

ATC 400 Z Series Precision Tolerance NPO RF Microwave Capacitors

- EIA Case Size 0201
- Capacitance Range 0.1 pF to 22 pF
- Tolerances to ± 0.02 pF
- Ultra Stable Performance
- RoHS Compliant / Lead-Free

ATC's new 400Z Series Precision Tolerance, Thin Film, NPO RF Microwave Capacitor is manufactured with the highest quality materials to provide reliable and repeatable performance. The 400Z is constructed with a low loss silicon dioxide and silicon oxynitride dielectric along with high quality sputtered electrode materials to ensure superior performance.

High electrical and thermal conductivity and high stability over temperature make this device suitable for a variety of critical small and large signal RF and microwave applications. This Series offers the tightest tolerances available over a wide range of capacitance values.

The 400Z is built in an 0201 SMT package and is fully compatible with high speed automated pick-and-place manufacturing. It is designed to meet the most stringent RF and Microwave requirements.

Typical applications: Filter Networks, Matching Networks, High Q Frequency Sources, Tuning, Coupling, Bypass and DC Blocking.

ENVIRONMENTAL TESTS

LIFE TEST:

MIL-STD-202F, Method 108A, for 1000 hours, at 125°C.
200% WVDC applied.

ACCELERATED DAMP HEAT STEADY STATE

MIL-STD-202, Method 106: 85°C, 85% RH, at rated WVDC, 1000 hours

TEMPERATURE CYCLING

MIL-STD-202F METHOD 107E: -55°C to +125°C, 15 cycles

RESISTANCE TO SOLDER HEAT IEC-68-2-58:

260°C $\pm 5^\circ\text{C}$ for 10 secs.



ELECTRICAL AND MECHANICAL SPECIFICATIONS

TEMPERATURE COEFFICIENT OF CAPACITANCE (TCC):

0 ± 30 PPM/ $^\circ\text{C}$ (-55°C to +125°C) 0.1 to 3.9 pF
0 ± 60 PPM/ $^\circ\text{C}$ (-55°C to +125°C) 4.0 to 22 pF

INSULATION RESISTANCE (IR):

10¹⁰ Megohms min. @ +25°C at rated WVDC

WORKING VOLTAGE (WVDC):

See Capacitance Values Table, page 2

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

250% of rated WVDC for 5 secs

AGING EFFECTS: None

DIELECTRIC ABSORPTION: 0.01%

SOLDERABILITY, IEC-68-2-58: Components completely immersed in a solder bath at 235°C for 2 secs.

LEACH RESISTANCE, IEC-68-2-58: Components completely immersed in a solder bath at 260 $\pm 5^\circ\text{C}$ for 60 secs.

ADHESION, MIL-STD-202F, METHOD 211A: a force of 1.1 lbs. applied for 10 secs.

OPERATING TEMPERATURE RANGE:

From -55°C to +125°C (No derating of working voltage)

TERMINAL STRENGTH IEC-68-2-21, AMEND. 2: a force of 1.1 lbs. applied for 10 secs.

STORAGE: 12 months minimum with components stored in "as received" packaging



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ATC 400 Z Capacitance Values

CAP CODE	CAP (pF)	TOL.	RATED WVDC	CAP CODE	CAP (pF)	TOL.	RATED WVDC	CAP CODE	CAP (pF)	TOL.	RATED WVDC		
0R1	0.1	P, Q, A, B	100	2R3	2.3	Q, A, B, C	25	4R5	4.5	A, B, C	25		
0R2	0.2			2R4	2.4			4R6	4.6				
0R3	0.3			2R5	2.5			4R7	4.7				
0R5	0.5		50	2R6	2.6	A, B, C		5R1	5.1	B, C			
0R6	0.6			2R7	2.7			5R6	5.6				
0R7	0.7			2R8	2.8			6R2	6.2				
0R8	0.8			2R9	2.9			6R8	6.8				
0R9	0.9			25	3R0			3.0	A, B, C	7R5		7.5	F, G, J
1R0	1.0				3R1			3.1		8R2		8.2	
1R1	1.1	3R2			3.2		9R1	9.1					
1R2	1.2	3R3			3.3		100	10					
1R3	1.3	3R4	3.4		110	11							
1R4	1.4	3R5	3.5		120	12							
1R5	1.5	3R6	3.6		130	13							
1R6	1.6	25	3R7	3.7	A, B, C	140	14						
1R7	1.7		3R8	3.8		150	15						
1R8	1.8		3R9	3.9		160	16						
1R9	1.9		4R0	4.0		170	17						
2R0	2.0		Q, A, B, C	4R1		4.1	A, B, C	180	18				
2R1	2.1	4R2		4.2	190	19							
2R2	2.2	4R3		4.3	200	20							
		4R4		4.4	210	21							
				220	22	10							

$VRMS = 0.707 \times WVDC$

ATC PART NUMBER CODE



CAPACITANCE TOLERANCE

Code	P	Q	A	B	C	F	G	J
Tol.	±0.02 pF	±0.03 pF	±0.05 pF	±0.1 pF	±0.25 pF	±1%	±2%	±5%

