

# Carbon Film Fixed Resistors:

## Feature

- High quality performance
- Great economy
- Flame retardant type available
- Automatically insertable



## Specifications

| Part No.                                 | Type      | Power Rating At 70°C | Dimension (mm) |        |                  |       | Max. Working Voltage | Max. Overload Voltage | Dielectric Withstanding Voltage | Resistance Range |
|--|-----------|----------------------|----------------|--------|------------------|-------|----------------------|-----------------------|---------------------------------|------------------|
|  |           |                      | D Max.         | L Max. | d +0.02<br>-0.05 | H ± 3 |                      |                       |                                 |                  |
| <b>Normal Size</b>                       |           |                      |                |        |                  |       |                      |                       |                                 |                  |
| CFR0W8                                   | CFR-12    | 1/8W                 | 1.85           | 3.5    | 0.5              | 28    | 200V                 | 400V                  | 400V                            | 1Ω ~ 1MΩ         |
| CFR0W4                                   | CFR-25    | 1/4W                 | 2.5            | 6.8    | 0.6              | 28    | 250V                 | 500V                  | 500V                            | 1Ω ~ 10MΩ        |
| CFR0W2                                   | CFR-50    | 1/2W                 | 3.5            | 10     | 0.6              | 28    | 350V                 | 700V                  | 700V                            | 1Ω ~ 10MΩ        |
| CFR01W                                   | CFR-100   | 1W                   | 5.5            | 16     | 0.8              | 28    | 500V                 | 1000V                 | 1000V                           | 1Ω ~ 10MΩ        |
| CFR02W                                   | CFR-200   | 2W                   | 6.5            | 17.5   | 0.8              | 28    | 500V                 | 1000V                 | 1000V                           | 1Ω ~ 10MΩ        |
| <b>Small Size &amp; Extra Small Size</b> |           |                      |                |        |                  |       |                      |                       |                                 |                  |
| CFR0S4                                   | CFR-25-S  | 1/4W                 | 1.85           | 3.5    | 0.5              | 28    | 200V                 | 400V                  | 400V                            | 1Ω ~ 1MΩ         |
| CFR0U2                                   | CFR-50-SS | 1/2W                 | 2.5            | 6.8    | 0.6              | 28    | 250V                 | 500V                  | 250V                            | 1Ω ~ 10MΩ        |
| CFR0S2                                   | CFR-50-S  | 1/2W                 | 3              | 9      | 0.6              | 28    | 350V                 | 700V                  | 700V                            | 1Ω ~ 10MΩ        |
| CFR01S                                   | CFR-100-S | 1W                   | 5              | 12     | 0.7              | 28    | 500V                 | 1000V                 | 1000V                           | 1Ω ~ 10MΩ        |
| CFR02S                                   | CFR-200-S | 2W                   | 5.5            | 16     | 0.8              | 28    | 500V                 | 1000V                 | 1000V                           | 1Ω ~ 10MΩ        |
| CFR03S                                   | CFR-300-S | 3W                   | 6.5            | 17.5   | 0.8              | 28    | 500V                 | 1000V                 | 1000V                           | 1Ω ~ 10MΩ        |

- Standard E-24 series values in ± 5% tolerance
- Standard Beige base color; Special Lavender base color for CFR01S, CFR02S & CFR03S
- Standard Grayish-green base color (Non-Flammable coating) for CFR0U2 (CFR-50-SS)
- For any special inquiry which including too low or high ohmic values is available on a case to case basis

## Derating Curve



## Current Noise Level



## Temperature Coefficient



## Carbon Film Fixed Resistors:

### Performance Specifications

|  |  |
|--|--|
| <b>Temperature coefficient</b>         | ±300PPM/°C for ≤10Ω;<br>±450PPM/°C for 11Ω ~ 99KΩ;<br>0 ~ -700PPM/°C for 100KΩ ~1MΩ;<br>0 ~ -1500PPM/°C for 1.1MΩ ~10MΩ. |
| <b>Short-time overload</b>             | ΔR/R ≤ ±(1%+0.05Ω), with no evidence of mechanical damage.   |
| <b>Insulation resistance</b>           | Min. 10,000Mega Ohm.   |
| <b>Dielectric withstanding voltage</b> | No evidence of flashover, mechanical damage, arcing or insulation breakdown.   |
| <b>Terminal strength</b>               | No evidence of mechanical damage.  |
| <b>Resistance to Soldering heat</b>    | ΔR/R ≤ ±(1%+0.05Ω), with no evidence of mechanical damage.   |
| <b>Solderability</b>                   | Min. 95% coverage.   |
| <b>Resistance to solvent</b>           | No deterioration of protective coating and markings.   |
| <b>Temperature cycling</b>             | ΔR/R ≤ ±(1%+0.05Ω), with no evidence of mechanical damage.   |
| <b>Load life in humidity</b>           | Normal type: ΔR/R ± 3% for <100KΩ, ±5% for ≥100KΩ;<br>Flame retardant type: ΔR/R ± 5% for <100KΩ, ±10% for ≥100KΩ        |
| <b>Load life</b>                       | Normal type: ΔR/R ±2% for <56KΩ, ±3% for ≥56KΩ;<br>Flame retardant type: ΔR/R ±5% for <100KΩ, ±10% for ≥100KΩ            |

### Ordering Procedure (Example: CFR 1/4W Small Size Non – Flame 5% 10KΩ T/B-5000)

#### Special Features:

0 = Standard product, F = Flame Retardant, I = Non - Inductive

**Wattage:** Normal size: W8 = 1/8W, W4 = 1/4W, W2 = 1/2W, 1W = 1W, 2W = 2W  
Small size: S4 = 1/4W-S, S2 = 1/2W-S, 1S = 1W-S, 2S = 2W-S, 3S = 3W-S  
Extra small size: U2 = 1/2W-SS

**Tolerance:** G = ± 2% , J = ± 5% , K = ± 10%

**Packing Type:** A = Tape/Box, T = Tape/Reel, B = Bulk/Box,  
P = Tape/Box of PT-26 product

#### Resistance Value:

E-24 series:  
The 1<sup>st</sup> digit will be "0";  
the 2<sup>nd</sup> & 3<sup>rd</sup> digits are  
for the significant figures  
of the resistance and the  
4<sup>th</sup> digit indicate the  
numbers of zeros  
following

#### Packing Quantity:

1 = 1,000pcs, 2 = 2,000pcs, 3 = 3,000pcs, 4 = 4,000pcs  
5 = 5,000pcs, A = 500pcs, B = 2,500pcs,  
0 = for Bulk/Box packing

**Additional Information:** 0 = NIL

**Product Type:**  
CFR = Carbon Film  
Fixed Resistors

**C F R F S 4 J 0 1 0 3 A 5 0**