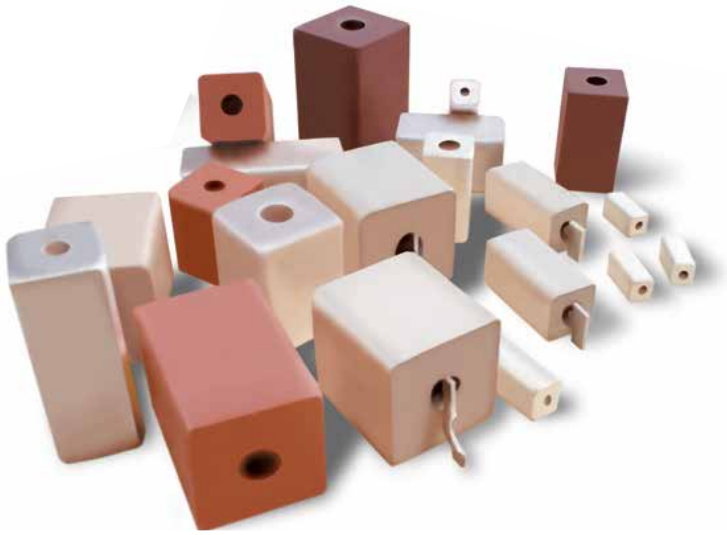
Ceramic Resonators

Coaxial TEM Resonators



Coaxial resonators made with modern, high performance ceramic dielectric materials are very useful as compact frequency standards, filter elements, and distributed inductive or capacitive circuit elements. The high Q obtained in the UHF, VHF, L, S, C bands and microwave frequency range makes these resonators ideal for many applications. **When cost, size, and stability are important, these resonators are the best choice.**

Coaxial resonators can be supplied as quarter wave resonators with one end fully metallized (i.e., shorted), and the other end open, fully metallized on both ends, or as half wave resonators with both ends open. For surface mounting, tabbed or tabless resonators can be provided for soldering directly to the circuit board. These resonators are pretuned to your specified frequency with a choice of tolerances.

In-house control of the pressing and firing of the green resonators ensures the optimum fired densities for the best electrical performance. Knowles Precision Devices proprietary silver metallization system produces the highest possible Q, exceptional solderability, and strongest metallization adhesion in the industry. Quarter and half wave resonators are precisely tuned to the specified frequency using the coupled transmission method and a network analyzer. Resonators are 100% screened for frequency to ensure that customer specifications are met.

FEATURES:

- Rugged, thermally stable ceramics
- Thick film silver coating for excellent Q and solderability
- Superior silver adhesion - pull strengths greater than 20 pounds
- Standard frequency tolerance is 0.1% - 1.0%; tighter tolerances available
- SMT tabs, tabless or slotted no tab configurations available for each size resonator

APPLICATIONS:

- Dielectric resonating oscillators (DRO)
- Voltage controlled oscillators (VCO)
- Global positioning systems (GPS)
- Cellular and wireless communications
- Bandpass/bandstop filters
- Narrowband/delay filters
- EMI filtering

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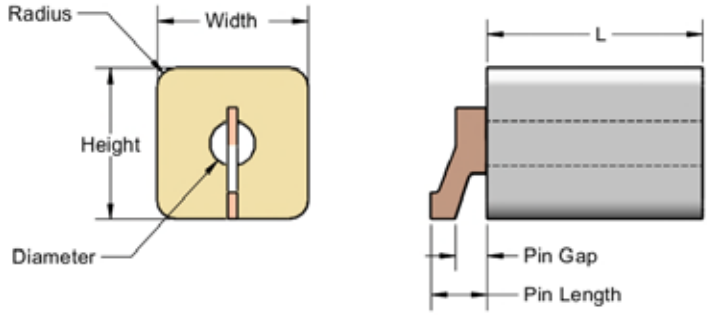
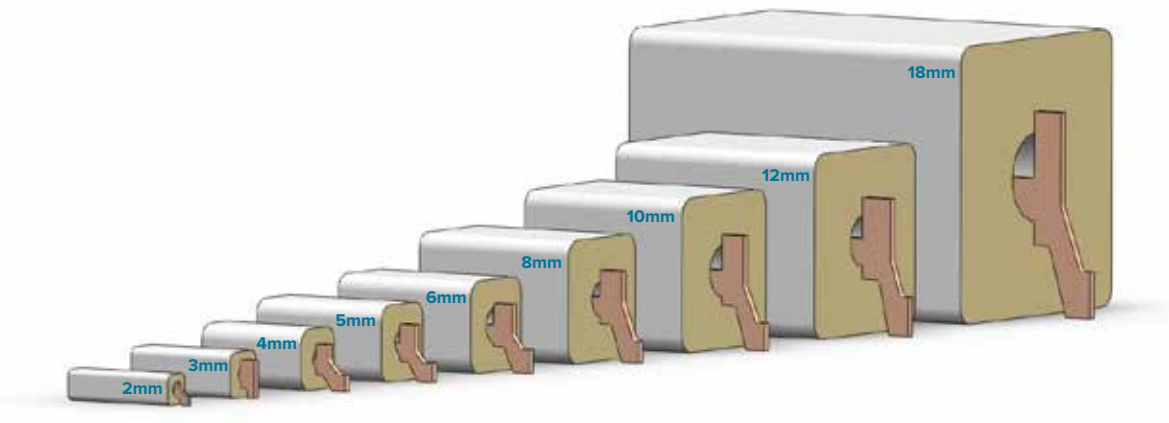
Tabbed Coaxial Resonators



