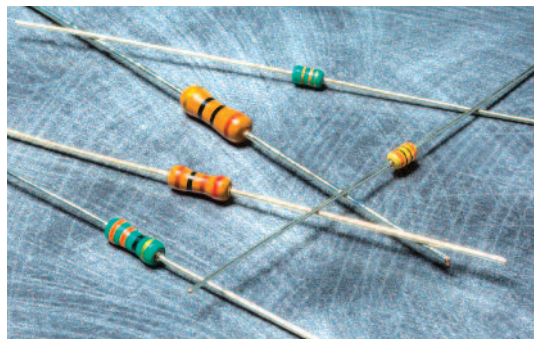
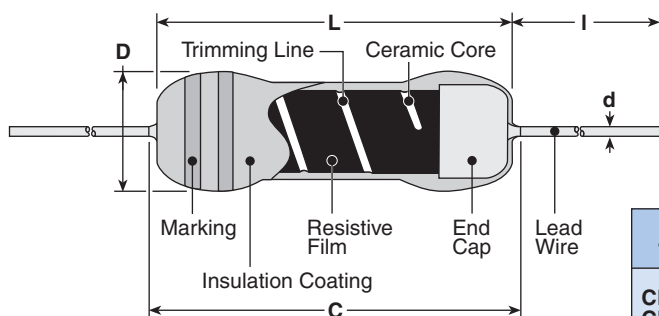




## features

- Flameproof coating is available (specify "CFP")
- Reduced body size (specify "CFS/CFPS")
- Suitable for automatic machine insertion
- Stronger in pulse resistance than chip resistors of the same type
- Products with lead-free terminations meet EU RoHS and China RoHS requirements

## dimensions and construction



| Type                            | Dimensions inches (mm)                                                                  |                |                                                                                            |                | I**                       |                             |
|---------------------------------|-----------------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------|----------------|---------------------------|-----------------------------|
|                                 | L                                                                                       | C (max.)       | D                                                                                          | d (nom.)       | Standard                  | Long                        |
| <b>CFS1/4</b><br><b>CFPS1/4</b> | .126±.008<br>(3.2±0.2)                                                                  | .134<br>(3.4)  | .067 <sup>+.008</sup> / <sub>-.004</sub><br>(1.7 <sup>+.0.2</sup> / <sub>-.0.1</sub> )     | .018<br>(0.45) | .551 Min.*<br>(14.0 Min.) | .787 Min.***<br>(20.0 Min.) |
| <b>CF1/4</b><br><b>CFP1/4</b>   | .240± <sup>+.028</sup> / <sub>-.02</sub><br>(6.1± <sup>+.0.7</sup> / <sub>-.0.5</sub> ) | .280<br>(7.1)  | .092±.012<br>(2.3±0.3)                                                                     | .024<br>(0.6)  |                           |                             |
| <b>CFS1/2</b><br><b>CFPS1/2</b> | .248±.02<br>(6.3±0.5)                                                                   | .280<br>(7.1)  | .112± <sup>+.012</sup> / <sub>-.026</sub><br>(2.85± <sup>+.0.3</sup> / <sub>-.0.65</sub> ) | .024<br>(0.6)  | .787 Min.<br>(20.0 Min.)  | —                           |
| <b>CFB1/2</b><br><b>CFPB1/2</b> | .354±.039<br>(9.0±1.0)                                                                  | .433<br>(11.0) | .138±.02<br>(3.5±0.5)                                                                      | .028<br>(0.7)  |                           |                             |

\* Forming code S is applied for bulk type.

\*\* Lead length changes depending on taping and forming type.

\*\*\* Long type is custom-made

## ordering information

| CF        | 1/4                                                   | C                    | T52                                                                                                                                              | R                  | 103                                                                         | J                |
|-----------|-------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------|------------------|
| Type      | Power Rating                                          | Termination Material | Taping and Forming                                                                                                                               | Packaging          | Nominal Resistance                                                          | Tolerance        |
| CF<br>CFP | S1/4: 0.25W<br>1/4: 0.25W<br>S1/2: 0.5W<br>B1/2: 0.5W | C: SnCu              | Axial: T26, T52, L52<br>Radial: VT, MT, MHT, VTP, VTE<br>U Forming: U, UCL<br>M Forming: M5, M10, M12.5<br>L Forming: L10, L12.5<br>S Forming: S | A: Ammo<br>R: Reel | 2 significant figures + 1 multiplier<br>"R" indicates decimal on value <10Ω | G: ±2%<br>J: ±5% |

For further information on packaging, please refer to Appendix C.

