

# Thick Film Chip Resistors, Alternate Terminations



## FEATURES

- Suitable for solderable, epoxy bondable, or wire bondable applications
- Termination material: gold, platinum silver, platinum palladium gold or solder coated non-magnetic terminations available
- Multiple styles, termination materials and configurations, allow wide design flexibility
- Epoxy bondable or wire bondable non-magnetic terminations available
- Flow solderable
- Custom sizes available
- Burn-in data available
- Automatic placement capability
- Termination style: 3-sided wraparound termination or single termination flip chip standard; 5-sided wraparound termination available
- Tape and reel packaging available
- Internationally standardized sizes
- 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	CASE SIZE	POWER RATING $P_{70^\circ\text{C}}$ W	MAXIMUM WORKING VOLTAGE <sup>(1)</sup> V	RESISTANCE RANGE <sup>(2)</sup> $\Omega$	TOLERANCE $\pm \%$	TEMPERATURE COEFFICIENT <sup>(3)</sup> ( $-55^\circ\text{C}$ to $+155^\circ\text{C}$ ) $\pm$ ppm/ $^\circ\text{C}$
RC0540	0504	0.100	40	10 to 500K	1, 2, 5, 10, 20	100
RC0550	0505	0.100	50	10 to 500K	1, 2, 5, 10, 20	100
RC0575	0705 <sup>(4)</sup>	0.200	70	10 to 1M	1, 2, 5, 10, 20	100
RC5100	1005	0.250	100	10 to 1M	1, 2, 5, 10, 20	100
RC1100	1010	0.450	100	10 to 1M	1, 2, 5, 10, 20	100
RC1206	1206	0.300	100	10 to 1M	1, 2, 5, 10, 20	100
RC5150	1505	0.325	125	10 to 1M	1, 2, 5, 10, 20	100
RC7225	2208	0.525	200	10 to 1M	1, 2, 5, 10, 20	100
RC2010	2010	0.575	200	10 to 1M	1, 2, 5, 10, 20	100

### Notes

- (1) Continuous working voltage shall be  $\sqrt{P \times R}$  or maximum working voltage, whichever is less.
- (2) Higher values available. Please consult factory.
- (3)  $\pm 100$  ppm/ $^\circ\text{C}$  standard thru 1 M $\Omega$ ,  $\pm 200$  ppm/ $^\circ\text{C}$  offered from 1.1 M $\Omega$  to 10 M $\Omega$ .
- (4) MIL case size 0705 and EIA case size 0805 are dimensionally the same.

GLOBAL PART NUMBER INFORMATION															
New Global Part Numbering: RC0540AA1K00FKSB (preferred part number format)															
R	C	0	5	4	0	A	A	1	K	0	0	F	K	S	B
GLOBAL MODEL	SIZE	TERM STYLE	TERM MATERIAL	RESISTANCE VALUE	TOLERANCE	TCR	SOLDER TERMINATION	PACKAGING							
RC	0540 0550 0575 5100 1100 1206 5150 7225 2010	A = 3-sided B = Top only C = 5-sided	G = Non-magnetic A = Palladium silver B = Platinum gold C = Gold D = Platinum silver E = Platinum palladium gold	R = $\Omega$ K = k $\Omega$ M = M $\Omega$ 100R = 100 $\Omega$ 1K00 = 1 k $\Omega$ 1M00 = 1 M $\Omega$	F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$	K = 100 ppm L = 150 ppm N = 200 ppm W = 350 ppm	E = Sn100 F = Sn95/Ag5, HSD S = Sn62/Pb36/Ag2, HSD T = Sn90/Pb10 N = No solder	B = Bulk F = T/R (full reel) 1 = T/R (1000 pcs) 5 = T/R (500 pcs) T = T/R (250 pcs min.) W = Waffle tray							
Historical Part Numbering: CR1AA1001F100S2 (will continue to be accepted)															
CR	1	A	A	1001	F	100	S2								
HISTORICAL MODEL	SIZE	TERM STYLE	TERM MATERIAL	RESISTANCE VALUE	TOLERANCE	TCR	SOLDER TERMINATION								

### Note

- For additional information on packaging, refer to the Surface Mount Resistor Packaging document ([www.vishay.com/doc?31543](http://www.vishay.com/doc?31543)).

