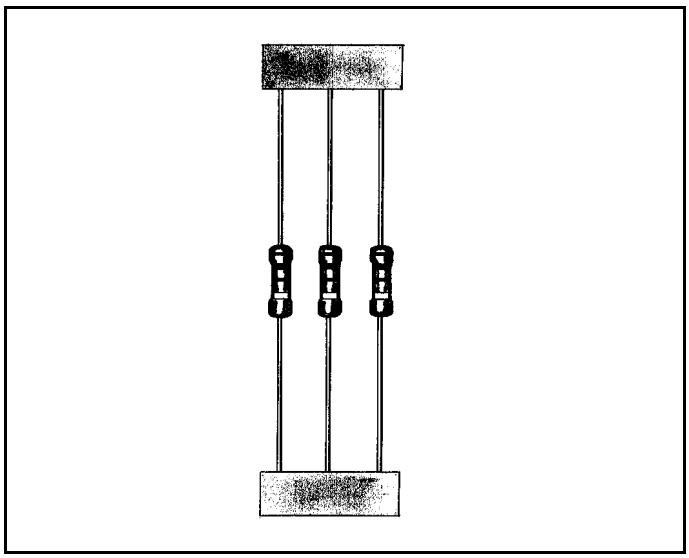
TYPE CFR SERIES

9th August 2004
ISSUE 3

Carbon Film Fixed Resistors



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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.

KEY FEATURES

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

STOCKISTS:

This product is stocked by RS and Micromark.

tyco Electronics NEOHM

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

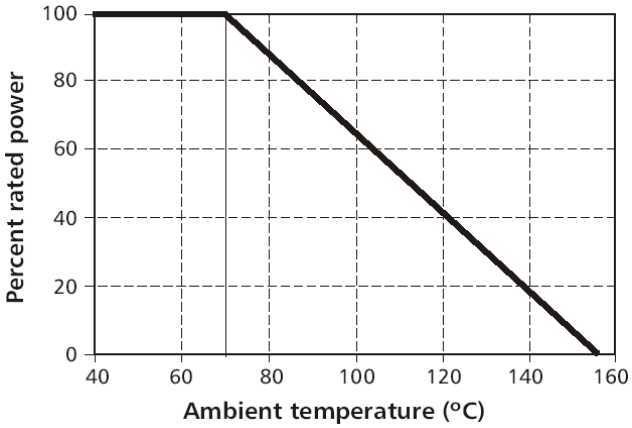
[1]Maximum Overload Voltage is 2.5 times rated voltage up to the specified voltage for 5 seconds.
[2]Maximum Intermittent Overload Voltage is 4 times rated voltage up to the specified voltage for 1 second ON and 25 seconds OFF. >100R ONLY

DIMENSIONS

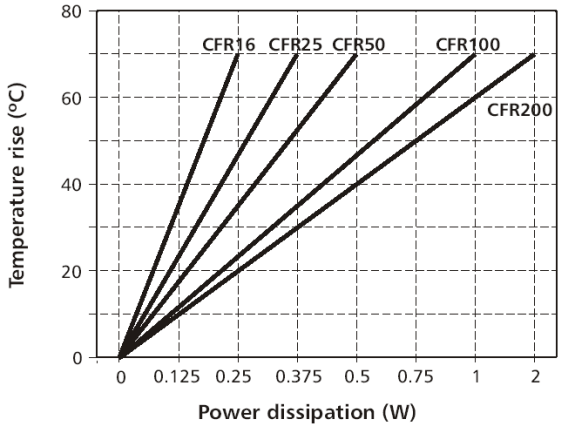
STYLE	L max *	D max	d nom	l
CFR16	3.5	1.85	0.5	28 ± 3.0
CFR25	6.8	2.5	0.6	28 ± 3.0
CFR50	9.0	3.0	0.6	28 ± 3.0
CFR100	12.0	5.0	0.8	28 ± 3.0
CFR200	16.0	5.5	0.8	28 ± 3.0

* Length is measured in accordance with IEC 294

DERATING CURVE



SURFACE TEMPERATURE RISE VS. LOAD



MARKING

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

MOUNTING

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

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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	5000	52	5
CFR50	2000	52	5
CFR100	1000	58	5
CFR200	1000	64	10

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 ±(5% + 0.1 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 ±(1% + 0.05 ohm)**
4.13	Overload
4.16	Robustness of terminations
4.18	Resistance to soldering heat
4.19	Rapid change of temperature
4.22	Vibration

HOW TO ORDER

Orders for these components should include the following information:-
Type, tolerance code letter and value e.g. CFR25 J 1K0