**The products listed in this catalog are only a few of the thousands of variations that TUSONIX produces. For custom applications please contact the factory direct.**

TUSONIX
A Subsidiary of CTS Electronic Components

# Ceramic Coaxial Resonators

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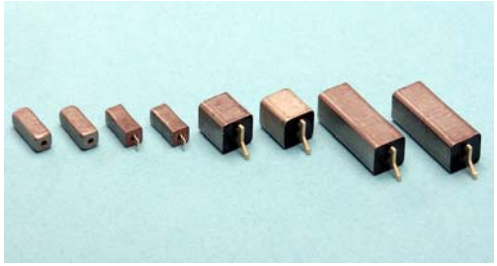


## Features

- Circuit miniaturization
- High quality factor Q
- Improved circuit Q
- Excellent solderability
- Eliminates microphonics
- Wide frequency range with tight tolerance
- Reduced size compared with conventional L-C circuits
- Rugged, thermally stable ceramics
- Repeatability of design
- Easy to fine tune or adjust SRF
- Superior metalization provides excellent adherence & High Q

## Typical Applications

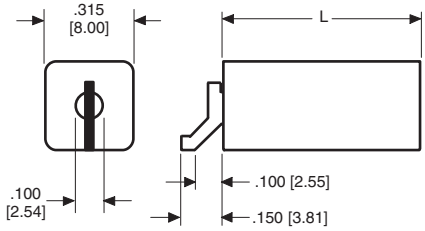
- Voltage Controlled Oscillators (VCOs)
- Coaxial Resonator Oscillators (CROs)
- Bandpass Filters
- Wireless Devices
- Duplexers

## Product Description

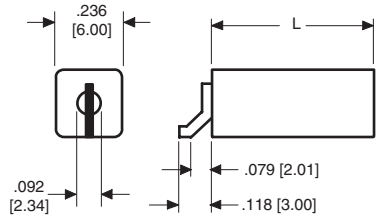
Tusonix's Ceramic Coaxial Resonators are offered in three sizes and four dielectric constants with a frequency range from 800MHz to 5.9GHz. Please inquire about different sizes with your local sales associate.

To ensure superior performance and adequate miniaturization, these parts are made of quality metalized ceramics. Tusonix offers the best ceramic composition in order to meet all necessary temperature performance, shielding and miniaturization requirements for an endless number of applications.

