

DATA SHEET

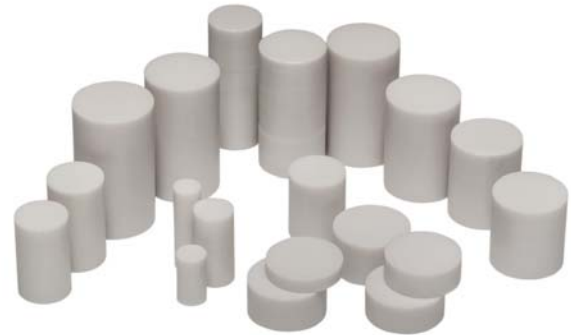
# 2150 Series: Temperature-Stable Dielectric Resonators

## Applications

- Base station filters and combiners
- Microwave filters and oscillators
- All cellular platforms

## Features

- Robust TM resonator material
- Small size
- Repeatability of design
- Low insertion loss
- High-volume manufacturing capability



## Description

Skyworks, through its wholly owned subsidiary, Trans-Tech, offers the 2150 series of temperature-stable dielectric resonators, designed for frequency operation from 700 MHz to 13.8 GHz. This series offers a reduced size while maintaining high Q.



Skyworks Green™ products are compliant with all applicable legislation and are halogen-free. For additional information, refer to *Skyworks Definition of Green™*, document number SQ04-0074.

## Material Characteristics

Characteristic	Value
Dielectric constant	21.5 ±1.0
Temperature coefficient of resonant frequency ( $\tau_f$ ) (ppm/°C) <sup>1</sup>	-2 to +2
Q (1/tan $\delta$ ) min <sup>1</sup>	6000 @ 5.5 GHz, (8500 typical)
Thermal expansion (ppm/°C) (20 to 200 °C)	9.1
Thermal conductivity (Cal/(cm*sec*°C)) @25 °C	0.010
Non-linear coefficient ( $\tau_f'$ )(ppm/°C <sup>2</sup> ) <sup>1</sup>	-0.09
Density (g/cc)	3.80
Water absorption (%)	<0.01
Flexural strength MPa	225
Compressive strength MPa	1486
Tensile strength MPa	101
Elastic modulus GPa	230
Shear modulus (psi x 10 <sup>6</sup> )	13.29
Poisson ratio	0.27
Rockwell hardness (R45N)	63
Fracture toughness MPa*m <sup>1/2</sup>	2.7

<sup>1</sup> These measurements are made in TE<sub>01</sub> $\delta$  mode.

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