56 x 0.20	10 = 10 dB		
	1900 = 1700 - 2000	L = 0.65 x 0.48	20 = 20 dB		
	2100 = 2000 - 2300	M = 0.40 x 0.20	30 = 30 dB		
	2500 = 2300 - 2700	P = 0.25 x 0.20			
	2650 = 2650 - 2800				
	3500 = 3300 - 3700				

Note: These tables are for reference only. Please review complete data sheet for actual specification data.

Xinger II Selection Matrix

Nomenclature Chart

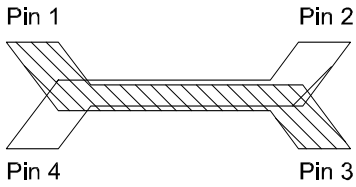
X X X XX X X

Function	Size (Inches)	Frequency (MHz)	Coupling Value	Plating Finish	Packaging
1 = Coupler	A = 0.56 x 0.35	4 = 670 - 860	03 = 3 dB	P = Tin Lead	T = Tube
J = Coupler	B = 1.00 x 0.50	5 = 1700 - 2300	05 = 5 dB	S = Tin Immersion	R = Reel
S03 = 3 dB Coupler	E = 0.56 x 0.20	6 = 2000 - 2700	06 = 6 dB		
	F = 0.65 x 0.48	7 = 3300 - 3700	10 = 10 dB		
	L = 0.65 x 0.48	8 = 5000 - 6000	20 = 20 dB		
	M = 0.40 x 0.20		30 = 30 dB		
	P = 0.25 x 0.20				

Note: These tables are for reference only. Please review complete data sheet for actual specification data

Hybrid Coupler Pin Configuration

The component has an orientation marker to denote Pin 1. Once port 1 has been identified, the other ports are known automatically. Please see the chart below for clarification:



Configuration	Pin 1	Pin 2	Pin 3	Pin 4
Splitter	Input	Isolated	-3dB $\angle\theta - 90$	-3dB $\angle\theta$
Splitter	Isolated	Input	-3dB $\angle\theta$	-3dB $\angle\theta - 90$
Splitter	-3dB $\angle\theta - 90$	-3dB $\angle\theta$	Input	Isolated
Splitter	-3dB $\angle\theta$	-3dB $\angle\theta - 90$	Isolated	Input
*Combiner	A $\angle\theta - 90$	A $\angle\theta$	Isolated	Output
*Combiner	A $\angle\theta$	A $\angle\theta - 90$	Output	Isolated
*Combiner	Isolated	Output	A $\angle\theta - 90$	A $\angle\theta$
*Combiner	Output	Isolated	A $\angle\theta$	A $\angle\theta - 90$

*Note: "A" is the amplitude of the applied signals. When two quadrature signals with equal amplitudes are applied to the coupler as described in the table, they will combine at the output port. If the amplitudes are not equal, some of the applied energy will be directed to the isolated port.

Xinger II Selection Matrix

Directional Couplers									
Model Number	Package Size [Inch]	Freq. Band [MHz]	Mean Coupling [dB]	Ins. Loss [dB max]	Directivity [dB max]	VSWR [max:1]	Freq. Sens. [dB]	90 ± Ph. Bal [deg. Max]	Avg. Power [W max]
XC0450E-20	0.56 x 0.20	460 - 470	20.1 ±.1.5	0.30	17.0	1.22	± 0.20	N/A	100
XC0900A-05	0.56 x 0.35	800 - 1000	5.0 ± 0.35	0.19	21.0	1.19	± 0.25	90 ± 2.0	200
		869 - 894	5.0 ± 0.25	0.15	23.0	1.12	± 0.05	90 ± 2.0	250
		925 - 960	5.0 ± 0.25	0.15	23.0	1.12	± 0.05	90 ± 2.0	250
XC0900A-10	0.56 x 0.35	800 - 1000	10.1 ± 0.60	0.16	21.0	1.19	± 0.30	N/A	225
		869 - 894	10.0 ± 0.50	0.14	25.0	1.12	± 0.08	N/A	250
		925 - 960	10.0 ± 0.50	0.14	25.0	1.12	± 0.08	N/A	250
XC0900A-20	0.56 x 0.35	800 - 1000	20.1 ± 0.60	0.18	23.0	1.15	± 0.20	N/A	150
		700 – 800	20.7 ± 1.00	0.16	18.0	1.28	± 0.40	N/A	200
		869 - 894	20.0 ± 0.50	0.14	25.0	1.12	± 0.05	N/A	200
		925 - 960	20.0 ± 0.50	0.14	25.0	1.12	± 0.05	N/A	200
XC0900B-30	1.00 x 0.50	800 - 1000	29.8 ± 1.00	0.10	23.0	1.15	± 0.40	N/A	355
		865 - 895	29.6 ± 0.80	0.09	25.0	1.12	± 0.12	N/A	385
		925 - 960	29.5 ± 0.80	0.09	25.0	1.12	± 0.08	N/A	355
1G1304-30	0.56 x 0.35	800 - 1000	30 ± 1.5	0.25	18.0	1.27	± 0.10	N/A	150
XC0900P-10	0.25 x 0.20	800 - 1000	10.2 ± 1.0	0.38	15.0	1.35	± 0.36	N/A	45
		869 - 894	10 ± 1.00	0.28	18.0	1.20	± 0.05	N/A	55
		925 - 960	10 ± 1.00	0.32	18.0	1.20	± 0.05	N/A	50
XC1500A-20	0.56 x 0.35	1000 - 2000	20.0 ± 0.70	0.19	21.0	1.28	± 1.25	N/A	150
1P520	0.25 x 0.20	1700 – 2000	20 ± 0.75	0.25	20.0	1.22	± 0.20	N/A	25
XC1900A-05	0.56 x 0.35	1700 - 2000	5.0 ± 0.22	0.15	23.0	1.15	± 0.05	90 ± 2.0	200
		1805 - 1880	5.0 ± 0.19	0.12	25.0	1.12	± 0.03	90 ± 2.0	200
		1930 - 1990	5.0 ± 0.19	0.12	25.0	1.12	± 0.03	90 ± 2.0	200
XC1900A-10	0.56 x 0.35	1700 - 2000	10.1 ± 0.50	0.16	23.0	1.15	± 0.10	N/A	175
		1805 - 1880	10.0 ± 0.40	0.14	25.0	1.12	± 0.05	N/A	175
		1930 - 1990	10.0 ± 0.40	0.14	25.0	1.12	± 0.05	N/A	175
XC1900A-20	0.56 x 0.35	1700 - 2000	20.1 ± 0.60	0.15	23.0	1.15	± 0.12	N/A	150
		1805 - 1880	20.0 ± 0.50	0.12	25.0	1.12	± 0.05	N/A	150
		1930 - 1990	20.0 ± 0.50	0.12	25.0	1.12	± 0.05	N/A	150
XC1900E-10	0.56 x 0.20	1700 - 2000	10.1 ± 0.50	0.14	21.0	1.19	± 0.10	N/A	175
		1805 - 1880	10.0 ± 0.40	0.12	23.0	1.15	± 0.05	N/A	190
		1930 - 1990	10.0 ± 0.40	0.14	23.0	1.15	± 0.05	N/A	175
XC2100A-05	0.56 x 0.35	2000 - 2300	5.0 ± 0.22	0.15	23.0	1.15	± 0.05	90 ± 2.0	125
		2110 - 2170	5.0 ± 0.19	0.12	25.0	1.12	± 0.03	90 ± 2.0	175
XC2100A-10	0.56 x 0.35	2000 - 2300	10.1 ± 0.50	0.16	23.0	1.15	± 0.10	N/A	150
		2110 - 2170	10.0 ± 0.40	0.14	25.0	1.12	± 0.05	N/A	175
XC2100A-20	0.56 x 0.35	2000 - 2300	20.1 ± 0.60	0.15	23.0	1.15	± 0.12	N/A	120
		2110 - 2170	20.0 ± 0.50	0.12	25.0	1.12	± 0.05	N/A	150
XC2100A-30	0.56 x 0.35	2000 - 2300	30.0 ± 0.80	0.15	20.0	1.22	± 0.15	N/A	105
		2110 - 2170	30.0 ±0.60	0.12	22.0	1.17	± 0.10	N/A	105
		1930 - 1990	30.0 ±0.80	0.12	20.0	1.22	± 0.15	N/A	105
		1805 - 1880	30.0 ± 0.80	0.12	20.0	1.22	± 0.15	N/A	105
XC2100B-30	1.00 X 0.35	2300 - 2700	30.0 ± 1.25	0.15	18.0	1.22	± 0.40	N/A	150
		1805 - 1880	29.8 ± 1.00	0.12	20.0	1.22	± 0.15	N/A	300
		1930 - 1990	29.8 ± 1.00	0.12	20.0	1.22	± 0.10	N/A	300
		2110 - 2170	29.8 ± 1.00	0.12	20.0	1.22	± 0.10	N/A	300
XC2100E-10	0.56 x 0.20	2000 - 2300	10.1 ± 0.50	0.14	21.0	1.19	± 0.10	N/A	155
		2110 - 2170	10.0 ± 0.40	0.12	23.0	1.15	± 0.05	N/A	165
JP506	0.25 x 0.20	2000 – 2300	6 ± 0.5	0.30	20.0	1.22	± 0.20	N/A	20
1P510	0.25 x 0.20	2000 – 2300	10 ± 0.75	0.25	20.0	1.22	± 0.20	N/A	20
JP510	0.25 x 0.20	2000 – 2300	10 ± 0.75	0.25	20.0	1.22	± 0.20	N/A	20
JP520	0.25 x 0.20	2000 – 2300	20 ± 0.75	0.25	20.0	1.22	± 0.20	N/A	25
XC2500E-10	0.56 x 0.20	2300 - 2700	10.0 ± 0.50	0.14	21.0	1.19	± 0.10	N/A	145
XC2500P-20	0.25 x 0.20	2300 - 2700	20.0 ± 1.00	0.20	20.0	1.20	± 0.30	N/A	20
1P610	0.25 x 0.20	2300 - 2700	10 ± 0.75	0.25	20.0	1.22	± 0.20	N/A	20
1P620	0.25 x 0.20	2300 - 2700	20 ± 0.75	0.25	20.0	1.22	± 0.20	N/A	25
XC3500P-20	0.25 x 0.20	3300 - 3800	20.0 ± 1.00	0.20	20.0	1.20	± 0.30	N/A	45
XC3500M-20	0.40 x 0.20	3300 - 3800	20.0 ± 1.00	0.20	21.0	1.20	± 0.30	N/A	80
1M710	0.40 x 0.20	3300 – 3700	10.5 ± 0.8	0.25	20.0	1.20	± 0.20	N/A	22
1M810	0.40 x 0.20	5000 – 6000	10.0 ± .75	0.30	18.0	1.33	± 0.30	N/A	15

Xinger II Selection Matrix

Nomenclature Chart

XX XXXX X - XX X X

Function	Frequency (MHz)	Size (Inches)	Coupling Value	Plating Finish	Packaging
XC = Coupler	0450 = 410 - 480	A = 0.56 x 0.35	03 = 3 dB	P = Tin Lead	T = Tube
	0900 = 800 - 1000	B = 1.00 x 0.50	05 = 5 dB	S = Tin Immersion	R = Reel
	1500 = 1000 - 2000	E = 0.56 x 0.20	10 = 10 dB		
	1900 = 1700 - 2000	L = 0.65 x 0.48	20 = 20 dB		
	2100 = 2000 - 2300	M = 0.40 x 0.20	30 = 30 dB		
	2500 = 2300 - 2700	P = 0.25 x 0.20			
	2650 = 2650 - 2800				
	3500 = 3300 - 3700				

Note: These tables are for reference only. Please review complete data sheet for actual specification data.

Nomenclature Chart

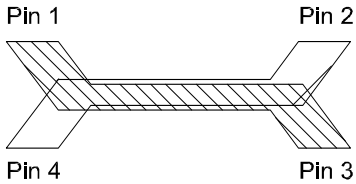
X X X XX X X

Function	Size (Inches)	Frequency (MHz)	Coupling Value	Plating Finish	Packaging
1 = Coupler	A = 0.56 x 0.35	4 = 670 - 860	03 = 3 dB	P = Tin Lead	T = Tube
J = Coupler	B = 1.00 x 0.50	5 = 1700 - 2300	05 = 5 dB	S = Tin Immersion	R = Reel
S03 = 3 dB Coupler	E = 0.56 x 0.20	6 = 2000 - 2700	06 = 6 dB		
	F = 0.65 x 0.48	7 = 3300 - 3700	10 = 10 dB		
	L = 0.65 x 0.48	8 = 5000 - 6000	20 = 20 dB		
	M = 0.40 x 0.20		30 = 30 dB		
	P = 0.25 x 0.20				

Note: These tables are for reference only. Please review complete data sheet for actual specification data.

Directional Coupler Pin Configuration (5dB Only)

The component has an orientation marker to denote Pin 1. Once port one has been identified the other ports are known automatically. Please see the chart below for clarification:

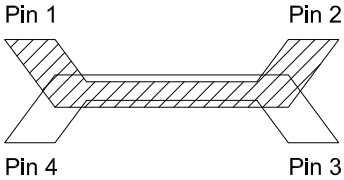


Pin 1	Pin 2	Pin 3	Pin 4
Input	Isolated	Direct	Coupled
Isolated	Input	Coupled	Direct
Direct	Coupled	Input	Isolated
Coupled	Direct	Isolated	Input

Note: The direct port has a DC connection to the input port and the coupled port has a DC connection to the isolated port.

Directional Coupler Pin Configuration (All Other Directionals)

The component has an orientation marker to denote Pin 1. Once port one has been identified the other ports are known automatically. Please see the chart below for clarification:



20dB Coupler Pin Configuration

Pin 1	Pin 2	Pin 3	Pin 4
Input	Direct	Isolated	Coupled
Direct	Input	Coupled	Isolated

Note: The direct port has a DC connection to the input port and the coupled port has a DC connection to the isolated port.
For optimum performance, use Pin 1 or Pin 2 as inputs.

Xinger II Selection Matrix

Crossover Selection Matrix						
Model Number	Frequency [MHz]	Power [W]	Size LxW [inches]	Insertion Loss [dB]	Return Loss [dB]	Port Impedance [Ω]
X2A	0 – 6000	30	0.2 x 0.2	0.05	15	50
X2B	0 – 6000	30	0.2 x 0.2	0.05	15	50

Balun Transformers Selection Matrix									
Model Number	Frequency [MHz]	Power [W]	Size LxW [inches]	Unbalanced Port Impedance [Ω]	Balanced Port Impedance [Ω]	Insertion Loss [dB]	Amplitude Balance [dB]	Phase Balance [°]	RL Unbalanced [dB]
3A325	470 – 860	275	0.75 x 0.87	50	25	0.65	0.50	180±5	10.0
3A412	800 – 1000	250	1.00 x 0.75	50	12.5	0.48	0.40	180±5	15.0
3A425	800 – 1000	250	0.75 x 0.79	50	25	0.35	0.40	180±5	15.0
3A512	1400 – 1600	250	0.75 x 0.55	50	12.5+j3.5	0.30	0.40	180±5	15.0
3A525	1500 – 1900	150	0.65 x 0.48	50	25	0.35	0.40	180±5	15.0
3A625	2300 – 2700	150	0.65 x 0.48	50	25	0.35	0.40	180±5	15.0
3W512	1800 – 2200	150	0.75 x 0.55	50	12.5+j5.5	0.40	0.40	180±5	15.0
3W525	1800 – 2500	150	0.65 x 0.48	50	25	0.38	0.40	180±5	15.0

Note: These tables are for reference only. Please review complete data sheet for actual specification data.

Nomenclature Chart

X X X XX X X

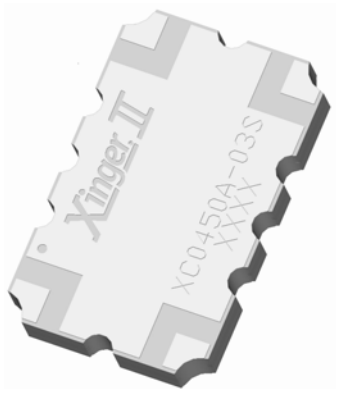
Function	Miscellaneous Code	Frequency (MHz)	Output to Ω Ground	Plating Finish	Packaging
3 = Balun Transformer	A	3 = 470 – 880	12 = 12.5 Ohms	P = Tin Lead	T = Tube
	W	4 = 800 - 1000	25 = 25 Ohms	S = Tin Immersion	R = Reel
		5 = 1400 - 2500			
		6 = 2000 - 2700			

Note: These tables are for reference only. Please review complete data sheet for actual specification data.

Model XC0450A-03

Rev B

Hybrid Coupler
3 dB, 90°



Description

The XC0450A-03 is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for NMT band applications. The XC0450A-03 is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 45 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Available in both 5 of 6 tin lead (XC0450A-03P) and 6 of 6 RoHS compliant tin immersion (XC0450A-03S).

Features:

- **410 – 480 MHz**
- **NMT**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT= 0.53**

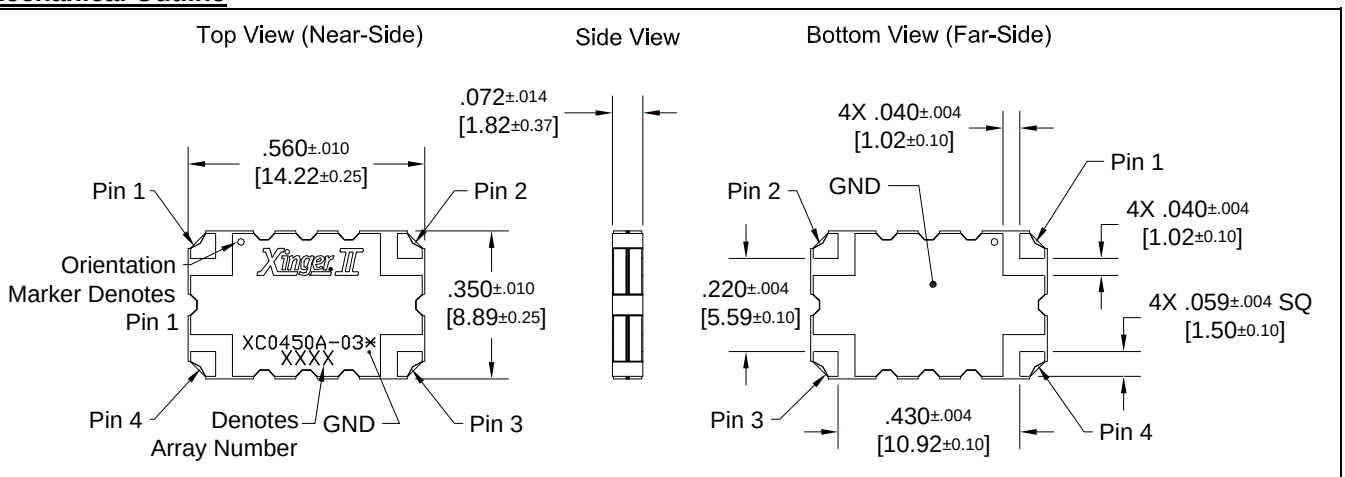
Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max : 1*	*dB Max*
410-480	23	0.36	1.22	± 0.15

Phase Balance	Power	ΘJC	Operating Temp.
Degrees	*Avg. CW Watts*	*ºC/Watt*	*ºC*
90 ± 3.5	45	27	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 58481-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters]
XC0450A-03* Mechanical Outline

* For RoHS compliant versions order with S suffix
Tolerances are non-cumulative

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Xinger II

Hybrid Coupler
3 dB, 90°

Description

The XC0450L-03 is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for NMT band applications. The XC0450L-03 is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 200 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, and RO4350. Available in both 5 of 6 tin lead (XC0450L-03P) and 6 of 6 tin immersion (XC0450L-03S) RoHS compliant finishes.

Features:

- **410 – 480 MHz**
- **NMT**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT= 0.53**

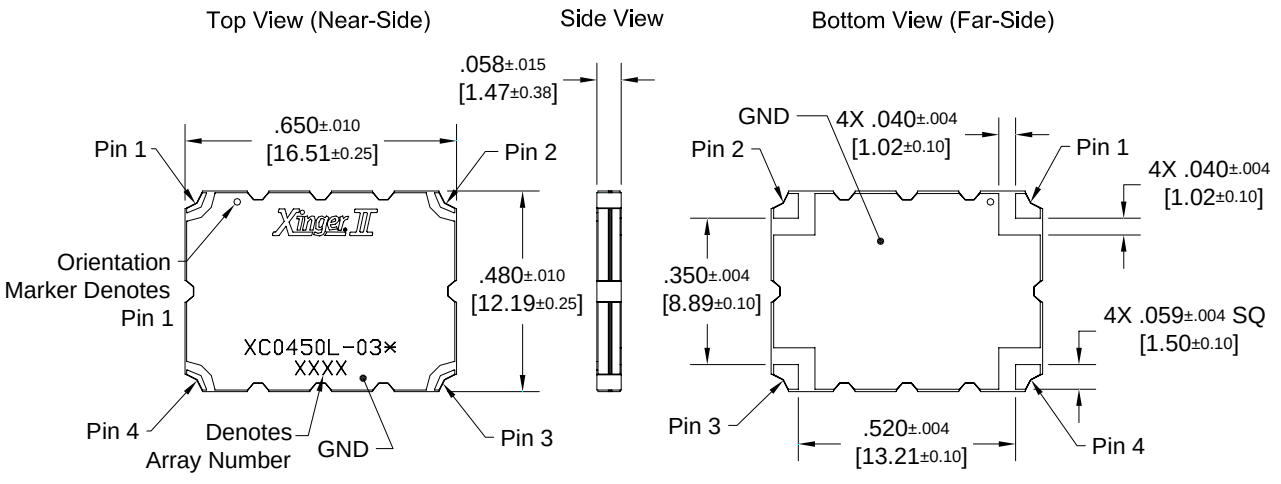
Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max:1*	*dB Max*
410 – 480	23	0.20	1.15	± 0.15

Phase Balance	Power	ΘJC	Operating Temp.
Degrees	*Ave. CW Watts*	*ºC/ Watt*	*ºC*
90 ± 2	200	11.0	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 57904-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters]
XC0450L-03* Mechanical Outline

* For RoHS Compliant Versions order with S suffix
Tolerances are non-cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II®

Hybrid Coupler
3 dB, 90°

Features:

- **460-470 MHz**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**

Description

The XC0450E-03S is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. The XC0450E-03S is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 100 watts.

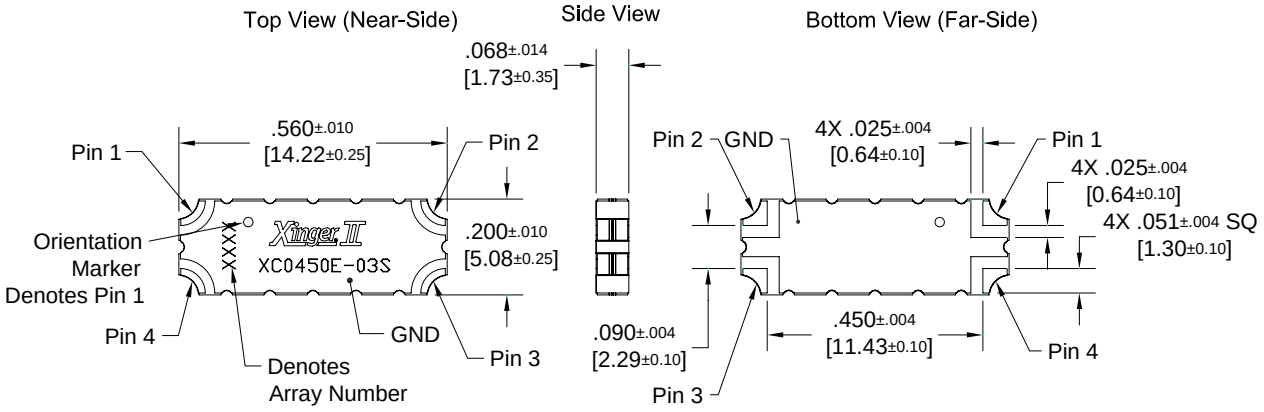
Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350 and polyimide. Produced with 6 of 6 RoHS compliant Tin Immersion finish.

Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max : 1*	*dB Max*
460 – 470	20	0.35	1.22	± 0.35
Phase	**Power**	**ΘJC**	**Operating Temp.**	
Degrees	*Avg. CW Watts*	*ºC/Watt*	*ºC*	
90 ± 3.0	100	19.4	-55 to +85	

**Specification based on performance of unit properly installed on Anaren Test Board 58492-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters]
XC0450E-03S Mechanical Outline

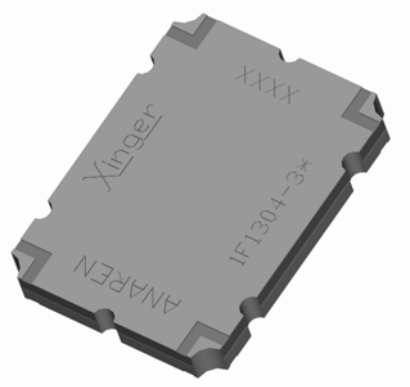
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger®

Hybrid Couplers
3 dB, 90°



Description

The 1F1304-3S is a low profile 3dB hybrid coupler in an easy to use surface mount package covering 470 to 860 MHz. The 1F1304-3S is ideal for balanced amplifiers and signal distribution and can be used in most high power designs. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates such as FR4, G-10 and polyimide. Available in both 5 of 6 tin lead (1F1304-3) and 6 of 6 tin immersion (1F1304-3S) RoHS compliant finishes.

Features:

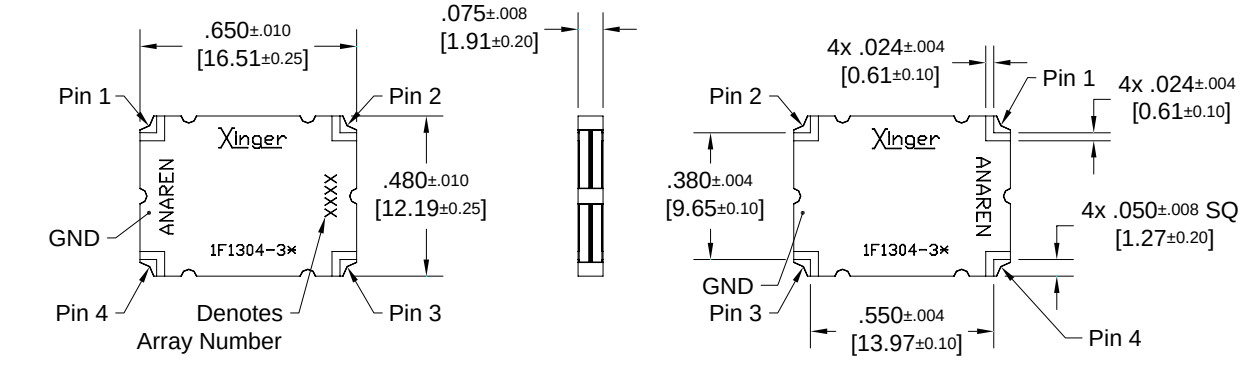
- **470 - 860 MHz**
- **Low loss**
- **High Isolation**
- **90^{O} Quadrature**
- **Surface Mountable**
- **Tape And Reel**
- **Convenient Package**
- **100% Tested**
- **Lead Free Available**

ELECTRICAL SPECIFICATIONS**

Frequency	Isolation	Insertion Loss	VSWR	
MHz	*dB Min*	*dB Max*	*Max:1*	
470 - 860	21	0.40	1.25	
Amplitude Balance	**Phase Balance**	**Power**	**ΘJC**	**Operating Temp.**
dB Max	*Degrees*	*Ave. CW Watts*	*ºC/ Watt*	*ºC*
± 0.50	± 3	100	8.6	-55 to +85

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

Outline Drawing



Dimensions are in Inches [Millimeters]
1F1304-3* Mechanical Outline

* For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Model XC0900P-03S

Rev D

Hybrid Coupler
3 dB, 90°

Description

The XC0900P-03S is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for AMPS band applications. The XC0900P-03S is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 28 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, and RO4350. Produced with 6 of 6 RoHS compliant tin immersion.

Features:

- **800 – 1000 MHz**
- **AMPS**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**
- **Reliable, FIT=0.49**

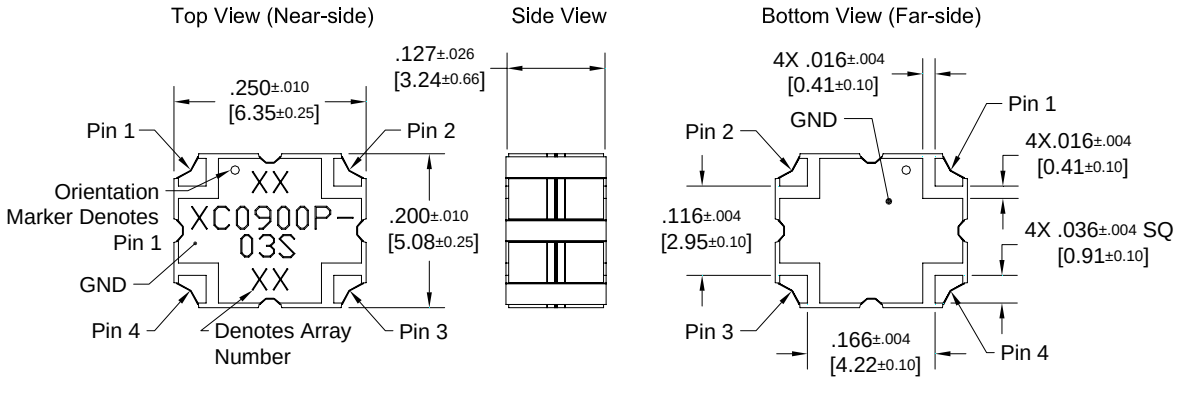
Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max : 1*	*dB Max*
800 - 1000	20	0.40	1.22	+/-0.30
824 - 849	20	0.35	1.22	+/-0.30
869 - 894	24	0.35	1.15	+/-0.20
925 - 960	25	0.37	1.17	+/-0.20

Phase	Power	ΘJC	Operating Temp.
Degrees	*Avg. CW Watts*	*ºC/Watt*	*ºC*
90 ± 5.0	25	45	-55 to +85
90 ± 4.0	28	45	-55 to +85
90 ± 4.0	28	45	-55 to +85
90 ± 4.0	27	45	-55 to +85

**Specification based on performance of unit properly installed on Anaren Test Board 54147-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters]
XC0900P-03S Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

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Xinger II®

Hybrid Coupler
3 dB, 90°

Description

The XC0900E-03 is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for AMPS band applications. The XC0900E-03 is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 80 watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350 and polyimide. Available in both 5 of 6 tin lead (XC0900E-03P) and 6 of 6 tin immersion (XC0900E-03S) RoHS compliant finishes.

Features:

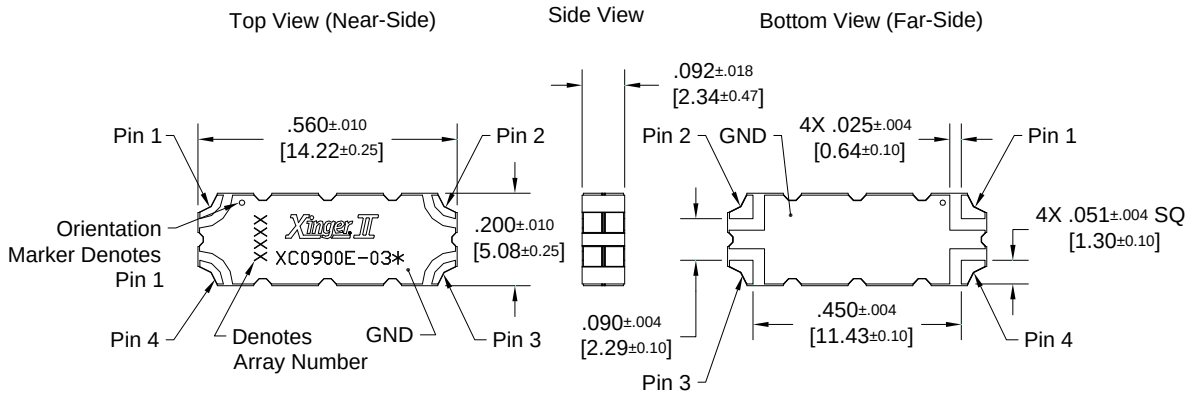
- **800-1000 MHz**
- **AMPS**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.53**

Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max : 1*	*dB Max*
800-1000	21	0.22	1.19	± 0.20
869-894	23	0.20	1.17	± 0.15
925-960	23	0.21	1.17	± 0.15

Phase	Power	ΘJC	Operating Temp.
Degrees	*Avg. CW Watts*	*ºC/Watt*	*ºC*
90 ± 3.0	70	31	-55 to +95
90 ± 2.0	80	31	-55 to +95
90 ± 2.5	75	31	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 58492-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC0900E-03* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

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Europe: +44 2392-232392

Xinger II

Hybrid Coupler
3 dB, 90°

Description

The XC0900A-03 is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for AMPS band applications. The XC0900A-03 is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 225 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350 and polyimide. Available in both 5 of 6 tin lead (XC0900A-03P) and 6 of 6 tin immersion (XC0900A-03S) RoHS compliant finishes.

Features:

- **811 – 1000 MHz**
- **AMPS**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.53**

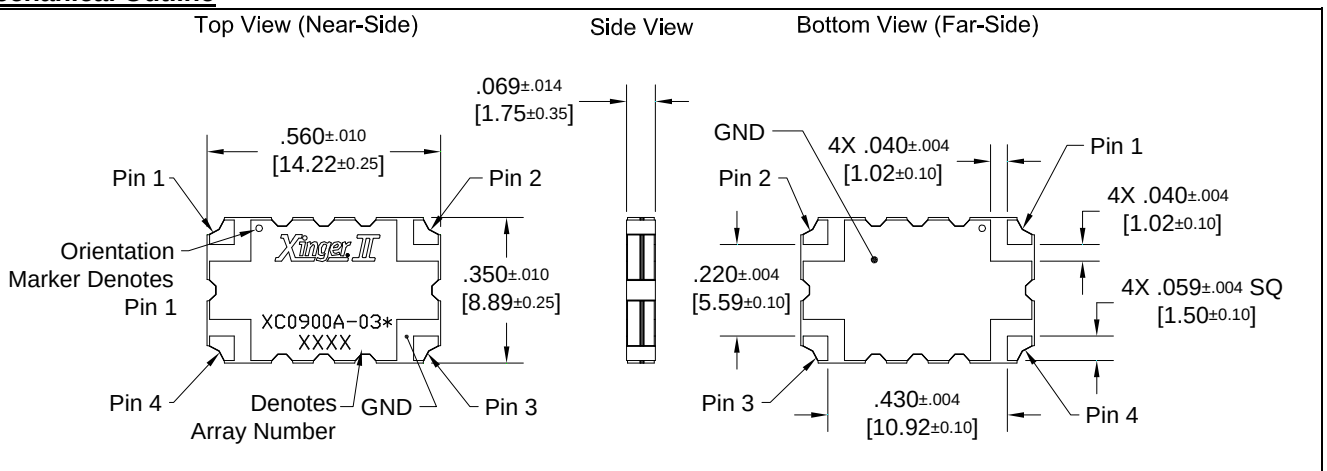
Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max : 1*	*dB Max*
811 - 1000	23	0.15	1.15	± 0.20
869 - 894	25	0.12	1.12	± 0.14
925 - 960	25	0.12	1.12	± 0.14

Phase Balance	Power	ΘJC	Operating Temp.
Degrees	*Avg. CW Watts*	*ºC/Watt*	*ºC*
90 ± 2.0	175	18	-55 to +95
90 ± 2.0	225	18	-55 to +95
90 ± 2.0	225	18	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 58481-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters]
XC0900A-03* Mechanical Outline

* For RoHS Compliant Versions order with S suffix
Tolerances are non-cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

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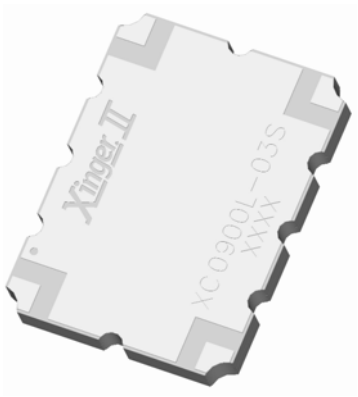
Xinger II

Hybrid Coupler
3 dB, 90°



Description

The XC0900L-03 is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for AMPS band applications. The XC0900L-03 is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 225 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, and RO4350. Available in both 5 of 6 tin lead (XC0900L-03P) and 6 of 6 tin immersion (XC0900L-03S) RoHS compliant finishes.

Features:

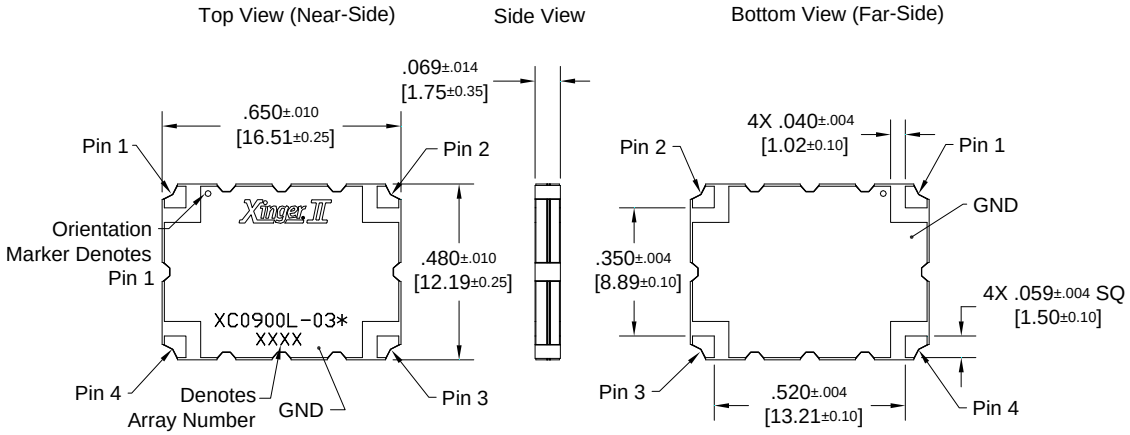
- **800 – 1000 MHz**
- **AMPS**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.53**

Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max : 1*	*dB Max*
800 - 1000	23	0.16	1.15	± 0.17
869 - 894	25	0.12	1.12	± 0.13
925 - 960	25	0.12	1.12	± 0.13

Phase	Power	ΘJC	Operating Temp.
Degrees	*Avg. CW Watts*	*ºC/Watt*	*ºC*
90 ± 2.0	175	15	-55 to +95
90 ± 2.0	225	15	-55 to +95
90 ± 2.0	225	15	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 57904-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC0900L-03* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

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Anaren

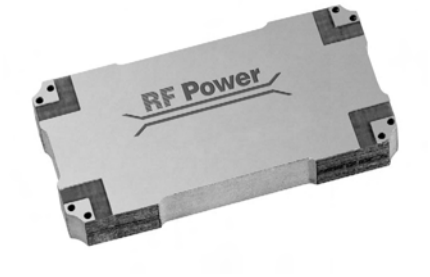
RF Power

Model S03B888N3

Hybrid Couplers

3 dB, 90°

Surface Mount Components



Description

The S03B888N3 is a low profile 3 dB hybrid coupler in an easy to use surface mount package for AMPS, GSM and EDGE applications. The S03B888N3 is ideal for balanced amplifiers and signal distribution and can be used in very high power designs. Parts have been run through rigorous qualifications and units are 100% tested. They are manufactured using materials with X and Y thermal expansion coefficients compatible with common substrates.

Features

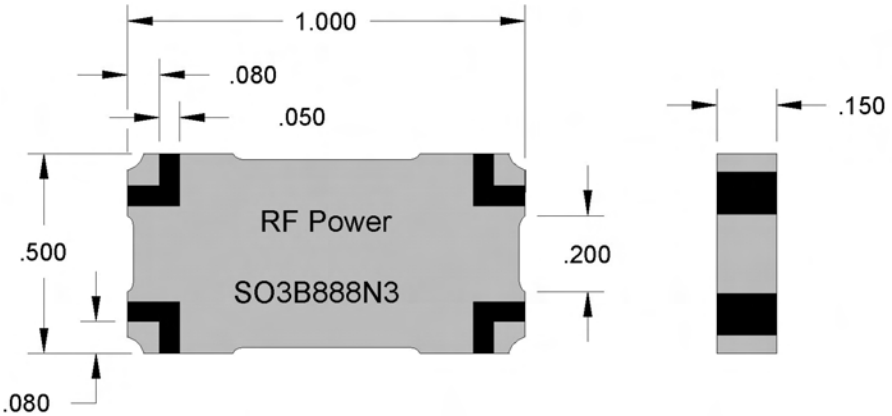
- 815 - 960 MHz
- 300 Watts
- Low Loss
- High Isolation
- 90° Quadrature
- Surface Mountable
- Tape and Reel
- Convenient Package
- 100% Tested

Electrical Specifications

Frequency *MHz*	Isolation *dB Min*	Insert. Loss *dB Max*	VSWR *Max: 1*
815 - 960	20	0.15	1.25
Amp. Bal. *dB Max*	**Phase Bal. *Degrees Max***	**Temp. *°C***	**Power *Avg. CW Watts***
±0.30	±1.5	-55 to +85	300

Specifications subject to change without notice.

Outline Drawing



VER. 3/13/02

Available on Tape and Reel for Pick and Place Manufacturing.

Sales Desk USA: Voice: **(800) 544-2414** Fax: **(315) 432-9121**
Sales Desk Europe: Voice: **(+44) 23 92 232392** Fax: **(+44) 23 92 251369**

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Hybrid Couplers
3 dB, 90°

Description

The 11305-3 is a low profile 3dB hybrid coupler in an easy to use surface mount package covering 1.0 to 2.0 GHz. The 11305-3 is ideal for balanced amplifiers and signal distribution and can be used in most high power designs. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates such as FR4, G-10 and polyamide.

Features:

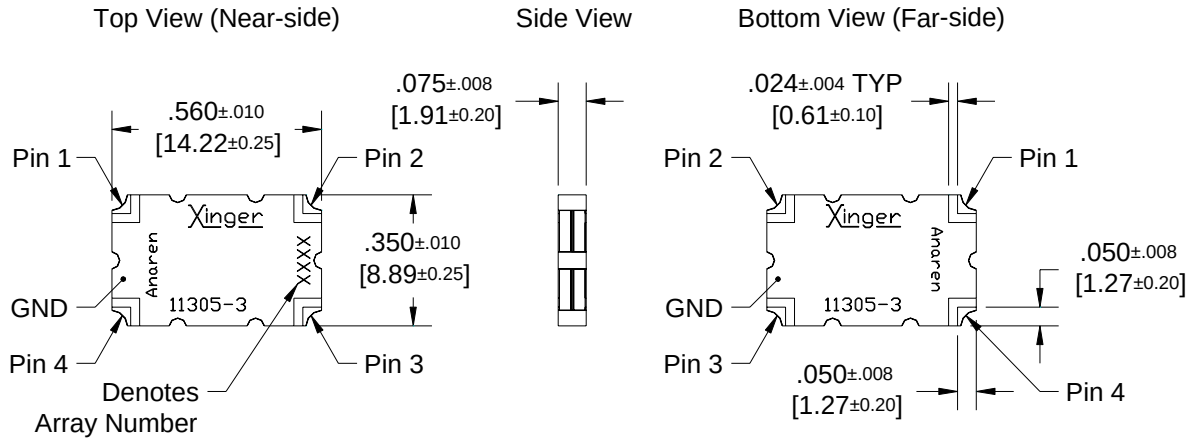
- **1.0 – 2.0 GHz**
- **Low Loss**
- **High Isolation**
- **90° Quadrature**
- **Surface Mountable**
- **Tape And Reel**
- **Convenient Package**
- **100% Tested**

ELECTRICAL SPECIFICATIONS**

Frequency	Isolation	Insertion Loss	VSWR	
GHz	*dB Min*	*dB Max*	*Max:1*	
1.0 – 2.0	20	0.45	1.30	
Amplitude Balance	**Phase Balance**	**Power**	**ΘJC**	**Operating Temp.**
dB Max	*Degrees*	*Ave. CW Watts*	*ºC/Watt*	*ºC*
± 0.55	± 3	60	18.6	-55 to +85

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

Outline Drawing



Dimensions are in Inches [Millimeters]
11305-3 Rev A Mechanical Outline

Part Is Symmetric About All Axis

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Model XC1400P-03S

Rev B

Xinger II

Hybrid Coupler
3 dB, 90°

Description

The XC1400P-03S is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for GPS band applications. The XC1400P-03S is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 40 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, and RO4350. Produced with 6 of 6 RoHS compliant tin immersion.

Features:

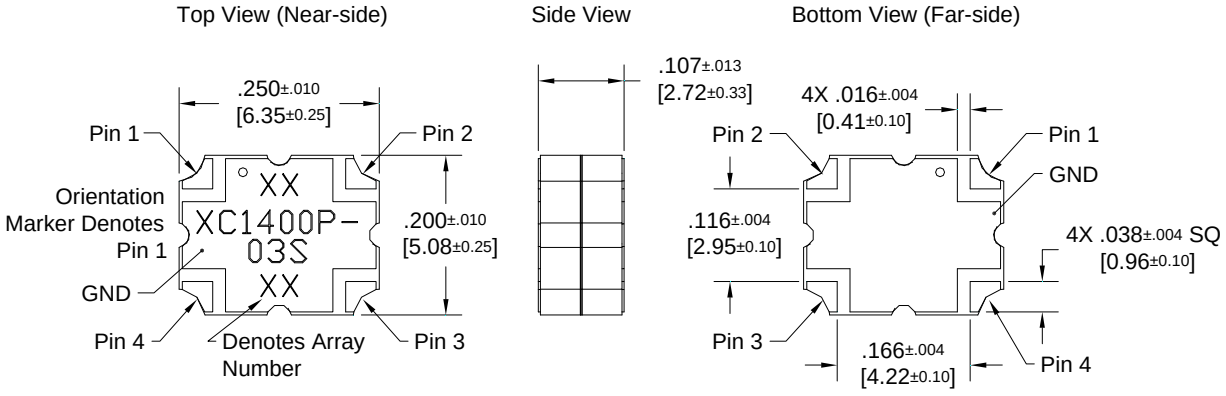
- **1200 – 1600 MHz**
- **GPS**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**
- **Reliable, FIT=0.49**

Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max : 1*	*dB Max*
1200-1600	23	0.32	1.20	+/-0.30
1215-1240	23	0.23	1.17	+/-0.30
1563-1588	23	0.32	1.20	+/-0.30

Phase	Power	ΘJC	Operating Temp.
Degrees	*Avg. CW Watts*	*ºC/Watt*	*ºC*
90 ± 4.0	30	57	-55 to +85
90 ± 3.0	40	57	-55 to +85
90 ± 4.0	30	57	-55 to +85

**Specification based on performance of unit properly installed on Anaren Test Board 54147-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC1400P-03S Mechanical Outline Rev B

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Hybrid Couplers
3 dB, 90°

Description

The 1P503 Pico Xinger is a low profile, miniature 3dB hybrid coupler in an easy to use surface mount package designed for DCS and PCS applications. The 1P503 is designed for balanced amplifiers, variable phase shifters and attenuators, LNAs, signal distribution and is an ideal solution for the ever-increasing demands of the wireless industry for smaller printed circuit boards and high performance. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates.

Features:

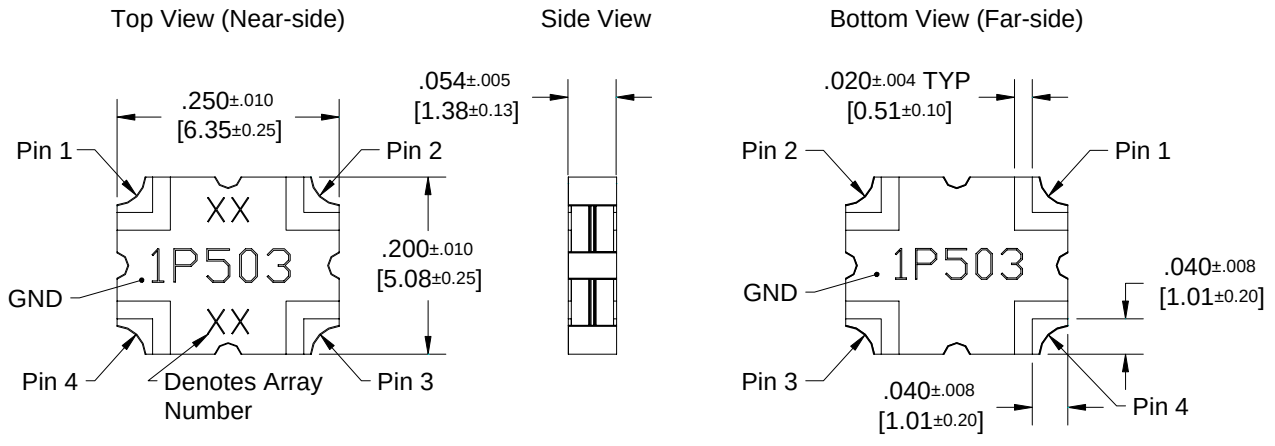
- **1.7 – 2.0 GHz.**
- **DCS and PCS**
- **Low Loss**
- **High Isolation**
- **90^{O} Quadrature**
- **Surface Mountable**
- **Tape And Reel**
- **New Pico-Package**
- **100% Tested**

ELECTRICAL SPECIFICATIONS**

Frequency	Isolation*	Insertion Loss	VSWR	
GHz	*dB Min*	*dB Max*	*Max:1*	
1.7 – 1.8	18	0.25	1.28	
1.8 – 2.0	18	0.25	1.28	
Amplitude Balance	**Phase Balance**	**Power**	**ΘJC**	**Operating Temp.**
dB Max	*Degrees*	*Ave. CW Watts*	*ºC/Watt*	*ºC*
± 0.45	± 3	30	27.5	-55 to +85
± 0.30	± 3	30	27.5	-55 to +85

Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. * **See Anaren Application Note #AAN-231 for information on how to improve RF performance on your printed circuit board Specifications subject to change without notice.

Outline Drawing



Dimensions are in Inches [Millimeters]
1P503 Rev A Mechanical Outline

Part Is Symmetric About All Axis

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Xinger II®

Hybrid Coupler
3 dB, 90°

Description

The XC1900E-03 is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for DCS and PCS band applications. The XC1900E-03 is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 120 watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350 and polyimide. Available in both 5 of 6 tin lead (XC1900E-03P) and 6 of 6 tin immersion (XC1900E-03S) RoHS compliant finishes.

Features:

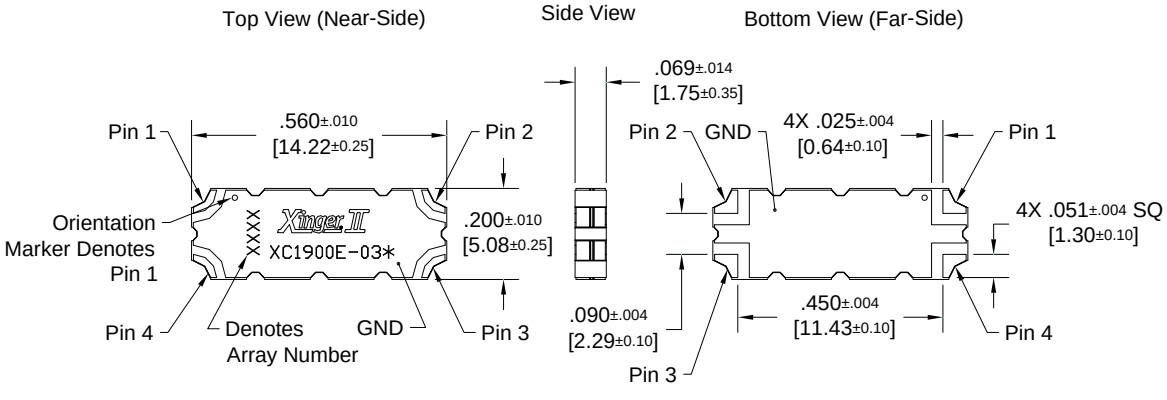
- **1700-2000 MHz**
- **DCS and PCS**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.53**

Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max : 1*	*dB Max*
1700-2000	23	0.12	1.17	± 0.13
1805-1880	25	0.12	1.12	± 0.10
1930-1990	25	0.12	1.12	± 0.10

Phase	Power	ΘJC	Operating Temp.
Degrees	*Avg. CW Watts*	*ºC/Watt*	*ºC*
90 ± 2.0	120	36	-55 to +95
90 ± 2.0	120	36	-55 to +95
90 ± 2.0	120	36	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 58492-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC1900E-03* Mechanical Outline

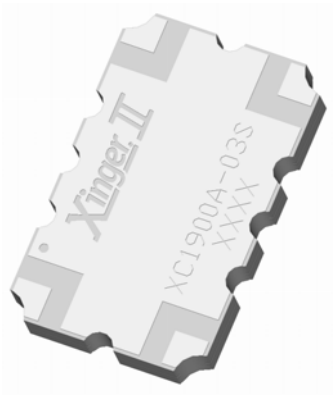
*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II®

Hybrid Coupler
3 dB, 90°



Description

The XC1900A-03 is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for DCS and PCS band applications. The XC1900A-03 is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 150 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350 and polyimide. Available in both 5 of 6 tin lead (XC1900A-03P) and 6 of 6 tin immersion (XC1900A-03S) RoHS compliant finishes.

Features:

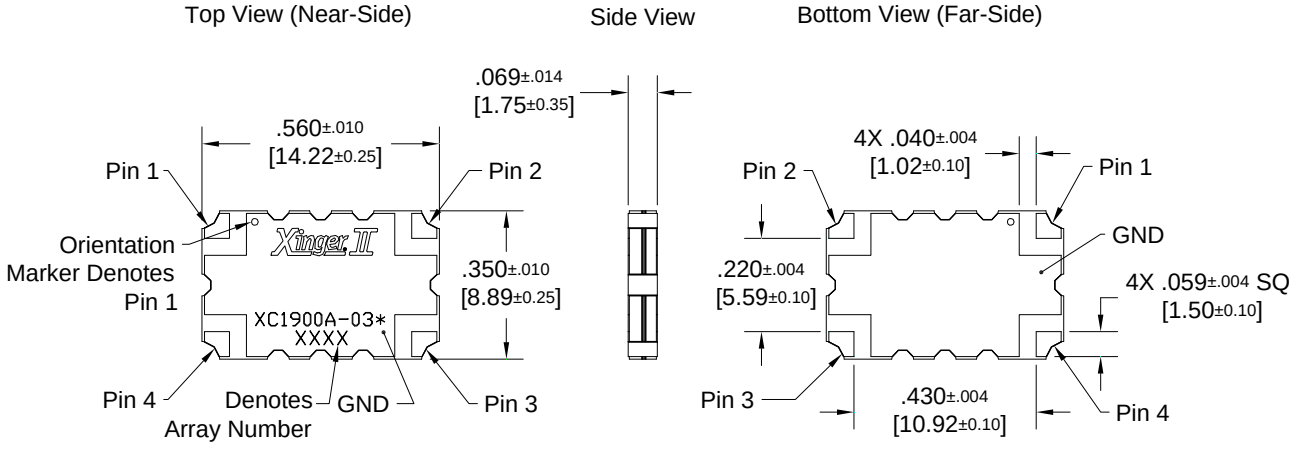
- **1700-2000 MHz**
- **DCS and PCS**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.53**

Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max : 1*	*dB Max*
1700-2000	25	0.15	1.15	± 0.13
1805-1880	27	0.12	1.12	± 0.10
1930-1990	27	0.12	1.12	± 0.10

Phase	Power	ΘJC	Operating Temp.
Degrees	*Avg. CW Watts*	*ºC/Watt*	*ºC*
90 ± 2.0	150	28	-55 to +95
90 ± 2.0	150	28	-55 to +95
90 ± 2.0	150	28	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 58481-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC1900A-03* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Anaren

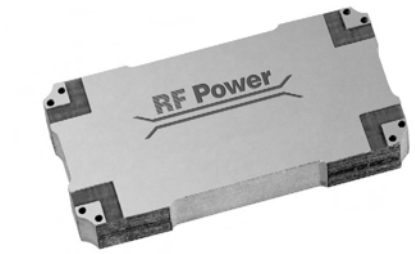
RF Power

Model S03B1960N3

Hybrid Couplers

3 dB, 90°

Surface Mount Components



Description

The S03B1960N3 is a low profile 3 dB hybrid coupler in an easy to use surface mount package specially designed for PCS applications. The S03B1960N3 is ideal for balanced amplifiers and signal distribution and can be used in very high power designs. Parts have been run through rigorous qualifications and units are 100% tested. They are manufactured using materials with X and Y thermal expansion coefficients compatible with common substrates.

Features

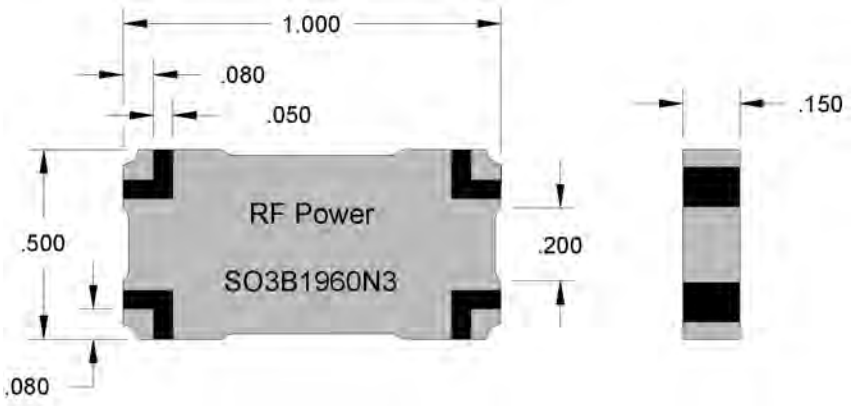
- 1.93 - 1.99 GHz
- 300 Watts
- Low Loss
- High Isolation
- 90° Quadrature
- Surface Mountable
- Tape and Reel
- Convenient Package
- 100% Tested

Electrical Specifications

Frequency *GHz*	Isolation *dB Min*	Insert. Loss *dB Max*	VSWR *Max: 1*
1.93 - 1.99	20	0.15	1.25
Amp. Bal. *dB Max*	**Phase Bal. *Degrees Max***	**Temp. *°C***	**Power *Avg. CW Watts***
±0.25	±1.5	-55 to +85	300

Specifications subject to change without notice.

Outline Drawing



VER. 3/13/02

Available on Tape and Reel for Pick and Place Manufacturing.

Sales Desk USA: Voice: **(800) 544-2414** Fax: **(315) 432-9121**
Sales Desk Europe: Voice: **(+44) 23 92 232392** Fax: **(+44) 23 92 251369**

Anaren
What'll we think of next?™

Xinger II®

Hybrid Coupler
3 dB, 90°

Description

The XC2100E-03 is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for UMTS and other 3G applications. The XC2100E-03 is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 100 watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350 and polyimide. Available in both 5 of 6 tin lead (XC2100E-03P) and 6 of 6 tin immersion (XC2100E-03S) RoHS compliant finishes.

Features:

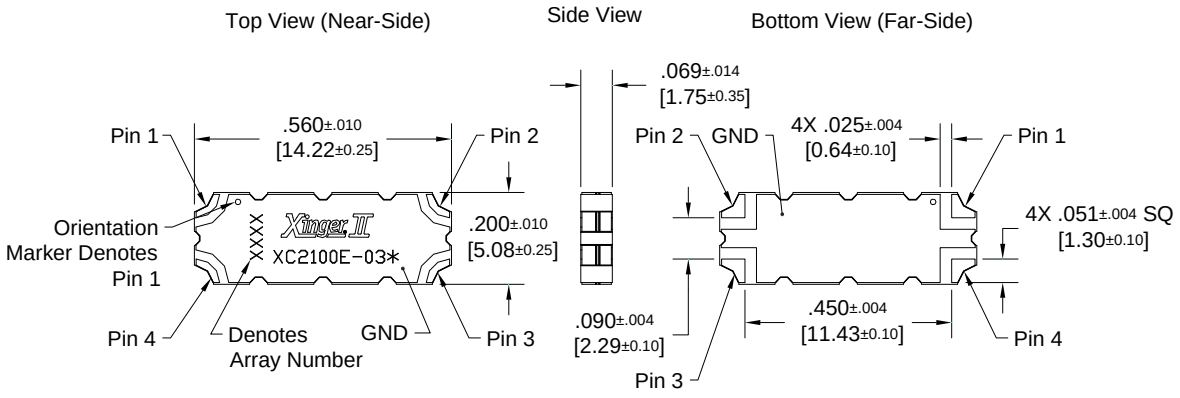
- **2000-2300 MHz**
- **UMTS and other 3G**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.53**

Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max : 1*	*dB Max*
2000-2300	23	0.12	1.17	± 0.15
2110-2170	25	0.12	1.12	± 0.10

Phase	Power	ΘJC	Operating Temp.
Degrees	*Avg. CW Watts*	*ºC/Watt*	*ºC*
90 ± 2.0	95	39	-55 to +95
90 ± 2.0	100	39	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 58492-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC2100E-03* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

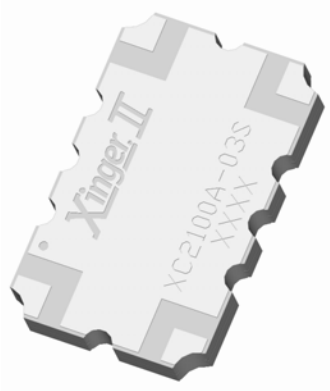
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model XC2100A-03

Rev C

Hybrid Coupler
3 dB, 90°



Description

The XC2100A-03 is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for UMTS and other 3G applications. The XC2100A-03 is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 145 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350 and polyimide. Available in both 5 of 6 tin lead (XC2100A-03P) and 6 of 6 tin immersion (XC2100A-03S) RoHS compliant finishes.

Features:

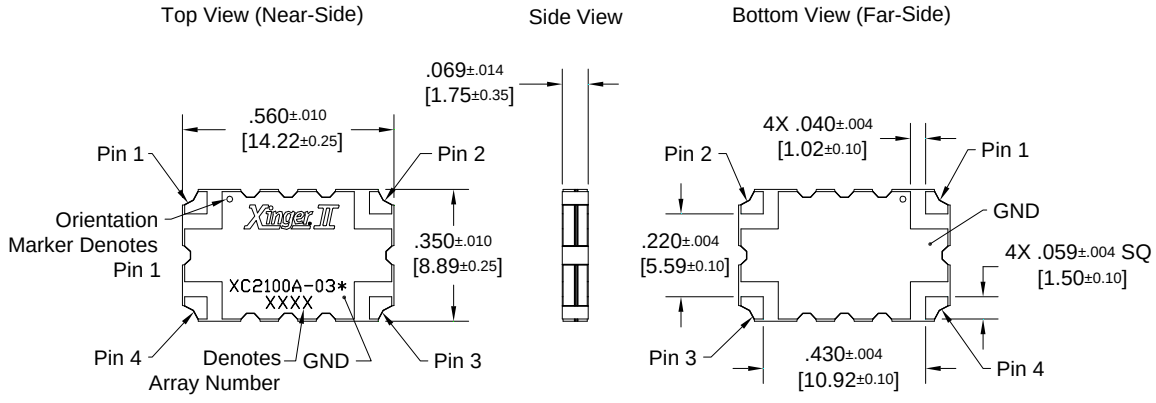
- **2000-2300 MHz**
- **UMTS and other 3G**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.53**

Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max : 1*	*dB Max*
2000-2300	23	0.15	1.15	± 0.15
2110-2170	25	0.12	1.12	± 0.10

Phase	Power	ΘJC	Operating Temp.
Degrees	*Avg. CW Watts*	*ºC/Watt*	*ºC*
90 ± 2.0	105	31	-55 to +95
90 ± 2.0	145	31	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 58481-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC2100A-03* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

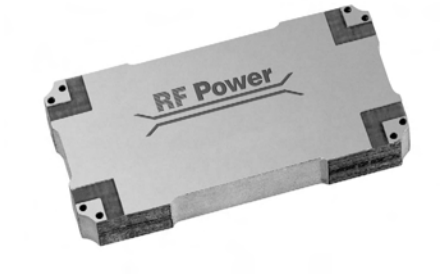
USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model S03B2150N3

Hybrid Couplers

3 dB, 90°

RF Power



Description

The S03B2150N3 is a low profile 3 dB hybrid coupler in an easy to use surface mount package for UMTS and other 3G applications. The S03B2150N3 is ideal for balanced amplifiers and signal distribution and can be used in very high power designs. Parts have been run through rigorous qualifications and units are 100% tested. They are manufactured using materials with X and Y thermal expansion coefficients compatible with common substrates.

Features

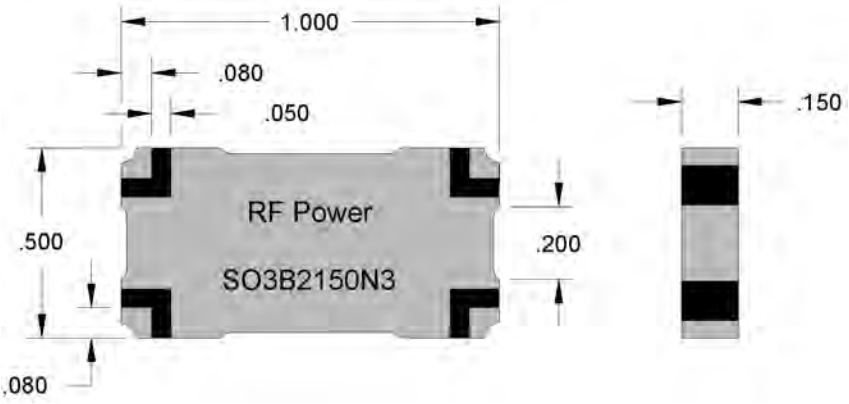
- 2.0 - 2.3 GHz
- 300 Watts
- Low Loss
- High Isolation
- 90° Quadrature
- Surface Mountable
- Tape and Reel
- Convenient Package
- 100% Tested

Electrical Specifications

Frequency *GHz*	Isolation *dB Min*	Insert. Loss *dB Max*	VSWR *Max: 1*
2.0 - 2.3	20	0.15	1.25
Amp. Bal. *dB Max*	**Phase Bal. *Degrees Max***	**Temp. *°C***	**Power *Avg. CW Watts***
±0.25	±2.0	-55 to +85	300

Specifications subject to change without notice.

Outline Drawing



VER. 3/13/02

Available on Tape and Reel for Pick and Place Manufacturing.

Sales Desk USA: Voice: **(800) 544-2414** Fax: **(315) 432-9121**
Sales Desk Europe: Voice: **(+44) 23 92 232392** Fax: **(+44) 23 92 251369**

Anaren
What'll we think of next?™

Xinger II

Hybrid Coupler
3 dB, 90°

Description

The XC2650P-03S is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for WiMAX applications. The XC2650P-03S is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 50 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, and RO4003. Produced with 6 of 6 RoHS compliant tin immersion finish.

Features:

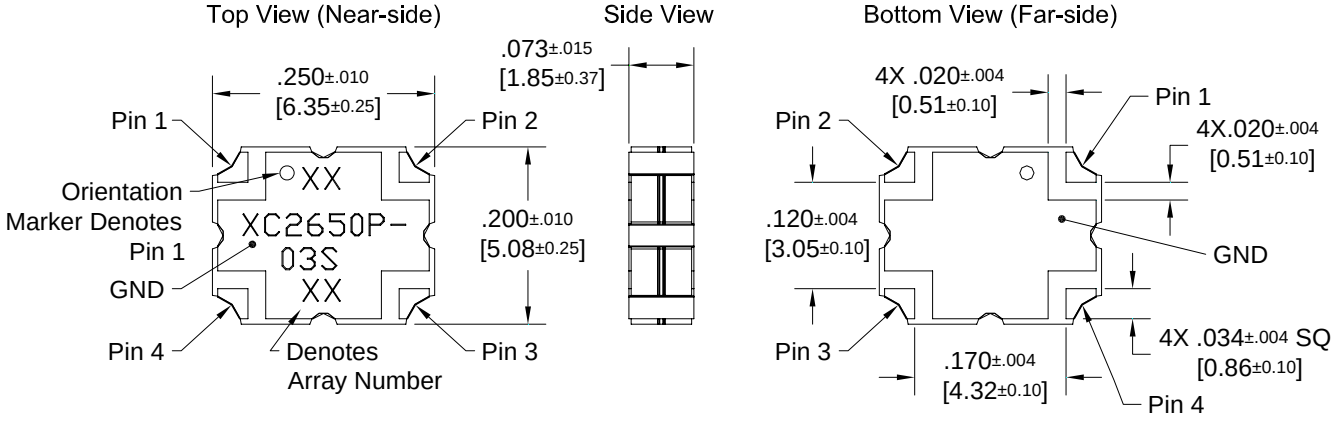
- **2650-2800 MHz**
- **WiMAX**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**

Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	
MHz	*dB Min*	*dB Max*	*Max:1*	
2650-2800	20	0.25	1.20	
Amplitude Balance	**Phase Balance**	**Power**	**ΘJC**	**Operating Temp.**
dB Max	*Degrees*	*Ave. CW Watts*	*ºC/ Watt*	*ºC*
±0.15	90±3.0	50	60.5	-55 to +85

**Specification based on performance of unit properly installed on Anaren Test Board 54147-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters]
XC2650P-03S Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II®

Hybrid Coupler
3 dB, 90°

Description

The XC2500E-03 is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for ISM and Wireless LAN applications. The XC2500E-03 is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 80 watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350 and polyimide.

Features:

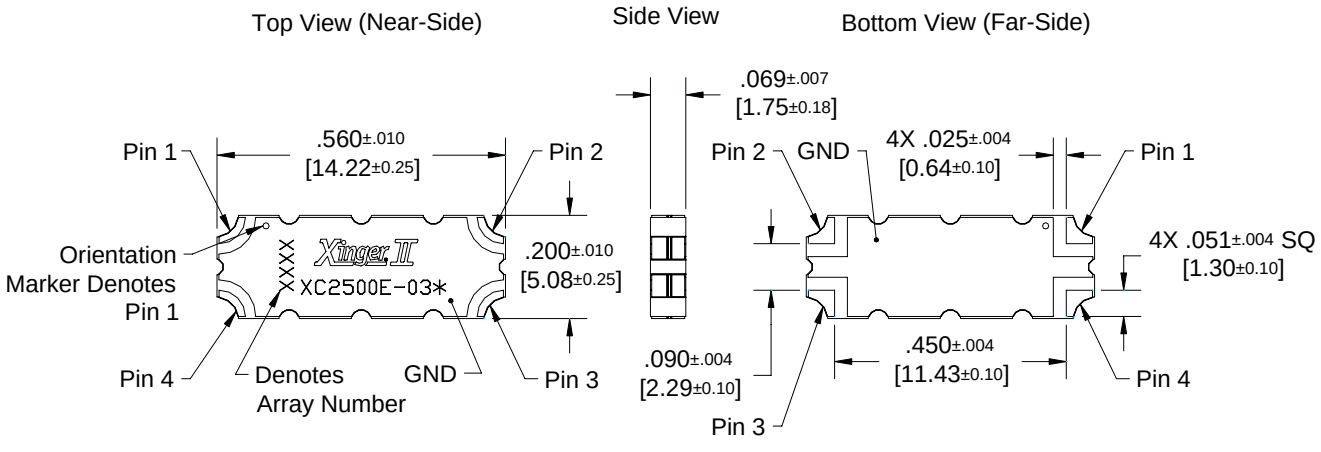
- **2300-2700 MHz**
- **ISM and Wireless LAN**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.53**

Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max : 1*	*dB Max*
2300-2700	22	0.15	1.17	± 0.15

Phase	Power	ΘJC	Operating Temp.
Degrees	*Avg. CW Watts*	*ºC/Watt*	*ºC*
90 ± 3.0	80	43.0	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 58492-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC2500E-03* Mechanical Outline

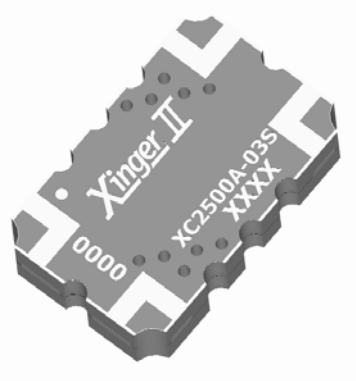
Tolerances are Non-Cumulative
* = Plating Finish

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II®

Hybrid Coupler
3 dB, 90°



Description

The XC2500A-03S is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for WiBro and DMB applications. The XC2500A-03S is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 200 watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Produced with 6 of 6 RoHS compliant tin immersion.