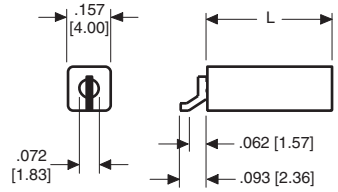
**6008 Series - 8mm**



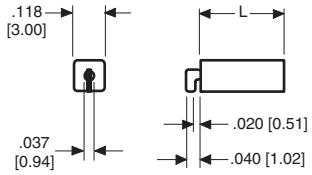

**6006 Series - 6mm**

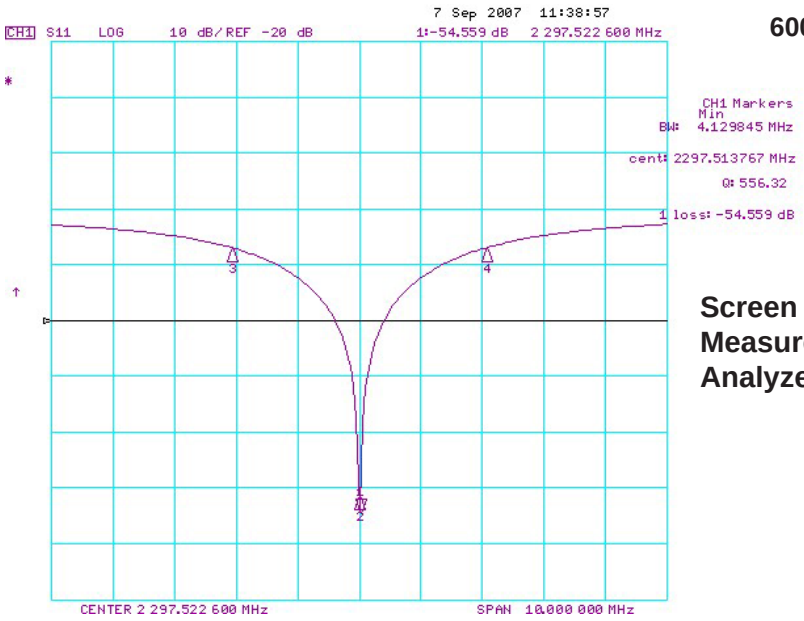



**6004 Series - 4mm**




**6003 Series - 3mm**




**Screen Shot of Resonant Frequency Measurement taken from Network Analyzer Model: Agilent 8753ES**

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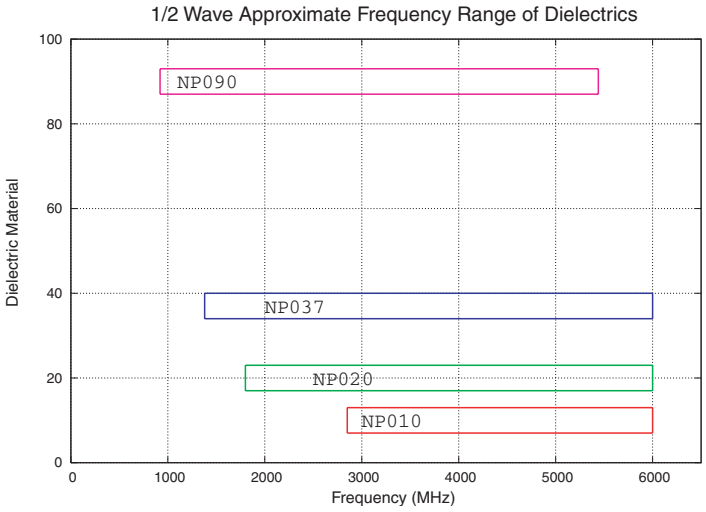
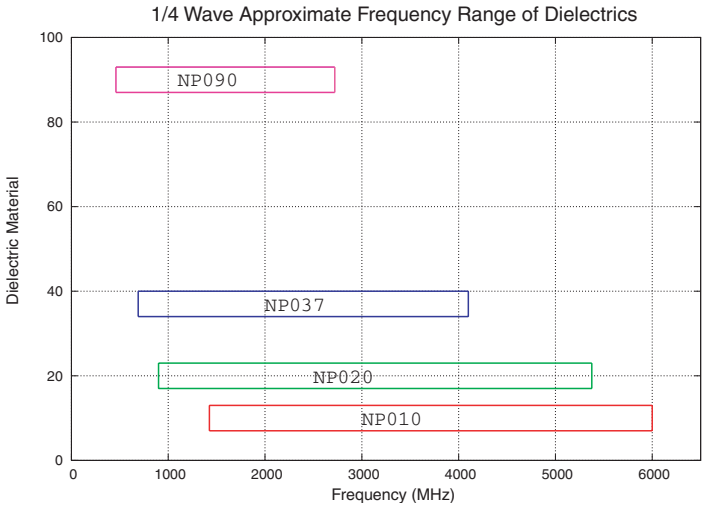
# Ceramic Coaxial Resonators

## Frequency Range Graphs




| LOT ACCEPTANCE INSPECTION: | | |
|---|---|---|
| **INSPECTION OR TEST** | **TEST METHODS STANDARDS** | **POST TEST REQUIREMENTS** |
| Solderability | MIL-STD-202 Method 208 | J-STD-002 |
| Resonant Frequency | Network Analyzer Reflection Method | All parts must be within the specified frequency range. |
| Push Off Test | IEC 60068-2-21 | >17 N With Ceramic Tear |

## Ordering Information: Creating the Part Number

| Coaxial Resonator | Square Tin Plated Style | Height in mm | Electrode, Fired on Silver Tin-plated over Nickel=0 Tab, 0=no 1=Soldered 2=Unsoldered | | Wave Type - Table 1 | Resonant Frequency in MHz | Dielectric Material - Table 2 | Temperature Coefficient of Resonant Frequency +10 PPM | Resonant Frequency Tolerance - +1% | Packaging Code - Tray (1) or Tape/Reel (2) |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 0 | 03 | 0 | 0 | 2 | 4600 | E | 0 | C | 1 |
| 6 | 0 | 04 | 0 | 1 | 4 | 1750 | G | 0 | C | 1 |

**Part No. Example : 6003-014-1750-E0C-1**

| Table 1 | |
|---|---|
| 2 | Half |
| 4 | Quarter |

| Table 2* (ε) | |
|---|---|
| D | 10 |
| E | 20 |
| F | 37 |
| G | 85 |

*Nominal values

**Length Formula:**

$$L = \frac{3\text{x}10^5}{n \cdot f_o \cdot \sqrt{\epsilon_r}}$$

The units on L are mm
when $f_o$ is specified in MHz.

