

# INNOVATIVE PRODUCTS

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FREQUENCY SOURCES & SIGNAL PROCESSING COMPONENTS

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*Setting The Standard For High Performance RF & Microwave Building Blocks*



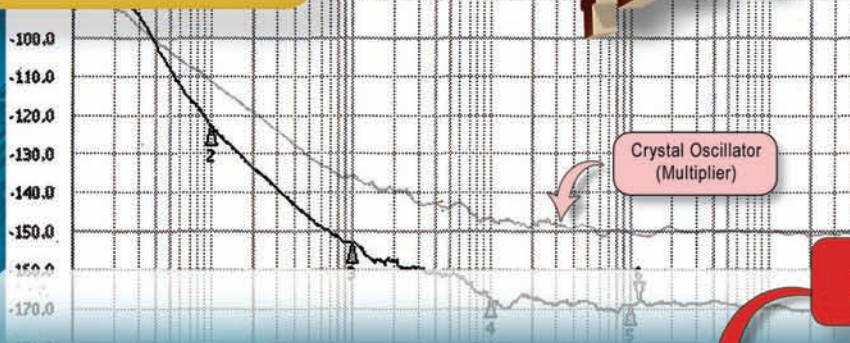
# Introducing <sup>Ultra</sup> our new line of $\Delta$ Low Phase Noise & Phase Locked Signal Sources

## Features

- Cost Effective
- Eliminates Noisy Multipliers
- Patent Pending Technology

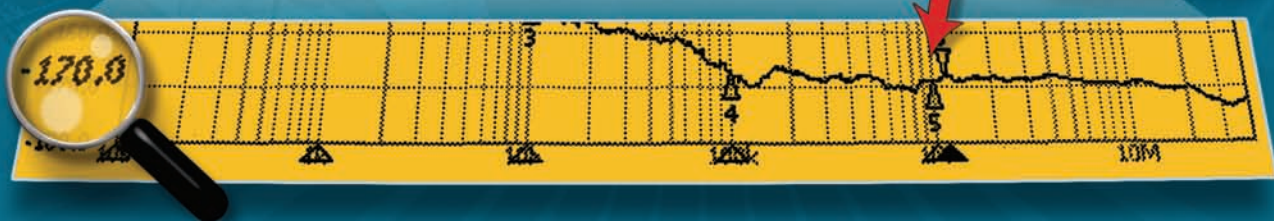
## Applications

Test & Measurement Equipment, High Frequency Network Clocking, Scanning & Radar Systems, High Performance Frequency Converters, Base Station Applications, Agile LO Frequency Synthesis



Frequencies from 300 MHz to 4 GHz

Contact Factory For Your Specific Requirement



Available In Surface Mount  
FCTS - Phase Locked Series (0.9" x 0.9" x 0.22")  
& Connectorized Package

## Ultra Low Noise Floor

# When There's **SYNERGY** There's **INNOVATION**



For additional information, contact Synergy's sales and application team.  
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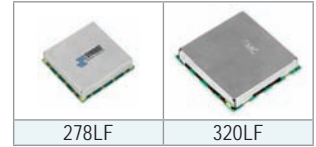
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# YIG Replacement Oscillators

## Features

- » Octave & Higher Than Octave Tuning
- » High Spectral Purity Signal
- » Low Power Consumption
- » Wide Modulation Bandwidth
- » Low Microphonic Effects
- » Lower Cost

- » Excellent Tuning Linearity
- » Extended Temperature Range
- » Exceptional Phase Noise Performance
- » Low Post Tuning Drift
- » High Reliability
- » High Immunity To EMI & Phase Hits
- » Compact Size: 0.5" x 0.5" & 0.75" x 0.75"
- » Rel-Pro® Patented Technology



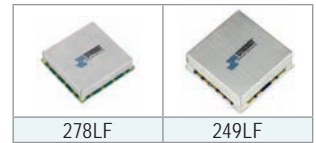
Model #	Frequency (MHz)	Tuning Voltage (VDC)	DC Bias V @ I (Typ.)	Minimum Output Power (dBm)	Typical Tuning Sensitivity (MHz/V)	Typical Harmonic Suppression (dB)	Typical Frequency Pulling (MHz)	Typical Frequency Pushing (MHz/V)	Typical Phase Noise @ 10 kHz (dBc/Hz)	Pkg. #
DCYR2060-5	200 - 600	0.5 - 28	+5 @ 60 mA	+5	14 - 28	12	3	1	-119	320LF
DCYR3097-5	300 - 970	0.5 - 28	+5 @ 38 mA	+4	15 - 45	25	3	1	-112	320LF
DCYR50125-10	500 - 1250	0.5 - 24	+10 @ 37 mA	+1	18 - 55	12	5	4	-110	320LF
DCYS100200-12	1000 - 2000	0.5 - 28	+12 @ 33 mA	+4	12 - 60	20	5	5	-105	278LF
DCYS160360-5	1600 - 3600	0.5 - 20	+5 @ 47 mA	+3	70 - 200	20	12	2	-94	278LF
DCYS200400-5	2000 - 4000	0.5 - 16	+5 @ 45 mA	+1	100 - 250	15	4	4	-90	278LF
DCYS200400P-5	2000 - 3900	0.5 - 22	+5 @ 50 mA	0	45 - 175	15	4	4	-95	278LF
DCYS250500-5	2500 - 5000	0.5 - 14	+5 @ 45 mA	-3	160 - 410	15	14	7	-78	278LF
DCYS250510-5	2500 - 5100	0.5 - 16	+5 @ 45 mA	+2	85 - 340	15	16	8	-78	278LF
DCYS275550-5	2750 - 5550	0.5 - 22	+5 @ 43 mA	0	150 - 220	10	5	7	-77	278LF
DCYS300600-5	3000 - 6000	0.3 - 17	+5 @ 43 mA	-1	70 - 330	25	6	8	-77	278LF

# SAW Replacement Oscillators

## Features

- » Superb Phase Noise Performance
- » Highly Immune To Phase Hits

- » Faster Tuning
- » Compact Size: 0.5" x 0.5" & 0.75" x 0.75"
- » Rel-Pro® Patented Technology



Model #	Frequency (MHz)	Tuning Voltage (VDC)	DC Bias V @ I (Typ.)	Minimum Output Power (dBm)	Typical Tuning Sensitivity (MHz/V)	Typical Harmonic Suppression (dB)	Typical Frequency Pulling (MHz)	Typical Frequency Pushing (MHz/V)	Typical Phase Noise @ 10 kHz (dBc/Hz)	Pkg. #
DCSR100-5	100	0.5 - 5	+5 @ 14 mA	+6	0.2 - 0.3	22	0.05	0.05	-123	278LF
DCSR200-5	202.7 - 209	0.5 - 11	+5 @ 24 mA	+7	0.85 - 1	35	0.25	0.01	-132	278LF
DCSR250-12	250	0.5 - 12	+12 @ 35 mA	+7	1.5 - 2	32	0.25	0.05	-128	278LF
DCSR500-8	500	0.5 - 8	+8 @ 35 mA	+3	0.8 - 1.2	26	0.5	0.5	-132	278LF
DCSR570-8	570	0.5 - 8	+8 @ 36 mA	+3.5	2 - 2.25	27	0.5	0.5	-128	278LF
DCSR957-10	957	0.5 - 10	+10 @ 36 mA	+7	1.5 - 2	15	1	0.1	-126	278LF
DCSR1000-8	1000	0.5 - 8	+8 @ 32 mA	+4.5	3 - 4	15	1.2	0.5	-122	278LF
DCSO1000-12	1000	0.5 - 12	+12 @ 33 mA	+4	1.25 - 1.25	35	0.5	0.05	-126	249LF
DCSR1150-12	1150	0.5 - 11	+12 @ 29 mA	+3	2.7 - 4.2	23	2	1	-122	278LF
DCSO1200-12	1200	0.5 - 12	+12 @ 35 mA	+3	2 - 4	20	0.5	0.05	-125	249LF
DCSR1280-8	1280	0.5 - 8	+8 @ 26 mA	+6	1 - 1.5	23	2	1	-120	278LF
DCSO1300-12	1300	0 - 12	+12 @ 35 mA	+3	1.2 - 1.5	35	0.15	0.05	-122	249LF
DCSR1600-5	1600	0.5 - 5	+5 @ 26 mA	0	4 - 6	15	0.85	0.7	-117	278LF
DCSO-1750	1750	0.5 - 8	+8 @ 32 mA	-2	1.2 - 2	22	1.5	1	-118	249LF
DCSO1920-12	1920	0.5 - 10	+11 @ 35 mA	+9	0.8 - 1.8	27	1.5	1	-120	249LF
DCSO-2000-8	2000	0.5 - 8	+8 @ 35 mA	+2	1 - 2	20	1.5	1.5	-117	249LF
DCSR2176-6	2176	0.5 - 5	+6 @ 24 mA	+2	2.75 - 3.5	27	4	2.5	-115	278LF
DCSO2200-12	2200	0.5 - 12	+12 @ 27 mA	+2	1 - 3	20	1	1	-116	249LF
DCSO2294-10	2293.75	0.5 - 10	+10 @ 50 mA	+3.5	1.1 - 2.3	42	2	1	-112	249LF
DCSO2308-10	2307.8125	0.5 - 10	+10 @ 50 mA	+1.5	1 - 2	45	2	2	-114	249LF
DCSO2438-10	2437.5	0.5 - 10	+10 @ 50 mA	+2.5	0.7 - 1.4	35	2	1.5	-116	249LF

All surface mount oscillators are also available in connectorized packaging!

Add prefix "K" to the surface mount model when requesting quote and ordering connectorized models. Ex: KDCMO100235-5



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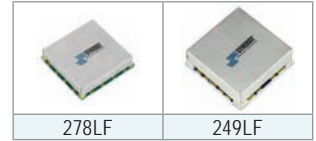


# SAW Replacement Oscillators

## Features

- » Superb Phase Noise Performance
- » Highly Immune To Phase Hits

- » Faster Tuning
- » Compact Size: 0.5" x 0.5" & 0.75" x 0.75"
- » Rel-Pro® Patented Technology



Model #	Frequency (MHz)	Tuning Voltage (VDC)	DC Bias V @ I (Typ.)	Minimum Output Power (dBm)	Typical Tuning Sensitivity (MHz/V)	Typical Harmonic Suppression (dB)	Typical Frequency Pulling (MHz)	Typical Frequency Pushing (MHz/V)	Typical Phase Noise @ 10 kHz (dBc/Hz)	Pkg. #
DCSO2452-10	2451.5625	0.5 - 10	+10 @ 50 mA	+2	1 - 2	20	1.5	1.5	-116	249LF
DCSR2488-8	2488.32	0.5 - 7	+8 @ 31 mA	+1.5	1.3 - 1.8	22	0.25	0.2	-117	278LF
DCSO2488-12	2488.32	1 - 7	+12 @ 36 mA	+4	1 - 1.5	28	0.25	0.2	-117	249LF
DCSO2666-12	2666.057	1 - 7	+12 @ 37 mA	+3.5	1.25 - 2.5	32	0.25	0.2	-116	249LF
DCSO2677-12	2677.306	1 - 7	+12 @ 37 mA	+3.5	1.2 - 2.2	32	0.25	0.2	-116	249LF
DCSO2688-12	2688.651	1 - 7	+12 @ 37 mA	+3.5	1.4 - 2.8	29	0.25	0.2	-114	249LF
DCSR2688-5	2688.651	0.5 - 8	+5 @ 35 mA	+4	1.3 - 2.6	27	1	0.2	-120	278LF
DCSR2688-12	2688.651	1 - 8	+12 @ 40 mA	+3.5	1.5 - 2.5	20	0.25	0.2	-117	278LF
DCSR3210-8	3210	0.5 - 6	+8 @ 35 mA	+3	6 - 12	12	2	2	-110	278LF
DCSR3710-8	3710	1 - 8	+8 @ 28 mA	+8	4 - 6	23	5	2	-108	278LF
DCSR4096-10	4096	0.5 - 10	+10 @ 35 mA	+5	4.3 - 5.6	25	5	2	-110	278LF
DCSR4210-8	4210	0.5 - 8	+8 @ 31 mA	+5	4 - 5	23	5	2	-109	278LF
DCSR4500-10	4500	0.5 - 10	+10 @ 35 mA	+6	4 - 6	17	5	2	-107	278LF
DCSR4710-8	4710	0.5 - 8	+8 @ 31 mA	+4	4 - 6	10	5	2	-106	278LF
DCSR5040-5	5040	0.5 - 5	+5 @ 22 mA	+2	8 - 20	2	8	8	-103	278LF
DCSR5100-8	5100	0.5 - 8	+8 @ 31 mA	+8	10 - 14	14	6	3	-104	278LF
DCSR6600-8	6600	0.5 - 8	+8 @ 23 mA	-1	5 - 6	20	7	4	-100	278LF

# Ultra Wideband Oscillators

## Features

- » Octave & Higher Than Octave Bandwidth
- » Exceptional Phase Noise Performance
- » Low Post Tuning Drift

- » Simplifies Design...Better Value
- » Power Efficient
- » Compact Size: 0.5" x 0.5" & 0.91" x 0.91"
- » Rel-Pro® Patented Technology



Model #	Frequency (MHz)	Tuning Voltage (VDC)	DC Bias V @ I (Typ.)	Minimum Output Power (dBm)	Typical Tuning Sensitivity (MHz/V)	Typical Harmonic Suppression (dB)	Typical Frequency Pulling (MHz)	Typical Frequency Pushing (MHz/V)	Typical Phase Noise @ 10 kHz (dBc/Hz)	Pkg. #
DCMO25-5	20 - 50	0.5 - 24	+5 @ 30 mA	+4	1 - 3	12	0.5	0.5	-114	278LF
DCMO514-5	50 - 140	0.5 - 24	+5 @ 29 mA	+3.5	3 - 6.5	10	3	1	-110	278LF
DCMO616-5	65 - 160	0.5 - 24	+5 @ 28 mA	+3	3.5 - 7	10	3	1	-108	278LF
DCMO1027	100 - 270	0.5 - 24	+5 - 12 @ 20 mA	+4	5.5 - 12	10	1	0.4	-112	278LF
DCMO1129	110 - 330	0.5 - 24	+5 - 12 @ 22 mA	+3	7 - 16	10	3	1	-112	278LF
DCMO1545	150 - 450	0.5 - 24	+5 - 12 @ 22 mA	+4	8 - 20	10	4	2	-108	278LF
DCMO1857	180 - 560	0.5 - 24	+5 - 12 @ 26 mA	+4.5	8 - 26	12	4	1	-108	278LF
DCMO2260-5	220 - 600	0.5 - 24	+5 @ 28 mA	+2	15 - 25	10	5	2	-108	278LF
DCMO2476	240 - 760	0.5 - 24	+5 - 12 @ 27 mA	+4	12 - 34	10	3	1	-108	278LF
DCMO2550-12	250 - 500	0.5 - 20	+12 @ 30 mA	+7	15 - 27	10	2	1	-112	278LF
DCMO3288-5	320 - 880	0.5 - 24	+5 @ 21 mA	+3	15 - 40	10	5	2	-109	278LF
DCMO3288-12	320 - 880	0.5 - 24	+12 @ 32 mA	+3	17 - 40	10	5	2	-105	278LF
DCFO35105-5	350 - 1050	0.5 - 25	+5 @ 53 mA	+6	27 - 54	25	4	2	-110	277
DCMO40110-5	400 - 1100	0.5 - 24	+5 @ 37 mA	+4	17 - 55	8	5	5	-103	278LF
DCMO40110-8	400 - 1100	0.5 - 24	+8 @ 39 mA	+5	17 - 55	10	5	5	-104	278LF
DCMO40110-12	400 - 1100	0.5 - 24	+12 @ 38 mA	+6	15 - 50	8	5	5	-105	278LF
DCMO50120-5	500 - 1200	0.5 - 24	+5 @ 37 mA	+7	25 - 50	15	4	4	-102	278LF

All surface mount oscillators are also available in connectorized packaging!

