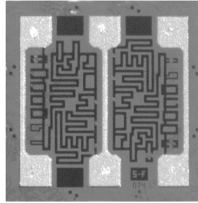


Nichrome Thin Film, Center-Tapped Resistors



Product may not be to scale

The CTN series is a center tapped nichrome resistor chip providing excellent stability at 250mW power levels. The CTN offers the designer flexibility in use as either a single value resistor or as two resistors with a center tap feature. The CTNs six bonding pads allows the user increased layout flexibility.

The CTNs are manufactured using Vishay Electro-Films (EFI) sophisticated thin film equipment and manufacturing technology. The CTNs are 100% electrically tested and visually inspected to MIL-STD-883.

FEATURES

- Center tap feature
- Chip size: 0.030 inches square
- Resistance range total: 10Ω to 1MΩ
- Ratio tolerances to: 0.1%
- Resistor material: nichrome
- Oxidized silicon substrate for good power dissipation

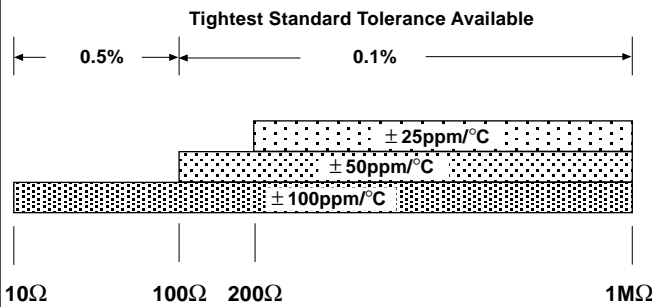
APPLICATIONS

The CTN center-tapped resistor chips are used mainly in feedback circuits of amplifiers where ratio matching, high power and tracking between two resistors is critical.

Recommended for Hermetic environment where die is not exposed to moisture.

For low values, the resistance of the six bonding-pad configurations 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



PROCESS CODE	
CLASS H*	CLASS K*
202	262
200	260
201	261

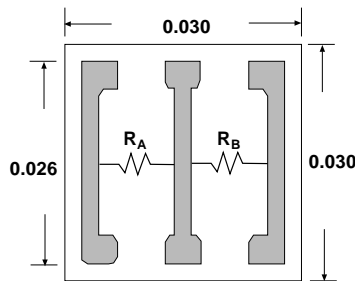
*MIL-PRF-38534

STANDARD ELECTRICAL SPECIFICATIONS

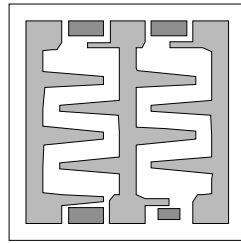
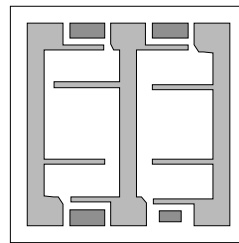
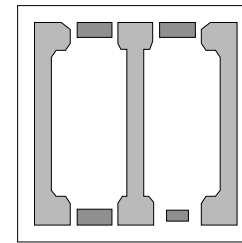
PARAMETER	
TCR tracking between halves (R_A, R_B)	$\pm 2\text{ppm}/^\circ\text{C}^*$
Center tap ratio, R_A/R_B tolerance	$1 \pm 1\%$ standard
Noise, MIL-STD-202, Method 308 100Ω - 250kΩ	- 35dB typical
Stability, 1000 hours, + 125°C, 125mW	$\pm 0.1\% \Delta R/R$
Operating temperature range	- 55°C to + 125
Dielectric voltage breakdown	200V
Insulation resistance	10^{12} minimum
Operating voltage	100V maximum
DC power rating at + 70°C (derated to zero at + 175°C)	250mW

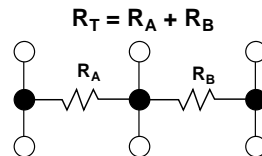
20ppm/°C for $R < 20$

VISHAY ELECTRO-FILMS • FRANCE +33.4.93.37.28.24 FAX: +33.4.93.37.27.31 • GERMANY +49.9287.710 FAX: +49.9287.70435 • ISRAEL +972.3.557.0945 FAX: +972.3.558.9121
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CONFIGURATIONS in inches

STANDARD CONFIGURATION

Six locations. All pads 0.005 x 0.005 inch


TYPICAL RANGE
10Ω - 49Ω

TYPICAL RANGE
50Ω - 199Ω

TYPICAL RANGE
200Ω - 1MΩ

SCHEMATIC


MECHANICAL SPECIFICATIONS in inches	
PARAMETER	
Chip size	0.030 x 0.030 ± 0.002 (0.762 x 0.762 ± 0.05mm)
Chip thickness	0.010 ± 0.002 (0.254 ± 0.05mm)
Chip substrate material	Oxidized silicon, 10kÅ minimum SiO ₂
Resistor material	Nichrome
Bonding pad size	0.005 x 0.005 (0.127 x 0.127mm) minimum
Number of pads	6
Pad material	15kÅ minimum gold standard
Backing	None, lapped semiconductor silicon

OPTIONS: Alphanumeric part parking, up to six characters
 Gold backing for eutectic die attach
 Center-tap ratio tolerances to 0.01%
 Contact Applications Engineer

ORDERING INFORMATION

Example: 100% visualled, 10kΩ, ± 1%, ± 100ppm/°C TCR, Gold Pads, Class H

P/N:	W INSPECTION /PACKAGING	CTN PRODUCT FAMILY	201 PROCESS CODE	1000 RESISTANCE VALUE	1 MULTIPLIER CODE	F TOLERANCE CODE
	W = 100% visually inspected parts per MIL-STD-883 loaded in matrix tray		See Process Code table	Use first 4 significant digits of resistance (R _T)	C = 0.001 B = 0.01 A = 0.1 0 = 1 1 = 10 2 = 100 3 = 1000 4 = 10000	B = 0.1% C = 0.2% D = 0.5% F = 1.0% G = 2.0% H = 2.5% J = 5.0% K = 10% M = 20% L = 25%
	X = Sample, visually inspected loaded in matrix trays (4% AQL)					

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