

## Thin Film 0402 Size Resistor on Alumina



Product may not be to scale

The CC1- series single-value resistor chips offer a small size, low shunt capacitance and solder pad option. The CC1- nichrome resistors material offers excellent stability. The CC1- resistors are manufactured using Vishay Electro-Films (EFI) sophisticated thin film equipment and manufacturing technology. The CC1- resistors are 100 % electrically tested and visually inspected to MIL-STD-883.

### FEATURES

- Wire bondable
- Small single chip size: 0.020" x 0.040"
- Case: 0402
- Resistance range: 10  $\Omega$  to 24 k $\Omega$
- Alumina substrate
- Low stray capacitance: < 0.2 pF
- Resistor material: Nichrome
- Resistor passivation coat optional
- Solder pads optional
- Material categorization:  
For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### Note

\* This datasheet provides information about parts that are RoHS-compliant and/or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information/tables in this datasheet for details.

### APPLICATIONS

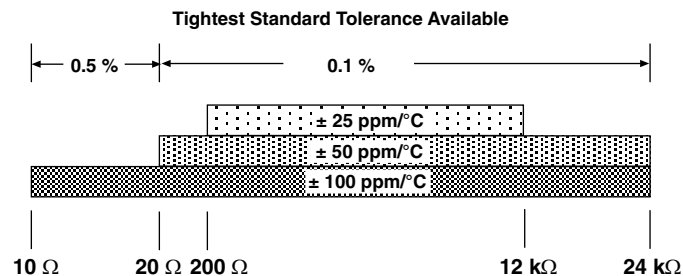
Vishay EFI CC1- chip resistors provide excellent high-frequency response and are ideally suited for prototyping.

Typical application areas are:

- Amplifiers
- Oscillators
- Attenuators
- Couplers
- Filters

Recommended for hermetic environments where die is not exposed to moisture.

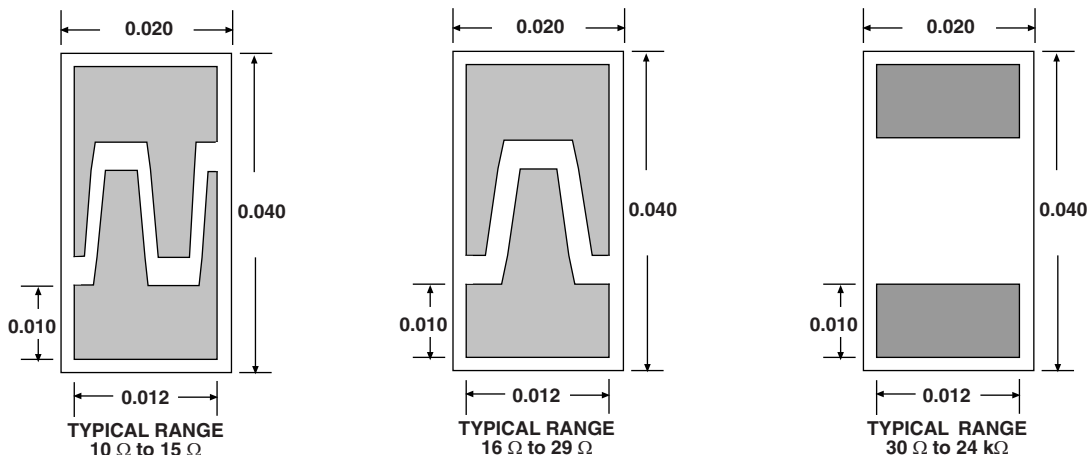
TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES		
PARAMETER	VALUE	UNIT
Total Resistance Range	10 to 24K	$\Omega$
Standard Tolerances	$\pm 0.05, \pm 0.1$	%
TCR	$\pm 25, \pm 50, \pm 100$	ppm/ $^{\circ}$ C



### Note

- Only 25  $\Omega$  to 1 k $\Omega$  are standard strip line designs for microwave applications

STANDARD ELECTRICAL SPECIFICATIONS		
PARAMETER	VALUE	UNIT
Noise, MIL-STD-202, Method 308	- 20 typ.	dB
Moisture Resistance, MIL-STD-202, Method 106 - Hermetic applications	$\pm 0.2$ max. $\Delta R/R$	%
Stability, 1000 h, + 125 $^{\circ}$ C, 40 mW	$\pm 0.1$ max. $\Delta R/R$	%
Operating Temperature Range	- 55 to + 125	$^{\circ}$ C
Thermal Shock, MIL-STD-202, Method 107, Test Condition F	$\pm 0.25$ max. $\Delta R/R$	%
High Temperature Exposure, + 150 $^{\circ}$ C, 100 h	$\pm 0.1$ max. $\Delta R/R$	%
Dielectric Voltage Breakdown	400	V
Insulation Resistance	$10^{12}$ min.	$\Omega$
Operating Voltage	100 max.	V
DC Power Rating at + 125 $^{\circ}$ C (Derated to Zero at + 150 $^{\circ}$ C)	0.040 max.	W
5 x Rated Power Short-Time Overload, + 25 $^{\circ}$ C, 5 s	$\pm 0.25$ max. $\Delta R/R$	%

**DIMENSIONS** in inches

**SCHEMATIC**


MECHANICAL SPECIFICATIONS	
PARAMETER	VALUE
Chip Size	0.020" x 0.040" ± 0.003" (0.5 mm x 1.0 mm ± 0.08 mm)
Chip Thickness	0.010" ± 0.002" (0.254 mm ± 0.03 mm)
Chip Substrate Material	99.6 % alumina, 2 μ"to 4 μ" finish
Resistor Material	Nichrome
Bonding Pad Size	0.010" x 0.012" (0.175 mm x 0.30 mm)
Number of Pads	2
Pad Material	25 kÅ minimum gold standard
Backing	None

GLOBAL PART NUMBER INFORMATION																
Global Part Number: <b>CC1-12500KSSNHWS</b>																
Global Part Number Description: <b>CC1- 1.25K 10 %, 100 ppm/°C, std trim, SnPb contacts, no back metal, class H, WS</b>																
<b>C</b>	<b>C</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>K</b>	<b>K</b>	<b>S</b>	<b>S</b>	<b>N</b>	<b>H</b>	<b>W</b>	<b>S</b>
MODEL	RESISTANCE	RES. MULTIPLIER CODE	TOL. CODE (%)	TCR (ppm/°C)	TRIM STYLE	TERMINATION	BACK METAL	VISUAL CLASS	PACKAGING CODE							
<b>CC1-</b>	First 4 digits are significant figures of resistance	<b>B</b> = 0.01 <b>A</b> = 0.1 <b>0</b> = 1 <b>1</b> = 10	<b>B</b> = 0.1 <b>C</b> = 0.25 <b>D</b> = 0.5 <b>F</b> = 1.0 <b>G</b> = 2.0 <b>J</b> = 5.0 <b>K</b> = 10	<b>E</b> = ± 25 <b>C</b> = ± 50 <b>K</b> = ± 100	<b>E</b> = Edg <b>S</b> = Std <b>U</b> = Usr	<b>G</b> = Au <b>S</b> = SnPb <b>A</b> = Al <b>T</b> = Lead (Pb)-free (e1)	<b>G</b> = Au <b>N</b> = None	<b>H</b> = Class H <b>K</b> = Class K	<b>WS</b> = Waffle pack 100 min, 1 mult							



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