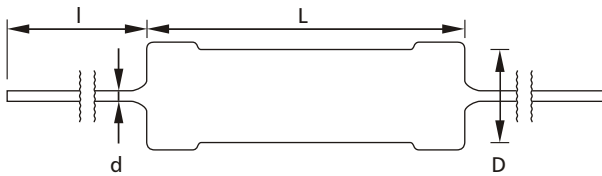


CARBON FILM FIXED RESISTORS

Premium quality carbon film resistors whose ceramic core has a high alumina content offering power to size ratios not normally associated with carbon film product. Available in 5 power ratings from 1 ohm to 10 Mohm. The smallest case size (CRF16) has a full 0.25 W power rating.

Outline Diagram



Technology and suggested applications

The resistive element comprises a thin film of carbon, deposited onto a high thermal conductivity ceramic element. Metal end caps are force fitted to the element prior to spiralling to value. Tinned copper lead wires are welded to the end caps and the components are then coated. One coat of phenolic resin is followed by three coats of epoxy resin. All resistors are tested for value and tolerance.

Low cost, combined with high reliability, make these components suitable for use in most types of circuits, including audio, communications, measurement and computer applications.

Dimensions				
STYLE	L*	D	d (nom max)	l
CFR16	3.4 ± 0.3	1.8 ± 0.3	0.5	29 ± 2
CFR25	6.2 ± 0.5	2.3 ± 0.2	0.6	26 ± 2
CFR50S	6.2 ± 0.5	2.3 ± 0.2	0.6	28 ± 1
CFR50	8.5 ± 0.5	3.2 ± 0.5	0.7	26 ± 2
CFR100S	11.5 ± 1.0	4.5 ± 0.5	0.8	35 ± 2
CFR100	12.8 ± 0.5	4.7 ± 0.5	0.8	35 ± 1
CFR200	16.8 ± 0.5	5.7 ± 0.5	0.8	33.1 ± 1

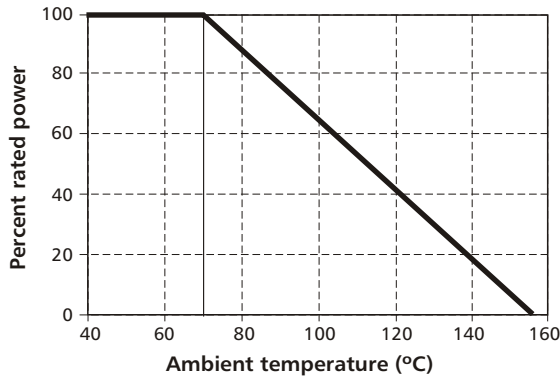
* Length is measured in accordance with IEC 294

Ratings and Characteristics									
	UNITS	CFR16	CFR25	CFR50S	CFR50	CFR100S	CFR100	CFR200	
Rated Power @ 70 °C	Watts	0.25	0.33	0.5	0.5	1	1	2	
Resistance Range	Min	1R0	1R0	1R0	1R0	1R0	1R0	1R0	1R0
	Max	4M7	10M	10M	10M	10M	10M	10M	10M
Tolerance	%	2 5							
Code Letter		G J							
Temperature Coefficient	R < 10	0 to +200	0 to +200	0 to +200	0 to +200	0 to +200	0 to +350	0 to +350	0 to +350
	R > 10	-0 to -1200	0 to -1200	0 to -1200	0 to -1200	-100 to -500	-100 to -500	-100 to -500	-100 to -500
Selection Series		E24							
Limiting Element Voltage	Volts	250	250	300	350	400	500	700	
Max Overload Voltage ¹	Volts	400	500	600	700	1000	1000	1200	
Max Intermittent Overload Volt ²	Volts	500	700	750	750	750	750	750	
Operating Temperature Range	°C	-55 to +155							
Climatic Category		55/155/56							
Dielectric Strength	Volts	300	500	500	700	1000	1000	1000	
Insulation Resistance	Mohms	1000							

⁽¹⁾ Maximum Overload Voltage is 2.5 times rated voltage up to the specified voltage for 5 seconds.

⁽²⁾ Maximum Intermittent Overload Voltage is 4 times rated voltage up to the specified voltage for 1 second ON and 25 seconds OFF. >100R ONLY

Derating



Mounting

The resistors are suitable for processing on automatic insertion equipment and cutting and bending machines.

Marking

The resistors are marked with a four band colour code in accordance with IEC 62.

Performance Characteristics

The evaluation of the performance characteristics is carried out with reference to IECQ specifications QC 400 000 and QC 400 100.

TEST REF	Long Term Tests $\pm(5\% + 0.1 \text{ ohm})$
4.23	Climatic sequence
4.24	Damp heat, steady state
4.25.1	Endurance at 70 °C
4.25.3	Endurance at 155 °C
TEST REF	Short Term Tests $\pm(1\% + 0.05 \text{ ohm})$
4.13	Overload
4.16	Robustness of terminations
4.18	Resistance to soldering heat
4.19	Rapid change of temperature
4.22	Vibration

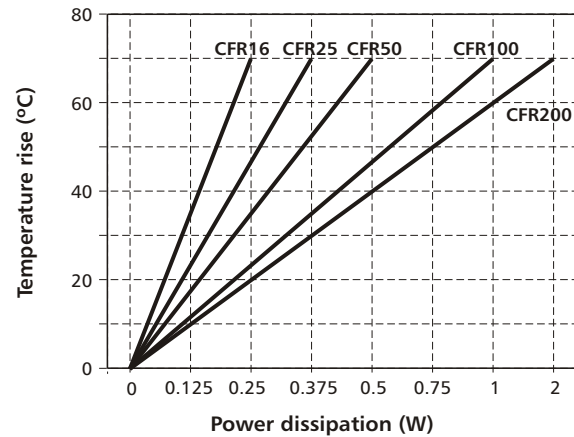
Packaging

Carbon film resistors are normally supplied taped in 'ammo' boxes. Other styles may be supplied on request.

All tape specifications are in accordance with IEC 286-1.

TYPE	Box Quantity	Std. tape spacing	Component Spacing
CFR16	5000	52	5
CFR25	4000	52	5
CFR50S	4000	52	5
CFR50	3000	52	5
CFR100S	1000	52	5
CFR100	1000	73	10
CFR200	500	73	10

Surface Temperature Rise vs. Load



Ordering Information

Orders for these components should include the following information:-

Type, tolerance code letter and value

e.g. CFR25 J 1K0

