



## Thick Film Chip Resistors, Non-Magnetic, Industrial / High Reliability



MATERIAL SPECIFICATIONS	
Resistive element	Ruthenium oxide
Encapsulation	Epoxy
Substrate	96 % alumina
Termination	Solder-coated
Solder finish	Pure tin or tin / lead solder alloy

### FEATURES

- Manufactured using non-magnetic terminations
- Undergoes group A testing to MIL-PRF-55342 (precap visual inspection, thermal shock, DC resistance, 100 % visual inspection) prior to shipping
- Construction is sulfur impervious against a high sulfur environment (ASTM B 809-95 test method)
- Termination: tin / lead wraparound termination. Also available with lead (Pb)-free wraparound terminations
- Capability to develop specific reliability programs designed to customer requirements
- Size, value, packaging and materials can be customized for special customer requirements
- Operating temperature range: -65 °C to +155 °C
- 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

STANDARD ELECTRICAL SPECIFICATIONS							
GLOBAL MODEL	HISTORICAL MODEL	CASE SIZE	POWER RATING <sup>(1)</sup> P <sub>70 °C</sub> W	MAXIMUM WORKING VOLTAGE <sup>(2)</sup> V	RESISTANCE RANGE Ω	TOLERANCE ± %	TEMPERATURE COEFFICIENT ± ppm/°C
RCWP0201..1C	RCWP-0201-102	0201	0.05	30	10 to 46	5, 10	300
					47 to 1M	1, 2, 5, 10	100, 200, 300
RCWP0502..1C	RCWP-0502-102	0502	0.05	40	1 to 9.1	2, 5, 10	200, 300
					10 to 22M	1, 2, 5, 10	100, 200, 300
					10 to 10M	0.5	100, 200, 300
RCWP0302..1C	RCWP-0302-102	0302	0.04	15	1 to 9.1	2, 5, 10	200, 300
					10 to 22M	1, 2, 5, 10	100, 200, 300
					10 to 10M	0.5	100, 200, 300
RCWP0402..1C	RCWP-0402-102	0402	0.05	30	1 to 9.1	2, 5, 10	200, 300
					10 to 22M	1, 2, 5, 10	100, 200, 300
					10 to 10M	0.5	100, 200, 300
RCWP0603..1C	RCWP-0603-102	0603	0.10	50	1 to 5.1	2, 5, 10	200, 300
					5.6 to 22M	1, 2, 5, 10	100, 200, 300
					5.62 to 10M	0.5	100, 200, 300
RCWP0540..1C	RCWP-540-102	0504	0.08	40	1 to 9.1	2, 5, 10	200, 300
					10 to 22M	1, 2, 5, 10	100, 200, 300
					10 to 10M	0.5	100, 200, 300
RCWP0550..1C	RCWP-550-102	0505	0.125	50	1 to 9.1	2, 5, 10	200, 300
					10 to 22M	1, 2, 5, 10	100, 200, 300
					10 to 10M	0.5	100, 200, 300
RCWP0575..1C	RCWP-575-102	0705 <sup>(3)</sup>	0.15	70	1 to 5.1	2, 5, 10	200, 300
					5.6 to 22M	1, 2, 5, 10	100, 200, 300
					5.62 to 10M	0.5	100, 200, 300
RCWP5100..1C	RCWP-5100-102	1005	0.20	100	1 to 5.1	2, 5, 10	200, 300
					5.6 to 22M	1, 2, 5, 10	100, 200, 300
					5.62 to 10M	0.5	100, 200, 300



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RCWP1206..1C	RCWP-1206-102	1206	0.25	100	1 to 5.1	2, 5, 10	200, 300
					5.6 to 22M	1, 2, 5, 10	100, 200, 300
					5.62 to 10M	0.5	100, 200, 300
RCWP5150..1C	RCWP-5150-102	1505	0.35	125	1 to 5.1	2, 5, 10	200, 300
					5.6 to 22M	1, 2, 5, 10	100, 200, 300
					5.62 to 10M	0.5	100, 200, 300
RCWP1100..1C	RCWP-1100-102	1010	0.50	100	1 to 5.1	2, 5, 10	200, 300
					5.6 to 22M	1, 2, 5, 10	100, 200, 300
					5.62 to 10M	0.5	100, 200, 300
RCWP1210..1C	RCWP-1210-102	1210	0.50	200	1 to 5.1	2, 5, 10	200, 300
					5.6 to 22M	1, 2, 5, 10	100, 200, 300
					5.62 to 10M	0.5	100, 200, 300
RCWP7225..1C	RCWP-7225-102	2208	0.60	200	1 to 5.1	2, 5, 10	200, 300
					5.6 to 22M	1, 2, 5, 10	100, 200, 300
					5.62 to 10M	0.5	100, 200, 300
RCWP2010..1C	RCWP-2010-102	2010	0.80	200	1 to 5.1	2, 5, 10	200, 300
					5.6 to 22M	1, 2, 5, 10	100, 200, 300
					5.62 to 10M	0.5	100, 200, 300
RCWP2512..1C	RCWP-2512-102	2512	1.0	200	1 to 5.1	2, 5, 10	200, 300
					5.6 to 22M	1, 2, 5, 10	100, 200, 300
					5.62 to 10M	0.5	100, 200, 300

