

Melf Metal Film Resistors

General Type

Normal & Miniature Style [MMF Series]



INTRODUCTION

The MMF Series Melf Metal Film Resistors are manufactured using a vacuum sputtering system to deposit multiple layers of mixed metal alloys and passivative materials onto a carefully treated high grade ceramic substrate. After a helical groove has been cut in the resistive layer, SMD enabled structure. The resistors are coated with layers of blue color lacquer.

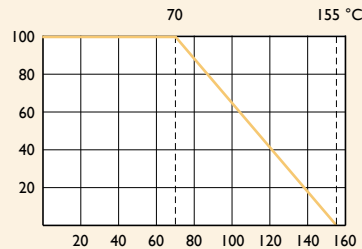
FEATURES

Power Rating	1/6W, 1/4W, 0.4W, 1/2W, 0.6W, 1W
Resistance Tolerance	±0.1%, ±0.25%, ±0.5%, ±1%, ±2%, ±5%
T.C.R.	±15ppm/°C, ±25ppm/°C, ±50ppm/°C, ±100ppm/°C, ±200ppm/°C

DERATING CURVE

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

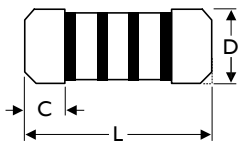
Rated Load (%)



Ambient Temperature (°C)

DIMENSIONS

Unit: mm



STYLE

DIMENSION

Normal	Miniature	L	D	C Min.
MMF-12	MMF25S / MMF204	3.50±0.2	1.40±0.15	0.5
MMF-25	MMF50S / MMF207	5.90±0.2	2.20±0.1	0.5
MMF-50	MMF1WS	8.50±0.2	3.20±0.2	0.5

Note:

ELECTRICAL CHARACTERISTICS

STYLE	MMF-12	MMF25S	MMF204	MMF-25	MMF50S	MMF207	MMF-50	MMFIWS
Power Rating at 70°C	1/6W	1/4W	0.4W	1/4W	1/2W	0.6W	1/2W	1W
Maximum Working Voltage	150V	200V		250V			350V	
Maximum Overload Voltage	300V	400V		500V			700V	
Voltage Proof	300V			500V			700V	
Resistance Range	1 Ω - 1M Ω & 0 Ω for E24 & E96 series value, 100 Ω - 100K Ω for E192 series value							
Operating Temp. Range	-55°C to +155°C							
Temperature Coefficient	±15ppm/°C, ±25ppm/°C, ±50ppm/°C, ±100ppm/°C, ±200ppm/°C							

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.	±0.5%+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	±2.0%+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)	±2.0%+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	±0.5%+0.05 Ω

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