

## Thick Film Chip Resistors, Industrial, Low Value



### FEATURES

**HALOGEN  
FREE**

- Manufactured to the DLA L&M/DSCC drawings for military low value chip resistor products
- Group A and B screening to MIL-PRF-55342
- Extremely low resistance values (0.0499  $\Omega$  to 0.999  $\Omega$ )
- Termination: tin/lead wraparound termination over nickel barrier
- Operating temperature range: -65  $^{\circ}\text{C}$  to +155  $^{\circ}\text{C}$
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

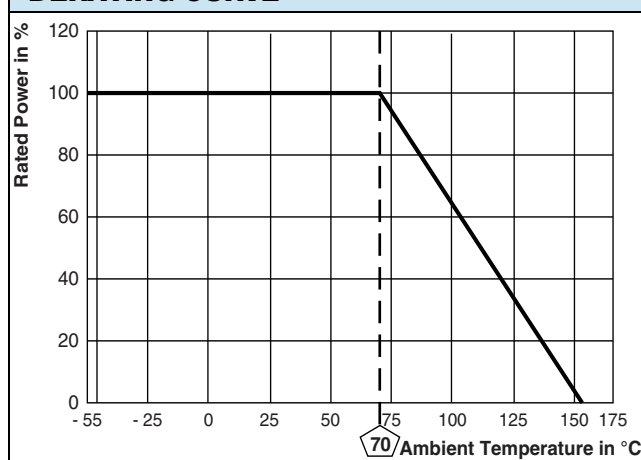
### STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	DLA L&M/DSCC DRAWING NUMBER	CASE SIZE	POWER RATING <sup>(1)</sup> $P_{70^{\circ}\text{C}}$ W	MAXIMUM WORKING VOLTAGE <sup>(2)</sup> V	RESISTANCE RANGE $\Omega$	TOLERANCE $\pm \%$	TEMPERATURE COEFFICIENT $\pm \text{ppm}/^{\circ}\text{C}$
RCWP0402..1A	12012	0402	0.05	0.224	0.0499 to 0.196	1, 2, 5, 10	200, 300
					0.200 to 0.999	1, 2, 5, 10	100, 200, 300
RCWP0502..1A	12003	0502	0.05	0.224	0.0499 to 0.200	1, 2, 5, 10	200, 300
					0.205 to 0.999	1, 2, 5, 10	100, 200, 300
RCWP0603..1A	03022	0603	0.07	0.265	0.0499 to 0.100	1, 2, 5, 10	200, 300
					0.102 to 0.999	1, 2, 5, 10	100, 200, 300
RCWP0550..1A	12004	0505	0.125	0.354	0.0499 to 0.0976	1, 2, 5, 10	200, 300
					0.100 to 0.999	1, 2, 5, 10	100, 200, 300
RCWP0575..1A	12008	0705 <sup>(3)</sup>	0.15	0.388	0.0499 to 0.999	1, 2, 5, 10	100, 200, 300
RCWP5100..1A	12005	1005	0.20	0.448	0.0499 to 0.999	1, 2, 5, 10	100, 200, 300
RCWP1206..1A	02010	1206	0.25	0.50	0.0499 to 0.999	1, 2, 5, 10	100, 200, 300
RCWP5150..1A	12006	1505	0.15	0.388	0.0499 to 0.999	1, 2, 5, 10	100, 200, 300
RCWP1100..1A	12011	1010	0.50	0.708	0.0499 to 0.999	1, 2, 5, 10	100, 200, 300
RCWP7225..1A	12007	2208	0.225	0.475	0.0499 to 0.999	1, 2, 5, 10	100, 200, 300
RCWP2010..1A	12009	2010	0.80	0.895	0.0499 to 0.999	1, 2, 5, 10	100, 200, 300
RCWP2512..1A	12010	2512	1.0	1.0	0.0499 to 0.999	1, 2, 5, 10	100, 200, 300

#### Notes

- These drawings can be viewed at: [www.landandmaritime.dla.mil/Programs/MilSpec/ListDwgs.aspx?DocTYPE=DSCCdwg](http://www.landandmaritime.dla.mil/Programs/MilSpec/ListDwgs.aspx?DocTYPE=DSCCdwg)
- <sup>(1)</sup> Power rating depends on max. temperature at the solder joint, 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

### DERATING CURVE



### MATERIAL SPECIFICATIONS

Resistive element	Ruthenium oxide
Encapsulation	Epoxy
Substrate	96 % alumina
Termination	Solder-coated nickel barrier
Solder finish	Tin / lead solder alloy

## GLOBAL PART NUMBER INFORMATION

Global Part Numbering: RCWP0502R100FKWB1A (preferred part numbering format)

GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	TEMPERATURE COEFFICIENT	PACKAGING CODE	SPECIAL
(see Standard Electrical Specifications table)	$L = m\Omega$ <sup>(1)</sup> $R = \Omega$ <b>R249</b> = 0.249 $\Omega$ <b>33L2</b> = 0.0332 $\Omega$ <b>97L6</b> = 0.0976 $\Omega$	<b>F</b> = $\pm 1\%$ <b>G</b> = $\pm 2\%$ <b>J</b> = $\pm 5\%$ <b>K</b> = $\pm 10\%$	<b>K</b> = 100 ppm <b>N</b> = 200 ppm <b>M</b> = 300 ppm	<b>TP</b> = tin / lead, T/R (full) <b>S3</b> = tin / lead, T/R (1000 pieces) <b>WB</b> = tin / lead, waffle tray <b>S2</b> = tin / lead, T/R (500 pieces) <b>S6</b> = tin / lead, T/R (300 pieces)	(dash number) <b>1A</b> = low value (- 100)

