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. After a helical groove has been cut in the resistive layer, tinned connecting leads of electrolytic copper are welded to the end-caps. SMD enabled structure. The resistors are coated with layers of lacquer.

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.

Rated Load (%)



Ambient Temperature (°C)

TABLE | TEMPERATURE COEFFICIENT

STYLE	MAX. VALUE OF TEMP. COEFFICIENT PPM/°C						
MCF-12, MCF255, MCF204	under IK Ω	ΙΚΙ Ω -47Κ Ω	5ΙΚ Ω -470Κ Ω	510K Ω -1M Ω			
	0 to -350	0 to -600	0 to -1,000	0 to -1,500			
MCF-25, MCF50S, MCF207,	under IOK Ω	ΙΙΚ Ω -Ι50ΚΩ	160K Ω -2M2 Ω				
MCF-50, MCF1WS	0 to -350	0 to -600	0 to -1,000				

DIMENSIONS



STYLE		DIMENSION	ı	
Normal	Miniature	L	D	C Min.
MCF-12	MCF25S / MCF204	3.50±0.2	1.40±0.15	0.5
MCF-25	MCF50S / MCF207	5.90±0.2	2.20±0.1	0.5
MCF-50	MCFIWS	8.50±0.2	3.20±0.2	0.5

Unit: mm

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ELECTRICAL CHARACTERISTICS

STYLE	MCF-12	MCF25S	MCF204	MCF-25	MCF50S	MCF207	MCF-50	MCFIWS	
Power Rating at 70°C	1/6W	1/4W	0.4W	1/4W	1/2W	0.6W	1/2W	IW	
Maximum Working Voltage	200V	250V		300V			350V		
Maximum Overload Voltage	400V	500V	500V		600V			700V	
Voltage Proof	200V	.00V			500V				
Resistance Range	ΙΟ Ω - ΙΜ Ω	10 Ω - 1M Ω & 0 Ω for E24 series value							
Operating Temp. Range	-55°C to +1	-55°C to +155°C							
Temperature Coefficient	see Table 1	see Table 1							

Note: Special value is available on request

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD	TEST METHOD				
Short Time Overload	IEC 60115-1 4.13	2.5 times RCWV for 5 Sec.	±1.0%+0.05 Ω			
Voltage Proof	IEC 60115-1 4.7	in V-block for 60 Sec., test voltage by type	By type			
Temperature Coefficient	IEC 60115-1 4.8	-55°C to +155°C	By type			
Insulation Resistance	IEC 60115-1 4.6	in V-block for 60 Sec.	>10,000M Ω			
Solderability	IEC 60115-1 4.17	235±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%+0.05 Ω			
Damp Heat Steady State	IEC 60115-1 4.24	40±2°C, 90-95% RH for 56 days, loaded with 0.1 times RCVVV	±5.0%+0.1 Ω			
Endurance at 70°C	IEC 60115-1 4.25	70±2°C at RCWV for 1,000 Hr. (1.5 Hr. on, 0.5 Hr. off)	±3.0%+0.1 Ω			
Temperature Cycling	IEC 60115-1 4.19	-55°C ⇔ Room Temp. ⇔ +155°C ⇔ Room Temp. (5 cycles)	±0.75%+0.05 Ω			
Resistance to Soldering Heat	IEC 60115-1 4.18	260 ± 3 °C for 10 ± 1 Sec., immersed to a point 3 ± 0.5 mm from the body	±1.0%+0.05 Ω			

Note: Rated Continuous Working Voltage (RCWV) = $\sqrt{Power Rating \times Resistance Value}$

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