

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.

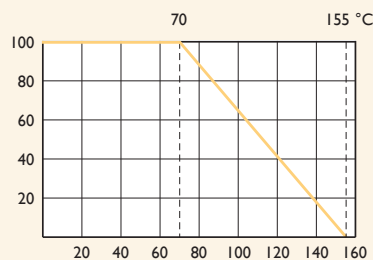
FEATURES

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

DERATING CURVE

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

Rated Load (%)



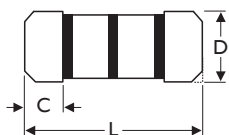
Ambient Temperature (°C)

TABLE I 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-I2 | 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 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 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. (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.

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