Features:

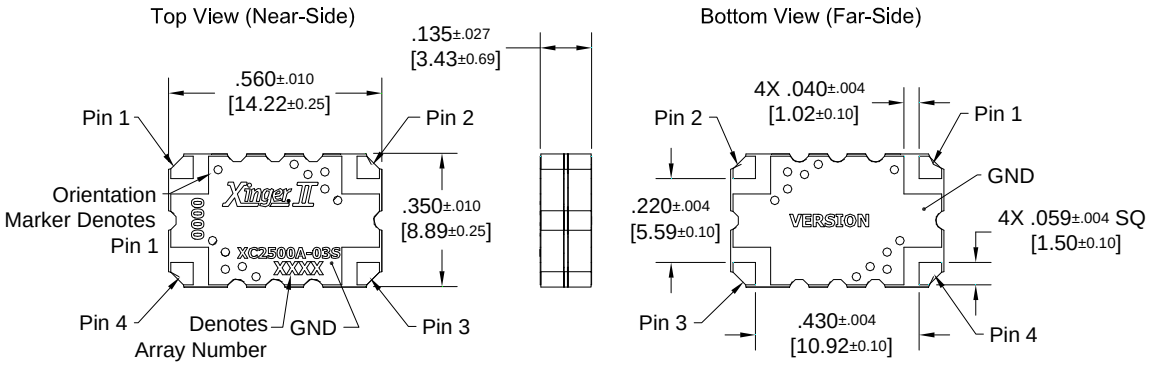
- **2300-2700 MHz**
- **WiBro and DMB**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**
- **Reliable, FIT= 1.016**

Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max : 1*	*dB Max*
2300-2700	25	0.13	1.14	± 0.15
2300-2400	25	0.10	1.14	± 0.15
2630-2655	25	0.13	1.14	± 0.15

Phase	Power	ΘJC	Operating Temp.
Degrees	*Avg. CW Watts*	*ºC/Watt*	*ºC*
90 ± 4.0	150	24.6	-55 to +85
90 ± 4.0	200	24.6	-55 to +85
90 ± 4.0	150	24.6	-55 to +85

**Specification based on performance of unit properly installed on Anaren Test Board 58481-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC2500A-03S Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Hybrid Couplers
3 dB, 90°

Description

The JP503 Pico Xinger is a low profile, miniature 3dB hybrid coupler in an easy to use surface mount package designed for W-CDMA and other 3G applications. The JP503 is designed for balanced amplifiers, variable phase shifters and attenuators, LNAs, signal distribution and is an ideal solution for the ever-increasing demands of the wireless industry for smaller printed circuit boards and high performance. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates. Available in both 5 of 6 tin lead (JP503) and 6 of 6 RoHS compliant tin immersion (JP503S).

Features:

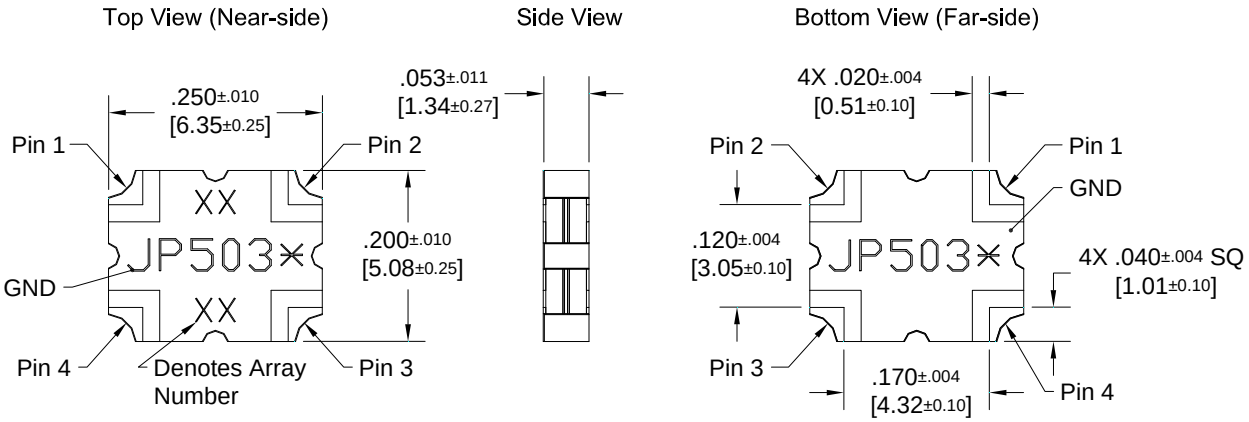
- **2.0 – 2.3 GHz.**
- **3G Frequencies**
- **Low Loss**
- **High Isolation**
- **90^{O} Quadrature**
- **Surface Mountable**
- **Tape And Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**

ELECTRICAL SPECIFICATIONS**

Frequency	Isolation	Insertion Loss	VSWR	
GHz	*dB Min*	*dB Max*	*Max:1*	
2.0 – 2.3	20	0.30	1.20	
Amplitude Balance	**Phase Balance**	**Power**	**ΘJC**	**Operating Temp.**
dB Max	*Degrees*	*Ave. CW Watts*	*ºC/Watt*	*ºC*
± 0.25	± 3	25	27.5	-55 to +85

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

Mechanical Outline



Dimensions are in Inches [Millimeters]
JP503* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Hybrid Couplers
3 dB, 90°

Description

The 11306-3 is a low profile 3dB hybrid coupler in an easy to use surface mount package covering 2.0 to 4.0 GHz. The 11306-3 is ideal for balanced amplifiers and signal distribution and can be used in most high power designs. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates such as FR4, G-10 and polyamide.

Features:

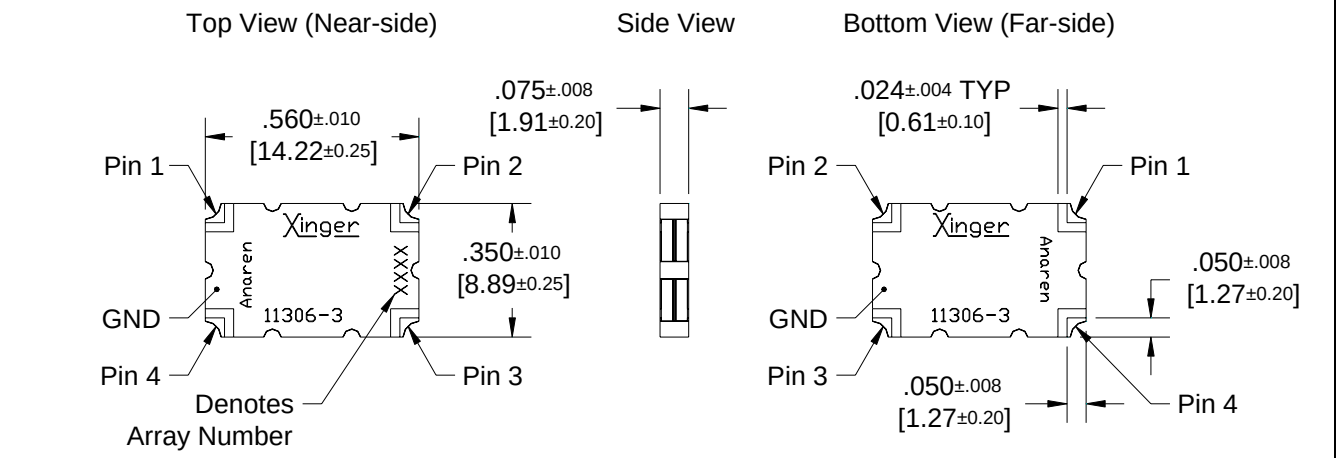
- **2.0 – 4.0 GHz**
- **Low loss**
- **High Isolation**
- **90^{O} Quadrature**
- **Surface Mountable**
- **Tape And Reel**
- **Convenient Package**
- **100% Tested**

ELECTRICAL SPECIFICATIONS**

Frequency	Isolation	Insertion Loss	VSWR	
GHz	*dB Min*	*dB Max*	*Max:1*	
2.0 – 4.0	20	0.35	1.30	
Amplitude Balance	**Phase Balance**	**Power**	**ΘJC**	**Operating Temp.**
dB Max	*Degrees*	*Ave. CW Watts*	*ºC/ Watt*	*ºC*
± 0.55	± 5	60	24.6	-55 to +85

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

Outline Drawing



Dimensions are in Inches [Millimeters]
11306-3 Rev A Mechanical Outline

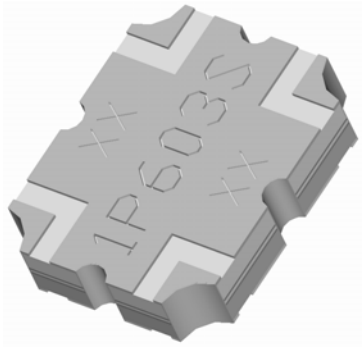
Part Is Symmetric About All Axis

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Xinger®

Hybrid Couplers
3 dB, 90°



Description

The 1P603 Pico Xinger is a low profile, miniature 3dB hybrid coupler in an easy to use surface mount package designed for W-LAN and MMDS applications. The 1P603 is designed for balanced amplifiers, variable phase shifters and attenuators, LNAs, signal distribution and is an ideal solution for the ever-increasing demands of the wireless industry for smaller printed circuit boards and high performance. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates. Available in both 5 of 6 tin lead (1P603) and 6 of 6 RoHS compliant tin immersion (1P603S).

Features:

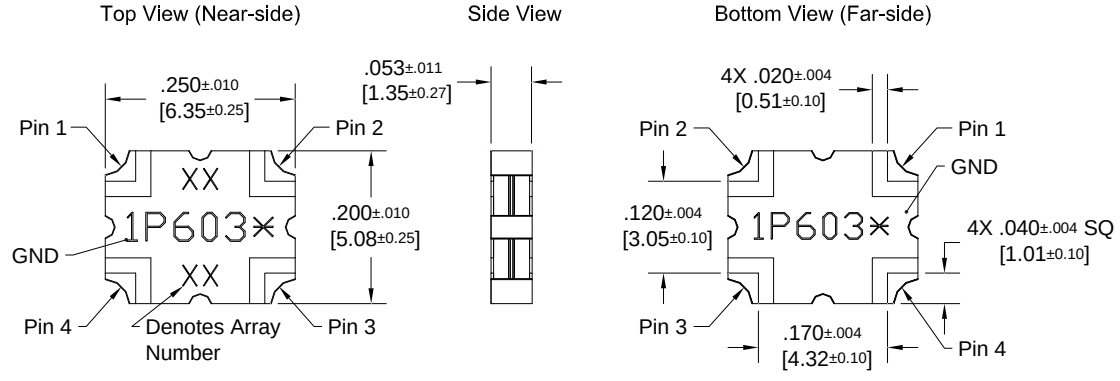
- **2.3 – 2.7 GHz.**
- **W-LAN and MMDS**
- **Low Loss**
- **High Isolation**
- **90^{O} Quadrature**
- **Surface Mountable**
- **Tape And Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**

ELECTRICAL SPECIFICATIONS**

Frequency	Isolation	Insertion Loss	VSWR	
GHz	*dB Min*	*dB Max*	*Max:1*	
2.3 – 2.7	20	0.30	1.20	
Amplitude Balance	**Phase Balance**	**Power**	**ΘJC**	**Operating Temp.**
dB Max	*Degrees*	*Ave. CW Watts*	*ºC/Watt*	*ºC*
± 0.25	± 3	25	30.6	-55 to +85

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

Outline Drawing



Dimensions are in Inches [Millimeters]
1P603* Mechanical Outline

*For RoHS Compliant versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Micro Xinger
3dB Hybrid Coupler

Description

The 1M803 Micro Xinger® is a low profile, miniature 3dB hybrid coupler in an easy to use surface mount package designed for U-NII, ISM and hyperLAN applications. The 1M803 is designed for balanced amplifiers and signal distribution and is an ideal solution for the ever increasing demands of the wireless industry for smaller printed circuit boards and high performance. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates such as FR4 and G-10. Available in both 5 of 6 tin lead (1M803) and 6 of 6 RoHS compliant tin immersion (1M803S).

Features:

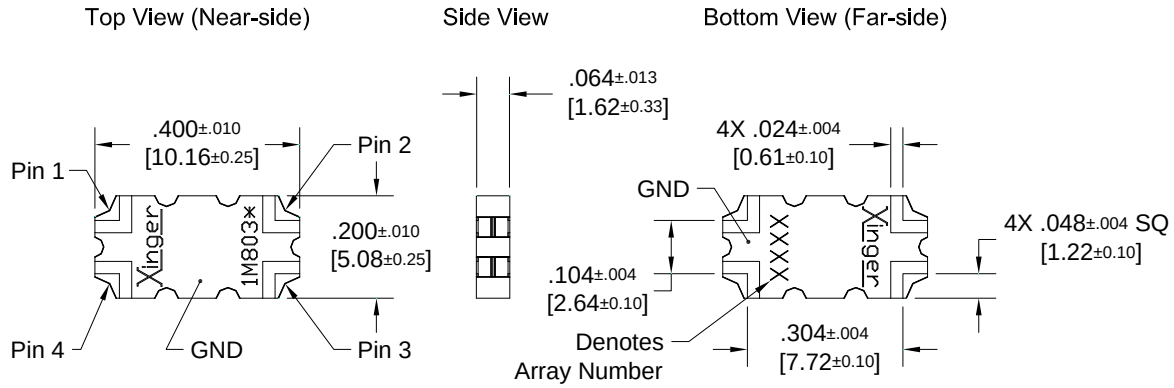
- **5.0 – 6.0 GHz**
- **Very Low Loss**
- **High Isolation**
- **90^{O} Quadrature**
- **Surface Mountable**
- **Tape And Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**

ELECTRICAL SPECIFICATIONS**

Frequency	Isolation	Insertion Loss	VSWR	
GHz	*dB Min*	*dB Max*	*Max:1*	
5.0 – 6.0	20	0.25	1.21	
Amplitude Balance	**Phase Balance**	**Power**	**ΘJC**	**Operating Temp.**
dB Max	*Degrees*	*Ave. CW Watts*	*ºC/Watt*	*ºC*
± 0.30	± 3	20	78.1	-55 to +85

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

Mechanical Outline



Dimensions are in Inches [Millimeters]
1M803* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Xinger II

Hybrid Coupler
3 dB, 90°

Features:

- **3300 – 3800 MHz**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**

Description

The XC3500P-03S is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package. The XC3500P-03S is designed particularly for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 55 watts.

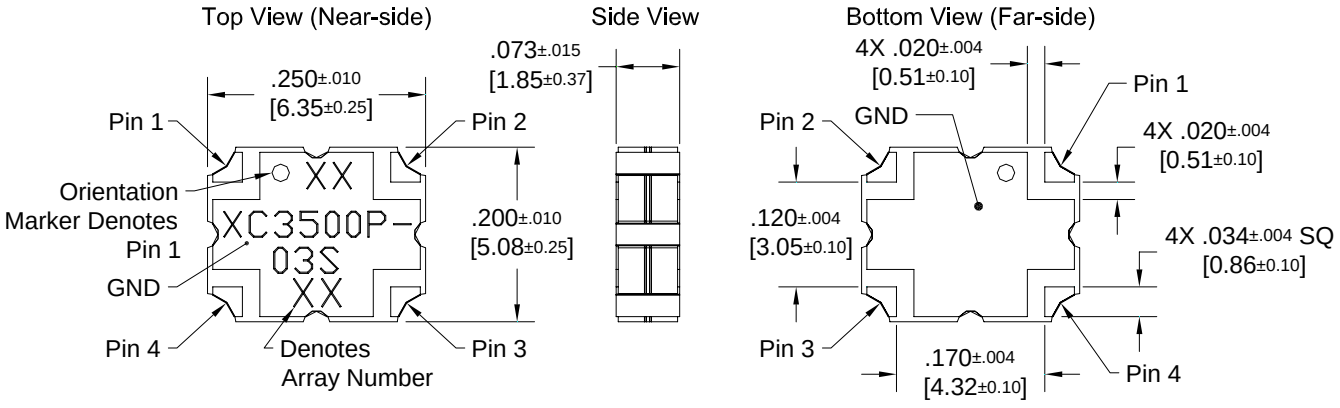
Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4003 and polyimide. Produced with 6 of 6 RoHS compliant tin immersion.

Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max : 1*	*dB Max*
3300-3800	21	0.25	1.20	± 0.25
Phase	**Power**	**ΘJC**	**Operating Temp.**	
Degrees	*Avg. CW Watts*	*ºC/Watt*	*ºC*	
90 ± 3.0	55	61.6	-55 to +85	

**Specification based on performance of unit properly installed on Anaren Test Board 54147-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters]
XC3500P-03S Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II®

Hybrid Coupler
3 dB, 90°

Description

The XC3500M-03S is a low profile, high performance 3dB hybrid coupler in a new easy to use, manufacturing friendly surface mount package for WiMAX applications. The XC3500M-03S is designed particularly for balanced power and low noise amplifiers and other applications where low insertion loss and tight amplitude and phase balance is required. It can be used in high power applications up to 70 watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4003 and polyimide. Produced with 6 of 6 RoHS compliant tin immersion.

Features:

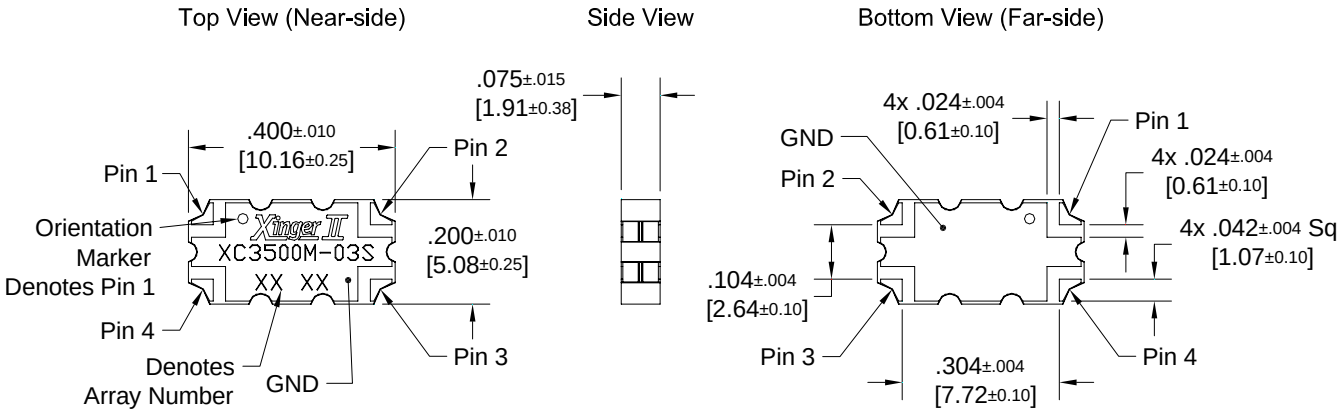
- **3300 - 3800 MHz**
- **WiMAX**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**

Electrical Specifications **

Frequency	Isolation	Insertion Loss	VSWR	Amplitude Balance
MHz	*dB Min*	*dB Max*	*Max:1*	*dB Max*
3300-3800	21	0.25	1.20	±0.25
Phase Balance	**Power**	**ΘJC**	**Operating Temp.**	
Degrees	*Ave. CW Watts*	*ºC/ Watt*	*ºC*	
90±3.0	70	56.5	-55 to +85	

**Specification based on performance of unit properly installed on Anaren Test Board 54147-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters]
XC3500M-03S Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II

20 dB Directional Coupler

Description

The XC0450E-20S is a low profile, high performance 20dB directional coupler in a new easy to use, manufacturing friendly surface mount package. The XC0450E-20S is designed particularly for power and frequency detection, as well as for VSWR monitoring, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 100 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350 and polyimide. Produced with 6 of 6 RoHS compliant tin immersion.

Features:

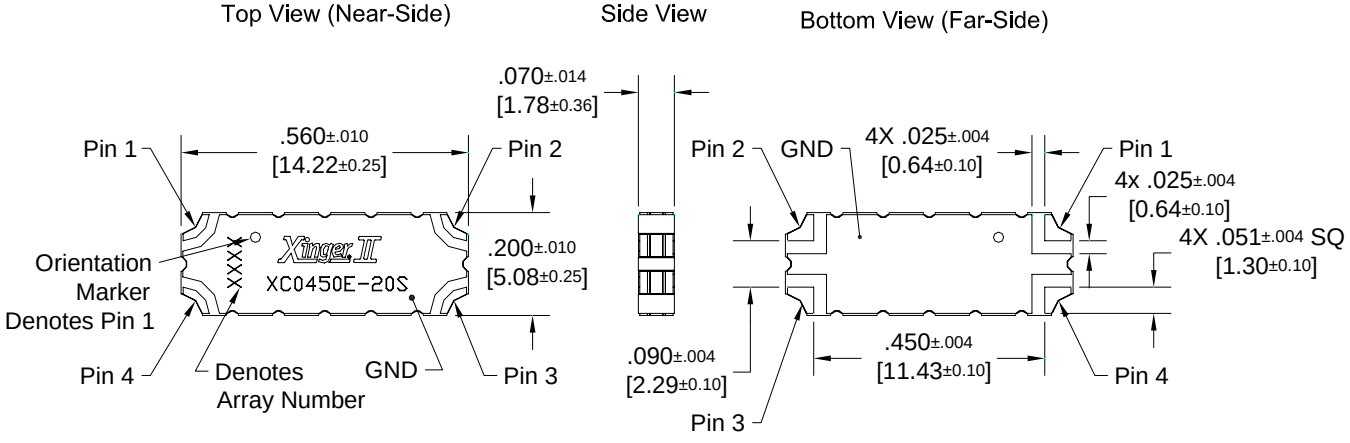
- **460 - 470 MHz**
- **High Power**
- **Very Low Loss**
- **Tight Coupling**
- **High Directivity**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**
- **Reliable, FIT=0.41**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
460 – 470	20.1 ± 1.5	0.30	1.22	17
Frequency Sensitivity	**Power**	**ΘJC**	**Operating Temp.**	
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*	
± 0.20	100	15.7	-55 to +85	

**Specification based on performance of unit properly installed on Anaren Test Board 58493-0001. Refer to Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters]
XC0450E-20S Mechanical Outline

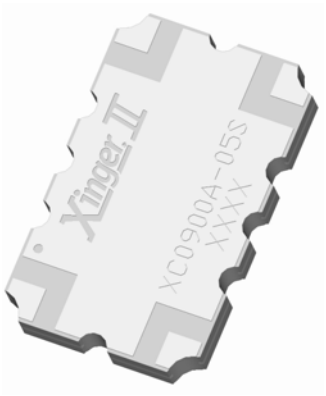
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II

5 dB Directional Coupler



Description

The XC0900A-05 is a low profile, high performance 5dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for AMPS band applications. The XC0900A-05 is designed particularly for non-binary split and combine in high power amplifiers, e.g. used along with a 3dB to get a 3-way, plus other signal distribution applications where low insertion loss is required. It can be used in high power applications up to 250 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Available in both 5 of 6 tin lead (XC0900A-05P) and 6 of 6 tin immersion (XC0900A-05S) RoHS compliant finishes.

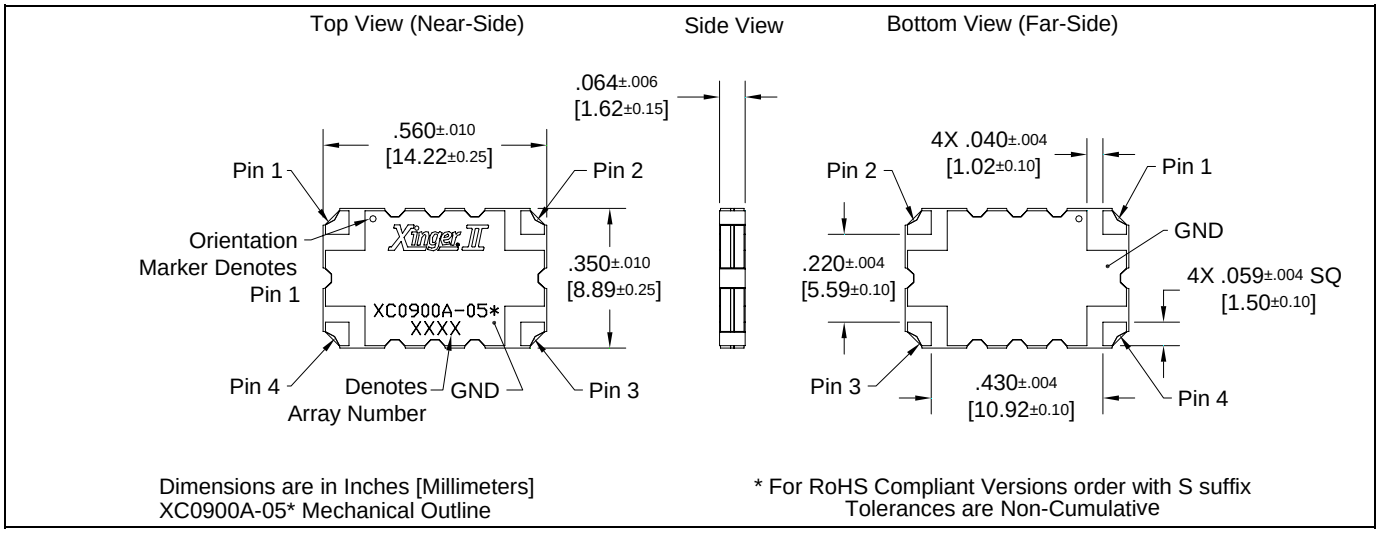
Features:

- **800 – 1000 MHz**
- **AMPS**
- **High Power**
- **Very Low Loss**
- **Tight Coupling**
- **High Directivity**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.53**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Phase Balance
MHz	*dB*	*dB Max*	*Max : 1*	*Degrees*
800-1000	5.0 ± 0.35	0.19	1.19	90±2.0
869-894	5.0 ± 0.25	0.15	1.12	90±2.0
925-960	5.0 ± 0.25	0.15	1.12	90±2.0
Directivity	**Frequency Sensitivity**	**Power**	**ΘJC**	**Operating Temp.**
dB Min	*dB Max*	*Avg. CW Watts*	*ºC/Watt*	*ºC*
21	± 0.25	200	12.5	-55 to +95
23	± 0.05	250	12.5	-55 to +95
23	± 0.05	250	12.5	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 58481-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC0900A-05* Mechanical Outline

* For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model XC0900A-10

Rev D

10 dB Directional Coupler

Description

The XC0900A-10 is a low profile, high performance 10dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for AMPS band applications. The XC0900A-10 is designed particularly for power and frequency detection, as well as for power injection for example in feed-forward, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 250 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Available in both 5 of 6 tin lead (XC0900A-10P) and 6 of 6 tin immersion (XC0900A-10S) RoHS compliant finishes.

Features:

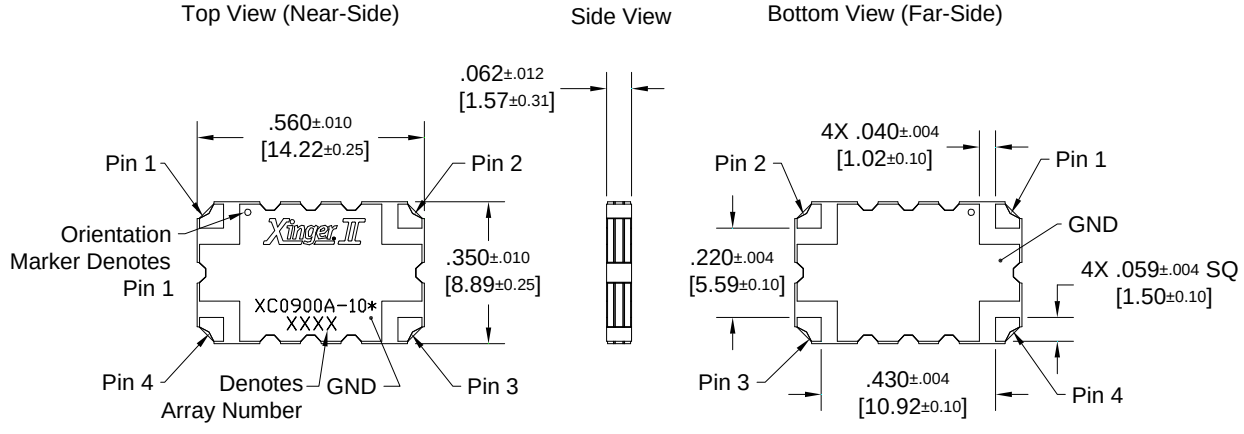
- **800 – 1000 MHz**
- **AMPS**
- **High Power**
- **Very Low Loss**
- **High Directivity**
- **Tight Coupling**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.73**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
800 - 1000	10.1 ± 0.60	0.16	1.19	21
869 - 894	10.0 ± 0.50	0.14	1.12	25
925 - 960	10.0 ± 0.50	0.14	1.12	25

Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*
± 0.30	225	13	-55 to +95
± 0.08	250	13	-55 to +95
± 0.08	250	13	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 54606-0003. Refer to Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC0900A-10* Mechanical Outline

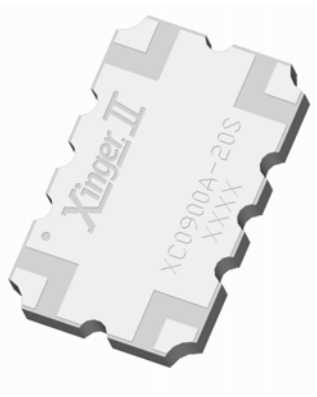
*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II

20 dB Directional Coupler



Features:

- **800 – 1000 MHz**
- **AMPS**
- **High Power**
- **Very Low Loss**
- **Tight Coupling**
- **High Directivity**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.41**

Description

The XC0900A-20 is a low profile, high performance 20dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for AMPS band applications. The XC0900A-20 is designed particularly for power and frequency detection, as well as for VSWR monitoring, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 200 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350 and polyimide. Available in both 5 of 6 tin lead (XC0900A-20P) and 6 of 6 tin immersion (XC0900A-20S) RoHS compliant finishes.

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
800 - 1000	20.1 ± 0.60	0.18	1.15	23
700 – 800	20.7 ± 1.00	0.16	1.28	18
869 - 894	20.0 ± 0.50	0.14	1.12	25
925 - 960	20.0 ± 0.50	0.14	1.12	25

Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*
± 0.20	150	16	-55 to +95
± 0.40	200	16	-55 to +95
± 0.05	200	16	-55 to +95
± 0.05	200	16	-55 to +95

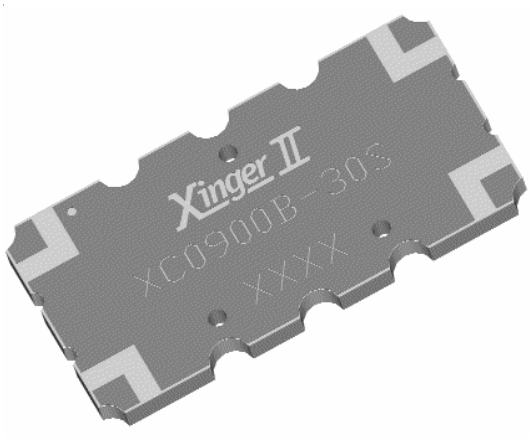
**Specification based on performance of unit properly installed on Anaren Test Board 54606-0003. Refer to Specifications subject to change without notice. Refer to parameter definitions for details.

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II

30 dB Directional Coupler



Description

The XC0900B-30S is a low profile, high performance 30dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for AMPS band applications. The XC0900B-30S is designed particularly for power and frequency detection, as well as for VSWR monitoring, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 385 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350 and polyimide. Produced with 6 of 6 RoHS compliant tin immersion.

Features:

- **800 – 1000 MHz**
- **AMPS**
- **High Power**
- **Very Low Loss**
- **Tight Coupling**
- **High Directivity**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**

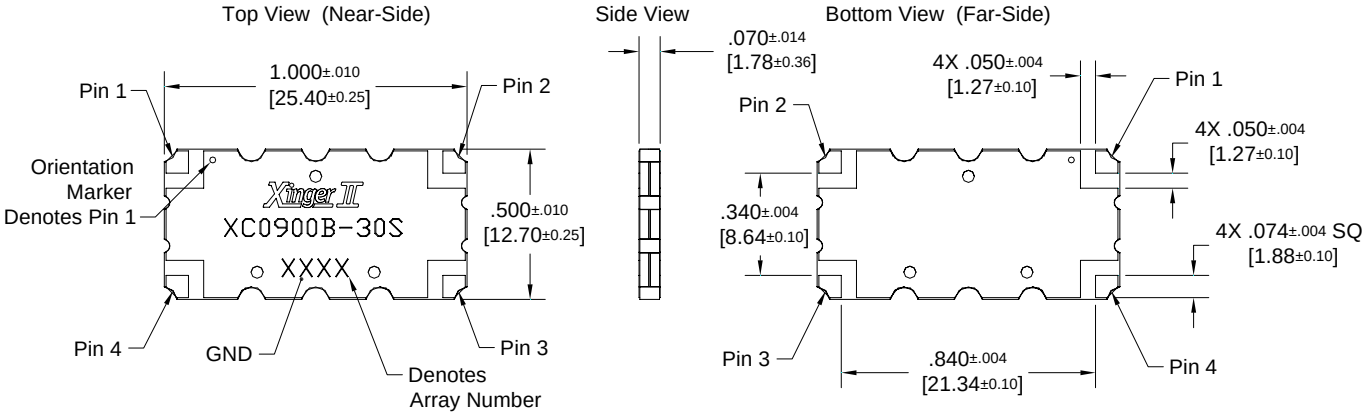
Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
800 - 1000	29.8 ± 1.0	0.10	1.15	23
865 - 895	29.6 ± 0.8	0.09	1.12	25
925 - 960	29.5 ± 0.8	0.09	1.12	25

Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*
± 0.40	355	11.2	-55 to +85
± 0.12	385	11.2	-55 to +85
± 0.08	355	11.2	-55 to +85

**Specification based on performance of unit properly installed on Anaren Test Board 59331-0001. Refer to Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters].
XC0900B-30S Mechanical Outline

Tolerances are Non-Cumulative

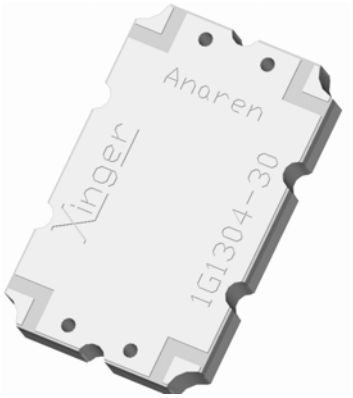
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model 1G1304-30

Rev B

Directional Couplers
30 dB



Description

The 1G1304-30 is a low profile 30dB directional coupler in an easy to use surface mount package covering the AMPS and GSM bands. The 1G1304-30 is ideal for power and frequency detection as well as VSWR monitoring and can be used in most high power designs. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates such as FR4, G-10 and polyamide.

Features:

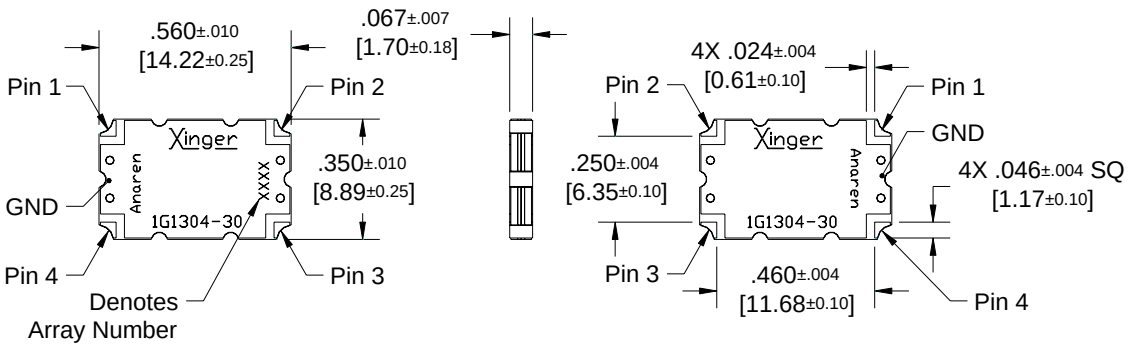
- **800 - 1000 MHz**
- **Low loss**
- **High Directivity**
- **Surface Mountable**
- **Tape And Reel**
- **Convenient Package**
- **100% Tested**
- **Lead Free Finish**

ELECTRICAL SPECIFICATIONS**

Frequency	Mean Coupling	Insertion Loss	VSWR	Freq. Sensitivity
MHz	*dB*	*dB Max*	*Max:1*	*dB Max*
869 - 894	30 ± 1.5	0.25	1.20	±0.10
800 - 1000	30 ± 1.5	0.25	1.27	±0.30
Directivity	**Power Handling**	**ΘJC**	**Operating Temp.**	
dB Min	*Watts*	*ºC / Watt*	*ºC*	
18	150	20.3	-55 to +85	
18	150	20.3	-55 to +85	

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

Outline Drawing



Dimensions are in Inches [Millimeters]
1G1304-30 Rev A Mechanical Outline

Tolerances are Non-Cumulative
Part Is Symmetric About All Axis

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Xinger® II

10 dB Directional Coupler

Description

The XC0900P-10S is a low profile, high performance 10dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for AMPS band applications. The XC0900P-10S is designed particularly for power and frequency detection, as well as for power injection for example in feed-forward, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 55 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Produced with 6 0f 6 RoHS compliant tin immersion.

Features:

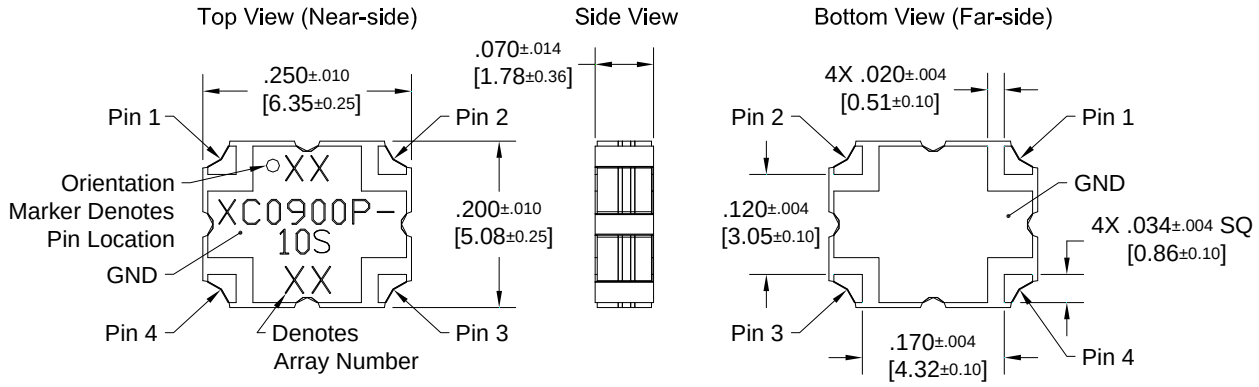
- **800 – 1000 MHz**
- **AMPS**
- **Very Low Loss**
- **High Directivity**
- **Tight Coupling**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**
- **Reliable, FIT=0.49**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
800-1000	10.2±1.0	0.38	1.35	15
869-894	10±1.0	0.28	1.2	18
925-960	10±1.0	0.32	1.2	18

Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*
±0.36	45	32	-55 to +85
±0.05	55	32	-55 to +85
±0.05	50	32	-55 to +85

**Specification based on performance of unit properly installed on Anaren Test Board 54147-0001. Refer to Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC0900P-10S Mechanical Outline Rev B

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II®

20dB Directional Coupler

Features:

- **1000 - 2000 MHz**
- **AMPS**
- **High Power**
- **Very Low Loss**
- **Tight Coupling**
- **High Directivity**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**

Description

The XC1500A-20S is a low profile, high performance 20dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for AMPS band applications. The XC1500A-20S is designed particularly for power and frequency detection, as well as for VSWR monitoring, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 150 Watts.

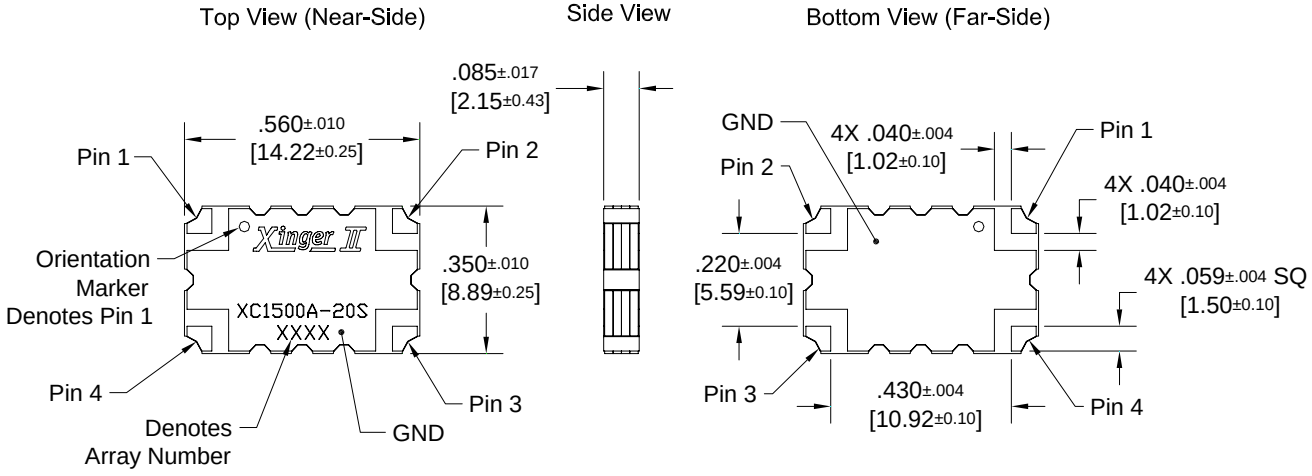
Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350 and polyimide. Produced with 6 of 6 RoHS compliant tin immersion finish.

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
1000-2000	20±0.70	0.19	1.28	21.0
Frequency Sensitivity	**Power**	**ΘJC**	**Operating Temp.**	
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*	
±1.25	150	TBD	-55 to +85	

**Specification based on performance of unit properly installed on Anaren Test Board 54606-0001. Refer to Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inces [Millimeters]
XC1500A-20S Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Pico Xinger
20dB Directional Coupler

Description

The 1P520 Pico Xinger is a low profile, miniature 20dB directional coupler in an easy to use surface mount package designed for DCS and PCS applications. The 1P520 is for power and frequency detection as well as power injection. The 1P520 is an ideal solution for the ever-increasing demands of the wireless industry for smaller printed circuit boards and high performance. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates. Available in both 5 of 6 tin lead (1P520) and 6 of 6 RoHS compliant tin immersion (1P520S).

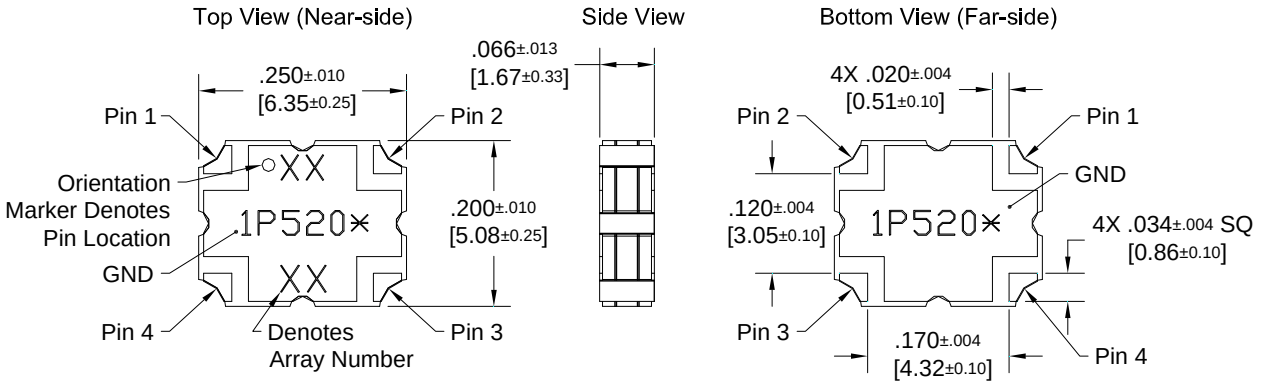
Features:

- **1.7 – 2.0 GHz**
- **DCS and PCS**
- **Very Low Loss**
- **High Directivity**
- **Surface Mountable**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**

ELECTRICAL SPECIFICATIONS**

Frequency	Mean Coupling	Insertion Loss	VSWR	Freq. Sensitivity
GHz	*dB*	*dB Max*	*Max : 1*	*dB Max*
1.7 – 2.0	20 ± 0.75	0.25	1.22	± 0.2
Directivity	**Power Handling**	**ΘJC**	**Operating Temp.**	
dB Min	*Ave CW Watts*	*ºC / Watt*	*ºC*	
20	25	35	-55 to +85	

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.



Dimensions are in Inches [Millimeters]
1P520* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Model XC1900A-05

Rev D

5 dB Directional Coupler

Description

The XC1900A-05 is a low profile, high performance 5dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for DCS and PCS applications. The XC1900A-05 is designed particularly for non-binary split and combine in high power amplifiers, e.g. used along with a 3dB to get a 3-way, plus other signal distribution applications where low insertion loss is required. It can be used in high power applications up to 200 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Available in both 5 of 6 tin lead (XC1900A-05P) and 6 of 6 tin immersion (XC1900A-05S) RoHS compliant finishes.

Features:

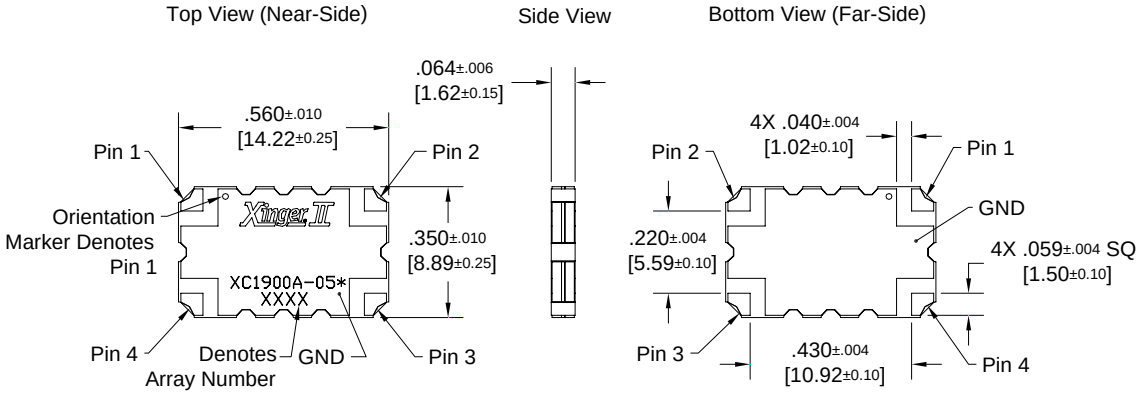
- **1700 – 2000 MHz**
- **DCS and PCS**
- **High Power**
- **Very Low Loss**
- **Tight Coupling**
- **High Directivity**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.53**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Phase Balance
MHz	*dB*	*dB Max*	*Max : 1*	*Degrees*
1700-2000	5.0 ± 0.22	0.15	1.15	90±2.0
1805-1880	5.0 ± 0.19	0.12	1.12	90±2.0
1930-1990	5.0 ± 0.19	0.12	1.12	90±2.0

Directivity	Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Min	*dB Max*	*Avg. CW Watts*	*ºC/Watt*	*ºC*
23	± 0.05	200	17.5	-55 to +95
25	± 0.03	200	17.5	-55 to +95
25	± 0.03	200	17.5	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 58481-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC1900A-05* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II

10 dB Directional Coupler

Description

The XC1900A-10 is a low profile, high performance 10dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for DCS and PCS band applications. The XC1900A-10 is designed particularly for power and frequency detection, as well as for power injection for example in feed-forward, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 175 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Available in both 5 of 6 tin lead (XC1900A-10P) and 6 of 6 tin immersion (XC1900A-10S) RoHS compliant finishes.

Features:

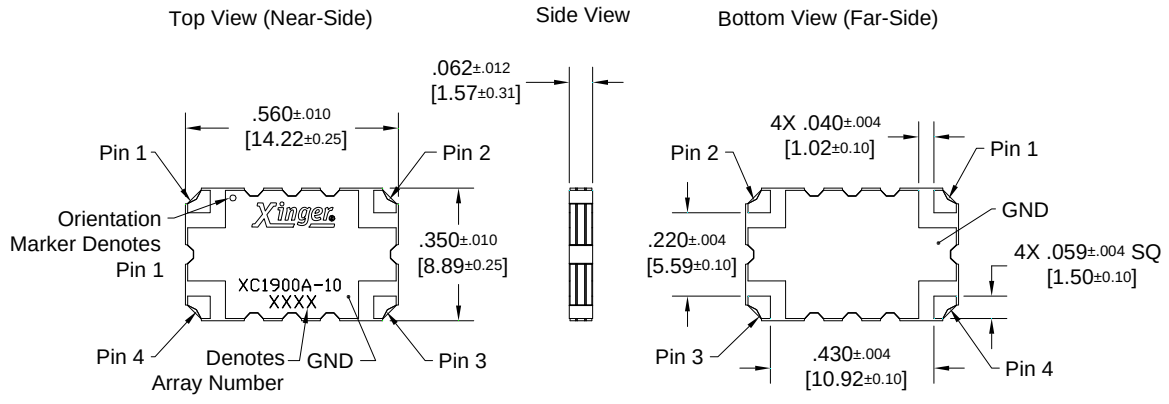
- **1700 – 2000 MHz**
- **DCS and PCS**
- **High Power**
- **Very Low Loss**
- **High Directivity**
- **Tight Coupling**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.73**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
1700-2000	10.1 ± 0.50	0.16	1.15	23
1805-1880	10.0 ± 0.40	0.14	1.12	25
1930-1990	10.0 ± 0.40	0.14	1.12	25

Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*
± 0.10	175	20	-55 to +95
± 0.05	175	20	-55 to +95
± 0.05	175	20	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 54606-0003 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC1900A-10* Mechanical Outline

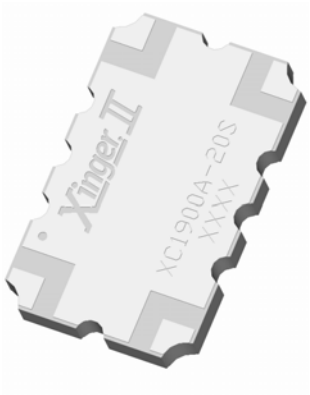
*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II®

20 dB Directional Coupler



Description

The XC1900A-20 is a low profile, high performance 20dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for DCS and PCS band applications. The XC1900A-20 is designed particularly for power and frequency detection, as well as for VSWR monitoring, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 150 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Available in both 5 of 6 tin lead (XC1900A-20P) and 6 of 6 tin immersion (XC1900A-20S) RoHS compliant finishes.

Features:

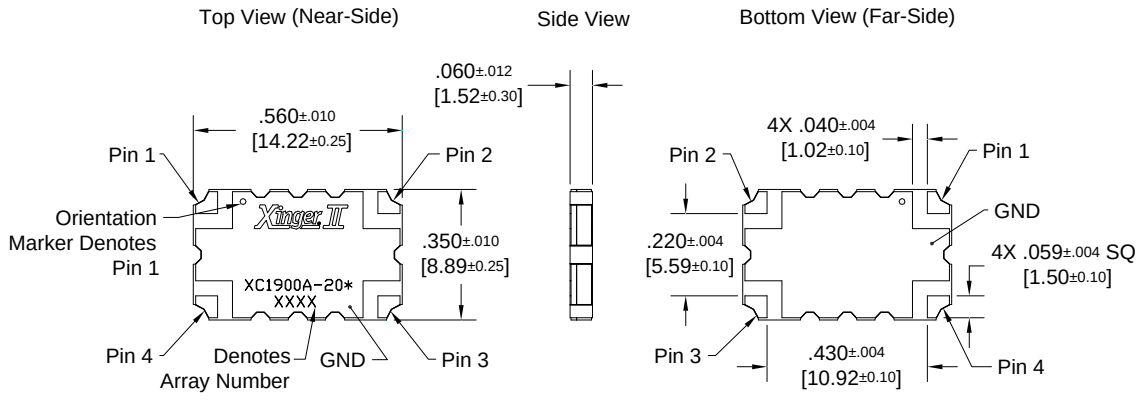
- **1700 – 2000 MHz**
- **DCS and PCS**
- **High Power**
- **Very Low Loss**
- **Tight Coupling**
- **High Directivity**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.41**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
1700-2000	20.1 ± 0.60	0.15	1.15	23
1805-1880	20.0 ± 0.50	0.12	1.12	25
1930-1990	20.0 ± 0.50	0.12	1.12	25

Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*
± 0.12	150	21.5	-55 to +95
± 0.05	150	21.5	-55 to +95
± 0.05	150	21.5	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 54606-0003 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC1900A-20* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

10 dB Directional Coupler

Description

The XC1900E-10 is a low profile, high performance 10dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for DCS and PCS band applications. The XC1900E-10 is designed particularly for power and frequency detection, as well as for power injection for example in feed-forward, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 190 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Available in both 5 of 6 tin lead (XC1900E-10P) and 6 of 6 tin immersion (XC1900E-10S) RoHS compliant finishes.

Features:

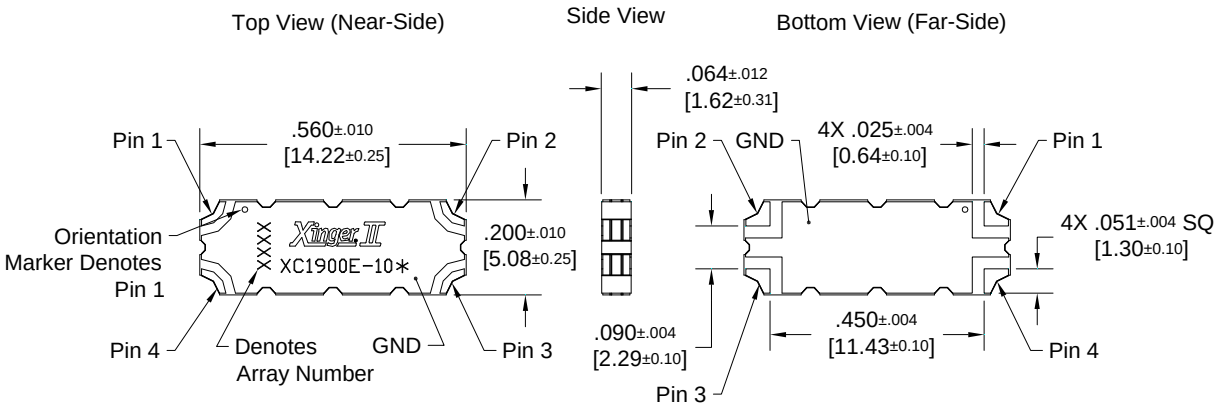
- **1700 – 2000 MHz**
- **DCS and PCS**
- **High Power**
- **Very Low Loss**
- **High Directivity**
- **Tight Coupling**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.73**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
1700-2000	10.1 ± 0.50	0.14	1.19	21
1805-1880	10.0 ± 0.40	0.12	1.15	23
1930-1990	10.0 ± 0.40	0.14	1.15	23

Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*
± 0.10	175	23	-55 to +95
± 0.05	190	23	-55 to +95
± 0.05	175	23	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 58493-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC1900E-10* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II

5 dB Directional Coupler

Description

The XC2100A-05 is a low profile, high performance 5dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for UMTS and other 3G band applications. The XC2100A-05 is designed particularly for non-binary split and combine in high power amplifiers, e.g. used along with a 3dB to get a 3-way, plus other signal distribution applications where low insertion loss is required. It can be used in high power applications up to 175 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Available in both 5 of 6 tin lead (XC2100A-05P) and 6 of 6 tin immersion (XC2100A-05S) RoHS compliant finishes.

Features:

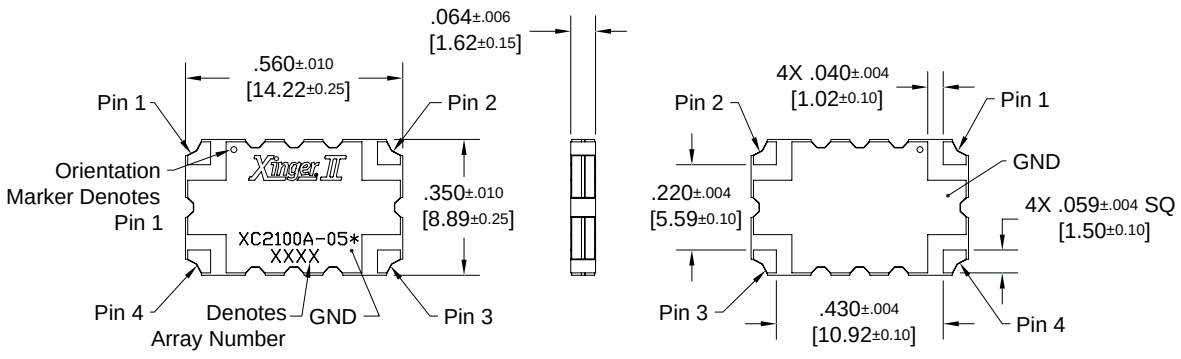
- **2000 – 2300 MHz**
- **UMTS and other 3G**
- **High Power**
- **Very Low Loss**
- **Tight Coupling**
- **High Directivity**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.53**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Phase Balance
MHz	*dB*	*dB Max*	*Max : 1*	*Degrees*
2000-2300	5.0 ± 0.22	0.15	1.15	90±2.0
2110-2170	5.0 ± 0.19	0.12	1.12	90±2.0

Directivity	Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Min	*dB Max*	*Avg. CW Watts*	*ºC/Watt*	*ºC*
23	± 0.05	125	19	-55 to +95
25	± 0.03	175	19	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 58481-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC2100A-05* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model XC2100A-10

Rev C

10 dB Directional Coupler

Description

The XC2100A-10 is a low profile, high performance 10dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for UMTS and other 3G applications. The XC2100A-10 is designed particularly for power and frequency detection, as well as for power injection for example in feed-forward, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 175 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Available in both 5 of 6 tin lead (XC2100A-10P) and 6 of 6 tin immersion (XC2100A-10S) RoHS compliant finishes.

Features:

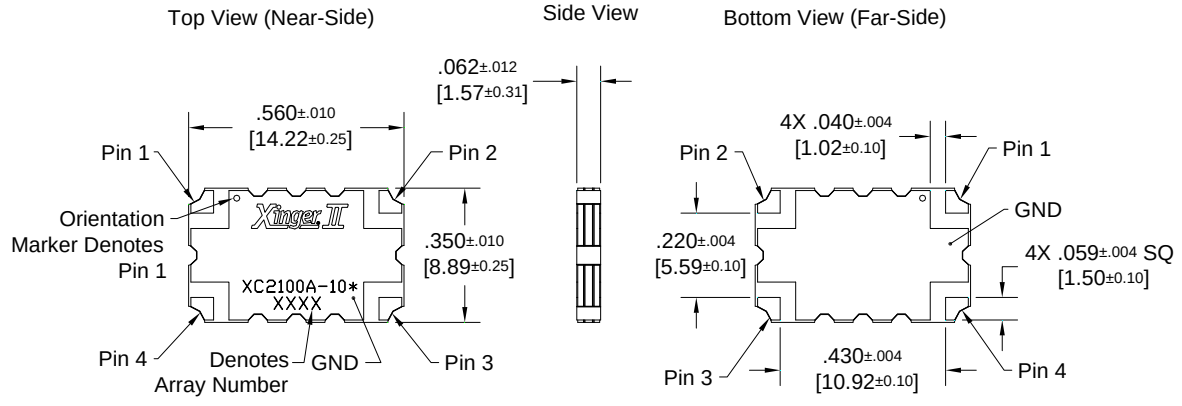
- **2000 – 2300 MHz**
- **UMTS and other 3G**
- **High Power**
- **Very Low Loss**
- **High Directivity**
- **Tight Coupling**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.73**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
2000-2300	10.1 ± 0.50	0.16	1.15	23
2110-2170	10.0 ± 0.40	0.14	1.12	25

Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*
± 0.10	150	21	-55 to +95
± 0.05	175	21	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 54606-0003 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC2100A-10* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Anaren
What'll we think of next?™

Available on Tape and Reel for Pick and Place Manufacturing.

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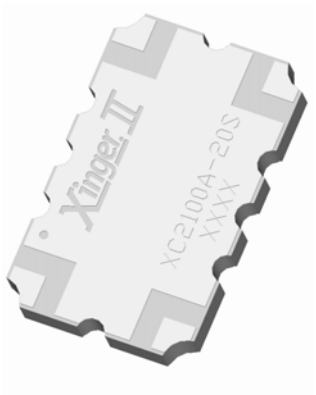
Xinger II

20 dB Directional Coupler



Description

The XC2100A-20 is a low profile, high performance 20dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for UMTS and other 3G applications. The XC2100A-20 is designed particularly for power and frequency detection, as well as for VSWR monitoring, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 150 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Available in both 5 of 6 tin lead (XC2100A-20P) and 6 of 6 tin immersion (XC2100A-20S) RoHS compliant finishes.

Features:

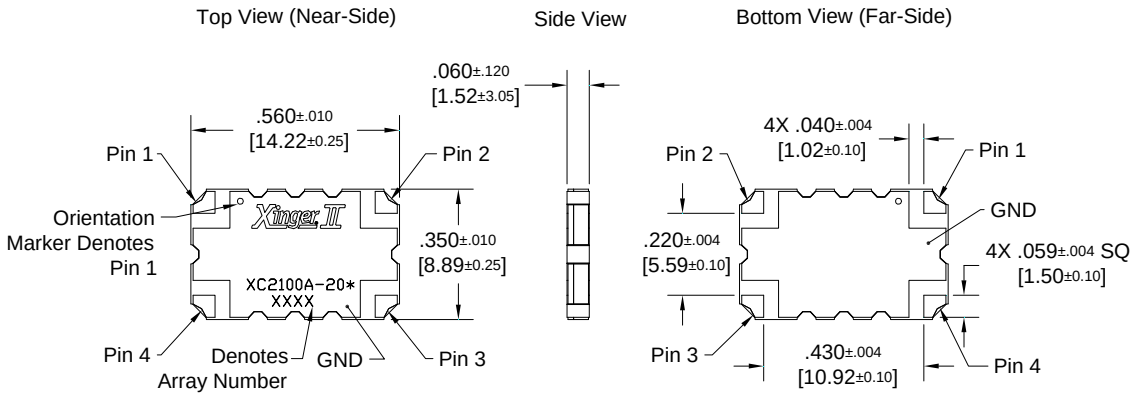
- **2000 – 2300 MHz**
- **UMTS and other 3G**
- **High Power**
- **Very Low Loss**
- **Tight Coupling**
- **High Directivity**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.41**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
2000-2300	20.1 ± 0.60	0.15	1.15	23
2110-2170	20.0 ± 0.50	0.12	1.12	25

Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*
± 0.12	120	25	-55 to +95
± 0.05	150	25	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 54606-0003 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC2100A-20* Mechanical Outline

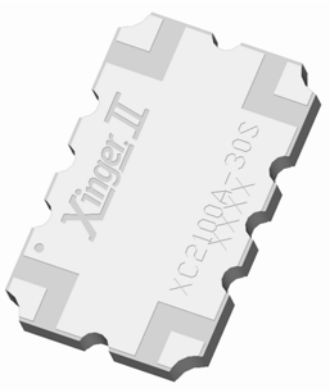
*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

30 dB Directional Coupler

Xinger II



Description

The XC2100A-30 is a low profile, high performance 30dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for UMTS and other 3G applications. The XC2100A-30 is designed particularly for power and frequency detection, as well as for VSWR monitoring, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 120 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Available in both 5 of 6 tin lead (XC2100A-30P) and 6 of 6 tin immersion (XC2100A-30S) RoHS compliant finishes.

Features:

- **1805 – 2300 MHz**
- **UMTS and other 3G**
- **High Power**
- **Very Low Loss**
- **Tight Coupling**
- **High Directivity**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.41**

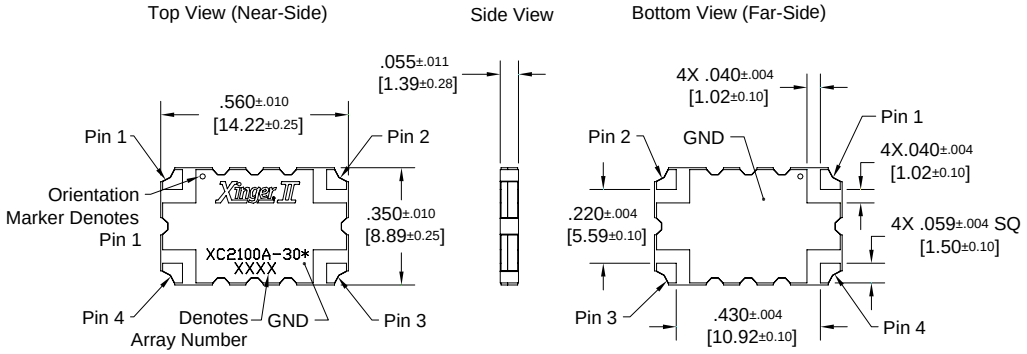
Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
2000-2300	30 ± 0.80	0.15	1.22	20
2110-2170	30 ± 0.60	0.12	1.17	22
1930-1990	30 ± 0.80	0.12	1.22	20
1805-1880	30 ± 0.80	0.12	1.22	20
1450-1600	31 ± 2.00	0.12	1.22	20

Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*
± 0.15	105	32.7	-55 to +95
± 0.10	120	32.7	-55 to +95
± 0.15	120	32.7	-55 to +95
± 0.15	120	32.7	-55 to +95
± 0.25	120	32.7	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 54606-0003 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters]
XC2100A-30* Mechanical Outline

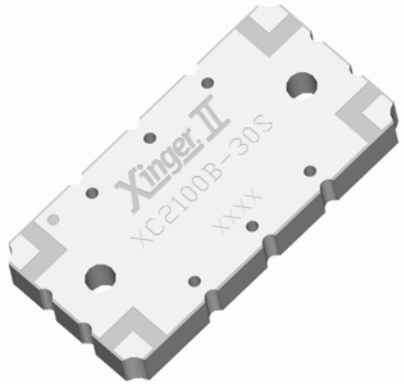
*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II

30 dB Directional Coupler



Description

The XC2100B-30S is a low profile, high performance 30dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for UMTS, other 3G applications and WiMAX. The XC2100B-30S is designed particularly for power and frequency detection, as well as for VSWR monitoring, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 300 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Produced with 6 of 6 RoHS compliant tin immersion finish.

Features:

- **1805 – 2700 MHz**
- **UMTS and other 3G**
- **WiMAX**
- **High Power**
- **Very Low Loss**
- **Tight Coupling**
- **High Directivity**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**

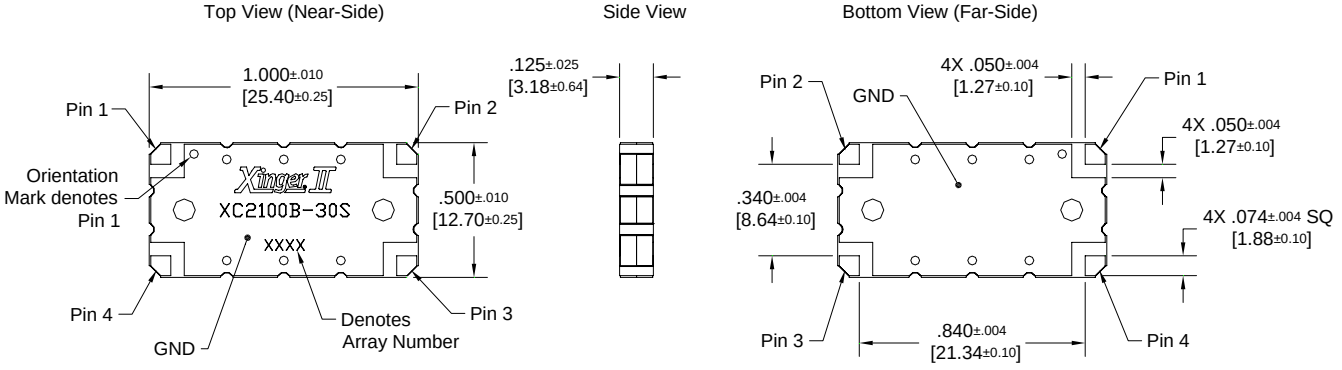
Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
2300 - 2700	30.0 ± 1.25	0.15	1.22	18.0
1805 - 1880	29.8 ± 1.00	0.12	1.22	20.0
1930 - 1990	29.8 ± 1.00	0.12	1.22	20.0
2110 - 2170	29.8 ± 1.00	0.12	1.22	20.0

Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*
± 0.40	150	22.3	-55 to +85
± 0.15	300	22.3	-55 to +85
± 0.10	300	22.3	-55 to +85
± 0.10	300	22.3	-55 to +85

**Specification based on performance of unit properly installed on Anaren Test Board 59331-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters]
XC2100B-30S Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model XC2100E-10

Rev B

10 dB Directional Coupler

Description

The XC2100E-10 is a low profile, high performance 10dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for UMTS and other 3G applications. The XC2100E-10 is designed particularly for power and frequency detection, as well as for power injection for example in feed-forward, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 165 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide. Available in both 5 of 6 tin lead (XC2100E-10P) and 6 of 6 tin immersion (XC2100E-10S) RoHS compliant finishes.

Features:

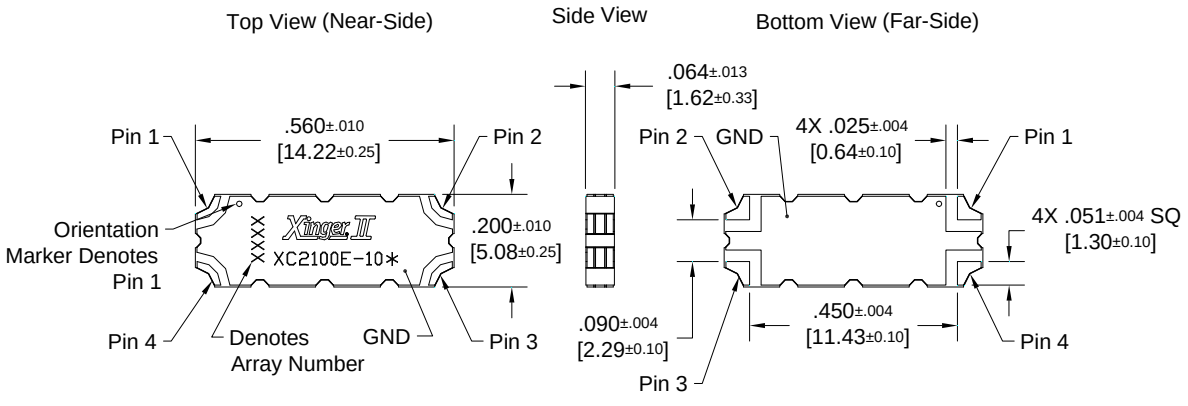
- **2000 – 2300 MHz**
- **UMTS and other 3G**
- **High Power**
- **Very Low Loss**
- **High Directivity**
- **Tight Coupling**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.73**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
2000-2300	10.1 ± 0.50	0.14	1.19	21
2110-2170	10.0 ± 0.40	0.12	1.15	23

Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*
± 0.10	155	24	-55 to +95
± 0.05	165	24	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 58493-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC2100E-10* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger®

Pico Xinger
6dB Directional Coupler

Description

The JP506 is a low profile 6dB directional coupler in an easy to use surface mount package covering the WCDMA and other 3G applications. The JP506 is ideal for an inline split/combine amplifiers and for power injection and can be used in most high power designs. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates such as FR4, G-10 and polyamide.

Features:

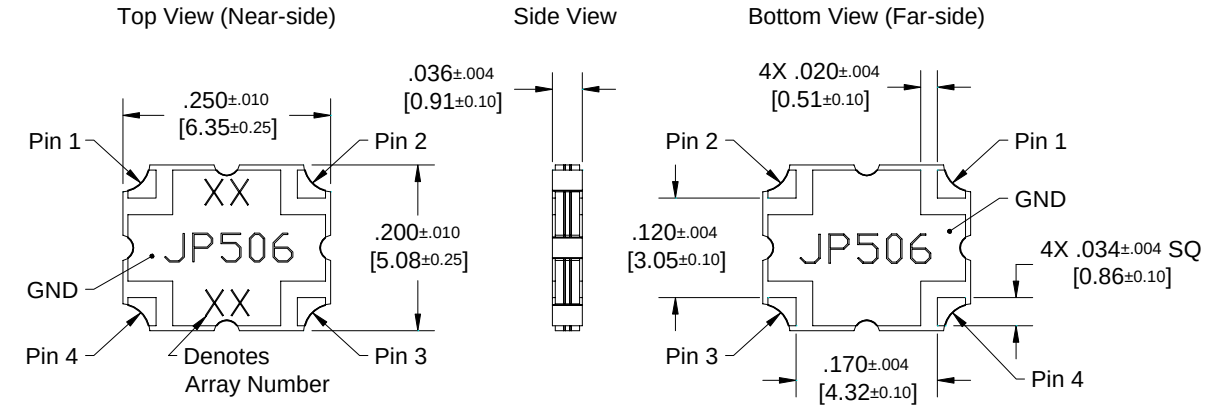
- **2.0 - 2.3GHz**
- **Low loss**
- **High Directivity**
- **Surface Mountable**
- **Tape And Reel**
- **Convenient Package**
- **100% Tested**

ELECTRICAL SPECIFICATIONS**

Frequency	Mean Coupling	Insertion Loss	VSWR	Freq. Sensitivity
GHz	*dB*	*dB Max*	*Max : 1*	*dB Max*
1.805 – 1.880	6.2 ± 0.5	0.30	1.22	±0.20
1.93 – 1.99	6.0 ± 0.5	0.30	1.22	±0.20
2.0 – 2.3	6.0 ± 0.5	0.30	1.22	±0.20
Directivity	**Power Handling**	**ΘJC**	**Operating Temp.**	
dB Min	*Watts*	*ºC / Watt*	*ºC*	
18	20	35.2	-55 to +85	
18	20	35.2	-55 to +85	
20	20	35.2	-55 to +85	

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

Outline Drawing



Dimensions are in Inches [Millimeters]
JP506 Rev A Mechanical Outline

Part is Symmetric About All Axis
Tolerances are Non-Cumulative

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Pico Xinger
10dB Directional Coupler

Description

The 1P510 Pico Xinger is a low profile, miniature 10dB directional coupler in an easy to use surface mount package designed for DCS and PCS applications. The 1P510 is for power and frequency detection as well as power injection. The 1P510 is an ideal solution for the ever-increasing demands of the wireless industry for smaller printed circuit boards and high performance. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates. Available in both 5 of 6 tin lead (1P510) and 6 of 6 RoHS compliant tin immersion (1P510S).

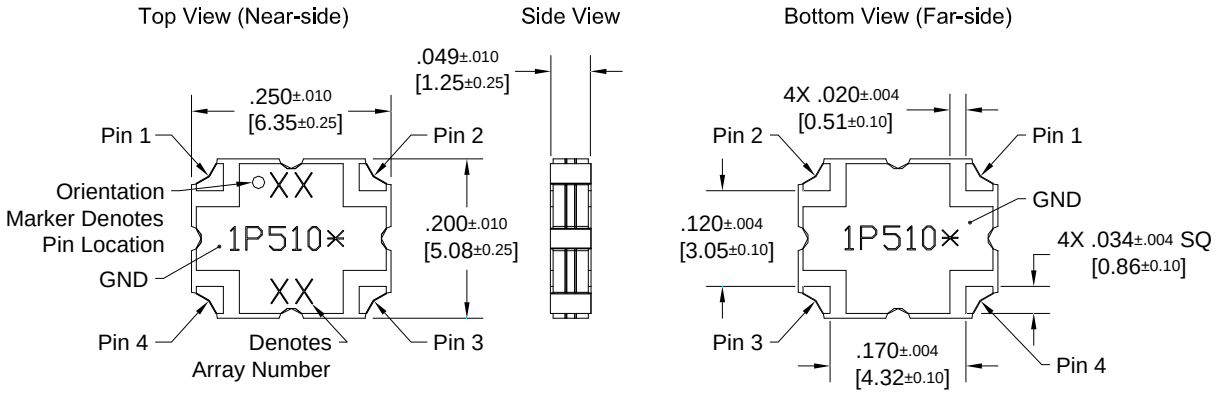
Features:

- **1.7 – 2.0 GHz**
- **DCS and PCS**
- **Very Low Loss**
- **High Directivity**
- **Surface Mountable**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**

ELECTRICAL SPECIFICATIONS**

Frequency	Mean Coupling	Insertion Loss	VSWR	Freq. Sensitivity
GHz	*dB*	*dB Max*	*Max : 1*	*dB Max*
1.7 – 2.0	10 ± 0.75	0.25	1.22	± 0.2
Directivity	**Power Handling**	**ΘJC**	**Operating Temp.**	
dB Min	*Ave CW Watts*	*ºC / Watt*	*ºC*	
20	20	44	-55 to +85	

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.



Dimensions are in Inches [Millimeters]
1P510* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Pico Xinger
10dB Directional Coupler

Description

The JP510 Pico Xinger is a low profile, miniature 10dB directional coupler in an easy to use surface mount package designed for UMTS and WCDMA applications. The JP510 is for power and frequency detection as well as power injection. The JP510 is an ideal solution for the ever-increasing demands of the wireless industry for smaller printed circuit boards and high performance. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates.

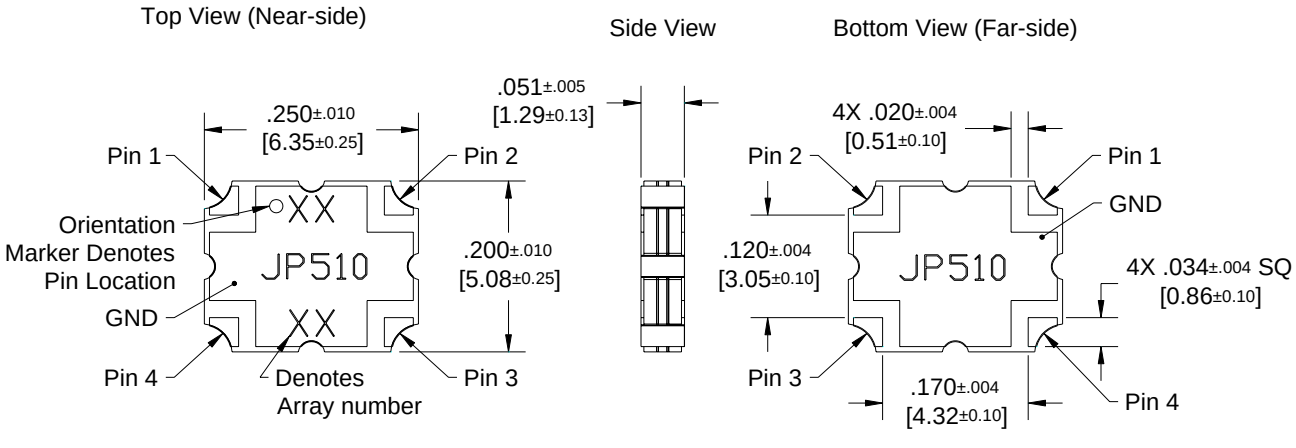
Features:

- **2.0 – 2.3 GHz**
- **UMTS and WCDMA**
- **Very Low Loss**
- **High Directivity**
- **Surface Mountable**
- **Tape and Reel**
- **New Pico-Package**
- **100% Tested**

ELECTRICAL SPECIFICATIONS**

Frequency	Mean Coupling	Insertion Loss	VSWR	Freq. Sensitivity
GHz	*dB*	*dB Max*	*Max : 1*	*dB Max*
2.0 – 2.3	10 ± 0.75	0.25	1.22	± 0.2
Directivity	**Power Handling**	**ΘJC**	**Operating Temp.**	
dB Min	*Ave CW Watts*	*ºC / Watt*	*ºC*	
20	20	44	-55 to +85	

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.



Dimensions are in Inches [Millimeters]
JP510 Rev A Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Pico Xinger
20dB Directional Coupler

Description

The JP520 Pico Xinger is a low profile, miniature 20dB directional coupler in an easy to use surface mount package designed for UMTS and WCDMA applications. The JP520 is for power and frequency detection as well as power injection. The JP520 is an ideal solution for the ever-increasing demands of the wireless industry for smaller printed circuit boards and high performance. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates. Available in both 5 of 6 tin lead (JP520) and 6 of 6 RoHS compliant tin immersion (JP520S).

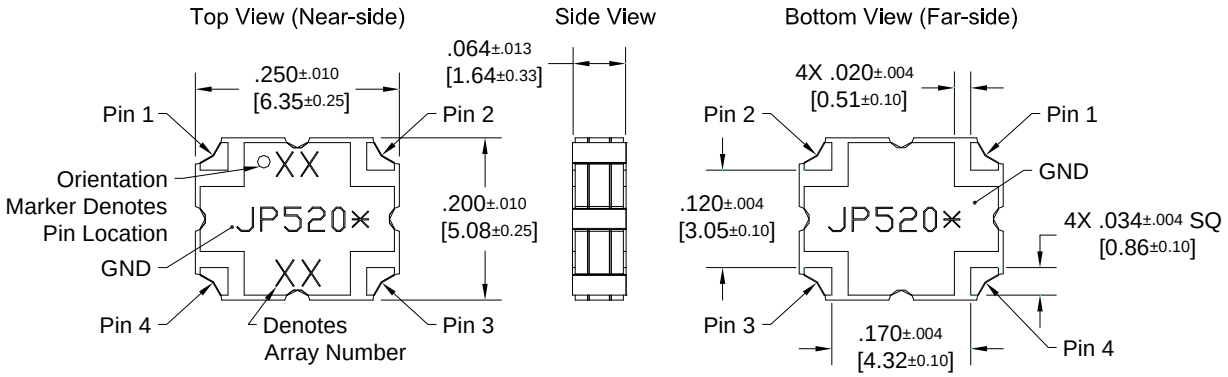
Features:

- **2.0 – 2.3 GHz**
- **UMTS and WCDMA**
- **Very Low Loss**
- **High Directivity**
- **Surface Mountable**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**

ELECTRICAL SPECIFICATIONS**

Frequency	Mean Coupling	Insertion Loss	VSWR	Freq. Sensitivity
GHz	*dB*	*dB Max*	*Max : 1*	*dB Max*
2.0 – 2.3	20 ± 0.75	0.25	1.22	± 0.2
Directivity	**Power Handling**	**ΘJC**	**Operating Temp.**	
dB Min	*Ave CW Watts*	*ºC / Watt*	*ºC*	
20	25	35	-55 to +85	

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.



Dimensions are in Inches [Millimeters]
JP520* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Xinger II

10 dB Directional Coupler

Description

The XC2500E-10 is a low profile, high performance 10dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for WiMAX band applications. The XC2500E-10 is designed particularly for power and frequency detection, as well as for power injection for example in feed-forward, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 145 Watts. Available in both 5 of 6 tin lead (XC2500E-10P) and 6 of 6 tin immersion (XC2500E-10S) RoHS compliant finishes.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4350, and polyimide.

Features:

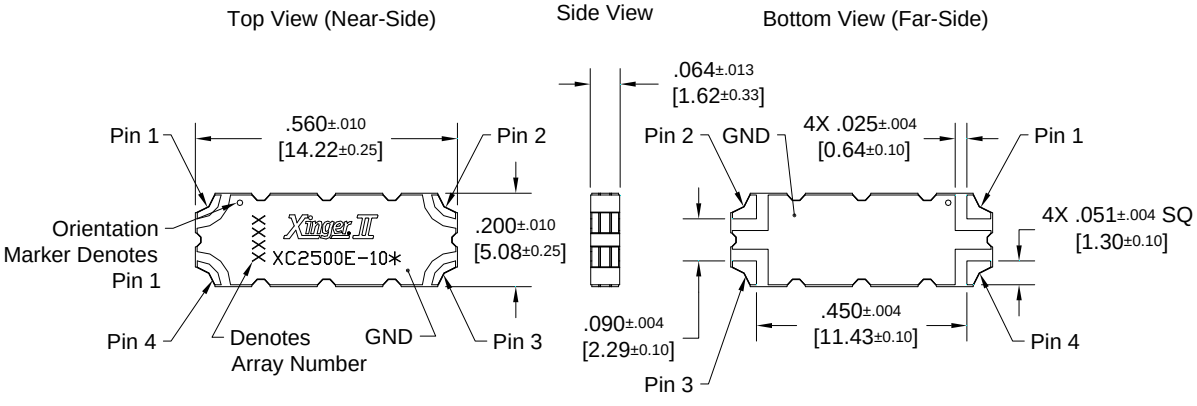
- **2300 – 2700 MHz**
- **WiMAX**
- **High Power**
- **Very Low Loss**
- **High Directivity**
- **Tight Coupling**
- **Production Friendly**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**
- **Reliable, FIT=0.73**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
2300-2700	10.0 ± 0.50	0.14	1.19	21

Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*
± 0.10	145	28	-55 to +95

**Specification based on performance of unit properly installed on Anaren Test Board 58493-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.



Dimensions are in Inches [Millimeters]
XC2500E-10* Mechanical Outline

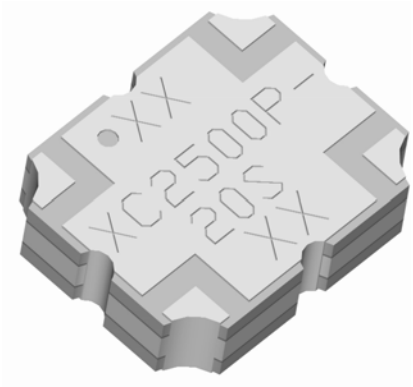
*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger® II

20dB Directional Coupler



Description

The XC2500P-20S is a low profile, high performance 20dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for AMPS band applications. The XC2500P-20S is designed particularly for power and frequency detection, as well as for VSWR monitoring, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 20 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4003 and polyimide. Produced with 6 of 6 RoHS compliant tin immersion finish.

Features:

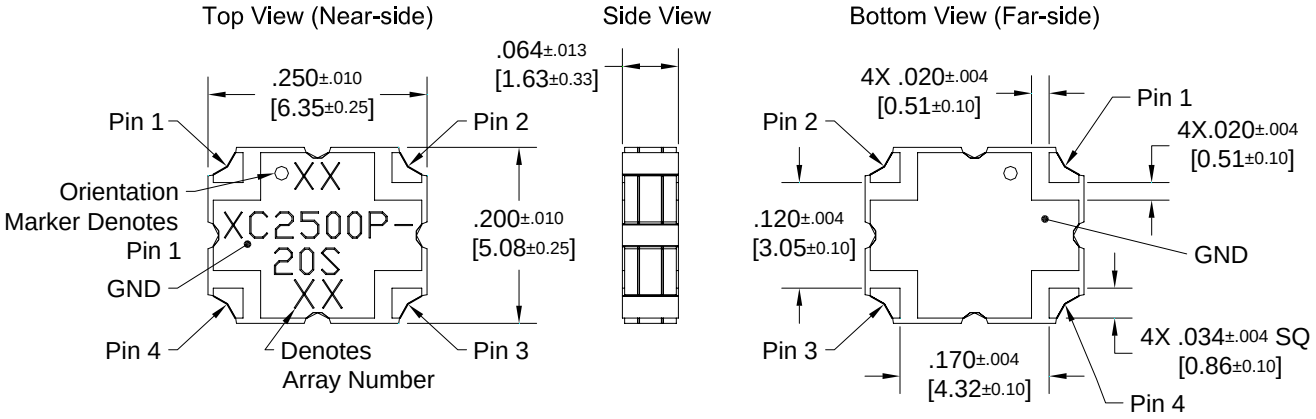
- **2300-2700 MHz**
- **AMPS**
- **High Power**
- **Very Low Loss**
- **Tight Coupling**
- **High Directivity**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
2300-2700	20±1.0	0.20	1.20	20
Frequency Sensitivity	**Power**	**ΘJC**	**Operating Temp.**	
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*	
±0.30	20	TBD	-55 to +85	

**Specification based on performance of unit properly installed on Anaren Test Board 54147-0001. Refer to Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters]
XC2500P-20S Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Pico Xinger
10dB Directional Coupler

Description

The 1P610 Pico Xinger is a low profile, miniature 10dB directional coupler in an easy to use surface mount package designed for MMDS and WLAN applications. The 1P610 is for power and frequency detection as well as power injection. The 1P610 is an ideal solution for the ever-increasing demands of the wireless industry for smaller printed circuit boards and high performance. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates. Produced with 6 of 6 RoHS compliant tin immersion. Available in both 5 of 6 tin lead (1P610) and 6 of 6 RoHS compliant tin immersion (1P610S).

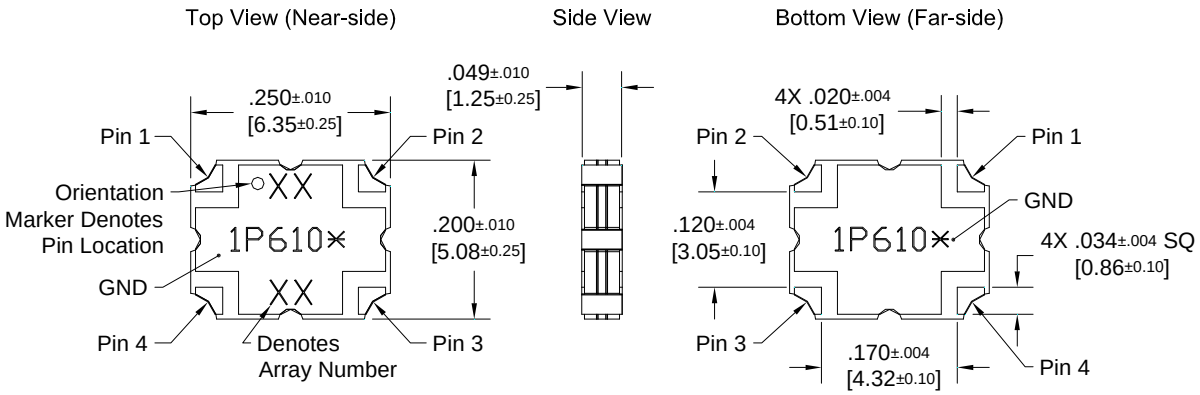
Features:

- **2.3 – 2.7 GHz**
- **MMDS and WLAN**
- **Very Low Loss**
- **High Directivity**
- **Surface Mountable**
- **Tape and Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**

ELECTRICAL SPECIFICATIONS**

Frequency	Mean Coupling	Insertion Loss	VSWR	Freq. Sensitivity
GHz	*dB*	*dB Max*	*Max : 1*	*dB Max*
2.3 – 2.7	10 ± 0.75	0.25	1.22	± 0.2
Directivity	**Power Handling**	**ΘJC**	**Operating Temp.**	
dB Min	*Ave CW Watts*	*ºC / Watt*	*ºC*	
20	20	44	-55 to +85	

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.



Dimensions are in Inches [Millimeters]
1P610* Rev A Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Pico Xinger
20dB Directional Coupler

Description

The 1P620 Pico Xinger is a low profile, miniature 20dB directional coupler in an easy to use surface mount package designed for MMDS and WLAN applications. The 1P620 is for power and frequency detection as well as power injection. The 1P620 is an ideal solution for the ever-increasing demands of the wireless industry for smaller printed circuit boards and high performance. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates. Available in both 5 of 6 tin lead (1P620) and 6 of 6 RoHS compliant tin immersion (1P620S).

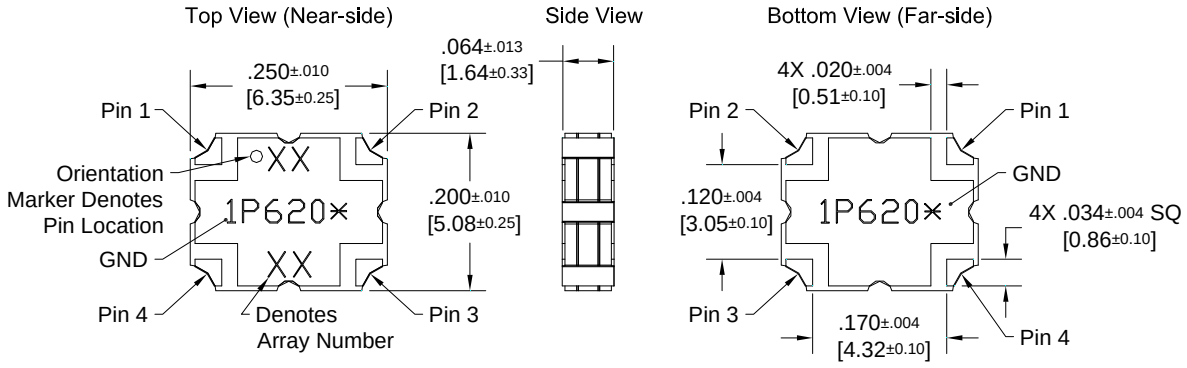
Features:

- **2.3 – 2.7 GHz**
- **MMDS and WLAN**
- **Very Low Loss**
- **High Directivity**
- **Surface Mountable**
- **Tape And Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**

ELECTRICAL SPECIFICATIONS**

Frequency	Mean Coupling	Insertion Loss	VSWR	Freq. Sensitivity
GHz	*dB*	*dB Max*	*Max : 1*	*dB Max*
2.3 – 2.7	20 ± 0.75	0.25	1.22	± 0.2
Directivity	**Power Handling**	**ΘJC**	**Operating Temp.**	
dB Min	*Watts*	*ºC / Watt*	*ºC*	
20	25	35	-55 to +85	

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.



Dimensions are in Inches [Millimeters]
1P620* Rev A Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Xinger® II

20dB Directional Coupler

Description

The XC3500P-20S is a low profile, high performance 20dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for AMPS band applications. The XC3500P-20S is designed particularly for power and frequency detection, as well as for VSWR monitoring, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 45 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4003 and polyimide. Produced with 6 of 6 RoHS compliant tin immersion finish.

Features:

- **3300-3800 MHz**
- **AMPS**
- **High Power**
- **Very Low Loss**
- **Tight Coupling**
- **High Directivity**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**

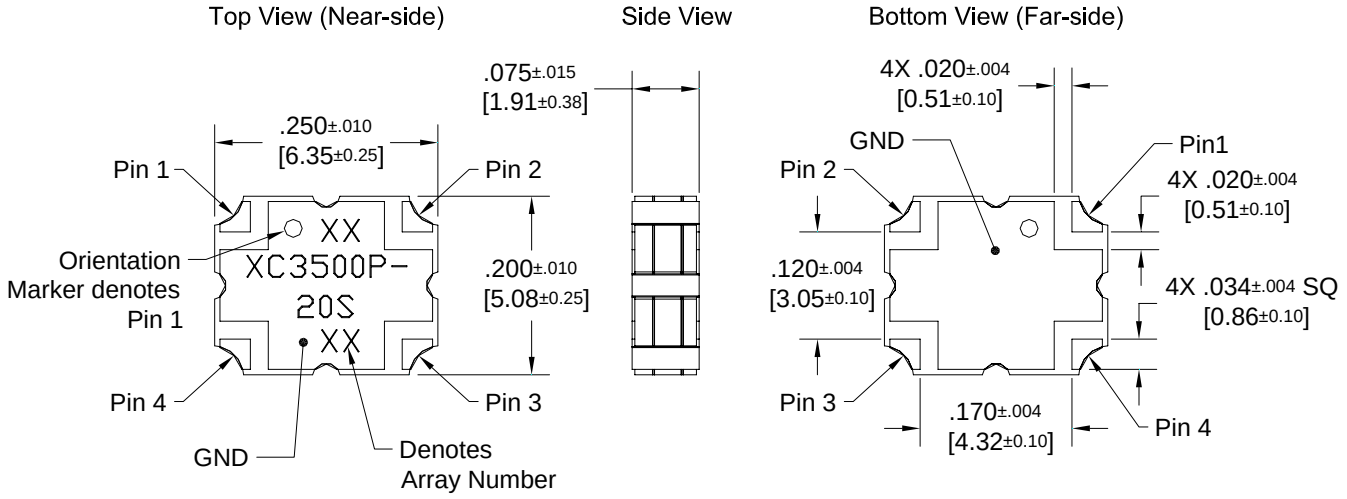
Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
3300-3800	20±1.0	0.20	1.20	20

Frequency Sensitivity	Power	ΘJC	Operating Temp.
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*
±0.30	45	40.3	-55 to +85

**Specification based on performance of unit properly installed on Anaren Test Board 54147-0001. Refer to Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters]
XC3500P-20S Mechanical Outline

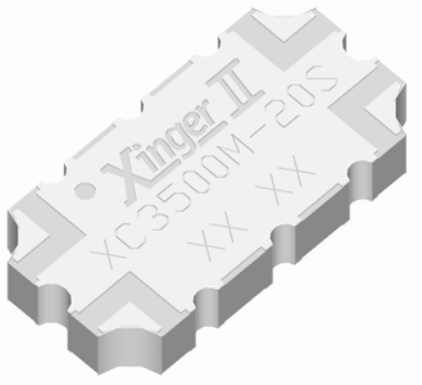
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger II®

20dB Directional Coupler



Description

The XC3500M-20S is a low profile, high performance 20dB directional coupler in a new easy to use, manufacturing friendly surface mount package. It is designed for WiMAX applications. The XC3500M-20S is designed particularly for power and frequency detection, as well as for VSWR monitoring, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 80 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4003 and polyimide. Produced with 6 of 6 RoHS compliant tin immersion.

Features:

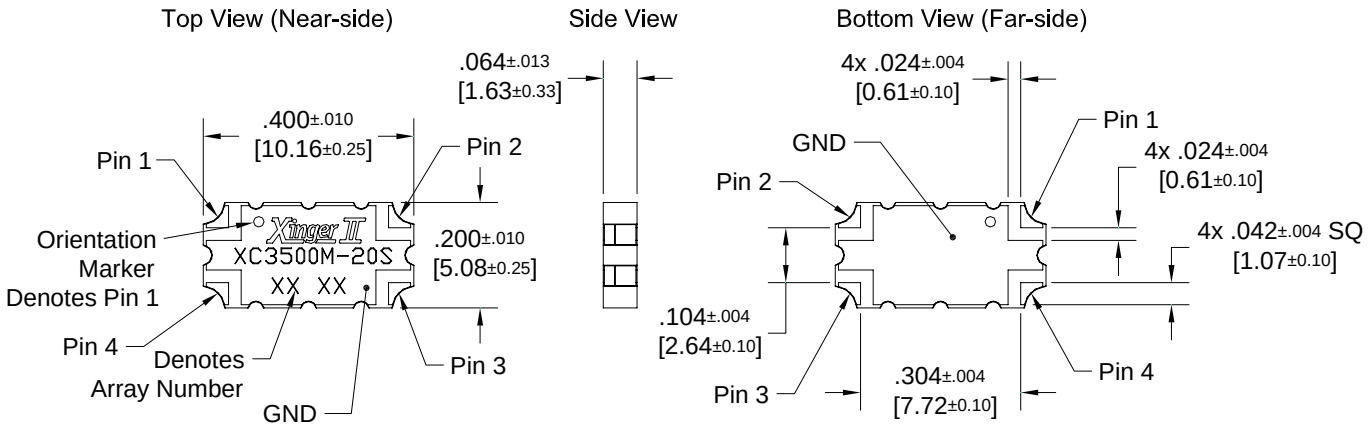
- **3300 - 3800 MHz**
- **WiMAX**
- **High Power**
- **Very Low Loss**
- **Tight Amplitude Balance**
- **High Isolation**
- **Production Friendly**
- **Tape and Reel**
- **Lead-Free**

Electrical Specifications **

Frequency	Mean Coupling	Insertion Loss	VSWR	Directivity
MHz	*dB*	*dB Max*	*Max : 1*	*dB Min*
3300-3800	20 ±1.0	0.20	1.20	21
Frequency Sensitivity	**Power**	**ΘJC**	**Operating Temp.**	
dB Max	*Avg. CW Watts*	*ºC/Watt*	*ºC*	
± 0.30	80	31.0	-55 to +85	

**Specification based on performance of unit properly installed on Anaren Test Board 51991-0001 with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.

Mechanical Outline



Dimensions are in Inches [Millimeters]
XC3500M-20S Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Micro Xinger
10dB Directional Coupler

Description

The 1M710 Micro Xinger® is a low profile, miniature 10dB directional coupler in an easy to use surface mount package designed for ISM and LMDS applications. The 1M710 is for power and frequency detection as well as power injection and is an ideal solution for the ever-increasing demands of the wireless industry for smaller printed circuit boards and high performance. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates such as FR4, G-10 and polyamide. Available in both 5 of 6 tin lead (1M710) and 6 of 6 RoHS compliant tin immersion (1M710S).

Features:

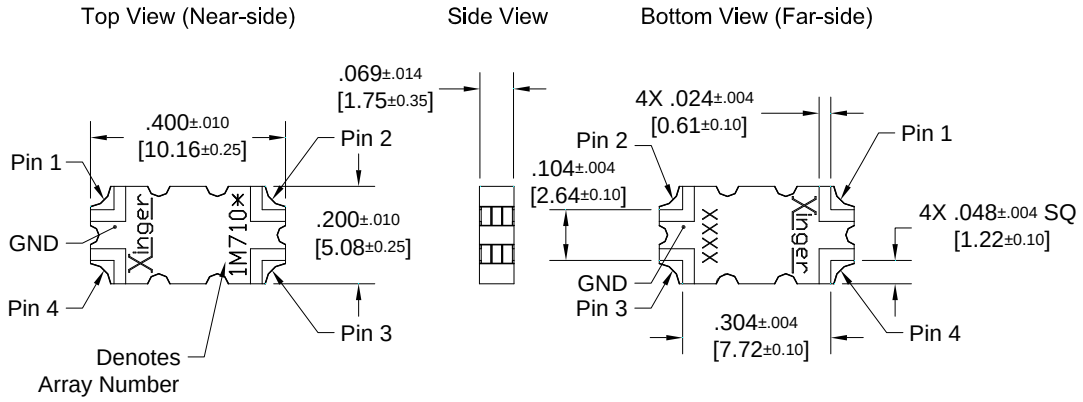
- **3.3 – 3.7 GHz**
- **Very Low Loss**
- **High Directivity**
- **Surface Mountable**
- **Tape And Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**

ELECTRICAL SPECIFICATIONS**

Frequency	Mean Coupling	Insertion Loss	VSWR	Freq. Sensitivity
GHz	*dB*	*dB Max*	*Max : 1*	*dB Max*
3.3 – 3.7	10.5 ± 0.8	0.25	1.20	± 0.2
Directivity	**Power Handling**	**ΘJC**	**Operating Temp.**	
dB Min	*Watts*	*ºC / Watt*	*ºC*	
20	22	34.4	-55 to +85	

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

Outline Drawing



Dimensions are in Inches [Millimeters]
1M710* Rev A Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

Available on Tape and Reel For Pick and Place Manufacturing.

Anaren
What'll we think of next

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Micro Xinger
10dB Directional Coupler

Description

The 1M810 Micro Xinger® is a low profile, miniature 10dB directional coupler in an easy to use surface mount package designed for U-NII, ISM and hyperLAN applications. The 1M810 is for power and frequency detection as well as power injection and is an ideal solution for the ever-increasing demands of the wireless industry for smaller printed circuit boards and high performance. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates such as FR4, G-10 and polyamide. Available in both 5 of 6 tin lead (1M810) and 6 of 6 RoHS compliant tin immersion (1M810S).

Features:

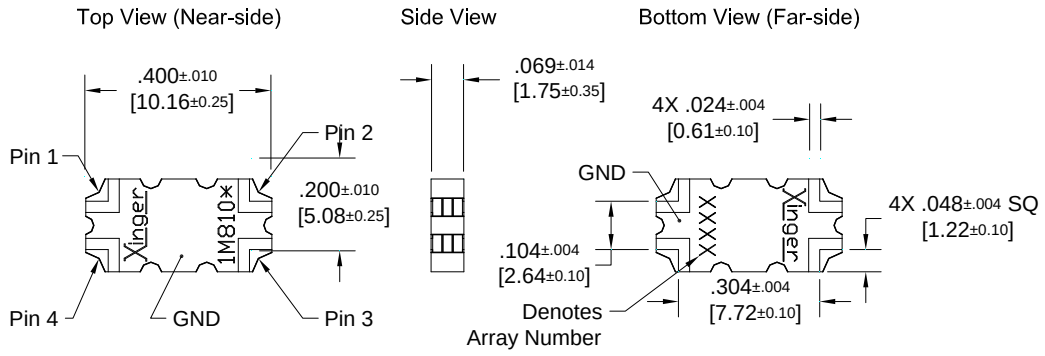
- **5.0 – 6.0 GHz**
- **Very Low Loss**
- **High Directivity**
- **Surface Mountable**
- **Tape And Reel**
- **Available in Lead-Free (as illustrated) or Tin-Lead**

ELECTRICAL SPECIFICATIONS**

Frequency	Mean Coupling	Insertion Loss	VSWR	Freq. Sensitivity
GHz	*dB*	*dB Max*	*Max : 1*	*dB Max*
5.0 – 6.0	10.0 ± .75	0.30	1.33	± .30
Directivity	**Power Handling**	**ΘJC**	**Operating Temp.**	
dB Min	*Watts*	*ºC / Watt*	*ºC*	
18	15	23.8	-55 to +85	

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

Mechanical Outline



Dimensions are in Inches [Millimeters]
1M810* Mechanical Outline

*For RoHS Compliant Versions order with S suffix
Tolerances are Non-Cumulative

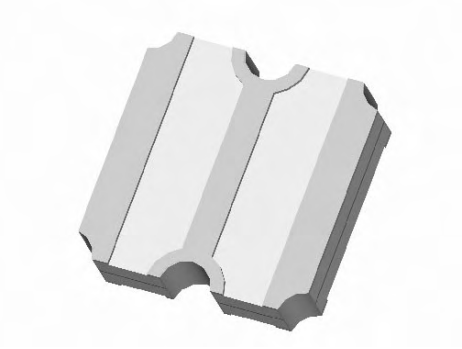
Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Model X2A

Rev. B

SMT Crossover



Description

The X2A is a low profile crossover to intersect an RF and DC circuit trace in an easy to use surface mount package designed for frequencies up to 6 GHz. The X2A is ideal for any application where an RF circuit must intersect with a DC circuit without resorting to a multilayer PCB. Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates such as FR4, G-10 and polyamide.

Features:

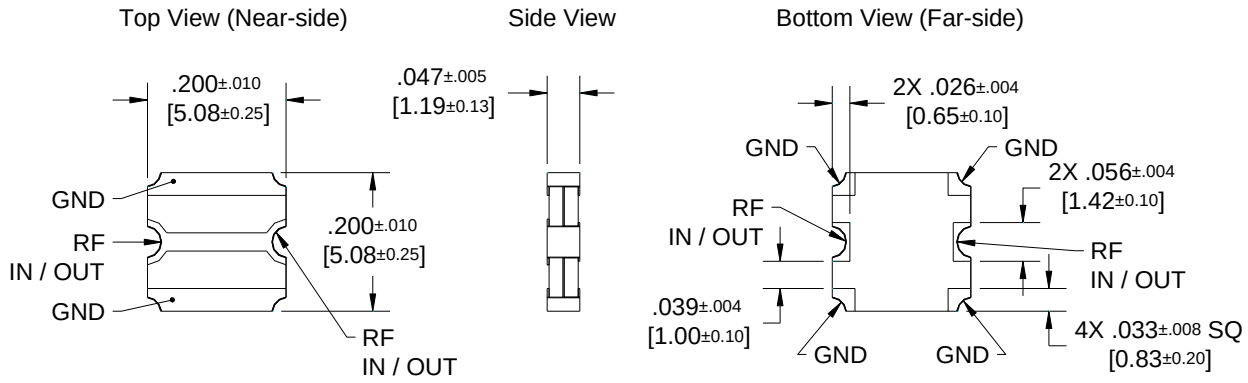
- **DC – 6.0 GHz**
- **RF – DC Crossover**
- **Low Loss**
- **DC Isolation**
- **Surface Mountable**
- **Tape And Reel**
- **Convenient Package**
- **100 % Tested**

ELECTRICAL SPECIFICATIONS**

Frequency	Port Impedance	Return Loss	
GHz	*Ohms*	*dB Min*	
DC – 2.5	50	20	
2.5 – 4.0	50	20	
4.0 – 6.0	50	15	
Insertion Loss	**Power**	**ΘJC**	**Operating Temp.**
dB Max	*Watts*	*ºC / Watt*	*ºC*
0.05	30	250.9	-55 to +85
0.10	15	250.9	-55 to +85
0.15	10	250.9	-55 to +85

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

Outline Drawing



Dimensions are in Inches [Millimeters]
X2A Mechanical Outline

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Model X2B

Rev. B

SMT Crossover

Description

The X2B is a low profile crossover to intersect an RF and RF circuit trace in an easy to use surface mount package designed for frequencies up to 6 GHz. The X2B is ideal for any application where an RF circuit must intersect with another RF circuit without resorting to a multilayer PCB. Parts have been run through rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates such as FR4, G-10 and polyamide.

Features:

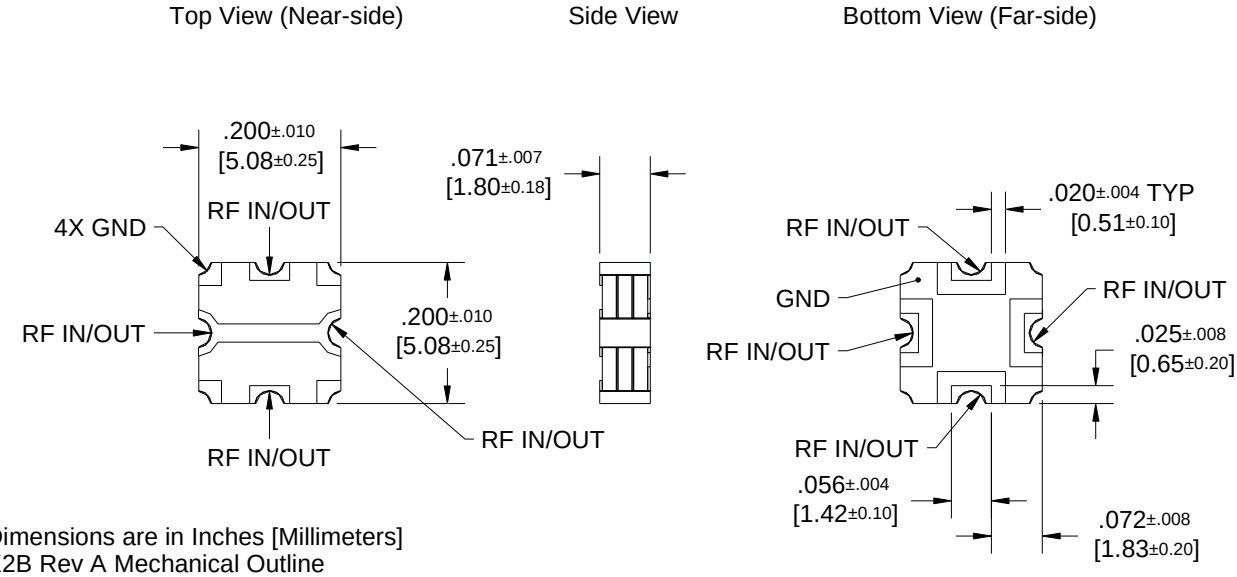
- **DC – 6.0 GHz**
- **RF – RF Crossover**
- **Low Loss**
- **High Isolation**
- **Surface Mountable**
- **Tape And Reel**
- **Convenient Package**
- **100% Tested**

ELECTRICAL SPECIFICATIONS**

Frequency	Port Impedance	Return Loss	Isolation
GHz	*Ohms*	*dB Min*	*DB Min*
DC – 2.5	50	20	50
2.5 – 3.6	50	18	30
3.6 – 6.0	50	15	20
Insertion Loss	**Power**	**ΘJC**	**Operating Temp.**
dB Max	*Watts*	*ºC / Watt*	*ºC*
0.05	30	143.4	-55 to +85
0.10	15	143.4	-55 to +85
0.20	10	143.4	-55 to +85

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

Outline Drawing



Dimensions are in Inches [Millimeters]
X2B Rev A Mechanical Outline

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Model 3A325

Balun Transformers

Xinger®

Description

The 3A325 is a low profile balanced to unbalanced transformer in an easy to use surface mount package covering TV broadcast applications. The 3A325 has an unbalanced port impedance of 50Ω and balanced port impedances of 25Ω to ground with 50Ω balance between outputs. This eases the matching of the push-pull amplifier's power transistors which have low impedance levels. The output ports have equal amplitude (-3dB) with 180° phase differential.

Features

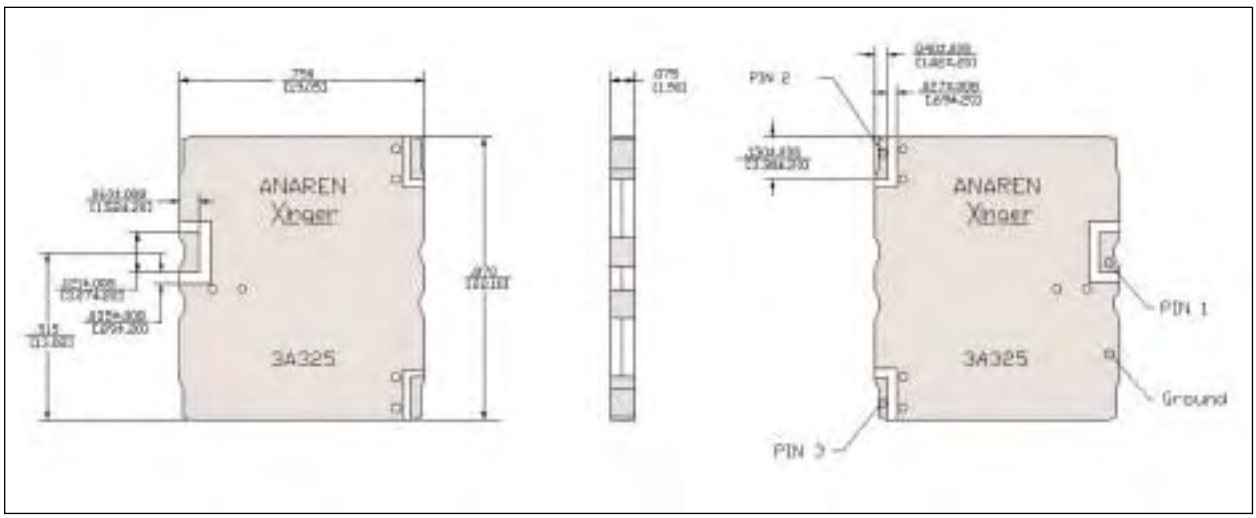
- 470 - 860 MHz
- 25Ω Balanced Port Impedance
- Low Insertion Loss
- High Power
- Input to Output DC Isolation
- Surface Mountable
- Tape And Reel
- Convenient Package

Electrical Specifications

Frequency *MHz*	Port Impedance *Unbalanced*	Port Impedance *Balanced to Ground*
470 - 860	50Ω	25Ω
Return Loss *dB Min*	**Amplitude Bal.** *dB (p-p)*	**Phase Balance** *degrees*
10	0.40	180 ± 5.0
Insertion Loss *dB Max*	Θ_{JC} *°C/diss. Watt*	**Power** *Watts Ave/CW*
0.35	4.4	275

Specifications subject to change without notice.

Outline Drawing



Available on Tape and Reel for Pick and Place Manufacturing.

Sales Desk USA: Voice: **(800) 544-2414** Fax: **(315) 432-9121**
Sales Desk Europe: Voice: **(+44) 23 92 232392** Fax: **(+44) 23 92 251369**

Anaren What'll we think of next?™

Balun Transformers
50Ω to 12.5Ω Balanced

Description

The 3A412 is a low profile balanced to unbalanced transformer designed for push-pull amplifiers in an easy to use surface mount package for AMPS and GSM. These compact Xinger® surface mount baluns are ideal for high volume manufacturing and are more reliable and repeatable than traditional baluns. The 3A412 has an unbalanced port impedance of 50Ω and balanced port impedances of 12.5Ω to ground with a 25Ω balance between outputs. This eases the matching of the push-pull amplifier's power transistors, which have low impedance levels. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The Xinger® balun is a result of years of research and development culminating with a solution so unique, a patent is pending on the design approach. The 3A412 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **800 – 1000 MHz**
- **180° Transformer**
- **50 Ohm to 2 x 12.5+j Ohm**
- **Low Insertion Loss**
- **High Power**
- **Even Order Suppression**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Convenient Package**

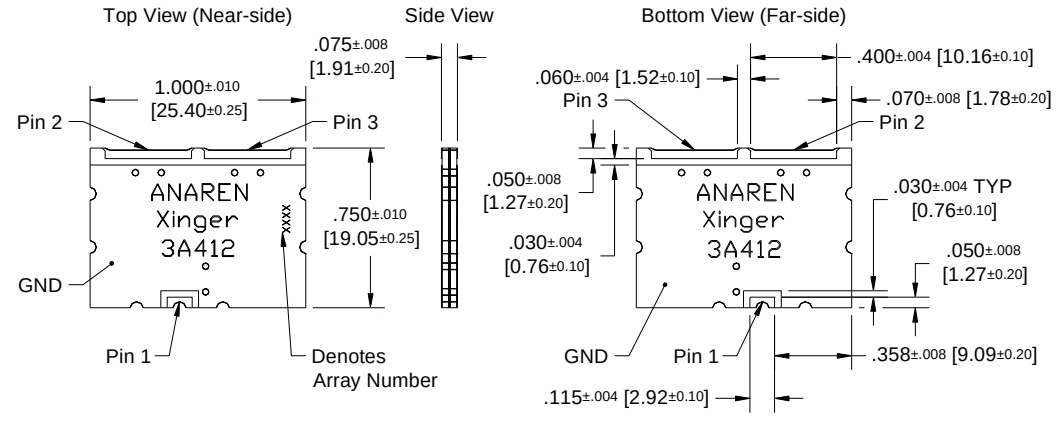
ELECTRICAL SPECIFICATIONS***

Frequency	Unbalanced Port Impedance	Balanced Port Impedance*	Return Loss	Insertion Loss
MHz	*Ohms*	*Ohms*	*dB min*	*dB max*
800-1000	50	12.5+j	15	0.48
869-894	50	12.5+j	15	0.35
925-960	50	12.5+j	15	0.40

Amplitude Balance	Phase Balance	Power Handling	ΘJC	Operating Temp.
dB max	*Degrees max*	*Watts*	*ºC / Watt*	*ºC*
0.40	180± 5.0	250	3.8	-55 to +85
0.40	180± 5.0	250	3.8	-55 to +85
0.40	180± 5.0	250	3.8	-55 to +85

***Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.
**Insertion Loss excludes reflected power. * 12.5Ω reference to ground

Outline Drawing



Dimensions are in Inches [Millimeters]
3A412 Rev A Mechanical Outline

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Xinger Balun
50Ω to 25Ω Balanced

Description

The 3A425 is a low profile balanced to unbalanced transformer designed for push-pull amplifiers in an easy to use surface mount package covering GSM, D-AMPS and NMT900 applications. These compact Xinger® surface mount baluns are ideal for high volume manufacturing and are more reliable and repeatable than traditional baluns. The 3A425 has an unbalanced port impedance of 50Ω and balanced port impedances of 25Ω to ground with a 50Ω balance between outputs. This eases the matching of the push-pull amplifier's power transistors, which have low impedance levels. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The Xinger® balun is a result of years of research and development culminating with a solution so unique, a patent is pending on the design approach. The 3A425 is available on tape and reel for pick and place high volume manufacturing.

Features:

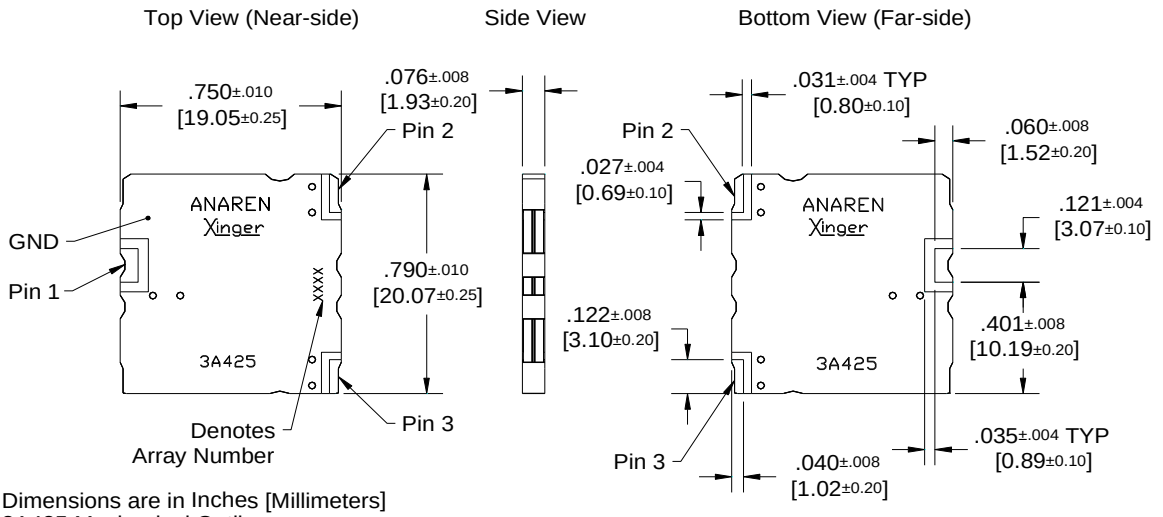
- **800 – 1000 MHz**
- **180° Transformer**
- **50 Ohm to 25 Ohm**
- **Broad Band**
- **Low Insertion Loss**
- **High Power**
- **Even Order Harmonic Suppression**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Convenient Package**

ELECTRICAL SPECIFICATIONS***

Frequency	Unbalanced Port Impedance	Balanced Port Impedance*	Return Loss	Insertion Loss**
MHz	*Ohms*	*Ohms*	*dB min*	*dB max*
800 - 1000	50	50	15	0.35
Amplitude Balance	**Phase Balance**	**Power Handling**	**ΘJC**	**Operating Temp.**
dB max	*Degrees max*	*Watts*	*°C / Watt*	*°C*
0.4	180± 5.0	250	5.3	-55 to +85

***Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.
**Insertion Loss excludes reflected power. * 25Ω reference to ground

Outline Drawing



Dimensions are in Inches [Millimeters]
3A425 Mechanical Outline

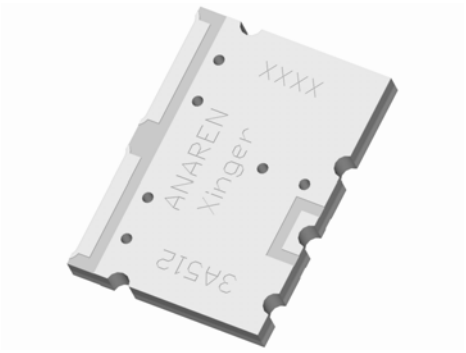
Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Model 3A512

Rev. A

Balun
50Ω to 12.5Ω Balanced



Description

The 3A512 is a low profile balanced to unbalanced transformer designed for push-pull amplifiers in an easy to use surface mount package for Japanese PDC push-pull amplifier and mixer applications. These compact Xinger® surface mount baluns are ideal for high volume manufacturing and are more reliable and repeatable than traditional baluns. The 3A512 has an unbalanced port impedance of 50Ω and balanced port impedances of 12.5Ω to ground with a 25Ω balance between outputs. This eases the matching of the push-pull amplifier's power transistors, which have low impedance levels. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The Xinger® balun is a result of years of research and development culminating with a solution so unique, a patent is pending on the design approach. The 3A512 is available on tape and reel for pick and place high volume manufacturing.

Features:

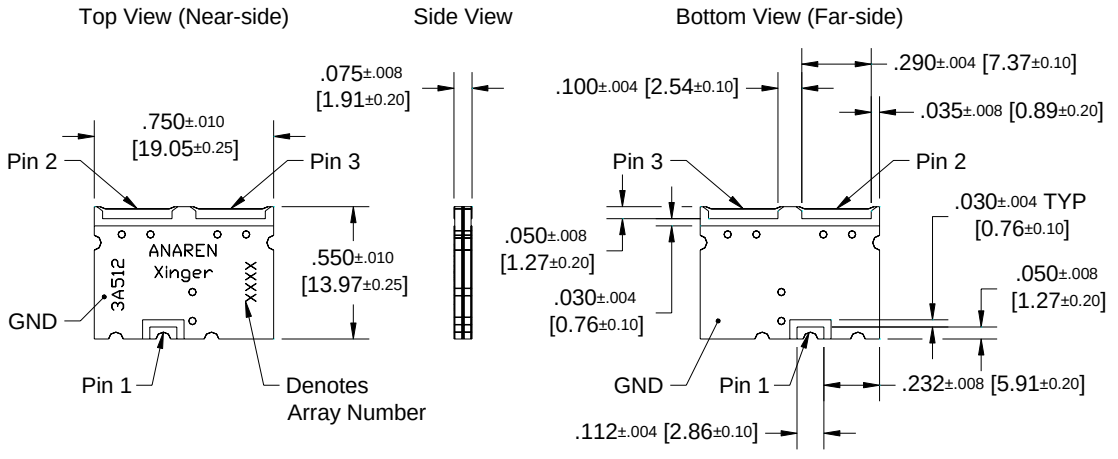
- **1.4 – 1.6 GHz**
- **180° Transformer**
- **50 Ohm to 2 x 12.5 + j3.5 Ohm**
- **Low Insertion Loss**
- **High Power**
- **Even Order Suppression**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Convenient Package**

ELECTRICAL SPECIFICATIONS***

Frequency	Unbalanced Port Impedance	Balanced Port Impedance*	Return Loss	Insertion Loss**
GHz	*Ohms*	*Ohms*	*dB Min*	*dB max*
1.4 – 1.6	50	12.5+j3.5	15	0.30
Amplitude Balance	**Phase Balance**	**Power Handling**	**ΘJC**	**Operating Temp.**
dB max	*Degrees max*	*Watts*	*ºC / Watt*	*ºC*
0.40	180± 5.0	250	5.8	-55 to +85

***Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.
**Insertion loss specification excludes reflection loss. * 50Ω reference to ground

Outline Drawing

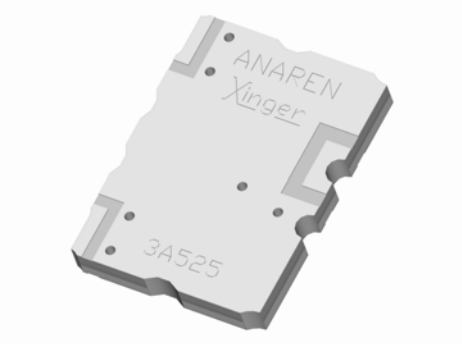


Dimensions are in Inches [Millimeters]
3A512 Rev A Mechanical Outline

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Balun Transformers
50Ω to 25Ω Balanced



Description

The 3A525 is a low profile balanced to unbalanced transformer in an easy to use surface mount package covering Japanese PDC, DCS and PCS receive push-pull amplifier and mixer applications. The 3A525 has an unbalanced impedance of 50Ω and a balanced port impedances of 25Ω to ground with 50Ω balance between outputs. This eases the matching of the push-pull amplifier's power transistors which have low impedance levels. The output ports have equal amplitude (-3 dB) with 180° phase differential. The 3A525 is available on tape and reel for pick and place high volume manufacturing.

Features:

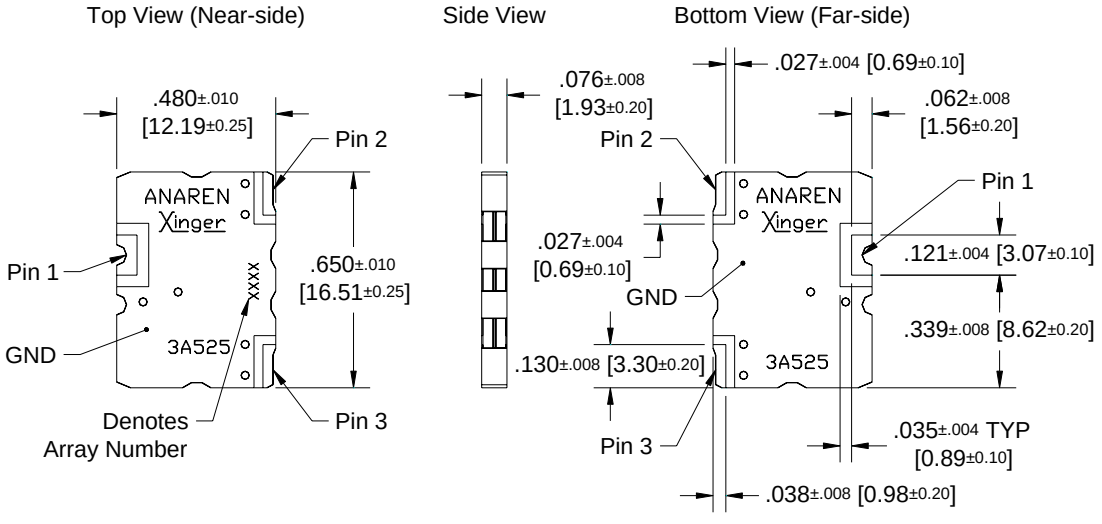
- **1.5 – 1.9 GHz**
- **180° Transformer**
- **50 Ohm to 2 x 25 Ohm**
- **Low Insertion Loss**
- **High Power**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Convenient Package**

ELECTRICAL SPECIFICATIONS***

Frequency	Unbalanced Port Impedance	Balanced Port Impedance*	Return Loss	Insertion Loss**
GHz	*Ohms*	*Ohms*	*dB min*	*dB max*
1.5 – 1.9	50	25	15	0.35
Amplitude Balance	**Phase Balance**	**Power Handling**	**ΘJC**	**Operating Temp.**
dB max	*Degrees max*	*Watts*	*ºC / Watt*	*ºC*
0.40	180± 5.0	150	7.2	-55 to +85

***Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.
**Insertion Loss excludes reflected power. * 25Ω reference to ground

Outline Drawing



Dimensions are in Inches [Millimeters]
3A525 Rev A Mechanical Outline

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Anaren

Model 3A625

Balun Transformers

Xinger®

Description

The 3A625 is a low profile balanced to unbalanced transformer in an easy to use surface mount package covering W-LAN and MMDS push-pull amplifier applications. The 3A625 has an unbalanced impedance of 50Ω and balanced port impedances of 25Ω to ground with 50Ω balance between outputs. This eases the matching of the push-pull amplifier's power transistors which have low impedance levels. The output ports have equal amplitude (-3dB) with 180° phase differential.

Features

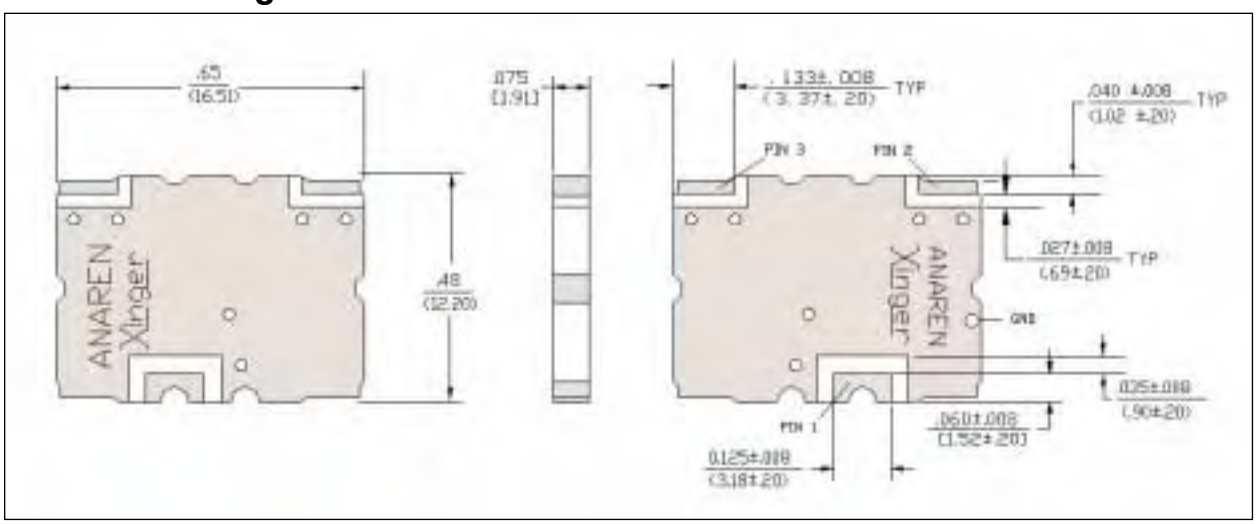
- 2.3 - 2.7 GHz
- Low Insertion Loss
- High Power
- Even Order Suppression
- Input to Output DC Isolation
- Surface Mountable
- Tape And Reel
- Convenient Package

Electrical Specifications

Frequency *GHz*	Port Impedance *Unbalanced*	Port Impedance *Balanced to Ground*
2.3 - 2.7	50Ω	25Ω
Return Loss *dB Min*	**Amplitude Bal.** *dB (p-p)*	**Phase Balance** *degrees*
15	0.40	180 ± 5.0
Insertion Loss *dB Max*	Θ_{JC} *°C/diss. Watt*	**Power** *Watts Ave/CW*
0.35	15.8	150

Specifications subject to change without notice.

Outline Drawing



Available on Tape and Reel for Pick and Place Manufacturing.

Sales Desk USA: Voice: **(800) 544-2414** Fax: **(315) 432-9121**
Sales Desk Europe: Voice: **(+44) 23 92 232392** Fax: **(+44) 23 92 251369**

Anaren
What'll we think of next?™

Balun
50Ω to 12.5Ω Balanced

Description

The 3W512 is a low profile balanced to unbalanced transformer designed for push-pull amplifiers in an easy to use surface mount package for PCS, DCS, and UMTS. These compact Xinger® surface mount baluns are ideal for high volume manufacturing and are more reliable and repeatable than traditional baluns. The 3W512 has an unbalanced port impedance of 50Ω and balanced port impedances of 12.5Ω to ground with a 25Ω balance between outputs. This eases the matching of the push-pull amplifier's power transistors, which have low impedance levels. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The Xinger® balun is a result of years of research and development culminating with a solution so unique, a patent is pending on the design approach. The 3W512 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **1.8 – 2.2 GHz**
- **180° Transformer**
- **50 Ohm to 12.5+j5.5 Ohm**
- **Broad Band**
- **Low Insertion Loss**
- **High Power**
- **Even Order Suppression**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Convenient Package**

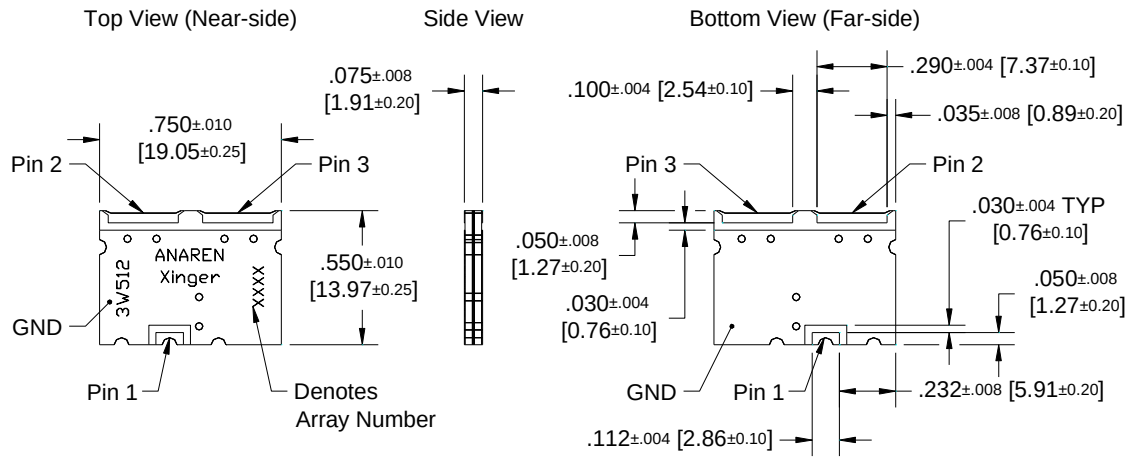
ELECTRICAL SPECIFICATIONS***

Frequency	Unbalanced Port Impedance	Balanced Port Impedance*	Return Loss	Insertion Loss**
GHz	*Ohms*	*Ohms*	*dB Min*	*dB max*
1.8 – 2.2	50	12.5+j5.5	15	0.40
Amplitude Balance	**Phase Balance**	**Power Handling**	**ΘJC**	**Operating Temp.**
dB max	*Degrees max*	*Watts*	*ºC / Watt*	*ºC*
0.40	180± 5.0	150	11.3	-55 to +85

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

* 50Ω reference to ground

Outline Drawing



Dimensions are in Inches [Millimeters]
3W512 Rev A Mechanical Outline

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Balun Transformers
50Ω to 25Ω Balanced

Description

The 3W525 is a low profile balanced to unbalanced transformer designed for push-pull amplifiers in an easy to use surface mount package for PCS and DCS applications. These compact Xinger® surface mount baluns are ideal for high volume manufacturing and are more reliable and repeatable than traditional baluns. The 3W525 has an unbalanced port impedance of 50Ω and balanced port impedances of 25Ω to ground with a 50Ω balance between outputs. This eases the matching of the push-pull amplifier's power transistors, which have low impedance levels. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The Xinger® balun is a result of years of research and development culminating with a solution so unique, a patent is pending on the design approach. The 3W525 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **1.8 – 2.5 GHz**
- **180° Transformer**
- **50 Ohm to 2 x 25 Ohm**
- **Low Insertion Loss**
- **High Power**
- **Even Order Suppression**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Convenient Package**

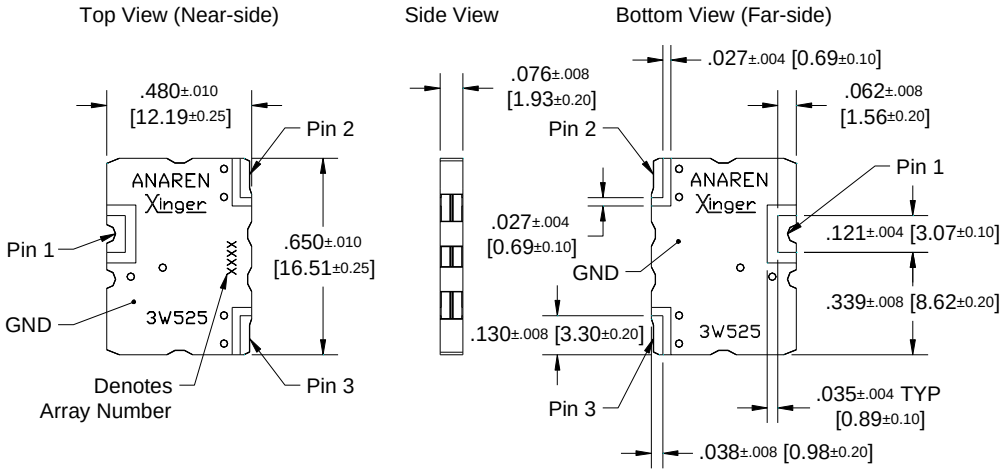
ELECTRICAL SPECIFICATIONS***

Frequency	Unbalanced Port Impedance	Balanced Port Impedance*	Return Loss	Insertion Loss**
GHz	*Ohms*	*Ohms*	*dB min*	*dB max*
1.8 – 2.5	50	25	15	0.38
1.805-2.170	50	25	15	0.35

Amplitude Balance	Phase Balance	Power Handling	ΘJC	Operating Temp.
dB max	*Degrees max*	*Watts*	*ºC / Watt*	*ºC*
0.40	180± 5.0	150	11.3	-55 to +85
0.40	180± 5.0	150	11.3	-55 to +85

***Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.
**Insertion Loss excludes reflected power. * 25Ω reference to ground

Outline Drawing



Dimensions are in Inches [Millimeters]
3W525 Rev A Mechanical Outline

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Consumer Components Selection Matrix

.080 x .050 (2mm x 1.25mm) Surface Mount Balun Transformers							
Model Number	Frequency [MHz]	Unbalanced Port Impedance [Ω]	Balanced Port Impedance [Ω]	Insertion Loss [dB]	Amplitude Balance [dB]	Phase Balance [°]	RL Unbalanced [dB]
B0225J7575A00	200 - 2500	75	75	1.10	3.20	40	14
B0310J50100A00	330 - 1000	50	100	2.00	1.50	25	8.7
B0922J7575A00	900 - 2200	75	75	1.20	1.40	9	7.9
B0922J7575A50	900 - 2200	75	75	1.10	1.40	9	12
BD0810J50100A00	800 - 1000	50	100	0.95	0.40	2	13
BD0810J50150A00	800 - 1000	50	150	1.10	0.60	6	13.3
BD0810J50200A00	800 - 1000	50	200	1.00	1.10	8	14.5
BD0826J50200A00	800 - 2600	50	200	1.50	1.30	7	8.5
BD1222J50200A00	1200 - 2200	50	200	0.60	0.90	6	14
BD1631J50100A00	1600 - 3100	50	100	1.00	1.00	5	10
BD2130J5050A00	2100 - 3000	50	50	1.20	1.00	5	10
BD1722J50100A00	1700 - 2200	50	100	1.20	1.20	6	9
BD1722J50150A00	1700 - 2200	50	150	0.70	1.00	7	18
BD1722J50200A00	1700 - 2200	50	200	0.70	0.90	8	15
BD2425J5050A00	2400 - 2500	50	50	0.90	0.50	5	14
BD2425J50100A00	2400 - 2500	50	100	0.75	0.50	5	14
BD2425J50200A00	2400 - 2500	50	200	0.80	0.50	6	9.5
BD2425J50350A00	2400 - 2500	50	350	1.30	0.60	10	10
BD2040J50100A00	2000 - 4000	50	100	1.00	1.10	17	10.5

.060 x .030 (1.5mm x .8mm) Surface Mount Balun Transformers							
Model Number	Frequency [MHz]	Unbalanced Port Impedance [Ω]	Balanced Port Impedance [Ω]	Insertion Loss [dB]	Amplitude Balance [dB]	Phase Balance [°]	RL Unbalanced [dB]
BD2326L50150A00	2300 - 2600	50	150	1.10	1.00	10	12
BD2326L50200A00	2300 - 2600	50	200	1.10	0.80	9	12
BD3150L50100A00	3100 - 5000	50	100	1.10	0.90	9	9.5
BD3150L50200A00	3100 - 5000	50	200	1.20	1.30	11	11
BD4859L5075A00	4800 - 5900	50	75	1.30	1.30	6	9
BD4859L50100A00	4800 - 5900	50	100	1.10	1.10	8	9.2
BD4859L50150A00	4800 - 5900	50	150	1.00	1.30	10	11
BD4859L50200A00	4800 - 5900	50	200	1.40	1.40	10	8

.040 x .040 (1mm x 1mm) Surface Mount Balun Transformers							
Model Number	Frequency [MHz]	Unbalanced Port Impedance [Ω]	Balanced Port Impedance [Ω]	Insertion Loss [dB]	Amplitude Balance [dB]	Phase Balance [°]	RL Unbalanced [dB]
BD2425N5075A00	2400 - 2500	50	75	0.90	0.90	3	14
BD2425N50100A00	2400 - 2500	50	100	0.70	0.60	3	18
BD2425N50200A00	2400 - 2500	50	200	0.70	1.00	6	21
BD2425P50100A00	2400 - 2500	50	100	0.60	0.90	6	16
BD3150N50100A00	3100 - 5000	50	100	0.70	1.30	7	16
BD4859N5050A00	4800 - 5900	50	50	0.70	1.20	7	16
BD4859N5075A00	4800 - 5900	50	75	0.50	1.00	9	15
BD4859N50100A00	4800 - 5900	50	100	0.60	1.50	8	15
BD4859N50150A00	4800 - 5900	50	150	0.60	1.40	10	12
BD4859N50200A00	4800 - 5900	50	200	0.50	0.80	9	18

.10 x .08 (2.5mm x 2mm) Surface Mount Low Frequency Broadband Balun Transformer							
Model Number	Frequency [MHz]	Unbalanced Port Impedance [Ω]	Balanced Port Impedance [Ω]	Insertion Loss [dB]	Amplitude Balance [dB]	Phase Balance [°]	RL Unbalanced [dB]
B0011E75300A00	50 - 1000	75	300	1.60	1.50	15	9

.100 x .080 (2.5mm x 2mm) Surface Mount Filter Balun Transformer							
Model Number	Frequency [MHz]	Unbalanced Port Impedance [Ω]	Balanced Port Impedance [Ω]	Insertion Loss [dB]	Attenuation 930 MHz.	Attenuation 1910 MHz.	RL [dB]
FB2425E50100A00	2400 - 2500	50	100	2.60	45dB	18dB	9.5

Consumer Components Selection Matrix

.080 x .050 (2mm x 1.25mm) Surface Mount 2 Way Power Splitters								
Model Number	Frequency [MHz]	Input Port Impedance [Ω]	Output Port Impedance [Ω]	Insertion Loss [dB]	Amplitude Balance [dB]	Phase Balance [°]	Return Loss [dB]	Isolation [dB]
PD0409J7575S2	400 - 900	75	75	0.60	0.60	3	10	8.2
PD0810J5050S2	800 - 1000	50	50	0.60	0.80	4	14	17
PD0922J5050D2	900 - 2200	50	50	0.70	0.40	3	9.3	10.5
PD0922J5075D2	900 - 2200	50	75	0.70	0.30	3	11	12
PD0922J7575D2	900 - 2200	75	75	1.00	0.70	3	9.5	14
PD1722J5050D2	1700 - 2200	50	50	0.70	0.30	3	11	17
PD2328J5050S2	2300 - 2800	50	50	0.50	0.30	2	15	17
PD3150J5050S2	3100 - 5000	50	50	1.30	0.40	2	6.8	13
PD4859J5050S2	4800 - 5900	50	50	1.00	0.30	4	7.9	14
PD6080J5050S2	6000 - 8000	50	50	0.90	0.50	5	9	12

.080 x .050 (2mm x 1.25mm) Surface Mount 3 Way Power Splitters								
Model Number	Frequency [MHz]	Input Port Impedance[Ω]	Output Port Impedance [Ω]	Insertion Loss [dB]	Amplitude Balance [dB]	Phase Balance [°]	Return Loss [dB]	Isolation [dB]
PD1722J5050S3	1700 - 2200	50	50	1.30	0.90	12	9	14

.080 x .050 (2mm x 1.25mm) Surface Mount 3 dB Hybrid Couplers						
Model Number	Frequency [MHz]	Insertion Loss [dB]	Return Loss [dB]	Isolation [dB]	Amplitude Balance [dB]	Phase Balance [°]
C0810J5003A00	800 - 1000	0.60	21	18	0.90	90 ± 7
C1720J5003A00	1700 - 2000	0.40	21	24	1.00	90 ± 5
C2023J5003A00	2000 - 2300	0.40	18	21	0.80	90 ± 6
C2327J5003A00	2300 - 2700	0.40	15	18	0.90	90 ± 8
C3337J5003A00	3300 - 3700	0.30	15	18	1.00	90 ± 7

.060 x .030 (1.5mm x 0.8mm) Surface Mount RF Crossovers & Jumpers				
Model Number	Frequency [MHz]	Port Impedance [Ω]	Insertion Loss [dB]	RL Unbalanced [dB]
X0060L5050A00	0 – 6000	50	0.15	16
J0060L5050A00	0 – 6000	50	0.15	16
X0060L7575A00	0 – 2500	75	0.15	19
J0060L7575A00	0 – 2500	75	0.20	19

Nomenclature Chart

XX XXXX X - XX XXX X XX

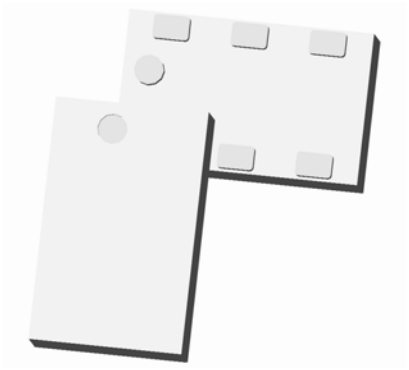
Function	Frequency (MHz)	Size (Inches)	Unbalanced Impedance	Balanced Impedance or Coupling	Plating Finish
B = Balun	0110 = 100 - 1000	A = 0.15 x 0.15	50 = 50 Ohm	25 = 25 Ohms Balanced	A = Gold
BD = Balun + DC	0810 = 900 - 1000	D = 0.32 x 0.34	75 = 75 Ohm	30 = 30 Ohms Balanced	
C = Coupler	0922 = 950 - 2150	E = 0.10 x 0.08		50 = 50 Ohms Balanced	
DD = Differential Diplexer	0826 = 800 - 2600	G = 0.20 x 0.16		75 = 75 Ohms Balanced	
F = Filter	1222 = 1200 - 2200	H = 0.08 x 0.08		100 = 100 Ohms Balanced	
FB = Filter Balun	1416 = 1400 - 1600	J = 0.08 x 0.05		150 = 150 Ohms Balanced	
J = RF Jumper	1722 = 1700 - 2200	K = 0.06 x 0.06		200 = 200 Ohms Balanced	
TF = Triple Filter	2326 = 2300 - 2600	L = 0.06 x 0.03		300 = 300 Ohms Balanced	
X = RF Crossover	2425 = 2400 - 2500	M = 0.05 x 0.05		400 = 400 Ohms Balanced	
	3150 = 3100 - 5000	N = 0.04 x 0.04			
	3436 = 3400 - 3600	P = 0.04 x 0.04 x 0.018		03 = 3 dB Hybrid	
	4859 = 4800 - 5900	R = 0.04 x 0.02		10 = 10 dB Directional	
	5153 = 5100 - 5300	S = 0.04 x 0.06		20 = 20 dB Directional	
	5159 = 5100 - 5900	T = 0.03 x 0.05			
	5759 = 5700 - 5900				

Note: These tables are for reference only. Please review complete data sheet for actual specification data.

