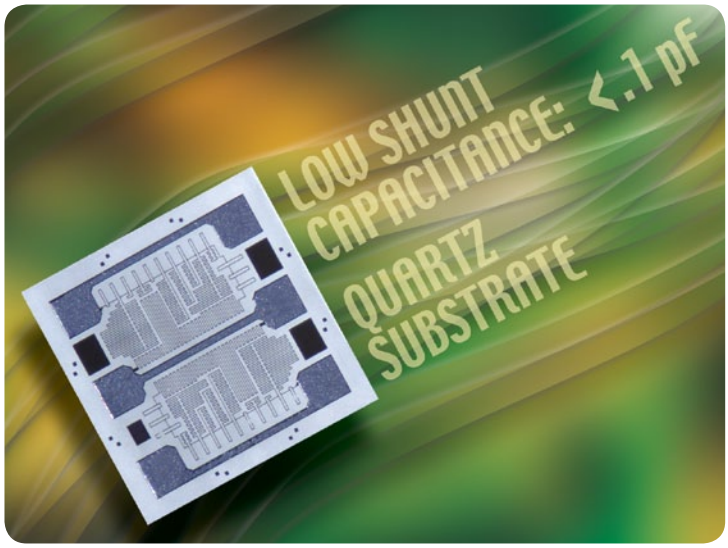
THIN FILM RESISTOR

CTQ

Resistors - Center-Tap, Wirebondable

Wire-Bondable Resistor on Quartz



KEY BENEFITS

- Low shunt capacitance: < 0.1 pF
- Close ratio matching: ± 2 ppm
- Resistance range: 10 ohms to 1 megohm
- Dielectric voltage: 400 Volts

APPLICATIONS

- Precision amplifiers
- Oscillators
- Attenuators

RESOURCES

- Datasheet: CTQ - http://www.vishay.com/doc?61030
- For technical questions contact efi@vishay.com

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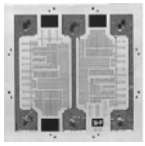


Product may not be to scale

The CTQ series resistor chips offer a wide resistance range with lower shunt capacitance than can be offered with the silicon based resistors but only at a lower power level.

The CTQ offers the designer flexibility in use as either a single value resistor or as two resistor with a center tap feature. The CTQs six bonding pads allows the user increased layout flexibility.

The CTQs are manufactured using Vishay Electro-Films (EFI) sophisticated thin film equipment and manufacturing technology. The CTQs are 100 % electrically tested and visually inspected to MIL-STD-883, method 2032 class H or K.

FEATURES

- Wire bondable
- Center tap feature
- Chip size: 0.030" x 0.030"
- Case: 0303
- Resistance range total: 10 Ω to 1 MΩ
- Resistor material: Tantalum nitride, self-passivating
- Moisture resistant
- Quartz substrate
- Low shunt capacitance < 0.1 pF

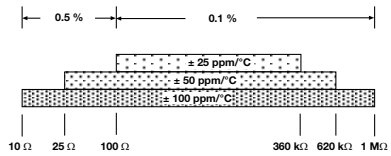
APPLICATIONS

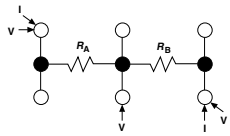
The CTQ center-tapped resistor chips are used mainly in feedback circuits of amplifiers where ratio matching, low shunt capacitance and tracking between two resistors is critical.

For low values, the resistance of the six bonding pad configuration can vary, depending on the method of measurement used. Vishay EFI measures low-value resistors by the four-wire kelvin technique.

TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES		
PARAMETER	**VALUE**	**UNIT**
Total Resistance Range	10 to 1M	Ω
Standard Tolerances	± 0.1, ± 0.5	%
TCR	± 25, ± 50, ± 100	ppm/°C

Tightest Standard Tolerance Available





STANDARD ELECTRICAL SPECIFICATIONS		
PARAMETER	**VALUE**	**UNIT**
TCR Tracking Between Halves (R_A/R_B) (1)	± 2	ppm/°C
Center Tap Ratio, R_A/R_B: Tolerance	1 ± 1 standard	%
Noise, MIL-STD-202, Method 308, 100 Ω to 250 kΩ, < 100 Ω or > 251 kΩ	- 35 typ. - 20 typ.	dB
Moisture Resistance, MIL-STD-202, Method 106	± 0.5 max. $\Delta R/R$	%
Stability, 1000 h, + 125 °C, 30 mW	± 0.25 max. $\Delta R/R$	%
Operating Temperature Range	- 55 to + 125	°C
Thermal Shock, MIL-STD-202, Method 107, Test Condition F	± 0.1 max. $\Delta R/R$	%
High Temperature Exposure, + 150 °C, 100 h	± 0.2 max. $\Delta R/R$	%
Dielectric Voltage Breakdown	400	V
Insulation Resistance	10^{12} min.	Ω
Operating Voltage	200 max.	V
DC Power Rating at + 70 °C (derated to zero at + 175 °C)	0.06 max.	W
5 x Rated Power Short-Time Overload, + 25 °C, 5 s	± 0.25 max. $\Delta R/R$	%

Note

(1) 5 ppm/°C for R < 100. 20 ppm/°C for R < 20

MECHANICAL SPECIFICATIONS	
PARAMETER	**VALUE**
Chip Size	0.030" x 0.030" ± 0.002" (0.762 mm x 0.762 mm ± 0.05 mm)
Chip Thickness	0.010" ± 0.003" (0.254 mm ± 0.05 mm)
Chip Substrate Material	Quartz
Resistor Material	Tantalum nitride, self-passivating
Bonding Pad Size	0.005" x 0.005" (0.127 mm x 0.127 mm) min.
Number of Pads	6
Pad Material	10 kÅ minimum gold (Al optional)
Backing	None, lapped quartz

Revision 08-Sep-11

Options: Alphanumeric part marking, up to six characters.