

# Metal Film Resistors, Industrial, $\pm 2\%$ and $\pm 5\%$ Tolerance

## FEATURES

- Dual power rating:  
 $P_{70} = 0.25\text{ W}$  with 1.5 % stability  
 $P_{70} = 0.50\text{ W}$  with 2.0 % stability
- $\pm 2\%$  and  $\pm 5\%$  tolerance
- Temperature coefficient:  $\pm 100\text{ ppm/K}$  and  $\pm 200\text{ ppm/K}$
- Tape and reel packaging for automatic insertion (52.4 mm inside tape spacing per EIA-296-E)
- Flame retardant epoxy conformal coating (red brown color)
- Standard 4 band color code marking for ease of identification after mounting
- Pure tin plating provides compatibility with lead (Pb)-free and lead containing soldering processes
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT


## STANDARD ELECTRICAL SPECIFICATIONS

PRODUCT	POWER RATING $P_{70}$ W	LIMITING ELEMENT VOLTAGE MAX. $V_{\text{max}}$	TEMPERATURE COEFFICIENT $\pm\text{ ppm/K}$	TOLERANCE $\pm\%$	RESISTANCE RANGE $\Omega$	E-SERIES
CCF07	0.25	250	100	2, 5	10 to 1M	E24
CCF07	0.5	250	100	2, 5	10 to 1M	E24
CCF07	0.25	250	200	5	1.1M to 2M	E24
CCF07	0.5	250	200	5	1.1M to 2M	E24

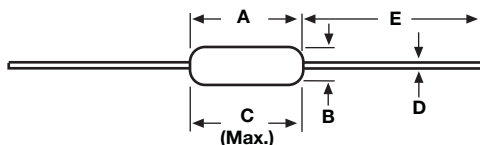
## TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CCF07
Rated Dissipation, $P_{70}$	W	0.25/0.5
Maximum Working Voltage, $U_{\text{max}}$	V $\text{max}$	$\leq 250$
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 +150
Terminal Strength (pull test)	lb	2
Weight	g	0.35 max.

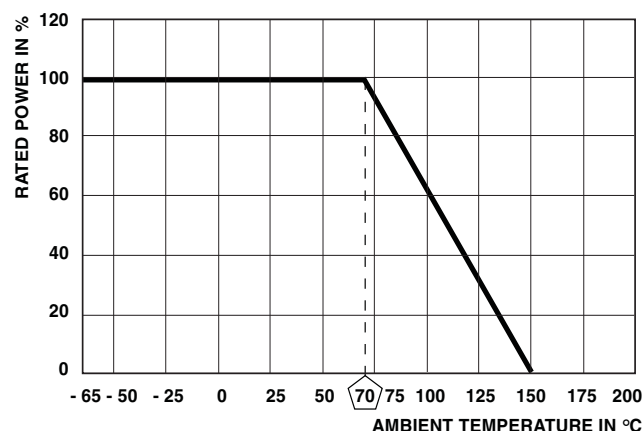
## PART NUMBER AND PRODUCT DESCRIPTION

PART NUMBER: CCF07240RGK E36

PRODUCT	RESISTANCE VALUE	TOLERANCE CODE	TEMPERATURE COEFFICIENT	PACKAGING	SPECIAL
CCF07	<b>R</b> = decimal <b>K</b> = thousand <b>M</b> = million <b>10R0</b> = 10 $\Omega$ <b>680K</b> = 680 k $\Omega$ <b>2M00</b> = 2.0 M $\Omega$	<b>G</b> = $\pm 2\%$ <b>J</b> = $\pm 5\%$	<b>K</b> = 100 ppm/K <b>N</b> = 200 ppm/K	<b>E36</b> = lead (Pb)-free T/R (5000 pieces)	<b>Blank</b> = standard (dash number) (up to 3 digits) From <b>1</b> to <b>999</b> as applicable

**DIMENSIONS** in inches (millimeters)


PRODUCT	A	B	C (Max.)	D	E
CCF07	$0.245 \pm 0.020$ (6.22 $\pm$ 0.51)	$0.090 \pm 0.008$ (2.29 $\pm$ 0.20)	0.295 (7.5)	$0.022 \pm 0.002$ (0.58 $\pm$ 0.05)	$1.100 \pm 0.040$ (27.94 $\pm$ 1.02)

**DERATING**

**MARKING**

The nominal resistance and tolerance are marked on the resistor using four colored bands in accordance with IEC 60062, marking codes for resistors and capacitors.

**RESISTANCE VALUES**

Vishay CCF07 is available in the standard 24 resistance values per decade. Values are obtained from the following decade table by multiplying by powers of 10. As an example: 24 can represent 24  $\Omega$ , 240  $\Omega$ , 2.4 k $\Omega$ , 24 k $\Omega$  or 240 k $\Omega$ .

10	18	33	56
11	20	36	62
12	22	39	68
13	24	43	75
15	27	47	82
16	30	51	91

**PERFORMANCE**

TEST <sup>(1)</sup>	MAX. $\Delta R$ (Typical Test Lots)
Thermal Shock	$\pm 1.0$ %
Short Time Overload	$\pm 0.5$ %
Low Temperature Operation	$\pm 0.5$ %
Moisture Resistance	$\pm 1.5$ %
Resistance to Soldering Heat	$\pm 0.5$ %
Shock/Bump	$\pm 0.5$ %
Vibration	$\pm 0.5$ %
Terminal Strength	$\pm 0.5$ %
Dielectric Withstanding Voltage	$\pm 0.5$ %
Life	$\pm 1.5$ % <sup>(2)</sup>

**Notes**

<sup>(1)</sup> Test specifications as per IEC 60115-1

<sup>(2)</sup> Life  $\Delta R$  is  $\pm 2.0$  % for 1/2 W rating



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