Melf Carbon Film Resistors

General Type

Normal & Miniature Style [MCF Series]

INTRODUCTION

The MCF Series Melf Carbon Film Resistors are manufactured by coating a homogeneous film of pure carbon on high grade ceramic rods. SMD enabled structure.

FEATURES

Power Rating	1/6W, 1/4W, 0.4W, 1/2W, 0.6W, 1W
Resistance Tolerance	±2%, ±5%
T.C.R.	see Table 1

DERATING CURVE

For resistors operated in ambient temperatures above 70°C, power rating must be derated in accordance with the curve below.

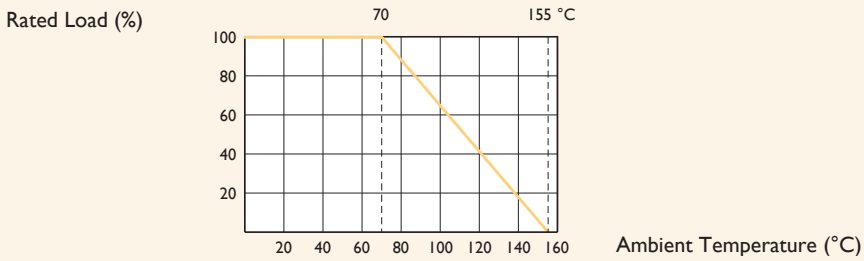
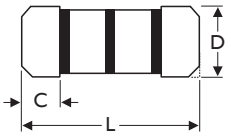


TABLE 1 TEMPERATURE COEFFICIENT

STYLE	MAX. VALUE OF TEMP. COEFFICIENT PPM/°C			
MCF-12, MCF25S, MCF204	under 1KΩ	1K1Ω -47KΩ	51KΩ -470KΩ	510KΩ -1MΩ
	0 to -350	0 to -600	0 to -1,000	0 to -1,500
MCF-25, MCF50S, MCF207, MCF-50, MCF1WS	under 10KΩ	11KΩ -150KΩ	160KΩ -2M2Ω	
	0 to -350	0 to -600	0 to -1,000	

DIMENSIONS

Unit: mm



STYLE		DIMENSION		
Normal	Miniature	L	D	C Min.
MCF-12	MCF25S / MCF204	3.5±0.2	1.4±0.15	0.5
MCF-25	MCF50S / MCF207	5.9±0.2	2.2±0.1	0.5
MCF-50	MCF1WS	8.5±0.2	3.2±0.2	0.5

Note:

ELECTRICAL CHARACTERISTICS

STYLE	MCF-12	MCF25S	MCF204	MCF-25	MCF50S	MCF207	MCF-50	MCF1WS
Power Rating at 70°C	1/6W	1/4W	0.4W	1/4W	1/2W	0.6W	1/2W	1W
Maximum Working Voltage	200V	250V		300V			350V	
Maximum Overload Voltage	400V	500V		600V			700V	
Voltage Proof on Insulation	200V			500V			700V	
Resistance Range	10Ω - 1MΩ & 0Ω for E24 series value							
Operating Temp. Range	-55°C to +155°C							
Temperature Coefficient	see Table 1							

Note: Special value is available on request

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		APPRAISE
Short Time Overload	IEC 60115-1 4.13	2.5 times RCWV for 5 sec. (Not more than maximum Overload Voltage)	±1.0%+0.05Ω
Voltage Proof on Insulation	IEC 60115-1 4.7	In V-Block for 60 sec., test voltage as above table	No Breakdown
Temperature Coefficient	IEC 60115-1 4.8	Between -55°C to +155°C	By type
Insulation Resistance	IEC 60115-1 4.6	in V-block for 60 Sec.	>10,000MΩ
Solderability	IEC 60115-1 4.17	245±5°C for 3±0.5 Sec.	95% Min. coverage
Solvent Resistance of Marking	IEC 60115-1 4.30	IPA for 5±0.5 Min. with ultrasonic	No deterioration of coatings and markings
Periodic-pulse Overload	IEC 60115-1 4.39	4 times RCWV 10,000 cycles (1 Sec. on, 25 Sec. off)	±1.0%+0.05Ω
Damp Heat Steady State	IEC 60115-1 4.24	40±2°C, 90-95% RH for 56 days, loaded with 0.1 times RCWV	±5.0%+0.1Ω
Endurance at 70°C	IEC 60115-1 4.25	70±2°C at RCWV (or Umax., Whichever less) for 1,000 Hr. (1.5Hr.on, 0.5Hr. Off)	±3.0%+0.1Ω
Temperature Cycling	IEC 60115-1 4.19	-55°C ⇨ Room Temp. ⇨ +155°C ⇨ Room Temp. (5 cycles)	±0.75%+0.05Ω
Resistance to Soldering Heat	IEC 60115-1 4.18	260±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body	±1.0%+0.05Ω

Note: RCWV (Rated Continuous Working Voltage) = $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$ or Max. working voltage listed above, whichever less.