

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



## FEATURES

- Dual power rating:  
 $P_{70} = 0.25\text{ W}$  with 0.5 % stability  
 $P_{70} = 0.50\text{ W}$  with 1.0 % stability
- Temperature coefficient:  $\pm 100\text{ ppm/K}$
- Superior electrical performance
- Flame retardant epoxy conformal coating (red brown color)
- Standard 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)
- Lead (Pb)-free solder contacts
- 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<br>$P_{70}$<br>W | LIMITING ELEMENT<br>VOLTAGE MAX.<br>$V_{\text{E}}$ | TEMPERATURE<br>COEFFICIENT<br>$\pm\text{ ppm/K}$ | TOLERANCE<br>$\pm\%$ | RESISTANCE<br>RANGE<br>$\Omega$ | E-SERIES |
|---------|-------------------------------|----------------------------------------------------|--------------------------------------------------|----------------------|---------------------------------|----------|
| CCF55   | 0.25                          | 250                                                | 100                                              | 1                    | 10 to 3.01M                     | E96      |
| CCF55   | 0.5                           | 250                                                | 100                                              | 1                    | 10 to 3.01M                     | E96      |

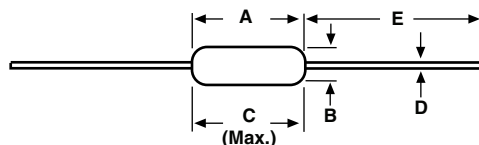
## TECHNICAL SPECIFICATIONS

| PARAMETER                                 | UNIT               | CCF55          |
|-------------------------------------------|--------------------|----------------|
| Rated Dissipation, $P_{70}$               | W                  | 0.25/0.5       |
| Maximum Working Voltage, $U_{\text{max}}$ | V $\text{E}$       | $\leq 250$     |
| 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 +165    |
| Terminal Strength (pull test)             | lb                 | 2              |
| Weight                                    | g                  | 0.35 max.      |

## PART NUMBER AND PRODUCT DESCRIPTION

PART NUMBER: CCF55301RFKE36

|         |                                                                                             |   |                |   |                         |   |                                                   |   |   |   |                                                                                |   |   |  |  |  |
|---------|---------------------------------------------------------------------------------------------|---|----------------|---|-------------------------|---|---------------------------------------------------|---|---|---|--------------------------------------------------------------------------------|---|---|--|--|--|
| C       | C                                                                                           | F | 5              | 5 | 3                       | 0 | 1                                                 | R | F | K | E                                                                              | 3 | 6 |  |  |  |
| PRODUCT | RESISTANCE VALUE                                                                            |   | TOLERANCE CODE |   | TEMPERATURE COEFFICIENT |   | PACKAGING                                         |   |   |   | SPECIAL                                                                        |   |   |  |  |  |
| CCF55   | R = Decimal<br>K = Thousand<br>M = Million<br>10R0 = 10 Ω<br>680K = 680 kΩ<br>1M00 = 1.0 MΩ |   | F = ± 1 %      |   | K = 100 ppm/K           |   | E36 = Lead (Pb)-free<br>CCF55 = T/R (5000 pieces) |   |   |   | Blank = Standard (dash number) (up to 3 digits)<br>From 1 to 999 as applicable |   |   |  |  |  |

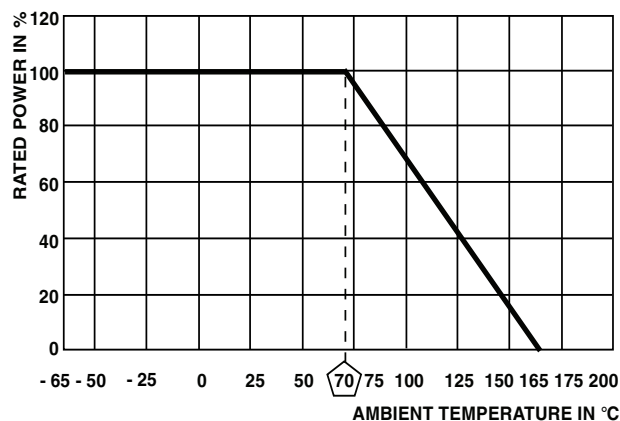
**DIMENSIONS** in inches (millimeters)


| PRODUCT | A                                      | B                                      | C (Max.)       | D                                      | E                                       |
|---------|----------------------------------------|----------------------------------------|----------------|----------------------------------------|-----------------------------------------|
| CCF55   | $0.245 \pm 0.020$<br>(6.22 $\pm$ 0.51) | $0.090 \pm 0.008$<br>(2.29 $\pm$ 0.20) | 0.295<br>(7.5) | $0.022 \pm 0.002$<br>(0.58 $\pm$ 0.05) | $1.100 \pm 0.040$<br>(27.94 $\pm$ 1.02) |

**RESISTANCE VALUES**

Vishay CCF55 is available in the standard 96 resistance values per decade. Values are obtained from the following decade table by multiplying by powers of 10. As an example: 30.1 can represent 30.1  $\Omega$ , 301  $\Omega$ , 3.01 k $\Omega$ , 30.1 k $\Omega$  or 301 k $\Omega$ .

|      |      |      |      |      |      |
|------|------|------|------|------|------|
| 10.0 | 14.7 | 21.5 | 31.6 | 46.4 | 68.1 |
| 10.2 | 15.0 | 22.1 | 32.4 | 47.5 | 69.8 |
| 10.5 | 15.4 | 22.6 | 33.2 | 48.7 | 71.5 |
| 10.7 | 15.8 | 23.2 | 34.0 | 49.9 | 73.2 |
| 11.0 | 16.2 | 23.7 | 34.8 | 51.1 | 75.0 |
| 11.3 | 16.5 | 24.3 | 35.7 | 52.3 | 76.8 |
| 11.5 | 16.9 | 24.9 | 36.5 | 53.6 | 78.7 |
| 11.8 | 17.4 | 25.5 | 37.4 | 54.9 | 80.6 |
| 12.1 | 17.8 | 26.1 | 38.3 | 56.2 | 82.5 |
| 12.4 | 18.2 | 26.7 | 39.2 | 57.6 | 84.5 |
| 12.7 | 18.7 | 27.4 | 40.2 | 59.0 | 86.6 |
| 13.0 | 19.1 | 28.0 | 41.2 | 60.4 | 88.7 |
| 13.3 | 19.6 | 28.7 | 42.2 | 61.9 | 90.9 |
| 13.7 | 20.0 | 29.4 | 43.2 | 63.4 | 93.1 |
| 14.0 | 20.5 | 30.1 | 44.2 | 64.9 | 95.3 |
| 14.3 | 21.0 | 30.9 | 45.3 | 66.5 | 97.6 |

**DERATING**

**MARKING**

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

**PERFORMANCE**

| RATED DISSIPATION, $P_{70}$     |                    |                    |
|---------------------------------|--------------------|--------------------|
| CCF55                           | 1/4 W              | 1/2 W              |
| TEST <sup>(1)</sup>             | MAXIMUM $\Delta R$ | MAXIMUM $\Delta R$ |
| Thermal Shock                   | $\pm 0.5 \%$       | -                  |
| 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                       | $\pm 0.5 \%$       | -                  |
| Life                            | $\pm 0.5 \%$       | $\pm 1.0 \%$       |
| Terminal Strength               | $\pm 0.2 \%$       | -                  |
| Dielectric Withstanding Voltage | $\pm 0.5 \%$       | -                  |

**Note**

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



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