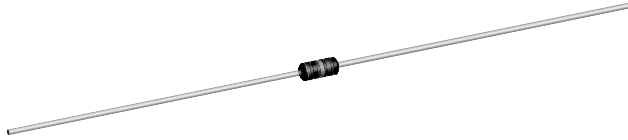


# Metal Film Resistors, Industrial, $\pm 1\%$ and $\pm 5\%$ Tolerance



## 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\***  
COMPLIANT

### Note

\* Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.

## 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

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

<sup>(2)</sup> 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: CCF50301RFKR36 (preferred part numbering format)

C C F 5 0 3 0 1 R F K R 3 6

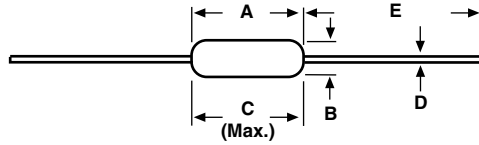
GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	TEMPERATURE COEFFICIENT	PACKAGING	SPECIAL
CCF50	$R = \Omega$ $K = \text{k}\Omega$ $M = \text{M}\Omega$ $10R0 = 10 \Omega$ $680K = 680 \text{ k}\Omega$ $1M00 = 1.0 \text{ M}\Omega$	$F = \pm 1\%$ $J = \pm 5\%$	$H = 50 \text{ ppm}$ $K = 100 \text{ ppm}$	<b>E36</b> = Lead (Pb)-free, T/R (5000 pieces)  <b>R36</b> = 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)

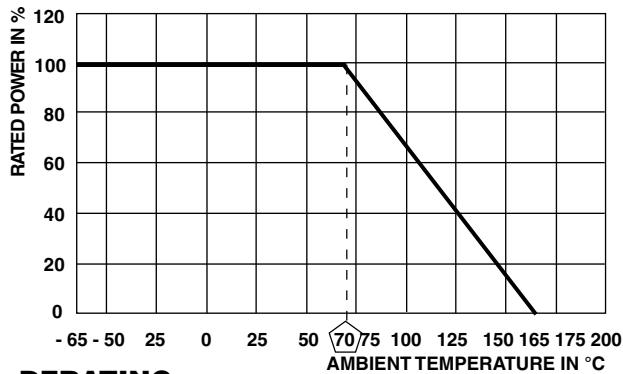
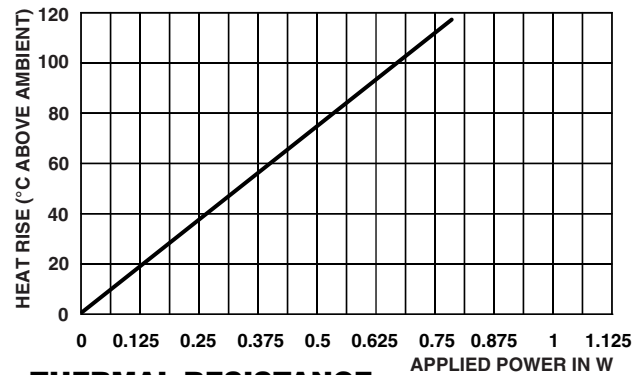
CCF-50	3010	F	R36
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

### 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 ± 0.010	(3.3 ± 0.025)
B	0.062 ± 0.004	(1.57 ± 0.10)
C (Max.)	0.143	(3.63)
D	0.020 ± 0.002	(0.51 ± 0.05)
E	1.125 ± 0.040	(28.58 ± 1.02)


**DERATING**

**THERMAL RESISTANCE**
**MARKING**

Color code marking with 5 color bands for ± 1 % product and 4 color bands for ± 5 % product

**PERFORMANCE**

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

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



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## Material Category Policy

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.**