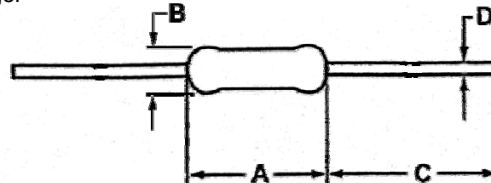


- Features:
- General purpose resistor ideal for commercial/industrial applications
  - Flame retardant coatings standard
  - Flameproof version available as CFF
  - Panasert available on selected sizes; contact factory
  - Auto sequencing/insertion compatible
  - CFM (mini) ideal choice when size constraints apply
  - Cut and formed product is available on select sizes; contact factory
  - Standard lead wire for CF/CFM is copper plated steel, with 100% tin over plate
  - 100% tin plate on copper wire is available as type CFQ/CFQM
  - RoHS compliant / lead-free



| Electrical Specifications |                             |                             |                          |                                 |  |         |
|---------------------------|-----------------------------|-----------------------------|--------------------------|---------------------------------|--|---------|
| Type / Code               | Power Rating (Watts) @ 70°C | Maximum Working Voltage (1) | Maximum Overload Voltage | Dielectric Withstanding Voltage | Ohmic Range ( $\Omega$ ) and Tolerance |         |
|                           |                             |                             |                          |                                 | 2%                                     | 5%      |
| CF18                      | 0.125W                      | 250V                        | 500V                     | 350V                            | 10 - 1M                                | 1 - 22M |
| CF14                      | 0.25W                       | 350V                        | 600V                     | 350V                            | 1 - 1M                                 | 1 - 22M |
| CF12                      | 0.5W                        | 350V                        | 700V                     | 600V                            | 10 - 1M                                | 1 - 10M |
| CF1                       | 1W                          | 500V                        | 1,000V                   | 600V                            | 1 - 1M                                 | 1 - 10M |
| CF2                       | 2W                          | 500V                        | 1,000V                   | 600V                            | 10 - 1M                                | 1 - 10M |
| CFM14                     | 0.25W                       | 250V                        | 500V                     | 350V                            | 10 - 1M                                | 1 - 10M |
| CFM12                     | 0.5W                        | 350V                        | 600V                     | 350V                            | 10 - 1M                                | 1 - 10M |
| CFM1                      | 1W                          | 600V                        | 1,000V                   | 600V                            | 10 - 1M                                | 1 - 10M |

(1) Lesser of  $\sqrt{PR}$  or maximum working voltage.



| Mechanical Specifications |                  |                    |                        |                    |        |
|---------------------------|------------------|--------------------|------------------------|--------------------|--------|
| Type / Code               | A<br>Body Length | B<br>Body Diameter | C<br>Lead Length(Bulk) | D<br>Lead Diameter | Unit   |
| CF18                      | 0.13 ± 0.01      | 0.07 ± 0.01        | 1.10 ± 0.12            | 0.018 ± 0.003      | inches |
|                           | 3.3 ± 0.3        | 1.7 ± 0.3          | 28.0 ± 3.0             | 0.45 ± 0.08        | mm     |
| CF14                      | 0.26 ± 0.02      | 0.09 ± 0.01        | 1.10 ± 0.12            | 0.022 ± 0.003      | inches |
|                           | 6.5 ± 0.5        | 2.3 ± 0.3          | 28.0 ± 3.0             | 0.55 ± 0.08        | mm     |
| CF12                      | 0.33 ± 0.04      | 0.11 ± 0.02        | 1.18 ± 0.12            | 0.022 ± 0.002      | inches |
|                           | 8.5 ± 1.0        | 2.7 ± 0.5          | 30.0 ± 3.0             | 0.56 ± 0.05        | mm     |
| CF1                       | 0.43 ± 0.04      | 0.18 ± 0.02        | 1.18 ± 0.12            | 0.028 ± 0.004      | inches |
|                           | 11.0 ± 1.0       | 4.5 ± 0.5          | 30.0 ± 3.0             | 0.70 ± 0.1         | mm     |
| CF2                       | 0.59 ± 0.04      | 0.20 ± 0.02        | 1.18 ± 0.12            | 0.031 ± 0.004      | inches |
|                           | 15.0 ± 1.0       | 5.0 ± 0.5          | 30.0 ± 3.0             | 0.8 ± 0.1          | mm     |
| CFM14                     | 0.13 ± 0.01      | 0.07 ± 0.01        | 1.10 ± 0.12            | 0.018 ± 0.003      | inches |
|                           | 3.3 ± 0.3        | 1.7 ± 0.3          | 28.0 ± 3.0             | 0.45 ± 0.08        | mm     |
| CFM12                     | 0.26 ± 0.04      | 0.09 ± 0.01        | 1.10 ± 0.12            | 0.022 ± 0.003      | inches |
|                           | 6.5 ± 1.0        | 2.3 ± 0.3          | 28.0 ± 3.0             | 0.55 ± 0.08        | mm     |
| CFM1                      | 0.35 ± 0.02      | 0.14 ± 0.02        | 1.10 ± 0.12            | 0.024 ± 0.002      | inches |
|                           | 9.0 ± 0.5        | 3.5 ± 0.5          | 28.0 ± 3.0             | 0.6 ± 0.05         | mm     |