Add prefix "K" to the surface mount model when requesting quote and ordering connectorized models. Ex: KDCMO100235-5



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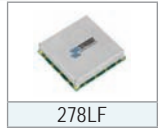
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# Ultra Wideband Oscillators

## Features

- » Octave & Higher Than Octave Bandwidth
- » Exceptional Phase Noise Performance
- » Low Post Tuning Drift

- » Simplifies Design...Better Value
- » Power Efficient
- » Compact Size: 0.5" x 0.5" & 0.91" x 0.91"
- » Rel-Pro® Patented Technology



278LF

Model #	Frequency (MHz)	Tuning Voltage (VDC)	DC Bias V @ I (Typ.)	Minimum Output Power (dBm)	Typical Tuning Sensitivity (MHz/V)	Typical Harmonic Suppression (dB)	Typical Frequency Pulling (MHz)	Typical Frequency Pushing (MHz/V)	Typical Phase Noise @ 10 kHz (dBc/Hz)	Pkg. #
DCMO50120-12	500 -1200	0.5 - 24	+12 @ 28 mA	+6	20 - 50	10	5	5	-103	278LF
DCMO60170-5	600 -1700	0.5 - 25	+5 @ 35 mA	+3	25 - 80	12	5	5	-100	278LF
DCMO60170-12	600 -1700	0.5 - 24	+12 @ 29 mA	+3	30 - 85	10	5	5	-102	278LF
DCMO80210-5	800 -2100	0.5 - 24	+5 @ 28 mA	+5	35 - 95	10	5	4	-96	278LF
DCMO80210-10	800 -2100	0.5 - 24	+10 @ 25 mA	+6	45 - 95	15	5	4	-100	278LF
DCMO90220-5	900 -2200	0.5 - 24	+5 @ 28 mA	+4	24 - 82	15	5	5	-98	278LF
DCMO90220-12	900 -2200	0.5 - 24	+12 @ 29 mA	+4	30 - 90	10	15	8	-99	278LF
DCMO92200-12	925 -2000	0.5 - 18	+12 @ 35 mA	+5	50 - 100	15	4	4	-101	278LF
DCMO100230-5	1000 -2300	0.5 - 24	+5 @ 35 mA	+3	50 - 100	10	3	2	-98	278LF
DCMO100230-12	1000 -2300	0.5 - 24	+12 @ 33 mA	+3	50 - 100	10	3	2	-101	278LF
DCMO110250-5	1100 -2500	0.5 - 28	+5 @ 25 mA	+6	30 - 90	18	5	5	-100	278LF
DCMO110250-8	1100 -2500	0.5 - 28	+8 @ 30 mA	+4	30 - 90	15	5	5	-102	278LF
DCMO130275-5	1300 -2750	0.5 - 24	+5 @ 20 mA	+3	20 - 150	10	4	4	-93	278LF
DCMO135270-8	1350 -2700	0.5 - 20	+8 @ 36 mA	+4	45 - 150	15	8	5	-93	278LF
DCMO150318-10	1500 -3100	0.5 - 22	+10 @ 32 mA	+7	45 - 120	10	12	5	-96	278LF
DCMO150318-5	1500 -3200	0.5 - 20	+5 @ 24 mA	+7	40 - 160	10	10	5	-93	278LF
DCMO150320-5	1500 -3200	0.5 - 18	+5 @ 33 mA	0	100 - 225	12	12	2	-92	278LF
DCMO170340-3	1700 -3400	0.5 - 20	+3.5 @ 18 mA	0	30 - 180	15	12	8	-85	278LF
DCMO170345-5	1700 -3450	0.5 - 16	+5 @ 43 mA	+4	120 - 200	15	14	12	-88	278LF
DCMO172332-5	1720 -3320	0.5 - 24	+5 @ 22 mA	+5	20 - 150	18	5	5	-94	278LF
DCMO190410-5	1900 -4100	0.5 - 18	+5 @ 45 mA	+2	60 - 250	15	4	4	-90	278LF
DCMO200420-5	2000 -4200	0.5 - 17	+5 @ 50 mA	+3	60 - 260	10	10	5	-89	278LF
DCMO250512-5	2500 -5125	0.5 - 14	+5 @ 51 mA	-3	130 - 375	15	14	7	-76	278LF

# Optimized Band Oscillators ( 0.5" x 0.5" )

## Features

- » Less Than Octave Bandwidth
- » High Immunity To Phase Hits

- » Superb Phase Noise
- » Low Post Tuning Drift
- » Small Size Surface Mount
- » Rel-Pro® Patented Technology



278LF

Model #	Frequency (MHz)	Tuning Voltage (VDC)	DC Bias V @ I (Typ.)	Minimum Output Power (dBm)	Typical Tuning Sensitivity (MHz/V)	Typical Harmonic Suppression (dB)	Typical Frequency Pulling (MHz)	Typical Frequency Pushing (MHz/V)	Typical Phase Noise @ 10 kHz (dBc/Hz)	Package
MFC1223-12	120 - 230	0.5 - 24	+12 @ 22 mA	+2	2 - 12	10	3	2	-115	278LF
DCRO1317-5	136 - 174	0.5 - 4.5	+5 @ 22 mA	+8.5	3 - 17	15	0.8	0.5	-121	278LF
MFC1926-12	190 - 260	0.5 - 12	+12 @ 15 mA	+2	6 - 14	15	0.8	0.5	-112	278LF
MFC1921-5	195 - 210	0.5 - 10	+5 @ 14 mA	+3	2 - 3	20	1	0.5	-120	278LF
DCRO2024-5	200 - 240	0.5 - 5	+5 @ 28 mA	+6	4 - 17	17	0.8	0.6	-121	278LF
MFC2931-5	290 - 310	0.5 - 10	+5 @ 15 mA	+4	3 - 5	25	5	2	-121	278LF
MFC2941-12	290 - 410	0.5 - 24	+12 @ 18 mA	+1	3 - 7	12	2	2	-110	278LF
DCRO3845-5	380 - 445	0.3 - 4.7	+5 @ 27 mA	-6	15 - 21	14	0.05	0.1	-120	278LF
DCRO3946-5	390 - 460	0.3 - 5	+5 @ 25 mA	-5	14 - 22	12	0.05	0.1	-118	278LF
MFC4151-12	410 - 510	0.5 - 15	+12 @ 17 mA	+2	5 - 12	15	2	2	-112	278LF
MFC4248-8	425 - 480	0.5 - 12	+8 @ 16 mA	+5	6 - 8	18	5	5	-115	278LF

All surface mount oscillators are also available in connectorized packaging!

Add prefix "K" to the surface mount model when requesting quote and ordering connectorized models. Ex: **KDCMO100235-5**



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Specifications are subject to change without notice.

# Optimized Band Oscillators ( 0.5" x 0.5" )

## Features

- » Less Than Octave Bandwidth
- » High Immunity To Phase Hits

- » Superb Phase Noise
- » Low Post Tuning Drift
- » Small Size Surface Mount
- » Rel-Pro® Patented Technology



Model #	Frequency (MHz)	Tuning Voltage (VDC)	DC Bias V @ I ( Typ. )	Minimum Output Power (dBm)	Typical Tuning Sensitivity (MHz/V)	Typical Harmonic Suppression (dB)	Typical Frequency Pulling (MHz)	Typical Frequency Pushing (MHz/V)	Typical Phase Noise @ 10 kHz (dBc/Hz)	Package
DCRO4450-5	445 - 510	0.3 - 4.7	+5 @ 26 mA	-6	16 - 21	15	0.05	0.1	-118	278LF
DCRO4552-5	450 - 520	0.3 - 4.7	+5 @ 26 mA	-6	14 - 22	20	0.05	0.1	-118	278LF
DCRO5383-5	534 - 830	0.5 - 20	+5 @ 22 mA	0	9 - 28	18	2	1	-112	278LF
MFC5360-5	535 - 600	0.5 - 5	+5 @ 13 mA	+3.5	17 - 24	18	3	2	-108	278LF
DCRO5368-5	535 - 680	0.5 - 20	+5 @ 26 mA	+4	6 - 11	18	0.5	0.6	-120	278LF
MFC6170-5	610 - 700	0.5 - 5	+5 @ 13 mA	+4	17 - 30	15	1	0.5	-113	278LF
DCRO6569-5	650 - 690	0.5 - 20	+5 @ 22 mA	+8	2 - 4	11	0.5	0.25	-124	278LF
DCRO6883-5	682 - 830	0.5 - 20	+5 @ 26 mA	+3	7 - 11	20	0.6	0.6	-120	278LF
MFC7995-5	790 - 950	0.5 - 15	+5 @ 20 mA	+4	15 - 22	15	3	1	-110	278LF
DCRO80100-12	800 - 1000	0.5 - 24	+12 @ 27 mA	+8	4 - 14	10	3	0.2	-119	278LF
MFC8192-5	810 - 920	0.5 - 5	+5 @ 20 mA	+3	28 - 40	15	5	2	-106	278LF
DCRO8589-5	820 - 900	0.5 - 5	+5 @ 26 mA	+3.5	20 - 35	12	3	1	-111	278LF
MFC91119-10	910 - 1190	0.5 - 20	+10 @ 24 mA	+2	13 - 26	13	4	3	-114	278LF
DCRO92103-5	920 - 1030	0.5 - 10	+5 @ 15 mA	+2	10 - 25	20	4	3	-112	278LF
MFC96103-5	960 - 1030	0.5 - 8	+5 @ 25 mA	+3	8 - 28	25	4	3	-112	278LF
MFC102110-5	1020 - 1100	0.5 - 5	+5 @ 27 mA	+3	24 - 26	25	4	5	-106	278LF
MFC114133-5	1140 - 1330	0.5 - 10	+5 @ 13 mA	+3	20 - 30	20	3	1	-105	278LF
DCRO119123-5	1195 - 1235	0.5 - 12	+5 @ 22 mA	+5	5 - 7	27	2	0.4	-118	278LF
DCRO123127-10	1230 - 1270	0.5 - 8	+10 @ 16 mA	+1	9 - 12	10	5	2	-116	278LF
DCRO125175-8	1250 - 1750	0.5 - 20	+8 @ 28 mA	+5	20 - 38	25	5	1	-110	278LF
DCRO127175-5	1270 - 1750	0.5 - 18	+5 @ 28 mA	+4	20 - 40	12	5	5	-107	278LF
DCRO128132-8	1280 - 1320	0.5 - 10	+8 @ 16 mA	+2	6 - 8	32	5	2	-115	278LF
DCRO128177-9	1280 - 1775	0.5 - 24	+9 @ 20 mA	+3	12 - 42	17	7	5	-106	278LF
DCRO128177-12	1280 - 1775	0.5 - 24	+12 @ 33 mA	+3	12 - 38	15	7	5	-112	278LF
DCRO133166-9	1330 - 1660	0.5 - 13	+9 @ 22 mA	+3	13 - 43	17	7	5	-106	278LF
DCRO136138-10	1360 - 1380	0.5 - 4.5	+10 @ 30 mA	+1	8 - 12	10	5	2	-116	278LF
MFC138165-5	1380 - 1650	0.5 - 24	+5 @ 15 mA	+3	7 - 20	10	5	2	-102	278LF
DCRO143177-8	1400 - 1800	0.5 - 14	+8 @ 26 mA	+2	25 - 52	20	4	4	-105	278LF
DCRO150165-8	1450 - 1650	0.5 - 10	+8 @ 22 mA	+2	20 - 44	20	5	5	-109	278LF
DCRO150154-8	1500 - 1540	0.5 - 12	+8 @ 32 mA	+5	3 - 7	21	5	2	-118	278LF
DCRO150210-10	1500 - 2100	0.5 - 24	+10 @ 22 mA	+2	20 - 50	15	3	0.4	-105	278LF
DCRO150200-5	1505 - 2000	0.5 - 18	+5 @ 25 mA	+3	25 - 45	15	6	6	-104	278LF
DCRO153185-10	1530 - 1850	0.5 - 15	+10 @ 29 mA	+5	23 - 45	18	5	1	-107	278LF
DCRO159161-12	1575 - 1610	0.5 - 12	+12 @ 33 mA	+2	5 - 7	27	1	1	-117	278LF
DCRO158160-8	1580 - 1600	1 - 7.5	+8 @ 32 mA	+2	5 - 6	17	3	2	-118	278LF
DCRO160200-10	1600 - 2000	0.5 - 15	+10 @ 29 mA	+6	30 - 45	15	5	1	-105	278LF
DCRO160260-5	1600 - 2600	0.5 - 15	+5 @ 23 mA	+3	60 - 130	15	3	1	-95	278LF
DCRO166169-5	1669 - 1693	0.5 - 5	+5 @ 33 mA	+2	8 - 12	25	0.2	0.1	-118	278LF
DCRO168172-8	1680 - 1720	0.5 - 10	+8 @ 32 mA	+1	8 - 8	32	3	2	-116	278LF
MFC170195-5	1700 - 1950	0.5 - 10	+5 @ 26 mA	+2	25 - 37	30	3	1	-109	278LF
DCRO170230-10	1700 - 2300	0.5 - 24	+10 @ 26 mA	+1	12 - 42	10	4	4	-107	278LF
DCRO172174-12	1710 - 1740	0.5 - 12	+12 @ 28 mA	+3	4.5 - 5.5	30	3	1	-118	278LF
DCRO175290-5	1750 - 2900	0.5 - 20	+5 @ 19 mA	+4	22 - 115	20	5	4	-95	278LF
MFC176185-5	1765 - 1850	0.5 - 5	+5 @ 26 mA	+3	28 - 32	30	5	4	-110	278LF
DCRO178205-10	1785 - 2050	0.5 - 12	+10 @ 30 mA	+4	25 - 40	20	4	4	-109	278LF

All surface mount oscillators are also available in connectorized packaging!

Add prefix "K" to the surface mount model when requesting quote and ordering connectorized models. Ex: **KDCMO100235-5**



For the latest specification sheet updates, package outline drawings and new products, please visit our website.



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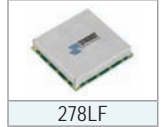
Specifications are subject to change without notice.

# Optimized Band Oscillators ( 0.5" x 0.5" )

## Features

- » Less Than Octave Bandwidth
- » High Immunity To Phase Hits

- » Superb Phase Noise
- » Low Post Tuning Drift
- » Small Size Surface Mount
- » Rel-Pro® Patented Technology



278LF

Model #	Frequency (MHz)	Tuning Voltage (VDC)	DC Bias V @ I (Typ.)	Minimum Output Power (dBm)	Typical Tuning Sensitivity (MHz/V)	Typical Harmonic Suppression (dB)	Typical Frequency Pulling (MHz)	Typical Frequency Pushing (MHz/V)	Typical Phase Noise @ 10 kHz (dBc/Hz)	Package
DCRO191235-10	1910 - 2350	0.5 - 15	+10 @ 29 mA	+2	25 - 45	23	5	1	-103	278LF
DCRO196265-10	1960 - 2650	0.5 - 24	+10 @ 29 mA	+3	17 - 50	23	5	1	-106	278LF
DCRO196225-5	1965 - 2250	0.5 - 24	+5 @ 17 mA	+2	10 - 25	20	3	1	-107	278LF
DCRO200210-10	2000 - 2300	0.5 - 12	+10 @ 33 mA	+1	35 - 42	12	5	2	-108	278LF
DCRO204235-8	2040 - 2350	0.5 - 24	+8 @ 21 mA	+3	12 - 25	10	2	2	-109	278LF
DCRO205215A-10	2050 - 2150	0.5 - 10	+10 @ 50 mA	+5	20 - 30	25	5	3	-109	278LF
DCRO205242-10	2050 - 2420	0.5 - 15	+10 @ 33 mA	+1	30 - 45	20	4	4	-108	278LF
DCRO206209-8	2065 - 2095	0.5 - 8	+8 @ 24 mA	+1	15 - 30	25	2	2	-115	278LF
DCRO211217-5	2110 - 2170	0.5 - 4.5	+5 @ 21 mA	-1.5	30 - 40	30	3	0.5	-108	278LF
DCRO215265-10	2150 - 2650	0.5 - 15	+10 @ 27 mA	+3	32 - 64	18	3	3	-104	278LF
DCRO219250-8	2190 - 2500	0.5 - 24	+8 @ 21 mA	+2	10 - 25	18	2	2	-106	278LF
DCRO220240-8	2200 - 2400	0.5 - 12	+8 @ 28 mA	+4	20 - 26	12	5	1.5	-106	278LF
DCRO230253-10	2300 - 2530	0.5 - 12	+10 @ 33 mA	+5	25 - 35	15	8	5	-104	278LF
DCRO250360-5	2300 - 3600	0.5 - 11	+5 @ 50 mA	0	135 - 230	14	4	4	-92	278LF
DCRO243298-5	2430 - 2980	0.5 - 15	+5 @ 22 mA	+3	25 - 62	10	5	10	-103	278LF
DCRO250300-8	2500 - 3000	0.5 - 12	+8 @ 31 mA	+3.5	38 - 58	28	5	1.5	-102	278LF
DCRO250300-10	2500 - 3000	0.5 - 24	+10 @ 29 mA	+3	10 - 37	20	5	5	-107	278LF
DCRO267269-5	2670 - 2690	0.5 - 4.5	+5 @ 35 mA	+3	15 - 25	20	3	0.7	-105	278LF
DCRO270420-8	2700 - 4200	0.5 - 20	+8 @ 38 mA	0	80 - 130	15	4	4	-90	278LF
DCRO273290-10	2730 - 2900	0.5 - 15	+10 @ 26 mA	+4	15 - 23	30	1.5	1.5	-108	278LF
DCRO275285-5	2750 - 2850	0.5 - 4.5	+5 @ 35 mA	+4	24 - 52	15	1	1	-110	278LF
DCRO275327-10	2750 - 3270	0.5 - 26	+10 @ 32 mA	+4	14 - 38	20	5	5	-104	278LF
DCRO270420-5	2800 - 4200	0.5 - 20	+5 @ 20 mA	-3	75 - 110	15	5	5	-85	278LF
DCRO285345-5	2850 - 3450	0.5 - 24	+5 @ 17 mA	+5	16 - 45	15	5	7	-98	278LF
DCRO300330-5	3000 - 3270	1 - 10	+5 @ 22 mA	+3	30 - 80	15	10	10	-100	278LF
DCRO307331-10	3075 - 3310	0.5 - 20	+10 @ 34 mA	+3	15 - 27	20	12	2	-100	278LF
DCRO310430-5	3100 - 4300	0.5 - 10	+5 @ 44 mA	+2	100 - 300	20	12	7	-80	278LF
DCRO330500-5	3300 - 5000	0.5 - 20	+5 @ 44 mA	0	60 - 130	17	14	2	-87	278LF
DCRO335395-10	3350 - 3950	0.5 - 24	+10 @ 34 mA	+3	14 - 42	28	8	3	-101	278LF
DCRO354374-10	3540 - 3740	0.5 - 15	+10 @ 27 mA	+3	18 - 28	22	8	5	-102	278LF
DCRO360382-8	3600 - 3820	0.5 - 24	+8 @ 27 mA	+2	10 - 25	20	8	3	-102	278LF
DCRO360440-8	3600 - 4400	0.5 - 14	+8 @ 47 mA	+2	90 - 125	22	4	4	-87	278LF
DCRO390670-5	3900 - 6700	0.5 - 20	+5 @ 47 mA	-3	60 - 265	18	20	10	-80	278LF
DCRO403432-8	4030 - 4350	0.5 - 16	+8 @ 38 mA	+3	10 - 35	15	1	5	-103	278LF
DCRO425514-10	4255 - 5145	0.5 - 24	+10 @ 33 mA	+1	18 - 62	20	5	3	-94	278LF
DCRO440520-5	4400 - 5200	0.5 - 24	+5 @ 36 mA	-2	25 - 60	25	5	5	-90	278LF
DCRO446461-5	4460 - 4610	0.5 - 5	+5 @ 29 mA	0	45 - 65	10	8	8	-91	278LF
DCRO485560-5	4850 - 5625	0.5 - 18	+5 @ 34 mA	+2	47 - 62	22	3	1	-88	278LF
DCRO490575-5	4900 - 5750	0.5 - 24	+5 @ 42 mA	+2	25 - 60	15	5	5	-88	278LF
DCRO495545-8	4950 - 5450	0 - 15	+8 @ 40 mA	+5	15 - 60	20	3	2	-88	278LF
DCRO500620-5	5000 - 6200	0.5 - 20	+5 @ 34 mA	0	50 - 95	25	20	10	-86	278LF
DCRO500630-5	5000 - 6300	0.5 - 18	+5 @ 45 mA	-2	50 - 175	10	15	15	-77	278LF
DCRO550600-8	5500 - 6000	0.5 - 10	+8 @ 44 mA	+2	50 - 100	30	20	10	-80	278LF
DCRO640675-8	6400 - 6750	0.5 - 11	+8 @ 22 mA	0	42 - 52	20	20	10	-85	278LF

All surface mount oscillators are also available in connectorized packaging!

