


Metal Glaze™ High Power Density Surface Mount Power Resistor



MRC Series

- 1/2 watt in 1/8 watt package
- MRC1/2: 0.05 Ω to 1.0 Ω (contact factory for higher values)
- 150°C maximum operating temperature
- Superior surge handling capability
- RoHS compliant Versions available

 All Pb-free parts comply with EU Directive 2011/65/EU (RoHS2)

Electrical Data

| Size Code ¹ | Industry Footprint | IRC Type | Max. Power Rating | Working Voltage ² | Max. Voltage | Resistance Range (ohms) ³ | Tolerance (±%) ³ | TCR (ppm/°C) ³ | Product Category |
|------------------------|--------------------|----------|-------------------|------------------------------|--------------|--------------------------------------|-----------------------------|---------------------------|------------------|
| C | 1206 | MRC1/2 | 1/2W @ 70°C | 200 | 400 | 0.1 to 0.99 | 1,2,5 | 100 | Low Range |
| | | | | | | 1.0 to 10K | 1,2,5 | 50,100 | Standard |
| | | | | | | 20 to 10K | 0.25, 0.5 | 50,100 | Tight Tolerance |

MRC Applications:

The MRC1/2 will dissipate 1/2 watt at 70°C on a 1206 footprint. The MRC is recommended for applications where board real estate is a major concern. Due to high power density and superior surge handling capability, it is also recommended as a direct replacement on existing board designs where standard 1206 resistors are marginal or failing.

Environmental Data



| Characteristics | Maximum Change | Test Method |
|--------------------------------|---------------------------------------|--|
| Temperature Coefficient | As specified | MIL-R-55342E Par 4.7.9 (-55°C + 125°C) |
| Thermal Shock | ±(0.5% + 0.01Ω) | MIL-R-55342E Par 4.7.3 (-65°C + 150°C, 5 cycles) |
| Low Temperature Operation | ±(0.25% + 0.01Ω) | MIL-R-55342E Par 4.7.4 (-65°C @ working voltage) |
| Short Time Overload | ±(1.0% + 0.01Ω) | MIL-R-55342E Par 4.7.5 2.5 x √PxR for 5 seconds |
| High Temperature Exposure | ±(0.5% + 0.01Ω) | MIL-R-55342E Par 4.7.6 (+150°C for 100 hours) |
| Resistance to Bonding Exposure | ±(0.25% + 0.01Ω) | MIL-R-55342E Par 4.7.7 (Reflow soldered to board at 260°C for 10 seconds) |
| Solderability | 95% minimum coverage | MIL-STD-202, Method 208 (245°C for 5 seconds) |
| Moisture Resistance | ±(0.5% + 0.01Ω) | MIL-R-55342E Par 4.7.8 (10 cycles, total 240 hours) |
| Life Test | ±(1.0% + 0.01Ω) | MIL-R-55342E Par 4.7.10 (2000 hours @ 70°C intermittent) |
| Terminal Adhesion Strength | ±(1% + 0.01Ω) no mechanical damage | 1200 gram push from underside of mounted chip for 60 seconds |
| Resistance to Board Bending | ±(1% + 0.01Ω) no mechanical damage | Chip mounted in center of 90mm long board, deflected 5mm so as to exert pull on chip contacts for 10 seconds |

General Note

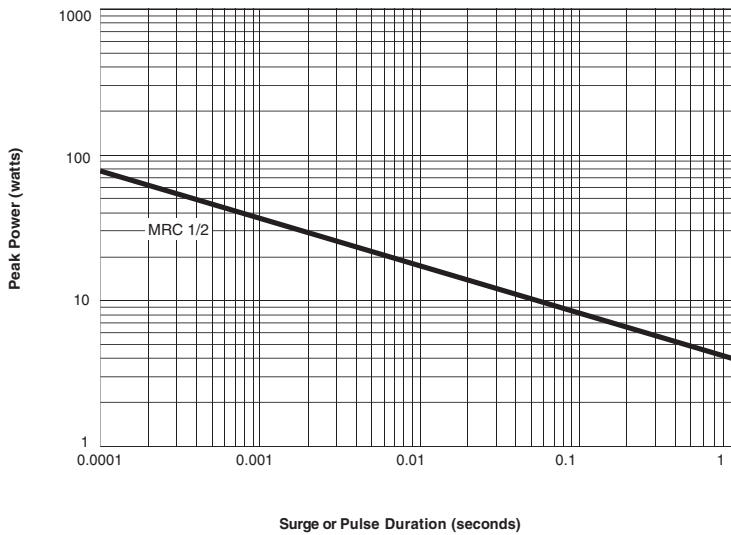
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MRC Series

Physical Data

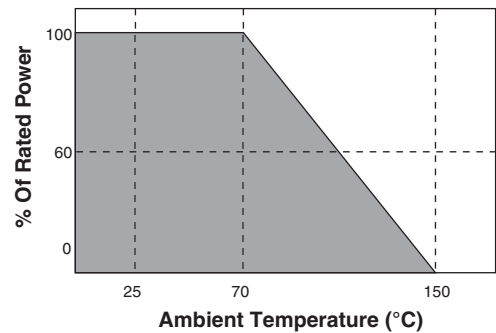
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|-----------------|------------------|---------------------------|---|--|--------------------------------|--------------------------------|
| | | | |  | | |
| | | | | Dimensions (Inches and (mm)) | | |
| IRC Type | Size Code | Industry Footprint | Actual Size | L | W | C |
| MRC 1/2 | C | 1206 |  | 0.128 ± 0.007 (3.25 ± 0.18) | 0.063 ± 0.010 (1.60 ± 0.25) | 0.020 ± 0.010 (0.51 ± 0.25) |

Repetitive Surge Curve



Note: Use for repetitive pulses where the average power dissipation is not to exceed the component rating at 70°C. Surge handling capacity for low-repetitive surges may be significantly greater than shown above. Contact factory for recommendations.

Power Derating Curve



Ordering Data

| | | | | | | |
|--|---------------|------------|-------------|----------|-----------|-----------|
| Sample Part No. | MRC1/2 | 100 | 1000 | F | 13 | LF |
| IRC Type | | | | | | |
| (MRC 1/2) | | | | | | |
| Temperature Coefficient | | | | | | |
| 50 ppm, 100 ppm, 200 ppm | | | | | | |
| Resistance Value | | | | | | |
| (100Ω and greater - First 3 significant figures plus 4th digit multiplier) Example: 100Ω = 1000, 1000Ω = 1001, 150,000Ω = 1503 (Less than 100Ω - "R" is used to designate decimal) Example: 51Ω = 51R0, 1Ω = 1R00, 0.25Ω = R250 | | | | | | |
| Tolerance | | | | | | |
| (C = 0.25%, D = 0.5%, F = 1.0%, G = 2.0%, J = 5.0%) | | | | | | |
| Packaging Code* | | | | | | |
| (BLK = Bulk, 7 = 7" Reel, 13 = 13" Reel) | | | | | | |
| RoHS Compliance | | | | | | |
| LF = RoHS compliant version | | | | | | |

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