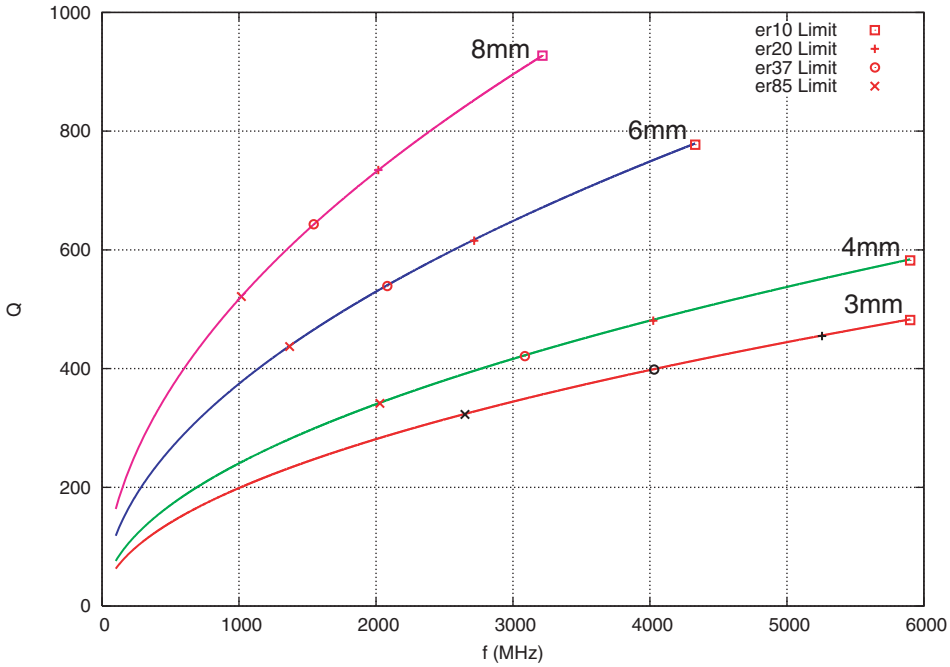
Half Wave: n = 2 Quarter Wave: n = 4

**Impedance:**

$$Z_0 = \frac{\sqrt{\mu / \epsilon_r}}{2\pi} \ln\left(\frac{1.079 \cdot W}{d}\right)$$

# Ceramic Coaxial Resonators

## Theoretical Q Value vs. Resonant Frequency




*Available sizes are displayed. (Actual Q value is tyically higher than shown.)*

## Quality Assurance Testing

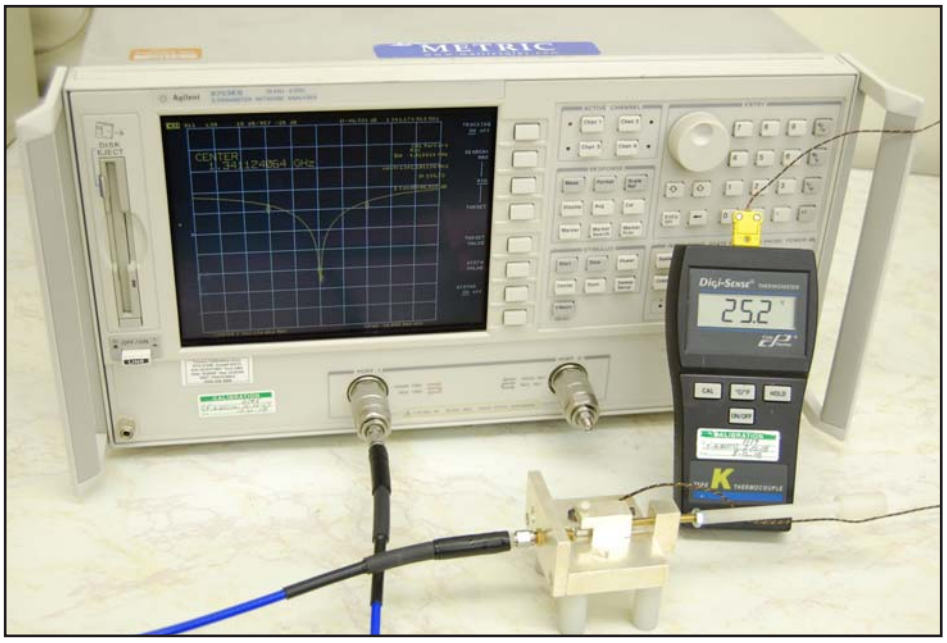



*Photo displays a Tusonix Coaxial Resonator being tested for resonant frequency and Q value with an Agilent 8753ES Network Analyzer.*

**For more information, please call the factory direct at 520-744-0400.**