| Performance Characteristics     |                        |              |
|---------------------------------|------------------------|--------------|
| Test                            | Standard / Method      | Test Results |
| Short Time Overload             | EIA-RS-172-B 3.2.6     | ± 0.5%       |
| Resistance to Solder Heat       | MIL-STD 202 Method 210 | ± 0.5%       |
| Dielectric Withstanding Voltage | JIS C 5202 5.6         | ± 0.5%       |
| Load Life                       | MIL-STD 202 Method 108 | ± 1%         |
| Terminal Strength               | MIL-STD 202 Method 211 | ± 0.2%       |
| Moisture Resistance             | MIL-STD 202 Method 106 | ± 0.5%       |

Operating Temperature Range: -55°C to +155°C

**How to Order**

1      2      3      4      5      6      7      8      9      10

C
F
1
2
J
T
1
0
0
K

| Product Series |                                     | Size | Power Rating | Tolerance |     | Code | Description   | Size  | Quantity | Resistance Value  |
|----------------|-------------------------------------|------|--------------|-----------|-----|------|---------------|---|----------|---|
| Code           | Description                         |      |              | Code      | Tol |      |               |   |          |   |
| CF             | Standard                            | 18   | 0.125W       | G         | 2%  | B    | bulk          | CF18, CFM14, CF14, CFM12                      | 1,000    | Four characters with the multiplier used as the decimal holder.<br><br>10 ohm = 10R0<br>10.2 Kohm = 10K2<br>1 Mohm = 1M00 |
| CFF            | Flameproof                          | 14   | 0.25W        | J         | 5%  | T    | tape and reel | CF12, CFM1, CF1, CF2                          | 5,000    |   |
| CFM            | Mini                                | 12   | 0.5W         |           |     |      |               | CF18, CFM14, CF14, CFM12, CF12, PCF14, PCFM12 |          |   |
| PCF            | Panasert CF14                       | 1    | 1W           |           |     |      |               | CFM1  |          |   |
| PCFM           | Panasert CF12                       | 2    | 2W           |           |     | CF1  | 2,000         |   |          |   |
| CFQ            | Tin plating on copper wire          |      |              |           |     | CF2  | 1,000         |   |          |   |
| CFQM           | Tin plating (mini)                  |      |              |           |     | A    | ammo          | CF18, CFM14, CF14, CFM12, CFM1                | 5,000    |   |
| PCFQ           | Tin plating on copper wire Panasert |      |              |           |     |      |               | CF12, PCF14, PCFM12                           | 2,000    |   |
|                |                                     |      |              |           |     |      |               | CF1, CF2                                      | 1,000    |   |

Legacy Part Number (before January 3, 2011):

| SEI Type |                                     | Code |         | Nominal Resistance | Tolerance | Packaging |       |             |                       |
|----------|-------------------------------------|------|---------|--------------------|-----------|-----------|-------|-------------|-----------------------|
| CF       |                                     | 1/2  |         | 100K               | 5%        | R         |       |             |                       |
| Code     | Description                         | Code | Wattage |                    | Tolerance | Code →    | A     | R           | T                     |
| CF       | Standard                            | 1/8  | 0.125W  |                    | 2%        | SEI Types | Bulk  | Tape & Reel | Tape & Box (Ammo Box) |
| CFF      | Flameproof                          | 1/4  | 0.25W   |                    | 5%        |           |       |             |                       |
| CFM      | Mini                                | 1/2  | 0.5W    |                    |           |           |       |             |                       |
| PCF      | Panasert CF 1/4                     | 1    | 1W      |                    |           |           |       |             |                       |
| PCFM     | Panasert CF 1/2                     | 2    | 2W      |                    |           | CF18      | 1,000 | 5,000       | 5,000                 |
| CFQ      | Tin plating on copper wire          |      |         |                    |           | CFM14     |       |             |                       |
| CFQM     | Tin plating (mini)                  |      |         |                    |           | CF14      |       |             |                       |
| PCFQ     | Tin plating on copper wire Panasert |      |         |                    |           | CFM12     |       |             |                       |
|          |                                     |      |         |                    |           | CF12      | 1,000 | 5,000       | 2,000                 |
|          |                                     |      |         |                    |           | CFM1      | 1,000 | 2,500       | 5,000                 |
|          |                                     |      |         |                    |           | CF1       | 1,000 | 2,000       | 1,000                 |
|          |                                     |      |         |                    |           | CF2       | 1,000 | 1,000       | 1,000                 |
|          |                                     |      |         |                    |           | PCF14     |       | 5,000       | 2,000                 |
|          |                                     |      |         |                    |           | PCFM12    | N/A   |             |                       |