Model B0225J7575A00

Rev A

Ultra Low Profile 0805 Balun 75Ω to 75Ω Balanced



Description

The B0225J7575A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering the DVB-T, DVB-C and DVB-S broadcast frequencies. The B0225J7575A00 is ideal for high volume manufacturing and is higher performance than traditional wire wound and lumped element baluns. The B0225J7575A00 has an unbalanced port impedance of 75Ω and a 75Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The B0225J7575A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

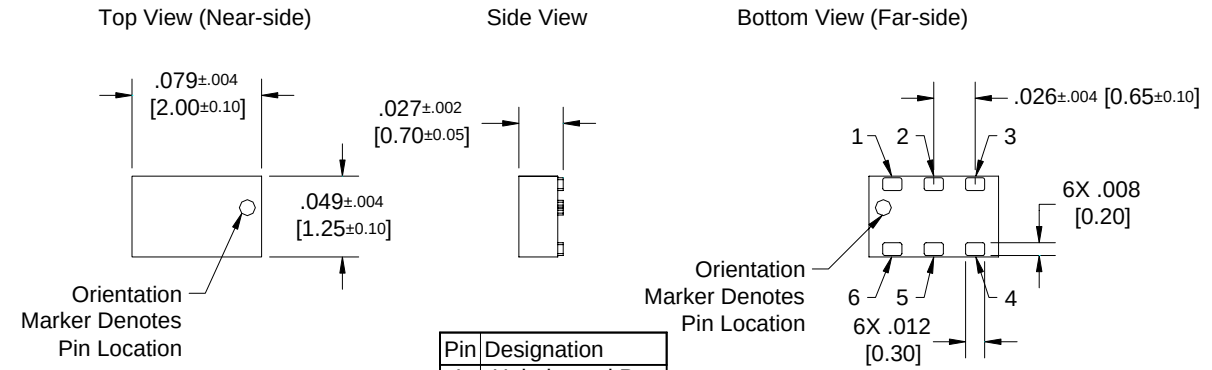
- **200 – 2500 MHz**
- **0.7mm Height Profile**
- **75 Ohm to 2 x 37.5 Ohm**
- **DVB-T, DVB-C & DVB-S**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Detailed Electrical Specifications:

Specifications subject to change without notice.

	Broadband			Narrowband			25°C
Parameter	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Unit**
Frequency	200		2500	350		550	MHz
Unbalanced Port Impedance		75			75		Ω
Balanced Port Impedance		75			75		Ω
Return Loss	14	16		17	20		dB
Insertion Loss*		0.9	1.1		0.4	0.5	dB
Amplitude Balance		3.0	3.2		1.4	1.6	dB
Phase Balance		38	40		24	26	Degrees
CMRR		8			13		dB
Power Handling			0.5			0.5	Watts
Operating Temperature	-55		+85	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC) Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND
3	Balanced Port
4	Balanced Port
5	Do not connect
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

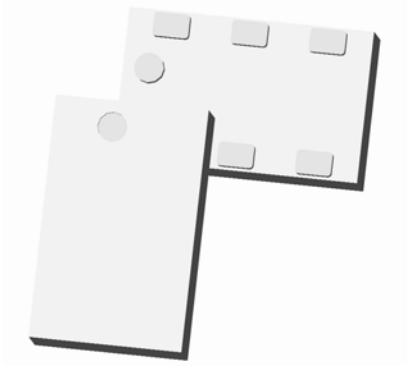
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model B0310J50100A00

Rev A

Ultra Low Profile 0805 Balun 50Ω to 100Ω Balanced



Description

The B0310J50100A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations. The B0310J50100A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic and lumped element baluns. The B0310J50100A00 has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The B0310J50100A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

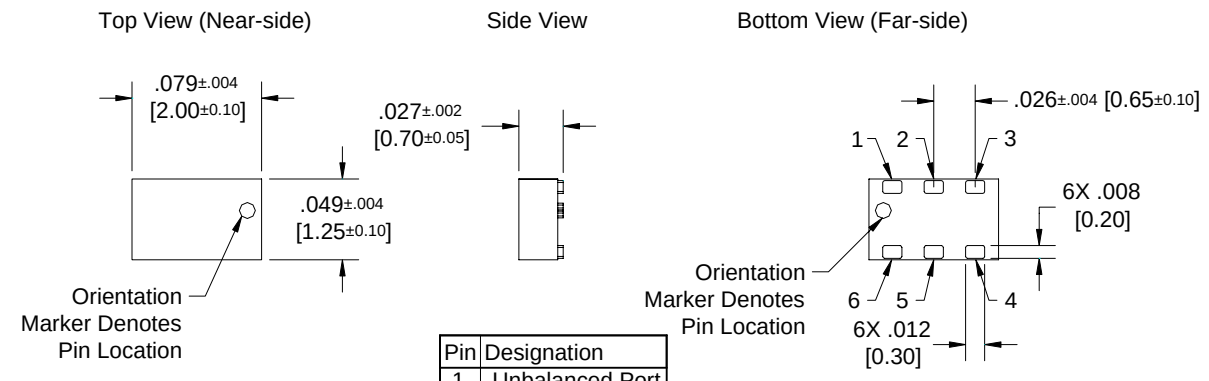
- **300 – 1000 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 50 Ohm**
- **Low Insertion Loss**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Detailed Electrical Specifications:

Specifications subject to change without notice.

	Broadband			Narrowband			25°C
Parameter	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Unit**
Frequency	330		1000	460		470	MHz
Unbalanced Port Impedance		50			50		Ω
Balanced Port Impedance		100			100		Ω
Return Loss	8.7	10		10	11.5		dB
Insertion Loss*		1.0	2.0		0.8	0.9	dB
Amplitude Balance		1.3	1.5		0.8	0.9	dB
Phase Balance		23	25		15	17	Degrees
CMRR		13			17		dB
Power Handling			0.5			0.5	Watts
Operating Temperature	-55		+85	-55		+85	ºC

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND
3	Balanced Port
4	Balanced Port
5	Do not connect
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

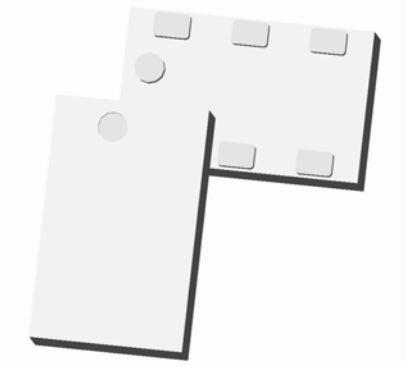
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model B0922J7575A00

Rev C

Ultra Low Profile 0805 Balun 75Ω to 75Ω Balanced



Description

The B0922J7575A00 is a low cost, low profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output locations on modern chipsets in an easy to use surface mount package covering dual polarized commercial Satellite bands 950 MHz –1450 MHz & 1650 MHz – 2150 MHz. The B0922J7575A00 is ideal for high volume manufacturing and delivers higher performance than traditional wire wound baluns. The B0922J7575A00 has an unbalanced port impedance of 75Ω and a 75Ω balanced port impedance*. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The B0922J7575A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **950 – 2150 MHz**
- **0.7mm Height Profile**
- **75 Ohm to 2 x 37.5 Ohm**
- **Low Insertion Loss**
- **Sat LNB Chipset Compliant**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

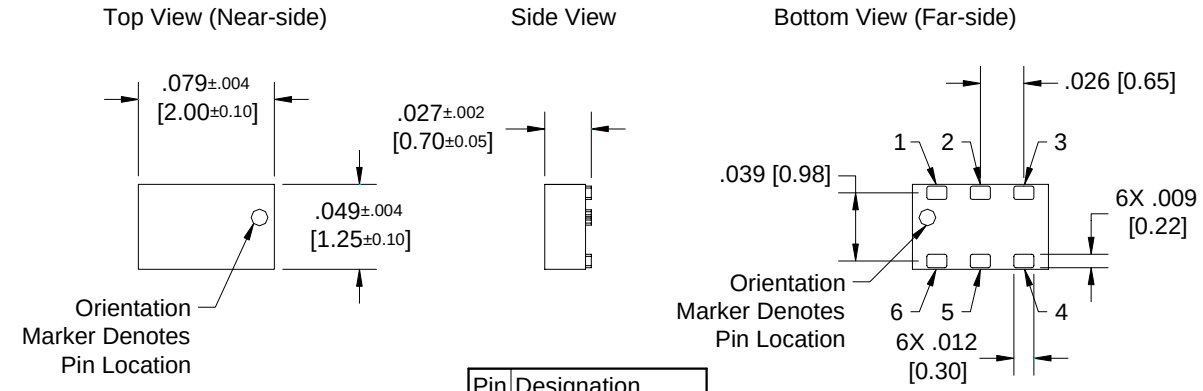
Detailed Electrical Specifications:

Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	950		2150	MHz
Unbalanced Port Impedance		75		Ω
Balanced Port Impedance		75		Ω
Return Loss	7.9	9.6		dB
Insertion Loss*		0.8	1.2	dB
Amplitude Balance		0.4	1.4	dB
Phase Balance		3	9	Degrees
CMRR		26		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	GND
2	Unbalanced Port
3	GND
4	Balanced Port
5	NC
6	Balanced Port

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

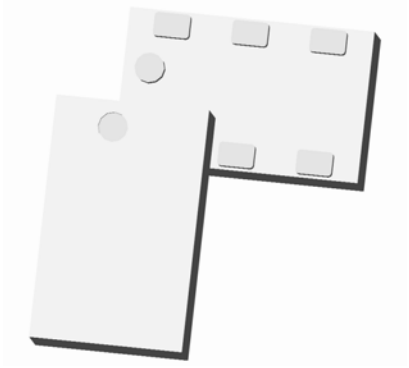
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model B0922J7575A50

Rev C

Ultra Low Profile 0805 Balun 75Ω to 75Ω Balanced



Description

The B0922J7575A50 is a low cost, low profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output locations on modern chipsets in an easy to use surface mount package covering dual polarized commercial Satellite bands 950 MHz –1450 MHz & 1650 MHz – 2150 MHz. The B0922J7575A50 is ideal for high volume manufacturing and delivers higher performance than traditional wire wound baluns. The B0922J7575A50 has an unbalanced port impedance of 75Ω and a 75Ω balanced port impedance*. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The B0922J7575A50 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **950 – 2150 MHz**
- **0.7mm Height Profile**
- **75 Ohm to 2 x 37.5 Ohm**
- **Low Insertion Loss**
- **Sat LNB Chipset Compliant**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

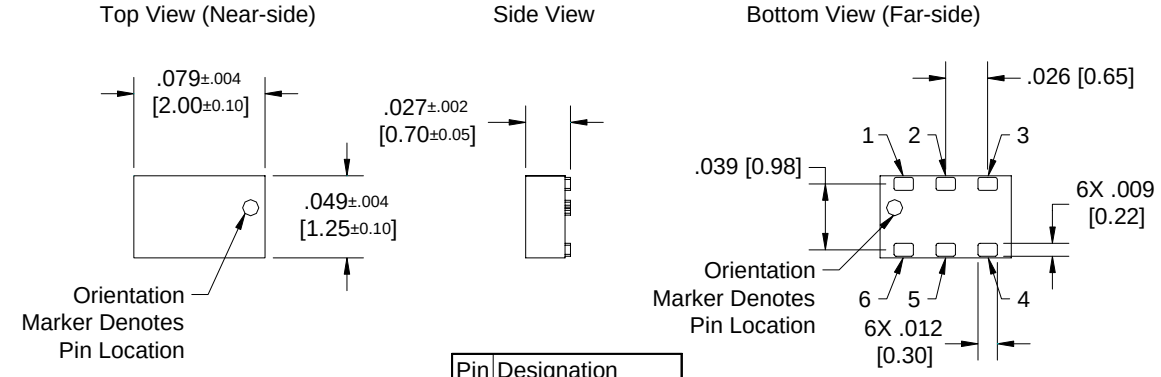
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	950		2150	MHz
Unbalanced Port Impedance		75		Ω
Balanced Port Impedance		75		Ω
Return Loss	12	15		dB
Insertion Loss*		0.8	1.1	dB
Amplitude Balance		1.0	1.4	dB
Phase Balance		3	9	Degrees
CMRR		25		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	GND
2	Unbalanced Port
3	GND
4	Balanced Port
5	NC
6	Balanced Port

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD0810J50100A00

Rev C

Ultra Low Profile 0805 Balun
50Ω to 100Ω Balanced

Description

The BD0810J50100A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering the GSM frequency. The BD0810J50100A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic and lumped element baluns. The BD0810J50100A00 has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD0810J50100A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

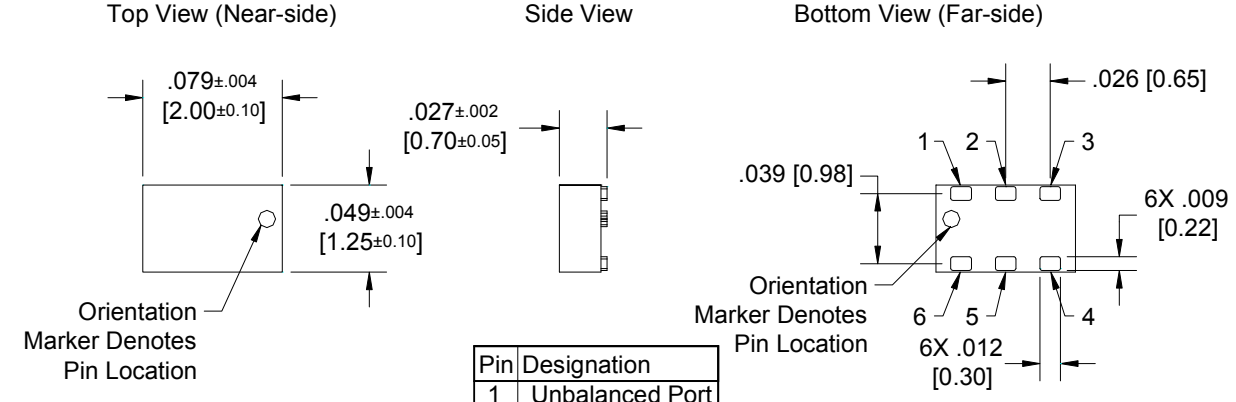
- **800 – 1000 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 50 Ohm**
- **GSM**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Detailed Electrical Specifications: Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	800		1000	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		100		Ω
Return Loss	13	15		dB
Insertion Loss*		0.70	0.95	dB
Amplitude Balance		0.2	0.4	dB
Phase Balance		1	2	Degrees
CMRR		39		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

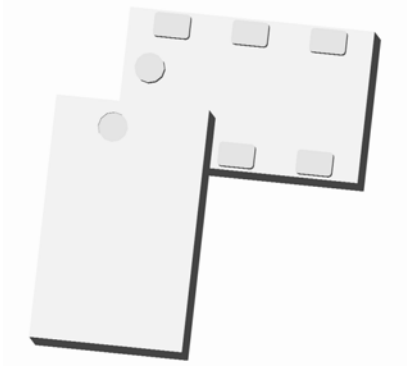
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD0810J50150A00

Rev B

Ultra Low Profile 0805 Balun 50Ω to 150Ω Balanced



Description

The BD0810J50150A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering the GSM frequency. The BD0810J50150A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic, and lumped element baluns. The BD0810J50150A00 has an unbalanced port impedance of 50Ω and a 150Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD0810J50150A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **800 – 1000 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 75 Ohm**
- **GSM**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

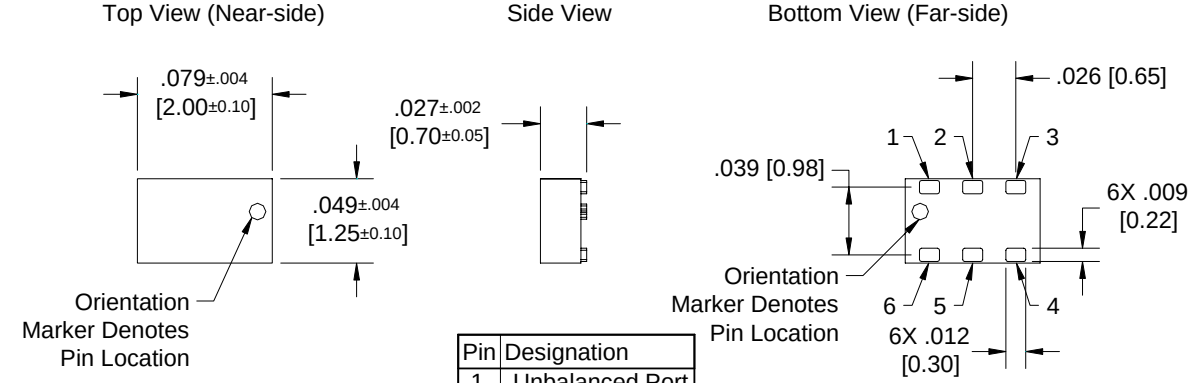
Detailed Electrical Specifications:

Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	800		1000	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		150		Ω
Return Loss	13.3	19.6		dB
Insertion Loss*		0.9	1.1	dB
Amplitude Balance		0.2	0.6	dB
Phase Balance		2.5	6	Degrees
CMRR		33		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

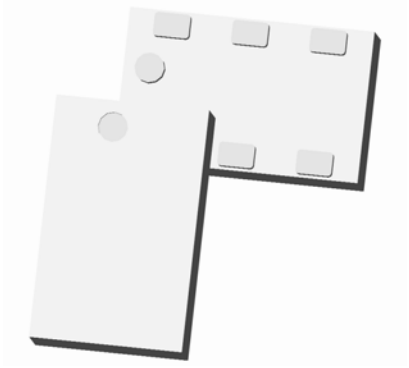
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD0810J50200A00

Rev B

Ultra Low Profile 0805 Balun 50Ω to 200Ω Balanced



Description

The BD0810J50200A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering the GSM frequency. The BD0810J50200A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic and lumped element baluns. The BD0810J50200A00 has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD0810J50200A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **800 – 1000 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 100 Ohm**
- **GSM**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

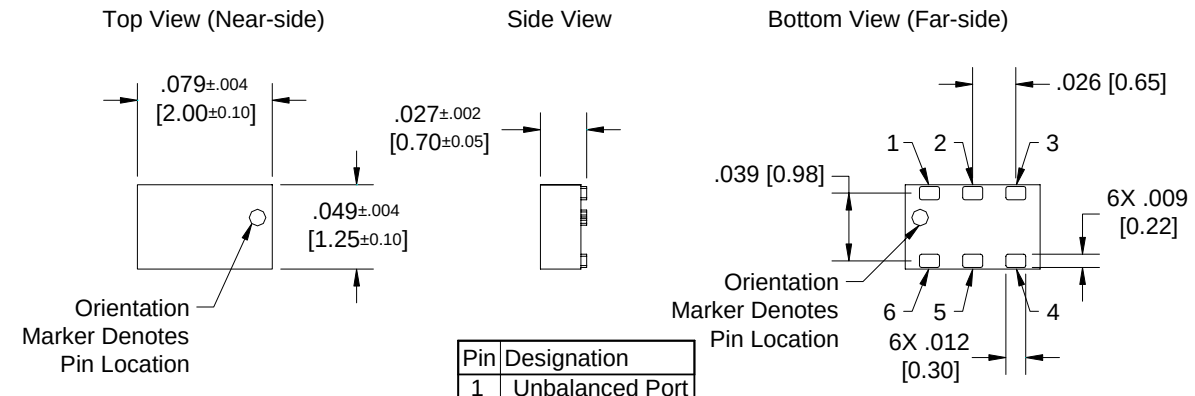
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	800		1000	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		200		Ω
Return Loss	14.5	19		dB
Insertion Loss*		0.7	1.0	dB
Amplitude Balance		0.6	1.1	dB
Phase Balance		5	8	Degrees
CMRR		26		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD0826J50200A00

Rev C

Ultra Low Profile 0805 Balun
50Ω to 200Ω Balanced

Description

The BD0826J50200A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering the GSM, DCS, PCS, UMTS, CDMA and 802.11 b+g+n frequencies. The BD0826J50200A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic, and lumped element baluns. The BD0826J50200A00 has an unbalanced port impedance of 50Ω and a 200Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD0826J50200A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **800 – 2600 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 100 Ohm**
- **GSM/DCS/PCS/UMTS/CDMA**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

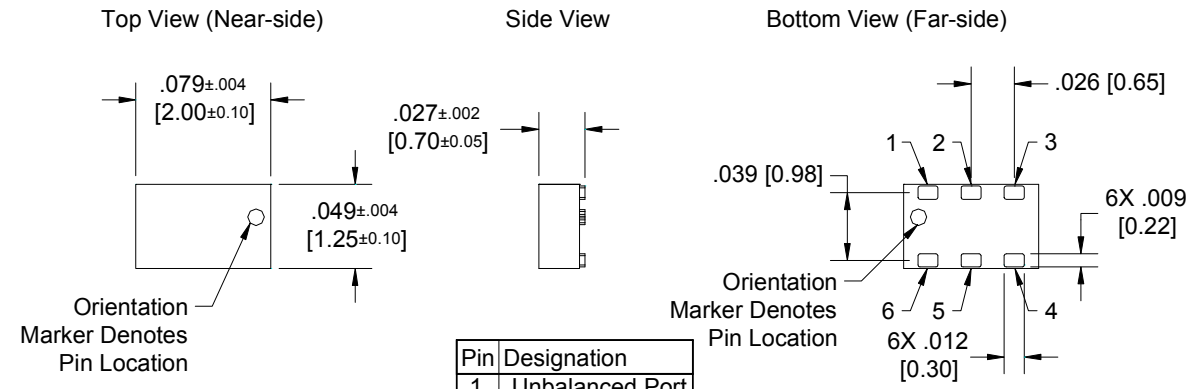
Detailed Electrical Specifications:

Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	800		2600	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		200		Ω
Return Loss	8.5	13		dB
Insertion Loss*		1.2	1.5	dB
Amplitude Balance		0.4	1.3	dB
Phase Balance		3	7	Degrees
CMRR		30		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

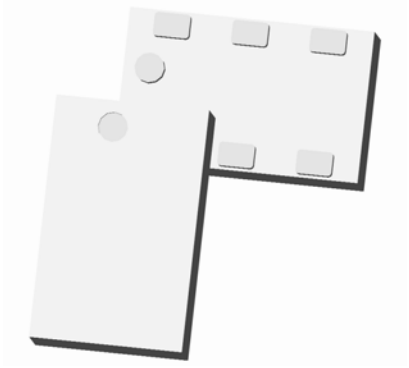
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD1222J50200A00

Rev B

Ultra Low Profile 0805 Balun 50Ω to 200Ω Balanced



Description

The BD1222J50200A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering the DCS, PCS, UMTS and CDMA frequencies. The BD1222J50200A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic and lumped element baluns. The BD1222J50200A00 has an unbalanced port impedance of 50Ω and a 200Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD1222J50200A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **1200 – 2200 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 100 Ohm**
- **DCS/PCS/UMTS/CDMA**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

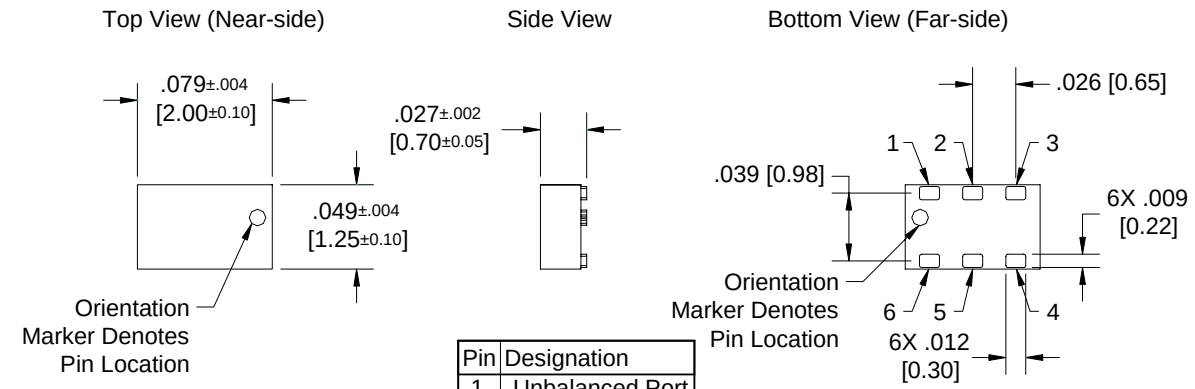
Detailed Electrical Specifications:

Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	1200		2200	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		200		Ω
Return Loss	14	18		dB
Insertion Loss*		0.4	0.6	dB
Amplitude Balance		0.4	0.9	dB
Phase Balance		2	6	Degrees
CMRR		30		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

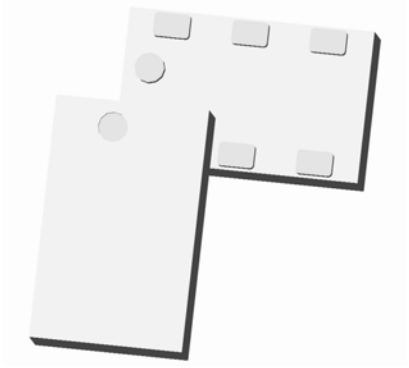
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger®

Ultra Low Profile 0805 Balun
50Ω to 100Ω Balanced



Description

The BD1631J50100Aoo is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering 802.11b+g+n, GSM, DCS, PCS and UMTS. The BD1631J50100Aoo is ideal for high volume manufacturing and is higher performance than traditional ceramic and lumped element baluns. The BD1631J50100Aoo has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance*. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD1631J50100Aoo is available on tape and reel for pick and place high volume manufacturing.

Features:

- **1.6 – 3.1 GHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 50 Ohm**
- **802.11 b & g +n Compliant**
- **Low Insertion Loss**
- **DCS, PCS & UMTS Compliant**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

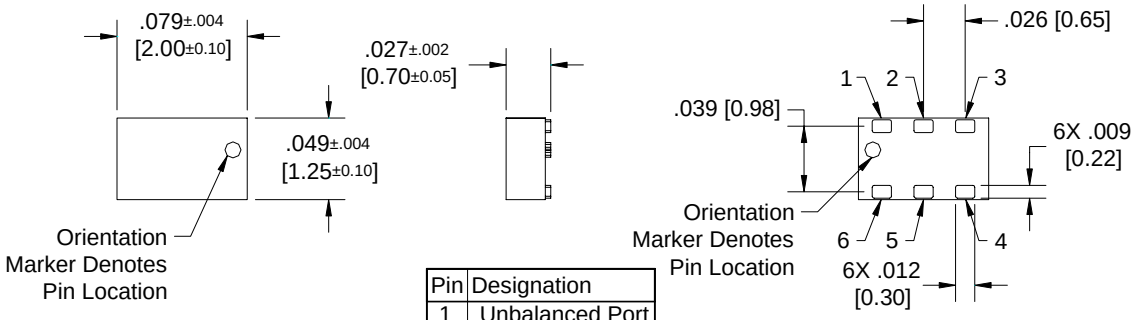
Detailed Electrical Specifications*: Specifications subject to change without notice.

	ROOM (25°C)						
Parameter	**Min.**	**Typ.**	**Max**	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	2.0		2.5	1.6		3.1	GHz
Unbalanced Port Imp.		50			50		Ω
Balanced Port Imp.**		100			100		Ω
Return Loss	12	17.5		10	13		dB
Insertion Loss***		0.6	0.75		0.75	1.0	dB
Amplitude Balance		0.35	0.65		0.7	1.0	dB
Phase Balance		±2	±5		±2	±5	Degrees
Power Handling			2			2	Watts
Operating Temperature	-55		+85	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing

Top View (Near-side) Side View Bottom View (Far-side)



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

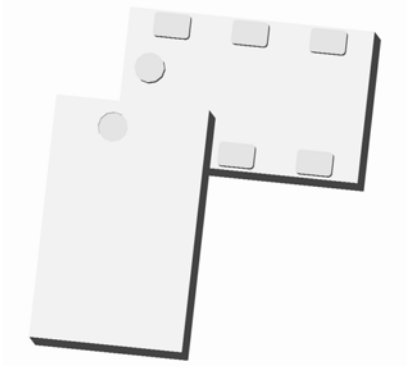
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD2130J5050A00

Rev B

Ultra Low Profile 0805 Balun
50Ω to 50Ω Balanced



Description

The BD2130J5050A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering 802.11b+g+n. The BD2130J5050A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic and lumped element baluns. The BD2130J5050A00 has an unbalanced port impedance of 50Ω and a 50Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD2130J5050A00 is available on tape and reel for pick and place high volume manufacturing.

Detailed Electrical Specifications*: Specifications subject to change without notice.

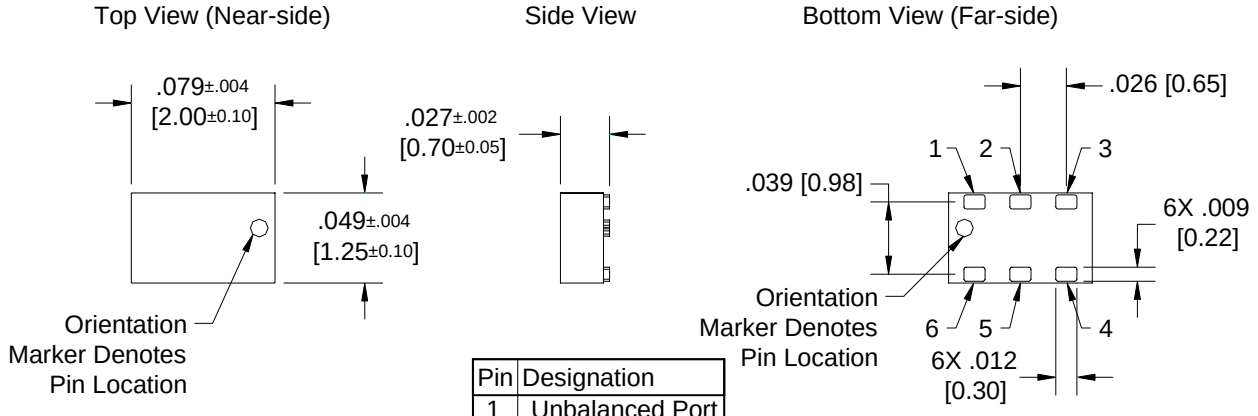
Features:

- **2.1 – 3.0 GHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 25 Ohm**
- **802.11 b & g +n Compliant**
- **Low Insertion Loss**
- **DCS, PCS & UMTS**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

	ROOM (25°C)						
Parameter	**Min.**	**Typ.**	**Max**	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	2.4		2.5	2.1		3.0	GHz
Unbalanced Port Imp.		50			50		Ω
Balanced Port Imp.**		50			50		Ω
Return Loss	12	17		10	12		dB
Insertion Loss***		0.75	0.9		1.0	1.2	dB
Amplitude Balance		0.45	0.65		0.7	1.0	dB
Phase Balance		2	5		2	5	Degrees
Power Handling			2			2	Watts
Operating Temperature	-55		+85	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD1722J50100A00

Rev C

Ultra Low Profile 0805 Balun
50Ω to 100Ω Balanced

Description

The BD1722J50100A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering the DCS, PCS, UMTS and CDMA frequencies. The BD1722J50100A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic, and lumped element baluns. The BD1722J50100A00 has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD1722J50100A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **1700 – 2200 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 50 Ohm**
- **DCS/PCS/UMTS/CDMA**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

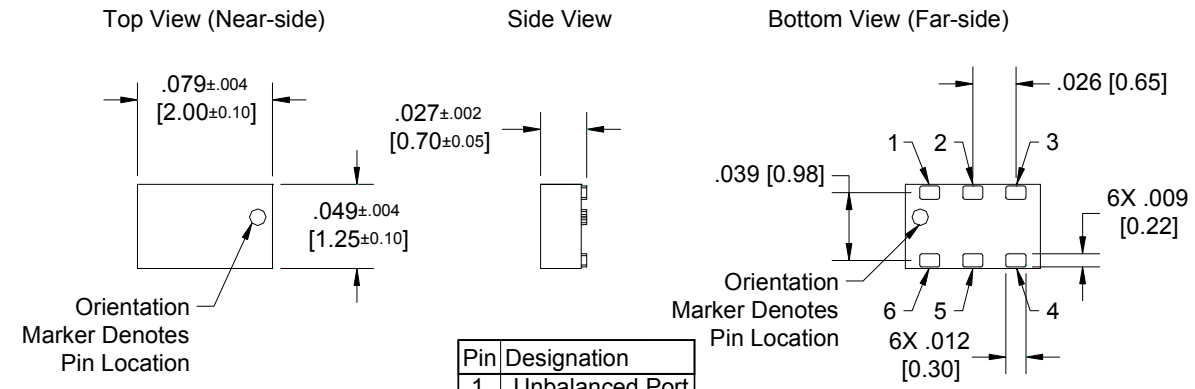
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	1700		2200	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		100		Ω
Return Loss	9	13		dB
Insertion Loss*		0.9	1.2	dB
Amplitude Balance		0.4	1.2	dB
Phase Balance		4	6	Degrees
CMRR		29		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

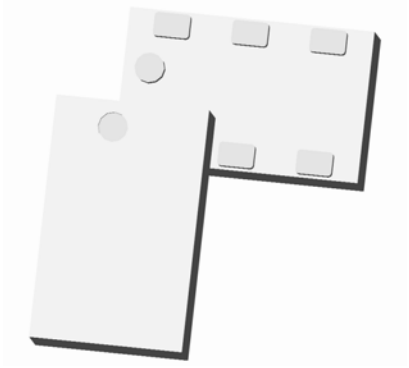
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD1722J50150A00

Rev B

Ultra Low Profile 0805 Balun 50Ω to 150Ω Balanced



Description

The BD1722J50150A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering the DCS, PCS, UMTS and CDMA frequencies. The BD1722J50150A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic and lumped element baluns. The BD1722J50150A00 has an unbalanced port impedance of 50Ω and a 150Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD1722J50150A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **1700 – 2200 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 75 Ohm**
- **DCS/PCS/UMTS/CDMA**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

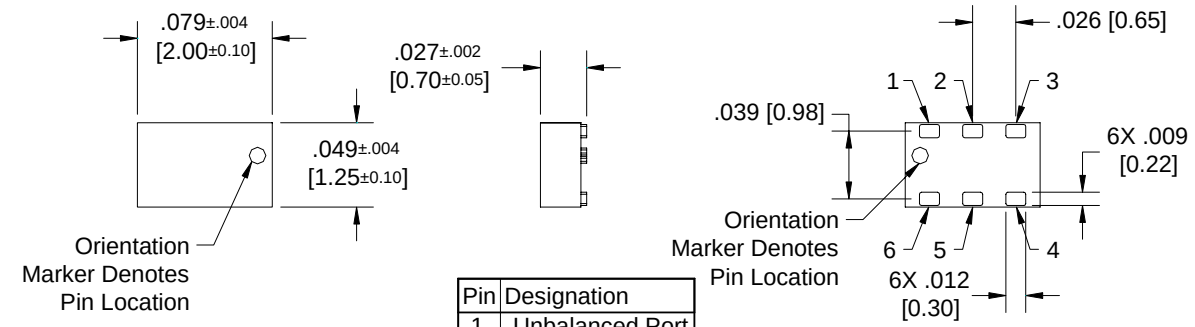
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	1700		2200	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		150		Ω
Return Loss	18	24		dB
Insertion Loss*		0.5	0.7	dB
Amplitude Balance		0.5	1.0	dB
Phase Balance		3	7	Degrees
CMRR		30		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger®

Ultra Low Profile 0805 Balun
50Ω to 200Ω Balanced

Description

The BD1722J50200A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering the DCS, PCS, UMTS and CDMA frequencies. The BD1722J50200A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic and lumped element baluns. The BD1722J50200A00 has an unbalanced port impedance of 50Ω and a 200Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD1722J50200A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

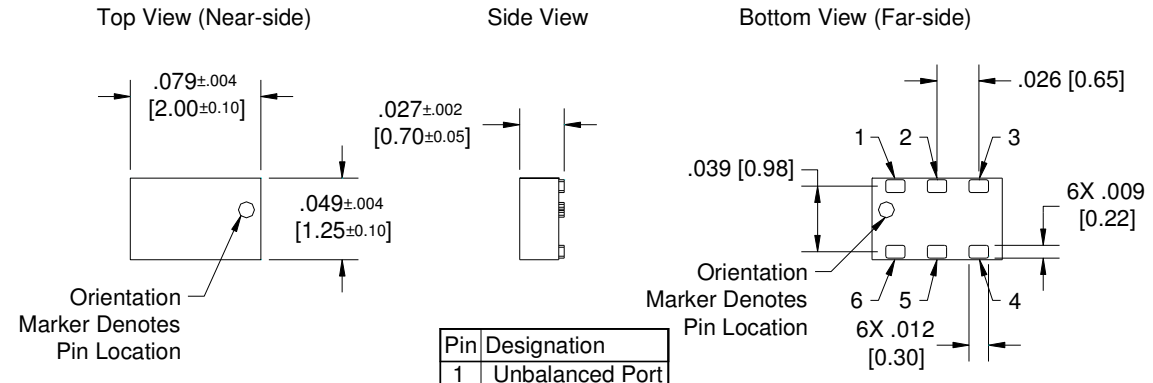
- **1.7 – 2.2 GHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 100 Ohm**
- **DCS/PCS/ UMTS/CDMA**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Detailed Electrical Specifications*: Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	1.7		2.2	GHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance**		200		Ω
Return Loss	15	20		dB
Insertion Loss***		0.5	0.7	dB
Amplitude Balance		0.6	0.9	dB
Phase Balance		4	8	Degrees
Power Handling			0.5	Watts
Thermal Resistance			TBD	*ºC / Watt*
Operating Temperature	-55		+85	*ºC*

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

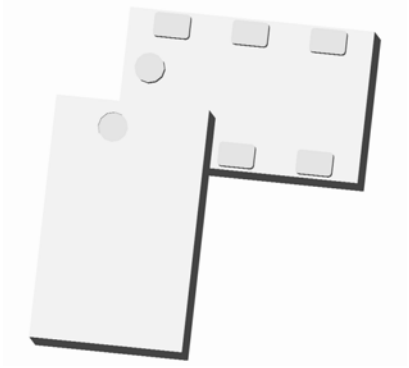
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD2425J5050A00

Rev B

Ultra Low Profile 0805 Balun 50Ω to 50Ω Balanced



Description

The BD2425J5050A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering 802.11b+g+n. The BD2425J5050A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic and lumped element baluns. The BD2425J5050A00 has an unbalanced port impedance of 50Ω and a 50Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD2425J5050A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **2400 – 2400 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 25 Ohm**
- **802.11 b+g +n Compliant**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

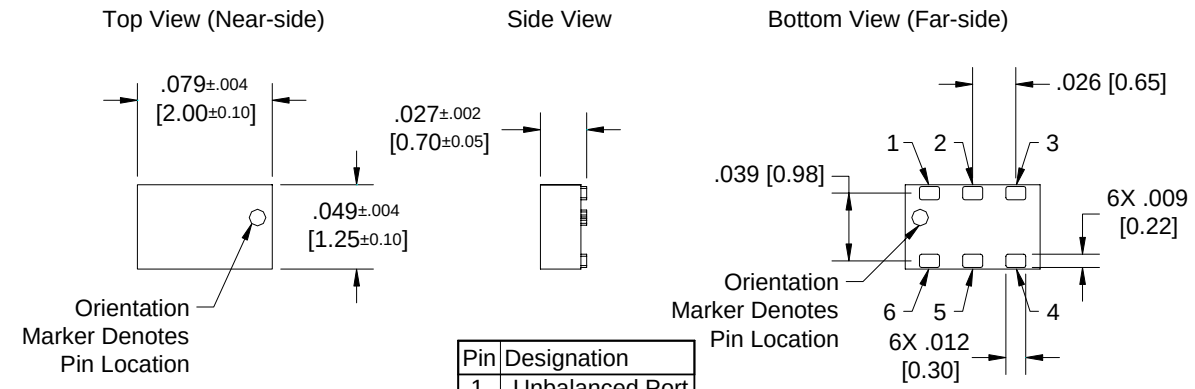
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	2400		2500	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		50		Ω
Return Loss	14	17		dB
Insertion Loss*		0.8	0.9	dB
Amplitude Balance		0.35	0.5	dB
Phase Balance		1	5	Degrees
CMRR				dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

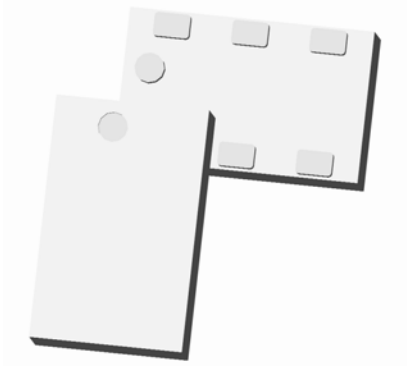
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD2425J50100A00

Rev B

Ultra Low Profile 0805 Balun 50Ω to 100Ω Balanced



Description

The BD2425J50100A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering 802.11b+g+n. The BD2425J50100A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic and lumped element baluns. The BD2425J50100A00 has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD2425J50100A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **2400 – 2400 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 50 Ohm**
- **802.11 b+g +n Compliant**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

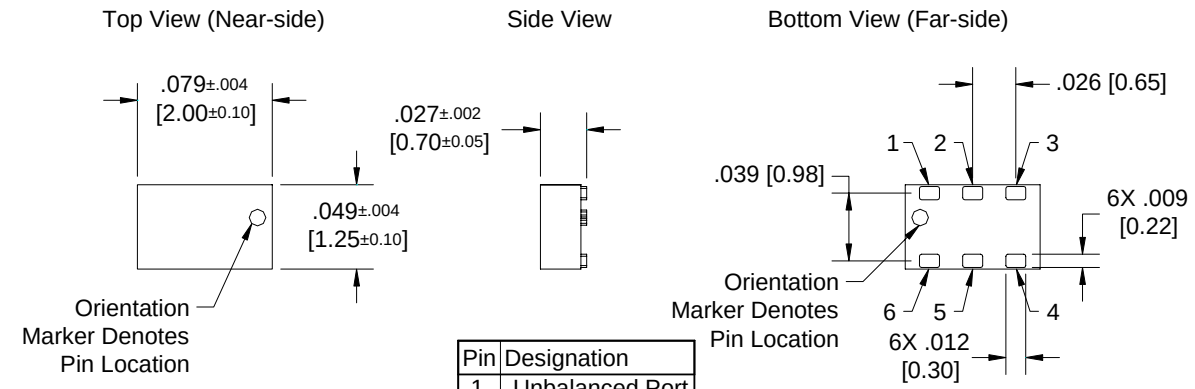
Detailed Electrical Specifications:

Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	2400		2500	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		100		Ω
Return Loss	14	22		dB
Insertion Loss*		0.55	0.75	dB
Amplitude Balance		0.3	0.5	dB
Phase Balance		2	5	Degrees
CMRR				dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

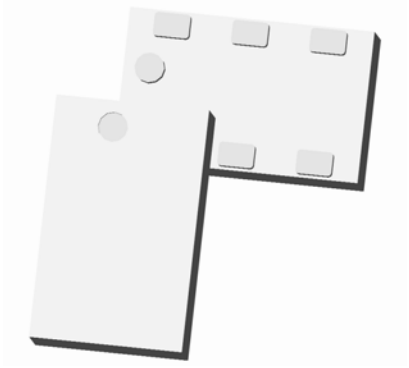
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD2425J50200A00

Rev B

Ultra Low Profile 0805 Balun 50Ω to 200Ω Balanced



Description

The BD2425J50200A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering the GSM frequencies. The BD2425J50200A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic and lumped element baluns. The BD2425J50200A00 has an unbalanced port impedance of 50Ω and a 200Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD2425J50200A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **2400 – 2400 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 100 Ohm**
- **802.11 b+g +n Compliant**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

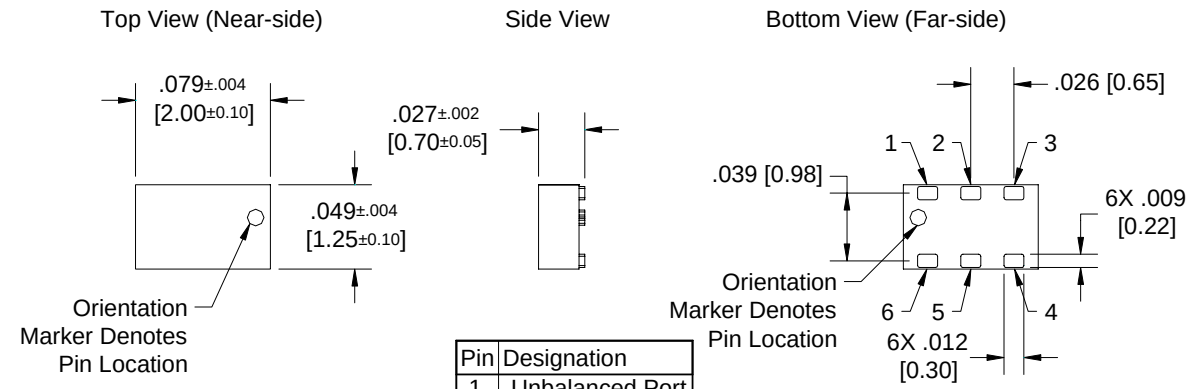
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	2400		2500	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		200		Ω
Return Loss	9.5	12.2		dB
Insertion Loss*		0.6	0.8	dB
Amplitude Balance		0.1	0.5	dB
Phase Balance		2	6	Degrees
CMRR		37		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

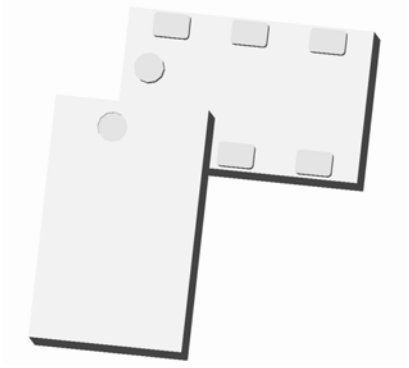
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD2425J50350A00

Rev A

Ultra Low Profile 0805 Balun 50Ω to 350Ω Balanced



Description

The BD2425J50350A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering the 2.4GHz ISM, WLAN, Bluetooth and WiMAX frequencies. The BD2425J50350A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic and lumped element baluns. The BD2425J50350A00 has an unbalanced port impedance of 50Ω and a 350Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD2425J50350A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **2400 – 2400 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 175 Ohm**
- **802.11 b, g +n Compliant**
- **Ideal impedance for CMOS transceivers**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Bluetooth, Zigbee and 2.4GHz ISM compliant**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

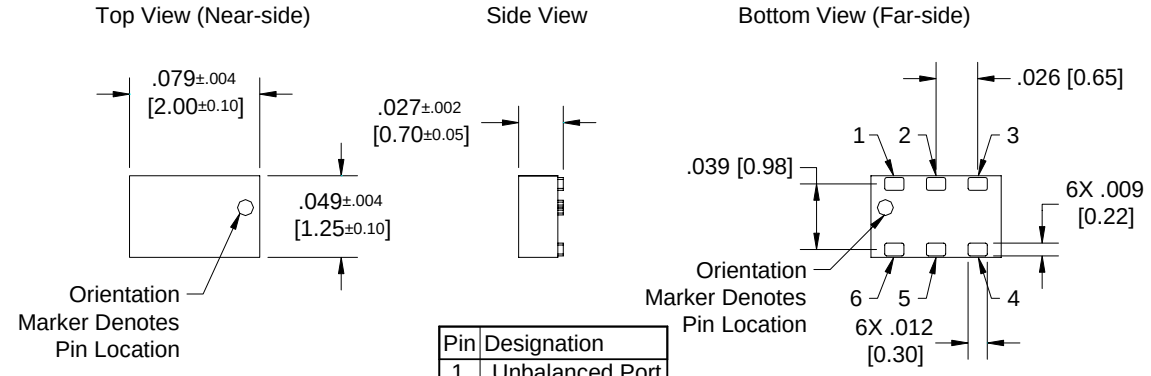
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	2400		2500	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		350		Ω
Return Loss	10	12		dB
Insertion Loss*		1.1	1.3	dB
Amplitude Balance		0.1	0.6	dB
Phase Balance		5°	10°	Degrees
CMRR		28		dB
Power Handling			TBD	Watts
Thermal Resistance	-55		+85	*ºC / Watt*
Operating Temperature	800		1000	*ºC*

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

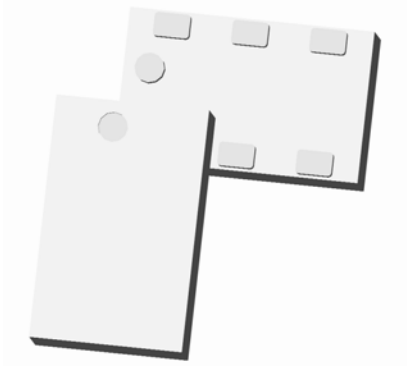
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD2040J50100A00

Rev B

Ultra Low Profile 0805 Balun 50Ω to 100Ω Balanced



Description

The BD2040J50100A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering multiple ISM bands. The BD2040J50100A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic and lumped element baluns. The BD2040J50100A00 has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD2040J50100A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **2000 – 4000 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 50 Ohm**
- **Multiple ISM bands**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

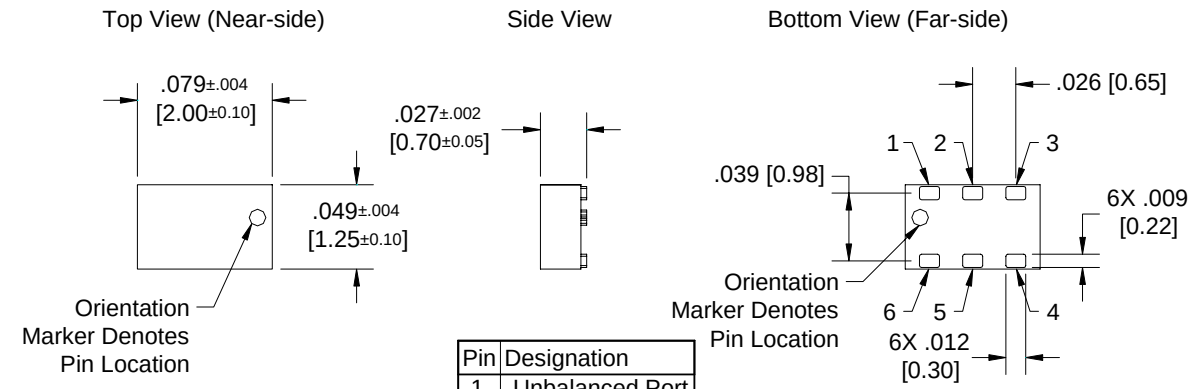
Detailed Electrical Specifications:

Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	2000		4000	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		100		Ω
Return Loss	10.5	13		dB
Insertion Loss*		0.9	1.0	dB
Amplitude Balance		0.5	1.1	dB
Phase Balance		12	17	Degrees
CMRR		19		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	GND / DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

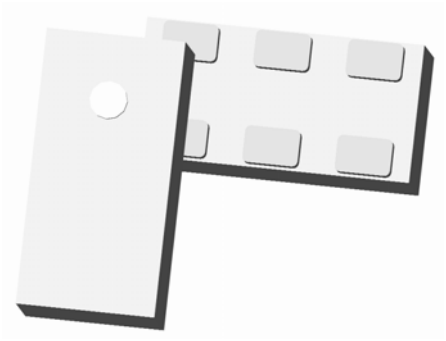
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD2326L50150A00

Rev C

Ultra Small Low Profile 0603 Balun 50Ω to 150Ω Balanced



Description

The BD2326L50150A00 is an ultra-small low profile balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering 802.11b+g+n. The BD2326L50150A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic baluns. The BD2326L50150A00 has an unbalanced port impedance of 50Ω and a 150Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD2326L50150A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **2300 – 2600 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 75 Ohm**
- **802.11 b+g +n Compliant**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

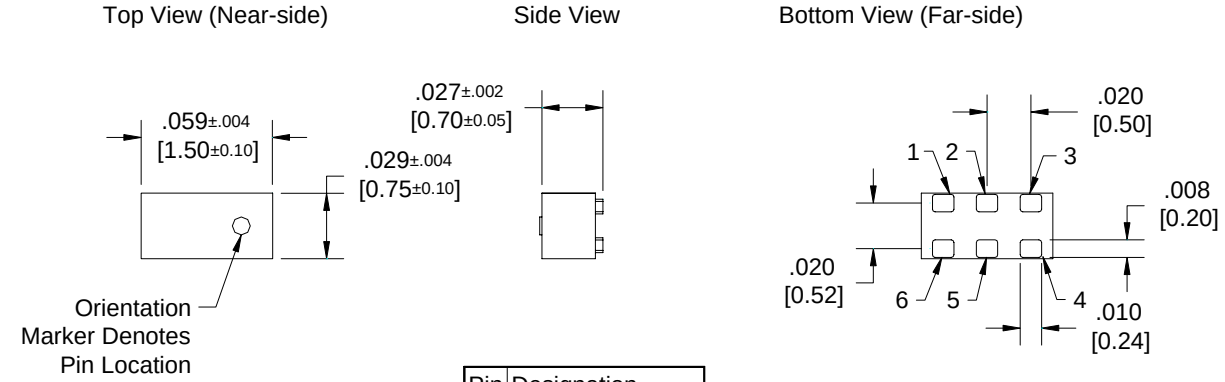
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	2300		2600	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		150		Ω
Return Loss	12	17		dB
Insertion Loss*		0.8	1.1	dB
Amplitude Balance		0.5	1.0	dB
Phase Balance		4	10	Degrees
CMRR		29		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	DC Bias/GND
3	Balanced Port
4	Balanced Port
5	GND
6	GND

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

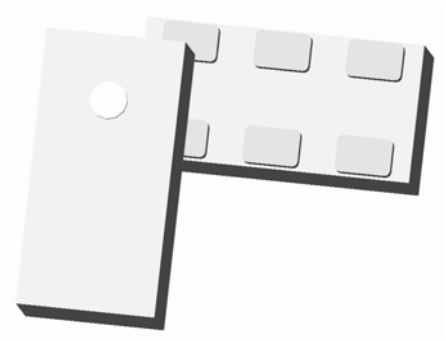
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD2326L50200A00

Rev C

Ultra Small Low Profile 0603 Balun
50Ω to 200Ω Balanced



Description

The BD2326L50200A00 is an ultra-small low profile balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering 802.11b+g+n. The BD2326L50200A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic baluns. The BD2326L50200A00 has an unbalanced port impedance of 50Ω and a 200Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD2326L50200A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

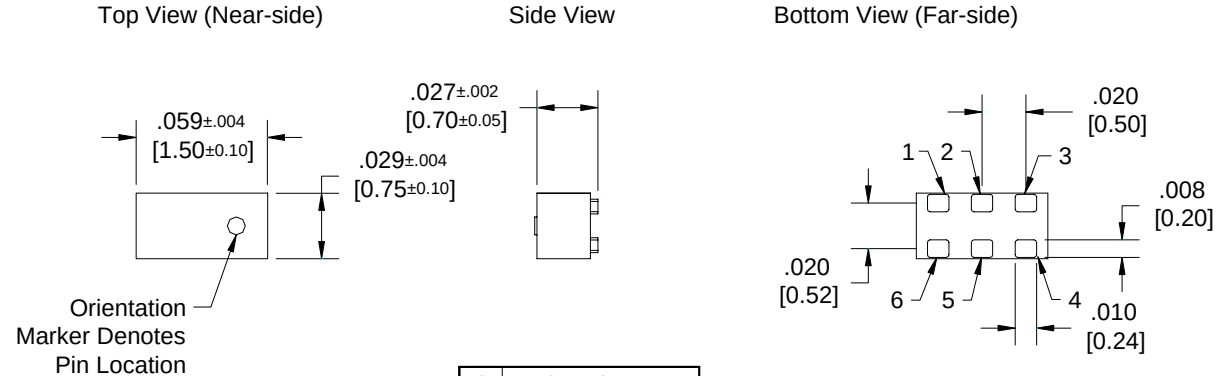
- **2300 – 2600 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 100 Ohm**
- **802.11 b+g +n Compliant**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Detailed Electrical Specifications: Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	2300		2600	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		200		Ω
Return Loss	12	18		dB
Insertion Loss*		0.9	1.1	dB
Amplitude Balance		0.4	0.8	dB
Phase Balance		3	9	Degrees
CMRR		29		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	DC Bias/GND
3	Balanced Port
4	Balanced Port
5	GND
6	GND

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

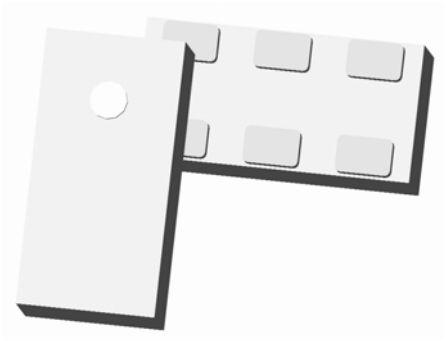
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD3150L50100A00

Rev C

Ultra Small Low Profile 0603 Balun
50Ω to 100Ω Balanced



Description

The BD3150L50100A00 is an ultra-small low profile balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering the MMDS and the low end of the UWB frequency ranges. The BD3150L50100A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic baluns. The BD3150L50100A00 has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD3150L50100A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

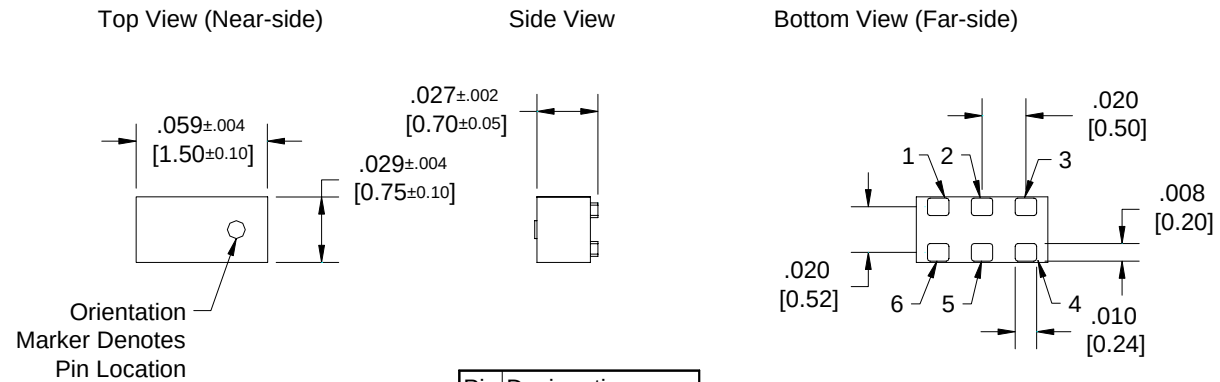
- **3100 – 5000 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 50 Ohm**
- **UWB & MMDS**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Detailed Electrical Specifications: Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	3100		5000	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		100		Ω
Return Loss	9.5	12		dB
Insertion Loss*		0.8	1.1	dB
Amplitude Balance		0.5	0.9	dB
Phase Balance		4.0	9.0	Degrees
CMRR		28		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	*ºC*

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	DC Bias/GND
3	Balanced Port
4	Balanced Port
5	GND
6	GND

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

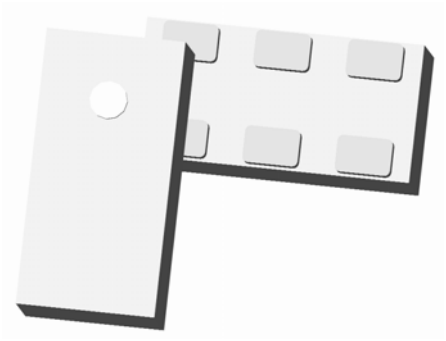
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD3150L50200A00

Rev C

Ultra Small Low Profile 0603 Balun 50Ω to 200Ω Balanced



Description

The BD3150L50200A00 is an ultra-small low profile balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering the MMDS and the low end of the UWB frequency ranges. The BD3150L50200A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic baluns. The BD3150L50200A00 has an unbalanced port impedance of 50Ω and a 200Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD3150L50200A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **3100 – 5000 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 100 Ohm**
- **UWB & MMDS**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

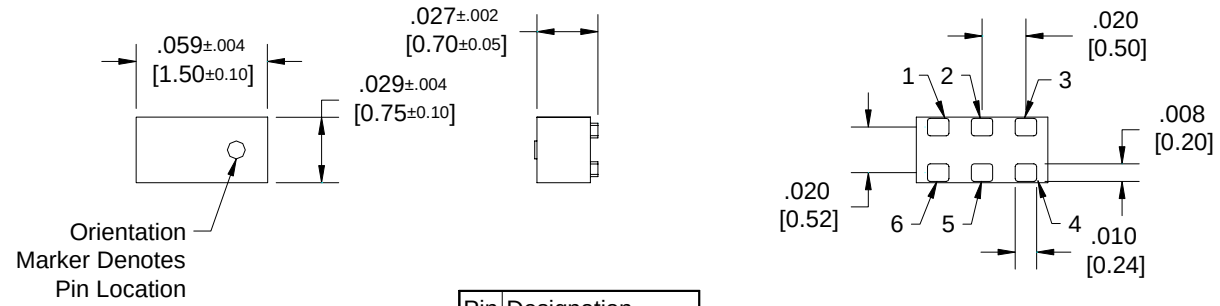
Detailed Electrical Specifications: Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	3100		5000	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		200		Ω
Return Loss	11	14		dB
Insertion Loss*		0.9	1.2	dB
Amplitude Balance		0.7	1.3	dB
Phase Balance		5	11	Degrees
CMRR		25		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	*ºC*

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing

Top View (Near-side) Side View Bottom View (Far-side)



Pin	Designation
1	Unbalanced Port
2	DC Bias/GND
3	Balanced Port
4	Balanced Port
5	GND
6	GND

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

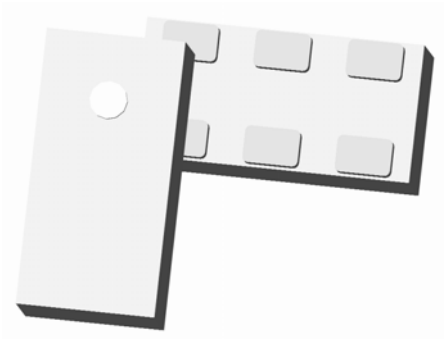
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD4859L5075A00

Rev C

Ultra Small Low Profile 0603 Balun 50Ω to 75Ω Balanced



Description

The BD4859L5075A00 is an ultra-small low profile balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering 802.11a Uni-Band II and Uni-Band III and the Japanese ISM band (4.9GHz). The BD4859L5075A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic baluns. The BD4859L5075A00 has an unbalanced port impedance of 50Ω and a 75Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD4859L5075A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **4800 – 5900 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 37 Ohm**
- **Covers 802.11a Uni-Band II & III**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

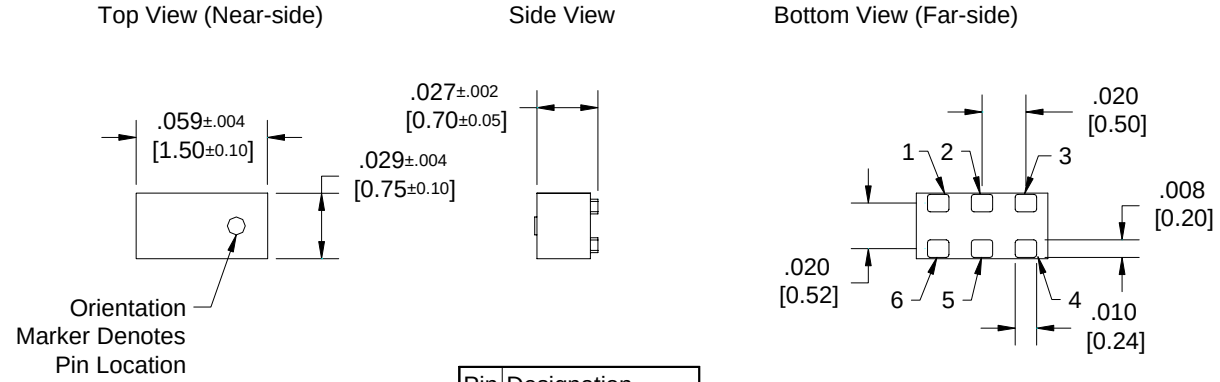
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	4800		5900	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		75		Ω
Return Loss	9	13		dB
Insertion Loss*		0.9	1.3	dB
Amplitude Balance		0.5	1.3	dB
Phase Balance		2	6.0	Degrees
CMRR		31		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	DC Bias/GND
3	Balanced Port
4	Balanced Port
5	GND
6	GND

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

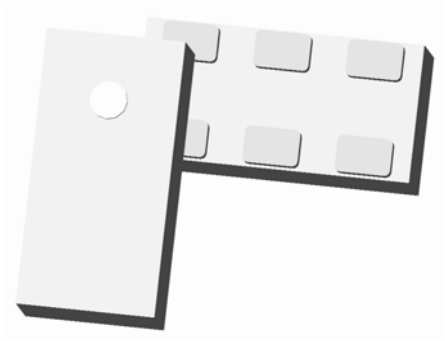
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD4859L50100A00

Rev C

Ultra Small Low Profile 0603 Balun
50Ω to 100Ω Balanced



Description

The BD4859L50100A00 is an ultra-small low profile balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering 802.11a Uni-Band II and Uni-Band III and the Japanese ISM band (4.9GHz). The BD4859L50100A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic baluns. The BD4859L50100A00 has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD4859L50100A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **4800 – 5900 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 50 Ohm**
- **Covers 802.11a Uni-Band II & III**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

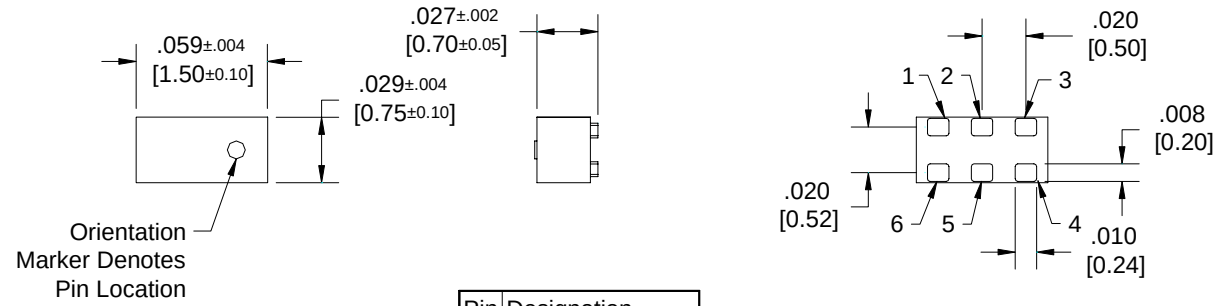
Detailed Electrical Specifications: Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	4800		5900	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		100		Ω
Return Loss	9.2	13		dB
Insertion Loss*		0.8	1.1	dB
Amplitude Balance		0.4	1.1	dB
Phase Balance		3	8	Degrees
CMRR		30		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing

Top View (Near-side) Side View Bottom View (Far-side)



Pin	Designation
1	Unbalanced Port
2	DC Bias/GND
3	Balanced Port
4	Balanced Port
5	GND
6	GND

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

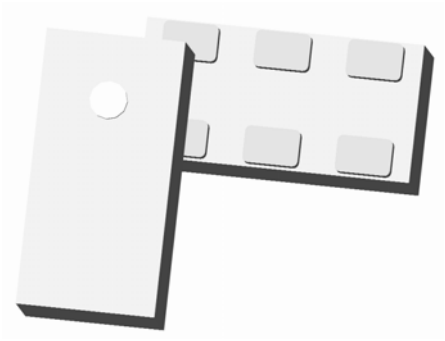
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD4859L50150A00

Rev C

Ultra Small Low Profile 0603 Balun
50Ω to 150Ω Balanced



Description

The BD4859L50150A00 is an ultra-small low profile balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering 802.11a Uni-Band II and Uni-Band III and the Japanese ISM band (4.9GHz). The BD4859L50150A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic baluns. The BD4859L50150A00 has an unbalanced port impedance of 50Ω and a 150Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD4859L50150A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

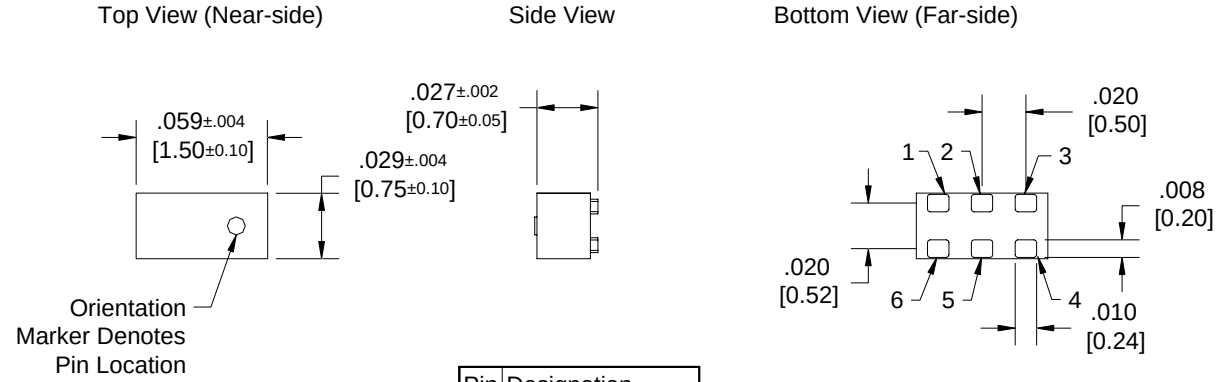
- **4800 – 5900 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 75 Ohm**
- **Covers 802.11a Uni-Band II & III**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Detailed Electrical Specifications: Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	4800		5900	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		150		Ω
Return Loss	11	14		dB
Insertion Loss*		0.8	1.0	dB
Amplitude Balance		0.5	1.3	dB
Phase Balance		4	10	Degrees
CMRR		28		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	DC Bias/GND
3	Balanced Port
4	Balanced Port
5	GND
6	GND

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

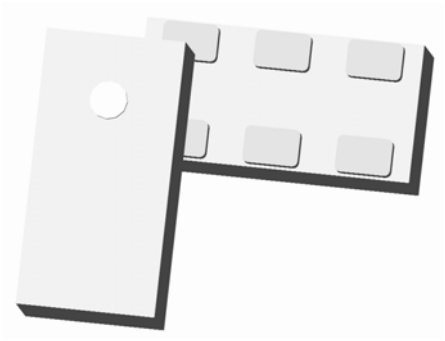
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD4859L50200A00

Rev C

Ultra Small Low Profile 0603 Balun 50Ω to 200Ω Balanced



Description

The BD4859L50200A00 is an ultra-small low profile balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering 802.11a Uni-Band II and Uni-Band III and the Japanese ISM band (4.9GHz). The BD4859L50200A00 is ideal for high volume manufacturing and is higher performance than traditional ceramic baluns. The BD4859L50200A00 has an unbalanced port impedance of 50Ω and a 200Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD4859L50200A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **4800 – 5900 MHz**
- **0.7mm Height Profile**
- **50 Ohm to 2 x 100 Ohm**
- **Covers 802.11a Uni-Band II & III**
- **Low Insertion Loss**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

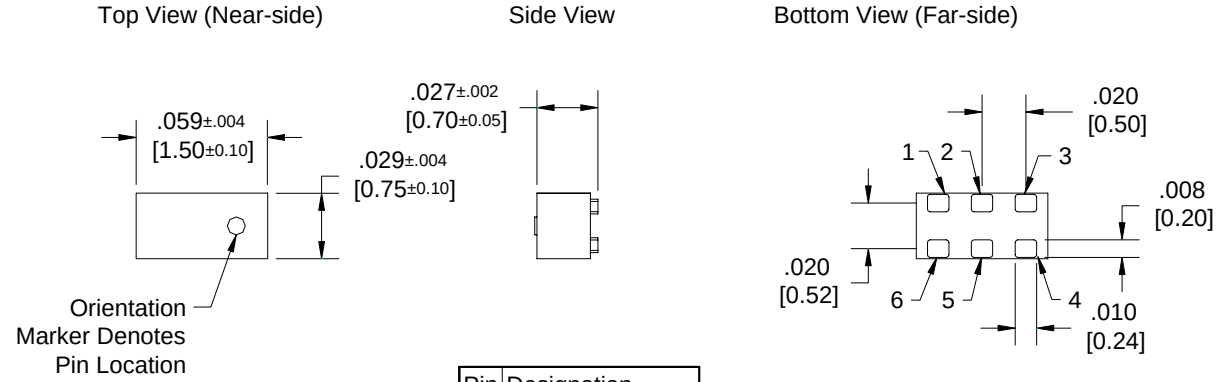
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	4800		5900	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		200		Ω
Return Loss	8	10.7		dB
Insertion Loss*		1.1	1.4	dB
Amplitude Balance		0.8	1.4	dB
Phase Balance		4	10	Degrees
CMRR		26		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Unbalanced Port
2	DC Bias/GND
3	Balanced Port
4	Balanced Port
5	GND
6	GND

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

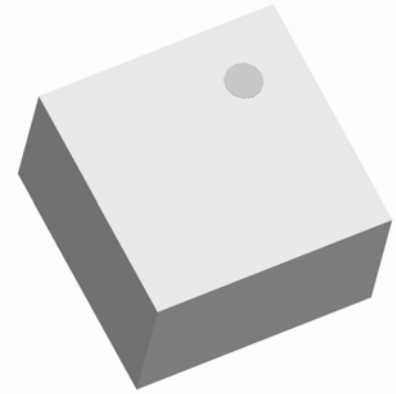
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD2425N5075A00

Rev E

Ultra Low Profile 0404 Balun
50Ω to 75Ω Balanced



Description

The BD2425N5075A00 is a low cost, low profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output locations on modern chipsets in an easy to use surface mount package. The BD2425N5075A00 is ideal for high volume manufacturing and delivers higher performance than traditional ceramic baluns. The BD2425N5075A00 has an unbalanced port impedance of 50Ω and a 75Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD2425N5075A00 is available on tape and reel for pick and place high volume manufacturing.