Add prefix "K" to the surface mount model when requesting quote and ordering connectorized models. Ex: KDCMO100235-5



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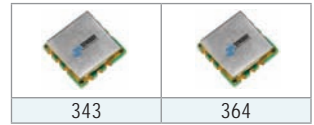


# Miniature Footprint Oscillators ( 0.3" x 0.3" )

## Features

- » Smaller Size
- » Exceptional Phase Noise

- » Excellent Tuning Linearity
- » Optimized Bandwidth



Model #	Frequency (MHz)	Tuning Voltage (VDC)	DC Bias V @ I (Typ.)	Minimum Output Power (dBm)	Typical Tuning Sensitivity (MHz/V)	Typical Harmonic Suppression (dB)	Typical Frequency Pulling (MHz)	Typical Frequency Pushing (MHz/V)	Typical Phase Noise @ 10 kHz (dBc/Hz)	Package
DCO50100-5	500 - 1000	0.5 - 15	+5 @ 28 mA	+4	28 - 58	10	8	4	-100	343
DCO6080-3	600 - 800	0 - 3	+3 @ 12 mA	-1	60 - 120	13	3.5	10	-105	343
DCO7075-3	700 - 750	0.5 - 3	+3 @ 10 mA	-3	30 - 42	16	2	2	-108	343
DCO80100-5	800 - 1000	0.5 - 8	+5 @ 21 mA	+4	25 - 55	17	8	3	-111	343
DCO8190-5	810 - 900	0.5 - 16	+5 @ 28 mA	+4.5	5.5 - 9.5	20	2	1.5	-118	343
DCO100200-5	1000 - 2000	0.5 - 24	+5 @ 30 mA	+1	30 - 70	12	5	5	-95	343
DCO1198-8	1195 - 1205	0.5 - 8	+8 @ 24 mA	+10	5 - 7	12	2	1	-115	343
DCO170340-5	1700 - 3400	0.5 - 24	+5 @ 24 mA	+3.5	40 - 160	18	15	8	-90	343
DCO200400-5	2000 - 4000	0.5 - 18	+5 @ 38 mA	-2	120 - 270	12	15	8	-90	343
DCO400800-5	4000 - 8000	0.3 - 15	+5 @ 20 mA	-3	120 - 620	12	30	10	-78	343
DCO432493-3	4325 - 4950	0.5 - 11	+3 @ 18 mA	-2	40 - 130	18	10	8	-87	343
DCO432493-5	4325 - 5000	0.5 - 12	+5 @ 17 mA	0	40 - 118	25	10	8	-88	343
DCO450820-5	4500 - 8200	0.5 - 15	+5 @ 18 mA	0	135 - 620	14	25	25	-77	343
DCO473542-5	4730 - 5420	0.5 - 22	+5 @ 20 mA	0	25 - 50	20	8	5	-88	343
DCO490517-5	4900 - 5175	0.5 - 5	+5 @ 17 mA	-1	73 - 125	25	10	10	-88	343
DCO495550-5	4950 - 5500	0.5 - 12	+5 @ 17 mA	-1	80 - 120	25	10	10	-83	343
DCO579582-5	5725 - 5880	0.5 - 10	+5 @ 16 mA	+1	29 - 38	30	12	12	-90	343
DCO608634-3	6080 - 6340	0.5 - 5	+3 @ 22 mA	-6	95 - 105	25	30	30	-86	343
DCO608634-5	6080 - 6340	0.5 - 5	+5 @ 16 mA	-3	90 - 95	25	12	12	-85	343
DCO615712-5	6150 - 7120	0.5 - 12	+5 @ 18 mA	-4	55 - 170	25	12	12	-85	343
DXO810900-5	8100 - 8925	0.5 - 15	+5 @ 26 mA	-1	50 - 100	20	25	10	-82	364
DXO880920-5	8800 - 9200	0.5 - 15	+5 @ 22 mA	0	30 - 110	18	25	12	-80	364
DXO900965-5	9000 - 9650	0.5 - 12	+5 @ 22 mA	-3	70 - 200	16	15	10	-80	364
DXO10701095-5	10700 - 10950	0.5 - 15	+5 @ 21 mA	+2	40 - 68	22	20	10	-82	364
DXO11441200-5	11440 - 12000	0.5 - 15	+5 @ 24 mA	+2	42 - 72	28	25	12	-82	364
DXO11751220-5	11750 - 12200	0.5 - 15	+5 @ 24 mA	+4	52 - 64	28	25	12	-80	364
DXO13901400-5	13900 - 14000	0.5 - 8	+5 @ 18 mA	0	60 - 90	42	40	18	-77	364
DXO14851515-5	14850 - 15150	0.5 - 15	+5 @ 25 mA	+2	36 - 72	25	80	25	-74	364

All surface mount oscillators are also available in connectorized packaging!

Add prefix "K" to the surface mount model when requesting quote and ordering connectorized models. Ex: **KDCMO100235-5**



# Oven Controlled Crystal Oscillators

## Features

- » Exceptionally Low Phase Noise
- » Fast Warm-up Time
- » Low Power Consumption

- » Tight Frequency Stability
- » Excellent Long-Term Stability
- » Frequency Tuning Input
- » Reference Voltage Output



Model #	Frequency (MHz)	Tuning Voltage (VDC)	DC Bias V @ I (Typ.)	Minimum Output Power (dBm)	Typical Tuning Sensitivity (MHz/V)	Typical Harmonic Suppression (dB)	Typical Frequency Pulling (MHz)	Typical Frequency Pushing (MHz/V)	Typical Phase Noise @ 10 kHz (dBc/Hz)	Package
OXO10-1-348	10	5	+12 @ 200 mA	+5.5	+/-1.0	<5x10 <sup>-9</sup>	-130	-150	-160	348
OXO10-1-349	10	5	+12 @ 200 mA	+3	+/-1.0	<7x10 <sup>-9</sup>	-130	-150	-155	349
OXO100-1-349	100	10	+12 @ 150 mA	+7	+/-1.5	<5x10 <sup>-8</sup>	-100	-130	-153	349
OXO120-1-349	120	10	+12 @ 150 mA	+7	+/-2.0	<2x10 <sup>-7</sup>	-90	-125	-150	349

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Specifications are subject to change without notice.

## Synthesizers ( Compact Size )

### Features

- » Exceptional Phase Noise
- » Interactive Communication
- » Standard Programming Interface

- » Wide Bandwidth
- » Lead Free - RoHS Compliant
- » Rel-Pro® Patented Technology



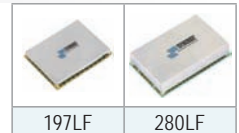
Model #	Frequency (MHz)	Step Size (kHz)	Minimum Output Power (dBm)	Typical Phase Noise (dBc/Hz)		Package
				@10 kHz	@100 kHz	
FSW511-50	50 - 115	500	+6	-112	-127	273LF
FSW1125-10	110 - 250	100	+5	-104	-132	273LF
FSW1125-50	110 - 250	500	+5	-105	-130	273LF
FSW1545-50	150 - 450	500	0	-102	-120	273LF
FSW1857-100	180 - 570	1000	+3	-98	-120	273LF
FSW2476-10	240 - 760	100	0	-98	-124	273LF
FSW2476-50	240 - 760	500	0	-93	-120	273LF
FSW40110-50	400 - 1100	500	0	-95	-122	273LF
FSW50120-50	500 - 1200	500	0	-94	-118	273LF
FSW60135-50	600 - 1350	500	+1	-92	-118	273LF
FSW60170-50	600 - 1700	500	0	-90	-117	273LF
FSW80150-10	800 - 1500	100	+5	-92	-118	273LF
FSW80210-50	800 - 2100	500	+5	-90	-113	273LF
FSW85150-50	850 - 1500	500	+4	-93	-120	273LF
FSH9496-20	940 - 970	200	+5	-109	-134	273LF
FSW100230-50	1000 - 2300	500	+4	-92	-115	273LF
FSH127171-50	1270 - 1710	500	+1	-96	-126	273LF
FSW150320-10	1500 - 3200	100	+3	-79	-108	273LF
FSW150320-50	1500 - 3200	500	+1	-86	-112	273LF
FSW170280-50	1700 - 2800	500	+4	-86	-112	273LF
FSW190410-50	1900 - 4100	500	-2	-82	-109	273LF
FSW190410-100	1900 - 4100	1000	0	-85	-110	273LF
FSW200400-100	2000 - 4000	1000	0	-85	-110	273LF
FSW216265-50	2160 - 2650	500	+2	-92	-122	273LF
FSH250300-100	2500 - 3000	1000	+3	-94	-122	197LF
FSH250300-1M	2500 - 3000	10000	+8	-98	-122	197LF
FSW300600-100	3000 - 6000	1000	-3	-78	-100	273LF
FSH310410-1M	3100 - 4100	10000	+5	-92	-98	273LF

## Synthesizers ( Single Supply )

### Features

- » Exceptional Phase Noise
- » Interactive Communication
- » Standard Programming Interface

- » Wide Bandwidth
- » Small Size Surface Mount
- » Buffered Output
- » Rel-Pro® Patented Technology



Model #	Frequency (MHz)	Step Size (kHz)	Minimum Output Power (dBm)	Typical Phase Noise (dBc/Hz)		Package
				@10 kHz	@100 kHz	
LFSW514-50	50 - 140	500	+7	-115	-127	197LF
LFSW1545-50	150 - 450	500	+7	-98	-120	197LF
LFSW2476-10	240 - 760	100	+5	-100	-124	197LF
LFSW35105-20	350 - 1050	200	+6	-98	-120	280LF
LFSW35105-50	350 - 1050	500	+10	-108	-130	280LF
LFSW35105-100	350 - 1050	1000	+10	-102	-132	280LF
LFSH4055-10	408 - 552	100	+6	-99	-108	197LF
LFSW50120-50	500 - 1200	500	+7	-97	-118	197LF
LFSW60170-10	600 - 1700	100	+5	-92	-117	197LF
LFSW60170-50	600 - 1700	500	+5	-92	-118	197LF

All surface mount synthesizers are also available in connectorized packaging!

Add prefix "K" to the surface mount model when requesting quote and ordering connectorized models. Ex: **KFSW511-50**



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## Synthesizers ( Single Supply )

### Features

- » Exceptional Phase Noise
- » Interactive Communication
- » Standard Programming Interface
- » Wide Bandwidth
- » Small Size Surface Mount
- » Buffered Output
- » Rel-Pro® Patented Technology



Model #	Frequency (MHz)	Step Size (kHz)	Minimum Output Power (dBm)	Typical Phase Noise (dBc/Hz)		Package
				@10 kHz	@100 kHz	
LFSW80210-50	800 - 2100	500	+4	-92	-113	197LF
LFSW80210-100	800 - 2100	1000	+3	-95	-112	197LF
LFSW100230-50	1000 - 2300	500	+5	-92	-113	197LF
LFSW110250-50	1100 - 2500	500	+5	-92	-115	197LF
LFSW110250-100	1100 - 2500	1000	+5	-92	-115	197LF
LFSW120205-100	1200 - 2050	1000	+3	-96	-106	197LF
LFSW150320-25	1500 - 3200	250	+7	-86	-112	197LF
LFSW150320-50	1500 - 3200	500	+10	-85	-110	197LF
LFSW168236-100	1680 - 2360	1000	+5	-102	-117	197LF
LFSW170225-1M	1700 - 2250	10000	+5	-102	-123	197LF
LFSW190410-12	1900 - 4100	125	+7	-80	-105	197LF
LFSW190410-50	1900 - 4100	500	+7	-82	-107	197LF
LFSW190410-100	1900 - 4100	1000	+7	-85	-110	197LF
LFSH196225-50	1960 - 2250	500	+3	-96	-127	197LF
LFSW200400-100	2000 - 4000	1000	+7	-82	-107	197LF
LFSW290342-100	2900 - 3420	1000	+7	-87	-107	197LF
LFSW300600-20	3000 - 6000	200	+5	-73	-98	197LF
LFSW300600-100	3000 - 6000	1000	+3	-78	-95	197LF
LFSW397697-100	3970 - 6970	1000	+4	-80	-100	197LF
LFSW400460-1M	4000 - 4600	10000	+5	-95	-100	197LF
LFSW300600-100	3000 - 6000	1000	+3	-78	-95	197LF
LFSW397697-100	3970 - 6970	1000	+4	-80	-100	197LF
LFSW400460-1M	4000 - 4600	10000	+5	-95	-100	197LF

## Synthesizers ( Fixed Frequency )

### Features

- » Exceptional Phase Noise
- » Small Size Surface Mount
- » Rel-Pro® Patented Technology
- » No Programming Required



Model #	Frequency (MHz)	Reference Input Frequency (MHz)	Minimum Output Power (dBm)	Typical Phase Noise (dBc/Hz)		Package
				@10 kHz	@100 kHz	
FCPL680F	680	10	0	-98	-118	273LF
FCPL840-10	840	10	+3	-101	-120	273LF
FCPL982-10	982	10	0	-100	-120	273LF
FCPH1000P-10	1000	10	+3	-118	-145	273LF
FCPH1280-10	1280	10	0	-117	-140	273LF
FCPH1950-13	1950	13	+1	-110	-130	273LF
FCPH1987.5	1985.5	10	0	-95	-115	273LF
FCPH2062.5	2062.5	10	0	-95	-115	273LF
FCPH3210-10	3210	10	+3	-105	-129	197LF
FCPH3710-10	3710	10	+2.5	-102	-129	197LF
FCPH4210-10	4210	10	0	-105	-128	197LF

All surface mount synthesizers are also available in connectorized packaging!

Add prefix "K" to the surface mount model when requesting quote and ordering connectorized models. Ex: KFSW511-50



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## Synthesizers ( Selectable Frequency )

### Features

- » Exceptional Phase Noise
- » Small Size Surface Mount

- » Lead Free - RoHS Compliant
- » Rel-Pro® Patented Technology
- » Up To 16 selectable frequencies (see frequency table in spec. sheet)



Model #	Frequency (MHz)	Reference Input Frequency (MHz)	Minimum Output Power (dBm)	Typical Phase Noise (dBc/Hz)		Package
				@10 kHz	@100 kHz	
FCPL511-10	50 - 110	10	+6	-116	-125	273LF
FCPL-70	65 - 72	10	+1	-112	-131	273LF
FCPL610-10	65 - 102.5	10	-3	-110	-125	273LF
FCPL1215-25	110 - 150	25	+6	-100	-125	273LF
FCPL1114-5	112.5 - 140	10	+7	-117	-132	273LF
FCPL3239-10	320 - 390	10	+1	-108	-120	273LF
FCPL3644-26	360 - 440	26	+4	-100	-120	273LF
FCPL5460-10	540 - 605	10	+5	-108	-116	197LF
FCPL65120-10	650 - 1200	10	+6	-98	-113	273LF
FCPH90110-15	900 - 1100	15	+7	-93	-113	273LF
FCPH100120-15	1000 - 1200	15	+7	-93	-113	273LF
FCPH100125-10	1000 - 1250	10	+5	-100	-112	273LF
LFCPH100145-10	1000 - 1450	10	+7	-98	-114	197LF
FCPH110175-10	1100 - 1750	10	+5	-101	-112	273LF
LFCPH181254-10	1800 - 2540	10	+5	-90	-110	197LF
FCPH183187-10	1830 - 1870	10	-2	-98	-112	273LF
FCPH225375-10	2250 - 3750	10	+6	-96	-107	197LF
FCPH243250-100	2430 - 2505	100	-1	-97	-116	273LF
FCPH243290-10	2430 - 2900	10	+7	-90	-110	273LF
FCPH310410-10	3100 - 4100	10	+5	-92	-98	273LF

All surface mount synthesizers are also available in connectorized packaging!

