

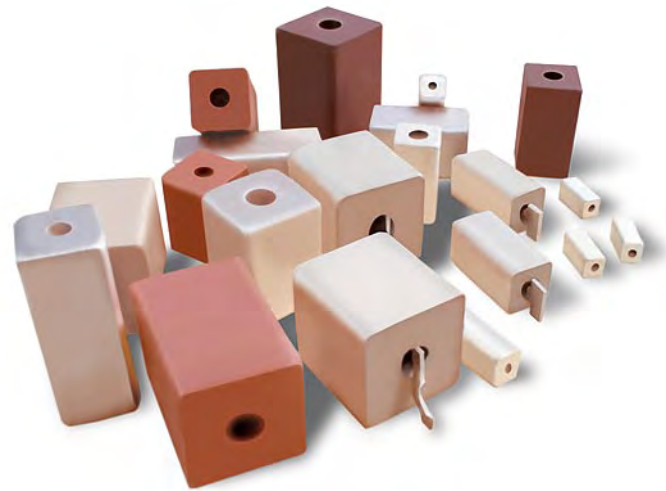
# Ceramic Resonators

## ■ 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 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, 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. Integrated Microwave offers a choice of eight resonator sizes and seven material types to meet virtually any resonator requirement in the 200 MHz to 10 GHz range. These resonators are pretuned to your specified frequency with a choice of tolerances.

Integrated Microwave resonators are made in our facilities in San Diego, California. In-house control of the pressing and firing of the green resonators ensures the optimum fired densities for the best electrical performance. Integrated Microwave's 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
- Eight sizes to choose from: 3, 4, 5, 6, 8, 10, 12, and 18mm
- Seven dielectric constants: 8, 13, 20, 36, 45, 84 and 98
- Thick film silver coating for excellent Q and solderability
- Superior silver adhesion – pull strengths greater than 20 pounds
- Standard frequency tolerance is 1.0%; tighter tolerances available
- SMT tabs or tabless configurations available for each size resonator

### APPLICATIONS:

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



INTEGRATED MICROWAVE®

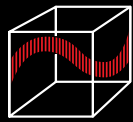
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*The authorized distributor in the Greater China Region*

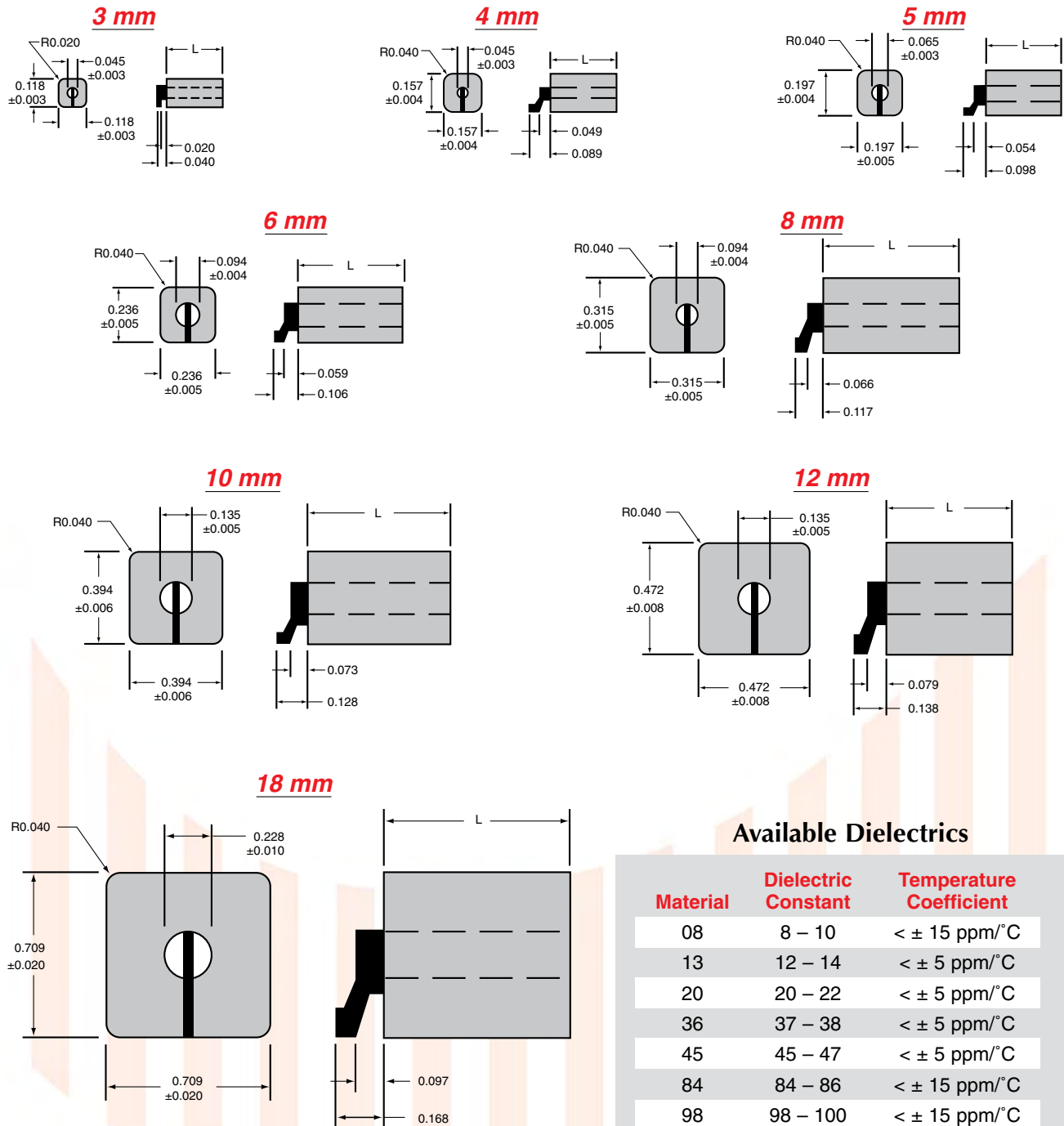
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# Ceramic Products