Detailed Electrical Specifications:

Specifications subject to change without notice.

Features:

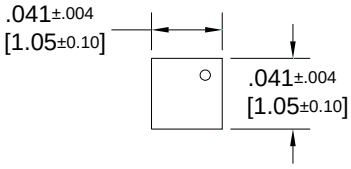
- **2400 – 2500 MHz**
- **0.65mm Height Profile**
- **50 Ohm to 2 x 37.5 Ohm**
- **Low Insertion Loss**
- **802.11 b+g**
- **MIMO b+g**
- **Bluetooth**
- **Zigbee**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive**
- **RoHS Compliant**

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	2400		2500	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		75		Ω
Return Loss	14	18		dB
Insertion Loss*		0.7	0.9	dB
Amplitude Balance		0.3	0.9	dB
Phase Balance		1	3	Degrees
CMRR		35		dB
Power Handling			1	Watts
Operating Temperature	-55		+85	ºC

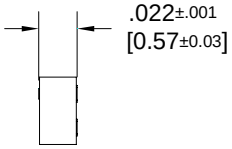
* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

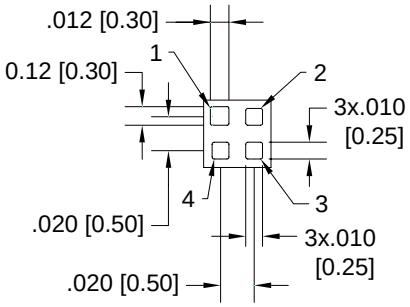
Outline Drawing

Top View (Near-side)



Side View





Pin	Designation
1	GND / DC Feed + RF GND
2	Unbalanced Port
3	Balanced Port
4	Balanced Port

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

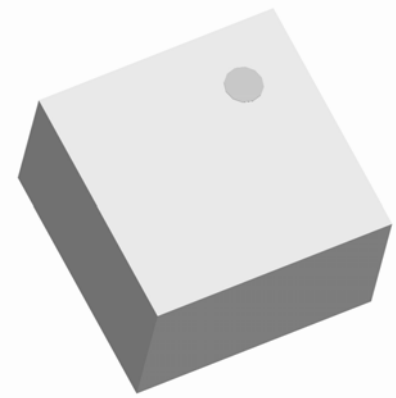
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD2425N50100A00

Rev E

Ultra Low Profile 0404 Balun
50Ω to 100Ω Balanced



Description

The BD2425N50100A00 is a low cost, low profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output locations on modern chipsets in an easy to use surface mount package. The BD2425N50100A00 is ideal for high volume manufacturing and delivers higher performance than traditional ceramic baluns. The BD2425N50100A00 has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD2425N50100A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **2400 – 2500 MHz**
- **0.57 mm Height Profile**
- **50 Ohm to 2 x 50 Ohm**
- **Low Insertion Loss**
- **802.11 b+g**
- **MIMO b+g**
- **Bluetooth**
- **Zigbee**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive**
- **RoHS Compliant**

Detailed Electrical Specifications:

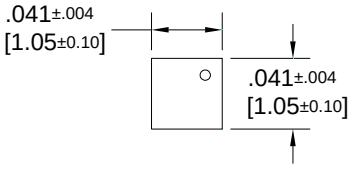
Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	2400		2500	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		100		Ω
Return Loss	18	25		dB
Insertion Loss*		0.6	0.7	dB
Amplitude Balance		0.2	0.6	dB
Phase Balance		1	3	Degrees
CMRR		37		dB
Power Handling			1	Watts
Operating Temperature	-55		+85	ºC

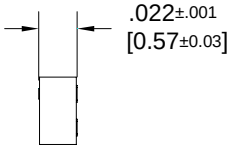
* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

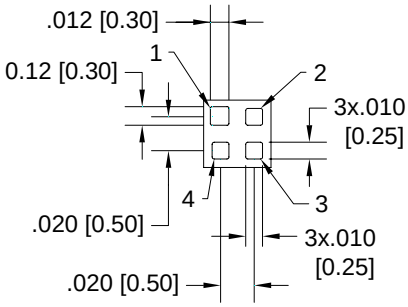
Outline Drawing

Top View (Near-side)



Side View





Pin	Designation
1	GND / DC Feed + RF GND
2	Unbalanced Port
3	Balanced Port
4	Balanced Port

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

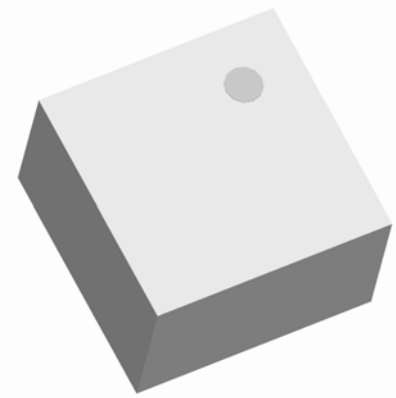
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD2425N50200A00

Rev D

Ultra Low Profile 0404 Balun
50Ω to 200Ω Balanced



Description

The BD2425N50200A00 is a low cost, low profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output locations on modern chipsets in an easy to use surface mount package. The BD2425N50200A00 is ideal for high volume manufacturing and delivers higher performance than traditional ceramic baluns. The BD2425N50200A00 has an unbalanced port impedance of 50Ω and a 200Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD2425N50200A00 is available on tape and reel for pick and place high volume manufacturing.

Detailed Electrical Specifications:

Specifications subject to change without notice.

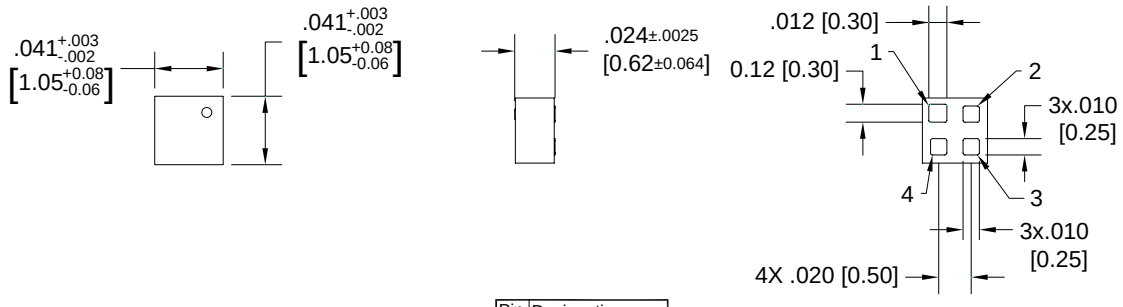
Features:

- **2400 – 2500 MHz**
- **0.65mm Height Profile**
- **50 Ohm to 2 x 100 Ohm**
- **Low Insertion Loss**
- **802.11 b+g**
- **MIMO b+g**
- **Bluetooth**
- **Zigbee**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive**
- **RoHS Compliant**

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	2400		2500	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		200		Ω
Return Loss	21	27		dB
Insertion Loss*		0.6	0.7	dB
Amplitude Balance		0.5	1.0	dB
Phase Balance		2	6	Degrees
CMRR		29		dB
Power Handling			1	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	GND / DC Feed + RF GND
2	Unbalanced Port
3	Balanced Port
4	Balanced Port

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

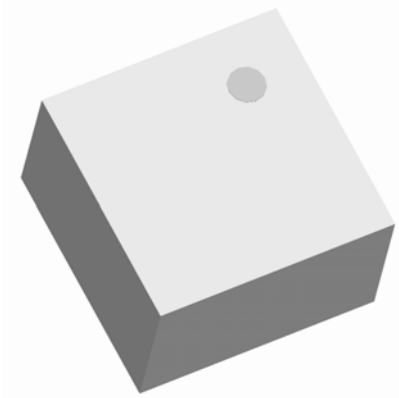
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD2425P50100A00

REV A

Nano Profile 0404 Balun
50Ω to 100Ω Balanced



Description

The BD2425P50100A00 is a low cost, nano profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output locations on modern chipsets in an easy to use surface mount package. The BD2425P50100A00 has been developed for placement inside highly integrated, over moldable packaging solutions where overall module height is of greatest concern. Ideal for high volume manufacturing and delivers higher performance than traditional ceramic baluns in a sub 0.5mm height profile. The BD2425P50100A00 has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD2425P50100A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **2400 – 2500 MHz**
- **0.45mm Height Profile**
- **50 Ohm to 2 x 50 Ohm**
- **Low Insertion Loss**
- **802.11 b+g**
- **MIMO b+g**
- **Bluetooth**
- **Zigbee**
- **Proprietary Ultra Low Power Radio**
- **Surface Mountable**
- **Tape & Reel**
- **RoHS Compliant**

Detailed Electrical Specifications:

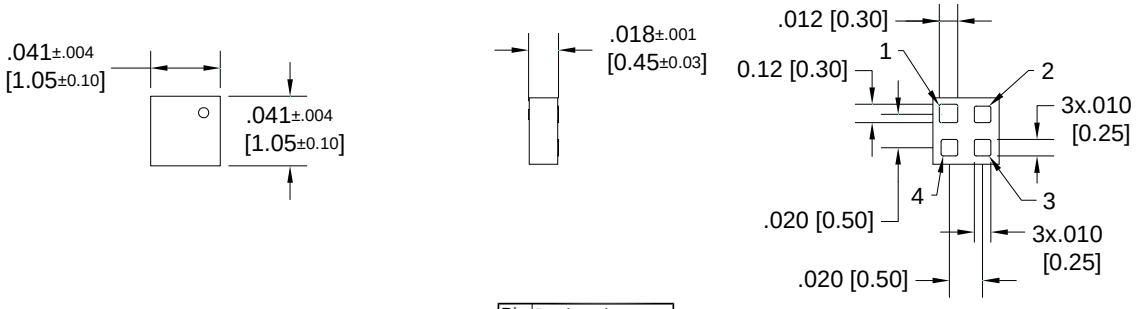
Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	2400		2500	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		100		Ω
Return Loss	16	25		dB
Insertion Loss*		0.6	0.9	dB
Amplitude Balance		0.9	1.5	dB
Phase Balance		6	9	Degrees
CMRR		24		dB
Power Handling			1	Watts
Operating Temperature	-55		+85	*ºC*

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing

Top View (Near-side) | Side View | Bottom View (Far-side)



Pin	Designation
1	GND / DC Feed + RF GND
2	Unbalanced Port
3	Balanced Port
4	Balanced Port

Dimensions are in Inches [Millimeters]
Mechanical Outline

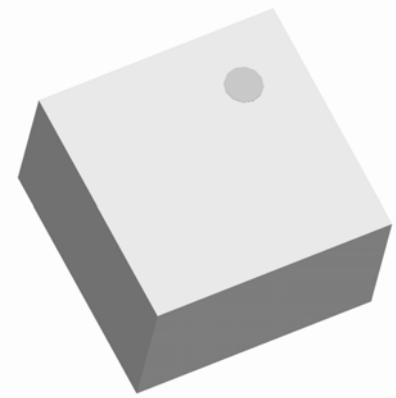
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger®

Ultra Low Profile 0404 Balun
50Ω to 100Ω Balanced



Description

The BD3150N50100A00 is a low cost, low profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output locations on modern chipsets in an easy to use surface mount package covering the MMDS and the low end of the UWB frequency range. The BD3150N50100A00 is ideal for high volume manufacturing and delivers higher performance than traditional ceramic baluns. The BD3150N50100A00 has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD3150N50100A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

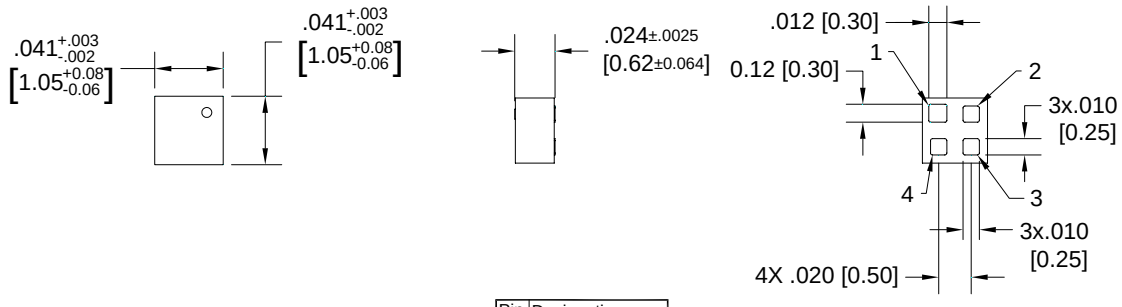
- **3100 – 5000 MHz**
- **0.65mm Height Profile**
- **50 Ohm to 2 x 50 Ohm**
- **Low Insertion Loss**
- **UWB & MMDS**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Detailed Electrical Specifications: Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	3100		5000	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		100		Ω
Return Loss	16	21		dB
Insertion Loss*		0.6	0.7	dB
Amplitude Balance		0.8	1.3	dB
Phase Balance		3	7	Degrees
CMRR		26		dB
Power Handling			1	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	GND / DC Feed + RF GND
2	Unbalanced Port
3	Balanced Port
4	Balanced Port

Dimensions are in Inches [Millimeters]
Mechanical Outline

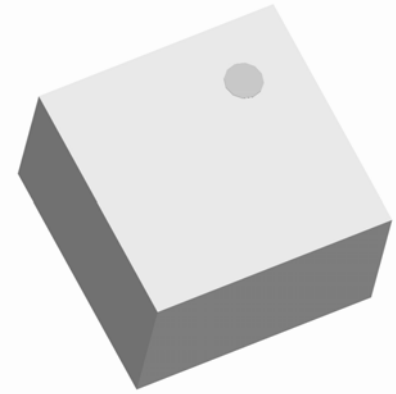
Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Xinger®

Ultra Low Profile 0404 Balun
50Ω to 50Ω Balanced



Description

The B4859N5050A00 is a low cost, low profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output locations on modern chipsets in an easy to use surface mount package covering 802.11a Uni-Band II & III and the Japanese ISM band (4.9 GHz). The B4859N5050A00 is ideal for high volume manufacturing and delivers higher performance than traditional ceramic baluns. The B4859N5050A00 has an unbalanced port impedance of 50Ω and a 50Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The B4859N5050A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **4800 – 5900 MHz**
- **0.65mm Height Profile**
- **50 Ohm to 2 x 25 Ohm**
- **Low Insertion Loss**
- **802.11a Uni-Band II & III**
- **Home Cordless Compliant**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

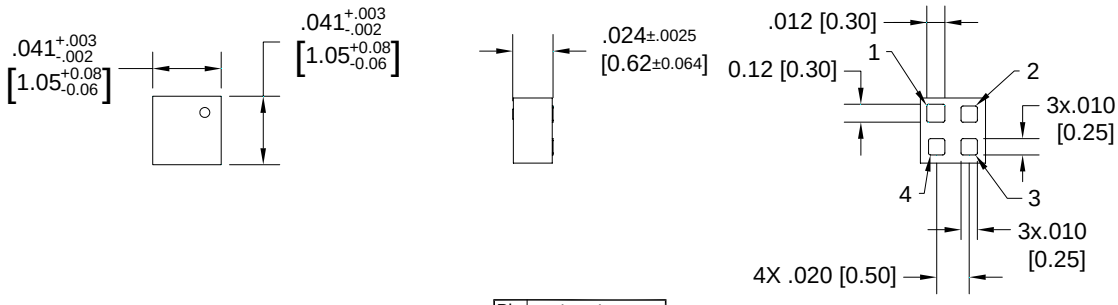
Detailed Electrical Specifications: Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	4800		5900	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		50		Ω
Return Loss	16	22		dB
Insertion Loss*		0.5	0.7	dB
Amplitude Balance		0.7	1.2	dB
Phase Balance		3	7	Degrees
CMRR		27		dB
Power Handling			1	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing

Top View (Near-side) Side View Bottom View (Far-side)



Pin	Designation
1	GND / DC Feed + RF GND
2	Unbalanced Port
3	Balanced Port
4	Balanced Port

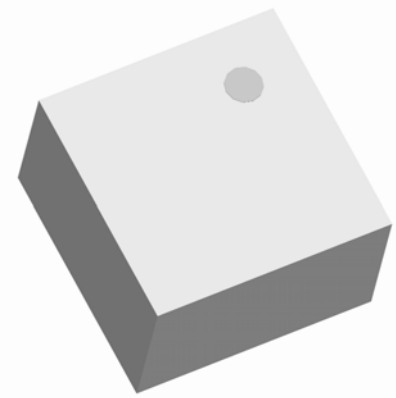
Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Ultra Low Profile 0404 Balun
50Ω to 75Ω Balanced



Description

The BD4859N5075A00 is a low cost, low profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output locations on modern chipsets in an easy to use surface mount package covering 802.11a Uni-Band II & III and the Japanese ISM band (4.9 GHz). The BD4859N5075A00 is ideal for high volume manufacturing and delivers higher performance than traditional ceramic baluns. The BD4859N5075A00 has an unbalanced port impedance of 50Ω and a 75Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD4859N5075A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **4800 – 5900 MHz**
- **0.65mm Height Profile**
- **50 Ohm to 2 x 37.5 Ohm**
- **Low Insertion Loss**
- **802.11a Uni-Band II & III**
- **Home Cordless Compliant**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

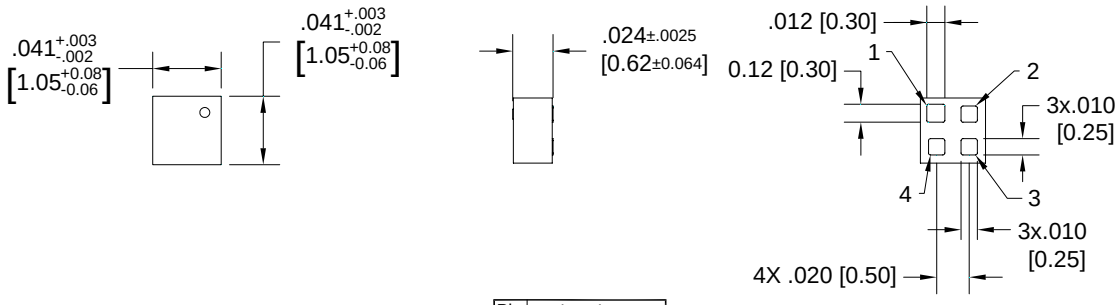
Detailed Electrical Specifications: Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	4800		5900	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		75		Ω
Return Loss	15	20		dB
Insertion Loss*		0.3	0.5	dB
Amplitude Balance		0.5	1.0	dB
Phase Balance		4	9	Degrees
CMRR		28		dB
Power Handling			1	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing

Top View (Near-side) Side View Bottom View (Far-side)



Pin	Designation
1	GND / DC Feed + RF GND
2	Unbalanced Port
3	Balanced Port
4	Balanced Port

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

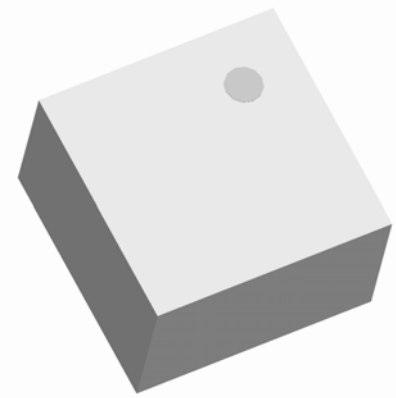
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model BD4859N50100A00

Rev E

Ultra Low Profile 0404 Balun
50Ω to 100Ω Balanced



Description

The BD4859N50100A00 is a low cost, low profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output locations on modern chipsets in an easy to use surface mount package covering 802.11a Uni-Band II & III and the Japanese ISM band (4.9 GHz). The BD4859N50100A00 is ideal for high volume manufacturing and delivers higher performance than traditional ceramic baluns. The BD4859N50100A00 has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD4859N50100A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **4800 – 5900 MHz**
- **0.57 mm Height Profile**
- **50 Ohm to 2 x 50 Ohm**
- **Low Insertion Loss**
- **802.11a Uni-Band II & III**
- **Home Cordless Compliant**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

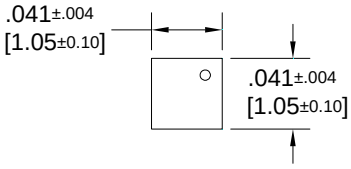
Detailed Electrical Specifications: Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	4800		5900	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		100		Ω
Return Loss	15	20		dB
Insertion Loss*		0.4	0.6	dB
Amplitude Balance		0.9	1.5	dB
Phase Balance		3	8	Degrees
CMRR		26		dB
Power Handling			1	Watts
Operating Temperature	-55		+85	ºC

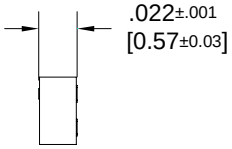
* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

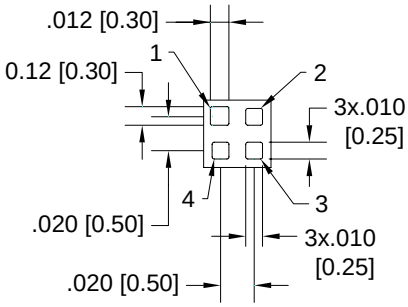
Outline Drawing

Top View (Near-side)



Side View





Pin	Designation
1	GND / DC Feed + RF GND
2	Unbalanced Port
3	Balanced Port
4	Balanced Port

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

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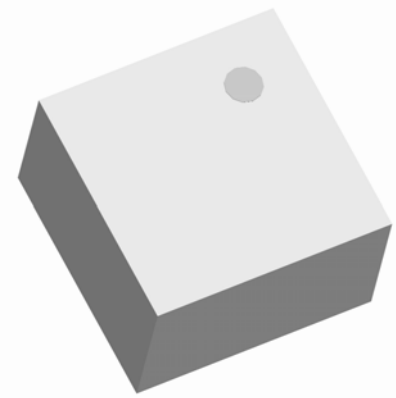
Ultra Low Profile 0404 Balun
50Ω to 150Ω Balanced



Description

The BD4859N50150A00 is a low cost, low profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output locations on modern chipsets in an easy to use surface mount package covering 802.11a Uni-Band II & III and the Japanese ISM band (4.9 GHz). The BD4859N50150A00 is ideal for high volume manufacturing and delivers higher performance than traditional ceramic baluns. The BD4859N50150A00 has an unbalanced port impedance of 50Ω and a 150Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD4859N50150A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

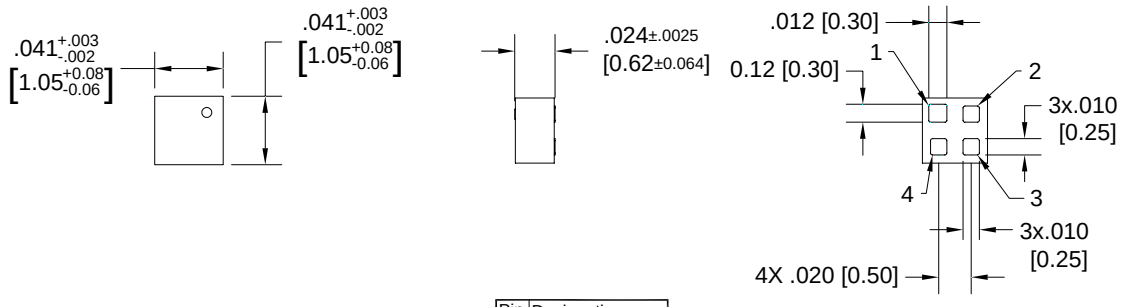
- **4800 – 5900 MHz**
- **0.65mm Height Profile**
- **50 Ohm to 2 x 75 Ohm**
- **Low Insertion Loss**
- **802.11a Uni-Band II & III**
- **Home Cordless Compliant**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Detailed Electrical Specifications: Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	4800		5900	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		150		Ω
Return Loss	12	17		dB
Insertion Loss*		0.4	0.6	dB
Amplitude Balance		0.8	1.4	dB
Phase Balance		4	10	Degrees
CMRR		26		dB
Power Handling			1	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	GND / DC Feed + RF GND
2	Unbalanced Port
3	Balanced Port
4	Balanced Port

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel for Pick and Place Manufacturing.

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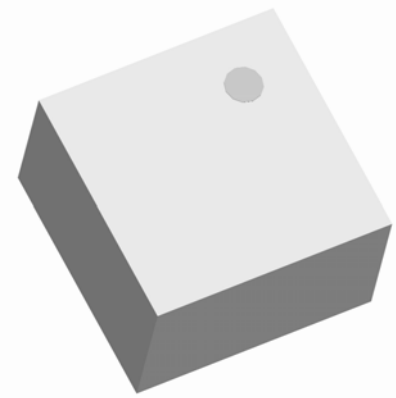
Model BD4859N50200A00

Rev D

Ultra Low Profile 0404 Balun
50Ω to 200Ω Balanced



Description

The BD4859N50200A00 is a low cost, low profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output locations on modern chipsets in an easy to use surface mount package covering 802.11a Uni-Band II & III and the Japanese ISM band (4.9 GHz). The BD4859N50200A00 is ideal for high volume manufacturing and delivers higher performance than traditional ceramic baluns. The BD4859N50200A00 has an unbalanced port impedance of 50Ω and a 200Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD4859N50200A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **4800 – 5900 MHz**
- **0.65mm Height Profile**
- **50 Ohm to 2 x 100 Ohm**
- **Low Insertion Loss**
- **802.11a Uni-Band II & III**
- **Home Cordless Compliant**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

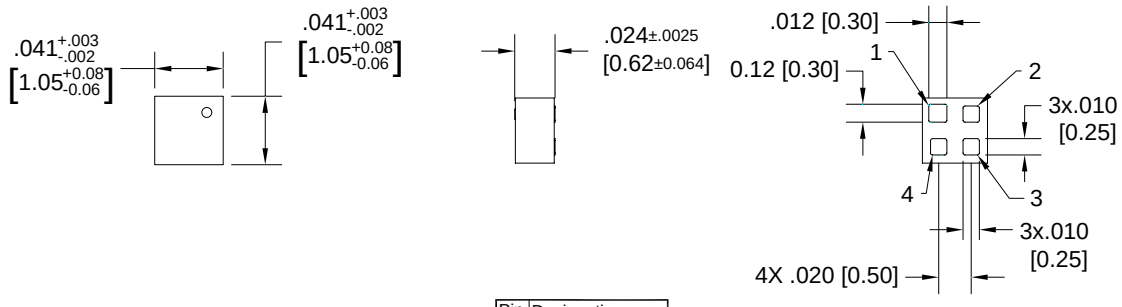
Detailed Electrical Specifications:

Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	4800		5900	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		200		Ω
Return Loss	18	23		dB
Insertion Loss*		0.4	0.5	dB
Amplitude Balance		0.3	0.8	dB
Phase Balance		4	9	Degrees
CMRR		29		dB
Power Handling			1	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	GND / DC Feed + RF GND
2	Unbalanced Port
3	Balanced Port
4	Balanced Port

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

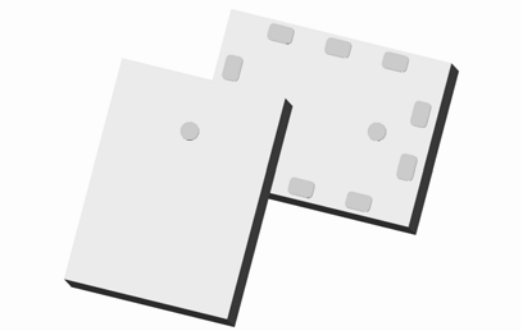
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model B0011E75300A00

Rev B

Ultra Low Profile 1008 Balun 75Ω to 300Ω Balanced



Description

The B0011E75300A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation digital TV chipsets in an easy to use surface mount package. The B0011E75300A00 is ideal for high volume manufacturing and is higher performance than traditional wire wound baluns. The B0011E75300A00 has an unbalanced port impedance of 75Ω and a 300Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The B0011E75300A00 is available on tape and reel for pick and place high volume manufacturing.

Detailed Electrical Specifications: Specifications subject to change without notice.

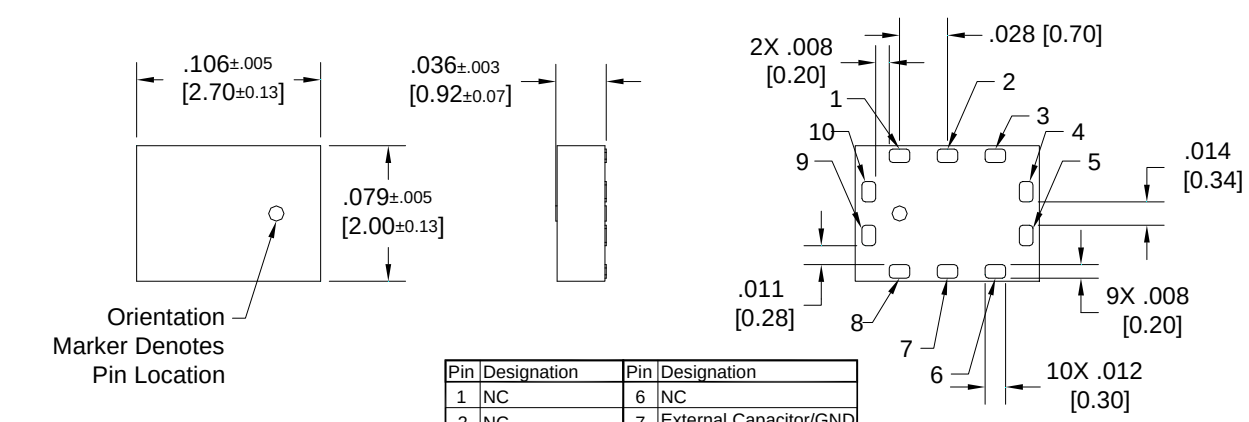
Features:

- **48 – 1080 MHz**
- **1.0 mm Height Profile**
- **75 Ohm to 2 x 150 Ohm**
- **Broadcast TV**
- **Low Insertion Loss**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	48		1080	MHz
Unbalanced Port Impedance		75		Ω
Balanced Port Impedance		300		Ω
Return Loss	9	11		dB
Insertion Loss*		1.3	1.6	dB
Amplitude Balance		0.6	1.5	dB
Phase Balance		6	15	Degrees
CMRR		28		dB
Power Handling			TBD	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.15 dB higher at +85 ºC). All performances stated for recommended operation with external circuitry.

Outline Drawing



Pin	Designation	Pin	Designation
1	NC	6	NC
2	NC	7	External Capacitor/GND
3	NC	8	NC
4	Unbalanced Port	9	Balanced Port 1
5	GND	10	Balanced Port 2

Dimensions are in Inches [Millimeters]
Mechanical Outline

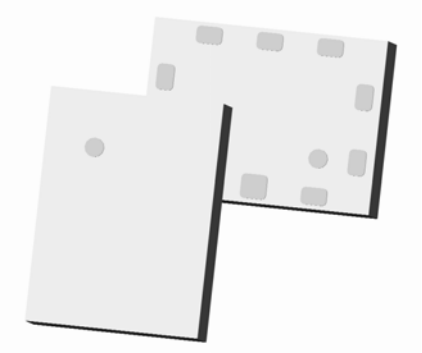
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model FB2425E50100A00

Rev A

Ultra Low Profile Filter Balun
50Ω to 100Ω Balanced



Description

The FB2425E50100A00 is a low cost, low profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering wireless LAN (802.11b/g/n) and Bluetooth frequencies (2400 MHz – 2500 MHz). The FB2425E50100A00 is ideal for high volume manufacturing and is in a lower profile unit than traditional ceramic parts. The FB2425E50100A00 has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on modern semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The FB2425E50100A00 is available on tape and reel for high volume pick and place manufacturing.

Detailed Electrical Specifications: Specifications subject to change without notice.

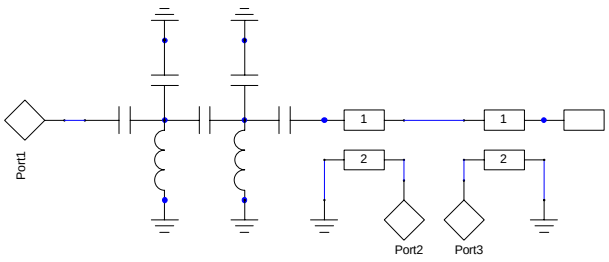
Features:

- **2.4 – 2.5 GHz.**
- **Low Height Profile**
- **50 Ohm to 2 x 50 Ohm**
- **802.11b + g + n Compliant**
- **Medium Power**
- **No DC Decoupling Capacitors Required**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Integral Filter**
- **Integrated Bandpass Filter**
- **Inverted Balun Configuration**
- **Non-conductive Surface**
- **RoHS Compliant**

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	2.4		2.5	GHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		100		Ω
Return Loss	9.5	14		dB
Insertion Loss*		2.3	2.6	dB
Amplitude Balance		0.5	1.0	dB
Phase Balance		63	65	Degrees
Attenuation @ 930 MHz.	45	52		dB
Attenuation @ 1500 MHz.	45	52		dB
Attenuation @ 1910 MHz.	18	22		dB
Attenuation @ 4800 MHz.	23	25		dB
Attenuation @ 5000 MHz.	25	27		dB
Power Handling			0.5	Watts
Thermal Resistance			TBD	ºC / Watt
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (2.8 dB Max at +85 ºC)

Pin Configuration



The internal configuration of the Ultra low profile filter balun is diagramed to the left. A lumped element filter is located in front of the unbalanced input of the balun. The unbalanced port is terminated in an open-circuit and the two balanced ports are connected to ground.

The use of differential circuits is increasing in highly integrated circuits, because of its inherent noise immunity properties. Differential circuits have superior performance when looking at properties like cross coupling, immunity to external noise sources and power supply noise. When designing power amplifiers differential circuits also help minimize 2nd and 3rd order intermodulation products.

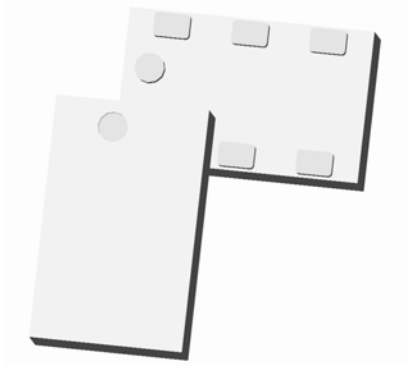
The construction of the filter balun is bonded multi-layered stripline made of low loss dielectric material with plated through vias connecting the internal circuitry to the external printed circuit board, similar to that of the other hybrids and directional couplers

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model PD0409J7575S2

Rev B

Ultra Low Profile 0805 Power Divider 75Ω to 75Ω



Description

The PD0409J7575S2 is a low profile, sub-miniature Wilkinson power divider in an easy to use surface mount package. The PD0409J7575S2 is ideal for high volume manufacturing and delivers higher performances than traditional printed and lumped element solutions. The PD0409J7575S2 is matched to 75 Ω and has a height profile of 0.5 mm which is ideal for high level integrations in the following markets: GSM, WCDMA, DVB-H (Europe) and Terrestrial TV. The PD0409J7575S2 does not include the resistive element and therefore, requires an external resistor for operation. The PD0409J7575S2 is available on tape and reel for high volume manufacturing pick and place.

Features:

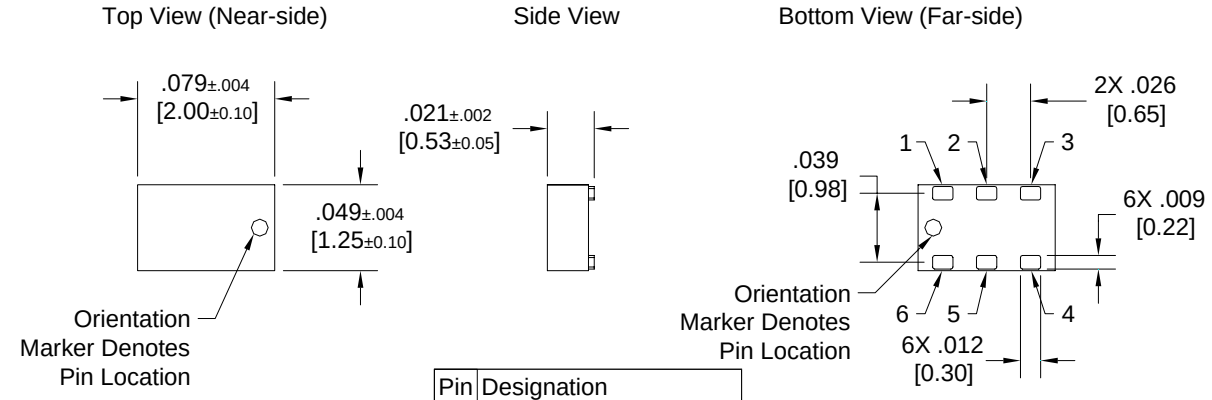
- **400-900 MHz**
- **9.3 dB Isolation (output ports)**
- **Good Return Loss**
- **0.5mm Height Profile**
- **75Ω Input / 75Ω Outputs**
- **Low Insertion Loss**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**
- **External Resistor Required**

Detailed Electrical Specifications: Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	400		900	MHz
Input Port Impedance		75		Ω
Output Port Impedance		75		Ω
Return Loss	10	12		dB
Insertion Loss*		0.5	0.6	dB
Amplitude Balance		0.1	0.6	dB
Phase Balance		1	3	Degrees
Isolation (Output Ports)	8.2	9.3		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	GND
2	Input
3	GND
4	Output 1
5	GND
6	Output 2

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

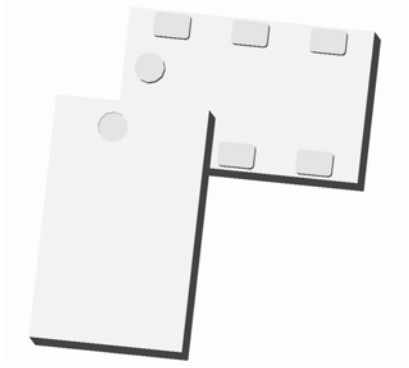
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model PD0810J5050S2

Rev C

Ultra Low Profile 0805 Power Divider 50Ω to 50Ω



Description

The PD0810J5050S2 is a low profile, sub-miniature Wilkinson power divider in an easy to use surface mount package. The PD0810J5050S2 is ideal for high volume manufacturing and delivers higher performances than traditional printed and lumped element solutions. The PD0810J5050S2 is matched to 50 Ω and has a height profile of 0.5 mm which is ideal for high level integrations in the following markets: GSM, WCDMA, Home Cordless, and RFID. The PD0810J5050S2 does not include the resistive element and therefore, requires an external resistor for operation. The PD0810J5050S2 is available on tape and reel for high volume manufacturing pick and place.

Features:

- **800-1000 MHz**
- **21 dB Isolation (output ports)**
- **0.5mm Height Profile**
- **50Ω Input / 50Ω Outputs**
- **Low Insertion Loss**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**
- **External Resistor required**

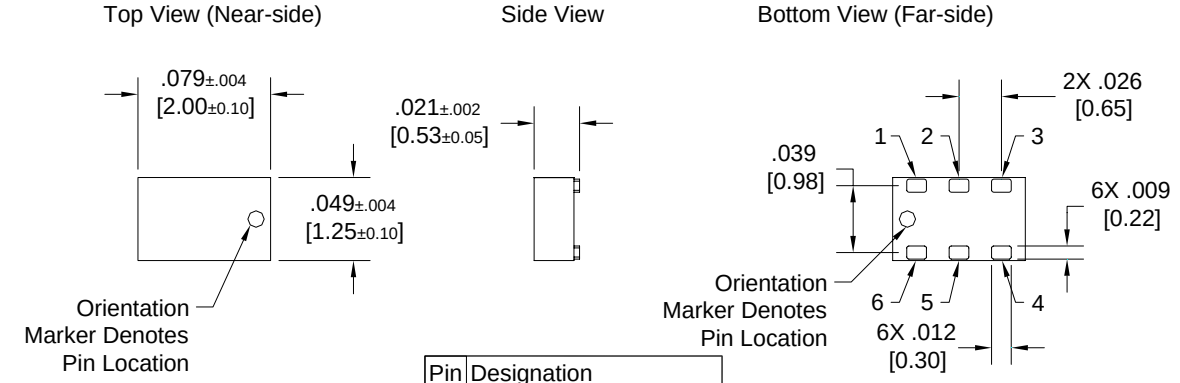
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	800		1000	MHz
Input Port Impedance		50		Ω
Output Port Impedance		50		Ω
Return Loss	14	19		dB
Insertion Loss*		0.5	0.6	dB
Amplitude Balance		0.3	0.8	dB
Phase Balance		1	4	Degrees
Isolation (Output Ports)	17	21		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	GND
2	Input
3	GND
4	Output 1
5	GND
6	Output 2

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

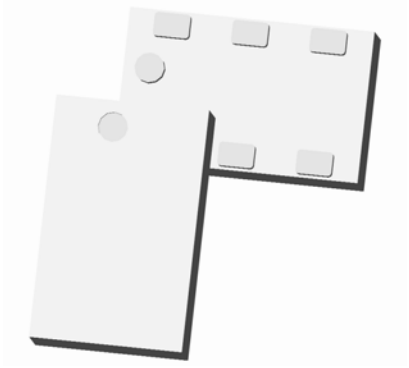
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model PD0922J5050D2

Rev A

Ultra Low Profile 0805 Power Divider 50Ω to 50Ω



Description

The PD0922J5050D2 is a low profile, sub-miniature Wilkinson power divider in an easy to use surface mount package. The PD0922J5050D2 is ideal for high volume manufacturing and delivers higher performances than traditional printed and lumped element solutions. The PD0922J5050D2 is matched to 50 Ω and has a height profile of 0.8 mm which is ideal for high level integrations. The PD0922J5050D2 uses a 2 section Wilkinson design which results in increased isolation performance. The PD0922J5050D2 does not include the resistive elements and therefore, requires two external resistors for operation. The PD0922J5050D2 is available on tape and reel for high volume manufacturing pick and place.

Addressable Markets: **DVB-S, DVB-H (USA), GSM, DCS, PCS, CDMA, WiMAX, 802.11b & g, Bluetooth, ZigBee and GPS**

Features:

- **950 – 2150 MHz**
- **12dB Isolation (output ports)**
- **Low Return Loss**
- **0.8mm Height Profile**
- **50Ω Outputs/Inputs**
- **External resistors required**
- **Low Insertion Loss**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

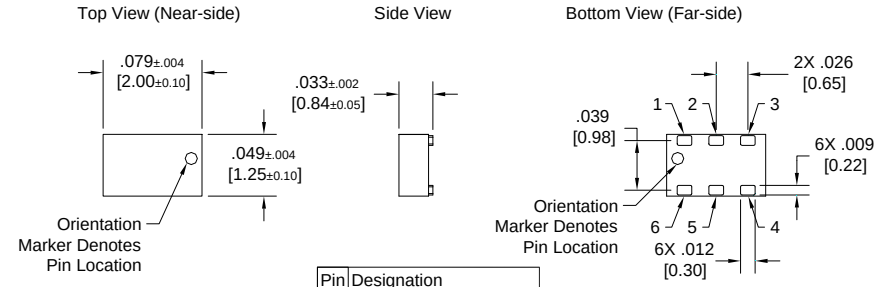
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	950		2150	MHz
Input Port Impedance		50		Ω
Output Port Impedance		50		Ω
Return Loss	9.4	11		dB
Insertion Loss*		0.6	0.7	dB
Amplitude Balance		<0.1	0.4	dB
Phase Balance		1	3	Degrees
Isolation (Output Ports)	11	12		dB
Power Handling				Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Output 1
2	Input
3	Mid 2
4	Mid 1
5	GND
6	Output 2

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

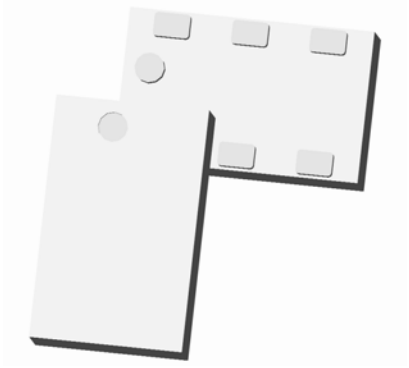
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model PD0922J5075D2

Rev D

Ultra Low Profile 0805 Power Divider 50Ω to 75Ω



Description

The PD0922J5075D2 is a low profile, sub-miniature Wilkinson power divider in an easy to use surface mount package and is ideal for high volume manufacturing while delivering higher performances than traditional printed and lumped element solutions. It has been designed for the following markets: DVB-S, GSM, DCS, PCS, WCDMA, GPS, 802.11a+g, Bluetooth, and Zigbee USA.

The PD0922J5075D2 is matched to 50Ω at the input and 75Ω at the outputs and has a height profile of 0.8 mm. A two section Wilkinson design results in increased isolation performance. Two external resistors are required for operation. Components are available on tape and reel for high volume manufacturing pick and place.

All Xinger components are constructed from ceramic filled PTFE composites which possess excellent electrical and mechanical stability having X and Y thermal coefficient of expansion (CTE) of 17 ppm/^{o}C.

Features:

- **950 – 2150 MHz**
- **14 dB Isolation (output ports)**
- **Good Return Loss**
- **0.8mm Height Profile**
- **50Ω Input/ 75Ω Output**
- **External resistors required**
- **Low Insertion Loss**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

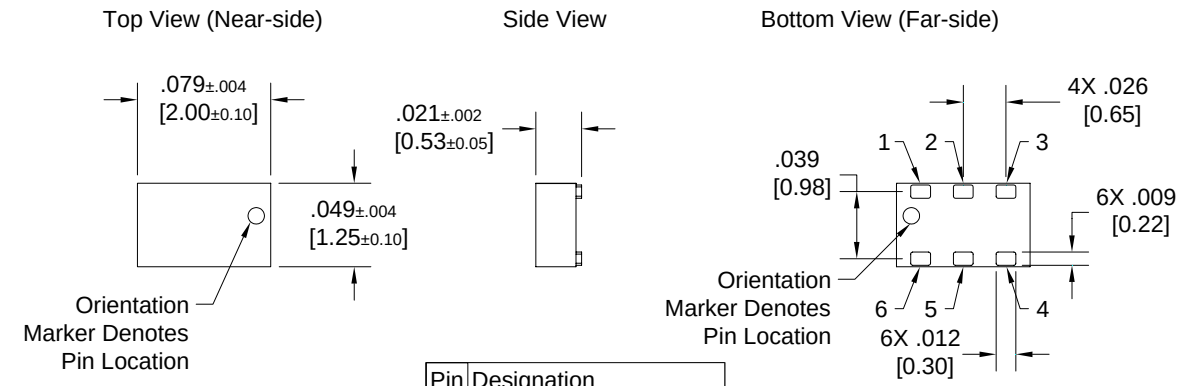
Detailed Electrical Specifications:

Specifications subject to change without notice.

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	950		2150	MHz
Input Port Impedance		50		Ω
Output Port Impedance		75		Ω
Return Loss	11	13		dB
Insertion Loss*		0.5	0.7	dB
Amplitude Balance		0.1	0.3	dB
Phase Balance		1	3	Degrees
Isolation (Output Ports)	12	14		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	*°C*

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 °C)

Outline Drawing



Pin	Designation
1	Mid 1
2	Input
3	Mid 2
4	Output 1
5	GND
6	Output 2

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

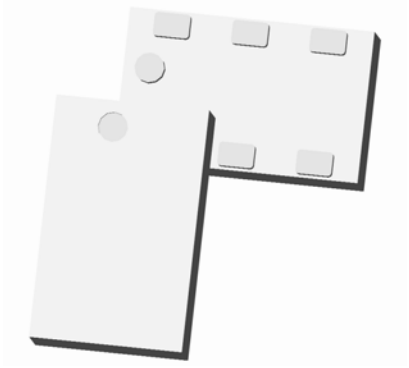
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model PD0922J7575D2

Rev D

Ultra Low Profile 0805 Power Divider 75Ω to 75Ω



Description

The PD0922J7575D2 is a low profile, sub-miniature Wilkinson power divider in an easy to use surface mount package and is ideal for high volume manufacturing while delivering higher performances than traditional printed and lumped element solutions. It has been designed for the following markets: DVB-S, GSM, DCS, PCS, WCDMA, GPS, 802.11a+g, Bluetooth, and Zigbee USA.

The PD0922J7575D2 is matched to 75Ω and has a height profile of 0.8 mm. A two section Wilkinson design results in increased isolation performance. Two external resistors are required for operation. Components are available on tape and reel for high volume manufacturing pick and place.

All Xinger components are constructed from ceramic filled PTFE composites which possess excellent electrical and mechanical stability having X and Y thermal coefficient of expansion (CTE) of 17 ppm/^{o}C.

Detailed Electrical Specifications:

Specifications subject to change without notice.

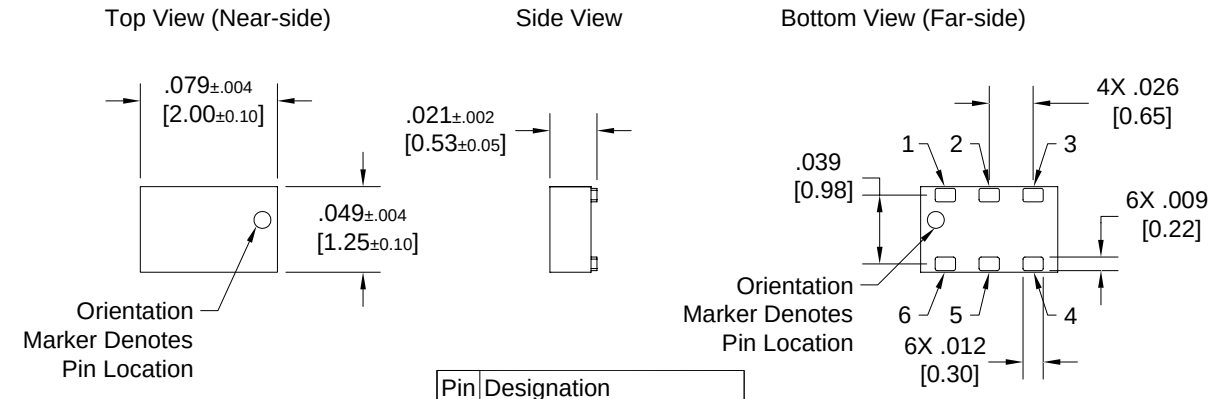
Features:

- **950 – 2150 MHz**
- **16 dB Isolation (output ports)**
- **Good Return Loss**
- **0.8mm Height Profile**
- **75Ω Outputs/Inputs**
- **External resistors required**
- **Low Insertion Loss**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	950		2150	MHz
Input Port Impedance		75		Ω
Output Port Impedance		75		Ω
Return Loss	9.5	11		dB
Insertion Loss*		0.8	1.0	dB
Amplitude Balance		0.4	0.7	dB
Phase Balance		2	3	Degrees
Isolation (Output Ports)	14	16		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	*ºC*

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Output 1
2	Input
3	Mid 2
4	Mid 1
5	GND
6	Output 2

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

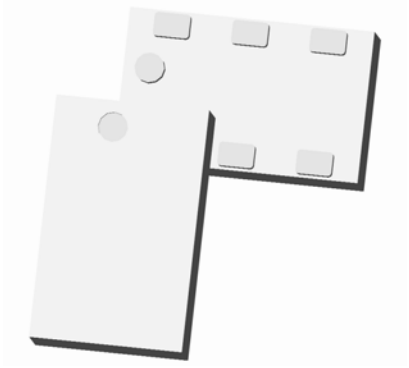
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model PD1722J5050D2

Rev D

Ultra Low Profile 0805 Power Divider 50Ω to 50Ω



Description

The PD1722J5050D2 is a low profile, sub-miniature Wilkinson power divider in an easy to use surface mount package. The PD1722J5050D2 is ideal for high volume manufacturing and delivers higher performances than traditional printed and lumped element solutions. The PD1722J5050D2 is matched to 50 Ω and has a height profile of 0.5 mm which is ideal for high level integrations in the following markets: WCDMA, and GSM, The PD1722J5050D2 does not include the resistive element and therefore, requires an external resistor for operation. The PD1722J5050D2 is available on tape and reel for high volume manufacturing pick and place.

Features:

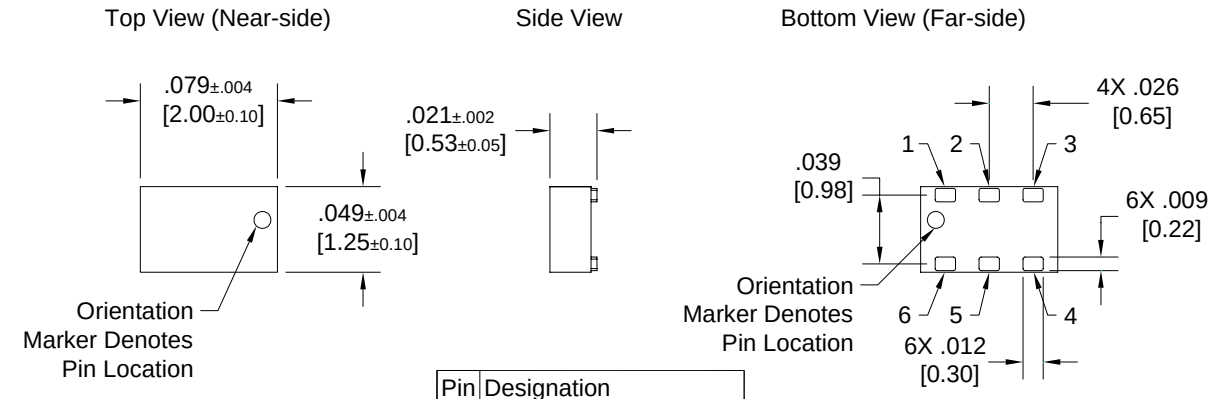
- **1700-2200 MHz**
- **19 dB Isolation (output ports)**
- **0.5mm Height Profile**
- **50Ω Input / 50Ω Outputs**
- **Low Insertion Loss**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**
- **External resistors required**

Detailed Electrical Specifications: Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	1700		2200	MHz
Input Port Impedance		50		Ω
Output Port Impedance		50		Ω
Return Loss	11	14		dB
Insertion Loss*		0.5	0.7	dB
Amplitude Balance		0.1	0.3	dB
Phase Balance		1	3	Degrees
Isolation (Output Ports)	17	19		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Output 1
2	Input
3	Mid 2
4	Mid 1
5	GND
6	Output 2

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

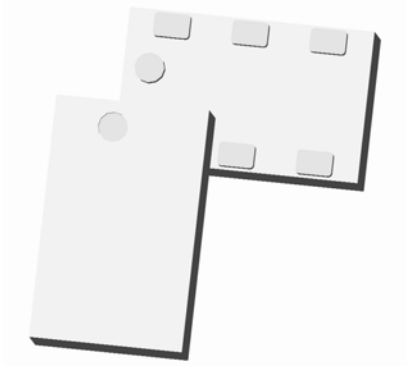
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model PD2328J5050S2

Rev B

Ultra Low Profile 0805 Power Divider 50Ω to 50Ω



Description

The PD2328J5050S2 is a low profile, sub-miniature Wilkinson power divider in an easy to use surface mount package. The PD2328J5050S2 is ideal for high volume manufacturing and delivers higher performances than traditional printed and lumped element solutions. The PD2328J5050S2 is matched to 50 Ω and has a height profile of 0.5 mm which is ideal for high level integrations in the following markets: WiMAX, 802.11b & g, Bluetooth, ZigBee, and XM & Sirius radio. The PD2328J5050S2 does not include the resistive element and therefore, requires an external resistor for operation. The PD2328J5050S2 is available on tape and reel for high volume manufacturing pick and place.

Features:

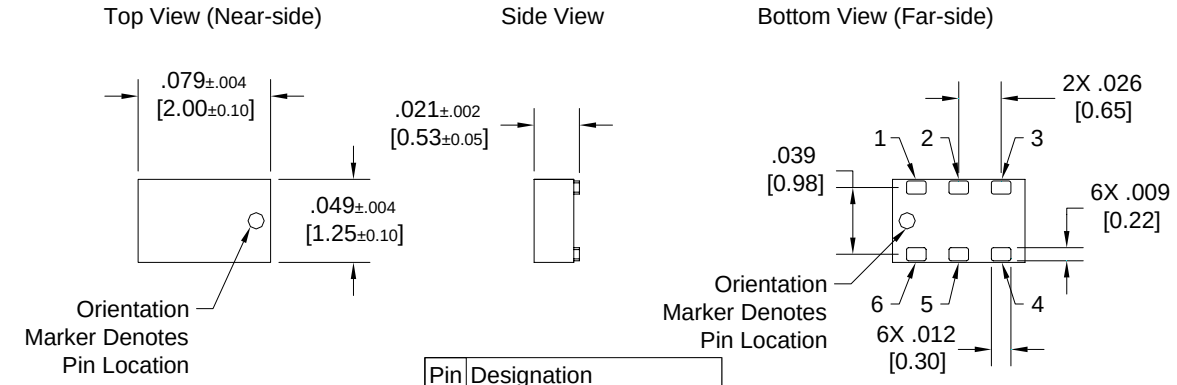
- **2300-2800 MHz**
- **21 dB Isolation (output ports)**
- **Good Return Loss**
- **0.5mm Height Profile**
- **50Ω Input / 50Ω Outputs**
- **Low Insertion Loss**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**
- **External Resistor Required**

Detailed Electrical Specifications: Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	2300		2800	MHz
Input Port Impedance		50		Ω
Output Port Impedance		50		Ω
Return Loss	15	19		dB
Insertion Loss*		0.3	0.5	dB
Amplitude Balance		0.1	0.3	dB
Phase Balance		1	2	Degrees
Isolation (Output Ports)	17	21		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	GND
2	Input
3	GND
4	Output 1
5	GND
6	Output 2

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

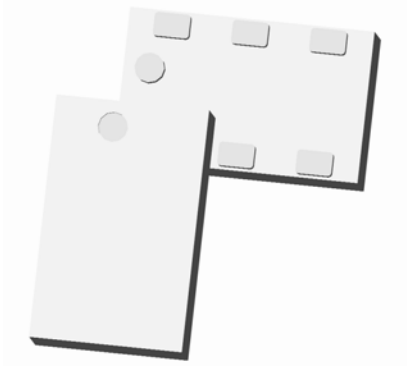
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model PD3150J5050S2

Rev C

Ultra Low Profile 0805 Power Divider 50Ω to 50Ω



Description

The PD3150J5050S2 is a low profile, sub-miniature Wilkinson power divider in an easy to use surface mount package. The PD3150J5050S2 is ideal for high volume manufacturing and delivers higher performances than traditional printed and lumped element solutions. The PD3150J5050S2 is matched to 50Ω and has a height profile of 0.5 mm which is ideal for high level integrations in the following markets: : DVB-S, GSM, DCS, PCS, WCDMA and GPS, 802.11a+g, Bluetooth, and Zigbee USA.
The PD3150J5050S2 does not include the resistive element and therefore, requires an external resistor for operation. The PD3150J5050S2 is available on tape and reel for high volume manufacturing pick and place.

Detailed Electrical Specifications:

Specifications subject to change without notice.

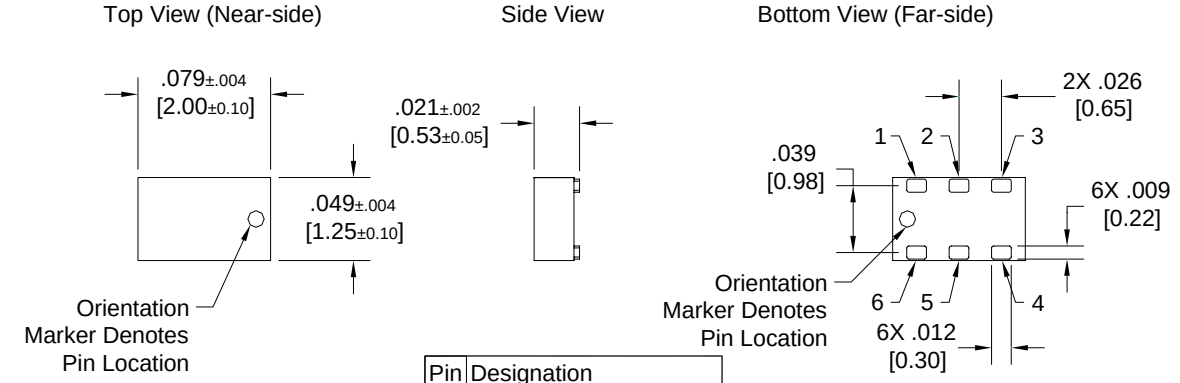
Features:

- **3100-5000 MHz**
- **15 dB Isolation (output ports)**
- **0.5mm Height Profile**
- **50Ω Input / 50Ω Outputs**
- **Low Insertion Loss**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**
- **External Resistor required**

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	3100		5000	MHz
Input Port Impedance		50		Ω
Output Port Impedance		50		Ω
Return Loss	6.8	8.6		dB
Insertion Loss*		1.0	1.3	dB
Amplitude Balance		0.1	0.4	dB
Phase Balance		1	2	Degrees
Isolation (Output Ports)	13	15		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	GND
2	Input
3	GND
4	Output 1
5	GND
6	Output 2

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

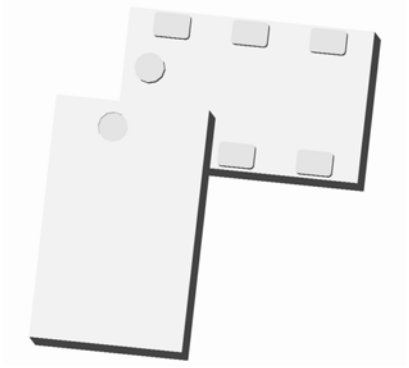
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model PD4859J5050S2

Rev B

Ultra Low Profile 0805 Power Divider 50Ω to 50Ω



Description

The PD4859J5050S2 is a low profile, sub-miniature Wilkinson power divider in an easy to use surface mount package. The PD4859J5050S2 is ideal for high volume manufacturing and delivers higher performances than traditional printed and lumped element solutions. The PD4859J5050S2 is matched to 50 Ω and has a height profile of 0.5 mm which is ideal for high level integrations in the following markets: 802.11a, WiMax, and home cordless. The PD4859J5050S2 does not include the resistive element and therefore, requires an external resistor for operation. The PD4859J5050S2 is available on tape and reel for high volume manufacturing pick and place.

Features:

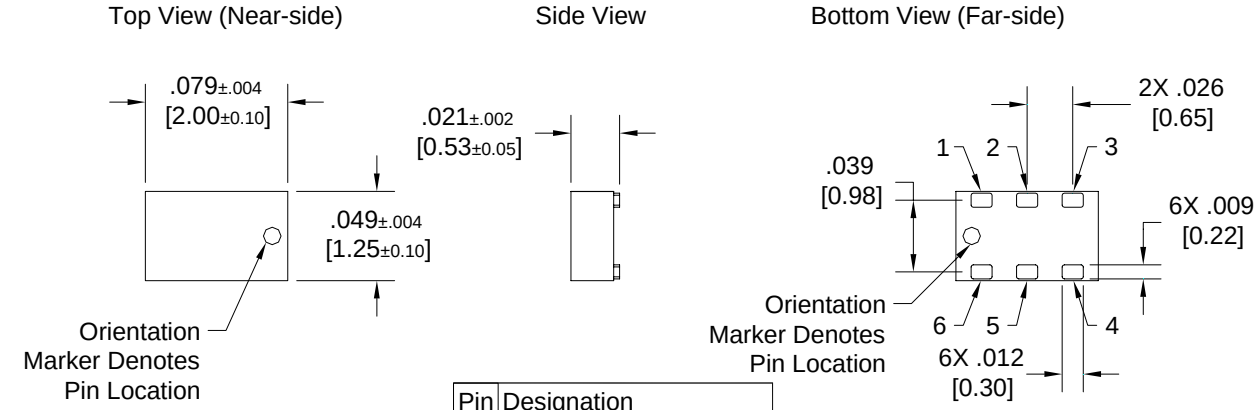
- **4800-5900 MHz**
- **18 dB Isolation (output ports)**
- **Good Return Loss**
- **0.5mm Height Profile**
- **50 Ohm Input / 50Ω Outputs**
- **Low Insertion Loss**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**
- **External Resistor Required**

Detailed Electrical Specifications: Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	4800		5900	MHz
Input Port Impedance		50		Ω
Output Port Impedance		50		Ω
Return Loss	7.9	10.3		dB
Insertion Loss*		0.7	1.0	dB
Amplitude Balance		0.1	0.3	dB
Phase Balance		1	4	Degrees
Isolation (Output Ports)	14	18		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	GND
2	Input
3	GND
4	Output 1
5	GND
6	Output 2

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

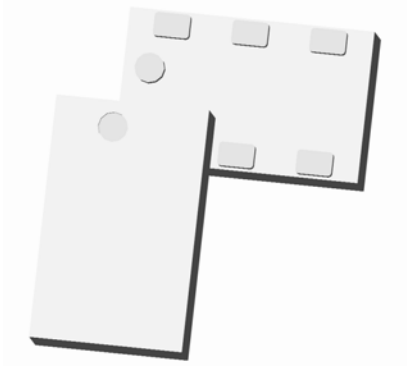
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model PD6080J5050S2

Rev B

Ultra Low Profile 0805 Power Divider 50Ω to 50Ω



Description

The PD6080J5050S2 is a low profile, sub-miniature Wilkinson power divider in an easy to use surface mount package. The PD6080J5050S2 is ideal for high volume manufacturing and delivers higher performances than traditional printed and lumped element solutions. The PD6080J5050S2 is matched to 50 Ω and has a height profile of 0.5 mm which is ideal for high level integrations in the following markets: RFID, fixed satellite, and mobile satellite. The PD6080J5050S2 does not include the resistive element and therefore, requires an external resistor for operation. The PD6080J5050S2 is available on tape and reel for high volume manufacturing pick and place.

Features:

- **6000-8000 MHz**
- **15 dB Isolation (output ports)**
- **Good Return Loss**
- **0.5mm Height Profile**
- **50Ω Input / 50Ω Outputs**
- **Low Insertion Loss**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

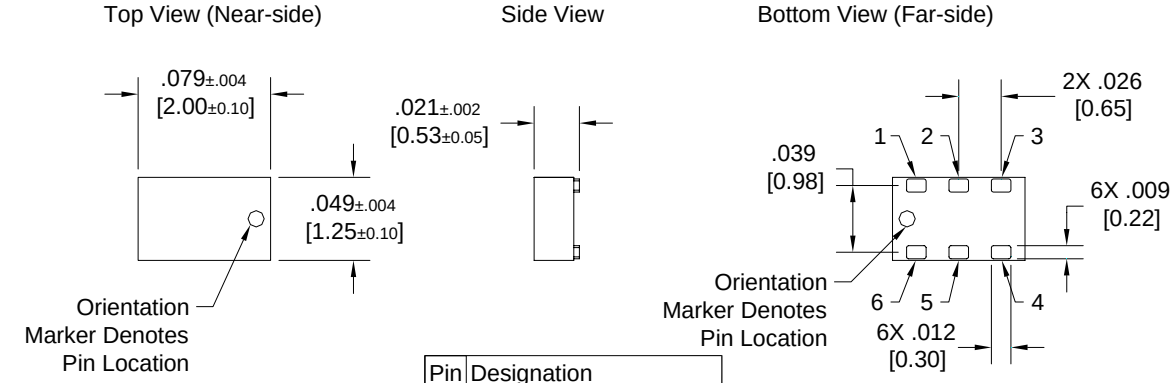
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	6000		8000	MHz
Input Port Impedance		50		Ω
Output Port Impedance		50		Ω
Return Loss	9	12		dB
Insertion Loss*		0.6	0.9	dB
Amplitude Balance		0.2	0.5	dB
Phase Balance		2	5	Degrees
Isolation (Output Ports)	12	15		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	GND
2	Input
3	GND
4	Output 1
5	GND
6	Output 2

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

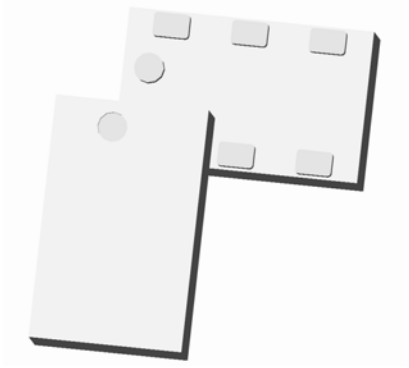
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model PD1722J5050S3

Rev A

Ultra Low Profile 0805 Power Divider
3 Way 50Ω to 50Ω



Description

The PD1722J5050S3 is a low profile, sub-miniature Wilkinson power divider in an easy to use surface mount package and is ideal for high volume manufacturing while delivering higher performances than traditional printed and lumped element solutions. It has been designed for the DCS, PCS, UMTS and CDMA markets. The PD1722J5050S3 is matched to 50 Ω and has a height profile of 0.84 mm. Three external resistors are required for operation. Components are available on tape and reel for high volume manufacturing pick and place.

This components is constructed from ceramic filled PTFE composites which possess excellent electrical and mechanical stability having X and Y thermal coefficient of expansion (CTE) of 17 ppm/^{o}C.

Features:

- **1700 – 2200 MHz**
- **0.84 mm Height Profile**
- **50Ω Outputs/Inputs**
- **DCS/PCS/UMTS/CDMA**
- **External resistors required**
- **Low Insertion Loss**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

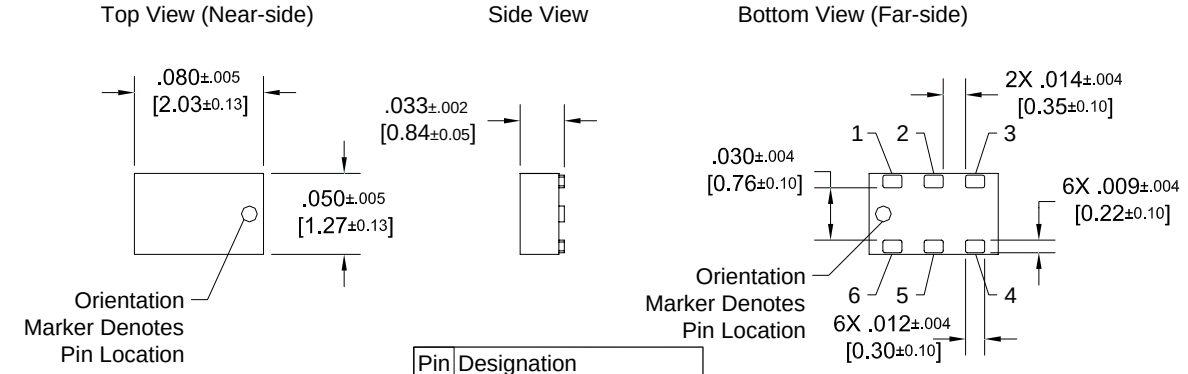
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	1700		2200	MHz
Input Port Impedance		50		Ω
Output Port Impedance		50		Ω
Return Loss	9	11		dB
Insertion Loss*		0.9	1.3	dB
Amplitude Balance		0.5	0.9	dB
Phase Balance		9	12	Degrees
Isolation (Output Ports)	14	17		dB
Power Handling			1	Watts
Operating Temperature	-55		+85	*ºC*

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Output 1
2	GND
3	Output 2
4	GND
5	Input
6	Output 3

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

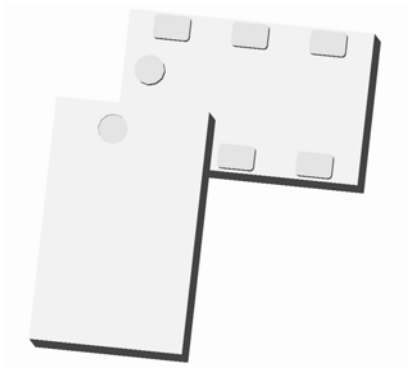
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model C0810J5003A00

Rev B

Ultra Low Profile 0805
3 dB, 90° Hybrid Coupler



Description

The C0810J5003A00 is a low cost, low profile sub-miniature high performance 3 dB coupler in an easy to use surface mount package. It is designed for 800 – 1000MHz applications including: GSM, WCDMA, CDMA and 900MHZ ISM applications. The C0810J5003A00 is ideal for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance are required. The C0810J5003A00 is available on tape and reel for pick and place high volume manufacturing.

All of the Xinger components are constructed from ceramic filled PTFE composites which possess excellent electrical and mechanical stability having X and Y thermal coefficient of expansion (CTE) of 17 ppm/^{o}C.

