

## Melf Carbon Film Resistors

## General Type

## Normal &amp; Miniature Style [ MCF Series ]



## INTRODUCTION

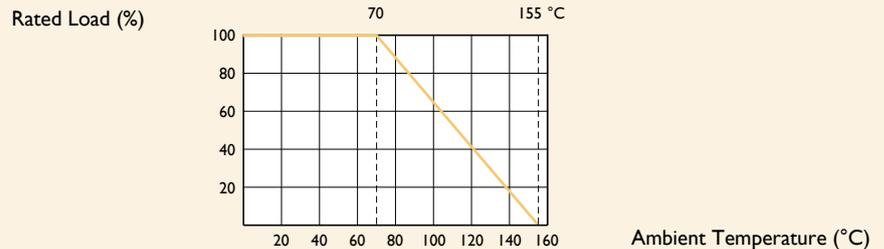
The MCF Series Melf Carbon Film Resistors are manufactured by coating a homogeneous film of pure carbon on high grade ceramic rods. After a helical groove has been cut in the resistive layer, tinned connecting leads of electrolytic copper are welded to the end-caps. SMD enabled structure. The resistors 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 I

## DERATING CURVE

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

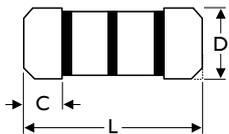


## TABLE I TEMPERATURE COEFFICIENT

STYLE	MAX. VALUE OF TEMP. COEFFICIENT PPM/°C			
	MCF-12, MCF25S, MCF204	under 1K Ω	1K1 Ω -47K Ω	51K Ω -470K Ω
	0 to -350	0 to -600	0 to -1,000	0 to -1,500
MCF-25, MCF50S, MCF207, MCF-50, MCF1WS	under 10K Ω	11K Ω -150K Ω	160K Ω -2M2 Ω	
	0 to -350	0 to -600	0 to -1,000	

## DIMENSIONS

Unit: mm



STYLE	DIMENSION	DIMENSION		
		Normal	Miniature	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	MCF1WS	8.50±0.2	3.20±0.2	0.5

Note:

---



---



---



---



---



---

### 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	1W
Maximum Working Voltage	200V	250V		300V			350V	
Maximum Overload Voltage	400V	500V		600V			700V	
Voltage Proof	200V			500V			700V	
Resistance Range	10 Ω - 1M Ω & 0 Ω for E24 series value							
Operating Temp. Range	-55°C to +155°C							
Temperature Coefficient	see Table I							

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.	±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 RCWV	±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±0.5mm from the body	±1.0%+0.05 Ω

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