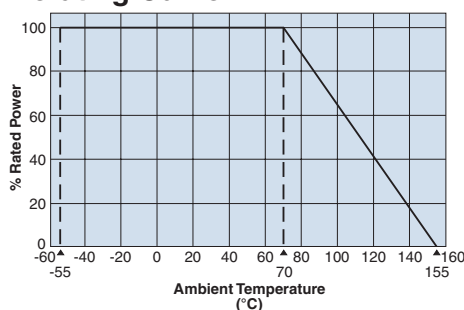
## applications and ratings

| Part Designation | Power Rating @ 70°C | Minimum Dielectric Withstanding Voltage | T.C.R. (ppm/°C) |               |               |               | Resistance Range E-24 (G±2%) | Resistance Range E-24 (J±5%) | Absolute Maximum Working Voltage | Absolute Maximum Overload Voltage |
|------------------|---------------------|-----------------------------------------|-----------------|---------------|---------------|---------------|------------------------------|------------------------------|----------------------------------|-----------------------------------|
|                  |                     |                                         | +350 to -450    | 0 to -700     | 0 to -1000    | 0 to -1300    |                              |                              |                                  |                                   |
| CFS1/4           | 0.25W               | 300V                                    | 2.2Ω - 47kΩ     | 51kΩ - 100kΩ  | 110kΩ - 330kΩ | 360kΩ - 1MΩ   | 10Ω - 330kΩ                  | 2.2Ω - 1MΩ                   | 250V                             | 500V                              |
| CFPS1/4          |                     |                                         | 2.2Ω - 47kΩ     | 51kΩ - 100kΩ  | 110kΩ - 330kΩ | 360kΩ - 1MΩ   | 10Ω - 100kΩ                  | 2.2Ω - 1MΩ                   |                                  |                                   |
| CF1/4            |                     | 500V                                    | 2.2Ω - 100kΩ    | 110kΩ - 330kΩ | 360kΩ - 1MΩ   | 1.1MΩ - 5.1MΩ | 10Ω - 1MΩ                    | 2.2Ω - 5.1MΩ                 | 300V                             | 600V                              |
| CFP1/4           |                     |                                         | 2.2Ω - 100kΩ    | 110kΩ - 330kΩ | 360kΩ - 1MΩ   | —             |                              | 2.2Ω - 1MΩ                   |                                  |                                   |
| CFS1/2           | 0.50W               | 700V                                    | 1.0Ω - 91kΩ     | 100kΩ - 1MΩ   | 1.1MΩ - 2.2MΩ | 2.4MΩ - 5.1MΩ |                              | 1.0Ω - 5.1MΩ                 | 350V                             | 700V                              |
| CFPS1/2          |                     |                                         | 2.2Ω - 91kΩ     | 100kΩ - 1MΩ   | —             | —             |                              | 2.2Ω - 1MΩ                   |                                  |                                   |
| CFB1/2           | 0.50W               | 700V                                    | 2.2Ω - 100kΩ    | 110kΩ - 1MΩ   | 1.1MΩ - 2.2MΩ | 2.4MΩ - 5.1MΩ |                              | 2.2Ω - 5.1MΩ                 | 400V                             | 800V                              |
| CFPB1/2          | 0.50W               | 700V                                    | 2.2Ω - 100kΩ    | 110kΩ - 1MΩ   | —             | —             |                              | 2.2Ω - 1MΩ                   | 400V                             | 800V                              |

Operating temperature: -55°C ~ +155°C

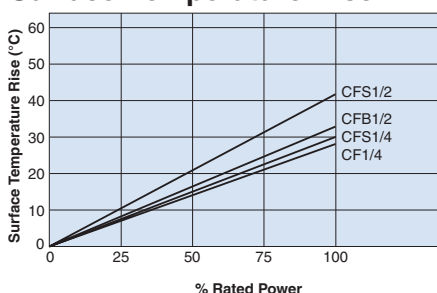
## environmental applications

### Derating Curve

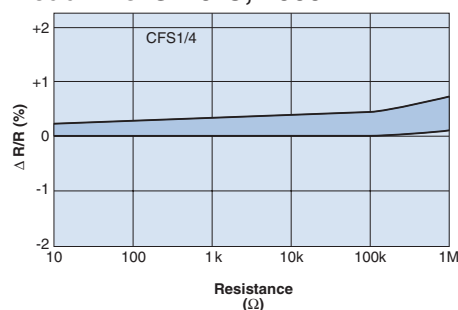


For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the above derating curve.