Features:

- **800 – 1000 MHz**
- **0.7mm Height Profile**
- **GSM, WCDMA & 900 MHZ ISM**
- **Low Insertion Loss**
- **High Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

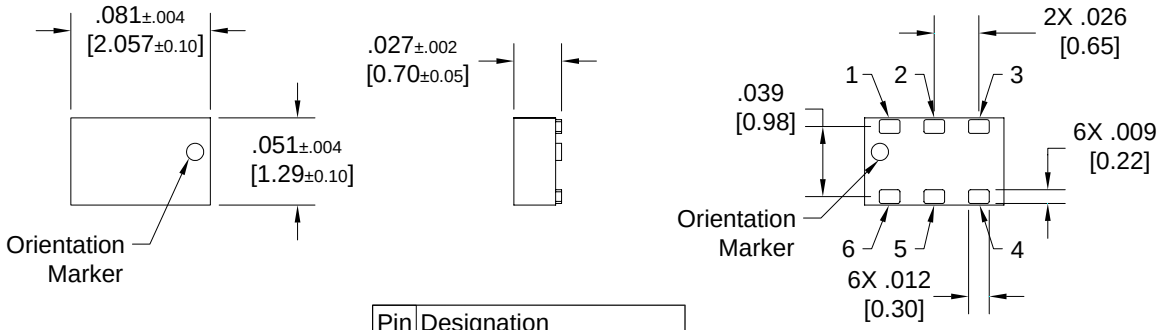
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	800		1000	MHz
Port Impedance		50		Ω
Return Loss	21	31		dB
Isolation	18	23		dB
Insertion Loss*		0.5	0.6	dB
Amplitude Balance		0.6	0.9	dB
Phase Balance (relative to 90°)		4	7	Degrees
Power Handling			4.0	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Input
2	Gnd
3	Iso
4	Direct
5	Gnd
6	Coupled

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

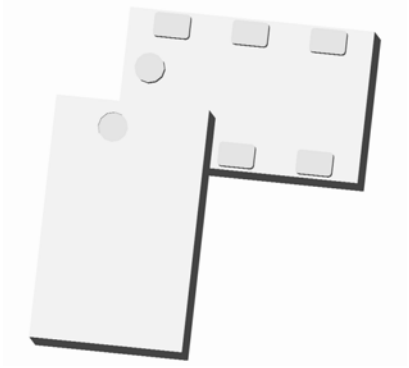
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model C1720J5003A00

Rev C

Ultra Low Profile 0805
3 dB, 90° Hybrid Coupler



Description

The C1720J5003A00 is a low cost, low profile sub-miniature high performance 3 dB coupler in an easy to use surface mount package. It is designed for PCS, DCS, DECT, and WCDMA-3G applications. The C1720J5003A00 is ideal for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance are required. The C1720J5003A00 is available on tape and reel for pick and place high volume manufacturing.

All of the Xinger components are constructed from ceramic filled PTFE composites which possess excellent electrical and mechanical stability having X and Y thermal coefficient of expansion (CTE) of 17 ppm/^{o}C.

Features:

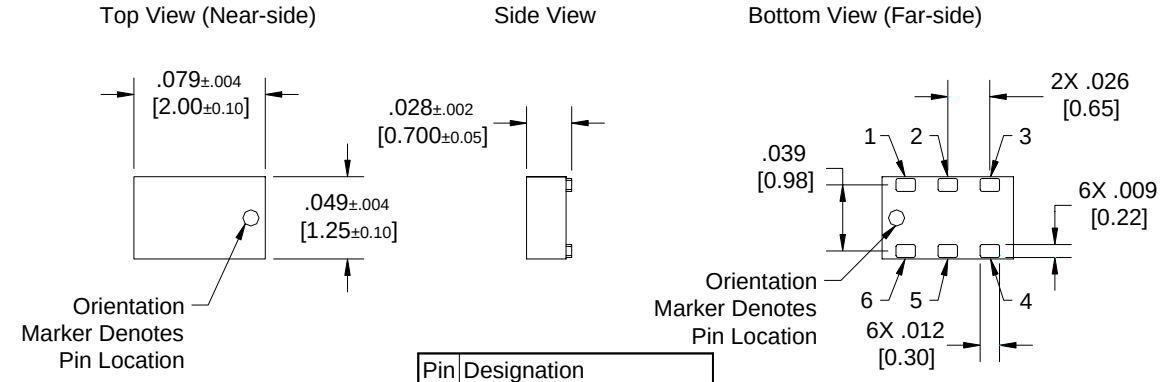
- **1700 – 2000 MHz**
- **0.7mm Height Profile**
- **PCS, DCS, DECT, & WCDMA-3G**
- **Low Insertion Loss**
- **High Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Detailed Electrical Specifications: Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	1700		2000	MHz
Port Impedance		50		Ω
Return Loss	21	27		dB
Isolation	24	36		dB
Insertion Loss*		0.3	0.4	dB
Amplitude Balance		0.2	1.0	dB
Phase Balance (relative to 90°)		1	5	Degrees
Power Handling			4.0	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Input
2	GND
3	Isolated
4	Direct
5	GND
6	Coupled

Dimensions are in Inches [Millimeters]
Mechanical Outline

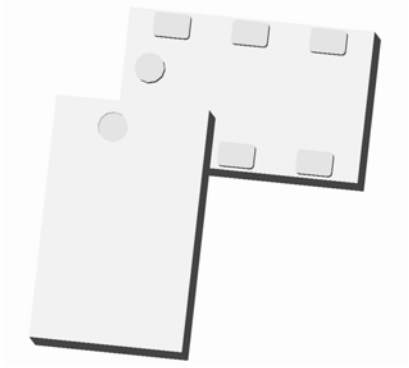
Tolerances are Non-Cumulative

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model C2023J5003A00

Rev C

Ultra Low Profile 0805
3 dB, 90° Hybrid Coupler



Description

The C2023J503A00 is a low cost, low profile sub-miniature high performance 3 dB coupler in an easy to use surface mount package. It is designed for WiMax,WiBro, UMTS, and IMT2000 applications. The C2023J503A00 is ideal for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance are required. The C2023J503A00 is available on tape and reel for pick and place high volume manufacturing.

All of the Xinger components are constructed from ceramic filled PTFE composites which possess excellent electrical and mechanical stability having X and Y thermal coefficient of expansion (CTE) of 17 ppm/°C

Features:

- **2000 – 2300 MHz**
- **0.7mm Height Profile**
- **WiMax, WiBro, UMTS & IMT2000 applications**
- **Low Insertion Loss**
- **High Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

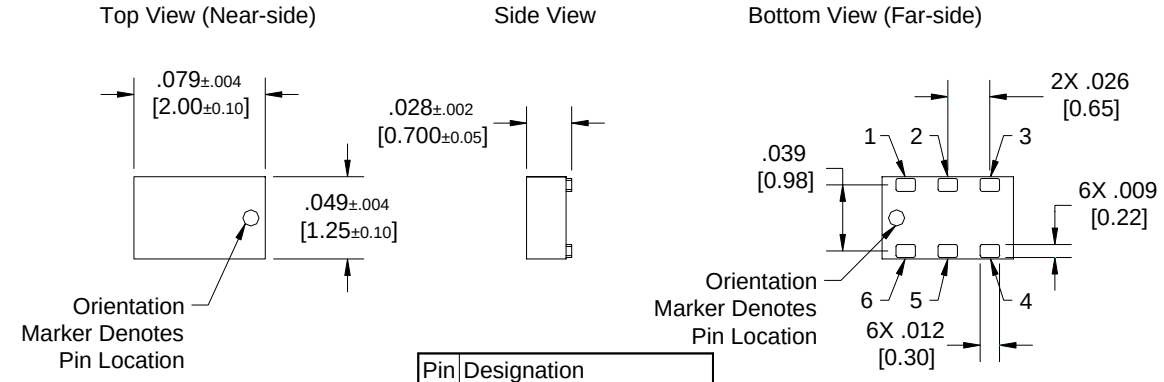
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	2000		2300	MHz
Port Impedance		50		Ω
Return Loss	18	22		dB
Isolation	21	25		dB
Insertion Loss*		0.3	0.4	dB
Amplitude Balance		0.1	0.8	dB
Phase Balance (relative to 90°)		2	6	Degrees
Power Handling			4.0	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Input
2	GND
3	Isolated
4	Direct
5	GND
6	Coupled

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

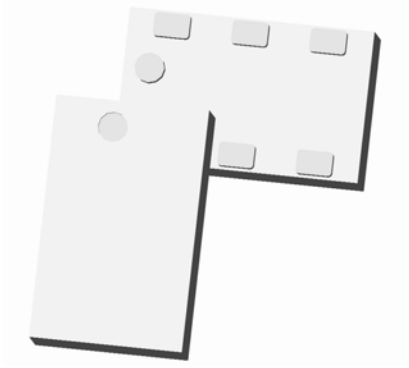
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model C2327J5003A00

Rev C

Ultra Low Profile 0805
3 dB, 90° Hybrid Coupler



Description

The C2327J5003A00 is a low cost, low profile sub-miniature high performance 3 dB coupler in an easy to use surface mount package. It is designed for WiMax, WiBro, WiFi, ISM, and EUMTS applications. The C2327J5003A00 is ideal for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance are required. The C2327J5003A00 is available on tape and reel for pick and place high volume manufacturing.

All of the Xinger components are constructed from ceramic filled PTFE composites which possess excellent electrical and mechanical stability having X and Y thermal coefficient of expansion (CTE) of 17 ppm/°C.

Features:

- **2300 – 2700 MHz**
- **0.7mm Height Profile**
- **WiMax, WiBro, WiFi, ISM & EUMTS**
- **Low Insertion Loss**
- **High Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

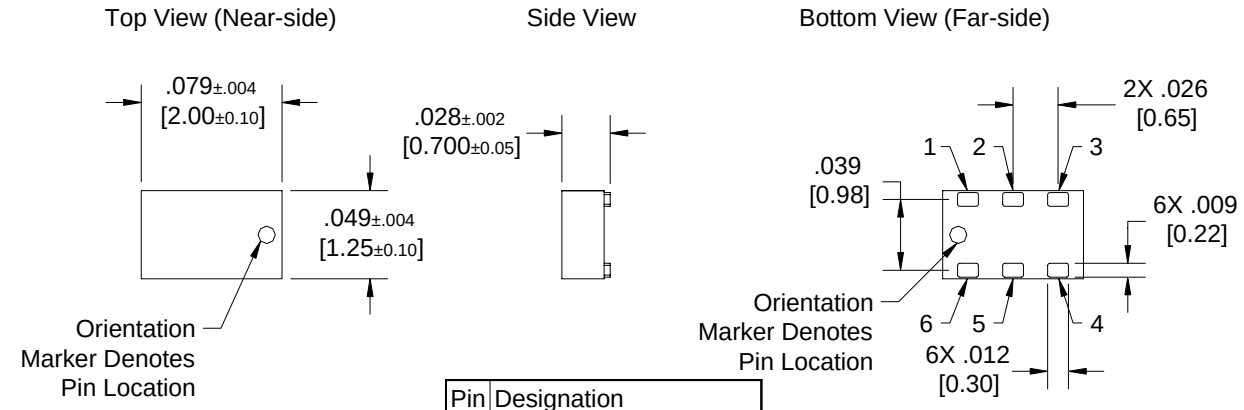
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	2300		2700	MHz
Port Impedance		50		Ω
Return Loss	15	18		dB
Isolation	18	22		dB
Insertion Loss*		0.3	0.4	dB
Amplitude Balance		0.1	0.9	dB
Phase Balance (relative to 90°)		4	8	Degrees
Power Handling			4.0	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Input
2	GND
3	Isolated
4	Direct
5	GND
6	Coupled

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

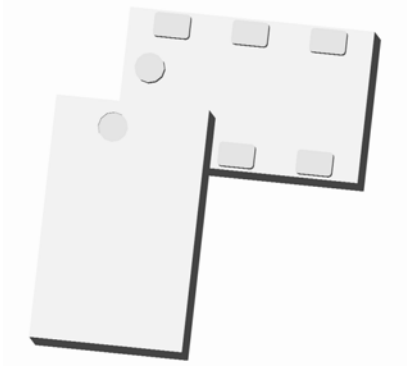
Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model C3337J5003A00

Rev C

Ultra Low Profile 0805
3 dB, 90° Hybrid Coupler



Description

The C3337J5003A00 is a low cost, low profile sub-miniature high performance 3 dB coupler in an easy to use surface mount package. It is designed for WiMax and WiBro applications. The C3337J5003A00 is ideal for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance are required. The C3337J5003A00 is available on tape and reel for pick and place high volume manufacturing.

All of the Xinger components are constructed from ceramic filled PTFE composites which possess excellent electrical and mechanical stability having X and Y thermal coefficient of expansion (CTE) of 17 ppm/^{o}C

Detailed Electrical Specifications: Specifications subject to change without notice.

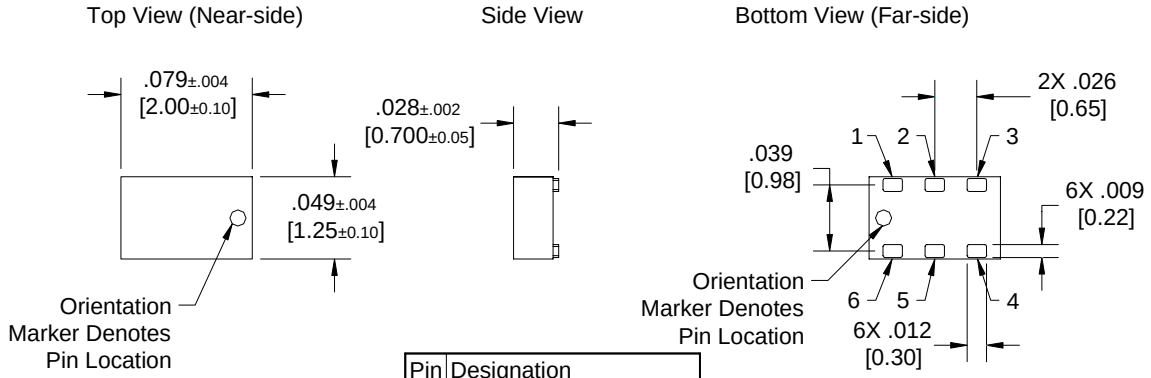
Features:

- **3300 – 3700 MHz**
- **0.7mm Height Profile**
- **WiMax and WiBro applications**
- **Low Insertion Loss**
- **High Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

	ROOM (25°C)			
Parameter	**Min.**	**Typ.**	**Max**	**Unit**
Frequency	3300		3700	MHz
Port Impedance		50		Ω
Return Loss	15	18		dB
Isolation	18	22		dB
Insertion Loss*		0.2	0.3	dB
Amplitude Balance		0.3	1.0	dB
Phase Balance (relative to 90°)		3	7	Degrees
Power Handling			4.0	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation
1	Input
2	GND
3	Isolated
4	Direct
5	GND
6	Coupled

Dimensions are in Inches [Millimeters]
Mechanical Outline

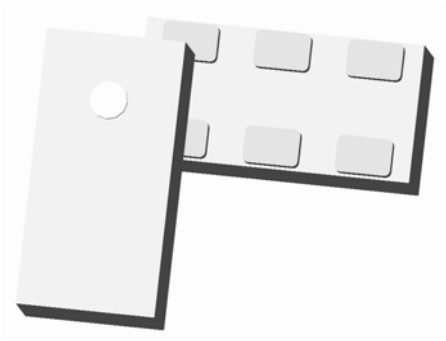
Tolerances are Non-Cumulative

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model X0060L5050A00

Rev C

Ultra Low Profile 0603 RF Crossover



Description

The (patent pending) X0060L5050A00 is an ultra-small low profile crossover that enables the transition of two intersecting RF traces in an easy to use industry standard SMT package. The 0603 crossover is ideal for any critical applications where layout and available space are a premium and resorting to addition PWB layers and larger overall footprints are unacceptable. With low insertion loss and high isolation packaged with cost in mind, this novel component delivers.

Features:

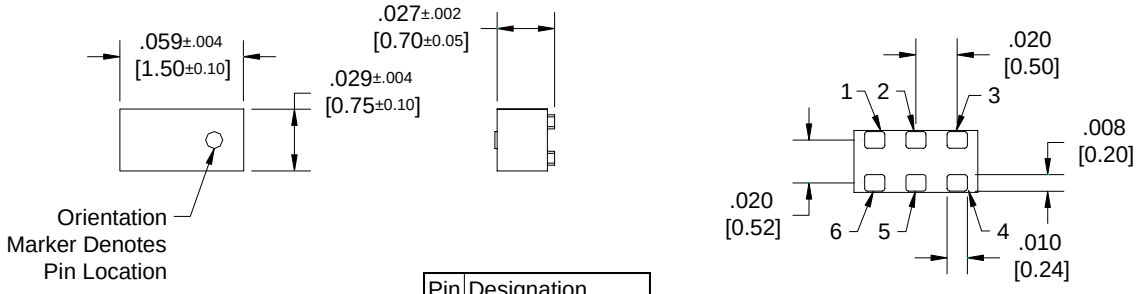
- **0 –6000 MHz.**
- **0.7mm Height Profile**
- **50 Ohm RF-RF Crossover**
- **All Wireless Frequencies**
- **Low Insertion Loss**
- **High Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Detailed Electrical Specifications*: Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	0		6000	MHz
Port Impedance		50		Ω
Return Loss	16	19		dB
Insertion Loss		0.1	0.15	dB
Isolation (cross-talk)				
0 – 700 MHz	45	53		dB
700 - 1700 MHz	40	47		dB
1700 - 2200 MHz	39	46		dB
2200 - 3000 MHz	37	43		dB
3000 - 6000 MHz	27	31		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

Outline Drawing

Top View (Near-side) Side View Bottom View (Far-side)



Pin	Designation
1	GND
2	RF 2 In/Out
3	GND
4	RF 1 In/Out
5	RF 2 In/Out
6	RF 1 In/Out

Dimensions are in Inches [Millimeters]
Mechanical Outline

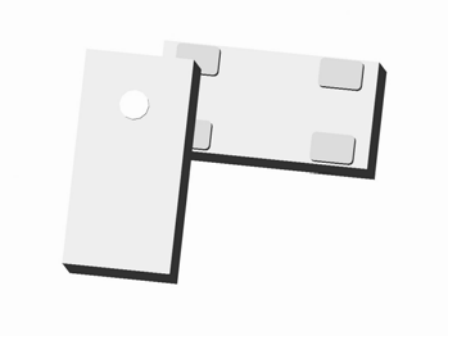
Tolerances are Non-Cumulative

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Model J0060L5050A00

Rev C

Ultra Low Profile 0603 RF Jumper



Description

The (patent pending) J0060L5050A00 is an ultra-small low profile jumper that enables the transition of two intersecting RF traces in an easy to use industry standard SMT package. The 0603 jumper permits one path to continue on the PWB while the other path is jumped within the component. The jumper is ideal for any critical applications where layout and available space are a premium and resorting to addition PWB layers and larger overall footprints are unacceptable. With low insertion loss and high isolation packaged with cost in mind, this novel component delivers.

Features:

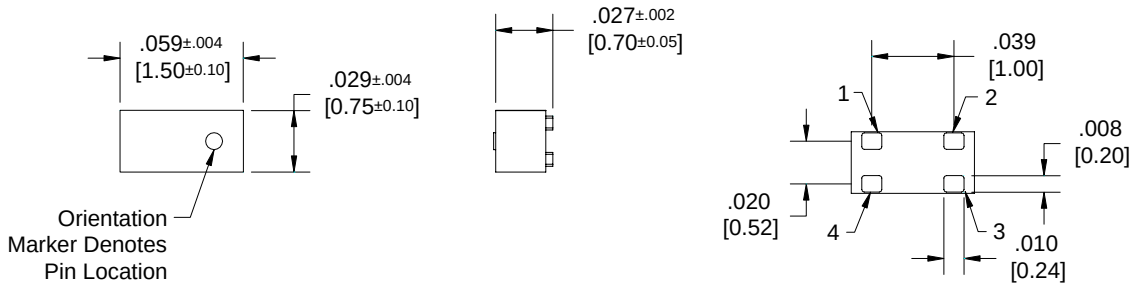
- **0 – 6000 MHz.**
- **0.7mm Height Profile**
- **50 Ohm RF Jumper**
- **All Wireless Frequencies**
- **Low Insertion Loss**
- **High Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Detailed Electrical Specifications*: Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	0		6000	MHz
Port Impedance		50		Ω
Return Loss	16	18		dB
Insertion Loss		0.1	0.15	dB
Isolation (cross-talk)				
0 – 700 MHz	45	53		dB
700 - 1700 MHz	40	48		dB
1700 - 2200 MHz	39	46		dB
2200 - 3000 MHz	37	44		dB
3000 - 6000 MHz	29	33		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

Outline Drawing

Top View (Near-side) Side View Bottom View (Far-side)



Pin	Designation
1	GND
2	GND
3	RF 1 In / Out
4	RF 1 In / Out

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

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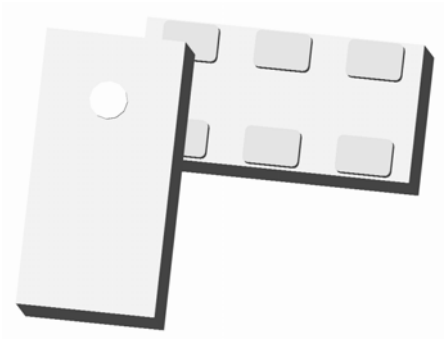
Model X0060L7575A00

Rev C

Ultra Low Profile 0603 RF Crossover



Description

The (patent pending) X0066L7575A00 is an ultra-small low profile crossover that enables the transition of two intersecting RF traces in an easy to use industry standard SMT package. The 0603 crossover is ideal for any critical applications where layout and available space are a premium and resorting to addition PWB layers and larger overall footprints are unacceptable. With low insertion loss and high isolation packaged with cost in mind, this novel component delivers.

Features:

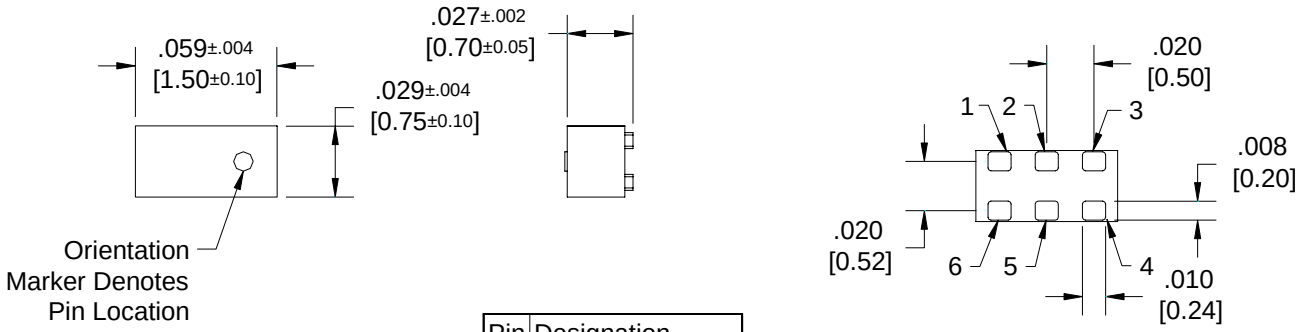
- **0 – 2500 MHz.**
- **0.7mm Height Profile**
- **75 Ohm RF-RF Crossover**
- **All Wireless Frequencies**
- **Low Insertion Loss**
- **High Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Detailed Electrical Specifications*: Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	0		2500	MHz
Port Impedance		75		Ω
Return Loss	19	21		dB
Insertion Loss		0.1	0.15	dB
Isolation (cross-talk)				
0 – 700 MHz	44	52		dB
700 - 1700 MHz	40	47		dB
1700 - 2500 MHz	38	43		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

Outline Drawing

Top View (Near-side) Side View Bottom View (Far-side)



Pin	Designation
1	GND
2	RF 2 In/Out
3	GND
4	RF 1 In/Out
5	RF 2 In/Out
6	RF 1 In/Out

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

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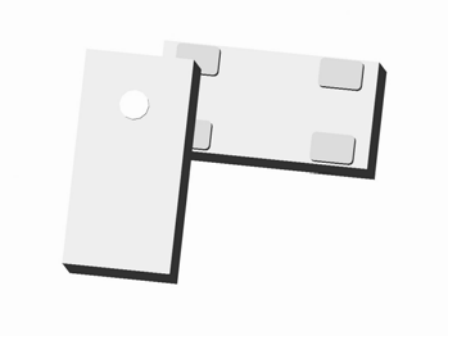
Model J0060L7575A00

Rev C

Ultra Low Profile 0603 RF Jumper



Description

The (patent pending) J0060L7575A00 is an ultra-small low profile jumper that enables the transition of two intersecting RF traces in an easy to use industry standard SMT package. The 0603 jumper permits one path to continue on the PWB while the other path is jumped within the component. The jumper is ideal for any critical applications where layout and available space are a premium and resorting to addition PWB layers and larger overall footprints are unacceptable. With low insertion loss and high isolation packaged with cost in mind, this novel component delivers.

Features:

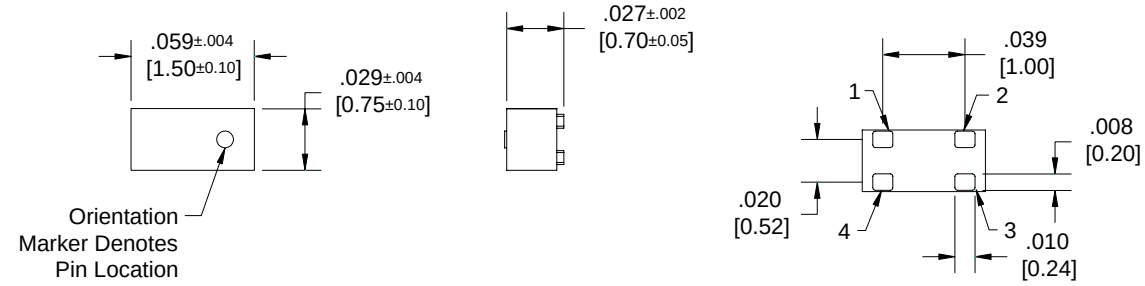
- **0 – 2500 MHz.**
- **0.7mm Height Profile**
- **75 Ohm RFJumper**
- **All Wireless Frequencies**
- **Low Insertion Loss**
- **High Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Detailed Electrical Specifications*: Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	0		2500	MHz
Port Impedance		75		Ω
Return Loss	19	22		dB
Insertion Loss		0.13	0.2	dB
Isolation (cross-talk)				
0 – 700 MHz	45	51		dB
700 - 1700 MHz	40	45		dB
1700 - 2200 MHz	38	43		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

Outline Drawing

Top View (Near-side) Side View Bottom View (Far-side)



Pin	Designation
1	GND
2	GND
3	RF 1 In / Out
4	RF 1 In / Out

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

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Resistive Components Selection Matrix

Terminations							
Model Number	Package	Package Size LxWxT [inch]	Freq. Band [MHz]	Impedance [Ω] ±2%	Return Loss [dB]	Power Handling [W]	Derating Curve
A100N50X4	Chip	0.25 x 0.225 x 0.04	DC - 2700	50	26	100	1
A125N50X4	Chip	0.25 x 0.25 x 0.04	DC - 2700	50	26	125	1
			DC - 4000	50	20	125	1
A150N50X4B	Chip	0.375 x .250 x 0.040	DC - 2000	50	26	150	4
			DC - 2700	50	20	150	4
C10N50Z4A	Surface Mount	0.10 x 0.20 x .040	DC - 2000	50	19	10	2
			DC - 3000	50	15	10	2
C25N50Z4A	Surface Mount	0.375 x .250 x 0.040	DC - 3000	50	19	25	2
C50A50Z4	Surface Mount	0.25 x 0.25 x 0.05	DC - 2200	50	26	50	2
			DC - 2700	50	24	50	2
C100N50Z4	Surface Mount	0.250 x 0.250 x 0.06	DC - 2700	50	24	100	2
			DC - 4000	50	20	100	2
E150N50X4	Flangeless	0.205 x 0.375 x .073	DC - 2000	50	25	150	1
	lidded & leaded		DC - 2700	50	20	150	1
C16N50Z4A	Surface Mount	0.250 x 0.250 x .060	DC - 3000	50	19	16	2
J100N50X4	Half Flange Center	0.250 x 0.515 x 0.148	DC - 3000	50	19	100	1
C16A50Z4	Surface Mount	0.10 x 0.20 x .020	DC - 3000	50	19	16	2
K100N50X4	Half Flanged Right	0.25 x 0.515x 0.138	DC - 3000	50	19	100	1
I100N50X4	Half Flanged Left	0.25 x 0.515x 0.138	DC - 3000	50	19	100	1
C10A50Z4	Surface Mount	0.10 x 0.20 x 0.025	DC - 3000	50	19	10	2
C40A50Z4	Surface Mount	0.375 x 0.375 x 0.060	DC - 2300	50	21	40	3
A20A50X1A	Surface Mount	0.10 x 0.20 x 0.025	DC - 6000	50	19	20	3
G150N50W4B	Flanged	0.87 x 0.375 x 0.134	DC - 2000	50	25	150	5
			DC - 2700	50	20	150	5

Attenuators							
Model Number	Package	Package Size LxWxT [inch]	Freq. Band [MHz]	Attenuation [dB]	Return Loss [dB]	Power Handling [W]	Derating Curve
B100NA20X4	Chip	0.25 x 0.25 x 0.04	DC - 2700	20 ± 1 dB	20	100	1
			DC - 4000	20 ± 1 dB	19	100	1
H100NA20X4	Flanged	0.79 x 0.25x 0.142	DC - 2700	20 ± 1 dB	24	100	1
			DC - 4000	20 ± 1 dB	20	100	1
H100NA30X4	Flanged	0.79 x 0.25x 0.142	DC - 2200	30 + 5/-2	24	100	1
			DC - 4000	30 + 7/-2	20	100	1
D30A20Y4	Surface Mount	0.375 x 0.365 x 0.06	DC - 2000	20 ± 0.75 dB	21	30	1
D30A30Y4	Surface Mount	0.375 x 0.365 x 0.06	DC - 2000	30 ± 0.75 dB	21	30	1
D10AA1Z4	Surface Mount	0.100 x 0.200 x 0.025	DC - 3000	1 ± .30 dB	19	7	2
D10AA2Z4	Surface Mount	0.100 x 0.200 x 0.025	DC - 3000	2 ± .30 dB	19	7	2
D10AA3Z4	Surface Mount	0.100 x 0.200 x 0.025	DC - 3000	3 ± .30 dB	19	7	2
D10AA4Z4	Surface Mount	0.100 x 0.200 x 0.025	DC - 3000	4 ± .30 dB	19	7	2
D10AA5Z4	Surface Mount	0.100 x 0.200 x 0.025	DC - 3000	5 ± .30 dB	19	7	2
D10AA6Z4	Surface Mount	0.100 x 0.200 x 0.025	DC - 3000	6 ± .30 dB	19	7	2
D10AA9Z4	Surface Mount	0.100 x 0.200 x 0.025	DC - 3000	9 ± .25 dB	19	7	2
D10AA10Z4	Surface Mount	0.100 x 0.200 x 0.025	DC - 3000	10 ± .25 dB	19	7	2
D10AA20Z4	Surface Mount	0.100 x 0.200 x 0.025	DC - 3000	20 ± .50 dB	19	7	2
D10AA30Z4	Surface Mount	0.100 x 0.200 x 0.025	DC - 3000	30 ± 1.50 dB	19	7	2

Resistors							
Model Number	Package	Size	Freq. Band [MHz]	Resistance Ω	Capacitance [pF]	Power Handling [W]	Derating Curve
D5B50Y1A	Surface Mount	0.200 x 0.100 x 0.040	DC - 3000	50	0.30	5	2
D5B100Y1A	Surface Mount	0.200 x 0.100 x 0.040	DC - 3000	100	0.30	5	2
D10B50Y1A	Surface Mount	0.250 x 0.375 x 0.040	DC - 2000	50	1.40	10	2
D10B100Y1A	Surface Mount	0.250 x 0.375 x 0.040	DC - 2000	100	1.40	10	2

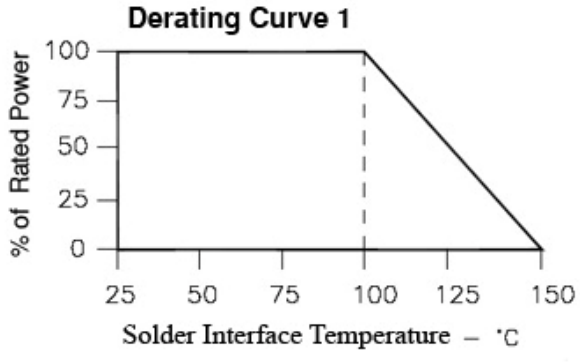
Resistive Components Selection Matrix

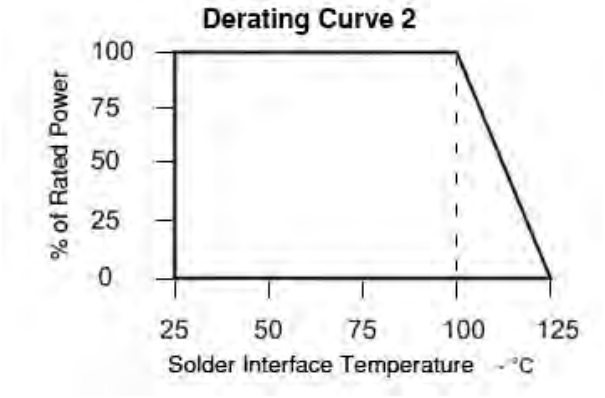
Nomenclature Chart

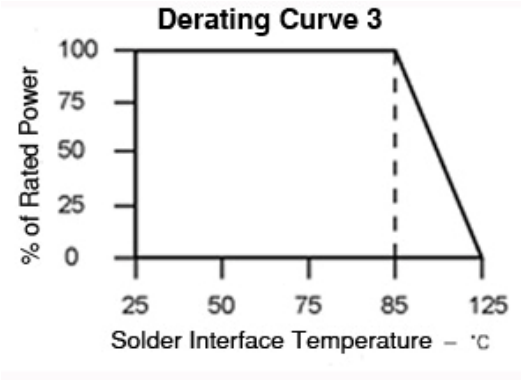
X XX X XX X X

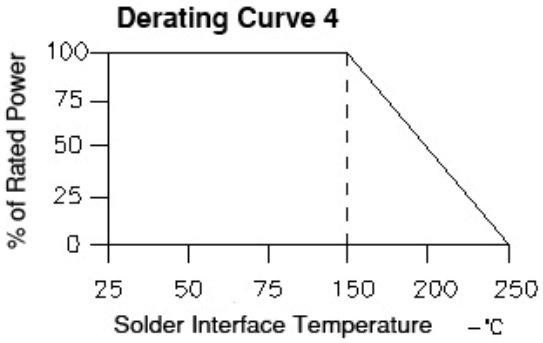
Package Style	Power Handling (W)	Material	Impedance/Attenuation	Edge Wrap	Plating Finish
A = Chip	Average Power in W.	A = Al_2O_3	50 = 50 Ohm	V = Dual	1 = Thick Film Ag
B = Chip Attenuator		B = BeO	A30 = 30 dB	W = No Wrap	2 = SN10/Ni
C = SMD		N = AlN		X = Single/Term.	3 = SN96/Ni
D = SMD Attenuator				Y = Dual Attenuator	4 = Matte Tin
E = Flangeless				Z = Dual Term.	5 = Immersion Au
G = Full Flange					6 = Immersion Ag
H = Full Flange Attenuator					
I = Half Flange (Left Lead)					
J = Half Flange (Center Lead)					
K = Half Flange (Right Lead)					

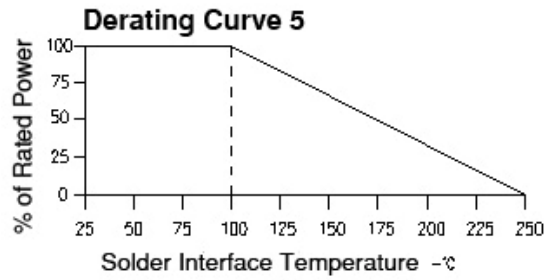
Note: These tables are for reference only. Please review complete data sheet for actual specification data.







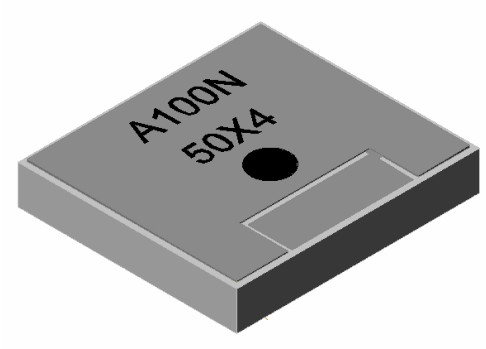




Model A100N50X4

RoHs Compliant

Chip Termination
100 Watts, 50Ω



Description

The A100N50X4 is high performance Aluminum Nitride (AlN) chip termination intended as an alternative to Beryllium Oxide (BeO). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating circulators and for use in power combiners. The termination is also RoHS compliant!

Features:

- **RoHS Compliant**
- **100 Watts**
- **DC - 2.7 GHz**
- **AIN Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**
- **Small Size**

General Specifications

Resistive Element	Thick film
Substrate	AlN Ceramic
Terminal Finish	Matte Tin over Nickel Barrier
Operating Temperature	-55 to +150°C (See de rating chart)

Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. All dimensions in inches.

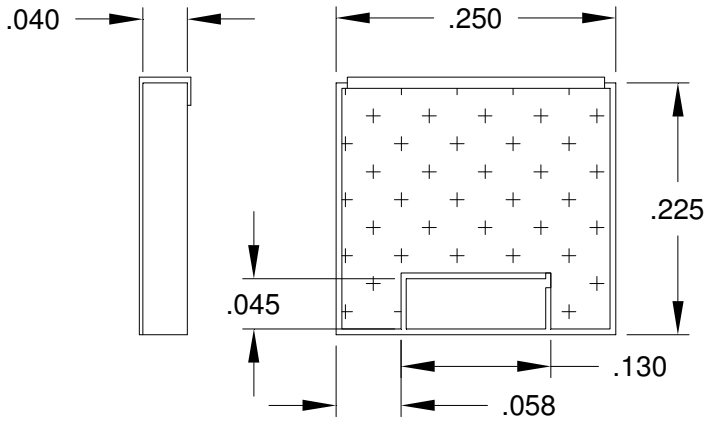
Electrical Specifications

Resistance Value:	50 Ohms, ± 2%
Power:	100 Watts
Frequency Range:	DC – 2.7 GHz
V.S.W.R.	1.1:1 to 2.7 GHz

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change.**

Outline Drawing

SIDE VIEW TOP VIEW



ALL DIMENSIONS IN INCHES

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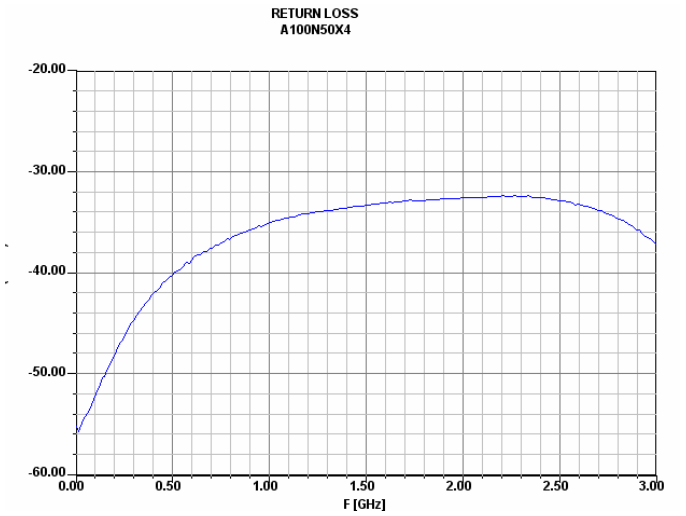
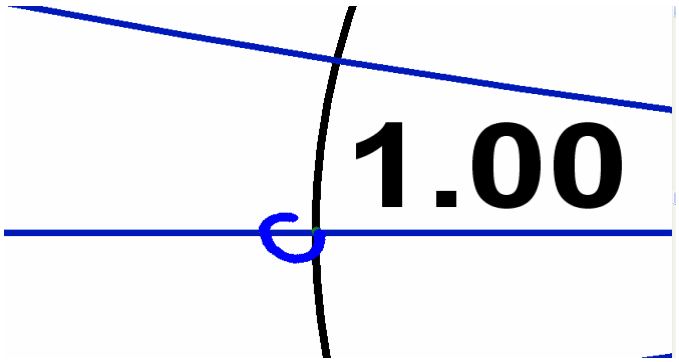
Model A100N50X4

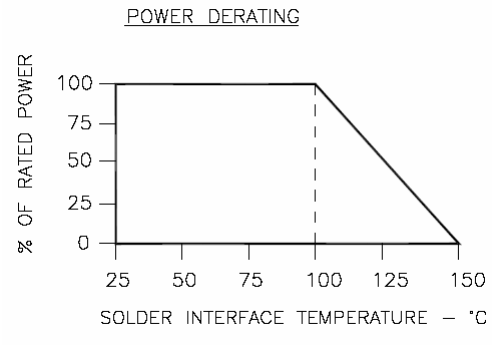
Typical Performance:

RoHs Compliant

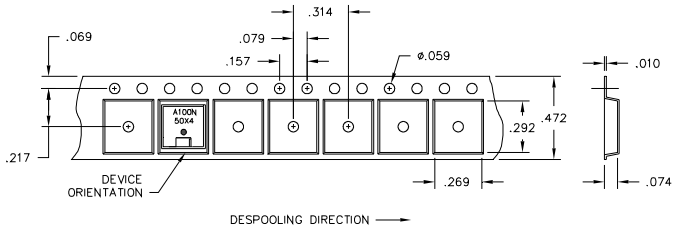




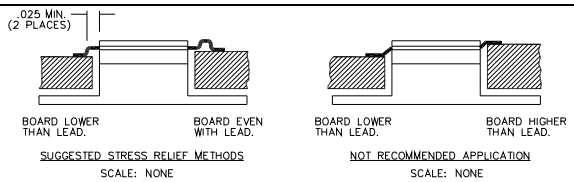
Power De-rating:



Tape & Reel:



Mounting Footprint and Procedure:



SUGGESTED MOUNTING PROCEDURES:

1. MAKE SURE THAT THE DEVICES ARE MOUNTED ON FLAT SURFACES (.001" UNDER THE DEVICE) TO OPTIMIZE THE HEAT TRANSFER.
2. POSITION DEVICE ON MOUNTING SURFACE AND SOLDER IN PLACE USING APPROPRIATE SOLDER WITH A CONTROLLED TEMPERATURE IRON.

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Model A125N50X4

ROHS Compliant

RF Power

Chip Termination
125 Watts, 50Ω

Description

The A125N50X4 is high performance Aluminum Nirtride (AlN) chip termination intended as an alternative to Beryllium Oxide (BeO). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating circulators and for use in power combiners. The termination is also RoHS compliant!

Features:

- **RoHS Compliant**
- **125 Watts**
- **DC – 4.0 GHz**
- **AlN Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**
- **Small Size**

General Specifications

Resistive Element	Thick film
Substrate	AlN Ceramic
Terminal Finish	Matte Tin over Nickel Barrier
Operating Temperature	-55 to +150°C (see de rating chart)

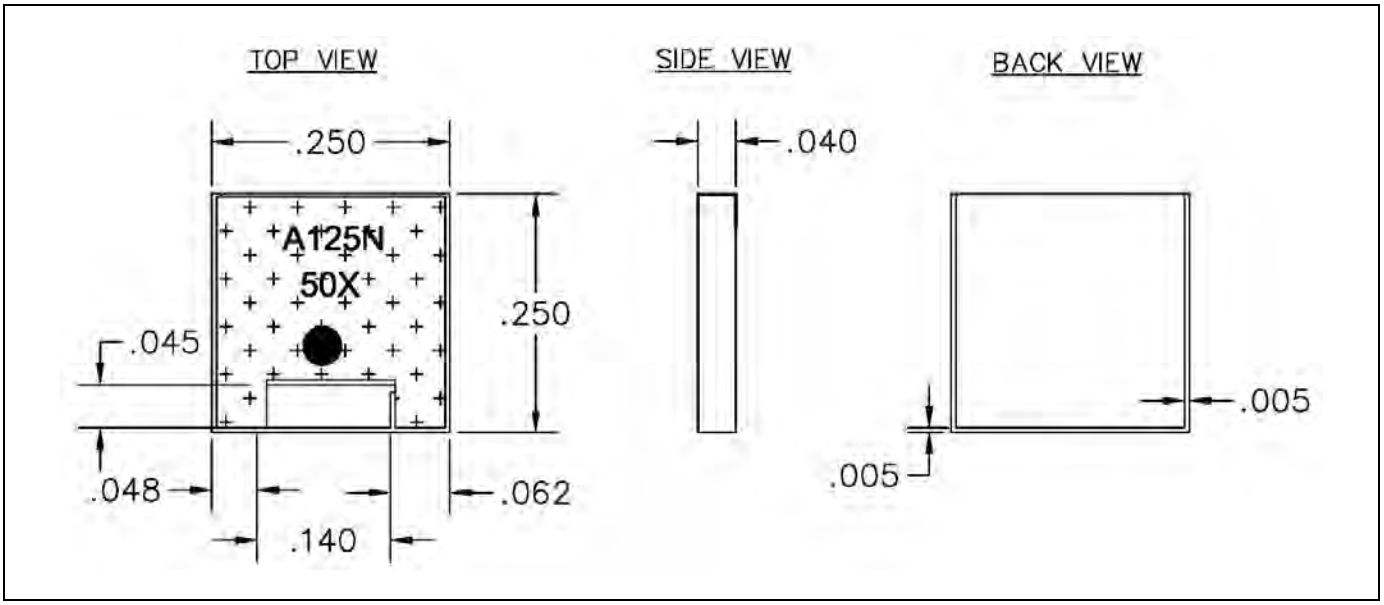
Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. **All dimensions in inches.**

Electrical Specifications

Resistance Value:	50 Ohms, ± 2%
Power:	125 Watts
Frequency Range:	DC – 4.0 GHz
Return Loss	> 26 dB to 2.7 GHz > 20 dB to 4.0 GHz

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change.**

Outline Drawing



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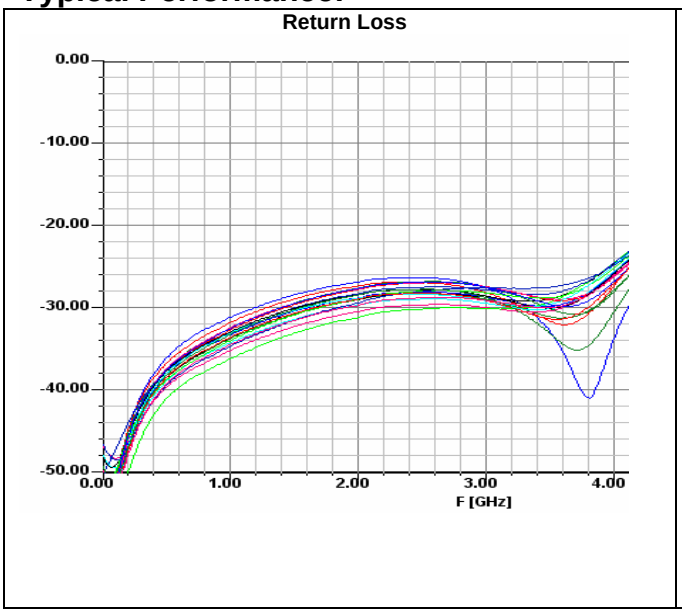
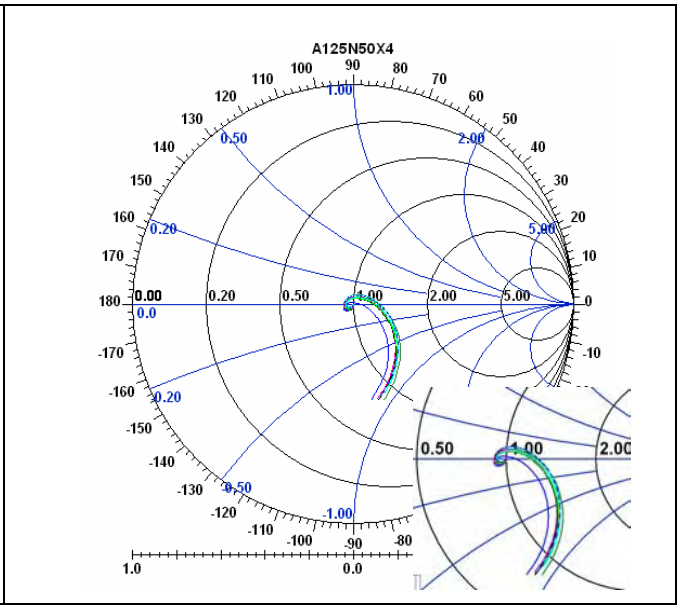
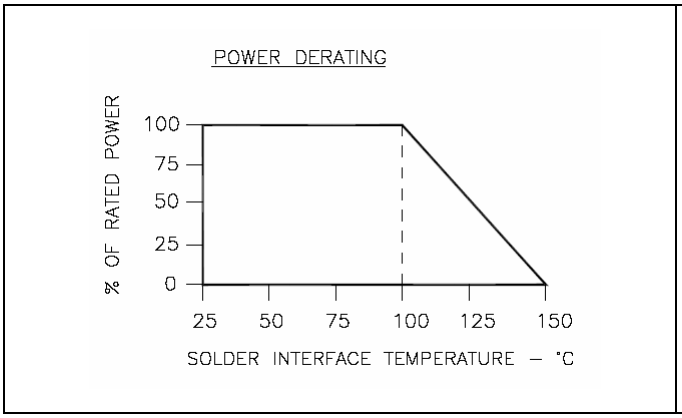
RF Power

Typical Performance:

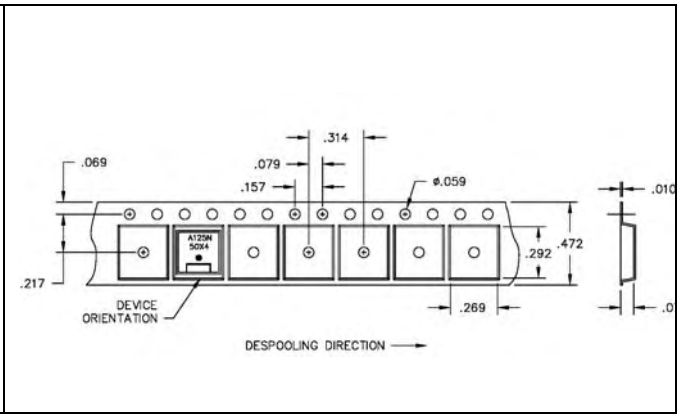




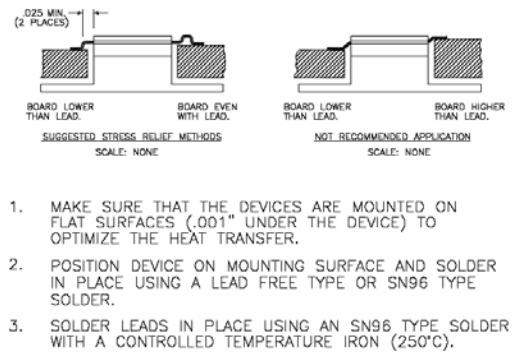
Power De-rating:



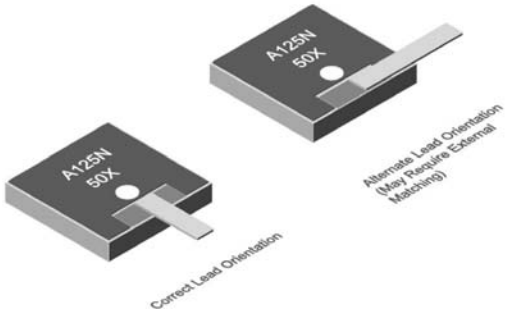
Tape & Reel:



Mounting Footprint and Procedure:



1. MAKE SURE THAT THE DEVICES ARE MOUNTED ON FLAT SURFACES (.001" UNDER THE DEVICE) TO OPTIMIZE THE HEAT TRANSFER.
2. POSITION DEVICE ON MOUNTING SURFACE AND SOLDER IN PLACE USING A LEAD FREE TYPE OR SN96 TYPE SOLDER.
3. SOLDER LEADS IN PLACE USING AN SN96 TYPE SOLDER WITH A CONTROLLED TEMPERATURE IRON (250°C).



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Model A150N50X4B

RoHs Compliant

RF Power

Chip Termination
150 Watts, 50Ω

Description

The A150N50X4B is high performance Aluminum Nitride (AlN) chip termination intended as a cost competitive alternative to Beryllium Oxide (BeO). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating circulators, and for use in power combiners. The termination is also RoHS compliant!

Features:

- **RoHS Compliant**
- **150 Watts**
- **DC - 2.7 GHz**
- **AIN Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**

General Specifications

Resistive Element	Thick film
Substrate	AlN Ceramic
Terminal Finish	**Matte Tin over Nickel Barrier**
Operating Temperature	-55 to +200°C (see de rating chart)

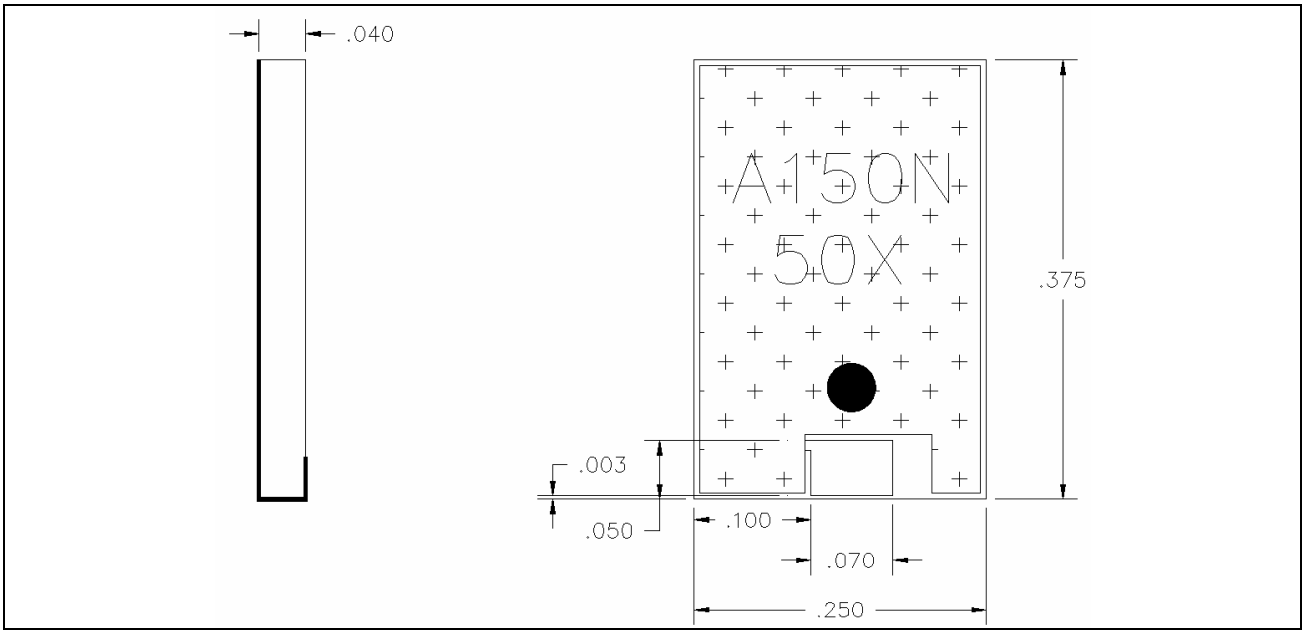
Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. All dimensions in inches.

Electrical Specifications

Resistance Value:	50 Ohms, ± 2%
Power:	150 Watts
Frequency Range:	DC – 2.7 GHz
Return Loss	>26dB to 2.0 GHz >20dB to 2.7 GHz

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change.**

Outline Drawing



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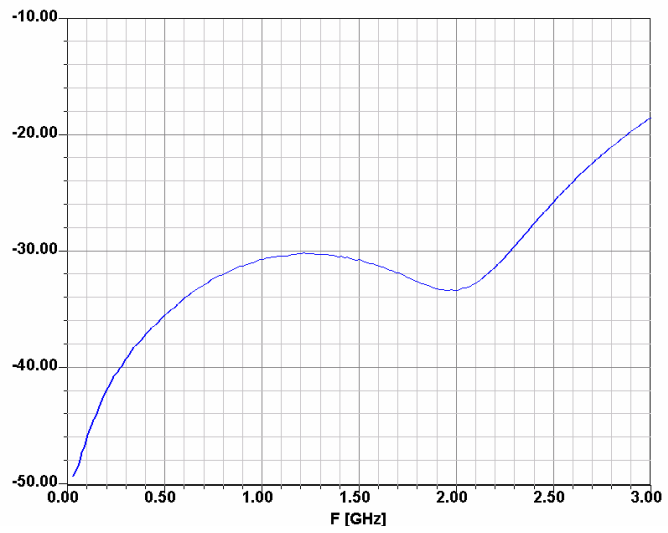
Model A150N50X4B

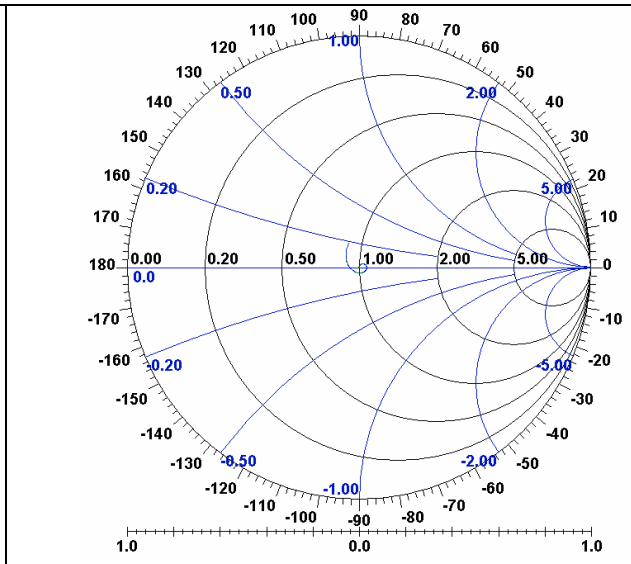
RoHs Compliant

RF Power

Typical Performance:

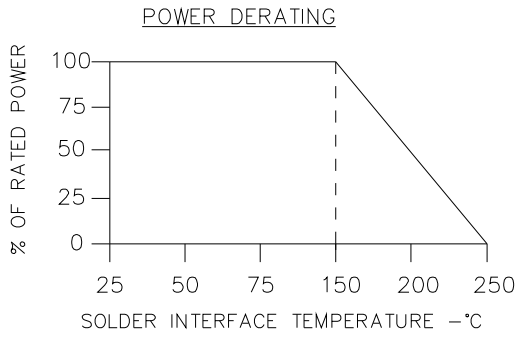


A150N50X4B

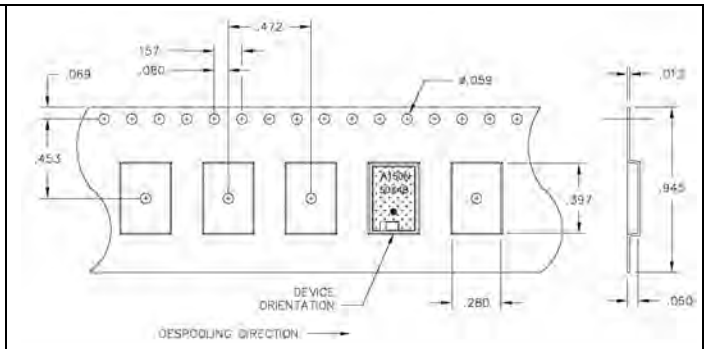


A150N50X4B

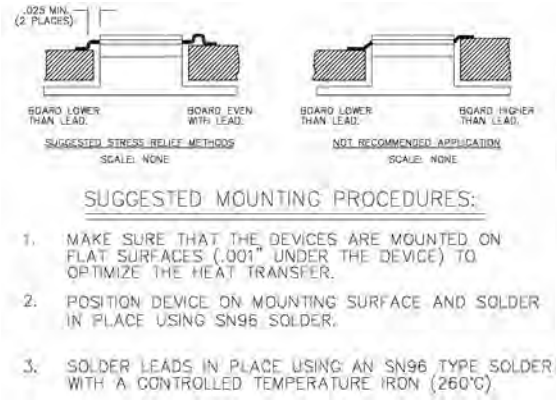
Power De-rating:



Tape & Reel:



Mounting Footprint and Procedure:



Correct Lead Orientation

Alternate Lead Orientation
(May Require External Matching)

A150N50X4 (097) Rev E

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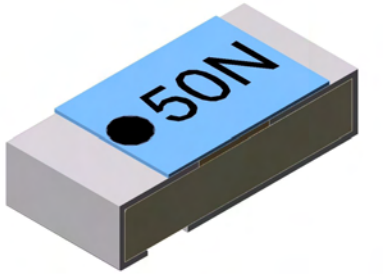
Model C10N50Z4A

RoHS Compliant

Surface Mount Termination
10 Watts, 50Ω



General Specifications

Resistive Element:	Thick film
Terminations:	Thick film silver
Substrate:	Aluminum Nitride Ceramic

Electrical Specifications

Resistance value:	50 ohms
Frequency Range:	DC – 3.0 GHz
Power:	10 Watts
VSWR:	1.25:1 to 2 GHz, 1.43:1 to 3 GHz

Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. Operating temperature is -55ºC to 125ºC (see chart for derating temperatures).

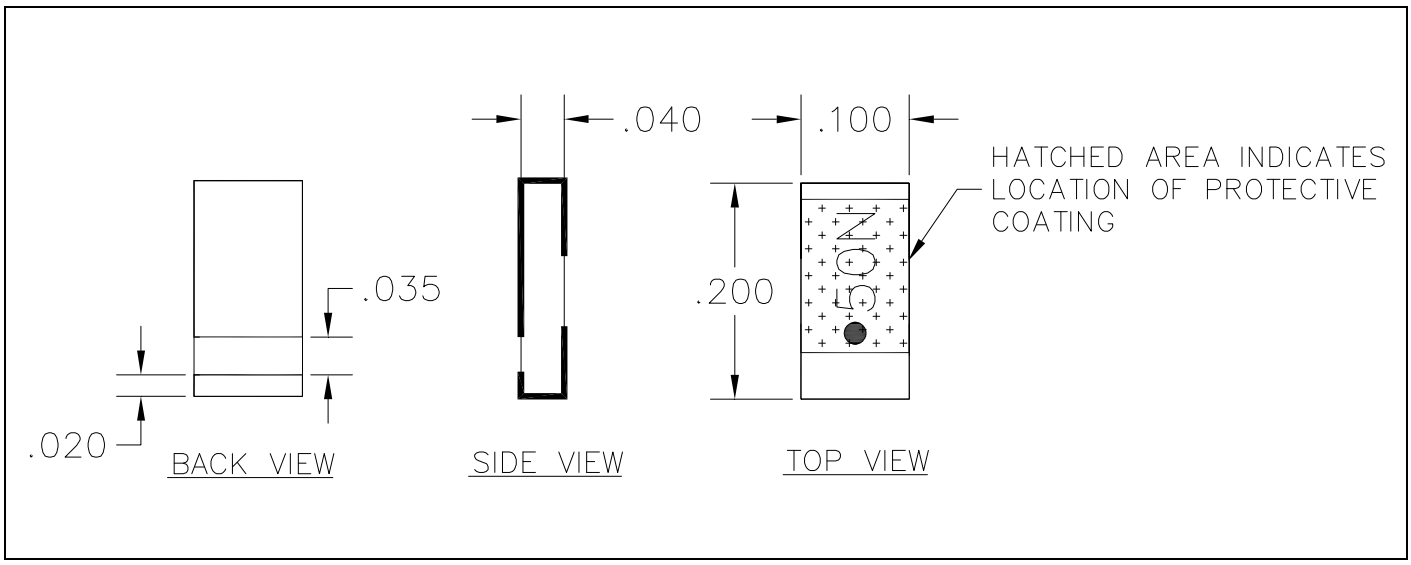
All dimensions in inches.

Specifications subject to change with out notice.

Features:

- **DC – 3.0 GHz**
- **10 Watts**
- **ALN Ceramic**
- **Non-Nichrome Resistive Element**
- **100% Tested**
- **RoHS Compliant**

Outline Drawing

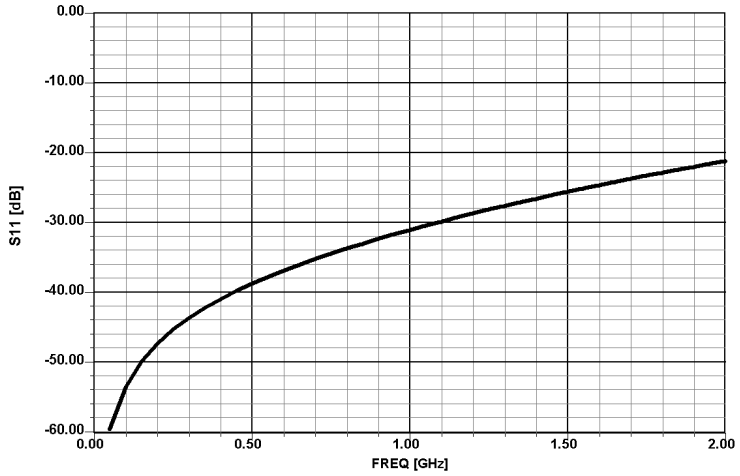


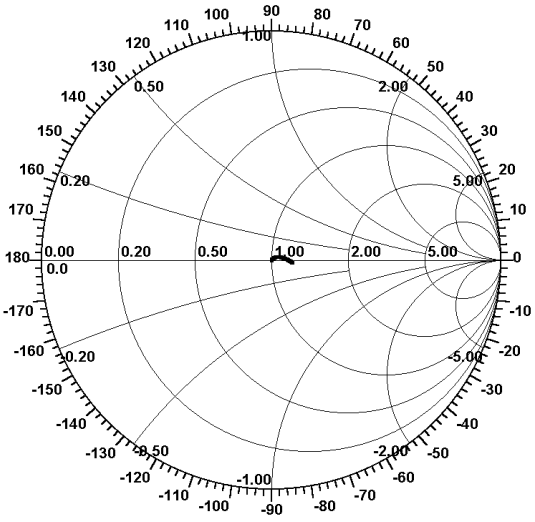
C10N50Z4A (097) Rev B

Model C10N50Z4A

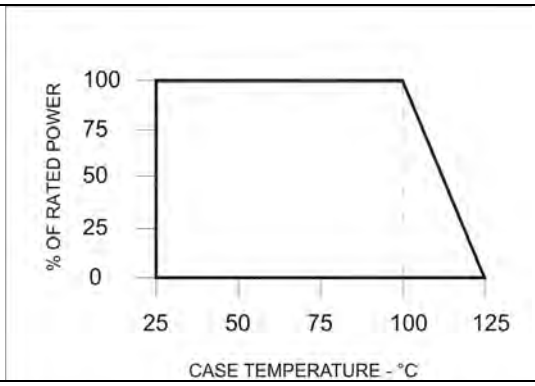
RoHS Compliant

Typical Performance:

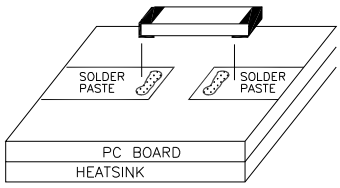




Power De-rating:



Mounting Procedure:



MOUNTING PROCEDURE

1. Make sure that the devices are mountd on flat surfaces (0.001" under the device) to optimize the heat transfer.
2. Position device on mounting surface and solder in place using an appropriate type solder.

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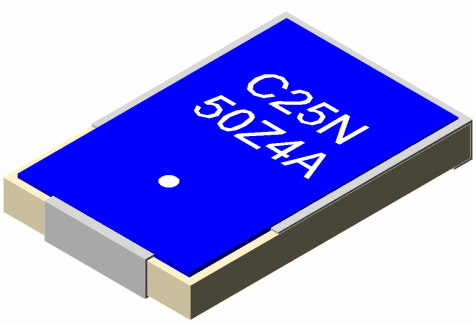
Model C25N50Z4A

RF Power

RoHS Compliant

ALN SMT Termination
25 Watts, 50Ω



General Specifications

Resistive Element	Thick film
Terminations	Matte Tin Finish
Substrate	Aluminum Nitride

Electrical Specifications

Resistance value:	50 ohms
Frequency Range;	DC – 3.0 GHz
Power:	25 Watts
VSWR:	1.25:1

Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. Operating temperature is -55ºC to 125ºC (see chart for derating temperatures).

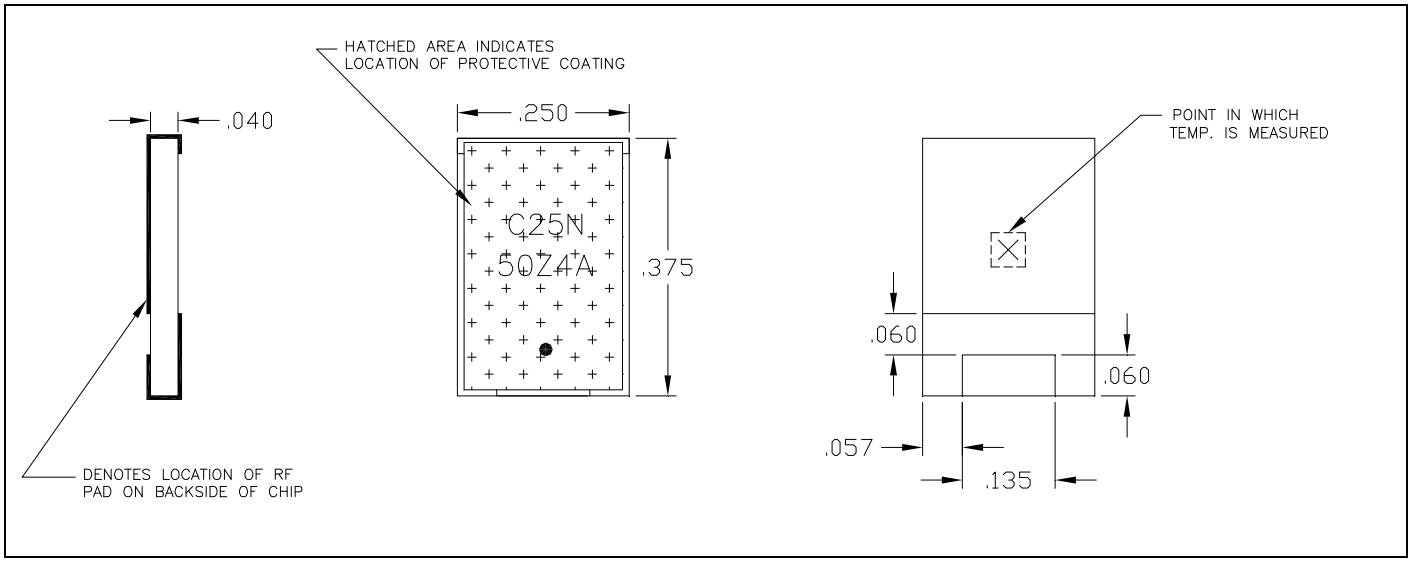
All dimensions in inches.

Specifications subject to change with out notice.

Features:

- **DC – 3.0 GHz**
- **25 Watts**
- **Aluminum Nitride Ceramic**
- **Non-Nichrome Resistive Element**
- **100% Tested**
- **RoHS Compliant**

Outline Drawing



C25N50Z4A (097) Rev C

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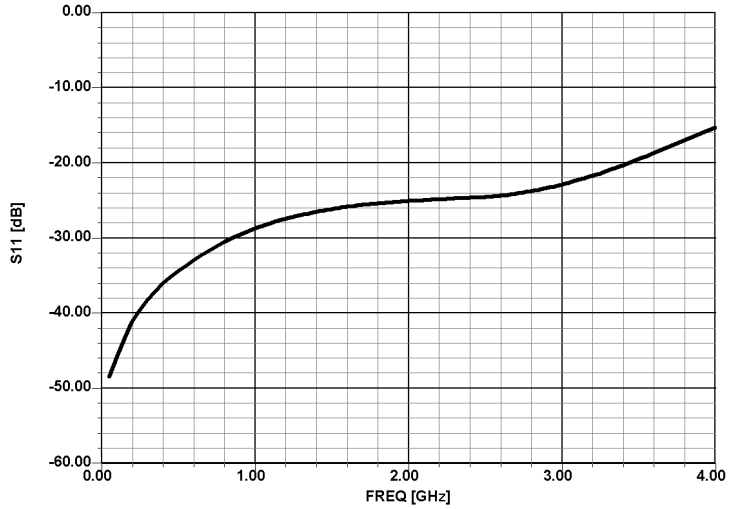
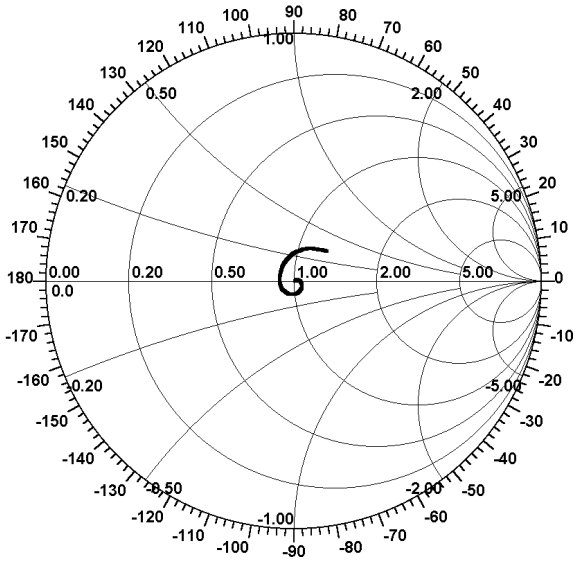
Model C25N50Z4A

RoHS Compliant

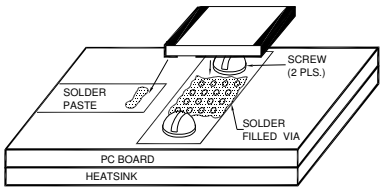
RF Power

Typical performance





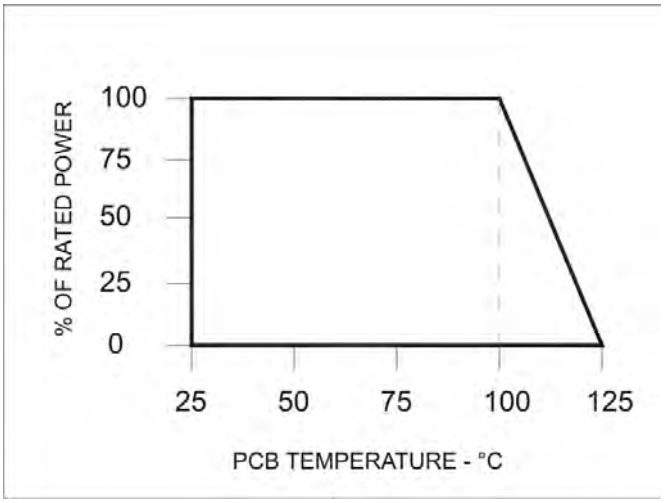
Mounting Procedure:



MOUNTING PROCEDURE

1. Solder part in place using SN96 type solder with a controlled temperature iron.
2. Drill thermal vias through PCB and fill with solder.
3. To ensure good thermal connectivity to heat sink, which is critical for proper operation drill and tap heatsink and mount PCB to heat sink using screws.

Power De-rating:



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RF Power

ROHS Compliant

Model C50A50Z4

Surface Mount Termination
50 Watts, 50Ω

Description

The C50A50Z4 is high performance Alumina (Al203) surface mount termination intended as a low cost alternative to Aluminum Oxide (AlN). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating high power 90 degree couplers, and for use in microstrip circuits. The termination is also RoHS compliant!

Features:

- **RoHS Compliant**
- **50 Watts**
- **DC - 2.7 GHz**
- **Al2O3 Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**
- **Small Size**

General Specifications

Resistive Element	Thick film
Substrate	Al_2O_3 Ceramic
Terminal Finish	Matte Tin over Nickel Barrier
Operating Temperature	-55 to +125°C (see de rating chart)

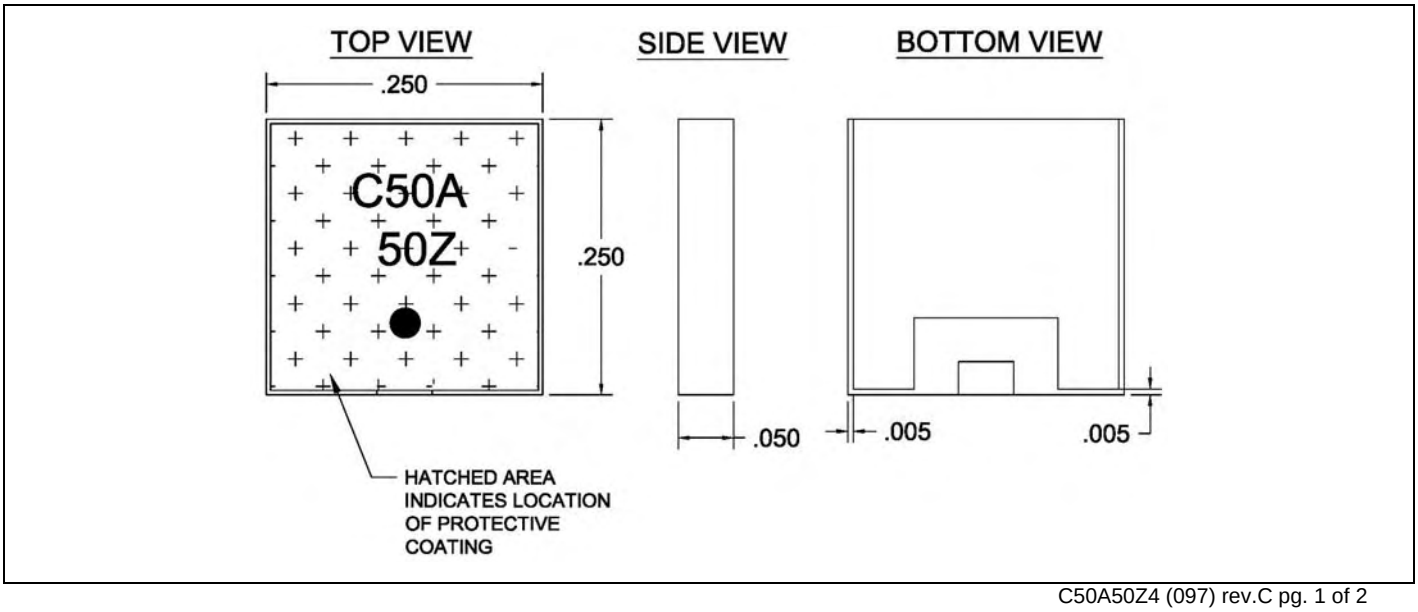
Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. **All dimensions in inches.**

Electrical Specifications

Resistance Value:	50 Ohms, ± 2%
Power:	50 Watts
Frequency Range:	DC – 2.7 GHz
Return Loss	>26 dB to 2.2 GHz >24 dB to 2.7 GHz

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change.**

Outline Drawing



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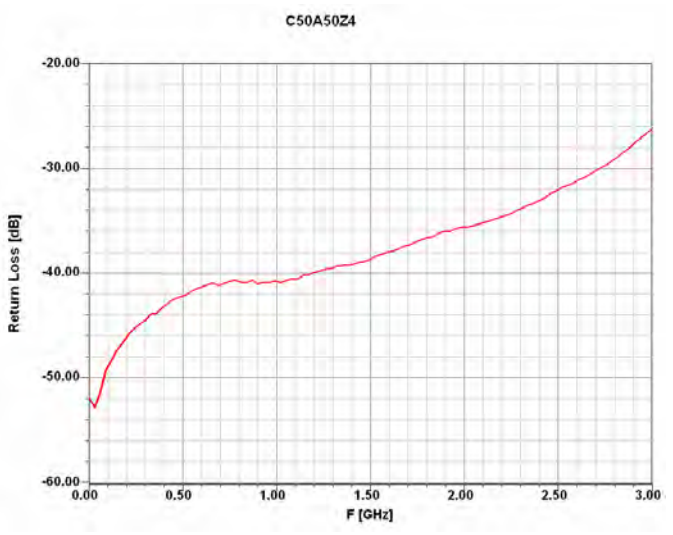
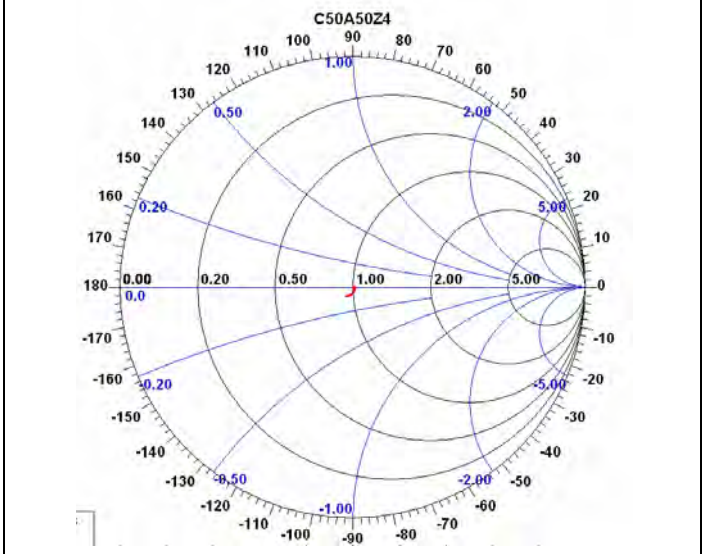
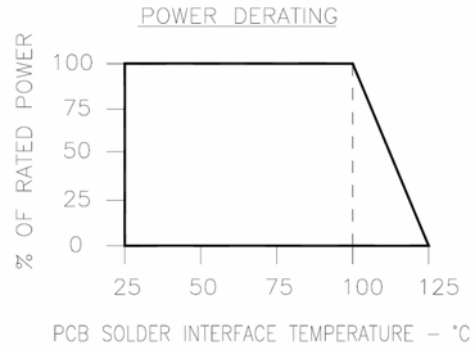
Typical Performance:

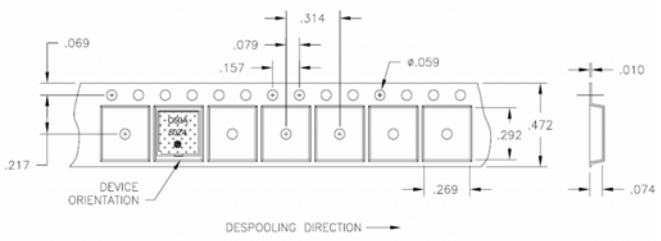




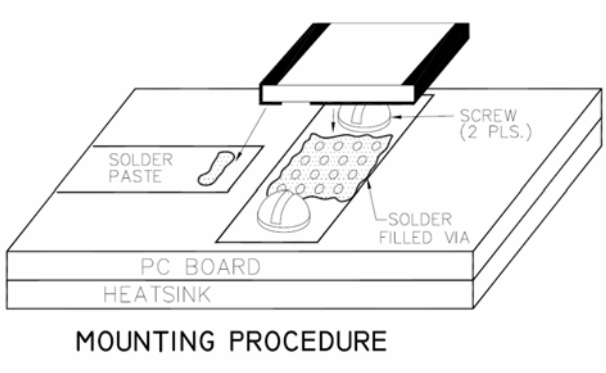
Power De-rating:



Tape & Reel:



Mounting Footprint and Procedure:



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Model C100N50Z4

RF Power

Surface Mount Termination
100 Watts, 50Ω

Description

The C100N50Z4 is high performance Aluminum Nitride (AlN) surface mount termination intended as a cost competitive alternative to Beryllium Oxide (BeO). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating high power 90 degree couplers, and for use in microstrip circuits. The termination is also RoHS compliant!

Features:

- **RoHS Compliant**
- **100 Watts**
- **DC – 4.0 GHz**
- **AlN Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**
- **Small Size**

General Specifications

Resistive Element	Thick film
Substrate	AlN Ceramic
Terminal Finish	Matte Tin over Nickel Barrier
Operating Temperature	-55 to +125°C (see de rating chart)

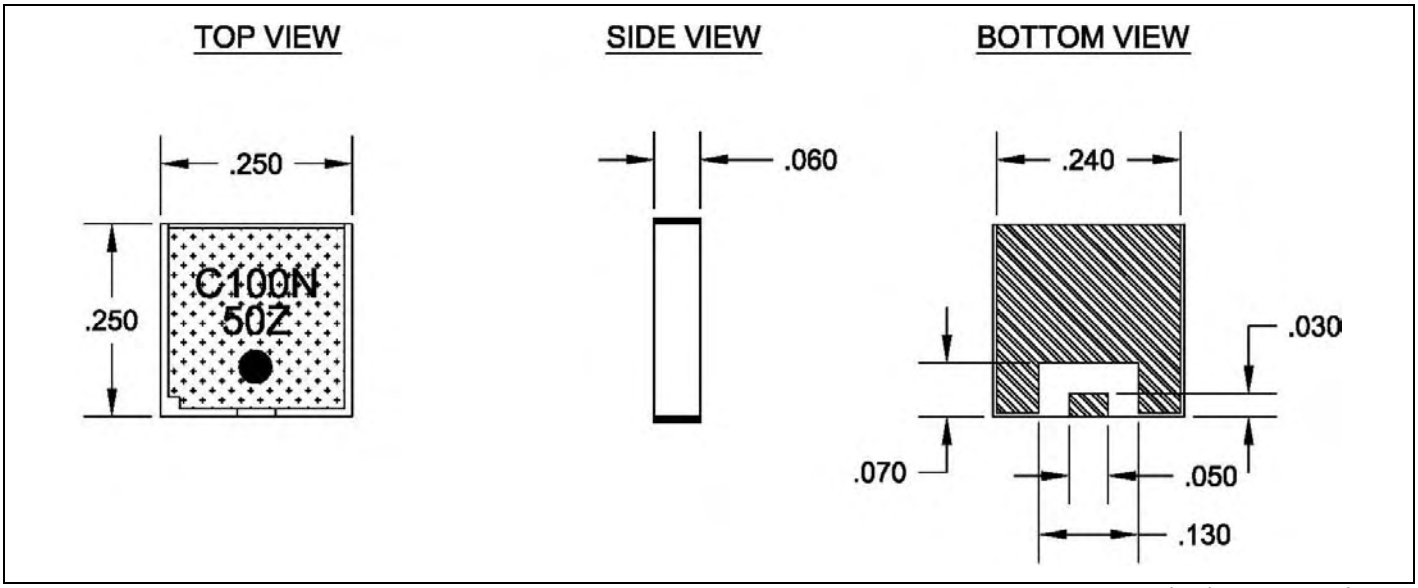
Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. **All dimensions in inches**.

Electrical Specifications

Resistance Value:	50 Ohms, ± 2%
Power:	100 Watts
Frequency Range:	DC – 4.0 GHz
Return Loss	>24 dB DC - 2.7 GHz >20 dB DC - 4.0 GHz

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change.**

Outline Drawing



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ROHS Compliant

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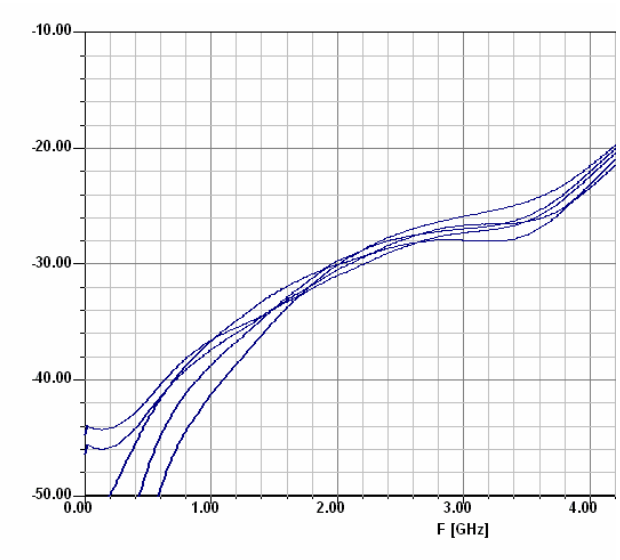
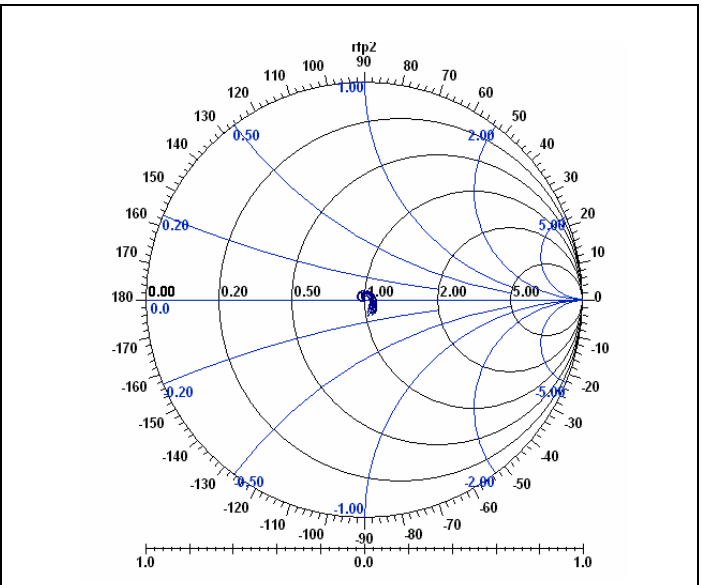
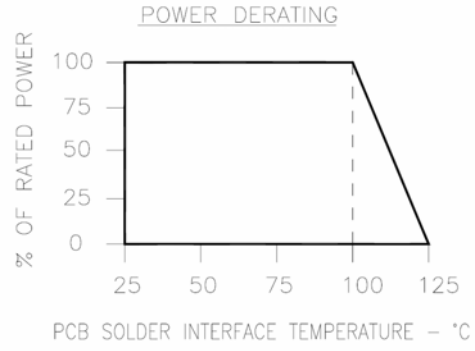
RF Power

Typical Performance:

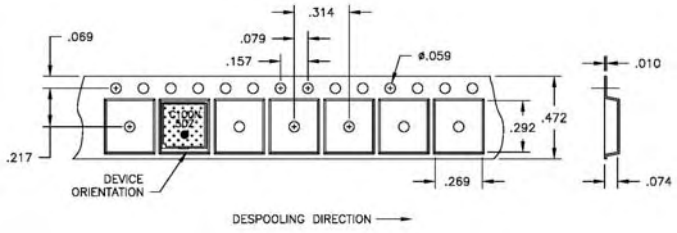




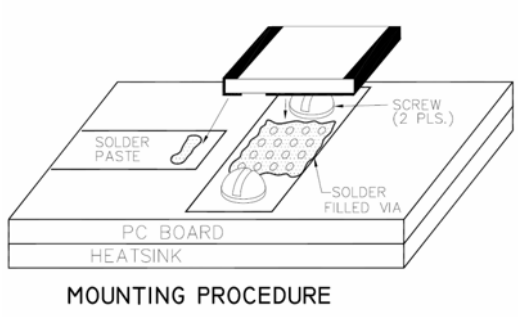
Power De-rating:



Tape & Reel:



Mounting Footprint and Procedure:



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Model E150N50X4

ROHS Compliant

Flangeless Mount Termination
150 Watts, 50Ω

Description

The E150N50X4 is high performance Aluminum Nitride (AlN) termination intended as a cost competitive alternative to Beryllium Oxide (BeO). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating circulators, and for use in power combiners. The termination is also RoHS compliant!

Features:

- **RoHS Compliant**
- **150 Watts**
- **DC – 2.7GHz**
- **AIN Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**

General Specifications

Resistive Element	Thick Film
Substrate	AlN Ceramic
Finish	Matte Tin over Nickel
Cover	Alumina Ceramic

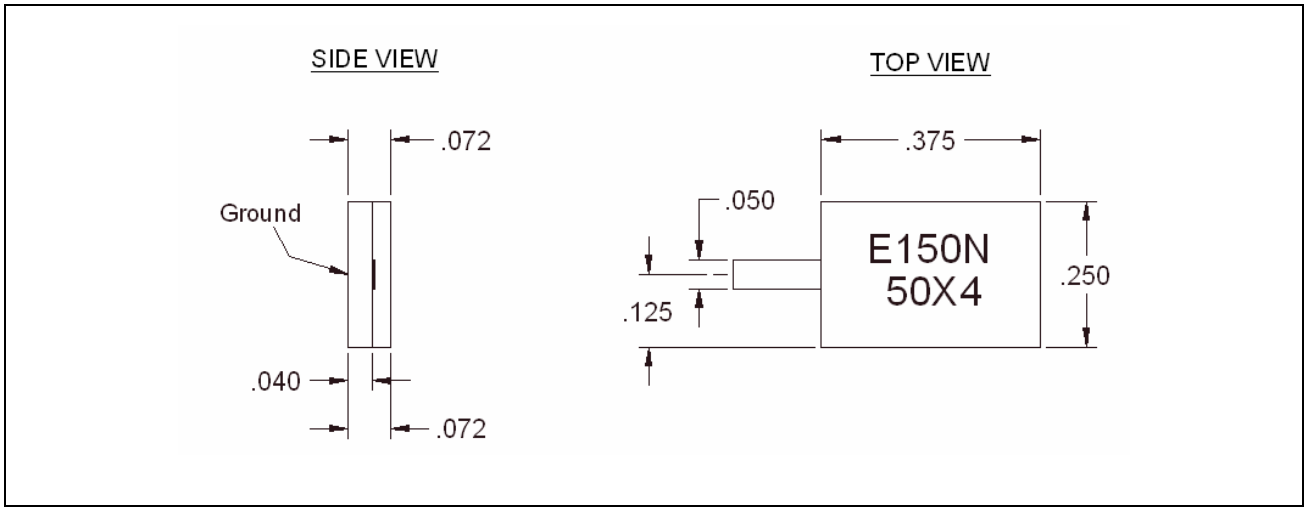
Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. **All dimensions in inches.**

Electrical Specifications

Resistance Value:	50 Ohms, ± 2%
Power:	150 Watts
Frequency Range:	DC – 2.7 GHz
Return Loss	> 25 dB DC – 2.0 GHz > 20 dB DC – 2.7 GHz

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change.**

Outline Drawing



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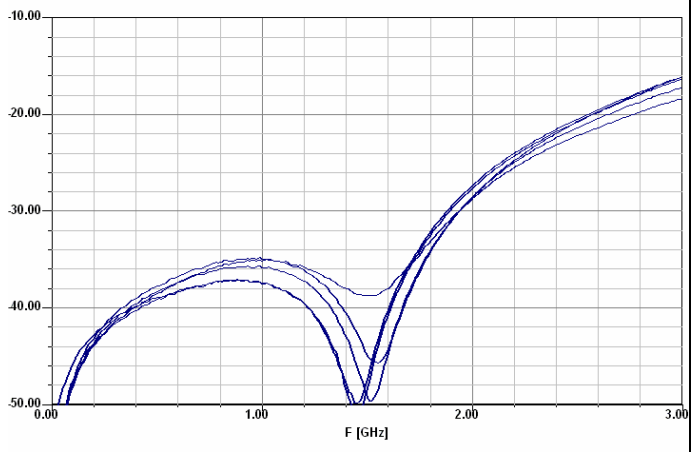
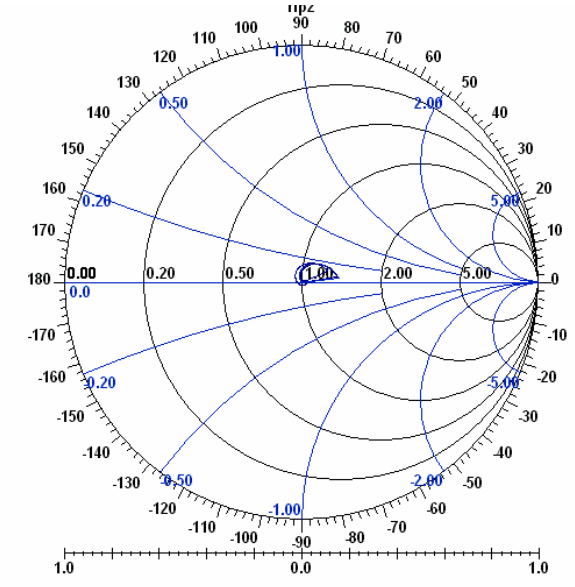
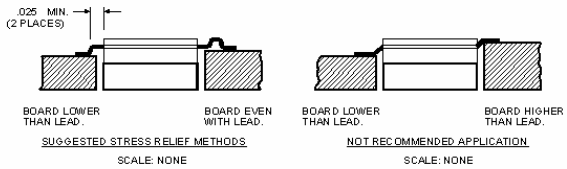
Typical Performance:





Power De-rating:

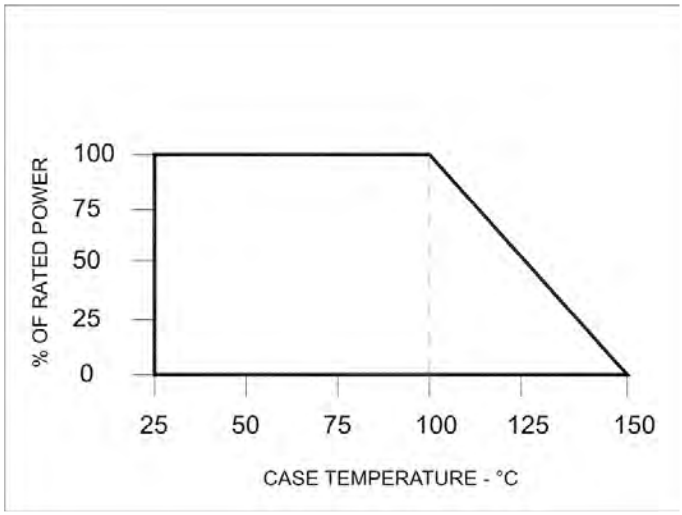


SUGGESTED MOUNTING PROCEDURES:

1. MAKE SURE THAT THE DEVICES ARE MOUNTED ON FLAT SURFACES (.001" UNDER THE DEVICE) TO OPTIMIZE THE HEAT TRANSFER.
2. DRILL & TAP THE HEATSINK FOR THE APPROPRIATE THREAD SIZE TO BE USED.
3. COAT HEATSINK WITH A MINIMUM AMOUNT OF HIGH QUALITY SILICONE GREASE (.001" MAX. THICKNESS).
4. POSITION DEVICE ON MOUNTING SURFACE & SECURE USING SOCKET HEAD SCREWS, FLAT & SPLIT WASHER. TORQUE SCREWS TO THE APPROPRIATE VALUE. MAKE SURE THAT THE DEVICE IS FLAT AGAINST THE HEATSINK. (CARE SHOULD BE TAKEN TO AVOID UPWARD PRESSURE OF THE LEADS TOWARDS THE LID).
5. SOLDER LEADS IN PLACE USING LEAD FREE TYPE SOLDER WITH A CONTROLLED TEMPERATURE IRON

** FOR MORE DETAILS CONTACT FACTORY **

Mounting Footprint and Procedure:



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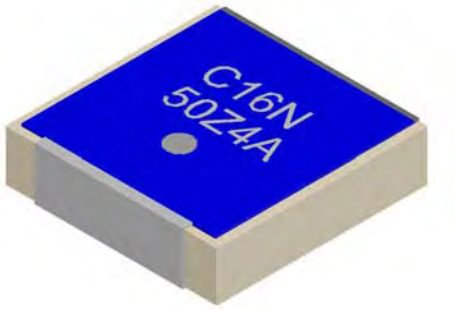
Model C16N50Z4A

RoHS Compliant

Surface Mount Termination
16 Watts, 50Ω



General Specifications

Resistive Element	Thick film
Finish	Matte Tin over Sulfamate Nickel
Substrate	ALN

Electrical Specifications

Resistance value:	50 ohms
Frequency Range;	DC – 3.0 GHz
Power:	16 Watts
VSWR:	<1.25:1

Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. Operating temperature is -55ºC to 125ºC (see chart for derating temperatures).

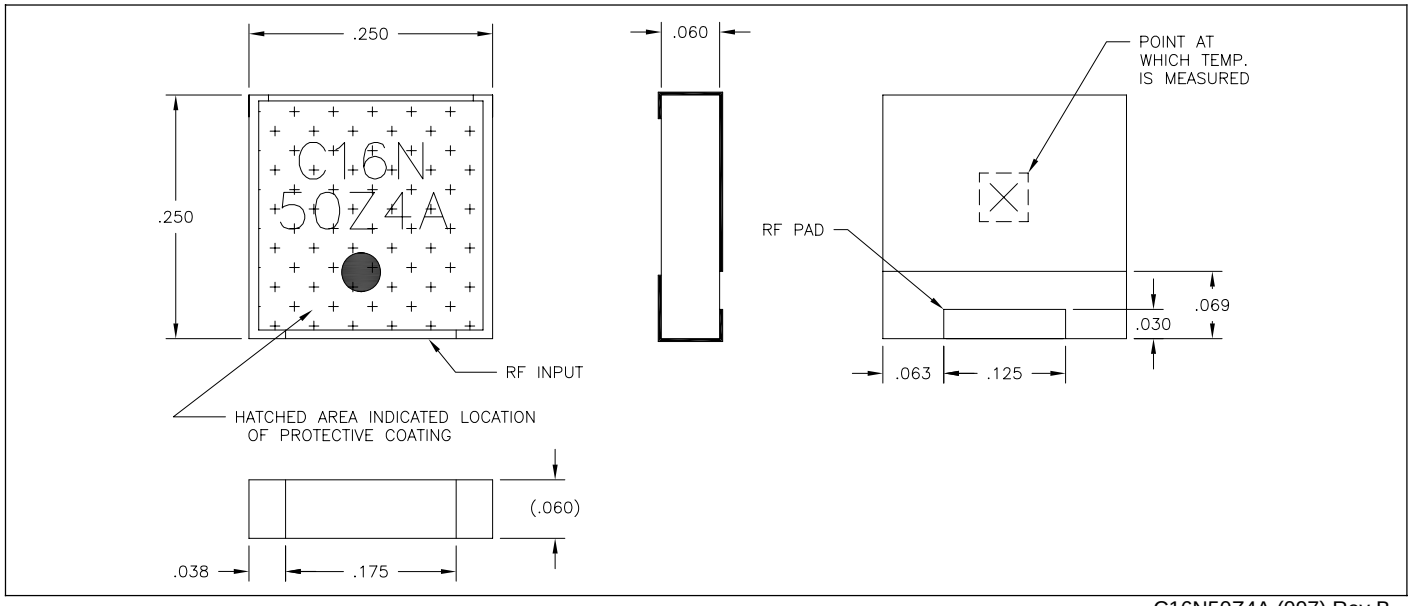
All dimensions in inches.

Specifications subject to change with out notice.

Features:

- **DC – 3.0 GHz**
- **16 Watts**
- **ALN Ceramic**
- **Non-Nichrome Resistive Element**
- **100% Tested**
- **RoHS Compliant**

Outline Drawing



C16N50Z4A (097) Rev B

Available on Tape and Reel For Pick and Place Manufacturing.

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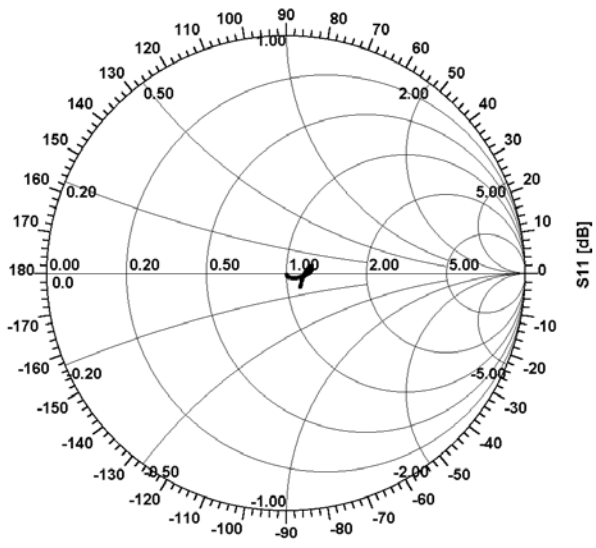
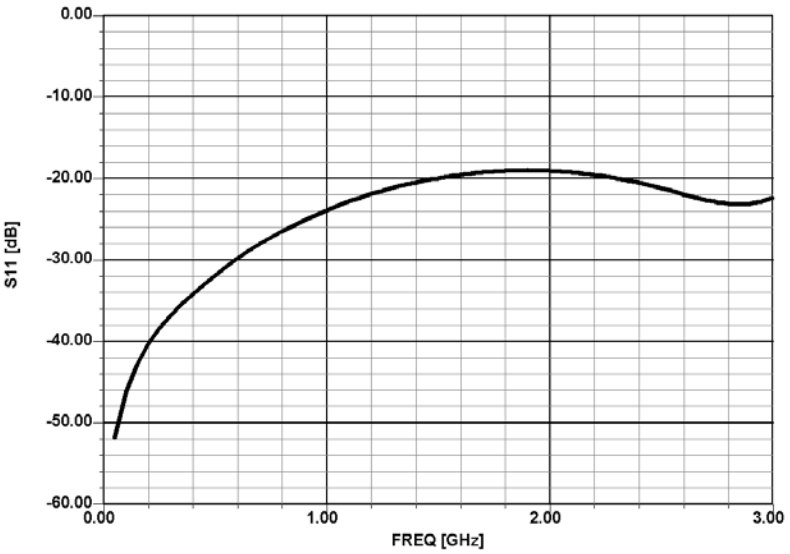
Model C16N50Z4A

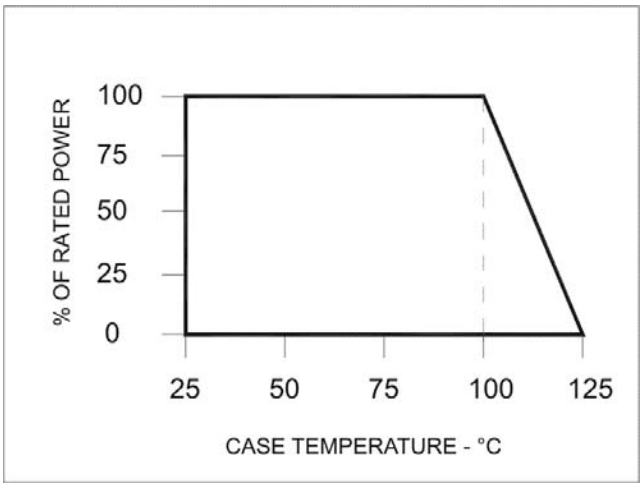
RoHS Compliant

Typical Performance:

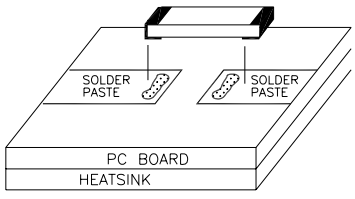




Power De-rating:



Mounting Procedure:



MOUNTING PROCEDURE

1. Make sure that the devices are mountd on flat surfaces (0.001" under the device) to optimize the heat transfer.
2. Position device on mounting surface and solder in place using an appropriate type solder.

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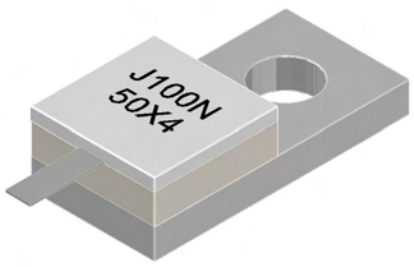
Model J100N50X4

ROHS Compliant

Half Flange Termination
100 Watts, 50Ω



Description

The J100N50X4 is high performance Aluminum Nitride (AlN) half flange termination intended as a cost competitive alternative to Beryllium Oxide (BeO). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating circulators, and for use in power combiners. The termination is also RoHS compliant!

General Specifications

Resistive Element	Thick Film
Substrate	AlN Ceramic
Cover	Alumina Ceramic
Mounting Flange	Copper, nickel plated per QC-N-290
Leads	99% pure silver (.006" thick)
Cover	Alumina Ceramic

Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. All dimensions in inches.

Features:

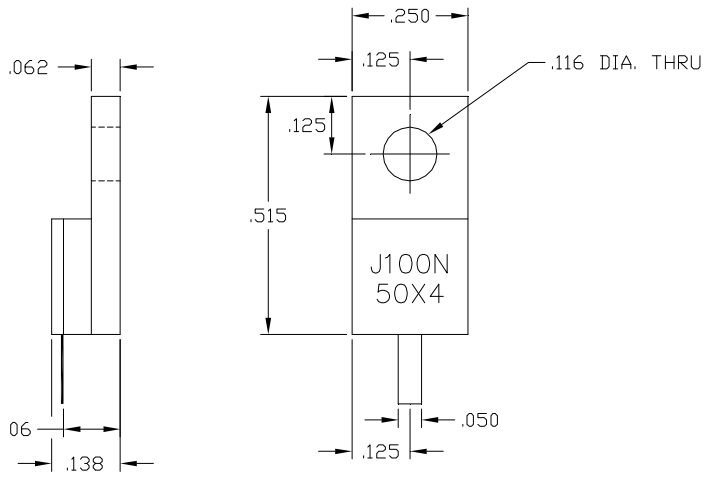
- **RoHS Compliant**
- **100 Watts**
- **DC – 3.0 GHz**
- **AIN Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**

Electrical Specifications

Resistance Value:	50 Ohms, ± 2%
Power:	100 Watts
Frequency Range:	DC – 3.0GHz
V.S.W.R.	1.25 : 1

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. Storage temperature is -20°C to 85 ºC . Operating temperature is -55ºC to 125ºC (see chart for derating temperatures). **Specifications subject to change with out notice.**

Outline Drawing



Note: All dimensions in inches – 1inch = 2.54cm. Lead Length: 0.150in min.

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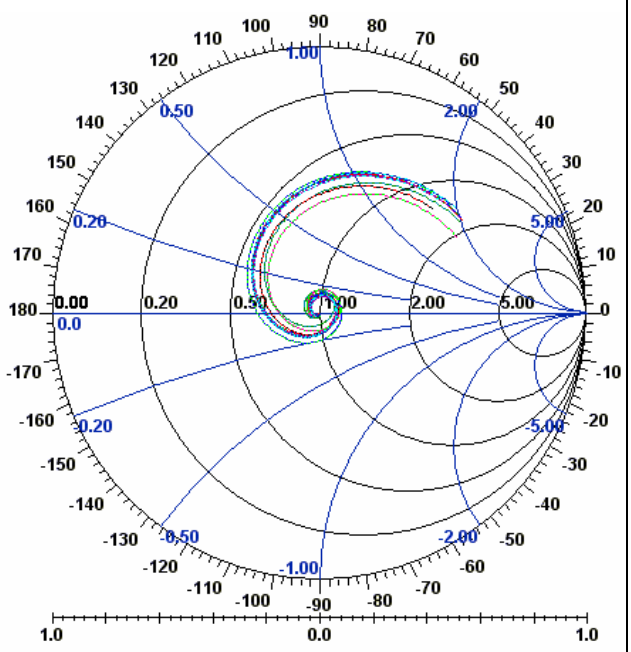
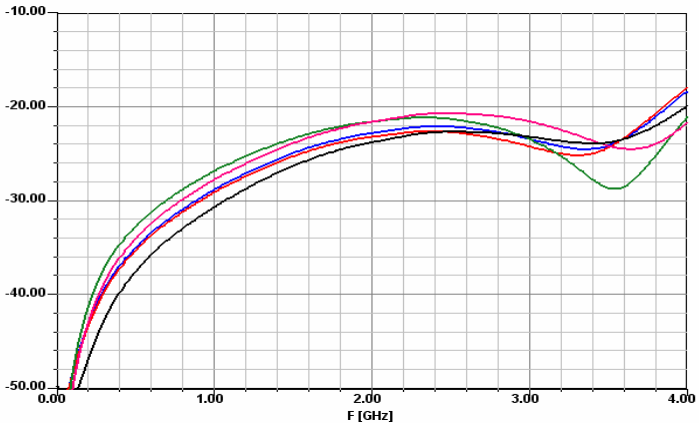
Model J100N50X4

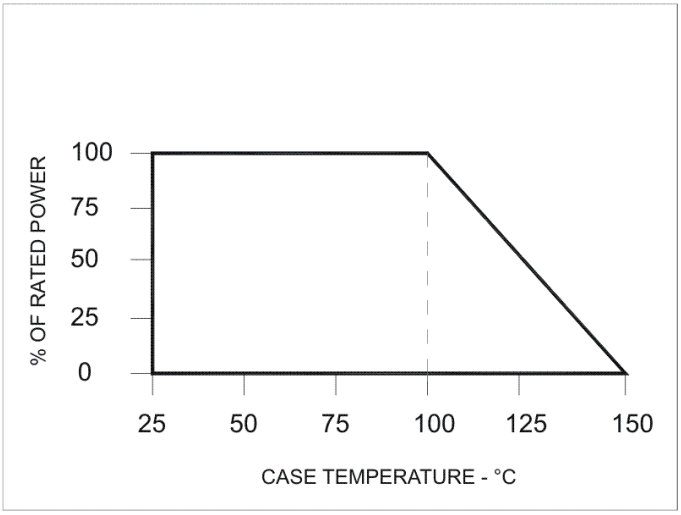
ROHS Compliant

Typical Performance:

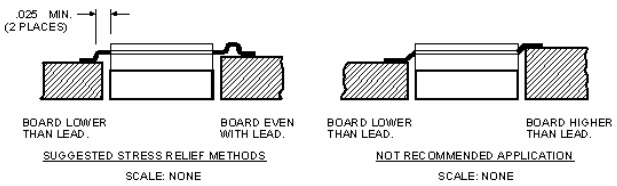




Power De-rating:



Mounting Footprint and Procedure:



SUGGESTED MOUNTING PROCEDURES:

1. MAKE SURE THAT THE DEVICES ARE MOUNTED ON FLAT SURFACES (.001" UNDER THE DEVICE) TO OPTIMIZE THE HEAT TRANSFER.
2. DRILL & TAP THE HEATSINK FOR THE APPROPRIATE THREAD SIZE TO BE USED.
3. COAT HEATSINK WITH A MINIMUM AMOUNT OF HIGH QUALITY SILICONE GREASE (.001" MAX. THICKNESS).
4. POSITION DEVICE ON MOUNTING SURFACE & SECURE USING SOCKET HEAD SCREWS, FLAT & SPLIT WASHER. TORQUE SCREWS TO THE APPROPRIATE VALUE. MAKE SURE THAT THE DEVICE IS FLAT AGAINST THE HEATSINK. (CARE SHOULD BE TAKEN TO AVOID UPWARD PRESSURE OF THE LEADS TOWARDS THE LID).
5. SOLDER LEADS IN PLACE USING LEAD FREE TYPE SOLDER WITH A CONTROLLED TEMPERATURE IRON

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Model C16A50Z4

RoHS Compliant

RF Power

Surface Mount Termination
16 Watts, 50Ω

Description

The C16A50Z4 is high performance Alumina (Al_20_3) surface mount termination intended as a low cost alternative to Aluminum Oxide (AlN). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating high power 90 degree couplers, and for use in microstrip circuits. The termination is also RoHS compliant!

General Specifications

Resistive Element	Thick film
Substrate	Al_2O_3 Ceramic
Terminal Finish	Matte Tin over Nickel Barrier
Operating Temperature	-55 to +125°C (see de rating chart)

Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. **All dimensions in inches**.

Features:

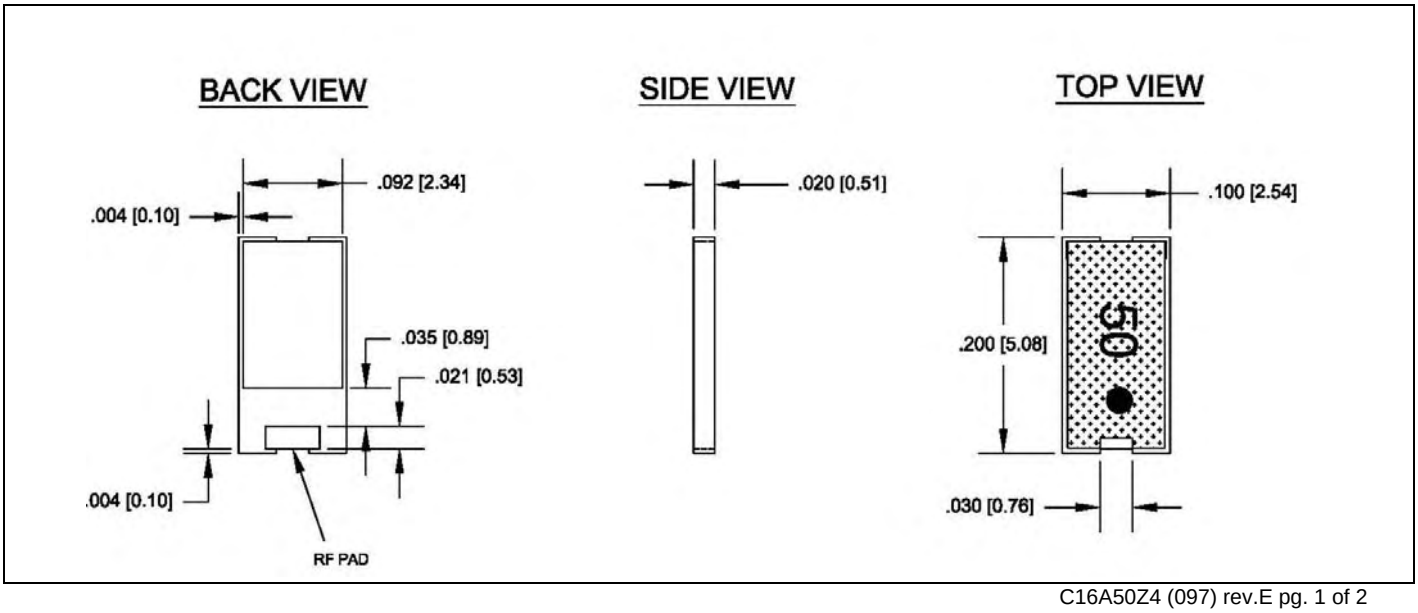
- **RoHS Compliant**
- **16 Watts**
- **DC – 4.0 GHz**
- **Al_2O_3 Ceramic**
- **Non-Nichrome Resistive Element**
- **Low Return Loss**
- **100% Tested**
- **Small Size**

Electrical Specifications

Resistance Value:	50 Ohms, ± 2%
Power:	16 Watts
Frequency Range:	DC – 4.0 GHz
Return Loss	> 26 dB DC to 2.7 GHz > 24 dB 2.7 GHz to 4.0GHz

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change.**

Outline Drawing



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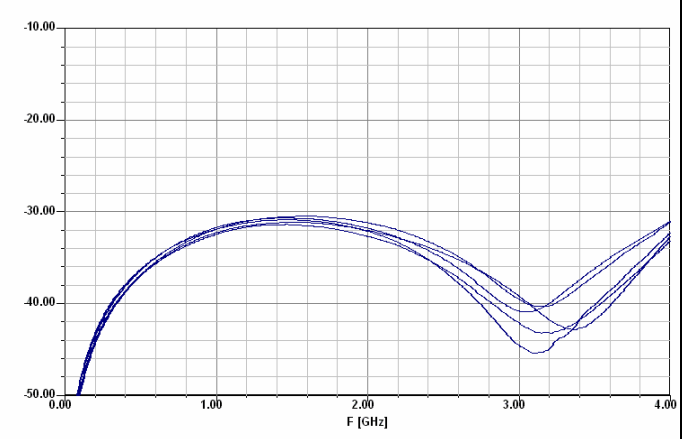
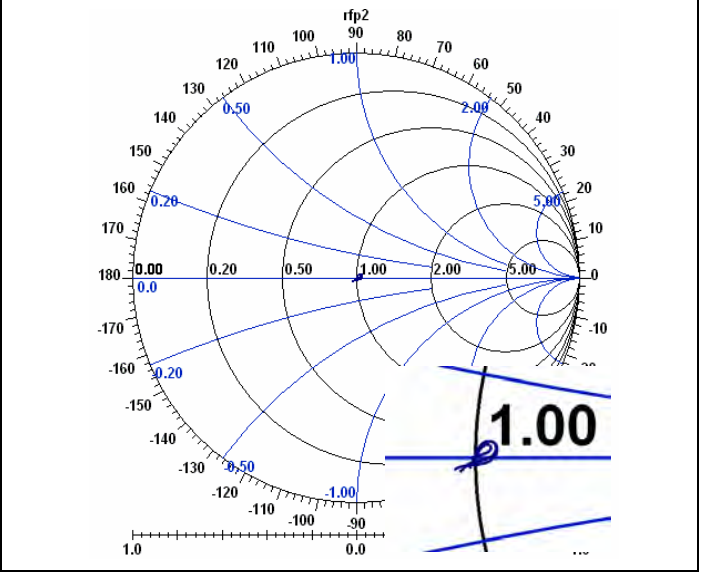
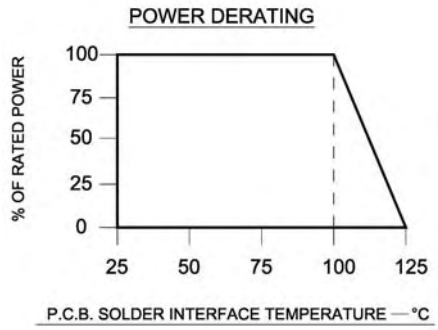
RF Power

Typical Performance:

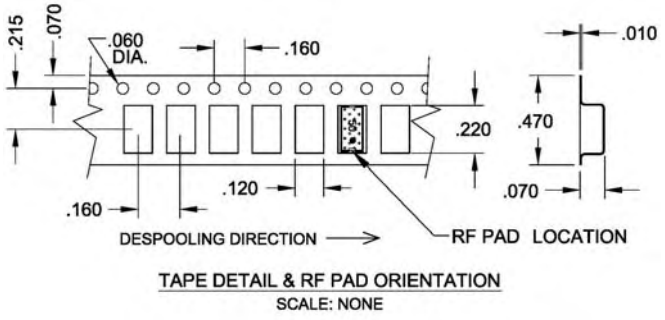




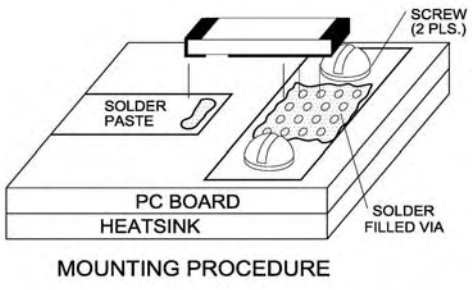
Power De-rating:



Tape & Reel:



Mounting Footprint and Procedure:



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Model K100N50X4

ROHS Compliant

Half Flange Termination
100 Watts, 50Ω

Description

The K100N50X4 is high performance Aluminum Nitride (AlN) half flange termination intended as a cost competitive alternative to Beryllium Oxide (BeO). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating circulators, and for use in power combiners. The termination is also RoHS compliant!

General Specifications

Resistive Element	Thick Film
Substrate	AlN Ceramic
Cover	Alumina Ceramic
Mounting Flange	Copper, nickel plated per QC-N-290
Leads	99% pure silver (.006" thick)

Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. All dimensions in inches.

Features:

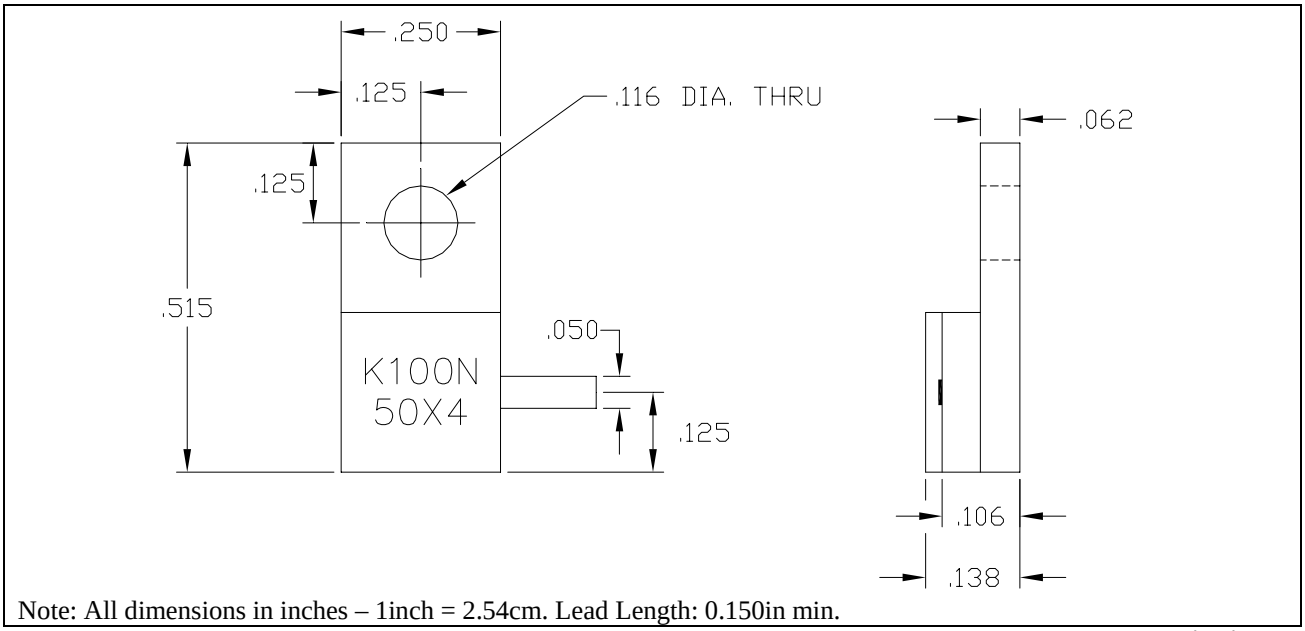
- **RoHS Compliant**
- **100 Watts**
- **DC – 3.0 GHz**
- **AlN Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**

Electrical Specifications

Resistance Value:	50 Ohms, ± 2%
Power:	100 Watts
Frequency Range:	DC – 3.0GHz
V.S.W.R.	1.25 : 1

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. Storage temperature is -20°C to 85 ºC . Operating temperature is -55ºC to 125ºC (see chart for derating temperatures). **Specifications subject to change with out notice.**

Outline Drawing



Note: All dimensions in inches – 1inch = 2.54cm. Lead Length: 0.150in min.

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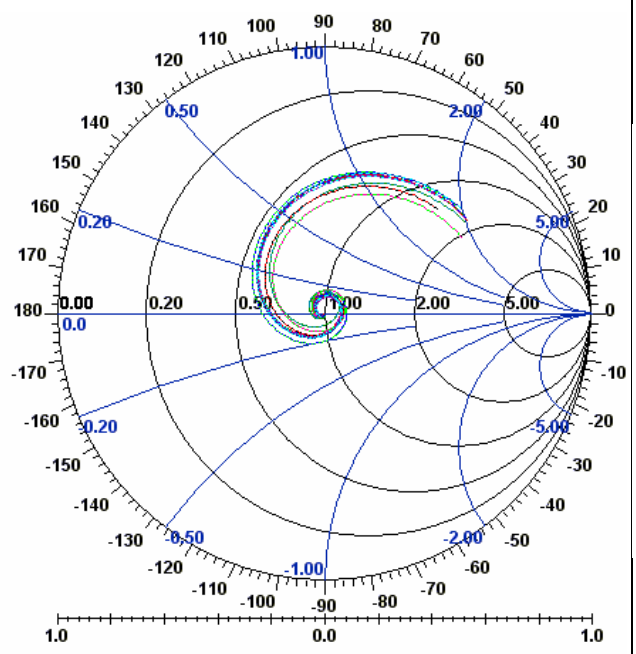
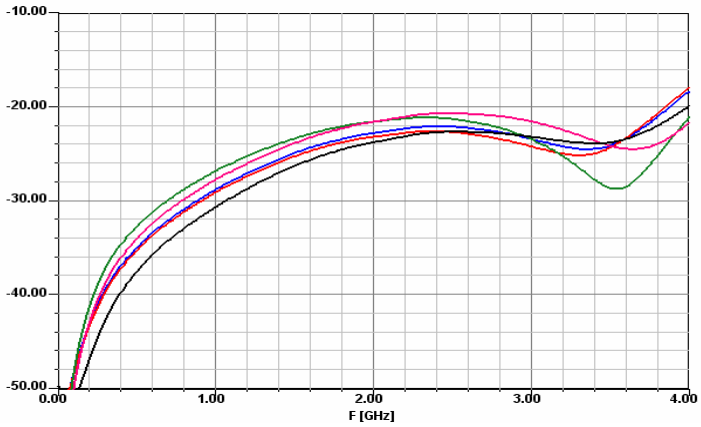
Model K100N50X4

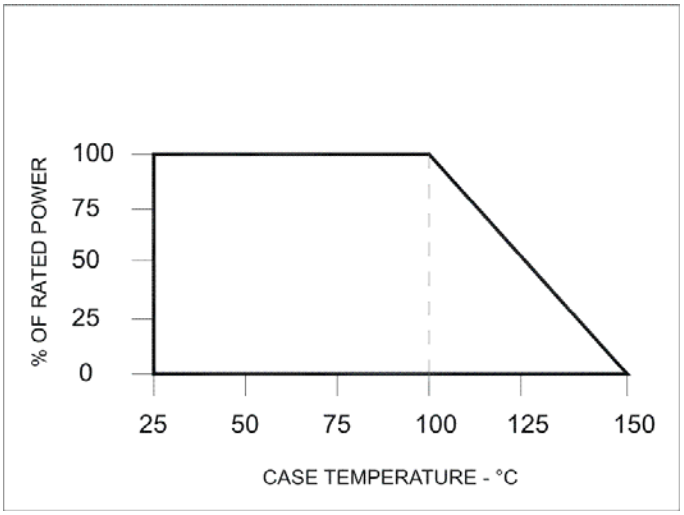
ROHS Compliant

Typical Performance:

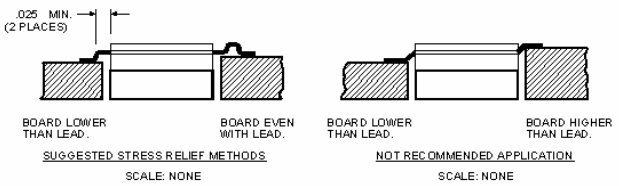




Power De-rating:



Mounting Footprint and Procedure:



SUGGESTED MOUNTING PROCEDURES:

1. MAKE SURE THAT THE DEVICES ARE MOUNTED ON FLAT SURFACES (.001" UNDER THE DEVICE) TO OPTIMIZE THE HEAT TRANSFER.
2. DRILL & TAP THE HEATSINK FOR THE APPROPRIATE THREAD SIZE TO BE USED.
3. COAT HEATSINK WITH A MINIMUM AMOUNT OF HIGH QUALITY SILICONE GREASE (.001" MAX. THICKNESS).
4. POSITION DEVICE ON MOUNTING SURFACE & SECURE USING SOCKET HEAD SCREWS, FLAT & SPLIT WASHER. TORQUE SCREWS TO THE APPROPRIATE VALUE. MAKE SURE THAT THE DEVICE IS FLAT AGAINST THE HEATSINK. (CARE SHOULD BE TAKEN TO AVOID UPWARD PRESSURE OF THE LEADS TOWARDS THE LID).
5. SOLDER LEADS IN PLACE USING LEAD FREE TYPE SOLDER WITH A CONTROLLED TEMPERATURE IRON

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Model I100N50X4

ROHS Compliant

Flange Mount Termination
100 Watts, 50Ω

Description

The I100N50X4 is high performance Aluminum Nitride (AlN) flange mount termination intended as a cost competitive alternative to Beryllium Oxide (BeO). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating circulators, and for use in power combiners. The termination is also RoHS compliant!

Features:

- **RoHS Compliant**
- **100 Watts**
- **DC – 3.0 GHz**
- **AIN Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**

General Specifications

Resistive Element	Thick Film
Substrate	AlN Ceramic
Cover	Alumina Ceramic

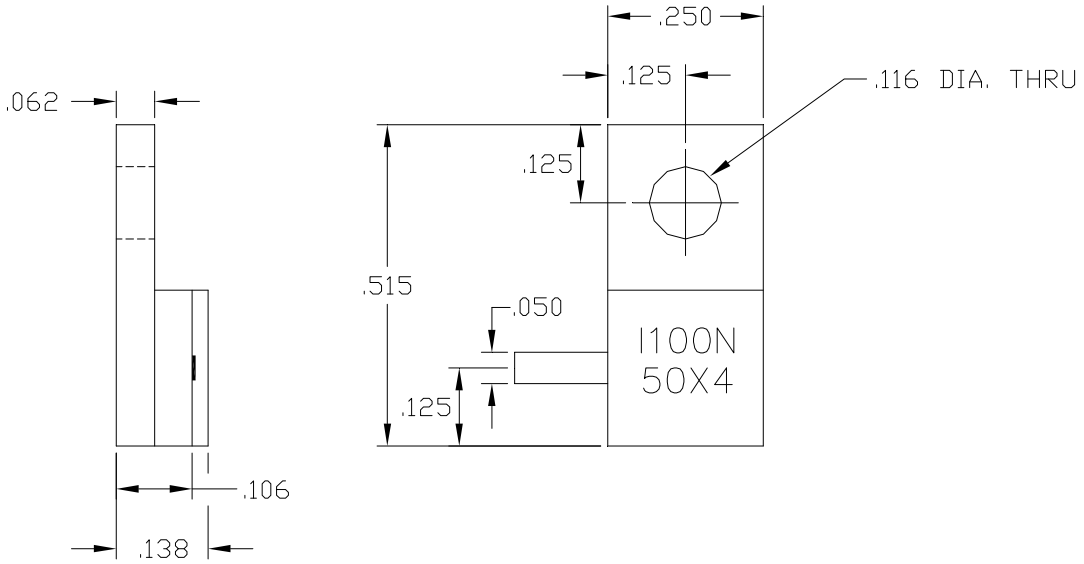
Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. All dimensions in inches.

Electrical Specifications

Resistance Value:	50 Ohms, ± 2%
Power:	100 Watts
Frequency Range:	DC – 3.0GHz
V.S.W.R.	1.25 : 1

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. Storage temperature is -20ºC to 85 ºC . Operating temperature is -55ºC to 125ºC (see chart for derating temperatures). **Specifications subject to change with out notice.**

Outline Drawing



Note: All dimensions in inches – 1inch = 2.54cm. Lead Length: 0.150in min.

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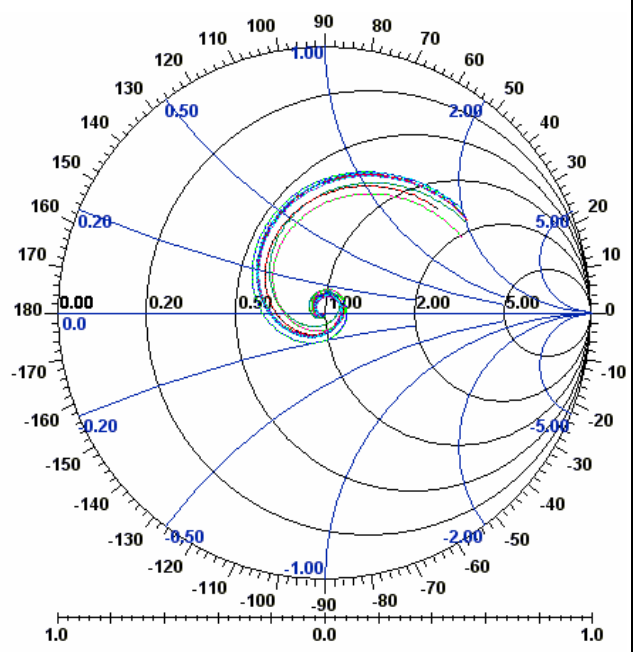
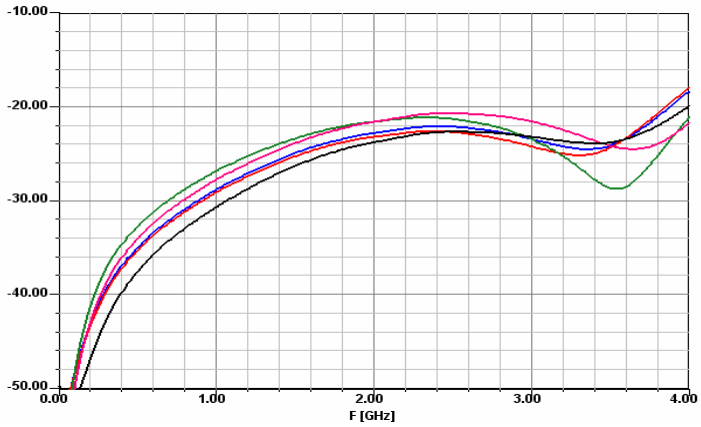
Model I100N50X4

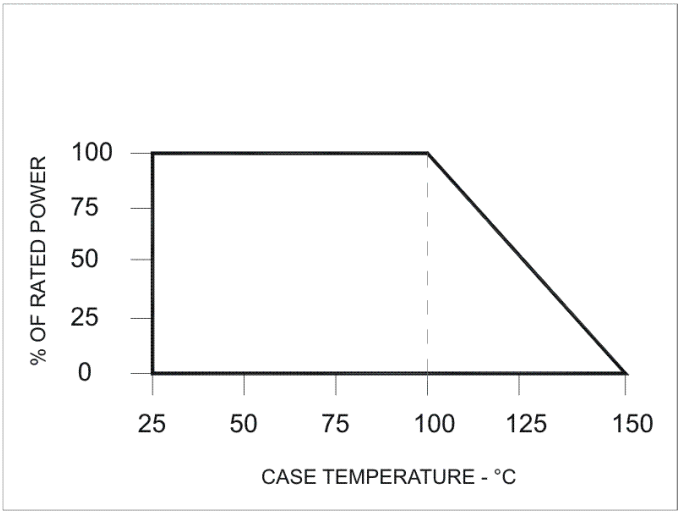
ROHS Compliant

Typical Performance:

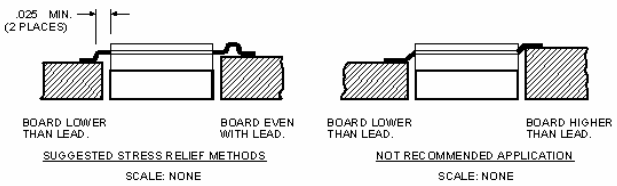




Power De-rating:



Mounting Footprint and Procedure:



SUGGESTED MOUNTING PROCEDURES:

1. MAKE SURE THAT THE DEVICES ARE MOUNTED ON FLAT SURFACES (.001" UNDER THE DEVICE) TO OPTIMIZE THE HEAT TRANSFER.
2. DRILL & TAP THE HEATSINK FOR THE APPROPRIATE THREAD SIZE TO BE USED.
3. COAT HEATSINK WITH A MINIMUM AMOUNT OF HIGH QUALITY SILICONE GREASE (.001" MAX. THICKNESS).
4. POSITION DEVICE ON MOUNTING SURFACE & SECURE USING SOCKET HEAD SCREWS, FLAT & SPLIT WASHER. TORQUE SCREWS TO THE APPROPRIATE VALUE. MAKE SURE THAT THE DEVICE IS FLAT AGAINST THE HEATSINK. (CARE SHOULD BE TAKEN TO AVOID UPWARD PRESSURE OF THE LEADS TOWARDS THE LID).
5. SOLDER LEADS IN PLACE USING LEAD FREE TYPE SOLDER WITH A CONTROLLED TEMPERATURE IRON

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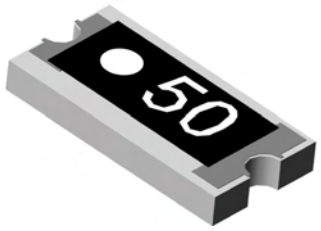
Model C10A50Z4

Surface Mount Termination
10 Watts, 50Ω

RF Power



Description

The C10A50Z4 is high performance RoHS compliant Alumina (Al_2O_3) surface mount termination intended as a lower cost alternative to Aluminum Nitride (AlN) and Beryllium Oxide (BeO). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating 90 degree hybrid directional couplers, and for use in isolators.

Features:

- **10 Watts**
- **Lowest Cost**
- **RoHS Compliant**
- **Alumina Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**

General Specifications

Resistive Element	Thick film
Substrate	Alumina Ceramic
Terminal Finish	Matte Tin over Nickel
Operating Temperature	-55 to +125°C (see chart)

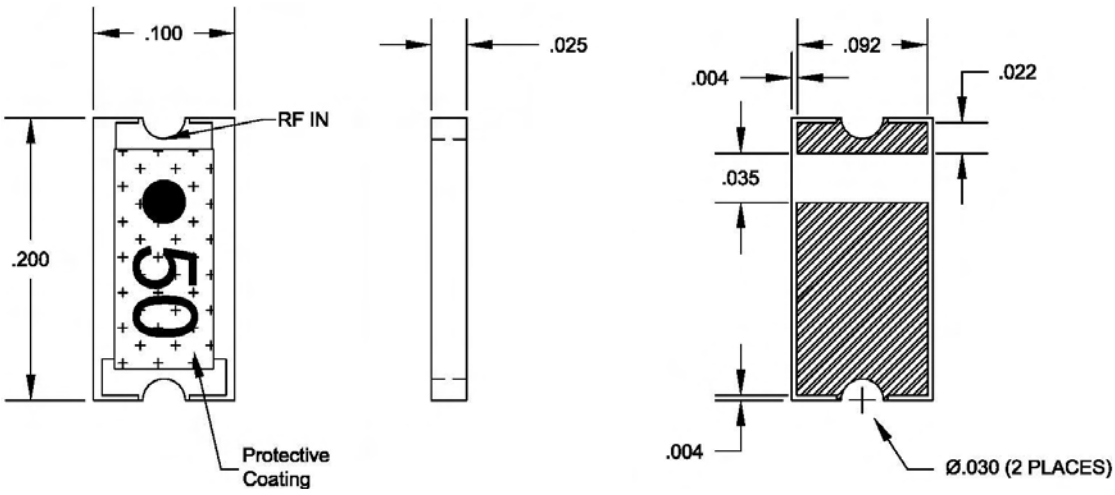
Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. **All dimensions in inches.**

Electrical Specifications

Resistance Value:	50 ohms, ± 2%
Power:	10 Watts
Frequency Range:	DC – 3.0 GHz
V.S.W.R.:	<1.25:1

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change without notice**

Outline Drawing



All dimensions in inches.

07/26/2006 Rev. B

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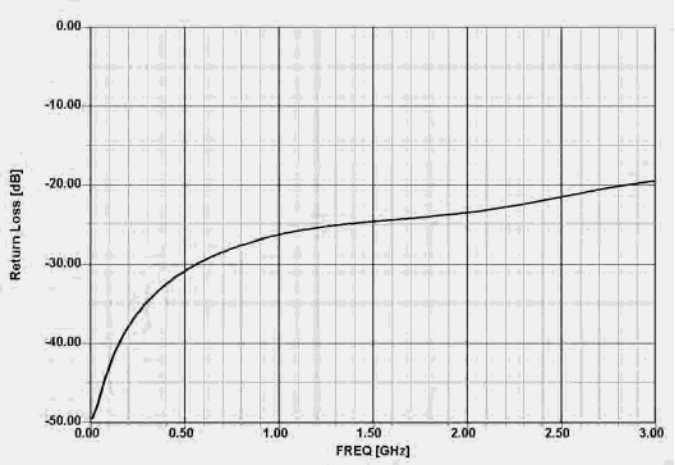
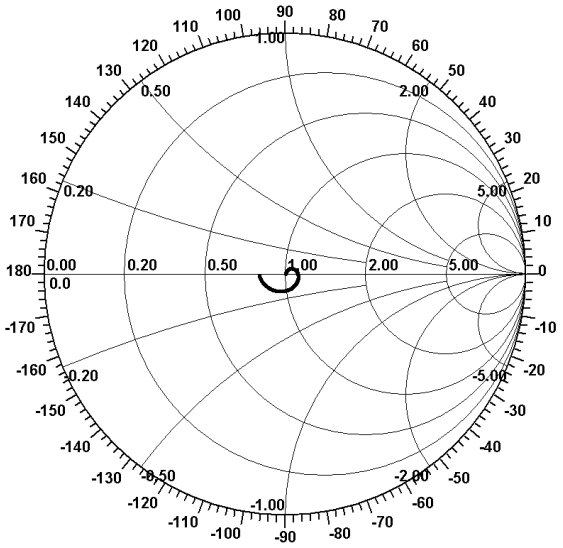
Model C10A50Z4

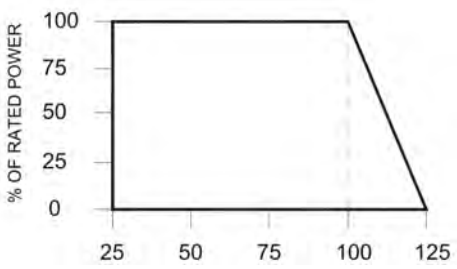
RF Power

Typical Performance:

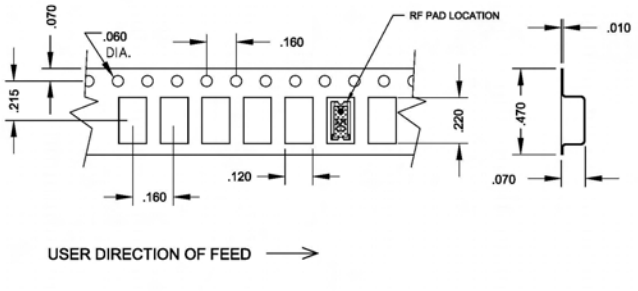




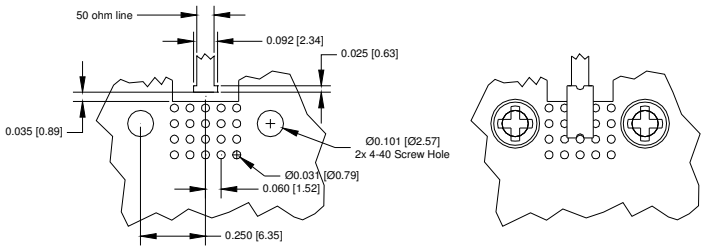
Power De-rating:



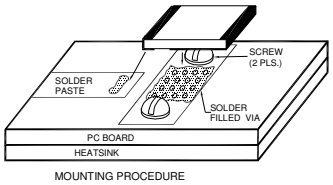
Tape & Reel:



Mounting Footprint and Procedure:



Dimension given in inches [millimeters]
For best thermal performance the PCB should be soldered to the heat sink.



MOUNTING PROCEDURE

1. Drill thermal vias through PCB and fill with solder.
2. To ensure good thermal connectivity to heat sink, which is critical for proper operation drill and tap heatsink and mount PCB to heat sink using screws.

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Model C40A50Z4

Surface Mount Termination
40 Watts, 50Ω

Description

The C40A50Z4 is a high performance RoHS compliant Alumina (Al2O3) surface mount termination intended as a lower cost alternative to Aluminum Nitride (AIN) and Beryllium Oxide (BeO). The SMD termination is well suited to all cellular frequency bands such as: AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating 90º hybrids, directional couplers, and for use in isolators.

Features:

- **40 Watts**
- **Lowest Cost**
- **RoHS Compliant**
- **Alumina Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**

General Specifications

Resistive Element	Thick film
Substrate	Alumina Ceramic
Terminal Finish	Tin over Nickel
Operating Temperature	-55 to +125°C (see chart)

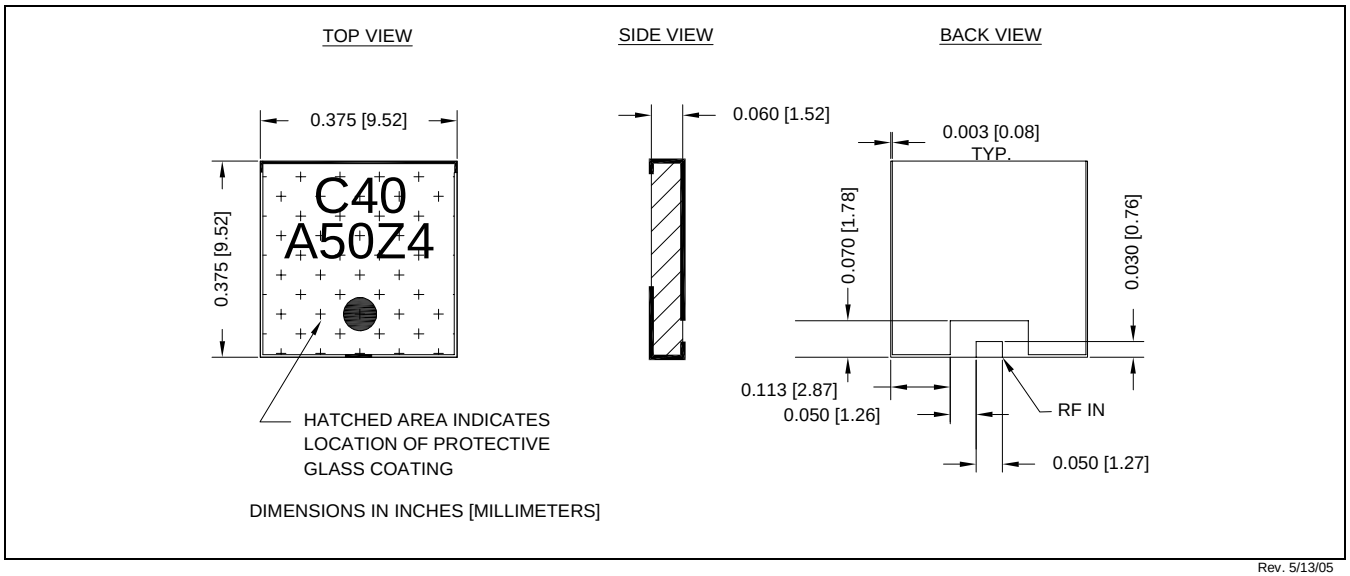
Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. All dimensions in inches.

