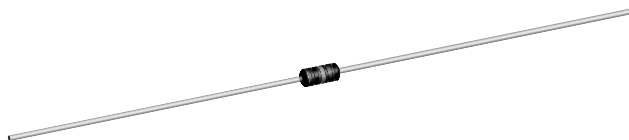




# Metal Film Resistors, Industrial, $\pm 1\%$ and $\pm 5\%$ Tolerance



Product is End of Life Dec-2018  
per PTN-DR-00011-2018, Rev 0

## FEATURES

- 0.33 W power rating
- $\pm 100$  ppm/ $^{\circ}\text{C}$  standard,  $\pm 50$  ppm/ $^{\circ}\text{C}$  available upon request
- Superior electrical performance
- Flame retardant epoxy conformal coating
- Standard 4 or 5 band color code marking for ease of identification after mounting
- Tape and reel packaging for automatic insertion (52.4 mm inside tape spacing per EIA-296-E)
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS\*  
Available

## 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	POWER RATING $P_{70^{\circ}\text{C}}$ W	MAXIMUM WORKING VOLTAGE V <sup>(2)</sup>	TEMPERATURE COEFF. <sup>(1)</sup> $\pm$ ppm/ $^{\circ}\text{C}$	TOLERANCE $\pm$ %	RESISTANCE RANGE $\Omega$	E-SERIES
CCF50	CCF-50	0.33	200	100	1, 5	10 to 1M	96 for 1 % 24 for 5 %

## Notes

(1) 50 ppm/ $^{\circ}\text{C}$  on request

(2) Continuous working voltage shall be  $\sqrt{P \times R}$  or maximum working voltage, whichever is less

## TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CCF50
Rated Dissipation at 70 $^{\circ}\text{C}$	W	0.33
Maximum Working Voltage	V	$\leq 200$
Insulation Voltage (1 Min)	$V_{\text{eff}}$	$> 500$
Dielectric Strength	$V_{\text{AC}}$	450
Insulation Resistance	$\Omega$	$\geq 10^{11}$
Operating Temperature Range	$^{\circ}\text{C}$	-65 to +165
Weight	g	0.11 max.

## GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CCF50301RFR36 (preferred part numbering format)

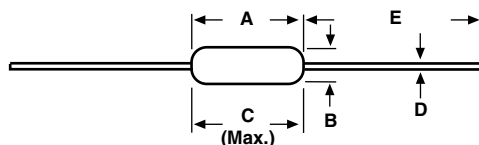
C	C	F	5	0	3	0	1	R	F	K	R	3	6			
GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	TEMPERATURE COEFFICIENT	PACKAGING	SPECIAL											
CCF50	R = $\Omega$ K = k $\Omega$ M = M $\Omega$ 10R0 = 10 $\Omega$ 680K = 680 k $\Omega$ 1M00 = 1.0 M $\Omega$	F = $\pm 1\%$ J = $\pm 5\%$	H = 50 ppm K = 100 ppm	E36 = Lead (Pb)-free, T/R (5000 pieces) R36 = Tin/Lead, T/R (5000 pieces)	Blank = Standard (Dash Number) (up to 3 digits) From 1 to 999 as applicable											

Historical Part Number example: CCF-503010F (will continue to be accepted)

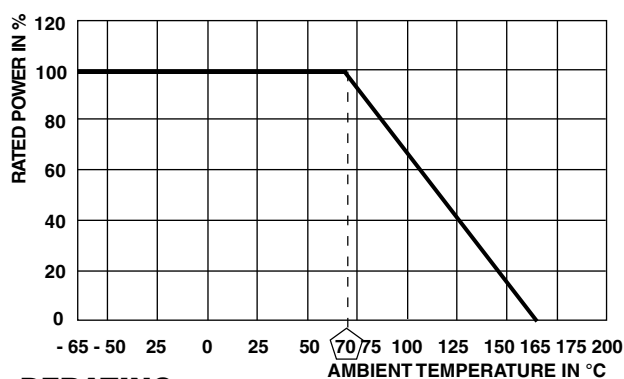
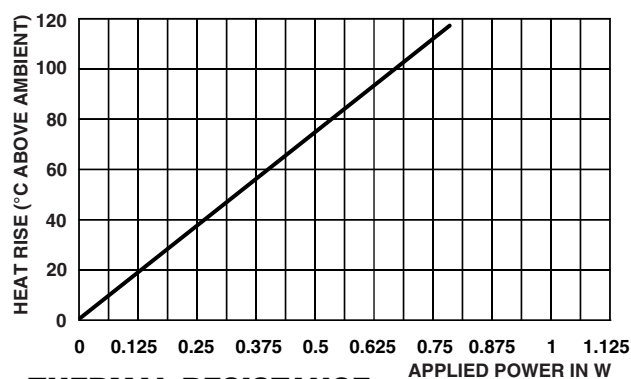
CCF-50	3010	F	R36
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

## Note

- For additional information on packaging, refer to the Through-Hole Resistor Packaging document ([www.vishay.com/doc?31544](http://www.vishay.com/doc?31544))

**DIMENSIONS** in inches (millimeters)

DIMENSION	INCHES	MILLIMETERS
A	$0.133 \pm 0.010$	$(3.3 \pm 0.025)$
B	$0.062 \pm 0.004$	$(1.57 \pm 0.10)$
C (Max.)	0.143	(3.63)
D	$0.020 \pm 0.002$	$(0.51 \pm 0.05)$
E	$1.125 \pm 0.040$	$(28.58 \pm 1.02)$

**DERATING****THERMAL RESISTANCE****MARKING**

Color code marking with 5 color bands for  $\pm 1\%$  product and 4 color bands for  $\pm 5\%$  product

**PERFORMANCE**

TEST <sup>(1)</sup>	MAXIMUM $\Delta R$ (TYPICAL TEST LOTS)
Thermal Shock	$\pm 0.1\%$
Short Time Overload	$\pm 0.1\%$
Low Temperature Operation	$\pm 0.1\%$
Moisture Resistance	$\pm 0.2\%$
Resistance to Soldering Heat	$\pm 0.05\%$
Shock	$\pm 0.1\%$
Vibration	$\pm 0.05\%$
Life	$\pm 0.5\%$
Terminal Strength	$\pm 0.1\%$
Dielectric Withstanding Voltage	$\pm 0.05\%$

**Note**

<sup>(1)</sup> Tests per MIL-R-10509



## 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.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

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.