### Surface Temperature Rise



### Load Life @ 70°C, 1000 Hr



## Performance Characteristics

| Parameter                               | Requirement Δ R ±(% + 0.05Ω)                                   |         | Test Method                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------|----------------------------------------------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                         | Limit                                                          | Typical |                                                                                                                                                                                                                                                                                                                                                                             |
| Resistance                              | Within specified tolerance                                     | —       | Measuring points are at 10mm ±1mm from the end cap.                                                                                                                                                                                                                                                                                                                         |
| T.C.R.                                  | Within specified T.C.R.                                        | —       | +25°C/+125°C                                                                                                                                                                                                                                                                                                                                                                |
| Overload (Short time)                   | ±1%                                                            | ±0.5%   | Rated voltage x 2.5 or max. overload voltage for 5 seconds, whichever is lower                                                                                                                                                                                                                                                                                              |
| Resistance to Solder Heat               | ±1%                                                            | ±0.5%   | 260°C ±5°C, 10 seconds ± 1 second, 350°C ± 10°C, 3.5 seconds ± 0.5 second                                                                                                                                                                                                                                                                                                   |
| Terminal Strength                       | No lead-coming off and loose terminals                         | —       | Twist 360°C, 5 times                                                                                                                                                                                                                                                                                                                                                        |
| Rapid Change of Temperature             | ±1%                                                            | ±0.5%   | -55°C (30 minutes), +125°C (30 minutes), 5 cycles                                                                                                                                                                                                                                                                                                                           |
| Moisture Resistance                     | ±5%                                                            | ±2.5%   | 40°C ± 2°C, 90 - 95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle                                                                                                                                                                                                                                                                                                            |
| Endurance at 70°C                       | ±3%                                                            | ±1.5%   | 70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle                                                                                                                                                                                                                                                                                                                         |
| Resistance to Solvent (CFP & CFPS only) | No abnormality in appearance. Marking shall be easily legible. | —       | Ultrasonic washing with Isopropyl alcohol for 2 minutes. Power: 0.3W/cm², f: 28kHz, temp: 35°C±5°C                                                                                                                                                                                                                                                                          |
| Flame Retardant (CFP & CFPS only)       | No evidence of flaming or self-flaming                         | —       | Flame test: The test flame shall be applied and removed for each 15 seconds respectively to repeat the cycle 5 times.<br>Overload flame retardant: AC Voltage corresponding to 2, 4, 8, 16 and 32 times the power rating shall be applied for each 1 minute until disconnection occurs. However the applied voltage shall not exceed 4 times the maximum operating voltage. |

# Mouser Electronics

Authorized Distributor

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[CF1/4LT26A103J](#) [CF1/2L201J](#) [CF1/4LT52R331J](#) [CF1/4LT52R211J](#) [CF1/4LT52R334J](#) [CF1/4LT52R824J](#)  
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[CF1/4LT52R681J](#) [CFS1/4L392J](#) [CF1/4L391J](#) [CF1/2LT52R122J](#) [CF1/2LT52R1R1J](#) [CF1/4L395J](#) [CF1/2L5R6J](#)  
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[CF1/2LT52R911J](#) [CF1/2LT52R7R5J](#) [CF1/2LT52R165J](#) [CF1/2LT52R163J](#) [CF1/4LVTPR5R1J](#) [CF1/4LT52RR51J](#)  
[CF1/4LT52RR50J](#) [CFS1/4LT52R131J](#) [CFS1/4LT52R132J](#) [CF1/4L271J](#) [CF1/4LT52R624J](#) [CF1/4LT52R6R8J](#)  
[CF1/4L272J](#) [CF1/4LT52R620J](#) [CF1/4L275J](#) [CF1/4LT52R623J](#) [CFS1/4L4R7J](#) [CF1/4L180J](#) [CF1/4LT52R621J](#)  
[CF1/4LT52R6R2J](#) [CF1/2L5R1J](#) [CF1/2L184J](#) [CF1/4LR68J](#) [CF1/4L270J](#) [CF1/4L274J](#) [CFS1/4LT52R562J](#)  
[CF1/4LT52R625J](#) [CF1/4LT52R912J](#) [CF1/4LT52R910G](#) [CF1/4LT52R300J](#) [CF1/4LT52R915J](#) [CF1/4LT52R301G](#)  
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