Electrical Specifications

Resistance Value:	50 ohms, ± 2%
Power:	40 Watts
Frequency Range:	1KHz – 2.3GHz
V.S.W.R.:	<1.20:1

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change without notice**

Outline Drawing



Rev. 5/13/05

Available on Tape and Reel For Pick and Place Manufacturing.

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Toll Free: (800) 544-2414
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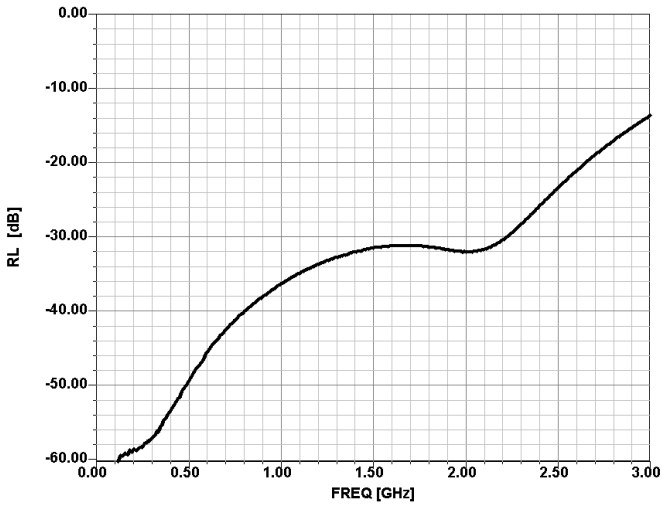
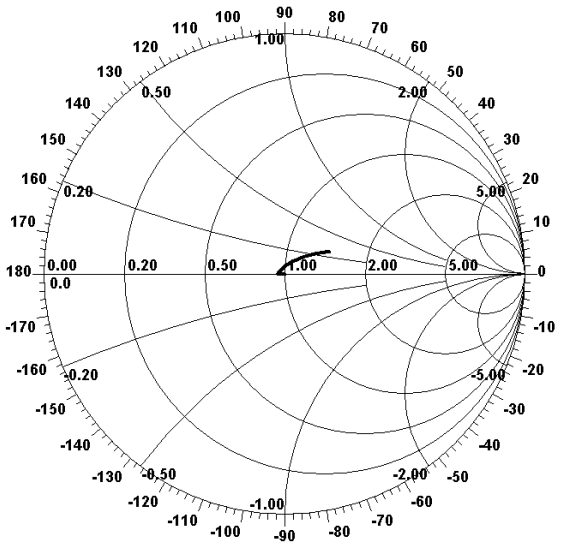
Model C40A50Z4

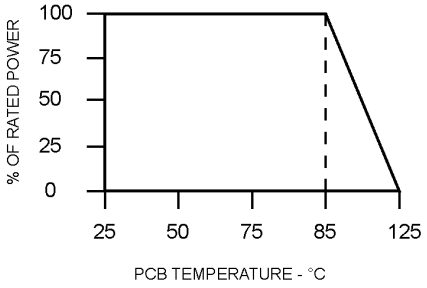
RF Power

Typical Performance:

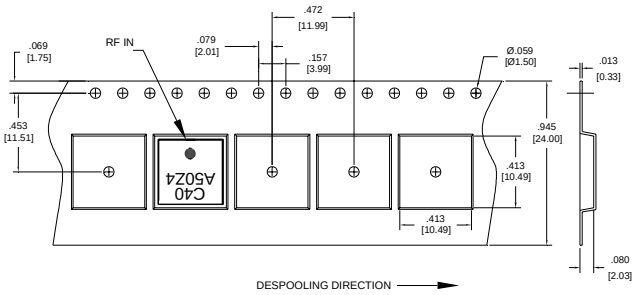




Power De-rating:

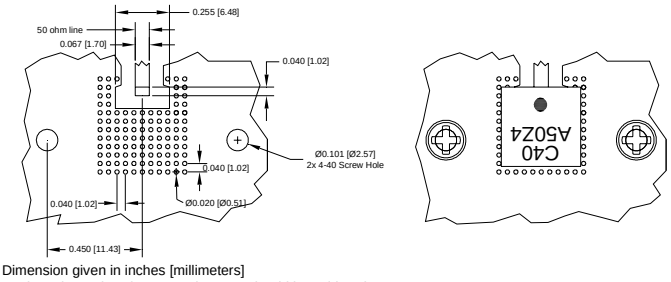


Tape & Reel:

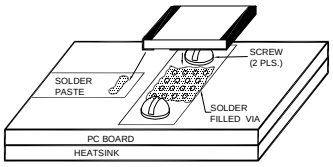


DIMENSIONS IN INCHES [MILLIMETERS]

Mounting Footprint and Procedure:



Dimension given in inches [millimeters]
For best thermal performance the PCB should be soldered to the heat sink.



MOUNTING PROCEDURE

1. Drill thermal vias through PCB and fill with solder.
2. To ensure good thermal connectivity to heat sink, which is critical for proper operation drill and tap heatsink and mount PCB to heat sink using screws.

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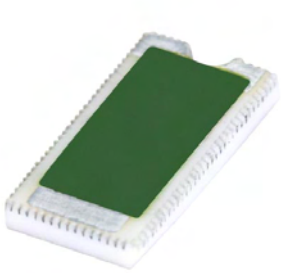
Model A20A50X1A

RF Power

RoHS Compliant

Surface mount Termination
20 Watts, 50Ω



General Specifications

Resistive Element	Thick film
Substrate	Alumina Ceramic
Terminal Finish	Thick film Silver
Operating Temperature	-55 to +125°C (see chart)

Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. All dimensions in inches.

Electrical Specifications

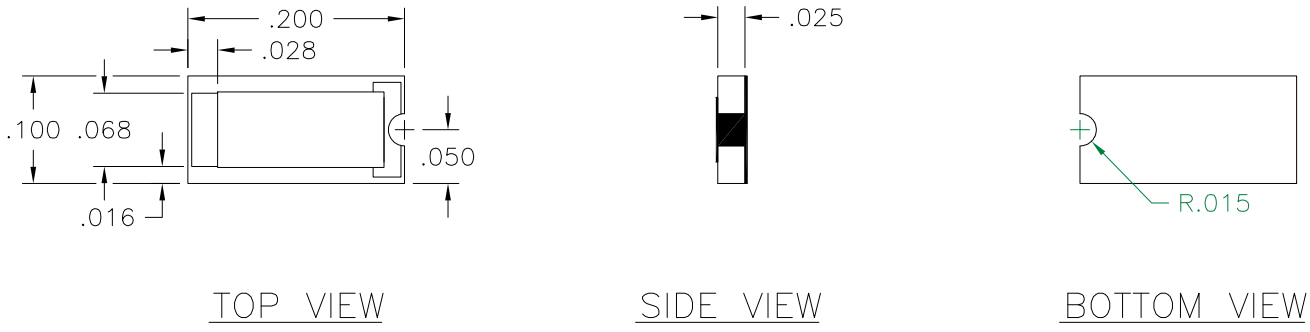
Resistance Value:	50 ohms, ± 2%
Power:	20 Watts
Frequency Range:	DC – 6.0 GHz
V.S.W.R.:	1.25:1

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change without notice**

Features:

- **20 Watts**
- **Surface Mountable**
- **Alumina Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**
- **RoHS Compliant**

Outline Drawing



A20A50X1A (097) Rev B

Available on Tape and Reel For Pick and Place Manufacturing.

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Toll Free: (800) 544-2414
Europe: +44 2392-232392

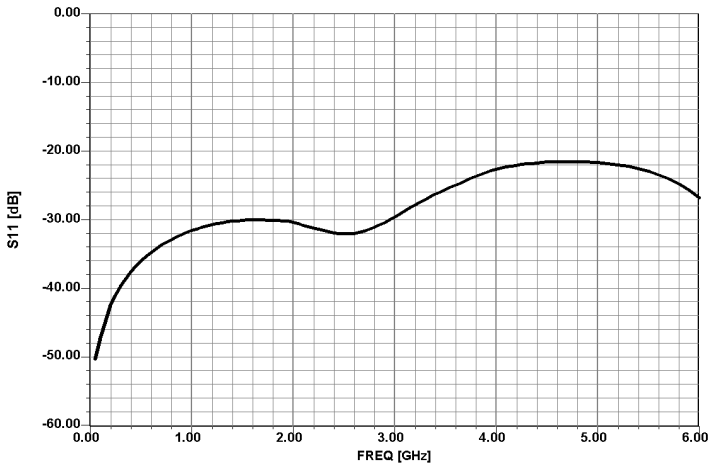
Model A20A50X1A

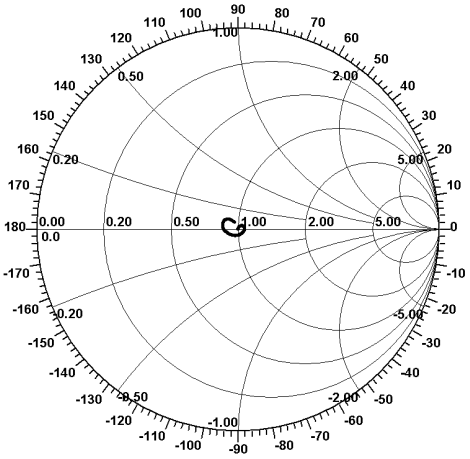
RoHS Compliant

Anaren

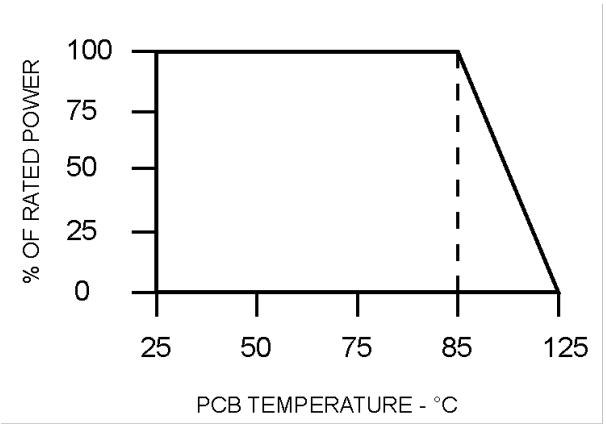
RF Power

Typical Performance:

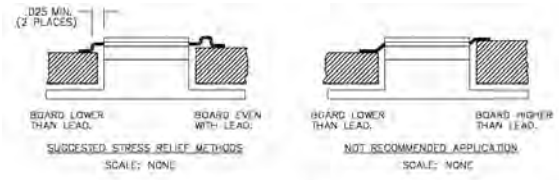




Derating:



Mounting Footprint and Procedure:



SUGGESTED MOUNTING PROCEDURES:

1. MAKE SURE THAT THE DEVICES ARE MOUNTED ON FLAT SURFACES (.001" UNDER THE DEVICE) TO OPTIMIZE THE HEAT TRANSFER.
2. POSITION DEVICE ON MOUNTING SURFACE AND SOLDER IN PLACE USING SN96 SOLDER.
3. SOLDER LEADS IN PLACE USING AN SN96 TYPE SOLDER WITH A CONTROLLED TEMPERATURE IRON (260°C).

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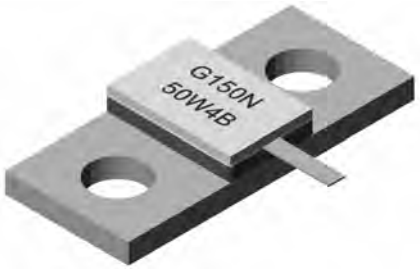
ROHS Compliant

Model G150N50W4B

Flange Mount Termination

150 Watts, 50Ω

RF Power



Description

The G150N50W4B is high performance Aluminum Nitride (AlN) flange mount termination intended as a cost competitive alternative to Beryllium Oxide (BeO). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating circulators, and for use in power combiners. The termination is also RoHS compliant!

Features:

- **RoHS Compliant**
- **150 Watts**
- **DC - 2.7 GHz**
- **AIN Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**

General Specifications

Resistive Element	Thick Film
Substrate	AlN Ceramic
Cover	Alumina Ceramic
Mounting Flange	Nickel Plated Copper

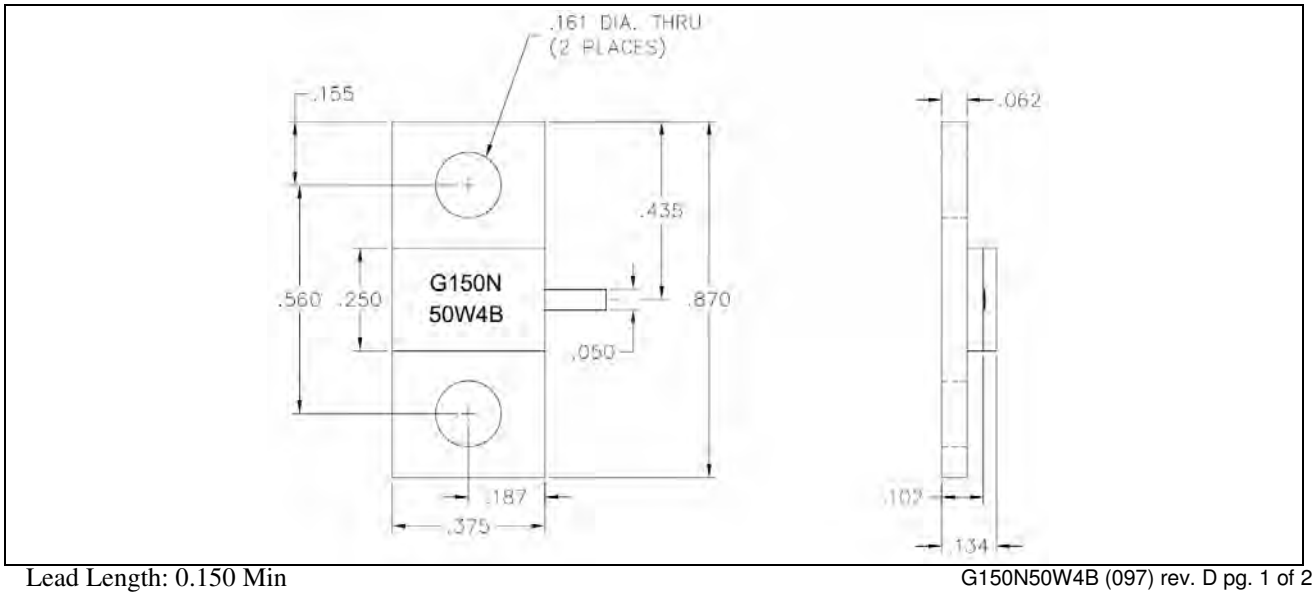
Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. **All dimensions in inches.**

Electrical Specifications

Resistance Value:	50 Ohms, ± 2%
Power:	150 Watts
Frequency Range:	DC – 2.7 GHz
Return Loss	> 25 dB to 2.0 GHz > 20 dB to 2.7 GHz

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change.**

Outline Drawing



Lead Length: 0.150 Min

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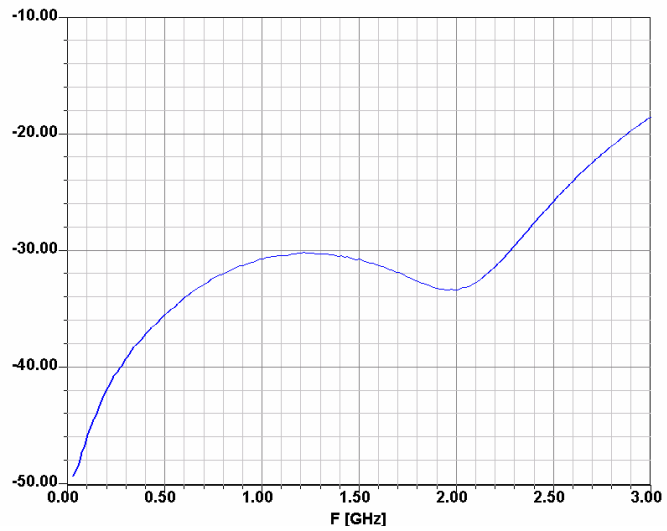
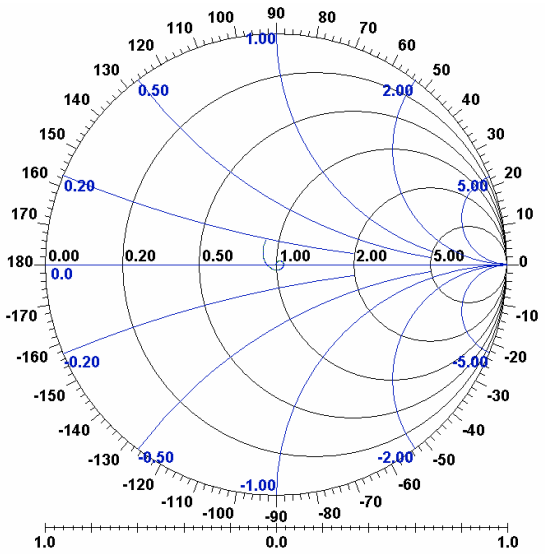
RF Power

Typical Performance:

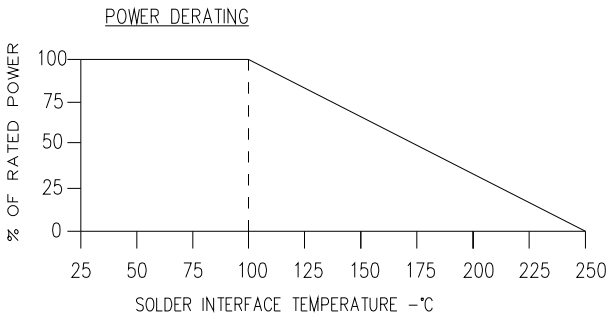
G150N50W4B



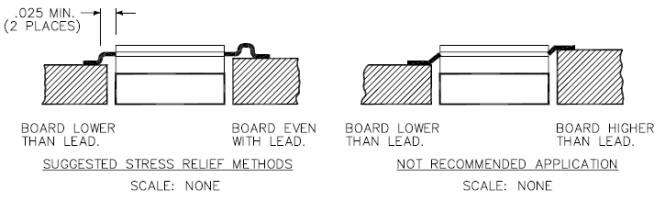
G150N50W4B



Power De-rating:



Mounting Footprint and Procedure:



SUGGESTED MOUNTING PROCEDURES:

1. MAKE SURE THAT THE DEVICES ARE MOUNTED ON FLAT SURFACES (.001" UNDER THE DEVICE) TO OPTIMIZE THE HEAT TRANSFER.
2. DRILL & TAP THE HEATSINK FOR THE APPROPRIATE THREAD SIZE TO BE USED.
3. COAT HEATSINK WITH A MINIMUM AMOUNT OF HIGH QUALITY SILICONE GREASE (.001" MAX. THICKNESS).
4. POSITION DEVICE ON MOUNTING SURFACE & SECURE USING SOCKET HEAD SCREWS, FLAT & SPLIT WASHER. TORQUE SCREWS TO THE APPROPRIATE VALUE. MAKE SURE THAT THE DEVICE IS FLAT AGAINST THE HEATSINK. (CARE SHOULD BE TAKEN TO AVOID UPWARD PRESSURE OF THE LEADS TOWARDS THE LID).
5. SOLDER LEADS IN PLACE USING LEAD FREE TYPE SOLDER WITH A CONTROLLED TEMPERATURE IRON

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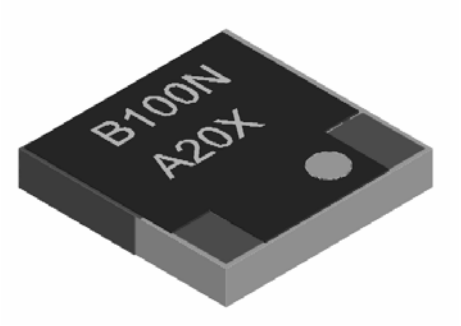
Model B100NA20X4

ROHS Compliant

Chip Attenuator
100 Watts, 20 dB



Description

The B100NA20X4 is high performance Aluminum Nitride (AlN) chip attenuator intended as a cost competitive alternative to Beryllium Oxide (BeO). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating circulators, and for use in power monitoring. The termination is also RoHS compliant!

Features:

- **RoHS Compliant**
- **100 Watts**
- **DC – 4.0 GHz**
- **AlN Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**
- **Small Size**

General Specifications

Resistive Element	Thick film
Substrate	AlN Ceramic
Terminal Finish	Matte Tin over Nickel Barrier
Operating Temperature	-55 to +150°C (see de rating chart)

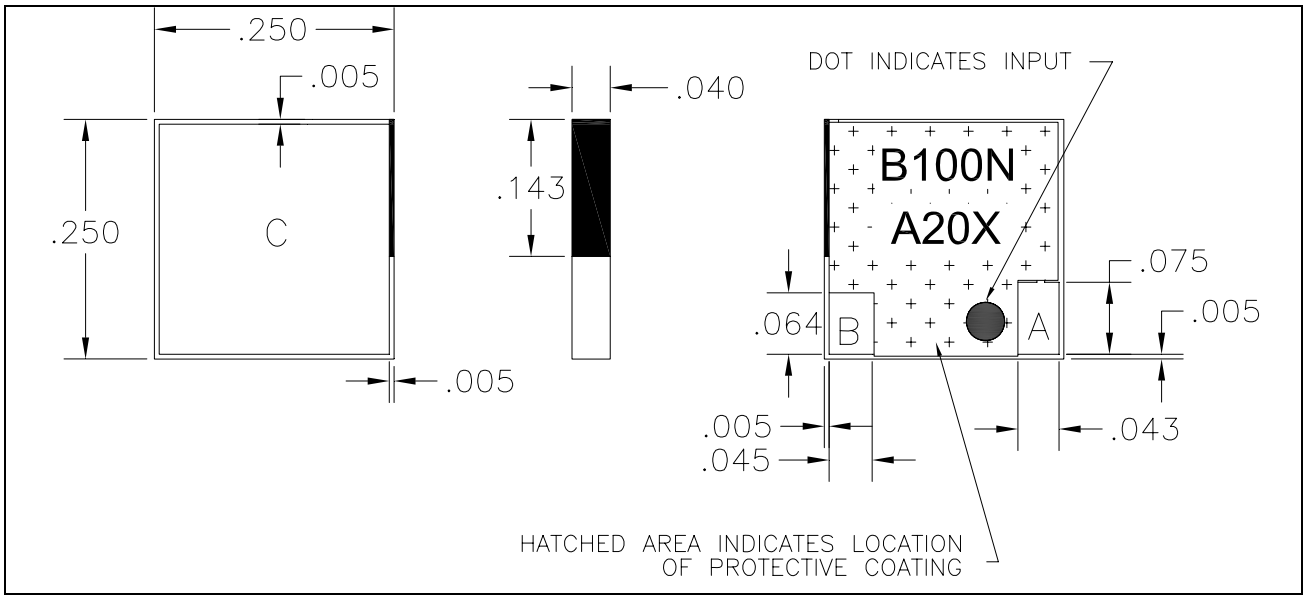
Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. **All dimensions in inches.**

Electrical Specifications

Attenuation Value:	20 dB, ± 1.0 dB, DC – 4.0 GHz		
Power:	100 Watts		
Frequency Range:	DC – 4.0 GHz		
Return Loss	>20 dB to 2.7 GHz >19 dB to 4.0 GHz		
Value (A-B)	**Value (A-C)**	**Value (B-C)**	**Tolerance**
81.8 Ω	50.9 Ω	50.9 Ω	± 4%

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change.**

Outline Drawing



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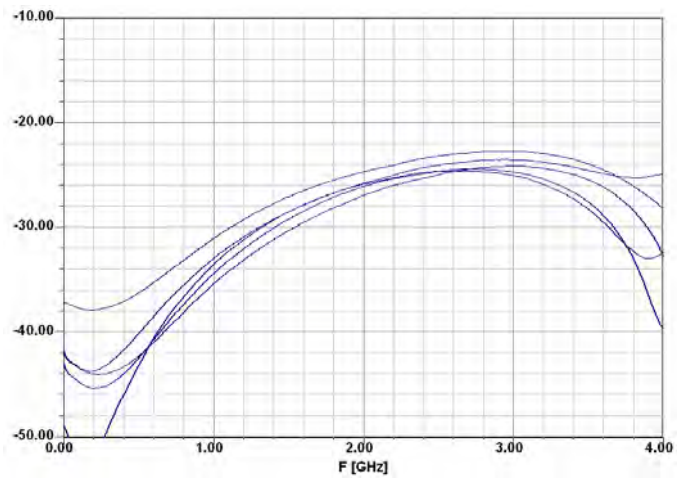
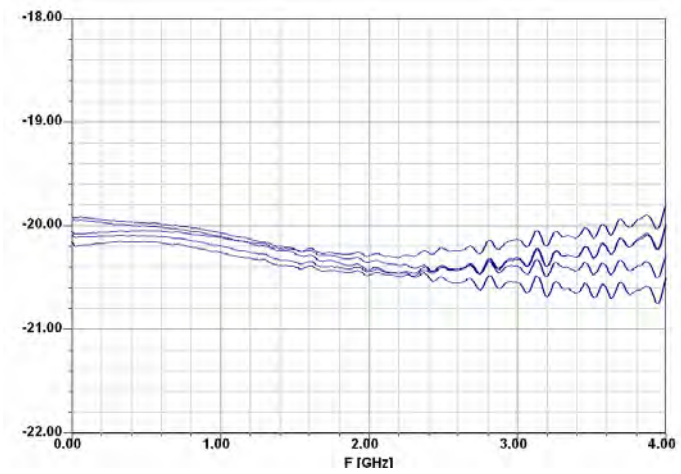
Typical Performance:

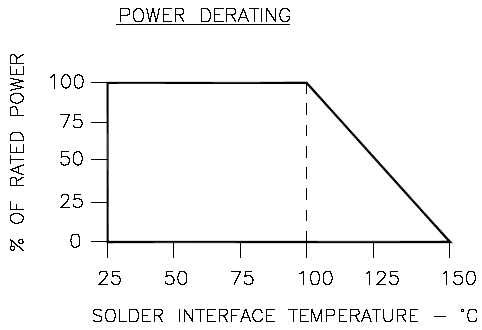
Return Loss:



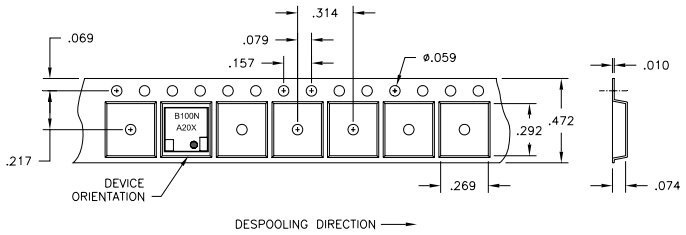
Attenuation:



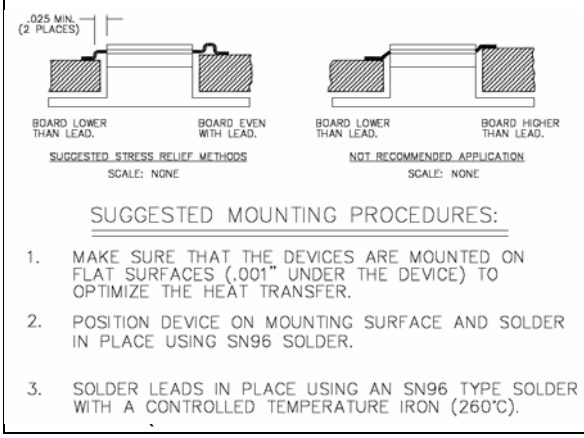
Power De-rating:



Tape & Reel:



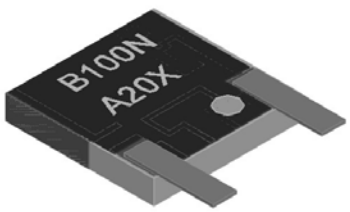
Mounting Footprint and Procedure:



SUGGESTED MOUNTING PROCEDURES:

1. MAKE SURE THAT THE DEVICES ARE MOUNTED ON FLAT SURFACES (.001" UNDER THE DEVICE) TO OPTIMIZE THE HEAT TRANSFER.
2. POSITION DEVICE ON MOUNTING SURFACE AND SOLDER IN PLACE USING SN96 SOLDER.
3. SOLDER LEADS IN PLACE USING AN SN96 TYPE SOLDER WITH A CONTROLLED TEMPERATURE IRON (260°C).

Correct lead orientation



Alternate lead Orientation.
(May require external matching)

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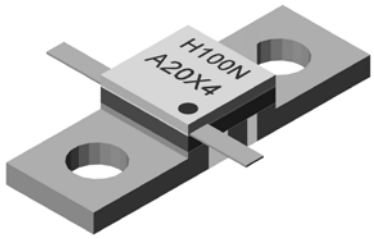
RF Power

ROHS Compliant

Model H100NA20X4

Flange Attenuator
100 Watts, 20 dB



Description

The H100NA20X4 is high performance Aluminum Nitride (AlN) high power flange mount attenuator intended as a cost competitive alternative to Beryllium Oxide (BeO). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating circulators, and for use in power monitoring. The termination is also RoHS compliant!

Features:

- **RoHS Compliant**
- **100 Watts**
- **DC - 2.7 GHz**
- **AlN Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**
- **Small Size**

General Specifications

Resistive Element	Thick film
Substrate	AlN Ceramic
Cover	Alumina Ceramic
Mounting Flange	Nickel Plated Copper
Operating Temperature	-55 to +150°C (see de rating chart)

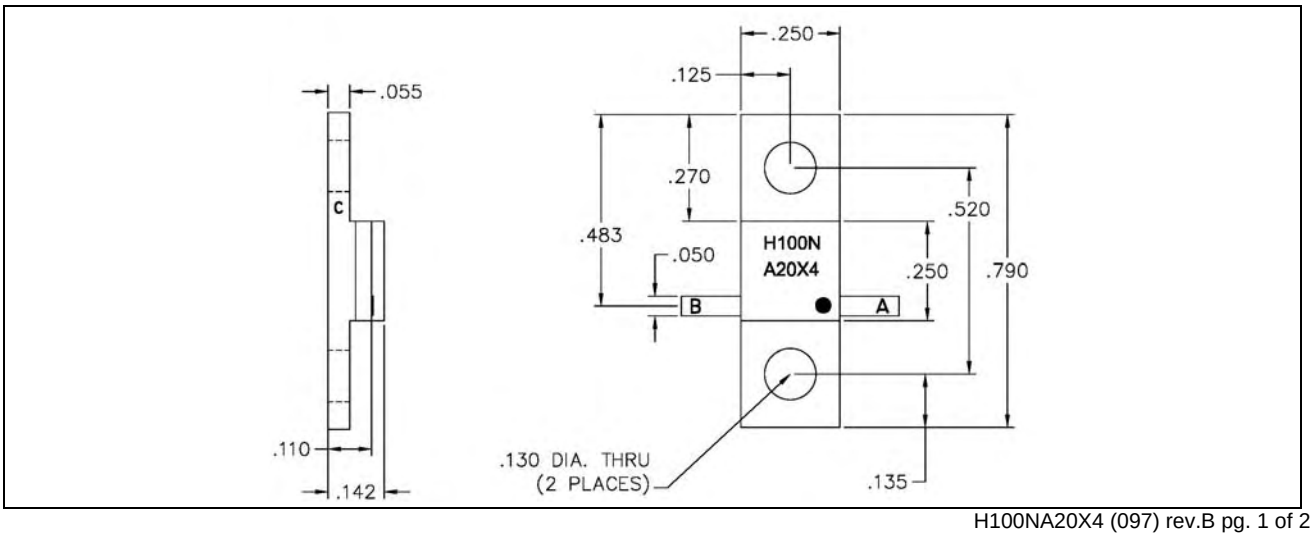
Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. **All dimensions in inches.**

Electrical Specifications

Attenuation Value:	20 dB, ± 1.0 dB, DC – 4.0GHz
Power:	100 Watts
Frequency Range:	DC – 4.0 GHz
Return Loss	> 24 dB to 2.7 GHz > 20 dB to 4.0 GHz

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change.**

Outline Drawing



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USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
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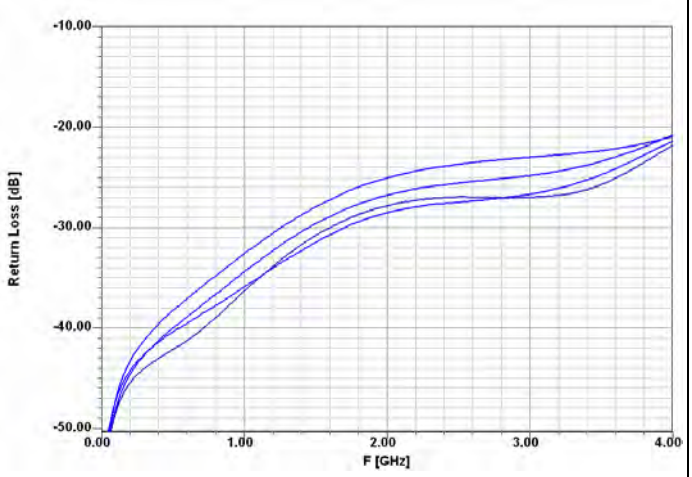
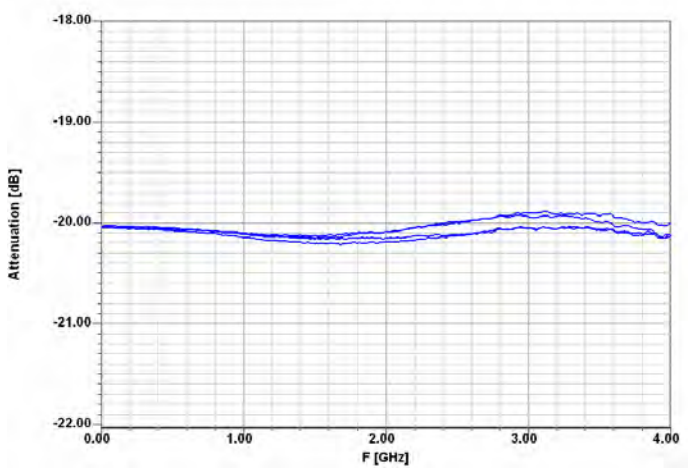
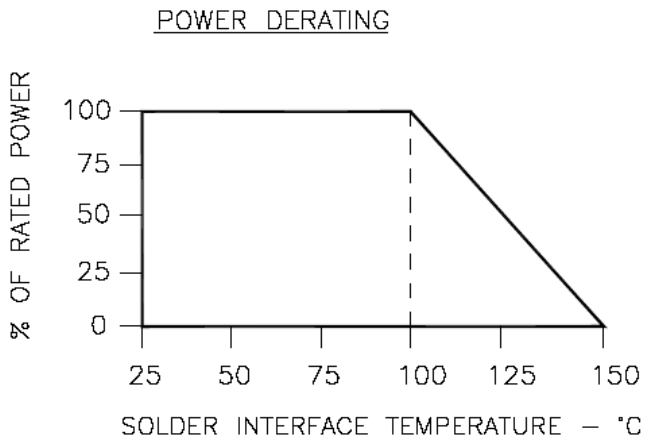
RF Power

Typical Performance:

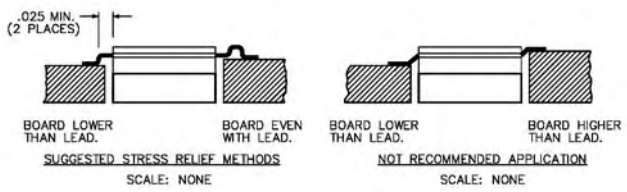




Power De-rating:



Mounting Footprint and Procedure:



SUGGESTED MOUNTING PROCEDURES:

1. MAKE SURE THAT THE DEVICES ARE MOUNTED ON FLAT SURFACES (.001" UNDER THE DEVICE) TO OPTIMIZE THE HEAT TRANSFER.
2. DRILL & TAP THE HEATSINK FOR THE APPROPRIATE THREAD SIZE TO BE USED.
3. COAT HEATSINK WITH A MINIMUM AMOUNT OF HIGH QUALITY SILICONE GREASE (.001" MAX. THICKNESS).
4. POSITION DEVICE ON MOUNTING SURFACE & SECURE USING SOCKET HEAD SCREWS, FLAT & SPLIT WASHER. TORQUE SCREWS TO THE APPROPRIATE VALUE. MAKE SURE THAT THE DEVICE IS FLAT AGAINST THE HEATSINK. (CARE SHOULD BE TAKEN TO AVOID UPWARD PRESSURE OF THE LEADS TOWARDS THE LID).
5. SOLDER LEADS IN PLACE USING LEAD FREE TYPE SOLDER WITH A CONTROLLED TEMPERATURE IRON

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

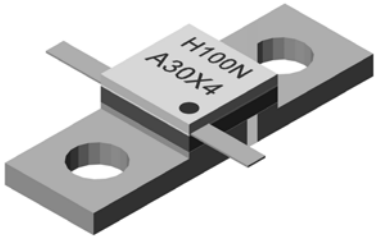
Anaren What'll we think of next?™

Model H100NA30X4

ROHS Compliant

RF Power

Flange Attenuator
100 Watts, 30 dB



Description

The H100NA30X4 is high performance Aluminum Nitride (AlN) high power flange mount attenuator intended as a cost competitive alternative to Beryllium Oxide (BeO). The termination is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for terminating circulators, and for use in power monitoring. The termination is also RoHS compliant!

Features:

- **RoHS Compliant**
- **100 Watts**
- **DC – 4.0 GHz**
- **AlN Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**
- **Small Size**

General Specifications

Resistive Element	Thick film
Substrate	AlN Ceramic
Cover	Alumina Ceramic
Mounting Flange	Nickel Plated Copper
Operating Temperature	-55 to +150°C (see de rating chart)

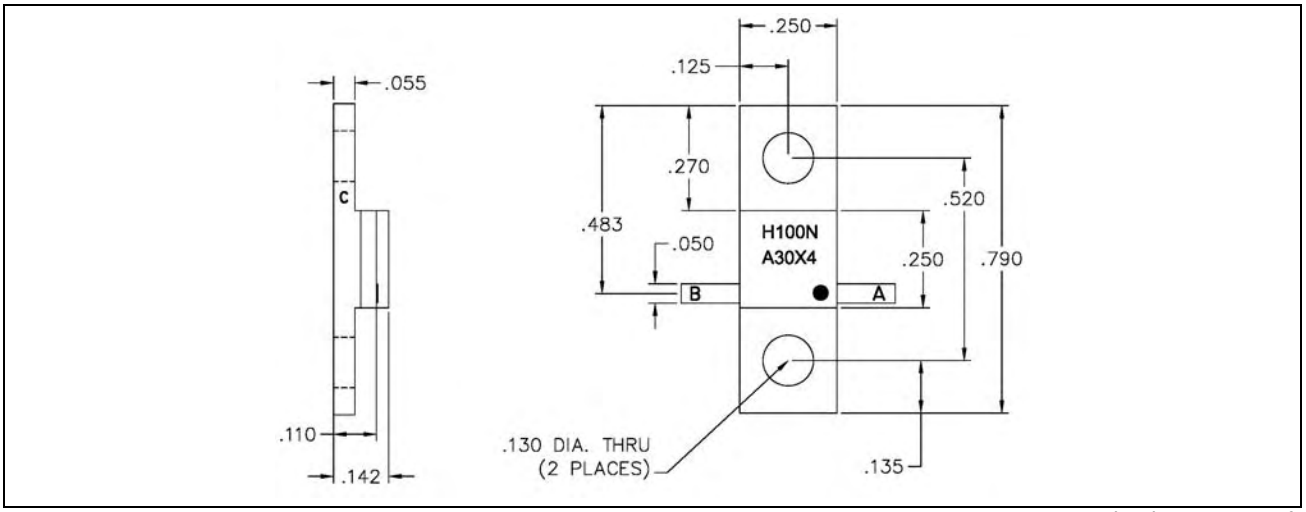
Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. **All dimensions in inches.**

Electrical Specifications

Attenuation Value:	30 dB, +5/-2 dB, DC - 2.2 GHz 30 dB, +7/-2 dB, 2.2 GHz – 2.7 GHz
Power:	100 Watts
Frequency Range:	DC – 2.7 GHz
Return Loss	>24 dB to 2.2 GHz >20 dB to 4.0 GHz

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change.**

Outline Drawing



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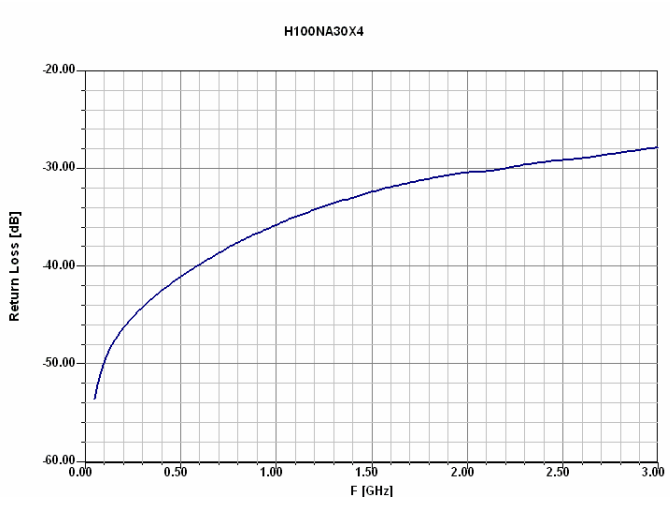
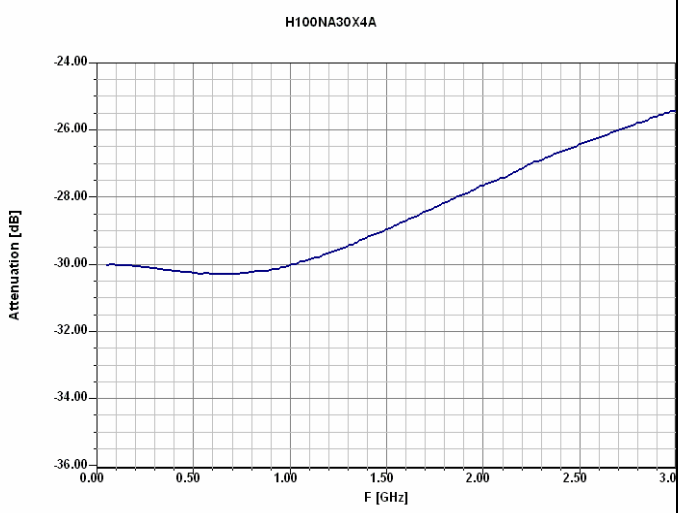
Toll Free: (800) 544-2414
Europe: +44 2392-232392

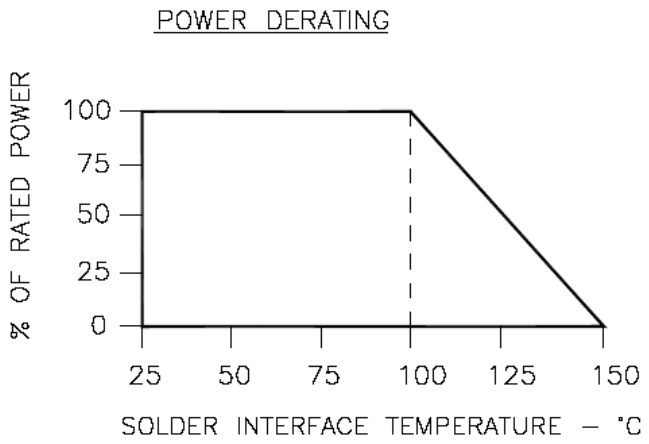
RF Power

Typical Performance:

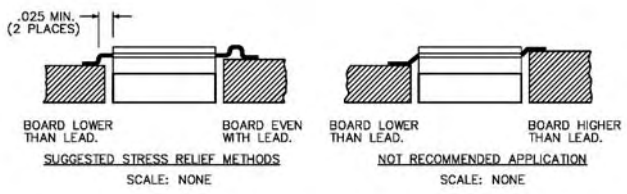




Power De-rating:



Mounting Footprint and Procedure:



SUGGESTED MOUNTING PROCEDURES:

1. MAKE SURE THAT THE DEVICES ARE MOUNTED ON FLAT SURFACES (.001" UNDER THE DEVICE) TO OPTIMIZE THE HEAT TRANSFER.
2. DRILL & TAP THE HEATSINK FOR THE APPROPRIATE THREAD SIZE TO BE USED.
3. COAT HEATSINK WITH A MINIMUM AMOUNT OF HIGH QUALITY SILICONE GREASE (.001" MAX. THICKNESS).
4. POSITION DEVICE ON MOUNTING SURFACE & SECURE USING SOCKET HEAD SCREWS, FLAT & SPLIT WASHER. TORQUE SCREWS TO THE APPROPRIATE VALUE. MAKE SURE THAT THE DEVICE IS FLAT AGAINST THE HEATSINK. (CARE SHOULD BE TAKEN TO AVOID UPWARD PRESSURE OF THE LEADS TOWARDS THE LID).
5. SOLDER LEADS IN PLACE USING LEAD FREE TYPE SOLDER WITH A CONTROLLED TEMPERATURE IRON

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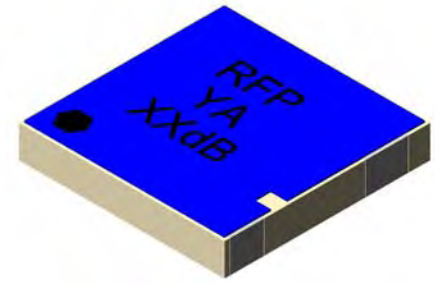
Anaren What'll we think of next?™

Model D30AXXY4

RoHS Compliant

Surface Mount Attenuator 30 Watts



Description

The D30AXXY4 is high performance Alumina (Al2O3) surface mount attenuator intended as a lower cost alternative to Aluminum Nitride (AlN) and Beryllium Oxide (BeO). The attenuator is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for inter-stage matching, directional couplers, and for use in isolators.

Features:

- **30 Watts**
- **Lowest Cost**
- **True Surface Mount**
- **Alumina Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**

General Specifications

Resistive Element	Thick film
Substrate	Alumina Ceramic
Terminal Finish	Matte Tin over Sulfamate Nickel
Operating Temperature	-55 to +150°C (see chart)

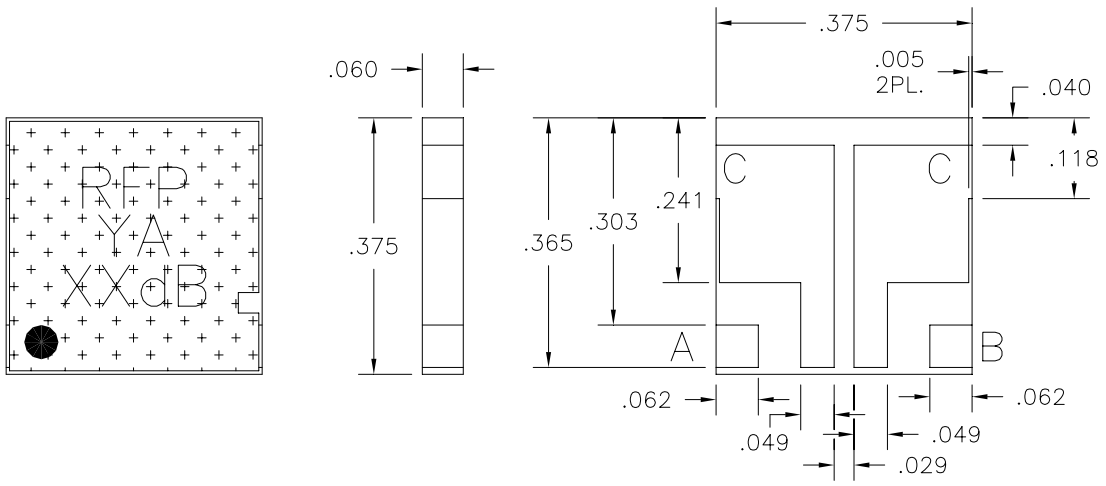
Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. All dimensions in inches.

Electrical Specifications

Attenuation Value:	20 & 30dB
Power:	30 Watts
Frequency Range:	DC – 2.0 GHz
V.S.W.R.:	1.20:1

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change.**

Outline Drawing



Dimensions given in inches.

D30AXXY1 (097) Rev B

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Toll Free: (800) 544-2414
Europe: +44 2392-232392

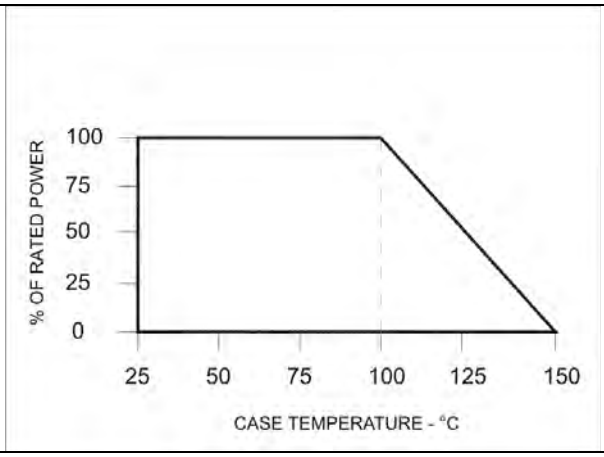
Model D30AXXY4

RoHS Compliant

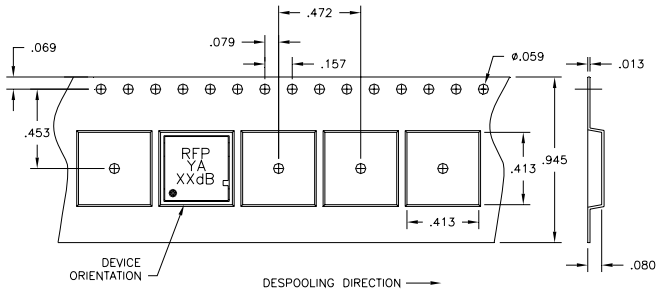
Specifications:

RESISTOR VALUE CHART					
ATTENUATION	VALUE (A–B)	VALUE (A–C)	VALUE (B–C)	TOLERANCE	R.F.P. STOCKING P/N
20dB±.75dB	258Ω	61Ω	61Ω	±4%	D30A20Y4
30dB±.75dB	197Ω	53Ω	53Ω	±4%	D30A30Y4

Power De-rating:

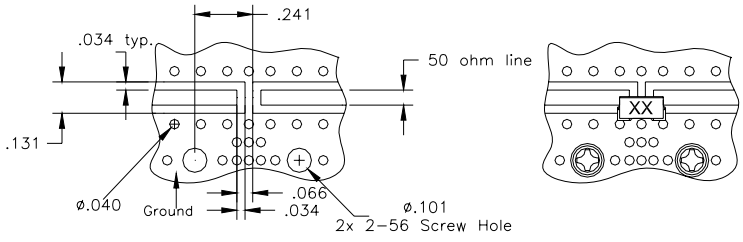


Tape & Reel:

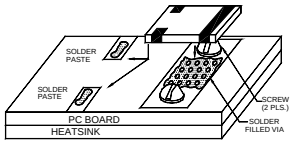


Dimension given in inches.

Mounting Footprint and Procedure:



Dimension given in inches.
For best thermal performance the PCB should be placed with thermal joint compound to the heat sink.



MOUNTING PROCEDURE

1. Drill thermal vias through PCB and fill with solder, such as SN63 type.

2. Solder part in place using SN63 type solder with controlled temperature iron (700°F).

3. To ensure good thermal connectivity to heat sink, drill and tap heatsink and mount PCB board to heat sink using screws.

D30AXXY4 (097) Rev B

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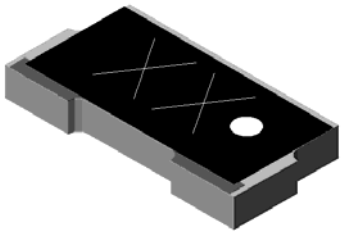
Available on Tape and Reel For Pick and Place Manufacturing.

Anaren
What'll we think of next?™

Model D10AAXXZ4

RF Power

Surface Mount Attenuator
7 Watts



Description

The D10AAXXZ4 is high performance Alumina (Al2O3) surface mount attenuator intended as a lower cost alternative to Aluminum Nitride (AlN) and Beryllium Oxide (BeO). The attenuator is well suited to all cellular frequency bands such as; AMPS, GSM, DCS, PCS, PHS and UMTS. The high power handling makes the part ideal for inter-stage matching, directional couplers, and for use in isolators.

Features:

- **RoHS compliant**
- **Lowest Cost**
- **True Surface Mount**
- **Alumina Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**

General Specifications

Resistive Element	Thick film
Substrate	Alumina Ceramic
Terminal Finish	Matte Tin over Sulfamate Nickel
Operating Temperature	-55 to +125°C (see chart)

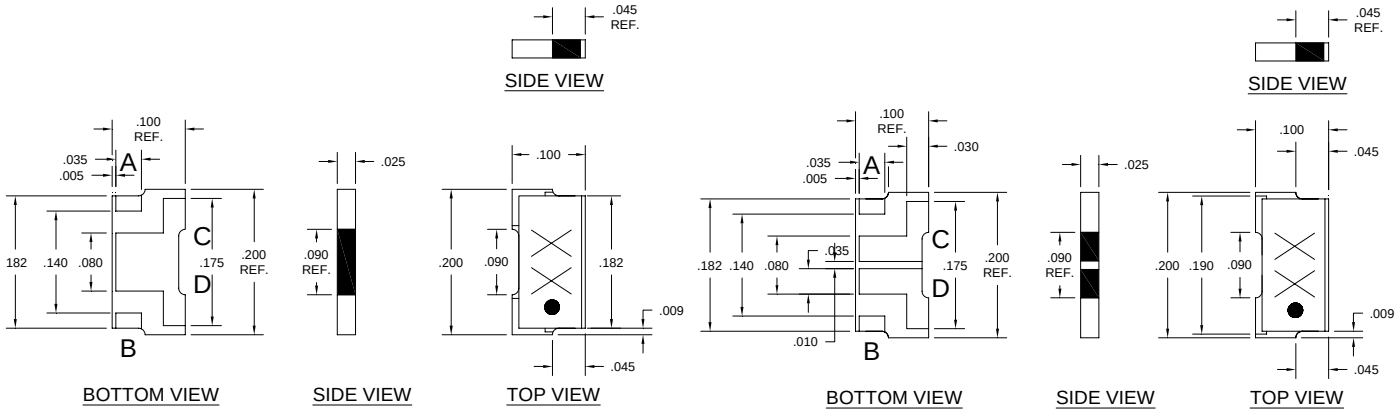
Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. All dimensions in inches.

Electrical Specifications

Attenuation Value:	1 – 6, 9, 10, 20 & 30dB
Power:	7 Watts
Frequency Range:	DC – 3.0 GHz
V.S.W.R.:	<1.25:1

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change.**

Outline Drawing



FOR PART NUMBERS D10AA9Z4 AND D10AA10Z4

FOR PART NUMBERS D10AA20Z4 AND D10AA30Z4

Dimensions given in inches.

Rev. 6/24/05

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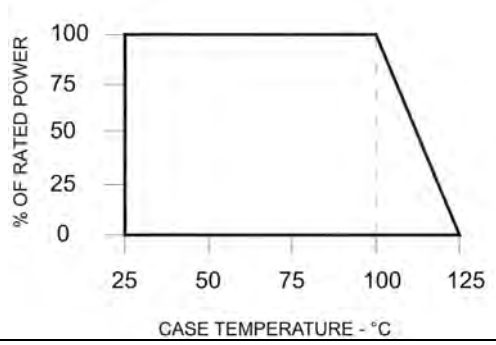
Model D10AAXXZ4

RF Power

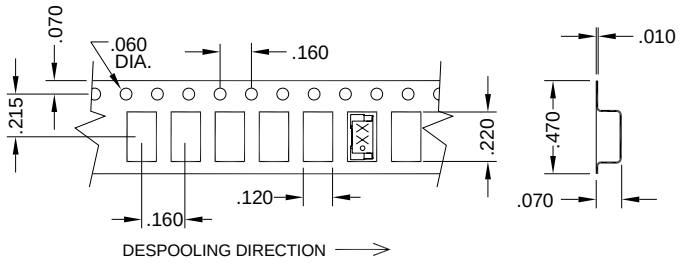
Specifications:

PART NUMBER	ATTENUATION(dB)	TOL. (±dB)	POWER (WATTS)	VSWR	FREQ (GHZ)
D10AA1Z4	1	0.30	7	1.25:1	3.0
D10AA2Z4	2	0.30	7	1.25:1	3.0
D10AA3Z4	3	0.30	7	1.25:1	3.0
D10AA4Z4	4	0.30	7	1.25:1	3.0
D10AA5Z4	5	0.30	7	1.25:1	3.0
D10AA6Z4	6	0.30	7	1.25:1	3.0
D10AA9Z4	9	0.25	7	1.25:1	3.0
D10AA10Z4	10	0.25	7	1.25:1	3.0
D10AA20Z4	20	0.50	7	1.25:1	3.0
D10AA30Z4	30	1.50	7	1.25:1	3.0

Power De-rating:

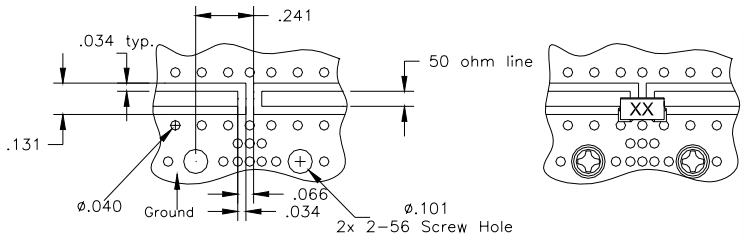


Tape & Reel:

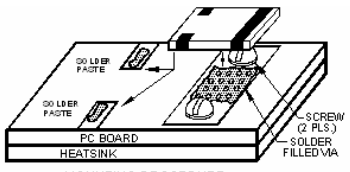


Dimension given in inches.

Mounting Footprint and Procedure:



Dimension given in inches.
For best thermal performance the PCB should be placed with thermal joint compound to the heat sink.



MOUNTING PROCEDURE

1. DRILL THERMAL VIAS THROUGH PCB AND FILL WITH SOLDER, SUCH AS Sn96.
2. SOLDER PART IN PLACE USING Sn96 TYPE SOLDER WITH A CONTROLLED TEMPERATURE IRON (260°C)
3. TO ENSURE GOOD THERMAL CONNECTIVITY TO HEAT SINK, DRILL AND TAP HEATSINK AND MOUNT PCB BOARD TO HEATSINK USING SCREWS.

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Model D10AAXXZ4

Material Declaration **D10AAXXZ4** **Matte Tin Finish**

Material	Weight			
	(lbs)	(g)	(PPM)	CAS Number
Alumina	5.889E-05	2.671E-02	7.496E+05	1344-28-1
Diethylene Glycol Ethyl Ether Acetate	2.212E-07	1.004E-04	2.818E+03	1121-52
Dipropylene Glycol Monomethyl Ether	2.976E-7	1.350E-04	3.789E+03	3459-09-48
Epoxy resin and polymers	1.323E-06	6.000E-04	1.684E+4	1002
Matte Tin	1.381E-06	6.262E-04	1.758E+04	7440-31-5
Nickel	8.416E-07	3.817E-04	1.071E+04	7440-02-0
Polymer	6.507E-07	2.952E-04	8.285E+03	
Propylene Glycol Monomethyl Ethere Acetate	1.775E-07	8.050E-05	2.259E+03	1086-56
Ruthenium	1.618E-06	7.341E-04	2.060E+04	12036-10-1
Silicon Oxide	7.490E-07	3.397E-04	9.534E+03	10097-28-6
Silver Alloy	1.062E-05	4.816E-03	1.352E+05	7440-22-4

Total Weight Calculated	7.855E-05	3.563E-02
Total Weight Measured	7.932E-05	3.598E-02

The values presented above are estimates at the current revision, and it is derived from vendor supplied data. While Anaren strives for accurate reporting, due to product and process variations at both Anaren and our suppliers, the quoted values are our best estimates only, and not measured absolute values. Product specifications are subject to change without notice.

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
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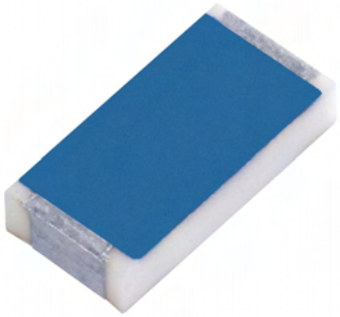
Europe: +44 2392-232392

Model D5BXXXXY1A

RoHS Compliant

Surface Mount Resistors
5 Watts



General Specifications

Resistive Element	Thick film
Substrate	Alumina Ceramic
Terminals	Thick film Silver
Operating Temperature	-55 to +125°C (see chart)

Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. All dimensions in inches.

Electrical Specifications

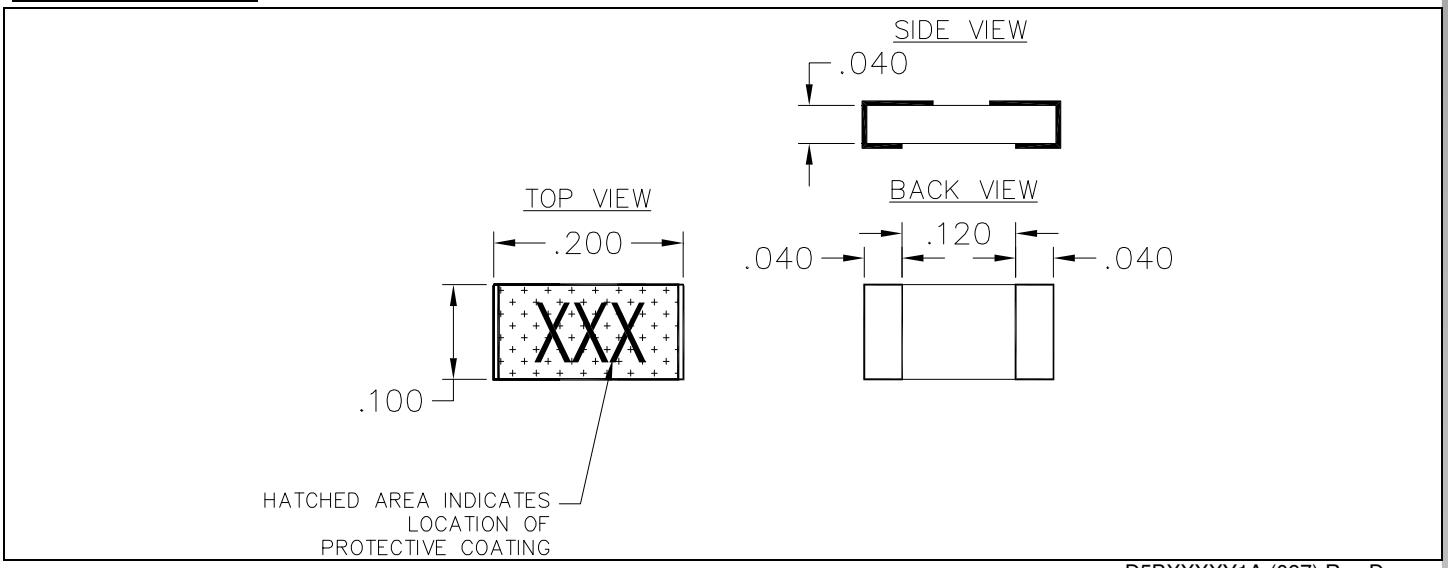
Resistance Value:	See Chart, ± 2%
Power:	5 Watts
Frequency Range:	DC – 3.0 GHz
Capacitance	0.3 pF

Specification based on unit properly installed using suggested mounting instructions and a 50 ohm nominal impedance. **Specifications subject to change without notice**

Features:

- **5 Watts**
- **Surface Mount**
- **Beryllium Oxide Ceramic**
- **Non-Nichrome Resistive Element**
- **Low VSWR**
- **100% Tested**
- **RoHS Complaint**

Outline Drawing



D5BXXXXY1A (097) Rev D

Available on Tape and Reel For Pick and Place Manufacturing.

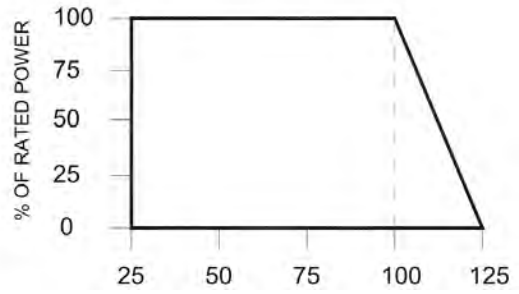
USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

Model D5BXXXXY1A

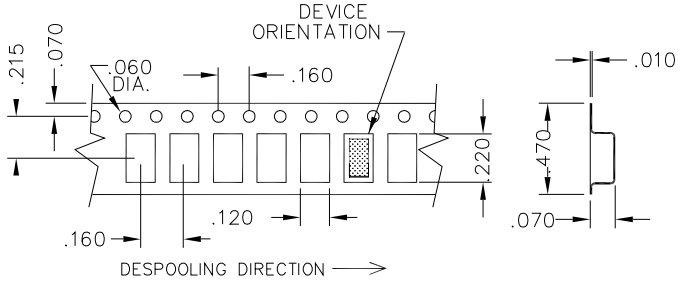
RoHS Compliant

TABLE I			
REFERENCE	VALUE	TOL.	MATERIAL
D5BR5Y1A	0.5 Ω	±2%	BeO .040
D5B1Y1A	1 Ω	±2%	BeO .040
D5B1R2Y1A	1.2Ω	±2%	BeO .040
D5B4Y1A	4 Ω	±2%	BeO .040
D5B5Y1A	5 Ω	±2%	BeO .040
D5B10Y1A	10 Ω	±2%	BeO .040
D5B25Y1A	25 Ω	±2%	BeO .040
D5B36R5Y1A	36.5Ω	±1%	BeO .040
D5B39R2Y1A	39.2Ω	±1%	BeO .040
D5B50Y1A	50 Ω	±2%	BeO .040
D5B51Y1A	51 Ω	±1%	BeO .040
D5B54Y1A	54 Ω	±2%	BeO .040
D5B100Y1A	100Ω	±2%	BeO .040
D5B120Y1A	120 Ω	±2%	BeO .040
D5B150Y1A	150Ω	±2%	BeO .040
D5B220Y1A	220Ω	±2%	BeO .040
D5B255Y1A	255Ω	±2%	BeO .040
D5B750Y1A	750Ω	±2%	BeO .040
D5B1KY1A	1KΩ	±2%	BeO .040

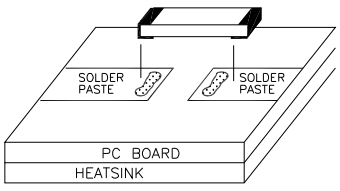
Power De-rating:



Tape & Reel:



Mounting Footprint and Procedure:



MOUNTING PROCEDURE

1. Make sure that the devices are mountd on flat surfaces (0.001" under the device) to optimize the heat transfer.
2. Position device on mounting surface and solder in place using an appropriate type solder.

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Available on Tape and Reel For Pick and Place Manufacturing.

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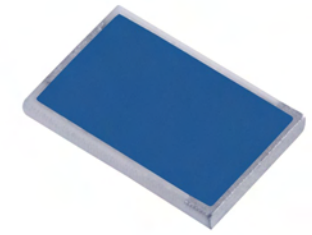
Model D10BXXXY1A

RF Power

RoHS Compliant

Surface Mount Resistor
10 Watts



General Specifications

Resistive Element	Thick film
Substrate	Beryllium oxide ceramic

Electrical Specifications

Resistance Range:	See Chart
Frequency Range;	DC – 2.0 GHz
Power:	10 Watts
Capacitance:	1.4 pF

Tolerance is ±0.010", unless otherwise specified. Designed to meet of exceed applicable portions of MIL-E-5400. Operating temperature is -55ºC to 125ºC (see chart for derating temperatures).

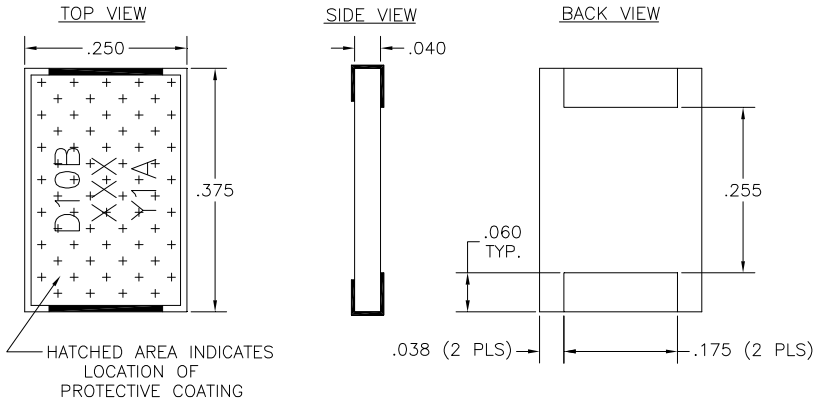
All dimensions in inches.

Specifications subject to change with out notice.

Features:

- **DC – 2.0 GHz**
- **10 Watts**
- **BeO Ceramic**
- **Non-Nichrome Resistive Element**
- **100% Tested**
- **RoHS Compliant**

Outline Drawing



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Available on Tape and Reel For Pick and Place Manufacturing.

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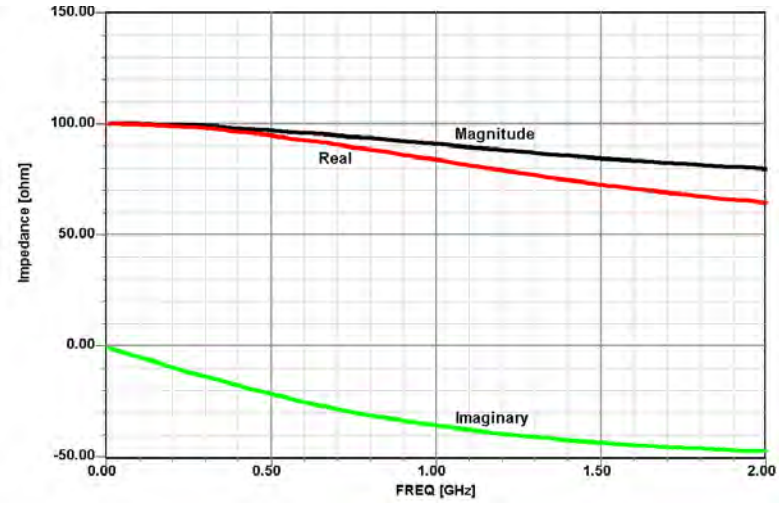
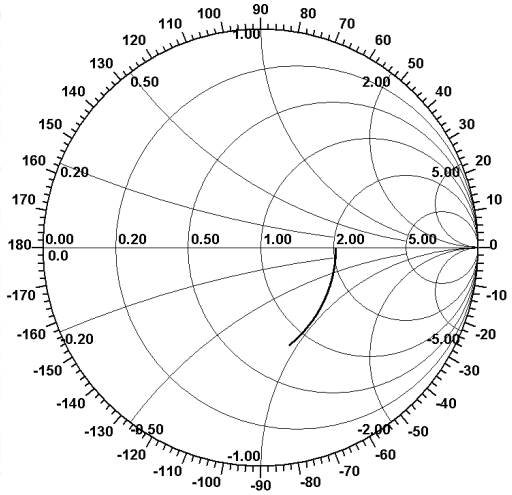
Model D10BXXXY1A

RoHS Compliant

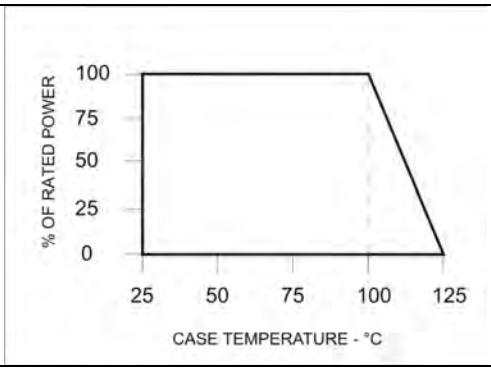
RF Power

Typical Performance for D10B100Y1A

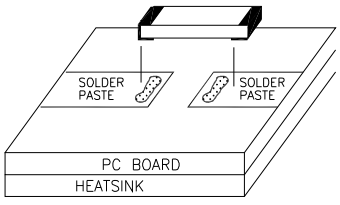




Power De-rating:



Mounting Procedure:



MOUNTING PROCEDURE

1. Make sure that the devices are mountd on flat surfaces (0.001" under the device) to optimize the heat transfer.
2. Position device on mounting surface and solder in place using an appropriate type solder.

Performance Chart:

Value	Part Number	Tollerance
50 ohms	D10B50Y1A	± 2%
68 ohms	D10B68Y1A	± 2%
100 ohms	D10B100Y1A	± 2%
300 ohms	D10B300Y1A	± 1%
1K ohms	D10B1KY1A	± 2%

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