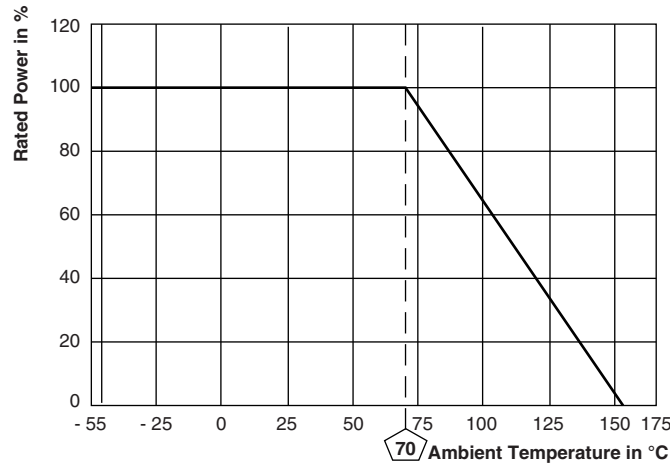
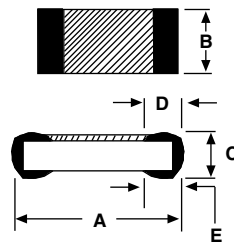
**Notes**

- Consult factory for extended resistance range
- <sup>(1)</sup> Power rating depends on the maximum temperature at the solder point, the component placement density and the substrate material
- <sup>(2)</sup> Continuous working voltage shall be  $\sqrt{P \times R}$  or maximum working voltage, whichever is less
- <sup>(3)</sup> MIL case size 0705 and EIA case size 0805 are dimensionally the same

GLOBAL PART NUMBER INFORMATION																	
New Global Part Numbering: RCWP510010K0GMWB1C (preferred part numbering format)																	
R	C	W	P	5	1	0	0	1	0	K	0	G	M	W	B	1	C
GLOBAL MODEL	RESISTANCE VALUE		TOLERANCE CODE		TEMPERATURE COEFFICIENT		PACKAGING CODE <sup>(1)</sup>					SPECIAL					
(see Standard Electrical Specifications table)	R = Ω K = kΩ M = MΩ 10R0 = 10 Ω 1K30 = 1.3 kΩ 1M00 = 1.0 MΩ 0000 = 0 Ω jumper		D = ± 0.5 % F = ± 1 % G = ± 2 % J = ± 5 % K = ± 10 % Z = 0 Ω jumper		K = 100 ppm N = 200 ppm M = 300 ppm S = special, 0 Ω jumper		<b>TP</b> = tin / lead, T/R, plastic tape (full reel; all except 0201 and 1210) <b>S3</b> = tin / lead, T/R, plastic tape (1000 pieces; all except 0201 and 1210) <b>WB</b> = tin / lead, waffle tray <b>S2</b> = tin / lead, T/R, plastic tape (500 pieces; all except 0201 and 1210) <b>S6</b> = tin / lead, T/R, plastic tape (300 pieces; all except 0201 and 1210) <b>UA</b> = tin / lead, T/R, paper tape (full reel; 0201 and 1210 only) <b>UD</b> = tin / lead, T/R, paper tape (1000 pieces; 0201 and 1210 only) <b>UC</b> = tin / lead, T/R, paper tape (500 pieces; 0201 and 1210 only) <b>UB</b> = tin / lead, T/R, paper tape (300 pieces; 0201 and 1210 only)  <b>EA</b> = lead (Pb)-free, T/R (full) <b>EB</b> = lead (Pb)-free, T/R (1000 pieces) <b>ET</b> = lead (Pb)-free, waffle tray <b>EC</b> = lead (Pb)-free, T/R (500 pieces) <b>ED</b> = lead (Pb)-free, T/R (300 pieces)					<b>1C</b> = non-magnetic (-102)					