## Coaxial Resonators – *Surface Mount Dimensions and Configurations:*

• Units in inches • Standard tab thickness 0.020 inches. Custom tab configurations available – contact factory



### Available Dielectrics

Material	Dielectric Constant	Temperature Coefficient
08	8 – 10	< ± 15 ppm/°C
13	12 – 14	< ± 5 ppm/°C
20	20 – 22	< ± 5 ppm/°C
36	37 – 38	< ± 5 ppm/°C
45	45 – 47	< ± 5 ppm/°C
84	84 – 86	< ± 15 ppm/°C
98	98 – 100	< ± 15 ppm/°C

# Ceramic Resonators

## ■ Tabless Surface Mount Coaxial Resonators

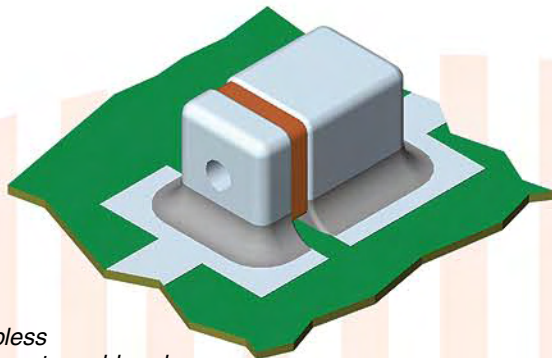
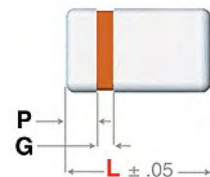
Integrated Microwave resonators are also available in tabless configuration. This technology represents a significant advance in reliability and accuracy, compared with traditional metal-tabbed resonators. The large solder pad eliminates misalignment and tab solder reflow problems, ensuring optimum performance.



### FEATURES:

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

$$L = 3200 / \text{frequency (MHz)} \times \sqrt{\text{dielectric constant}}$$



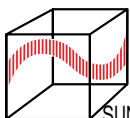
Tabless resonator soldered to circuit board

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"

Custom solder pads and electrical gaps available – contact factory

## Part Numbering System – Example: DR03F36Q1550AGB

DR	XX	F	XX	X	XXXX	X	X	X
Dielectric Coaxial Resonator	Dielectric Profile	Material Source	Dielectric Constant	Resonator Type	Frequency Units in MHz	Frequency Tolerance	TAB	Packaging
	03 mm	F	_K8 = 08	Q = 1/4 Wave		A = ± 0.25%	Y = Yes	B = Bulk
	04 mm		_K13 = 13	H = 1/2 Wave		B = ± 0.50%	N = No	T = Tape
	05 mm	P	_K20 = 20			C = ± 0.75%	G = Tabless Surface Mount	S = Special
	06 mm		_K36 = 36			D = ± 1.00%	L = Tabless Barrier Layer	
	08 mm		_K45 = 45			E = Special	F = Tabbed Barrier Layer	
	10 mm		_K84 = 84					
	12 mm		_K98 = 98					
	18 mm							



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