Add prefix "K" to the surface mount model when requesting quote and ordering connectorized models. Ex: **KFSW511-50**

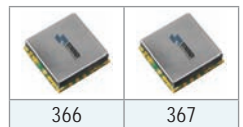


## Synthesizers ( Miniature Footprint - 0.6" x 0.6" )

### Features

- » Exceptional Phase Noise
- » Interactive Communication
- » Standard Programming Interface

- » Power Supply Options
- » Wide Bandwidth
- » Small Size Surface Mount
- » Lead Free - RoHS Compliant
- » Rel-Pro® Patented Technology



Model #	Frequency (MHz)	Step Size (kHz)	Minimum Output Power (dBm)	Typical Phase Noise (dBc/Hz)		Package
				@10 kHz	@100 kHz	
MFSH170340-50	1700 - 3400	500	0	-85	-108	367
MFSH200400-50	2000 - 4000	500	+4	-82	-108	367
MFSH400800-100	4000 - 8000	1000	-3	-80	-100	367
MFSH432493-100	4320 - 4930	1000	+4	-85	-102	367
MFSH480540-100	4800 - 5400	1000	+2	-83	-103	367
MFSH490517-100	4900 - 5170	1000	+4	-83	-104	366
MFSH495550-100	4950 - 5500	1000	+4	-82	-103	367
MFSH615712-100	6150 - 7120	1000	+2	-80	-100	366

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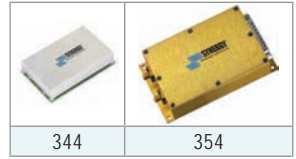
Specifications are subject to change without notice.

# Synthesizers ( High Resolution )

## Features

- » Exceptional Phase Noise
- » Small Size Surface Mount

- » Lead Free - RoHS Compliant
- » Rel-Pro® Patented Technology

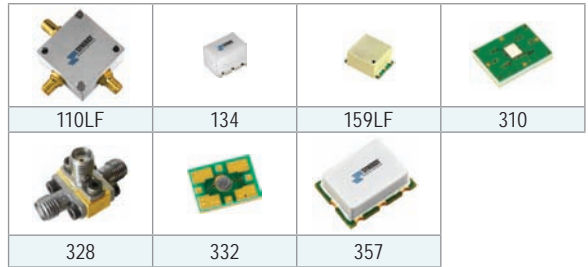


Model #	Frequency (MHz)	Step Size	Minimum Output Power (dBm)	Typical Phase Noise (dBc/Hz)		Package
				@10 kHz	@100 kHz	
MTS2500-40110-10	400 - 1100	>1 Hz	+10	-106	-115	344
MTS2500-110250-10	1100 - 2500	>1 Hz	+9	-95	-110	344
KMTS2500-110250-10	1100 - 2500	>1 Hz	+9	-95	-110	354
MTS2500-200400-10	2000 - 4000	>1 Hz	+5.5	-87	-100	344
KMTS2500-200400-10	2000 - 4000	>1 Hz	+5.5	-87	-100	354
MTS2500-200400-20	2000 - 4000	>1 Hz	+5.5	-87	-100	344
MTS2500-300600-10	3000 - 6000	>1 Hz	+2	-83	-108	344
KMTS2500-300600-10	3000 - 6000	>1 Hz	+2	-83	-108	354

# Wide Bandwidth Mixers

## Features

- » Multi-Octave Bandwidth
- » Schottky Diode Mixers
- » Low Conversion Loss
- » Conventional & SYNSTRIP® Multi-Layer Technology



Model #	Frequency (MHz)		Conversion Loss (dB) [Typ./Max.]	LO/RF Isolation (dB) [Typ./Min.]	LO/IF Isolation [Typ./Min.]	LO Power (dBm) [Nom.]	Input IP3 (dBm)	Package
	LO/RF	IF						
SMD-K1	0.5 - 500	DC - 500	5.5 / 8.5	55 / 20	55 / 20	+7	+13	134
SMD6000	1 - 6000	DC - 700	8.5 / 10	25 / 15	18 / 12	+10	+15	357
SMD-C8RM	1 - 2500	1 - 2000	7.5 / 9.5	35 / 18	26 / 16	+10	+20	357
SLD-K2	5 - 1000	DC - 1000	6.5 / 9	60 / 20	55 / 12	+7	+13	159LF
SMD-K2	5 - 1000	DC - 1000	6.5 / 9	60 / 20	55 / 12	+7	+13	134
SMD-K2B	5 - 2000	DC - 1000	7 / 9.5	65 / 28	55 / 23	+7	+13	134
SRD-KA	5 - 500	DC - 500	6.5 / 8.5	70 / 25	65 / 20	+1	+7	134
SLD-K5	5 - 1000	5 - 1000	6.5 / 9.5	40 / 20	30 / 20	+10	+18	159LF
SLD-K5M	5 - 1000	5 - 1000	6.5 / 9.5	40 / 20	30 / 20	+17	+26	159LF
SLD-K5H	5 - 1000	5 - 1000	6.5 / 9.5	40 / 20	30 / 20	+23	+30	159LF
SMD-3500L	10 - 3500	1 - 2000	8 / 9	40 / 25	28 / 18	+10	+19	357
SMD-3500	10 - 3500	1 - 2000	7.8 / 8.7	35 / 25	30 / 20	+17	+28	357
CLK-3500	10 - 3500	1 - 2000	8 / 9	40 / 25	28 / 18	+10	+19	110LF
CMK-3500	10 - 3500	1 - 2000	7.8 / 8.7	35 / 25	30 / 20	+17	+28	110LF
SMD-5000	100 - 5000	DC - 1500	7.5 / 10.5	40 / 20	35 / 15	+7	+13	357
CLK-5000	100 - 5000	DC - 1500	7.5 / 10.5	40 / 20	35 / 15	+7	+13	110LF
SGM-2-13	250 - 3250	DC - 700	6.5 / 9	25 / 20	12 / 5	+13	+14	310
SGM-2-17	250 - 3250	DC - 700	6.5 / 9	30 / 20	10 / 5	+17	+18	310
SMD-5500	500 - 6000	50 - 2500	9.5 / 11.5	28 / 15	23 / 15	+13	+18	357
SMD-5500M	500 - 6000	50 - 2500	9.5 / 11.5	28 / 15	23 / 15	+18	+25	357
CMK-5500M	500 - 6000	50 - 2500	9.5 / 11.5	28 / 15	23 / 15	+18	+25	110LF
SRD-KB	800 - 1000	DC - 200	7 / 8.5	35 / 25	30 / 20	+1	+7	134
SGM-3-13	1350 - 7000	DC - 2000	7 / 9.5	25 / 10	20 / 8	+13	+20	310
SRD-KD	1500 - 2500	DC - 1000	6 / 10	27 / 20	15 / 8	+1	+7	134
SGS-5-10	3000 - 19000	DC - 4000	7.5 / 11	25 / 15	12 / 5	+10	+10	332
SGS-5-13	3000 - 19000	DC - 4000	7.5 / 11	25 / 15	12 / 5	+13	+12.5	332
KGS-5-10	3000 - 19000	DC - 4000	7.5 / 11	25 / 15	12 / 5	+10	+10	328
KGS-5-13	3000 - 19000	DC - 4000	7.5 / 11	25 / 15	12 / 5	+13	+12.5	328

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# Super High IP3 Mixers

## Features

- » FET Technology
- » 0.1 to 2400 MHz



Model #	Frequency (MHz)			Conversion Loss (dB) [Typ./Max.]	LO/RF Isolation [Typ./Min.]	LO/IF Isolation [Typ./Min.]	RF/IF Isolation [Typ./Min.]	Input IP3 (dBm) [Typ.]	LO Power (dBm) [Nom.]	Package
	LO	RF	IF							
SFM-2	62 - 94	0.1 - 32	30 - 96	7.5 / 9	25 / 20	18 / 13	28 / 20	+36	0	285
SFM-2A-1	89 - 116	19 - 41	70 - 96	6.5 / 8.5	30 / 25	23 / 15	28 / 20	+40	0	285
SFM-32	70 - 700	35 - 735	10 - 35	6.5 / 9.5	32 / 25	35 / 28	45 / 25	+34	+17	285
SFM-4	650 - 1000	700 - 1200	50 - 200	9 / 10	23 / 20	30 / 25	20 / 17	+38	+17	285
SFM-5	1100 - 2000	1200 - 2400	50 - 200	10 / 11.8	25 / 18	20 / 15	20 / 17	+38	+17	285
SFM-62	60 - 200	1800 - 2200	1840 - 2275	9.5 / 10	50 / 40	50 / 40	20 / 17	+38	+17	285

# 2-Way Power Dividers

## Features

- » Excellent Performance
- » Wide Bandwidth
- » Moderate & High Power
- » Applications:  
Signal Splitting & Low Power Combining



101	110LF	134	134LP	144	159LF	215
220	231	232	329	330	331	357

Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.] ◊	Package
SPD-C1	1 - 500	0.4 / 1	0.1 / 0.2	1 / 2	25 / 20	1.3:1	1	357
DSK-701 ♦	0.01 - 100	0.5 / 1	0.1 / 0.2	1 / 2	25 / 20	1.3:1	1	110LF
SPD-C2	0.1 - 150	0.4 / 0.7	0.05 / 0.2	0.5 / 2	28 / 20	1.3:1	1	357
DSK-7A2B ■	0.25 - 300	0.4 / 1	0.15 / 0.3	2 / 5	25 / 20	1.3:1	1	110LF
DSK-721S	0.3 - 100	0.2 / 0.4	0.01 / 0.1	0.2 / 1	35 / 23	1.18:1	1	144
DSK-7E4 ♦	1 - 750	0.8 / 1	0.15 / 0.3	2 / 4	25 / 20	1.3:1	1	110LF
DSK-719S	1 - 3000	0.6 / 1	0.1 / 0.4	0.5 / 3	18 / 13	1.5:1	1	110LF
SD-1	2 - 300	0.8 / 1	0.3 / 0.5	1 / 5	25 / 20	1.2:1	1	134
DSK-7M2 ♦	2 - 350	0.4 / 0.8	0.08 / 0.2	0.2 / 2	32 / 26	1.18:1	1	110LF
SDL-100	2 - 1000	1.2 / 1.5	0.3 / 0.6	2 / 4	27 / 17	1.3:1	1	159LF
SD-2	5 - 500	0.6 / 1	0.1 / 0.5	0.5 / 5	25 / 20	1.1:1	1	134
SD2200	5 - 2000	0.8 / 1.5	0.2 / 0.7	1.5 / 5	18 / 15	1.6:1	1	134LP
DSK-726S	5 - 2000	1.5 / 1.9	0.05 / 0.4	1.8 / 5	28 / 15	1.25:1	1	144
DSK-709 ♦	10 - 1000	0.6 / 0.8	0.1 / 0.25	1 / 3	30 / 25	1.3:1	1	110LF
SD-3	10 - 1000	1 / 1.5	0.25 / 0.7	1.2 / 7	25 / 17	1.4:1	1	134
SDL-3	10 - 1000	1 / 1.5	0.25 / 0.7	1.2 / 7	25 / 17	1.4:1	1	159LF
SDL-6	20 - 2000	1 / 1.5	0.3 / 0.5	1.5 / 5	17 / 15	1.65:1	1	159LF
DSF-105	50 - 2000	1.2 / 1.7	0.1 / 0.6	1.5 / 6	23 / 18	1.28:1	3	101
SPD-C12	400 - 2700	1 / 1.5	0.4 / 0.5	4 / 6	25 / 20	1.5:1	1	357
SDL-4	500 - 1500	1 / 1.4	0.4 / 0.7	4 / 7	20 / 13	1.5:1	1	159LF
M2D810	800 - 1000	0.5 / 0.8	0.2 / 0.5	2 / 5	20 / 14	1.4:1	1	232
DSK-729S	800 - 2200	0.5 / 0.8	0.05 / 0.4	1 / 2	25 / 20	1.3:1	10	215
DSK-H3N	800 - 2400	0.5 / 0.8	0.25 / 0.5	1 / 4	23 / 18	1.5:1	30	220
SPD-95-215	950 - 2150	1.7 / 2.2	0.2 / 0.5	3 / 6	18 / 15	1.25:1	1	357
P2D100800	1000 - 8000	0.6 / 1.1	0.05 / 0.2	1 / 2	28 / 22	1.2:1	5	329
DSK100800	1000 - 8000	0.6 / 1.1	0.05 / 0.2	1 / 2	28 / 22	1.2:1	20	330
DHK-H1N	1700 - 2200	0.3 / 0.4	0.1 / 0.3	1 / 3	20 / 18	1.3:1	100	220
M2D1822	1800 - 2200	0.35 / 1	0.05 / 0.7	2.2 / 6	20 / 15	1.25:1	1	231
P2D180900L	1800 - 9000	0.4 / 0.8	0.05 / 0.2	1 / 2	27 / 23	1.2:1	5	331

◊ In excess of theoretical split loss of 3.0 dB

♦ Add suffix letter for female connector style options - S = SMA, B = BNC, N = Type N

■ 75 ohm Model

◻ With matched operating conditions

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## 2-Way Power Dividers

### Features

- » Excellent Performance
- » Wide Bandwidth
- » Moderate & High Power
- » Applications:  
Signal Splitting & Low Power Combining



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ.)	Input Power (Watts) [Max.] =	Package
DSK180900	1800 - 9000	0.4 / 0.8	0.05 / 0.2	1 / 2	27 / 23	1.2:1	20	330
M2D2025	2000 - 2550	0.4 / 1	0.03 / 0.7	0.3 / 6	20 / 15	1.4:1	1	231
M2D2428	2400 - 2800	0.5 / 1	0.1 / 0.5	1.5 / 5	20 / 15	1.3:1	1	231

◊ In excess of theoretical split loss of 3.0 dB

= With matched operating conditions

## 3-Way Power Dividers

### Features

- » Excellent Performance
- » Wide Bandwidth
- » Moderate Power
- » Applications:  
Signal Splitting & Low Power Combining



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ.)	Input Power (Watts) [Max.] =	Package
DCK-7J2 ♦	1 - 500	0.7 / 1.2	0.2 / 0.4	1 / 3	27 / 18	1.3:1	1	113LF
SDL-110	2 - 200	0.5 / 1	0.2 / 0.4	1 / 3	38 / 23	1.18:1	1	159LF
SDL-135	5 - 760	1.3 / 1.8	0.4 / 0.75	3.5 / 7	23 / 18	1.3:1	1	159LF
SPD-3-7	20 - 1200	1.3 / 1.9	0.25 / 0.5	2.5 / 5	20 / 15	1.4:1	1	129LF
DCK-3-7 ♦	20 - 1200	1.5 / 1.8	0.25 / 0.5	3 / 6	23 / 15	1.4:1	1	113LF
SDL-115	720 - 800	1 / 1.4	0.3 / 0.7	2 / 5	18 / 15	1.5:1	1	159LF
SDL-137	850 - 950	1 / 1.4	0.3 / 0.7	2 / 5	17 / 13	1.5:1	1	159LF
SPD-C9	1700 - 2200	0.4 / 0.8	0.3 / 0.5	4 / 5	23 / 18	1.3:1	1	211
S3D1723	1700 - 2300	0.2 / 0.35	0.3 / 0.6	2 / 3	22 / 16	1.3:1	5	316

◊ In excess of theoretical split loss of 4.8 dB

= With matched operating conditions

♦ Add suffix letter for female connector style options - S = SMA, B = BNC, N = Type N

## 4-Way Power Dividers

### Features

- » Excellent Performance
- » Wide Bandwidth
- » Moderate Power
- » Applications:  
Signal Splitting & Low Power Combining



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ.)	Input Power (Watts) [Max.] =	Package
SDL-140	1 - 100	0.7 / 1	0.2 / 0.4	1 / 3	25 / 20	1.3:1	1	159LF
DDK-702S	1 - 250	0.7 / 1.2	0.1 / 0.3	1 / 4	30 / 20	1.2:1	1	355 *
DSK-7E2B	1 - 200	0.7 / 1.2	0.1 / 0.3	2 / 5	25 / 20	1.3:1	1	169 *
SPD-5-1000	5 - 1000	0.65 / 1	0.1 / 0.5	2 / 5	25 / 20	1.25:1	1	219
DDK-1000S	5 - 1000	0.85 / 1.2	0.1 / 0.5	2 / 5	23 / 20	1.25:1	1	355 *
SPD-5-1500	5 - 1500	1.3 / 2	0.35 / 0.5	3.5 / 5	25 / 20	1.4:1	1	219
DSK-745S	5 - 2000	2.3 / 2.8	0.2 / 0.6	2 / 5	20 / 15	1.5:1	1	247 *
SDL-120	20 - 400	1.3 / 1.8	0.6 / 0.75	3 / 7	25 / 17	1.5:1	1	159LF
SPD-90-210	900 - 2100	0.9 / 1.25	0.2 / 0.5	3 / 6	20 / 15	1.3:1	1	219

\* Add suffix - LF to the part number for RoHS compliant version.

