

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 amended by (EU) 2015/863 (RoHS3)

Electrical Data

Size Code ¹	Industry Footprint	IRC Type	Max. Power Rating	Working Voltage ²	Max. Voltage	Resistance Range (ohms) ³	Tolerance ($\pm\%$) ³	TCR (ppm/ $^{\circ}$ 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	$\pm(0.5\% + 0.01\Omega)$	MIL-R-55342E Par 4.7.3 (-65°C + 150°C, 5 cycles)
Low Temperature Operation	$\pm(0.25\% + 0.01\Omega)$	MIL-R-55342E Par 4.7.4 (-65°C @ working voltage)
Short Time Overload	$\pm(1.0\% + 0.01\Omega)$	MIL-R-55342E Par 4.7.5 $2.5 \times \sqrt{P \times R}$ for 5 seconds
High Temperature Exposure	$\pm(0.5\% + 0.01\Omega)$	MIL-R-55342E Par 4.7.6 (+150°C for 100 hours)
Resistance to Bonding Exposure	$\pm(0.25\% + 0.01\Omega)$	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	$\pm(0.5\% + 0.01\Omega)$	MIL-R-55342E Par 4.7.8 (10 cycles, total 240 hours)
Life Test	$\pm(1.0\% + 0.01\Omega)$	MIL-R-55342E Par 4.7.10 (2000 hours @ 70°C intermittent)
Terminal Adhesion Strength	$\pm(1\% + 0.01\Omega)$ no mechanical damage	1200 gram push from underside of mounted chip for 60 seconds
Resistance to Board Bending	$\pm(1\% + 0.01\Omega)$ 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

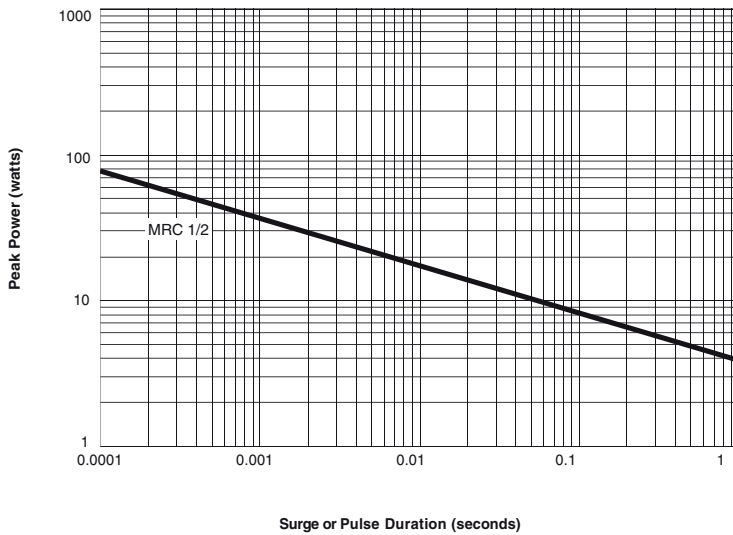
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MRC Series

Physical Data

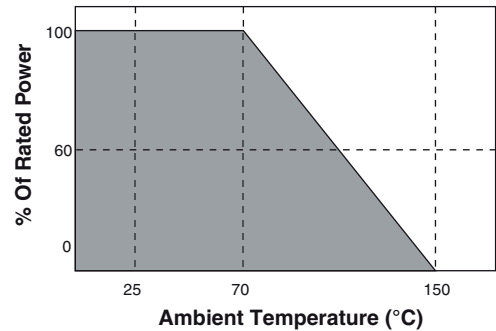
				Dimensions (Inches and (mm))		
IRC Type	Size Code	Industry Footprint	Actual Size	L	W	C
MRC 1/2	C	1206		0.128 ± 0.007 (3.25 ± 0.18)	0.063 ± 0.010 (1.60 ± 0.25)	0.020 ± 0.010 (0.51 ± 0.25)

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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