Resonator Profile	Dielectric Material/ Constant	Width		Height		Diameter		Radius		Pin Length		Pin Gap	
		inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
2 mm	9, 20, 38, 92	0.079" ± 0.003"	2 ± 0.08	0.079" ± 0.003"	2 ± 0.08	0.033" ± 0.003"	0.838 ± .08	0.015"	0.381	0.040"	1.016	0.020"	0.508
3 mm	5, 9, 13, 20, 36, 84, 98	0.118" ± 0.003"	3 ± 0.08	0.118" ± 0.003"	3 ± 0.08	0.045" ± 0.003"	1.143 ± 0.08	0.020"	0.508	0.040"	1.016	0.020"	0.508
4 mm	5, 9, 13, 20, 36, 84, 98	0.157" ± 0.004"	4 ± 0.102	0.157" ± 0.004"	4 ± 0.102	0.045" ± 0.003"	1.143 ± 0.08	0.040"	1.016	0.089"	2.261	0.049"	1.245
5 mm	5, 9, 13, 20, 36, 98	0.197" ± 0.005"	5 ± 0.127	0.197" ± 0.005"	5 ± 0.127	0.065" ± 0.003"	1.651 ± 0.08	0.040"	1.016	0.098"	2.489	0.054"	1.372
6 mm	5, 9, 13, 20, 36, 98	0.236" ± 0.005"	6 ± 0.127	0.236" ± 0.005"	6 ± 0.127	0.094" ± 0.004"	2.388 ± 0.102	0.040"	1.016	0.106"	2.692	0.059"	1.499
8 mm	5, 9, 13, 20, 36, 98	0.315" ± 0.005"	8 ± 0.127	0.315" ± 0.005"	8 ± 0.127	0.094" ± 0.004"	2.388 ± 0.102	0.040"	1.016	0.117"	2.972	0.066"	1.676
10 mm	5, 9, 13, 20, 36, 98	0.394" ± 0.006"	10 ± 0.152	0.394" ± 0.006"	10 ± 0.152	0.135" ± 0.005"	3.429 ± 0.127	0.040"	1.016	0.128"	3.251	0.073"	1.854
12 mm	5, 9, 13, 20, 36, 98	0.472" ± 0.008"	12 ± 0.203	0.472" ± 0.008"	12 ± 0.203	0.135" ± 0.005"	3.429 ± 0.127	0.040"	1.016	0.138"	3.505	0.079"	2.007
18 mm	5, 9, 13, 20, 36, 98	0.709" ± 0.020"	18 ± 0.508	0.709" ± 0.020"	18 ± 0.508	0.228" ± 0.010"	5.791 ± 0.254	0.040"	1.016	0.228"	5.791	0.097"	2.464



Material	Temperature Coefficient
09	<± 5ppm/°C
13	<± 5ppm/°C
20	<± 5ppm/°C
36	<± 5ppm/°C
84	<± 15ppm/°C
98	<± 15ppm/°C

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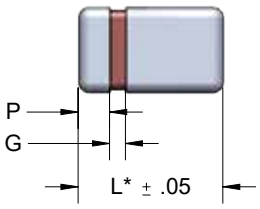
Tabless Surface Mount Coaxial Resonators

Resonator Profile	P	G
3mm	0.020"	0.025"
4mm	0.043"	0.050"
5mm	0.043"	0.050"
6mm	0.043"	0.050"
8mm	0.055"	0.073"
10mm	0.055"	0.073"
12mm	0.055"	0.073"

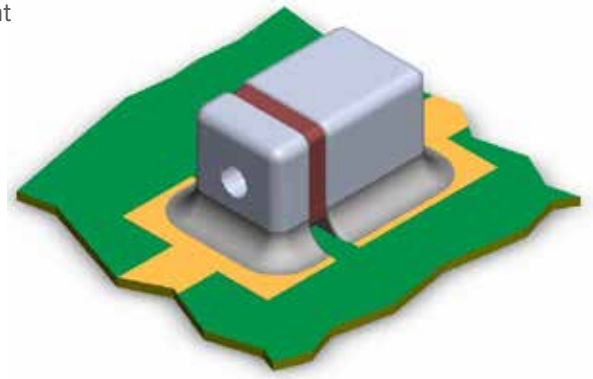
Ceramic resonators are also available in tabless configuration. This patent-pending technology represents a significant advance in reliability and accuracy, compared with traditional metal-tabbed resonators. The large solder pad eliminates misalignment and tab solder reflow problems, ensuring optimum performance.

FEATURES:

- No metal tabs
- Large solder pad
- No tab solder reflow problems
- No tab misalignment
- Higher Q



*L = 3200/(freq x Sqrt (K))



Part Numbering System - *Example:* DR03F36Q1550AYB

DR	03	F	36	Q	1550	A	Y	B
Dielectric Coaxial Resonator	Dielectric Profile	Material Source	Dielectric Constant	Resonator Type	Frequency	Frequency Tolerance	Tab	Packaging
	02 mm 03 mm 04 mm 05 mm 06 mm 08 mm 10 mm 12 mm 18 mm		K5 = 05 K9 = 09 K13 = 13 K20 = 20 K36 = 36 K98 = 98	Q = Quarter Wave H = Half Wave P = Fully Metallized Quarter Wave G = Fully Metallized Half Wave	Units in MHz	A = ±0.25% B = ±0.50% C = ±0.75% D = ±1.00% E = Special	Y = Std Tab N = No Tab G = Tabless Z = Tab 0.030" standoff	B = Bulk T = Tape S = Special