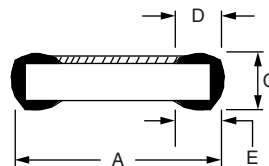
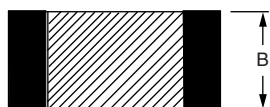
DLA L&M/DSCC Part Numbering: 12003-KR1000FB

DRAWING NUMBER	CHARACTERISTIC	RESISTANCE VALUE	TOLERANCE CODE	TERMINATION MATERIAL
(see Standard Electrical Specifications table)	<b>K</b> = 100 ppm <b>L</b> = 200 ppm <b>M</b> = 300 ppm	$R = \Omega$ <b>R2490</b> = 0.249 $\Omega$ <b>R0332</b> = 0.0332 $\Omega$ <b>R0976</b> = 0.0976 $\Omega$	<b>F</b> = $\pm 1\%$ <b>G</b> = $\pm 2\%$ <b>J</b> = $\pm 5\%$ <b>K</b> = $\pm 10\%$	<b>B</b> = pre-tinned nickel barrier, wraparound

### 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> Use "L" for resistance values < 0.1  $\Omega$

## DIMENSIONS in inches (millimeters)



GLOBAL MODEL	A (LENGTH)	B (WIDTH)	C (HEIGHT)	D (TOP TERM)	E (BOTTOM TERM)
RCWP0402..1A	0.039 $\pm$ 0.003 (0.99 $\pm$ 0.08)	0.020 $\pm$ 0.003 (0.51 $\pm$ 0.08)	0.013 $\pm$ 0.003 (0.33 $\pm$ 0.08)	0.010 $\pm$ 0.005 (0.25 $\pm$ 0.13)	0.010 $\pm$ 0.005 (0.25 $\pm$ 0.13)
RCWP0502..1A	0.055 $\pm$ 0.005 (1.40 $\pm$ 0.13)	0.023 $\pm$ 0.003 (0.58 $\pm$ 0.08)	0.015 $\pm$ 0.003 (0.38 $\pm$ 0.08)	0.010 $\pm$ 0.005 (0.25 $\pm$ 0.13)	0.015 $\pm$ 0.005 (0.38 $\pm$ 0.13)
RCWP0550..1A	0.055 $\pm$ 0.005 (1.40 $\pm$ 0.13)	0.050 $\pm$ 0.005 (1.27 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)	0.010 $\pm$ 0.005 (0.25 $\pm$ 0.13)	0.015 $\pm$ 0.005 (0.38 $\pm$ 0.13)
RCWP0575..1A	0.080 $\pm$ 0.005 (2.03 $\pm$ 0.13)	0.050 $\pm$ 0.005 (1.27 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)	0.016 $\pm$ 0.008 (0.41 $\pm$ 0.20)	0.015 $\pm$ 0.005 (0.38 $\pm$ 0.13)
RCWP0603..1A	0.063 $\pm$ 0.005 (1.60 $\pm$ 0.13)	0.032 $\pm$ 0.005 (0.81 $\pm$ 0.13)	0.018 $\pm$ 0.005 (0.46 $\pm$ 0.13)	0.012 $\pm$ 0.005 (0.30 $\pm$ 0.13)	0.015 $\pm$ 0.005 (0.38 $\pm$ 0.13)
RCWP1100..1A	0.105 $\pm$ 0.005 (2.67 $\pm$ 0.13)	0.100 $\pm$ 0.005 (2.54 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)	0.015 $\pm$ 0.005 (0.38 $\pm$ 0.13)	0.015 $\pm$ 0.005 (0.38 $\pm$ 0.13)
RCWP1206..1A	0.125 $\pm$ 0.005 (3.18 $\pm$ 0.13)	0.063 $\pm$ 0.005 (1.60 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)	0.015 $\pm$ 0.005 (0.38 $\pm$ 0.13)	0.015 $\pm$ 0.005 (0.38 $\pm$ 0.13)
RCWP2010..1A	0.197 $\pm$ 0.006 (5.00 $\pm$ 0.15)	0.098 $\pm$ 0.005 (2.49 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)
RCWP2512..1A	0.250 $\pm$ 0.006 (6.35 $\pm$ 0.15)	0.124 $\pm$ 0.005 (3.15 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)
RCWP5100..1A	0.105 $\pm$ 0.005 (2.67 $\pm$ 0.13)	0.050 $\pm$ 0.005 (1.27 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)	0.015 $\pm$ 0.005 (0.38 $\pm$ 0.13)	0.015 $\pm$ 0.005 (0.38 $\pm$ 0.13)
RCWP5150..1A	0.155 $\pm$ 0.005 (3.94 $\pm$ 0.13)	0.050 $\pm$ 0.005 (1.27 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)	0.015 $\pm$ 0.005 (0.38 $\pm$ 0.13)	0.015 $\pm$ 0.005 (0.38 $\pm$ 0.13)
RCWP7225..1A	0.230 $\pm$ 0.005 (5.84 $\pm$ 0.13)	0.075 $\pm$ 0.005 (1.91 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)	0.020 $\pm$ 0.005 (0.51 $\pm$ 0.13)



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