= With matched operating conditions

◊ In excess of theoretical split loss of 6.0 dB

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## 4-Way Power Dividers

### Features

- » Excellent Performance
- » Wide Bandwidth
- » Moderate Power
- » Applications:  
Signal Splitting & Low Power Combining



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ.)	Input Power (Watts) [Max.] ◦	Package
M4D1626	1600 - 2600	0.5 / 1.2	0.4 / 0.7	3 / 7	22 / 12	1.3:1	1	358
M4D1720	1700 - 2000	0.5 / 0.8	0.2 / 0.5	2.3 / 7	22 / 16	1.4:1	1	233
M4D3040	3000 - 4000	1 / 1.7	0.2 / 0.5	4 / 8	20 / 15	1.3:1	1	358
M4D3236	3200 - 3600	0.8 / 1	0.2 / 0.5	2 / 5	23 / 17	1.2:1	1	358

◊ In excess of theoretical split loss of 6.0 dB

◦ With matched operating conditions

## 5-Way Power Dividers

### Features

- » Excellent Performance
- » Wide Bandwidth
- » Moderate Power

- » Applications:  
Signal Splitting & Low Power Combining



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ.)	Input Power (Watts) [Max.] ◦	Package
DES-901	0.5 - 30	0.7 / 1	0.1 / 0.3	0.25 / 4	25 / 20	1.5:1	1	124S *
DEK-701S	0.5 - 30	0.7 / 1	0.1 / 0.3	0.25 / 4	25 / 20	1.5:1	1	157 *
DES-9G2	1 - 300	1.5 / 2	0.5 / 0.6	2.5 / 8	25 / 17	1.5:1	1	124S *
DEK-7G2S	1 - 300	1.5 / 2	0.5 / 0.6	2.5 / 8	25 / 17	1.5:1	1	157 *

\* Add suffix - LF to the part number for RoHS compliant version.

◊ In excess of theoretical split loss of 6.0 dB

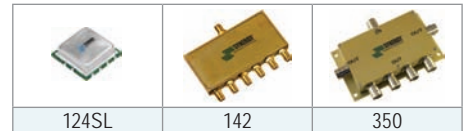
◦ With matched operating conditions

## 6-Way Power Dividers

### Features

- » Excellent Performance
- » Wide Bandwidth

- » Moderate Power
- » Applications:  
Signal Splitting & Low Power Combining



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ.)	Input Power (Watts) [Max.] ◦	Package
DFS-9B1	1 - 100	0.5 / 0.9	0.05 / 0.4	0.8 / 3	30 / 25	1.2:1	1	124SL *
DFK-7B1S	1 - 100	0.5 / 0.9	0.05 / 0.4	0.8 / 3	30 / 25	1.2:1	1	142 *
DFK-704B	1 - 250	0.5 / 1	0.2 / 0.3	2 / 3	28 / 25	1.2:1	1	350 *
DFS-905	1 - 500	1 / 1.8	0.2 / 0.6	4 / 8	23 / 15	1.2:1	1	124SL *
DFK-705S	1 - 500	1 / 1.8	0.2 / 0.6	4 / 8	23 / 15	1.2:1	1	142 *

\* Add suffix - LF to the part number for RoHS compliant version.

◊ In excess of theoretical split loss of 6.0 dB

◦ With matched operating conditions

For the latest specification sheet updates, package outline drawings and new products, please visit our website.



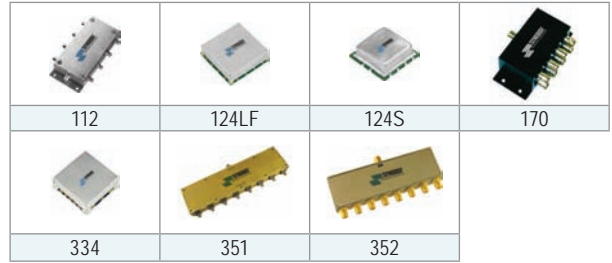
Phone: (973) 881-8800 Fax: (973) 881-8361 E-mail: sales@synergymwave.com Website: www.synergymwave.com

Specifications are subject to change without notice.

# 8-Way Power Dividers

## Features

- » Excellent Performance
- » Wide Bandwidth
- » Moderate Power
- » Applications:  
Signal Splitting & Low Power Combining



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.] ◻	Package
DSS-914	0.01 - 30	0.6 / 1.1	0.1 / 0.3	1 / 4	35 / 23	1.3:1	1	124S *
DHK-714S	0.01 - 30	0.6 / 1.1	0.1 / 0.3	1 / 4	35 / 23	1.3:1	1	352 *
DSK-714B	0.01 - 30	0.7 / 1	0.1 / 0.3	1 / 4	35 / 23	1.3:1	1	112
DHS-902	1 - 200	0.8 / 1.2	0.1 / 0.3	1.5 / 4	25 / 20	1.2:1	1	124LF
DHK-701S	1 - 100	1.2 / 1.4	0.2 / 0.4	1 / 4	33 / 30	1.3:1	1	352 *
DHK-702S	1 - 200	0.8 / 1.2	0.1 / 0.3	1.5 / 4	25 / 20	1.2:1	1	352 *
DSK-773B ■	5 - 200	0.7 / 1.2	0.1 / 0.3	3 / 6	25 / 20	1.3:1	1	170 *
DSS-585	5 - 1000	1.6 / 2	0.2 / 0.5	2 / 5	30 / 25	1.2:1	1	334
DHK-585S	5 - 1000	1.6 / 2	0.2 / 0.5	2 / 5	30 / 25	1.2:1	1	352 *
DHK1100S	10 - 1000	1.3 / 1.8	0.3 / 0.6	3 / 6	23 / 18	1.2:1	0.5	351 *

\* Add suffix - LF to the part number for RoHS compliant version.

◊ In excess of theoretical split loss of 9.0 dB

■ 75 ohm Model

◻ With matched operating conditions

# 10-Way Power Dividers

## Features

- » Excellent Performance
- » Wide Bandwidth

- » Moderate Power
- » Applications:  
Signal Splitting & Low Power Combining



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.] ◻	Package
DXP-9A2	1 - 150	1 / 1.3	0.1 / 0.3	3 / 6	23 / 18	1.3:1	1	124
DHK-702B	5 - 200	1.2 / 1.5	0.4 / 0.8	4 / 8	25 / 20	1.3:1	1	171
DSK-714B ■	5 - 200	1.2 / 1.6	0.4 / 0.8	4 / 8	25 / 18	1.3:1	1	171

◊ In excess of theoretical split loss of 10.0 dB

■ 75 ohm Model

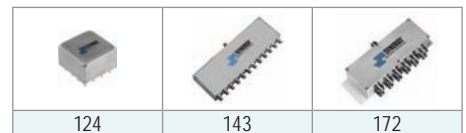
◻ With matched operating conditions

# 12-Way Power Dividers

## Features

- » Excellent Performance
- » Wide Bandwidth
- » Moderate Power

- » Applications:  
Signal Splitting & Low Power Combining



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.] ◻	Package
DLP-901	2 - 100	0.6 / 1	0.2 / 0.6	2 / 3	34 / 20	1.3:1	1	124
DLK-712S	3 - 250	1.6 / 2	0.4 / 0.8	4 / 8	30 / 23	1.3:1	1	143
DLK-702B	5 - 200	1.2 / 1.5	0.4 / 0.8	4 / 8	25 / 20	1.3:1	1	172
DLK-772B ■	5 - 200	1.2 / 1.6	0.4 / 0.8	4 / 8	25 / 18	1.3:1	1	172
DLK-7L4S	850 - 1000	3 / 4	1 / 2	4 / 8	20 / 15	1.6:1	1	143

◊ In excess of theoretical split loss of 10.8 dB

■ 75 ohm Model

◻ With matched operating conditions

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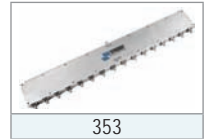


# 16-Way Power Dividers

## Features

- » Excellent Performance
- » Wide Bandwidth
- » Moderate Power

- » Applications:  
Signal Splitting & Low Power  
Combining



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.] ◻	Package
DPK1100S ◆	10 - 1000	2 / 2.5	0.7 / 1.2	6 / 12	20 / 15	1.4:1	0.5	353

◊ In excess of theoretical split loss of 12.0 dB

◻ With matched operating conditions

◆ Add suffix letter for female connector style options - S = SMA, B = BNC, N = Type N

# 90° Hybrids ( Ultra Wideband )

## Features

- » Excellent Performance
- » Ultra Wide Bandwidth
- » Building Block For:
  - Power Amplifier
  - Image Rejection Mixers
  - I & Q / SSB Modulators
  - Phase Shifters & More...



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.]	Package
DQK-2-125B	2 - 250	1.8 / 2	1.1 / 1.3	4 / 6	18 / 15	1.40:1	1	150
DQK-2-16B	3 - 32	0.8 / 1	0.9 / 1	1 / 3	23 / 20	1.30:1	1	150
DQK-3-32S	3 - 32	1 / 1.5	0.9 / 1.2	2 / 3	25 / 20	1.30:1	1	113LF
DQS-3-32	3 - 32	1 / 1.5	0.9 / 1.2	2 / 3	25 / 20	1.30:1	1	102SLF
DQK-5-50S	5 - 50	1 / 1.5	0.9 / 1.2	2 / 3	25 / 20	1.30:1	1	113LF
DQS-5-50	5 - 50	1 / 1.5	0.9 / 1.2	2 / 3	25 / 20	1.30:1	1	102SLF
DQK-10-50S	10 - 50	0.8 / 1	0.5 / 0.9	1.5 / 3	30 / 20	1.30:1	1	113LF
DQK-10-100S	10 - 100	1 / 1.5	0.9 / 1.2	2 / 3	25 / 20	1.30:1	1	113LF
DQS-10-50	10 - 50	0.8 / 1	0.5 / 0.9	1.5 / 3	30 / 20	1.30:1	1	102SLF
DQS-10-100	10 - 100	1 / 1.5	0.9 / 1.2	2 / 3	25 / 20	1.30:1	1	102SLF
DQS-15-150	15 - 150	1.2 / 1.7	0.9 / 1.2	2.5 / 4	25 / 17	1.30:1	1	102SLF
DQK-20-100S	20 - 100	0.6 / 1	0.5 / 0.8	1.5 / 3	27 / 20	1.20:1	1	113LF
DQK-20-200S	20 - 200	1.3 / 1.8	0.9 / 1.2	2.5 / 4	25 / 17	1.30:1	1	113LF
DQS-20-100	20 - 100	0.6 / 1	0.5 / 0.8	1.5 / 3	27 / 20	1.20:1	1	102SLF
DQS-20-200	20 - 200	1.3 / 1.8	0.9 / 1.2	2.5 / 4	25 / 17	1.30:1	1	102SLF
DQK-25-250S	25 - 250	1.5 / 2	0.9 / 1.2	2.5 / 4	25 / 17	1.30:1	1	113LF
DQS-25-250	25 - 250	1.5 / 2	0.9 / 1.2	2.5 / 4	25 / 17	1.30:1	1	102SLF
DQK-30-150S	30 - 150	0.8 / 1	0.5 / 0.9	1.5 / 3	30 / 20	1.30:1	1	113LF
DQK-30-300S	30 - 300	1.5 / 2	1 / 1.4	3 / 5	25 / 16	1.30:1	1	113LF
DQS-30-90	30 - 90	0.3 / 0.6	0.8 / 1.2	1 / 3	23 / 18	1.35:1	25	102SLF
DQS-3-11-10	30 - 110	0.5 / 0.8	0.6 / 0.9	1 / 3	30 / 20	1.30:1	10	102SLF
DQS-30-150	30 - 150	0.8 / 1	0.5 / 0.9	1.5 / 3	30 / 20	1.30:1	1	102SLF
DQS-30-300	30 - 300	1.5 / 2	1 / 1.4	3 / 5	25 / 16	1.30:1	1	102SLF
DQS-30-450	30 - 450	1.2 / 1.7	1 / 1.5	4 / 6	23 / 18	1.40:1	5	102SLF
DQS-40-200	40 - 200	1 / 1.4	0.5 / 1	2 / 4	25 / 18	1.30:1	1	102SLF
DQS-40-400	40 - 400	1.6 / 2.2	1 / 1.5	3 / 5	25 / 16	1.28:1	1	102SLF
DQK-45-450S	45 - 450	1.7 / 2.2	1 / 1.4	3 / 5	25 / 15	1.30:1	1	113LF
DQS-45-450	45 - 450	1.7 / 2.2	1 / 1.4	3 / 5	25 / 15	1.30:1	1	102SLF
DQK-50-250S	50 - 250	0.9 / 1	0.5 / 1	2 / 4	30 / 18	1.30:1	1	113LF
DQK-50-500S	50 - 500	1.7 / 2.2	1 / 1.5	3 / 5	23 / 15	1.30:1	1	113LF
DQS-50-250	50 - 250	0.9 / 1	0.5 / 1	2 / 4	30 / 18	1.30:1	1	102SLF
DQS-50-500	50 - 500	1.7 / 2.2	1 / 1.5	3 / 5	23 / 15	1.30:1	1	102SLF
DQK-90-450S	90 - 450	1.2 / 1.5	0.7 / 1	3 / 5	22 / 16	1.50:1	1	113LF
DQS-90-450	90 - 450	1.2 / 1.5	0.7 / 1	3 / 5	22 / 16	1.50:1	1	102SLF

◊ In excess of theoretical coupling loss of 3.0 dB

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## 90° Hybrids ( Ultra Wideband )

### Features

- » Excellent Performance
- » Ultra Wide Bandwidth
- » Building Block For:
  - Power Amplifier
  - Image Rejection Mixers
  - I & Q / SSB Modulators
  - Phase Shifters & More...



102SLF	113LF	325	326	346

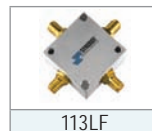
Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.]	Package
DQK-100-500S	100 - 500	1.2 / 1.5	0.8 / 1.25	3 / 5	25 / 16	1.40:1	1	113LF
DQK-100-1000S	100 - 1000	1.7 / 2.3	0.8 / 1.8	6 / 10	23 / 16	1.60:1	1	113LF
DQS-100-500	100 - 500	1.2 / 1.5	0.8 / 1.25	3 / 5	25 / 16	1.40:1	1	102SLF
DQS-100-1000	100 - 1000	1.7 / 2.3	1.2 / 1.8	6 / 10	25 / 16	1.50:1	1	102SLF
DQS-118-174	118 - 174	0.3 / 0.6	0.4 / 1	1 / 3	23 / 18	1.35:1	25	102SLF
DQK80300	800 - 3000	0.2 / 0.4	0.5 / 0.8	2 / 5	20 / 18	1.30:1	40	113LF
MSQ80300	800 - 3000	0.2 / 0.4	0.5 / 0.8	2 / 5	20 / 18	1.30:1	40	325
DQK100800	1000 - 8000	0.8 / 1.6	1 / 1.6	1 / 4	22 / 20	1.20:1	40	326
MSQ100800	1000 - 8000	0.8 / 1.6	1 / 1.6	1 / 4	22 / 20	1.20:1	40	346

◊ In excess of theoretical coupling loss of 3.0 dB

## 90° Hybrids ( 10% to 3:1 Bandwidth )

### Features

- » Excellent Performance
- » Ultra Wide Bandwidth
- » Building Block For:
  - Power Amplifier
  - Image Rejection Mixers
  - I & Q / SSB Modulators
  - Phase Shifters & More...



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.]	Package
DQK-301♦	5.5 - 16.5	0.3 / 0.5	0.8 / 1	1 / 3	23 / 20	1.20:1	1	113LF
DQK-706♦	10 - 20	0.5 / 0.7	0.4 / 0.75	1 / 3	25 / 18	1.20:1	1	113LF
DQK-751♦	10.2 - 10.5	0.2 / 0.3	0.5 / 0.7	1 / 3	35 / 20	1.10:1	1	113LF
DQK-757♦	19 - 21	0.2 / 0.3	0.5 / 0.8	1 / 3	28 / 20	1.10:1	1	113LF
DQK-701♦	20 - 40	0.3 / 0.6	0.3 / 0.75	1 / 3	28 / 20	1.15:1	1	113LF
DQK-302♦	20 - 60	0.3 / 0.5	0.8 / 1	1 / 3	23 / 20	1.10:1	1	113LF
DQK-752♦	20.3 - 22.5	0.2 / 0.3	0.5 / 0.8	1 / 3	28 / 20	1.10:1	1	113LF
DQK-753♦	28.5 - 31.5	0.2 / 0.3	0.5 / 0.8	1 / 3	25 / 20	1.10:1	1	113LF
DQK-303♦	30 - 90	0.3 / 0.6	0.8 / 1.2	1 / 3	23 / 18	1.20:1	1	113LF
DQK-702♦	40 - 80	0.4 / 0.8	0.5 / 0.9	1 / 3	28 / 20	1.10:1	1	113LF
DQK-305♦	40 - 120	0.3 / 0.8	0.6 / 1.2	2 / 4	23 / 17	1.30:1	1	113LF
DQK-720♦	52 - 88	0.3 / 0.6	0.2 / 0.6	1 / 2.5	23 / 18	1.10:1	1	113LF
DQK-723♦	55 - 90	0.3 / 0.7	0.3 / 0.9	0.5 / 3	30 / 17	1.20:1	1	113LF
DQK-754♦	57 - 63	0.2 / 0.5	0.5 / 0.8	1 / 3	27 / 20	1.10:1	1	113LF
DQK-722♦	60 - 80	0.2 / 0.6	0.1 / 0.6	2 / 3	27 / 17	1.10:1	1	113LF
DQK-756♦	66.5 - 73.5	0.2 / 0.5	0.5 / 0.8	0.5 / 3	30 / 20	1.10:1	1	113LF
DQK-761♦	76 - 84	0.2 / 0.5	0.5 / 0.8	1.5 / 3	28 / 20	1.10:1	1	113LF
DQK-703♦	80 - 160	0.35 / 0.75	0.45 / 1	1 / 3	28 / 18	1.08:1	1	113LF
DQK-304♦	90 - 270	0.4 / 0.7	0.8 / 1.3	2 / 4	23 / 17	1.30:1	1	113LF
DQK-762♦	95 - 105	0.2 / 0.5	0.2 / 0.6	1 / 3	25 / 17	1.10:1	1	113LF
DQK-704♦	100 - 200	0.6 / 0.9	0.5 / 1	1 / 4	28 / 18	1.10:1	1	113LF
DQK-721♦	104 - 176	0.3 / 0.7	0.2 / 0.6	1 / 2.5	30 / 20	1.10:1	1	113LF
DQK-310♦	115 - 345	0.4 / 0.8	0.8 / 1.4	2 / 4	20 / 15	1.30:1	1	113LF
DQK-705♦	150 - 300	0.4 / 0.75	0.5 / 1	2 / 4	25 / 18	1.10:1	1	113LF
DQK-707♦	200 - 400	0.6 / 1	0.6 / 1.2	1.5 / 4	25 / 18	1.30:1	1	113LF

◊ In excess of theoretical coupling loss of 3.0 dB

♦ Add suffix letter for female connector style options - S = SMA, B = BNC, N = Type N

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## 90° Hybrids ( 10% to 3:1 Bandwidth )

### Features

- » Excellent Performance
- » Ultra Wide Bandwidth
- » Building Block For:
  - Power Amplifier
  - Image Rejection Mixers
  - I & Q / SSB Modulators
  - Phase Shifters & More...