MECHANICAL SPECIFICATIONS	
Resistive element	Ruthenium oxide
Encapsulation	Glass
Substrate	96 % alumina
Termination	Gold, palladium silver, platinum gold, platinum silver, platinum palladium gold or solder coated non-magnetic terminations available.
Solder finish	Base metallization without a solder finish standard. Hot solder dipped tin/silver or tin/lead/silver solder alloys available.

ENVIRONMENTAL SPECIFICATIONS	
Operating temperature	-55 °C to +155 °C
Moisture resistance	Less than 0.5 % change when tested per method 106 of MIL-STD-202
Life	Less than 1 % change when tested per method 108D (+85 °C) of MIL-STD-202
Short time overload	Less than 0.5 % $\Delta R$

DIMENSIONS in inches (millimeters)						
Termination Style A (3-sided wraparound)	Termination Style B (Top conductor only)	Termination Style C (5-sided wraparound)	MODEL	LENGTH (L) <sup>(1)</sup>	WIDTH (W) <sup>(1)</sup>	THICKNESS (T) <sup>(1)</sup>
				$\pm 0.006$ (0.152)	$\pm 0.006$ (0.152)	$\pm 0.005$ (0.127)
			RC0540	0.050 (1.27)	0.040 (1.02)	0.020 (0.508)
			RC0550	0.050 (1.27)	0.050 (1.27)	0.020 (0.508)
			RC0575	0.075 (1.90)	0.050 (1.27)	0.020 (0.508)
			RC5100	0.100 (2.54)	0.050 (1.27)	0.020 (0.508)
			RC1100	0.100 (2.54)	0.100 (2.54)	0.020 (0.508)
			RC1206	0.125 (3.18)	0.062 (1.57)	0.025 (0.635)
			RC5150	0.150 (3.81)	0.050 (1.27)	0.020 (0.508)
			RC7225	0.225 (5.72)	0.075 (1.90)	0.020 (0.508)
			RC2010	0.200 (5.08)	0.100 (2.54)	0.025 (0.635)

**Note**

<sup>(1)</sup> All dimensions are before solder coating.

TYPE	TERMINATION MATERIAL	TERMINATION STYLE	TERMINATION STYLE/ MATERIAL CODE	SOLDER TERMINATION CODE
Solderable	Non-magnetic	3-sided (wraparound)	AG	E or T (standard); F or S (optional) <sup>(2)</sup>
		Top only (flip chip)	BG	
Epoxy bondable/ solderable	Platinum palladium gold	3-sided (wraparound)	AE	N (standard); F or S (optional) <sup>(3)</sup>
		Top only (flip chip)	BE	
		5-sided (wraparound)	CE	
Wire bondable/ Epoxy bondable	Gold	3-sided (wraparound)	AC	N
		Top only (flip chip)	BC	
		5-sided (wraparound)	CC	
Epoxy bondable	Palladium silver <sup>(4)</sup>	3-sided (wraparound)	AA	N
		Top only (flip chip)	BA	
		5-sided (wraparound)	CA	
	Platinum gold	3-sided (wraparound)	AB	
		Top only (flip chip)	BB	
		5-sided (wraparound)	CB	
	Platinum silver	3-sided (wraparound)	AD	
		Top only (flip chip)	BD	
		5-sided (wraparound)	CD	

**Notes**

- <sup>(2)</sup> Standard solder plating for the non-magnetic parts are solder terminations E or T. Hot solder dipped terminations F or S are also available.
- <sup>(3)</sup> Use solder termination N for applications requiring epoxy bondable mounting, and solder terminations F or S for applications requiring solderable mounting.
- <sup>(4)</sup> While not recommended, palladium silver terminations could be used for solderable applications when using a solder alloy containing silver. If the solder paste being used to solder the palladium silver terminated parts to the boards does not have a silver-based composition, then the silver in the terminations could begin to leach when it is exposed to liquidus non-silver-based solders, causing the potential for solderability and/or solder joint issues.



## **Disclaimer**

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.