**Notes**

- For additional information on packaging, refer to the Surface Mount Resistor Packaging document ([www.vishay.com/doc?31543](http://www.vishay.com/doc?31543))
- <sup>(1)</sup> Tape and reel packaging with plastic tape standard for all case sizes except 0201 and 1210. For the 0201 and 1210 case sizes, the product is only offered in tape and reel packaging with paper tape

**DERATING CURVE**

**DIMENSIONS** in inches (millimeters)


GLOBAL MODEL	A (LENGTH)	B (WIDTH)	C (HEIGHT)	D (TOP TERM)	E (BOTTOM TERM)
RCWP0201..1C	0.024 ± 0.002 (0.61 ± 0.05)	0.012 ± 0.002 (0.30 ± 0.05)	0.009 ± 0.002 (0.23 ± 0.05)	0.006 ± 0.003 (0.15 ± 0.08)	0.006 + 0.002 - 0.004 (0.15 + 0.05 - 0.10)
RCWP0302..1C	0.034 ± 0.004 (0.86 ± 0.10)	0.021 ± 0.003 (0.53 ± 0.08)	0.013 ± 0.003 (0.33 ± 0.08)	0.007 ± 0.005 (0.18 ± 0.13)	0.008 ± 0.005 (0.20 ± 0.13)
RCWP0402..1C	0.039 ± 0.003 (0.99 ± 0.08)	0.020 ± 0.003 (0.51 ± 0.08)	0.013 ± 0.003 (0.33 ± 0.08)	0.010 ± 0.005 (0.25 ± 0.13)	0.010 ± 0.005 (0.25 ± 0.13)
RCWP0502..1C	0.055 ± 0.005 (1.40 ± 0.13)	0.023 ± 0.003 (0.58 ± 0.08)	0.015 ± 0.003 (0.38 ± 0.08)	0.010 ± 0.005 (0.25 ± 0.13)	0.015 ± 0.005 (0.38 ± 0.13)
RCWP0540..1C	0.055 ± 0.005 (1.40 ± 0.13)	0.040 ± 0.005 (1.02 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)	0.010 ± 0.005 (0.25 ± 0.13)	0.010 ± 0.005 (0.25 ± 0.13)
RCWP0550..1C	0.055 ± 0.005 (1.40 ± 0.13)	0.050 ± 0.005 (1.27 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)	0.010 ± 0.005 (0.25 ± 0.13)	0.015 ± 0.005 (0.38 ± 0.13)
RCWP0575..1C	0.080 ± 0.005 (2.03 ± 0.13)	0.050 ± 0.005 (1.27 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)	0.016 ± 0.008 (0.41 ± 0.20)	0.015 ± 0.005 (0.38 ± 0.13)
RCWP0603..1C	0.063 ± 0.005 (1.60 ± 0.13)	0.032 ± 0.005 (0.81 ± 0.13)	0.018 ± 0.005 (0.46 ± 0.13)	0.012 ± 0.005 (0.30 ± 0.13)	0.015 ± 0.005 (0.38 ± 0.13)
RCWP1100..1C	0.105 ± 0.005 (2.67 ± 0.13)	0.100 ± 0.005 (2.54 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)	0.015 ± 0.005 (0.38 ± 0.13)	0.015 ± 0.005 (0.38 ± 0.13)
RCWP1206..1C	0.125 ± 0.005 (3.18 ± 0.13)	0.063 ± 0.005 (1.60 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)	0.015 ± 0.005 (0.38 ± 0.13)	0.015 ± 0.005 (0.38 ± 0.13)
RCWP1210..1C	0.126 ± 0.008 (3.20 ± 0.20)	0.098 ± 0.008 (2.50 ± 0.20)	0.022 ± 0.002 (0.55 ± 0.05)	0.016 ± 0.008 (0.40 ± 0.20)	0.018 ± 0.008 (0.45 ± 0.20)
RCWP2010..1C	0.197 ± 0.006 (5.00 ± 0.15)	0.098 ± 0.005 (2.49 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)
RCWP2512..1C	0.250 ± 0.006 (6.35 ± 0.15)	0.124 ± 0.005 (3.15 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)
RCWP5100..1C	0.105 ± 0.005 (2.67 ± 0.13)	0.050 ± 0.005 (1.27 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)	0.015 ± 0.005 (0.38 ± 0.13)	0.015 ± 0.005 (0.38 ± 0.13)
RCWP5150..1C	0.155 ± 0.005 (3.94 ± 0.13)	0.050 ± 0.005 (1.27 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)	0.015 ± 0.005 (0.38 ± 0.13)	0.015 ± 0.005 (0.38 ± 0.13)
RCWP7225..1C	0.230 ± 0.005 (5.84 ± 0.13)	0.075 ± 0.005 (1.91 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)	0.020 ± 0.005 (0.51 ± 0.13)



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