113LF

Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.]	Package
DQK-330♦	240 - 720	0.7 / 1	1.2 / 1.8	3 / 5	23 / 15	1.35:1	1	113LF
DQK-708♦	250 - 500	0.6 / 1	0.6 / 1.2	2 / 4	25 / 15	1.30:1	1	113LF
DQK-765♦	285 - 315	0.2 / 0.4	0.5 / 0.8	2 / 3	20 / 15	1.25:1	1	113LF
DQK-709♦	300 - 600	0.6 / 1	0.6 / 1.2	2 / 4	25 / 15	1.30:1	1	113LF
DQK-767♦	430 - 470	0.2 / 0.4	0.4 / 0.9	0.5 / 3	25 / 17	1.20:1	1	113LF
DQK-774♦	475 - 525	0.2 / 0.4	0.5 / 0.9	1 / 3	18 / 15	1.18:1	1	113LF
DQK-712♦	500 - 1000	0.8 / 1.5	1.3 / 1.6	6 / 10	15 / 10	1.80:1	1	113LF
DQK-768♦	570 - 630	0.3 / 0.5	0.5 / 0.9	2 / 4	25 / 15	1.30:1	1	113LF

◊ In excess of theoretical coupling loss of 3.0 dB

♦ Add suffix letter for female connector style options - S = SMA, B = BNC, N = Type N

## 90° Hybrids ( 10% to 3:1 Bandwidth )

### Features

- » Excellent Performance
- » Ultra Wide Bandwidth
- » Building Block For:
  - Power Amplifier
  - Image Rejection Mixers
  - I & Q / SSB Modulators
  - Phase Shifters & More...



129LF

134

159LF

Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.]	Package
SMQ-C31	0.5 - 1	0.3 / 0.6	0.4 / 0.75	1 / 3	25 / 17	1.10:1	1	129LF
SLQ-301	5.5 - 16.5	0.3 / 0.5	0.8 / 1	1 / 3	23 / 20	1.20:1	1	159LF
SMQ-CB1	7 - 14	0.3 / 0.6	0.4 / 0.75	1 / 3	26 / 20	1.10:1	1	129LF
SMQ-C08	7 - 21	0.3 / 0.7	0.6 / 1	1.5 / 4	25 / 18	1.18:1	1	129LF
SMQ-C06	10 - 20	0.5 / 0.7	0.4 / 0.75	1 / 3	25 / 18	1.20:1	1	129LF
SMQ-C51	10.2 - 11.2	0.1 / 0.5	0.5 / 0.8	1 / 3	35 / 20	1.10:1	1	129LF
SLQ-51	10.2 - 11.2	0.1 / 0.5	0.5 / 0.8	1 / 3	28 / 20	1.10:1	1	159LF
SMQ-C09	14 - 42	0.4 / 0.9	0.6 / 0.9	1 / 3	17 / 14	1.15:1	1	129LF
SLQ-57	19 - 21	0.2 / 0.3	0.5 / 0.8	1 / 3	28 / 20	1.10:1	1	159LF
SMQ-C01	20 - 40	0.3 / 0.6	0.3 / 0.75	1 / 3	28 / 20	1.15:1	1	129LF
SLQ-K01	20 - 40	0.3 / 0.6	0.4 / 0.75	1 / 3	25 / 20	1.10:1	1	159LF
SLQ-302	20 - 60	0.3 / 0.5	0.6 / 1	1 / 3	25 / 20	1.10:1	1	159LF
SMQ-C52	20.3 - 22.5	0.2 / 0.3	0.5 / 0.8	1 / 3	28 / 20	1.10:1	1	129LF
SLQ-52	20.3 - 22.5	0.2 / 0.3	0.5 / 0.8	1 / 3	28 / 20	1.10:1	1	159LF
SLQ-KF1	25 - 50	0.3 / 0.6	0.4 / 0.75	1 / 3	25 / 20	1.20:1	1	159LF
SMQ-C53	28.5 - 31.5	0.2 / 0.3	0.5 / 0.8	1 / 3	25 / 20	1.10:1	1	129LF
SLQ-53	28.5 - 31.5	0.2 / 0.3	0.5 / 0.8	1 / 3	25 / 20	1.10:1	1	159LF
SQ-53	28.5 - 31.5	0.2 / 0.3	0.5 / 0.8	1 / 3	25 / 20	1.10:1	1	134
SLQ-KH1	30 - 60	0.4 / 0.6	0.6 / 0.75	2 / 3	28 / 20	1.30:1	1	159LF
SLQ-303	30 - 90	0.3 / 0.6	0.8 / 1.2	1.5 / 3	23 / 18	1.10:1	1	159LF
SMQ-C58	38 - 42	0.2 / 0.3	0.5 / 0.8	1 / 3	25 / 20	1.10:1	1	129LF
SLQ-58	38 - 42	0.2 / 0.3	0.5 / 0.8	1 / 3	28 / 20	1.10:1	1	159LF
SMQ-C02	40 - 80	0.3 / 0.5	0.5 / 0.75	1 / 3	25 / 20	1.20:1	1	129LF
SLQ-K02	40 - 80	0.3 / 0.6	0.5 / 0.8	1 / 3	28 / 20	1.15:1	1	159LF
SLQ-305	40 - 120	0.3 / 0.5	0.6 / 1.2	2 / 4	23 / 17	1.25:1	1	159LF

◊ In excess of theoretical coupling loss of 3.0 dB

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Specifications are subject to change without notice.

# 90° Hybrids ( 10% to 3:1 Bandwidth )

## Features

- » Excellent Performance
- » Ultra Wide Bandwidth
- » Building Block For:
  - Power Amplifier
  - Image Rejection Mixers
  - I & Q / SSB Modulators
  - Phase Shifters & More...



		
129LF	134	159LF

Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.]	Package
SMQ-C10	50 - 100	0.5 / 0.8	0.5 / 0.75	1 / 3	23 / 17	1.10:1	1	129LF
SLQ-K20	50 - 100	0.2 / 0.5	0.5 / 0.75	1 / 3	25 / 20	1.10:1	1	159LF
SMQ-C20	52 - 88	0.3 / 0.6	0.2 / 0.6	1 / 2.5	23 / 18	1.10:1	1	129LF
SMQ-C23	55 - 90	0.3 / 0.7	0.3 / 0.9	0.5 / 3	30 / 17	1.20:1	1	129LF
SLQ-54	57 - 63	0.2 / 0.5	0.5 / 0.8	1 / 3	30 / 20	1.05:1	1	159LF
SMQ-C54	57 - 63	0.2 / 0.5	0.5 / 0.8	1 / 3	27 / 20	1.10:1	1	129LF
SMQ-C22	60 - 80	0.2 / 0.6	0.1 / 0.6	2 / 3	27 / 17	1.10:1	1	129LF
SLQ-KA2	60 - 120	0.25 / 0.5	0.5 / 1	1 / 3	23 / 20	1.25:1	1	159LF
SLQ-56	66.5 - 73.5	0.2 / 0.5	0.5 / 0.8	0.5 / 3	30 / 20	1.10:1	1	159LF
SMQ-C56	66.5 - 73.5	0.2 / 0.5	0.5 / 0.8	0.5 / 3	30 / 20	1.10:1	1	129LF
SQ-56	66.5 - 73.5	0.2 / 0.5	0.5 / 0.8	0.5 / 3	30 / 20	1.10:1	1	134
SLQ-KA3	70 - 140	0.35 / 0.6	0.5 / 1	0.5 / 3	23 / 18	1.20:1	1	159LF
SLQ-61	76 - 84	0.2 / 0.5	0.5 / 0.8	1.5 / 3	28 / 20	1.10:1	1	159LF
SMQ-C61	76 - 84	0.2 / 0.5	0.5 / 0.8	1.5 / 3	28 / 20	1.10:1	1	129LF
SMQ-C03	80 - 160	0.2 / 0.5	0.4 / 1	1 / 3	28 / 18	1.08:1	1	129LF
SLQ-KA4	80 - 160	0.45 / 0.65	0.4 / 1	2 / 3	27 / 18	1.30:1	1	159LF
SLQ-304	90 - 270	0.4 / 0.7	0.8 / 1.3	2 / 4	23 / 17	1.30:1	1	159LF
SLQ-62	95 - 105	0.2 / 0.5	0.2 / 0.6	1 / 3	25 / 17	1.10:1	1	159LF
SMQ-C62	95 - 105	0.2 / 0.5	0.2 / 0.6	1 / 3	25 / 17	1.10:1	1	129LF
SQ-62	95 - 105	0.2 / 0.5	0.2 / 0.6	1 / 3	25 / 17	1.10:1	1	134
SMQ-C04	100 - 200	0.6 / 0.9	0.5 / 1	1 / 4	28 / 18	1.10:1	1	129LF
SLQ-K04	100 - 200	0.4 / 0.8	0.5 / 1	1 / 3	18 / 15	1.30:1	1	159LF
SMQ-C11	100 - 230	0.4 / 0.9	0.5 / 1.2	1 / 4	23 / 18	1.30:1	1	129LF
SMQ-C21	104 - 176	0.3 / 0.7	0.2 / 0.6	1 / 2.5	30 / 20	1.10:1	1	129LF
SLQ-66	114 - 126	0.2 / 0.3	0.5 / 0.8	1 / 3	25 / 17	1.10:1	1	159LF
SLQ-310	115 - 129LF	0.2 / 0.5	0.8 / 1.4	2 / 4	20 / 15	1.40:1	1	159LF
SLQ-63	133 - 147	0.2 / 0.3	0.5 / 0.8	1 / 3	23 / 17	1.10:1	1	159LF
SMQ-C63	133 - 147	0.2 / 0.3	0.5 / 0.8	1 / 3	23 / 17	1.10:1	1	129LF
SQ-63	133 - 147	0.2 / 0.3	0.5 / 0.8	1 / 3	23 / 17	1.10:1	1	134
SLQ-K05	150 - 300	0.4 / 0.75	0.5 / 1	2 / 4	25 / 18	1.10:1	1	159LF
SMQ-C05	150 - 300	0.4 / 0.75	0.5 / 1	2 / 4	25 / 18	1.10:1	1	129LF
SLQ-64	190 - 210	0.2 / 0.4	0.5 / 0.8	1 / 3	25 / 17	1.20:1	1	159LF
SMQ-C64	190 - 210	0.2 / 0.4	0.5 / 0.8	1 / 3	25 / 17	1.20:1	1	129LF
SQ-64	190 - 210	0.2 / 0.4	0.5 / 0.8	1 / 3	25 / 17	1.20:1	1	134
SMQ-C07	200 - 400	0.6 / 1	0.6 / 1.2	1.5 / 4	25 / 18	1.30:1	1	129LF
SLQ-K07	225 - 400	0.4 / 0.8	0.6 / 1.2	1 / 4	18 / 15	1.40:1	1	159LF
SLQ-330	240 - 720	0.4 / 0.8	1.5 / 1.8	3 / 5	17 / 14	1.35:1	1	159LF
SLQ-K08	250 - 500	0.6 / 1	0.6 / 1.2	2 / 4	25 / 15	1.30:1	1	159LF
SLQ-65	285 - 315	0.2 / 0.4	0.5 / 0.8	2 / 3	20 / 15	1.25:1	1	159LF
SMQ-C65	285 - 315	0.2 / 0.4	0.5 / 0.8	2 / 3	20 / 15	1.25:1	1	129LF
SLQ-K09	300 - 600	0.6 / 1	0.6 / 1.2	2 / 4	25 / 15	1.30:1	1	159LF
SMQ-C13	350 - 450	0.5 / 0.8	0.6 / 1	2.5 / 4	23 / 18	1.30:1	1	129LF
SLQ-67	428 - 473	0.3 / 0.4	0.5 / 0.8	2 / 3	20 / 17	1.35:1	1	159LF
SMQ-C67	428 - 473	0.2 / 0.4	0.4 / 0.9	0.5 / 3	25 / 17	1.20:1	1	129LF
SQ-67	428 - 473	0.3 / 0.4	0.5 / 0.8	2 / 3	20 / 17	1.35:1	1	134
SMQ-C74	475 - 525	0.2 / 0.4	0.5 / 0.9	1 / 3	18 / 15	1.18:1	1	129LF
SLQ-K10	500 - 1000	0.8 / 1.2	1.3 / 1.6	6 / 10	15 / 10	1.80:1	1	159LF
SLQ-K10	500 - 1000	0.8 / 1.2	1.3 / 1.6	6 / 10	15 / 10	1.80:1	1	159LF

◊ In excess of theoretical coupling loss of 3.0 dB

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## 90° Hybrids ( 10% to 3:1 Bandwidth )

### Features

- » Excellent Performance
- » Ultra Wide Bandwidth
- » Building Block For:
  - Power Amplifier
  - Image Rejection Mixers
  - I & Q / SSB Modulators
  - Phase Shifters & More...



129LF

159LF

226

Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.]	Package
SLQ-68	570 - 630	0.3 / 0.5	0.5 / 0.9	2 / 4	25 / 15	1.30:1	1	159LF
SMQ-C68	570 - 630	0.3 / 0.5	0.45 / 0.7	2 / 3	28 / 20	1.18:1	1	129LF
MSQ-8012	800 - 1200	0.2 / 0.3	0.2 / 0.4	2 / 3	22 / 18	1.20:1	50	226
SLQ-69	836 - 934	0.3 / 0.5	0.5 / 0.9	2 / 4	25 / 15	1.30:1	1	159LF
SLQ-70	900 - 994	0.3 / 0.5	0.5 / 0.9	2 / 4	25 / 15	1.30:1	1	159LF
SLQ-71	1420 - 1570	0.3 / 0.6	0.7 / 1	3 / 5	17 / 13	1.30:1	1	159LF
SLQ-72	1496 - 1654	0.3 / 0.6	0.7 / 1	3 / 5	17 / 13	1.30:1	1	159LF
SLQ-73	1748 - 1932	0.3 / 0.6	0.7 / 1	3 / 5	17 / 13	1.30:1	1	159LF

◊ In excess of theoretical coupling loss of 3.0 dB

## 180° Hybrids ( 3-Port )

### Features

- » Excellent Performance
- » Wide Bandwidth
- » Closely Controlled Phase / Amplitude Unbalance



110LF

357

159LF

Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.]	Package
SMJ-C6	20 - 1200	1.2 / 1.8	0.05 / 0.4	2 / 4	28 / 20	1.30:1	1	357
DJK-2120	20 - 1200	1.2 / 1.8	0.05 / 0.4	2 / 4	28 / 20	1.30:1	1	110LF
SJL-115	200 - 1200	1 / 1.5	0.6 / 1	2 / 4	19 / 15	1.50:1	1	159LF

◊ In excess of theoretical coupling loss of 3.0 dB

## 180° Hybrids ( 4-Port )

### Features

- » Excellent Performance
- » Wide Bandwidth
- » Closely Controlled Phase / Amplitude Unbalance



134

129LF

301LF-1

Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] ◊	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.]	Package
SMJ-C8	20 - 1000	1.8 / 2.3	0.6 / 1	3 / 5	22 / 16	1.25:1	1	129LF
DJS-345	30 - 450	0.75 / 1.2	0.3 / 0.8	2.5 / 4	23 / 18	1.25:1	5	301LF-1
SJ-K5	500 - 2200	1.5 / 2.2	0.1 / 0.75	5 / 8	15 / 23	1.6:1	1	134

◊ In excess of theoretical coupling loss of 3.0 dB

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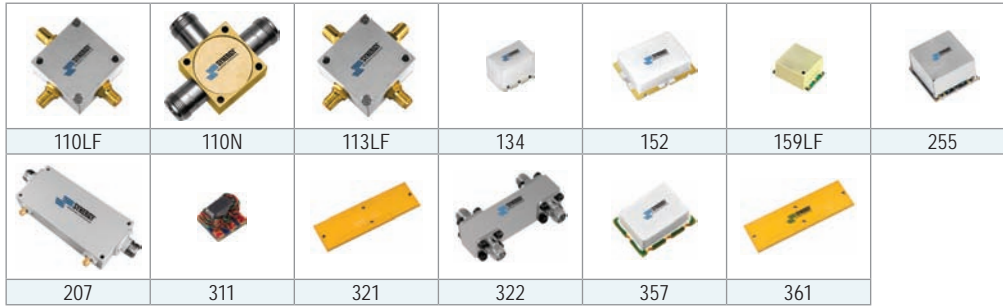
Specifications are subject to change without notice.