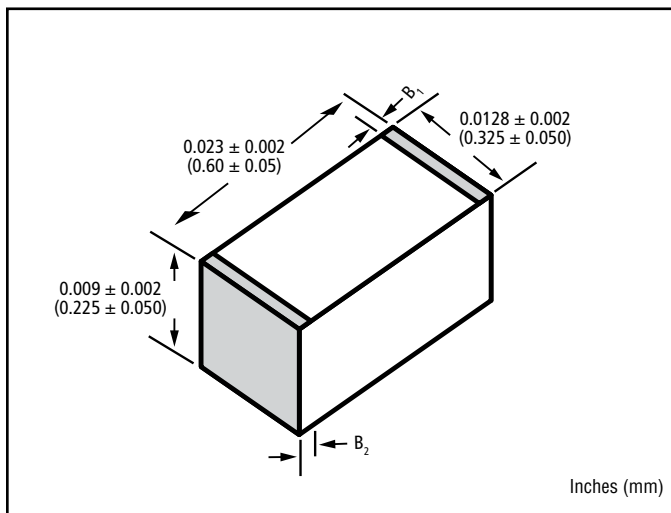
The above part number refers to a 400 Z Series (0201) 1 pF capacitor, P tolerance (±0.02 pF), 50 WVDC, with T termination (Tin Plated over Nickel Barrier Termination), RoHS Compliant), and tape and reel packaging.

ATC accepts orders for our parts using designations *with* or *without* the "ATC" prefix. Both methods of defining the part number are equivalent, i.e., part numbers referenced with the "ATC" prefix are interchangeable to parts referenced without the "ATC" prefix. Customers are free to use either in specifying or procuring parts from American Technical Ceramics.

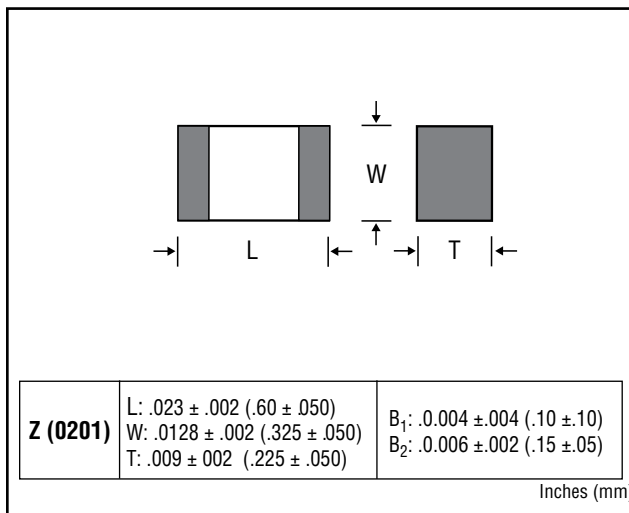
For additional information and catalogs contact your ATC representative or call direct at (+1-631) 622-4700.

Consult factory for additional performance data.

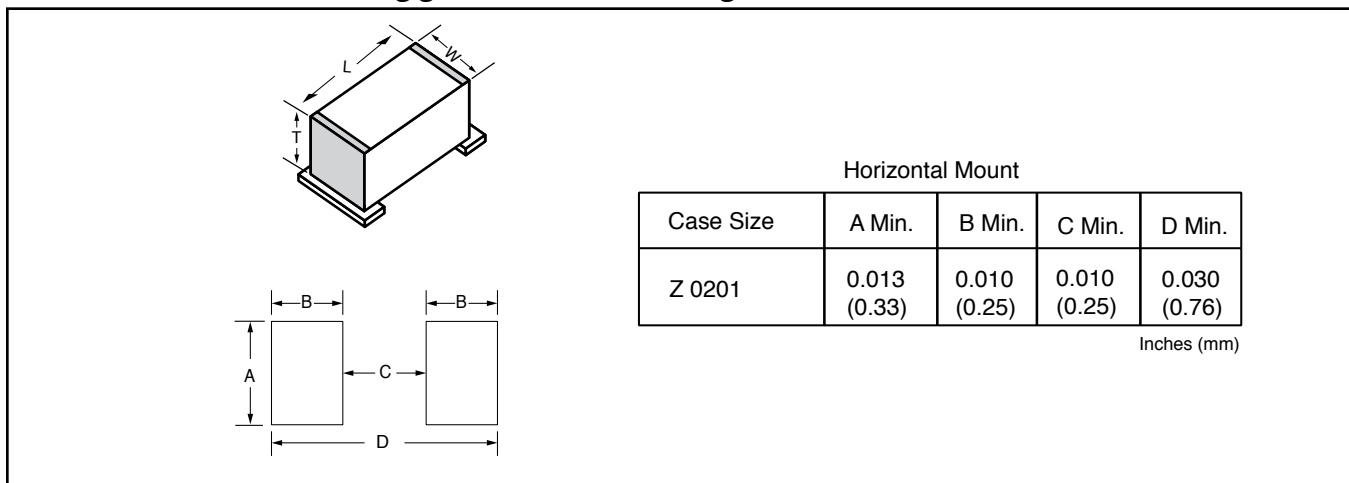
Mechanical Dimensions



Outline Dimensions



Suggested Mounting Pad Dimensions



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ATC 400 Z Performance Data



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