


General Purpose Carbon Film Resistors

CF Series

- High stability performance
- Only available as Lead Free
- Auto sequencing/insertion compatible
- Ideal for commercial/industrial applications



Not Recommended for New Designs

 All parts are Pb-free and comply with EU Directive 2011/65/EU (RoHS2)

Electrical Data

		Tested per MIL-STD-202		
		CF 1/8	CF 1/4	CF 1/2
Power Rating (watts) at 70°C		1/8	1/4	1/2
Derated to 0 Load at		155°C		
Maximum Working Voltage		200V	250V	350V
Operating Temperature Range		-55°C to +155°C		
Resistance Range	(±5%)	1.0 Ω - 22 MΩ		
	(±2%)	10 Ω - 1 MΩ	10 Ω - 4.7 MΩ	10 Ω - 4.7 MΩ

Environmental Data

	CF 1/8	CF 1/4	CF 1/2
Moisture Resistance	<100 K ± (3% + 0.05 Ω)		
	>100 K ± (5% + 0.05 Ω)		
Thermal Shock	±0.5%		
Load life at 70°C - 1000 hours	<100 K ± (2% + 0.05 Ω)		
	<100 K ± (3% + 0.05 Ω)		
Shock and Vibration	±0.2%		
Resistance to Soldering Heat	±0.5%		
Terminal Strength	±0.5%		
Dielectric Withstand Voltage	300 volts RMS min.	500 volts RMS min.	700 volts RMS min.
Maximum Pulse Voltage	400V	600V	700V
Insulation Resistance	10,000 meg min.		
Voltage Coefficient	-10 ppm/Vmax.		
Short Time Overload	±0.75%		

General Note

TT Electronics reserves the right to make changes in product specification without notice or liability.
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Physical Data

The diagram shows a side view and a top view of a carbon film resistor. Dimension A is the length of the lead wires on either side of the central body. Dimension B is the length of the central body. Dimension C is the thickness of the resistor body. Dimension D is the diameter of the resistor body.

Dimensions (inches and (mm))			
Dimension	CF 1/8	CF 1/4	CF 1/2
A	1.10 ± .08 (28.0 ± 2.0)		
B	0.13 + .01/-0.00 (3.2 + 0.2/-0.0)	0.24 ± .01 (6.0 ± 0.3)	0.33 ± .02 (8.5 ± 0.5)
C	0.018 ± .001 (0.45 ± 0.02)	0.022 ± .001 (0.55 ± 0.03)	0.026 ± .002 (0.65 ± 0.05)
D	0.07 ± .01 (1.8 ± 0.15)	0.09 ± .01 (2.3 ± 0.2)	0.11 ± .01 (2.8 ± 0.3)

Construction

- COLOR BANDS.**
The resistors are permanently color banded for resistance value and tolerance in accordance with EIA specifications.
- HELIXING.**
The units are helixed to a predetermined base to final value ratio to obtain the best TCR, noise and stability characteristics.
- FILM.**
Carbon-film resistors have a homogeneous film of pure carbon deposited by a pyrolytic process at carefully controlled temperatures.
- SUBSTRATES.**
The substrates are of a proprietary non alkaline ceramic, prepared and processed under exacting conditions to guarantee the utmost in uniformity and surface characteristics.
- INSULATION.**
The resistors are coated with multiple layers of a baked-on fire-retardant synthetic resin which provides the units with a high degree of mechanical and electrical protection in the most adverse operating conditions.
- TERMINATIONS.**
Positive contact is provided to the resistance element by precision-made end caps. The lead wires are attached by using proprietary welding techniques.

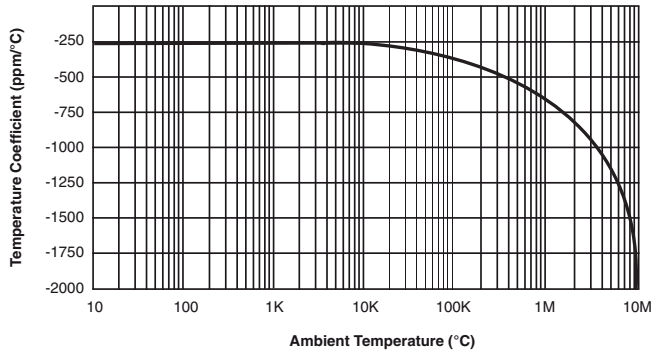
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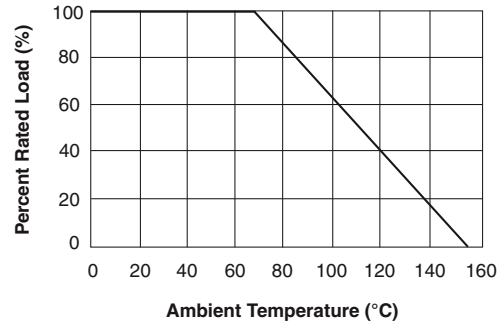
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Performance Curves

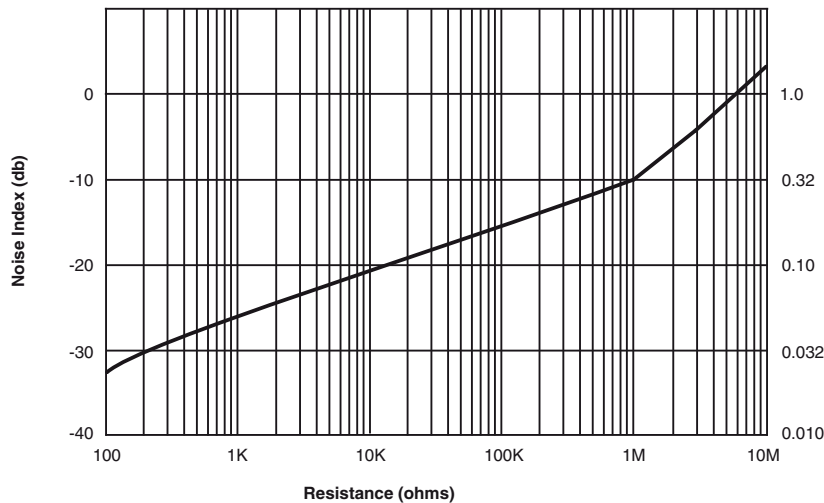
Temperature Coefficient (Typical)



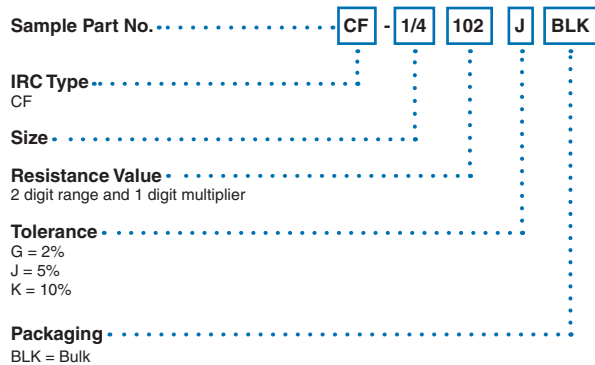
Derating Curve (Typical)



Current Noise (Typical)



Ordering Data



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