# Couplers

## Features

- » Wide Bandwidth
- » Low Loss

- » Moderate to High Power
- » Conventional & SYNSTRIP® Technology
- » Applications: Signal Sampling & VSWR Bridges



Model #	Frequency (MHz)	Coupling (dB) [Nom]	Coupling Flatness (dB)	Mainline Loss (dB) [Typ./Max.]	Directivity (dB) [Typ./Min.]	Input Power (Watts) [Max.] °	Package
KCK-7C1♦	0.01 - 50	15 ±0.5	±0.5	0.3 / 0.6	28 / 20	1	110LF
KBK-703♦	1 - 500	11.25 ±0.5	±0.6	0.6 / 1	32 / 20	1	110LF
KBK-7C4♦	1 - 1000	11 ±0.5	±0.5	1.2 / 2	26 / 20	1	110LF
SCL-1D-BD	2 - 300	19.8 ±0.9	±0.9	0.35 / 0.5	24 / 15	1	159LF
SDC5100D	5 - 1000	20 ±0.5	±0.5	0.45 / 0.95	30 / 18	1	357 *
SC-4B	5 - 1000	10.7 ±0.5	±0.5	0.8 / 1.6	35 / 15	1	134
SC5100BD	5 - 1000	10 ±1.0	±0.7	1.4 / 1.9	27 / 20	1	134
KBK-708S	10 - 2000	9.8 ±0.8	±1.0	2.4 / 3	22 / 13	1	110LF
SDC-C7	10 - 2000	9.8 ±0.8	±1.0	2.4 / 3	17 / 13	1	152 *
GC6-1	10 - 500	6 ±0.5	±1.00	2 / 2.5	26 / 18	1	311
KDK-744S	10 - 1000	20 ±1.0	±1.0	1 / 1.5	20 / 15	1	113LF
KDS-30-30	30 - 512	27.5 ±0.8	±0.75	0.2 / 0.28	23 / 15	50	255 *
KBS-10-225	225 - 400	10.5 ±1.0	±0.5	0.6 / 0.7	25 / 18	50	255 *
KDS-20-225	225 - 400	20 ±1.0	±0.5	0.2 / 0.4	25 / 18	50	255 *
KBK-10-225N	225 - 400	10.5 ±1.0	±0.5	0.6 / 0.7	25 / 18	50	110N *
KDK-20-225N	225 - 400	20 ±1.0	±0.5	0.2 / 0.4	25 / 18	50	110N *
KEK-704H	850 - 960	30 ±0.75	±0.25	0.08 / 0.2	38 / 30	500	207
SCS100800-10	1000 - 8000	10.5 ±1.5	±2.0	1.2 / 1.8	8 / 5	25	361
KBK100800-10	1000 - 8000	10.5 ±1.5	±2.0	1.2 / 1.8	8 / 5	25	322
SCS100800-16	1000 - 7800	16.8 ±1.5	±2.8	0.7 / 1	14 / 5	25	321
KDK100800-16	1000 - 7800	16.8 ±1.5	±2.8	0.7 / 1	14 / 5	25	322
SCS100800-20	1000 - 7800	20.5 ±2.0	±2.0	0.45 / 0.75	12 / 5	25	321
KDK100800-20	1000 - 7800	20.5 ±2.0	±2.0	0.45 / 0.75	14 / 5	25	322

\* Add suffix - LF to the part number for RoHS compliant version.

♦ Add suffix letter for female connector style options - S = SMA, B = BNC, N = Type N

° With matched operating conditions

Unless noted, products are RoHS compliant.

# Low Pass Filters

## Features

- » Low Loss
- » Small Size
- » High Rejection



Model #	3 dB Cutoff (MHz)	Passband Loss < 1dB (MHz)	Stop Band Frequency (MHz)			Typical Passband VSWR (50 ohms)	Package
			>35 dB	>23 dB	>20 dB		
FLS-12	12	DC - 10.7	21	19	16	1.30 :1	102S*
FLS-24	24	DC - 21.4	42	37	32	1.70 :1	102S*
FLS-33	33	DC - 30	58	51	44	1.70 :1	102S*
FLS-55	55	DC - 50	96	85	74	1.70 :1	102S*
FLS-66	66	DC - 60	115	102	89	1.70 :1	102S*
FLS-77	77	DC - 70	135	120	103	1.70 :1	102S*

\* Add suffix - LF to the part number for RoHS compliant version.

NOTE: For other frequencies, please contact Synergy.

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# Low Pass Filters

## Features

- » Low Loss
- » Small Size
- » High Rejection



Model #	3 dB Cutoff (MHz)	Passband Loss < 1dB (MHz)	Stop Band Frequency (MHz)			Typical Passband VSWR (50 ohms)	Package
			>35 dB	>23 dB	>20 dB		
FLS-100	100	DC - 92	175	155	133	1.70 :1	102S*
FLS-154	154	DC - 140	270	235	208	1.70 :1	102S*
FLS-220	220	DC - 200	385	340	300	1.70 :1	102S*
FLS-330	330	DC - 300	575	510	445	1.70 :1	102S*
FLS-495	495	DC - 450	865	765	665	1.70 :1	102S*
FLS-570	570	DC - 520	995	880	765	1.70 :1	102S*
FLS-570	570	DC - 520	995	880	765	1.70:1	102S*
FLS-660	660	DC - 600	1160	1020	890	1.70 :1	102S*
FLS-770	770	DC - 700	1345	1185	1000	1.70 :1	102S*
FLS-825	825	DC - 750	1445	1360	1275	1.70 :1	102S*
FLS-850	850	DC - 780	1485	1315	1130	1.70 :1	102S*
FLS-850	850	DC - 780	1485	1315	1130	1.70:1	102S*
FLS-965	965	DC - 875	1690	1595	1495	1.70 :1	102S*
FLS-1100	1100	DC - 1000	1925	1815	1700	1.70 :1	102S*

\* Add suffix - LF to the part number for RoHS compliant version.  
NOTE: For other frequencies, please contact Synergy.

# Bandpass Filters ( FIS Series )

## Features

- » Low Loss
- » Small Size
- » High Rejection
- » About 10 to 20% Bandwidth



Model #	Center (MHz)	Insertion Loss (dB) [Max.]	Passband (MHz)	20 dB BW (MHz)	40 dB BW (MHz)	Package
FIS-10.7	10.7	1.5	9.8 - 11.6	7.49 - 13.9	3.4 - 32.1	102S*
FIS-21.4	21.4	1.5	19.6 - 23.2	14.9 - 27.8	6.8 - 64.2	102S*
FIS-30	30	1.5	27.5 - 32.5	21 - 39	9.3 - 90	102S*
FIS-45	45	1.5	41.2 - 48.8	31.5 - 58.5	13 - 135	102S*
FIS-50	50	1.5	45.8 - 54.3	35 - 65	15.8 - 150	102S*
FIS-60	60	1.5	54.9 - 65.1	42 - 78	19 - 180	102S*
FIS-70	70	1.5	64 - 75.9	49 - 91	20.3 - 210	102S*
FIS-100	100	1.5	91.5 - 108.5	70 - 130	30.3 - 300	102S*
FIS-120	120	1.5	109.8 - 130.2	84 - 156	36 - 360	102S*
FIS-140	140	1.5	128.1 - 151.9	98 - 182	42.7 - 420	102S*

\* Add suffix - LF to the part number for RoHS compliant version.  
NOTE: For other frequencies, please contact Synergy.

*All surface mount filters are also available in tubular packaging!*

*Add prefix "T" to the surface mount model when requesting quote and ordering tubular models. Ex: TFIS-10.7*



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## Bandpass Filters ( FNS Series )

### Features

- » Low Loss
- » Small Size
- » High Rejection
- » 10% Passband



Model #	Center (MHz)	Insertion Loss (dB) [Max.]	Passband (MHz)	35 dB BW (MHz)	Typical Passband VSWR (50 ohms)	Package
FNS-10.7	10.7	1.7	10.2 - 11.2	5.1 - 22.5	1.5:1	124S*
FNS-21.4	21.4	1.7	20.3 - 22.5	10.2 - 45	1.5:1	124S*
FNS-30	30	1.7	28.5 - 31.5	14.3 - 63	1.5:1	124S*
FNS-45	45	1.7	42.8 - 47.3	21.3 - 94.5	1.5:1	124S*
FNS-50	50	1.7	47.5 - 52.5	23.8 - 105	1.5:1	124S*
FNS-60	60	1.7	57 - 63	28.4 - 126	1.5:1	124S*
FNS-70	70	1.7	66.5 - 73.5	33.3 - 147	1.5:1	124S*
FNS-100	100	2.7	95 - 105	47.5 - 210	1.5:1	124S*
FNS-120	120	2.7	114 - 126	57 - 252	1.5:1	124S*
FNS-140	140	2.7	133 - 147	66.5 - 294	1.5:1	124S*
FNS-160	160	2.7	152 - 168	76 - 336	1.5:1	124S*
FNS-180	180	2.7	171 - 189	85.5 - 378	1.5:1	124S*
FNS-200	200	2.7	190 - 210	95 - 420	1.5:1	124S*
FNS-250	250	3	238 - 262.5	119 - 525	1.5:1	124S*
FNS-300	300	3	285.7 - 315	142.8 - 630	1.5:1	124S*
FNS-350	350	3	333.3 - 367.5	166.7 - 735	1.5:1	124S*
FNS-400	400	3	380.9 - 420	190.5 - 840	1.5:1	124S*
FNS-450	450	3	428.6 - 472.5	214.3 - 945	1.5:1	124S*
FNS-500	500	3	476.2 - 525	238.1 - 1050	1.5:1	124S*

\* Add suffix - LF to the part number for RoHS compliant version.

NOTE: For other frequencies, please contact Synergy.

## Bandpass High Suppression Filters

### Features

- » Low Loss
- » Small Size
- » High Rejection
- » 5% Passband



Model #	Center (MHz)	Insertion Loss (Max.)	1 dB Ripple BW (MHz)	20 dB BW (MHz)	40 dB BW (MHz)	Package
FBS-11	10.7	3.5	10.55 - 10.85	9.63 - 11.8	8.5 - 12.85	124S*
FBS-21	21.4	3.5	20.9 - 21.9	19.26 - 23.6	17 - 25.7	124S*
FBS-30	30	3.5	29.25 - 30.75	27 - 33	24 - 36	124S*
FBS-45	45	3.5	43.9 - 46.1	40 - 50	35 - 56	124S*
FBS-50	50	4	48.75 - 51.25	45 - 56	40 - 62	124S*
FBS-60	60	4	58.5 - 61.5	54 - 67	48 - 74	124S*
FBS-70	70	4.6	68.25 - 71.75	63 - 77	56 - 86	124S*
FBS-140	140	5	136 - 144	120 - 160	108 - 178	124S*
FBS-200	200	6	194 - 206	180 - 230	155 - 250	124S*

\* Add suffix - LF to the part number for RoHS compliant version.

Unless noted, products are RoHS compliant.

NOTE: For other frequencies, please contact Synergy.

*All surface mount filters are also available in tubular packaging!*

*Add prefix "T" to the surface mount model when requesting quote and ordering tubular models. Ex: TFIS-10.7*



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Specifications are subject to change without notice.



# High Pass Filters

## Features

- » Low Loss
- » Small Size
- » High Rejection



102S

Model #	3 dB Cutoff (MHz)	Passband Loss < 1dB (MHz)	Stop Band Frequency (MHz)			Typical Passband VSWR (50 ohms)	Package
			>35 dB	>23 dB	>20 dB		
FHS-10	10	10.7 - 50	5	6	7	1.70 :1	102S*
FHS-20	20	21.4 - 100	10	13	15	1.70 :1	102S*
FHS-27	27	30 - 150	14	17	20	1.70 :1	102S*
FHS-45	45	50 - 250	23	29	34	1.70 :1	102S*
FHS-55	55	60 - 300	28	35	41	1.70 :1	102S*
FHS-64	64	70 - 300	32	40	48	1.70 :1	102S*
FHS-127	127	140 - 630	65	80	95	1.70 :1	102S*
FHS-182	182	200 - 850	90	110	135	1.70 :1	102S*
FHS-270	270	300 - 1200	135	170	200	1.70 :1	102S*
FHS-410	410	450 - 1400	205	255	305	1.70 :1	102S*
FHS-545	545	600 - 1600	225	320	410	1.70 :1	102S*
FHS-680	680	750 - 1900	340	425	510	1.70 :1	102S*
FHS-795	795	875 - 2000	400	500	600	1.70 :1	102S*

\* Add suffix - LF to the part number for RoHS compliant version.  
NOTE: For other frequencies, please contact Synergy.

All surface mount filters are also available in tubular packaging!

Add prefix "T" to the surface mount model when requesting quote and ordering tubular models. Ex: *TFIS-10.7*



# Transformers

## Features

- » Good Impedance Matching
- » Low Loss
- » Low Height Profile
- » Open Carrier



311

Model #	Frequency (MHz)	Impedance Ratio PRI:SEC	Center Tap		Insertion Loss (dB) [Typ./Max.]	Amplitude Unbalance (dB) [Typ.]	Phase Unbalance (Deg.) [Typ.]	DC Current (mA) [Max.]	Input Power (Watts) [Max.]	PKG. #
			PRI	SEC						
TM1-0	0.3 - 1000	1:1	No	No	2.5 / 3.4	0.75	10	30	0.25	311
TM1-1	0.4 - 500	1:1	No	Yes	1.1 / 1.6	0.20	3	30	0.25	311
TM1-2	20 - 1200	1:1	No	Yes	1.2 / 1.7	0.60	8	30	0.25	311
TM1-6	5 - 3000	1:1	No	No	1.5 / 2.5	0.50	10	30	0.25	311
TM1-8	800 - 4000	1:1	No	No	2 / 3	0.50	5	25	0.25	311
TM1-9	100 - 5000	1:1	No	No	2.25 / 3	0.80	8	25	0.25	311
TM1.5-2	0.5 - 550	1:1.5	No	No	1.5 / 3.0	0.25	3	30	0.25	311
TM4-0	0.2 - 350	1:4	No	Yes	1.5 / 2.2	0.50	3	30	0.25	311
TM4-1	10 - 1000	1:4	No	Yes	2.0 / 2.7	0.40	8	30	0.5	311
TM4-4	10 - 2500	1:4	No	Yes	1.2 / 2.25	1.0	8	25	0.25	311
TM2-1	1 - 600	1:2	No	Yes	0.8 / 1.2	0.60	8	30	0.25	311
TM2-GT	5 - 1500	2:1	No	No	0.8 / 1.2	--	--	--	0.25	311
TM4-GT	5 - 1000	4:1	No	No	1.2 / 1.6	--	--	--	0.25	311
TM8-GT	5 - 1000	8:1	No	No	1.6 / 2.2	--	--	--	0.50	311

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# Transformers

## Features

- » Good Impedance Matching
- » Low Loss
- » Small Size



Model #	Frequency (MHz)	Impedance Ratio PRI:SEC	Center Tap		Bandwidth (MHz) for Insertion Loss			Package
			PRI	SEC	1 dB	2 dB	3 dB	
ST-K1	0.003 - 300	1:1	No	Yes	0.02 - 50	0.01 - 150	0.003 - 300	134 **
TW-204	9 - 1200	1:1	No	No	20 - 150	12 - 790	9 - 1200	156
TW-205	0.028 - 1000	1:1	No	No	0.055 - 450	0.035 - 900	0.028 - 1000	156
TW-206	5 - 450	1:1	No	Yes	12 - 150	7 - 300	5 - 450	156
TW-207	0.04 - 140	1:1	No	Yes	0.1 - 55	0.05 - 100	0.04 - 140	156
TW-2A2	0.003 - 300	1:1	No	Yes	0.02 - 50	0.01 - 150	0.003 - 300	156
TW-2Q2	0.05 - 200	1:1	No	Yes	0.2 - 80	0.08 - 150	0.05 - 200	156
ST-K2	0.075 - 400	1:1.5	No	No	0.37 - 185	0.12 - 300	0.075 - 400	134 **
TW-208	0.075 - 400	1:1.5	No	No	0.37 - 185	0.12 - 300	0.075 - 400	156
TW-209	0.48 - 175	1:1.5	No	Yes	2 - 54	0.135 - 120	0.48 - 175	156
TW-211	0.01 - 400	1:1.5	No	No	0.25 - 200	0.014 - 300	0.01 - 400	156
TW-2A3	0.075 - 500	1:1.5	Yes	Yes	1 - 50	0.2 - 100	0.075 - 500	156
ST-K3	0.65 - 525	1:2	No	No	--	2.2 - 400	0.65 - 525	134 **
TW-210	0.65 - 525	1:2	No	No	--	2.2 - 400	0.65 - 525	156
TW-215	0.1 - 275	1:2	No	No	1 - 85	0.2 - 195	0.1 - 275	156
TW-216	0.06 - 250	1:2	No	Yes	1.7 - 55	0.1 - 190	0.06 - 250	156
TW-2A4	0.05 - 600	1:2	No	No	0.5 - 200	0.1 - 400	0.05 - 600	156
ST-K4	0.07 - 300	1:2.5	No	Yes	0.78 - 175	0.14 - 225	0.07 - 300	134 **
TW-217	0.23 - 495	1:2.5	No	No	4.8 - 175	0.4 - 425	0.23 - 495	156
TW-218	0.3 - 300	1:2.5	No	Yes	--	0.7 - 200	0.3 - 300	156
TW-219	0.07 - 300	1:2.5	No	Yes	0.78 - 175	0.14 - 225	0.07 - 300	156
TW-2A1	0.01 - 100	1:2.5	No	Yes	0.5 - 20	0.02 - 50	0.01 - 100	156
ST-K5	0.27 - 500	1:3	No	No	3.6 - 160	0.49 - 430	0.27 - 500	134 **
TW-220	0.08 - 340	1:3	No	Yes	0.55 - 150	0.16 - 295	0.08 - 340	156
TW-225	0.27 - 500	1:3	No	No	3.6 - 160	0.49 - 430	0.27 - 500	156
TW-2B2	0.5 - 250	1:3	No	Yes	0.5 - 70	0.1 - 200	0.05 - 250	156
ST-K6	0.2 - 350	1:4	No	Yes	2 - 100	0.35 - 300	0.2 - 350	134 **
TW-226	0.245 - 425	1:4	No	Yes	5.5 - 215	0.475 - 350	0.245 - 425	156
TW-227	0.115 - 200	1:4	No	No	12 - 50	0.24 - 155	0.115 - 200	156
TW-2C2	0.02 - 200	1:4	No	No	0.1 - 100	0.05 - 150	0.02 - 200	156
TW-2C3	0.2 - 350	1:4	No	Yes	2 - 100	0.35 - 300	0.2 - 350	156
TW-2K1	0.02 - 250	1:4	No	Yes	0.1 - 100	0.05 - 150	0.02 - 250	156
ST-K7	0.3 - 300	1:5	No	Yes	0.5 - 100	0.6 - 200	0.3 - 300	134 **
ST-K8	0.3 - 200	1:5	No	No	0.5 - 50	0.5 - 150	0.3 - 200	134 **
TW-2E2	0.3 - 300	1:5	No	Yes	0.5 - 100	0.6 - 200	0.3 - 300	156
TW-2G2	0.15 - 250	1:8	No	No	2 - 100	0.25 - 200	0.15 - 250	156
TW-2D2	0.15 - 200	1:9	No	No	2 - 40	0.3 - 150	0.15 - 200	156
TW-2F2	0.3 - 120	1:13	No	Yes	5 - 20	0.7 - 80	0.3 - 120	156
TW-2H2	0.3 - 120	1:16	No	No	5 - 20	0.7 - 80	0.3 - 120	156
TW-2B1	0.03 - 20	1:36	No	No	0.1 - 50	0.05 - 10	0.03 - 20	156

\*\* RoHS compliant model.

