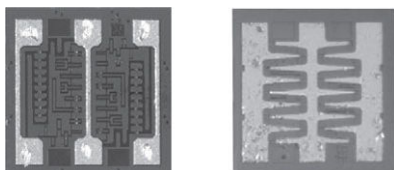


# Thin Film Low Ohmic Value Resistor Divider Network



Product may not be to scale

## LINKS TO ADDITIONAL RESOURCES



The CTR low ohm series provides a center tap option down to 1  $\Omega$  for non-critical tolerance applications.

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

## FEATURES

- Wire bondable
- Resistance range total: 1  $\Omega$  to 9.9  $\Omega$
- Center tap
- Chip size: 0.030" x 0.030"
- Case: 0303
- Oxidized silicon substrate for good power dissipation
- Resistor material: tantalum nitride, self passivating
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

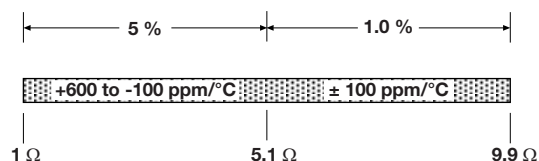
## APPLICATIONS

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 using the method illustrated in the measurement schematic for resistors of less than 10.

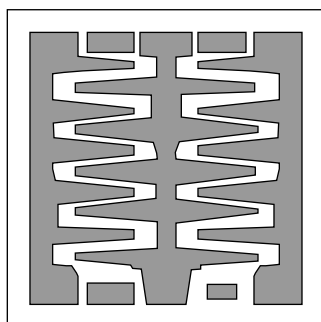
Consult Vishay EFI Applications Engineering for alternate measurement method if tighter requirements are needed.

TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES		
PARAMETER	VALUE	UNIT
Total Resistance Range	1 to 9.9	$\Omega$
Standard Tolerances	$\pm 1, \pm 5$	%
TCR	$\pm 100, + 600$	ppm/ $^{\circ}\text{C}$

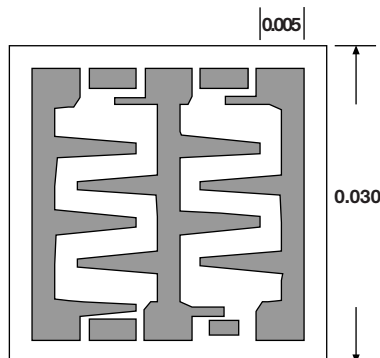
Tightest Standard Tolerance Available



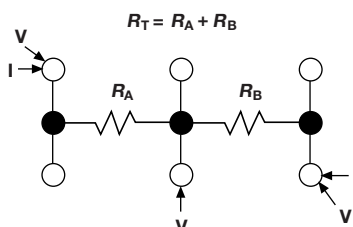
STANDARD ELECTRICAL SPECIFICATIONS		
PARAMETER	VALUE	UNIT
TCR Tracking Between Halves ( $R_A/R_B$ )	$\pm 200$ typ.	ppm/ $^{\circ}\text{C}$
Voltage Ratio, $R_A/R_B$ : Tolerance	$1 \pm 5$	%
Noise, MIL-STD-202, Method 308	- 20 typ.	dB
Stability, 1000 h, + 125 $^{\circ}\text{C}$ , 125 mW	$\pm 0.25 \pm 0.01$ max. $\Delta R/R$	%
Operating Temperature Range	- 55 to + 125	$^{\circ}\text{C}$
Thermal Shock, MIL-STD-202, Method 107, Test Condition F	$\pm 0.1$ max. $\Delta R/R$	%
High Temperature Exposure, + 150 $^{\circ}\text{C}$ , 100 h	$\pm 0.2 + 0.01$ max. $\Delta R/R$	%
DC Power Rating at 70 $^{\circ}\text{C}$ (derated to zero at + 175 $^{\circ}\text{C}$ )	0.25	W
5 x Rated Power Short-Time Overload, + 25 $^{\circ}\text{C}$ , 5 s	$\pm 0.1$ max. $\Delta R/R$	%

**DIMENSIONS** in inches


**TYPICAL RANGE**  
1 Ω to 6.7 Ω



**TYPICAL RANGE**  
6.8 Ω to 9.9 Ω

**SCHEMATIC**


MECHANICAL SPECIFICATIONS	
PARAMETER	VALUE
Chip Size	0.030" x 0.030" ± 0.002" (0.762 mm x 0.762 mm ± 0.050 mm)
Chip Thickness	0.010" ± 0.002" (0.254 mm ± 0.05 mm)
Chip Substrate Material	Oxidized silicon, 10 kÅ minimum SiO <sub>2</sub>
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 Al (Au optional)
Backing	None, lapped semiconductor silicon

GLOBAL PART NUMBER INFORMATION																
Global Part Number: CTR5000CKNZNANHWS																
Global Part Number Description: CTR 5K 10 % No ratio +600 / -100 ppm/°C None Al No back metal H WS																
C	T	R	5	0	0	0	C	K	N	Z	N	A	N	H	W	S
MODEL	RESISTANCE (R TOTAL)	RESISTANCE MULTIPLIER CODE	TOL. CODE (%)	RATIO TOL. (%)	TCR (ppm/°C)	TCR TRACK (ppm/°C)	TERMINATION	BACK METAL	VISUAL CLASS	PACKAGING CODE						
CTR	First 4 digits are significant figures of resistance	C = 0.001 B = 0.01	F = 1.0 G = 2.0 J = 5.0 K = 10.0 M = 20.0	F = 1.0 G = 2.0 J = 5.0 N = no	K = ± 100 M = ± 250 T = +300/-100 Z = +600/-100	N = no	G = Au A = Al	G = Au N = none	H = class H K = class K	WS = waffle pack 100 min., 1 mult.						



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