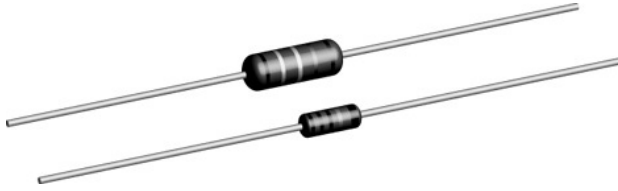


## Metal Film Resistors, Industrial, ± 1 % Tolerance



### FEATURES

- Power Ratings: 1/4, 1/2, 3/4 and 1 W at + 70 °C
- ± 100 ppm/°C temperature coefficient
- Superior electrical performance
- Flame retardant epoxy conformal coating
- 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 version is RoHS compliant



**RoHS\***  
COMPLIANT

| STANDARD ELECTRICAL SPECIFICATIONS |                  |   |   |                                   |             |                              |          |
|------------------------------------|------------------|---|---|-----------------------------------|-------------|------------------------------|----------|
| GLOBAL MODEL                       | HISTORICAL MODEL | POWER RATING<br>$P_{70\text{ }^\circ\text{C}}$<br>W | LIMITING ELEMENT VOLTAGE MAX.<br>$V_{\equiv}$ | TEMPERATURE COEFFICIENT<br>ppm/°C | TOLERANCE % | RESISTANCE RANGE<br>$\Omega$ | E-SERIES |
| CCF55                              | CCF-55           | 0.25/0.5  | 250   | ± 100                             | ± 1         | 10R - 3.01M                  | 96       |
| CCF60                              | CCF-60           | 0.50/0.75/1.0                                       | 500   | ± 100                             | ± 1         | 10R - 1M                     | 96       |

| TECHNICAL SPECIFICATIONS      |                  |                    |                    |
|-------------------------------|------------------|--------------------|--------------------|
| PARAMETER                     | UNIT             | CCF55              | CCF60              |
| Rated Dissipation at 70 °C    | W                | 0.25/0.5           | 0.5/0.75/1.0       |
| Maximum Working Voltage       | $V_{\equiv}$     | ≤ 250              | ≤ 500              |
| Insulation Voltage (1 min)    | $V_{\text{eff}}$ | 500                | 500                |
| Dielectric Strength           | $V_{\text{AC}}$  | 450                | 450                |
| Insulation Resistance         | $\Omega$         | ≥ 10 <sup>11</sup> | ≥ 10 <sup>11</sup> |
| Operating Temperature Range   | °C               | - 65/+ 165         | - 65/+ 165         |
| Terminal Strength (pull test) | lb               | 2                  | 2                  |
| Weight                        | g                | 0.35 max           | 0.75 max           |

### GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CCF55301RFKR36 (preferred part numbering format)

|                |   |  |   |   |   |                |   |                         |   |  |   |   |  |  |  |  |
|----------------|---|--|---|---|---|----------------|---|-------------------------|---|--|---|---|--|--|--|--|
| C              | C | F  | 5 | 5 | 3 | 0              | 1 | R                       | F | K  | R | 3 | 6  |  |  |  |
| GLOBAL MODEL   |   | RESISTANCE VALUE   |   |   |   | TOLERANCE CODE |   | TEMPERATURE COEFFICIENT |   | PACKAGING  |   |   | SPECIAL  |  |  |  |
| CCF55<br>CCF60 |   | R = Decimal<br>K = Thousand<br>M = Million<br>10R0 = 10 $\Omega$<br>680K = 680 k $\Omega$<br>1M00 = 1.0 M $\Omega$ |   |   |   | F = ± 1 %      |   | K = 100 ppm             |   | E36 = Lead (Pb)-free,<br>CCF55 = T/R (5000 pieces)<br>CCF60 = T/R (2500 pieces)<br>R36 = Tin/Lead,<br>CCF55 = T/R (5000 pieces)<br>CCF60 = T/R (2500 pieces) |   |   | Blank = Standard (Dash Number) (up to 3 digits) From 1 - 999 as applicable |  |  |  |

Historical Part Number example: CCF-553010F (will continue to be accepted)

|                  |                  |                |           |
|------------------|------------------|----------------|-----------|
| CCF-55           | 3010             | F              | R36       |
| HISTORICAL MODEL | RESISTANCE VALUE | TOLERANCE CODE | PACKAGING |

\* Pb containing terminations are not RoHS compliant, exemptions may apply

**DIMENSIONS** in inches [millimeters]


| GLOBAL MODEL         | A                                      | B                                      | C (Max.)         | D                                      | E                                       |
|----------------------|--|--|------------------|--|---|
| <b>CCF55 (Sn/Pb)</b> | 0.245 $\pm$ 0.020<br>[6.22 $\pm$ 0.51] | 0.090 $\pm$ 0.008<br>[2.29 $\pm$ 0.20] | 0.265<br>[6.73]  | 0.025 $\pm$ 0.002<br>[0.64 $\pm$ 0.05] | 1.100 $\pm$ 0.040<br>[27.94 $\pm$ 1.02] |
| <b>CCF55 (Sn)</b>    | 0.245 $\pm$ 0.020<br>[6.22 $\pm$ 0.51] | 0.090 $\pm$ 0.008<br>[2.29 $\pm$ 0.20] | 0.265<br>[6.73]  | 0.023 $\pm$ 0.002<br>[0.60 $\pm$ 0.05] | 1.100 $\pm$ 0.040<br>[27.94 $\pm$ 1.02] |
| <b>CCF60</b>         | 0.344 $\pm$ 0.031<br>[8.74 $\pm$ 0.79] | 0.139 $\pm$ 0.009<br>[3.53 $\pm$ 0.23] | 0.400<br>[10.16] | 0.025 $\pm$ 0.002<br>[0.64 $\pm$ 0.05] | 1.000 $\pm$ 0.040<br>[25.40 $\pm$ 1.02] |

**RESISTANCE VALUES**

Vishay Dale Models CCF55 and CCF60 are 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**

- Color band

**PERFORMANCE**

| POWER RATING at + 70 °C         |                    |                    |
|---------------------------------|--------------------|--------------------|
| CCF55                           | 1/4 W              | 1/2 W              |
| CCF60                           | 1/2 W              | 3/4 W and 1 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 Methods per MIL-STD-202G/IEC 60115/DIN EN140000 (as applicable).



## Disclaimer

All product specifications and data are subject to change without notice.

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 herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

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.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.