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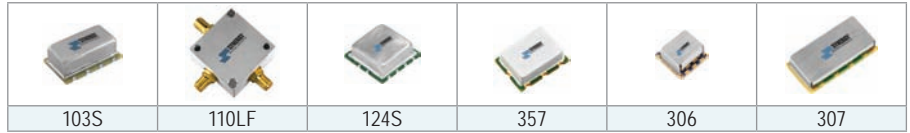
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# Phase Shifters

## Features

- » Excellent Performance
- » Low VSWR
- » High Efficiency



Model #	Frequency (MHz)	Phase Shift (Deg.) [Min.]	Insertion Loss (dB) [Typ./Max.]	Control Voltage (VDC)	Typical VSWR	Input Power (dBm) [Max.]	Package
PK-711S	4.75 - 5.25	0 - 180	1.2 / 1.5	0 - 10	1.3:1	0	110LF
PS-9R8	9.3 - 10.3	0 - 180	1.1 / 1.5	0 - 12	1.2:1	0	103S *
PS-921	10 - 20	0 - 180	1.5 / 2	0 - 10	1.5:1	0	124S *
PS-909	19 - 21	0 - 180	1.2 / 1.5	0 - 5	1.5:1	0	124S *
PS-924	20 - 40	0 - 180	1.2 / 1.8	0 - 15	1.5:1	0	124S *
PS-901	28.5 - 31.5	0 - 180	0.7 / 1.2	0 - 12	1.35:1	0	124S *
PS-38	33 - 42	0 - 180	0.9 / 1.6	0 - 15	1.35:1	0	103S *
PS-927	40 - 80	0 - 180	2 / 2.5	0 - 15	1.5:1	0	124S *
PS-902	57 - 63	0 - 180	1.2 / 1.5	0 - 10	1.5:1	0	124S *
PS-923	100 - 200	0 - 180	1.5 / 2	0 - 20	1.5:1	0	124S *
PS-117	111 - 123	0 - 180	1.5 / 2	0 - 12	1.62:1	0	103S *
SPS-312	306 - 318	0 - 180	1.2 / 1.8	0 - 14	1.65:1	0	357
PS-352	347 - 357	0 - 180	1.2 / 1.8	0 - 12	1.38:1	0	103S *
SPS-350	344 - 356	0 - 180	0.9 / 1.6	0 - 15	1.52:1	0	357
SPS-405	395 - 420	0 - 360	3.6 / 4.5	0 - 18	1.70:1	0	307
PS-882	869 - 895	0 - 180	1.4 / 1.8	0 - 10	1.28:1	0	357
SPS-1300	1290 - 1310	0 - 120	1.25 / 1.8	0 - 12	1.55:1	0	357
SPS-1900	1800 - 2200	0 - 135	1.5 / 2	0 - 20	1.30:1	0	357
PS193199B	1930 - 1990	0 - 360	2.5 / 3.5	0 - 12	1.8:1	0	307
PS210220B	2100 - 2200	0 - 360	3.4 / 3.75	0 - 12	2.0:1	0	307
PS2122A	2100 - 2200	0 - 90	2.1 / 2.4	0 - 5	1.5:1	0	306
PS2122B	2100 - 2200	0 - 180	2.1 / 2.4	0 - 15	1.5:1	0	306

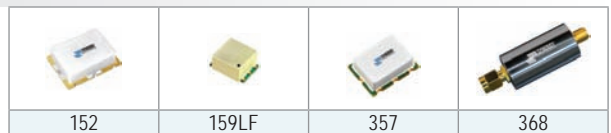
\* Add suffix -LF to the part number for RoHS compliant version.

All surface mount models are also available in connectorized packaging!

Replace "PS" or "SPS" prefix with "PK" or "SPK" when requesting quote and ordering connectorized models. Ex: PK-9R8 / SPK-312



# Frequency Doublers



Model #	Frequency (MHz)		Input Power (dBm) [Typ./Max.]	Conversion Loss (dBm) [Typ./Max.]	Harmonic Suppression (dB) [Typ]		Package
	Input	Output			F1	F3	
SMX-C1	0.003 - 2.5	0.006 - 5	4/13	11.5/15	35	40	152
XMK-1	0.003 - 2.5	0.006 - 5	4/13	11.5/15	35	40	368
SMX-C2	0.005 - 25	0.01 - 50	4/13	11.5/15	35	40	152
XMK-2	0.005 - 25	0.01 - 50	4/13	11.5/15	35	40	368
SMX-C3	0.05 - 150	0.1 - 300	4/13	11.5/15	35	40	152
XMK-3	0.05 - 150	0.1 - 300	4/13	11.5/15	35	40	368
SLX-K3	1 - 500	2 - 1000	4/10	13.5/16.5	25	40	159LF
SMX-C4	1 - 500	2 - 1000	4/10	13.5/16.5	25	40	357
XMK-4	1 - 500	2 - 1000	4/10	13.5/16.5	25	40	368
SLX-K5	50 - 750	100 - 1500	6/15	10.5/13.5	25	35	159LF

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## Frequency Doublers



Model #	Frequency (MHz)		Input Power (dBm) [Typ./Max.]	Conversion Loss (dBm) [Typ./Max.]	Harmonic Suppression (dB) [Typ.]		Package
	Input	Output			F1	F3	
SMX-C6	50 - 1000	100 - 2000	10/20	12.5/16	20	35	357
SLX-K7	50 - 1250	1500 - 2500	6/15	10.5/13.5	30	35	159LF
SMX-C7	50 - 1250	1500 - 2500	6/15	10.5/13.5	30	35	357
XMK-5	50 - 750	100 - 1500	6/15	10.5/13.5	25	35	368
XMK-6	50 - 1000	100 - 2000	10/20	12.5/16	20	35	368
XMK-7	50 - 1250	1500 - 2500	6/15	10.5/13.5	30	35	368
SLX-K8	75 - 1500	150 - 3000	10/16	12/14	25	25	159LF
XMK-8	75 - 1500	150 - 3000	10/16	12/14	25	25	368
SMX-C9	500 - 2000	1000 - 4000	10/16	12/17	15	20	357
XMK-9	500 - 2000	1000 - 4000	10/16	12/17	15	20	368

## BPSK Modulators



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.]	Amplitude Unbalance (dB) [Max.]	Phase Unbalance (deg.) [Typ./Max.]	1 dB Compression Point (dBm) [Typ.]	VSWR [Max.]	Package
SBM-K1	1 - 200	3.5 / 4.5	0.4	2 / 4	1	1.8:1	134
SBM-C1	1 - 200	3.5 / 4.5	0.4	2 / 4	1	1.8:1	129LF
MP-215	1 - 400	1.5 / 3	0.2	1 / 2	10	1.5:1	103
SBM-K2	2 - 600	4.5 / 5.5	0.4	2 / 4	1	1.8:1	134
SBM-C2	2 - 600	4.5 / 5.5	0.4	2 / 4	1	1.8:1	129LF
MP-217	2 - 900	2.5 / 4.5	0.4	1 / 2	10	2.0:1	103
SBM-C4	40 - 1150	4.5 / 6	0.4	2 / 4	10	1.8:1	129LF
SBM-K5	1500 - 1650	5 / 7	0.5	2 / 5	1	1.3:1	134

Requires External Complimentary Driver Capable Of Generating  $\pm 20\text{mA}$

## Amplifiers



Model	Frequency (MHz)	Gain (dB)	Gain Flatness (dB)	Output 1 dB Comp. Pt (dBm)	VSWR Input / Output (Typ.)	DC Operating V @ mA (Max.)	Package
BPA2100	25 - 1000	37	$\pm 1.5$	39	1.4:1 / 2.5:1	+32 @ 1.3 mA	370
BPA2060	2000 - 6000	16	$\pm 1.2$	30	1.8:1 / 1.8:1	+14 @ 1.3 mA	369
BPA20180	2000 - 18000	14	$\pm 2.0$	29	2.2:1 / 2.0:1	+14 @ 1.3 mA	369
BPA35115	3500 - 11500	16	$\pm 1.4$	30	2.0:1 / 1.8:1	+14 @ 1.3 mA	369

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# POWER PRODUCTS

## Power Dividers

### Features

- » Excellent Performance
- » Wide Bandwidth
- » Moderate & High Power
- » Applications: Signal Splitting & Low Power Combining



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] $\diamond$	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.] $\ominus$	Package
<b>2-WAY</b>								
DSK-729S	800 - 2200	0.5 / 0.8	0.05 / 0.4	1 / 2	25 / 20	1.3:1	10	215
DSK-H3N	800 - 2400	0.5 / 0.8	0.25 / 0.5	1 / 4	23 / 18	1.5:1	30	220
P2D100800	1000 - 8000	0.6 / 1.1	0.05 / 0.2	1 / 2	28 / 22	1.2:1	5	329
DSK100800	1000 - 8000	0.6 / 1.1	0.05 / 0.2	1 / 2	28 / 22	1.2:1	20	330
DHK-H1N	1700 - 2200	0.3 / 0.4	0.1 / 0.3	1 / 3	20 / 18	1.3:1	100	220
P2D180900L	1800 - 9000	0.4 / 0.8	0.05 / 0.2	1 / 2	27 / 23	1.2:1	5	331
DSK180900	1800 - 9000	0.4 / 0.8	0.05 / 0.2	1 / 2	27 / 23	1.2:1	20	330
<b>3-WAY</b>								
S3D1723	1700 - 2300	0.2 / 0.35	0.3 / 0.6	2 / 3	22 / 16	1.3:1	5	316

$\diamond$  In excess of theoretical split loss of 3.0 dB

$\ominus$  With matched operating conditions

## Hybrids

### Features

- » Excellent Performance
- » Building Block For:
  - Power Amplifier
  - Image Rejection Mixers
  - I & Q / SSB Modulators
  - Phase Shifters & More
  - Vector Modulators



Model #	Frequency (MHz)	Insertion Loss (dB) [Typ./Max.] $\diamond$	Amplitude Unbalance (dB) [Typ./Max.]	Phase Unbalance (Deg.) [Typ./Max.]	Isolation (dB) [Typ./Min.]	VSWR (Typ)	Input Power (Watts) [Max.]	Package
<b>90°</b>								
DQS-30-90	30 - 90	0.3 / 0.6	0.8 / 1.2	1 / 3	23 / 18	1.35:1	25	102SLF
DQS-3-11-10	30 - 110	0.5 / 0.8	0.6 / 0.9	1 / 3	30 / 20	1.30:1	10	102SLF
DQS-30-450	30 - 450	1.2 / 1.7	1 / 1.5	4 / 6	23 / 18	1.40:1	5	102SLF
DQS-118-174	118 - 174	0.3 / 0.6	0.4 / 1	1 / 3	23 / 18	1.35:1	25	102SLF
DQK80300	800 - 3000	0.2 / 0.4	0.5 / 0.8	2 / 5	20 / 18	1.30:1	40	113LF
MSQ80300	800 - 3000	0.2 / 0.4	0.5 / 0.8	2 / 5	20 / 18	1.30:1	40	325
DQK100800	1000 - 8000	0.8 / 1.6	1 / 1.6	1 / 4	22 / 20	1.20:1	40	326
MSQ100800	1000 - 8000	0.8 / 1.6	1 / 1.6	1 / 4	22 / 20	1.20:1	40	346
MSQ-8012	800 - 1200	0.2 / 0.3	0.2 / 0.4	2 / 3	22 / 18	1.20:1	50	226
<b>180° ( 4-PORTS )</b>								
DJS-345	30 - 450	0.75 / 1.2	0.3 / 0.8	2.5 / 4	23 / 18	1.25:1	5	301LF-1

$\diamond$  In excess of theoretical coupling loss of 3.0 dB

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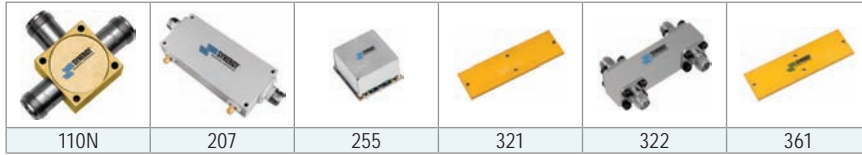
# POWER PRODUCTS

## Couplers

### Features

- » Wide Bandwidth
- » Low Loss

- » Moderate to High Power
- » Conventional & SYNSTRIP® Technology
- » Applications: Signal Sampling & VSWR Bridges



Model #	Frequency (MHz)	Coupling (dB) [Nom]	Coupling Flatness (dB)	Mainline Loss (dB) [Typ./Max.]	Directivity (dB) [Typ./Min.]	Input Power (Watts) [Max.] <sup>a</sup>	Package
KDS-30-30	30 - 512	27.5 ±0.8	±0.75	0.2 / 0.28	23 / 15	50	255 *
KBS-10-225	225 - 400	10.5 ±1.0	±0.5	0.6 / 0.7	25 / 18	50	255 *
KDS-20-225	225 - 400	20 ±1.0	±0.5	0.2 / 0.4	25 / 18	50	255 *
KBK-10-225N	225 - 400	10.5 ±1.0	±0.5	0.6 / 0.7	25 / 18	50	110N *
KDK-20-225N	225 - 400	20 ±1.0	±0.5	0.2 / 0.4	25 / 18	50	110N *
KEK-704H	850 - 960	30 ±0.75	±0.25	0.08 / 0.2	38 / 30	500	207
SCS100800-10	1000 - 8000	10.5 ±1.5	±2.0	1.2 / 1.8	8 / 5	25	361
KBK100800-10	1000 - 8000	10.5 ±1.5	±2.0	1.2 / 1.8	8 / 5	25	322
SCS100800-16	1000 - 7800	16.8 ±1.5	±2.8	0.7 / 1	14 / 5	25	321
KDK100800-16	1000 - 7800	16.8 ±1.5	±2.8	0.7 / 1	14 / 5	25	322
SCS100800-20	1000 - 7800	20.5 ±2.0	±2.0	0.45 / 0.75	12 / 5	25	321
KDK100800-20	1000 - 7800	20.5 ±2.0	±2.0	0.45 / 0.75	14 / 5	25	322

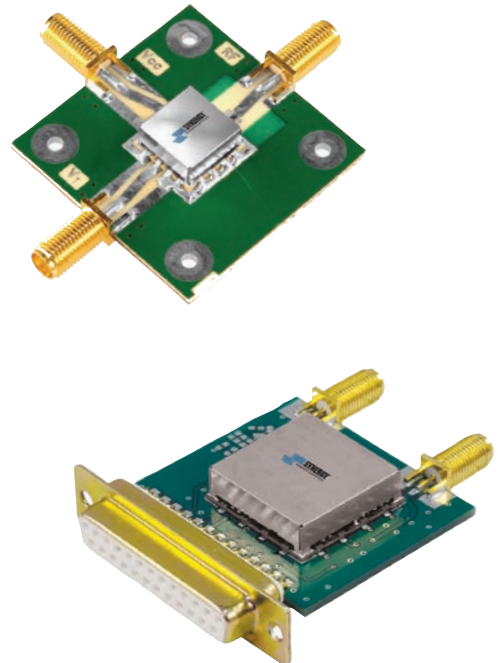
\* Add suffix - LF to the part number for RoHS compliant version.

<sup>a</sup> With matched operating conditions

Unless noted, products are RoHS compliant.

## VCO & PLL Test Fixtures

## VCO & PLL Test Boards







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