


 Term.W is  
RoHS  
compliant  
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compatible


# METAL FILM MELF RESISTORS

## MGP SERIES - Conformal Coated MHM SERIES - Hermetic Sealed

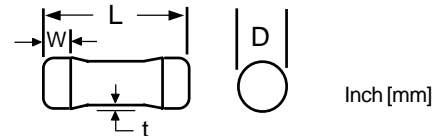
- Industry's widest selection of metal film MELF resistors-.1W to .5W, 0.1Ω to 22MΩ, 0.1% to 5%, 10ppm to 100ppm/°C
- Low cost, quick delivery (available on **SWIFT™** program)
- Precision performance, excellent environmental stability
- Series MHM hermetic sealed is an industry first!

### OPTIONS

- Option S: Increased power (refer to chart below)
- Option P: Increased pulse capability
- Option F: Flameproof coating (per UL94V0)
- Dozens of additional options are available... burn-in, special marking, non-standard values, high frequency designs, matched sets, temp. sensitive, zero-ohm jumpers, etc. Customized components are an RCD specialty!

### Metal film performance, economical price!

RCD Series MGP melf\* resistors utilize precision film technology which is inherently low inductance, low noise, and high stability even after extended periods. Heavy solder plating assures excellent solderability and long shelf life. Series MHM offers hermetically sealed environmental protection and utmost reliability. MGP series parts are color banded, MHM are alphanumerically marked with resistance and tolerance. \*Melf = metal electrode face-bonded (cylindrical component).



### SPECIFICATIONS

| RCD Type           | Wattage (Std) | Wattage (Opt. 'S') | Voltage Rating <sup>1,2</sup> | Resistance Range <sup>2</sup> | Dielectric Strength <sup>2</sup> | L±.012 [.3] | D±.008 [.2] | W (Min.)    | t (Max) <sup>2</sup> |
|--------------------|---------------|--------------------|-------------------------------|-------------------------------|----------------------------------|-------------|-------------|-------------|----------------------|
| MGP45              | .1W           | .15W               | 100V                          | 1Ω to 1M                      | 200V                             | .079 [2.0]  | .044 [1.12] | .012 [.3]   | .003 [.076]          |
| MGP50              | .125W         | .25W               | 200V                          | 0.18Ω to 10M                  | 250V                             | .135 [3.4]  | .057 [1.45] | .02 [.5]    | .004 [.1]            |
| MGP55              | .25W          | .5W                | 250V                          | 0.1Ω to 22M                   | 350V                             | .232 [5.9]  | .085 [2.15] | .024 [.6]   | .006 [.15]           |
| MHM55 <sup>3</sup> | .125W         | .25W               | 250V                          | 10Ω to 200K                   | 350V                             | .275 [7.0]  | .120 [3.05] | .050 [1.27] | .006 [.15]           |

<sup>1</sup> Max working voltage determined E=√(PxR), not to exceed the value listed.

<sup>2</sup> Consult factory for non-standard range

<sup>3</sup> Preliminary

### PERFORMANCE

|   | MGP Series*                   | MHM Series*                   |
|---|-------------------------------|-------------------------------|
| TCR (10 & 15ppm avail on custom basis)                                    | 100ppm/°C std, 25&50ppm avail | 100ppm/°C std, 25&50ppm avail |
| Operating Temperature Range   | -55 to +155°C                 | -65 to +175°C                 |
| Power Derating above 70°C   | 1.18%/°C                      | .95%/°C                       |
| Solderability (5 sec @ 230°C)   | 95% coverage                  | 95% coverage                  |
| Insulation Resistance(Dry)  | 10,000MΩ                      | 10,000MΩ                      |
| Short-Time Overload (5 sec. @ 2.5x power not to exceed 2x voltage rating) | 0.25% (0.5% Opt.S)            | .025% (.05% Opt.S)            |
| Resis. to Solder Heat (260°C, 5 sec.)                                     | 0.2%                          | .02%                          |
| Temperature Cycling (-50°C + 120°C)                                       | 0.5%                          | .02%                          |
| Moisture (Mil-Std202 M106 & Mil-R-55342)                                  | 0.5%**                        | .05%**                        |
| Load Life (1000 hours rated power)  | 0.5%(1%Opt.S)                 | .1% (.2% Opt.S)               |

\* Typical performance levels listed are for standard products from 10Ω to 1M. Consult factory for performance levels of extended range and modified designs.  
\*\* To ensure utmost reliability, care should be taken to avoid potential sources of ionic contamination

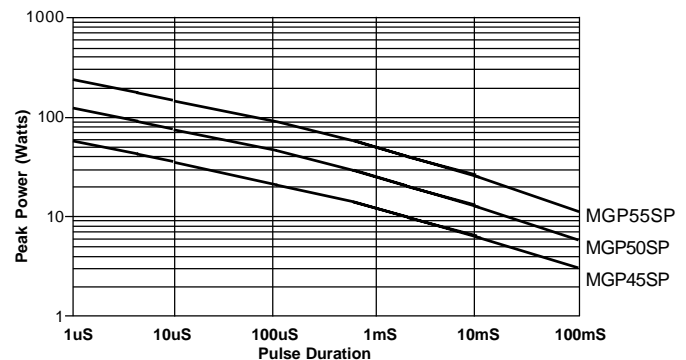
### APPLICATION NOTE #1: Temperature Rise (T<sub>HS</sub>)

The T<sub>HS</sub> of SM resistors depends largely on heat conduction through the end terminations, which can vary significantly depending on PCB material and layout (i.e. pad size, trace area, copper thickness, air flow, etc.). Typical temp. rise at full rated power is 30-50°C (Opt.S=50-70°C).

### APPLICATION NOTE #2: Resistor Selection

MGP resistors are ideal for semi-precision SM applications and are generally more economical than thin film rectangular chips. For less critical applications, consider low cost MCF carbon film melf resistors. For increased performance, especially in high humidity applications (such as Naval or tropical environments), consider MHM series. If flat chips are preferred, consider BLU series (precision) or MC series (semi-precision/general purpose). For higher power, consider MPF series.

### PULSE WITHSTAND CHART (increased pulse levels avail.)



Pulse capability is dependent on res. value, waveform, repetition rate, current, etc. Chart is a general guide for Opt. P pulse resistant version, single pulse, with peak voltage levels not exceeding 1KV for MGP55SP, 700V MGP50SP, and 350V MGP45SP. Max pulse capability for standard parts (w/o Opt.P) is 60% less. For improved performance and reliability, a 30-50% pulse derating factor is recommended (or larger for frequent pulses, high values, etc). Consult RCD for application assistance. Verify selection by evaluating under worst-case conditions.

### P/N DESIGNATION:

