MR5005 MR5010 MR5020 MR5030 MR5040

MOTOROLA

INDUSTRIAL PRESSFIT SILICON POWER RECTIFIERS

. . . designed for use in all medium-current applications or for higher current industrial alternators and chassis mounted power supply rectifiers.

- 50 Amp @ T_C = 150°C
- 600 Amp Surge Capability
- Reverse Polarity Available
- Rugged Construction

SILICON
POWER RECTIFIERS

50-400 VOLTS
50 AMPERE

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MAXIMUM RATINGS

Rating	Symbol	MR5005	MR5010	MR5020	MR5030	MR5040	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	50	100	200	300	400	Volts
Non-Repetitive Peak Reverse Voltage	V_{RSM}	75	150	250	400	450	Volts
RMS Reverse Voltage	$V_{R(RMS)}$	35	70	140	210	280	Volts
Average Rectified Forward Current (Single phase, resistive load, T_C = 150°C	I_O	← 50 →					Amp
Non-Repetitive Peak Surge Current (Surge applied at rated load conditions)	I_{FSM}	← 600 →					Amp
Operating and Storage Junction Temperature Range	T_J, T_{stg}	← -65 to +195 →					°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.8	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Instantaneous Forward Voltage	v_F				Volts
(i_F = 157 Amp, T_J = 25°C)		–	1.10	1.18	
(i_F = 50 Amp, T_J = 25°C)		–	0.95	1.00	
Reverse Current (rated dc voltage)	I_R				mA
(T_C = 25°C)		–	0.05	0.2	
(T_C = 150°C)		–	1.0	2.0	

MECHANICAL CHARACTERISTICS

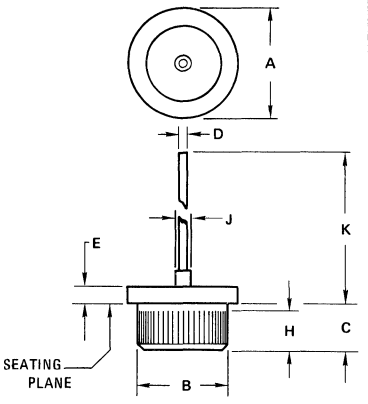
CASE: Welded hermetically sealed construction

FINISH: All external surfaces corrosion resistant, terminals readily solerable

WEIGHT: 9 grams (approx.)

POLARITY: Cathode connected to case (reverse polarity available denoted by Suffix R, i.e.: MR5030R)

MOUNTING POSITION: Any



NOTES:
1. 50 TPI STRAIGHT KNURL.
2. POLARITY, INK MARKED ON PACKAGE

DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
A	15.49	16.26	0.610	0.640
B	12.73	12.83	0.501	0.505
C	5.08	6.35	0.200	0.250
D	2.46	2.62	0.097	0.103
E	2.03	4.83	0.080	0.190
H	5.08	6.35	0.200	0.250
J	–	3.56	–	0.140
K	–	15.24	–	0.600

CASE 43-04

FIGURE 1 – CURRENT DERATING

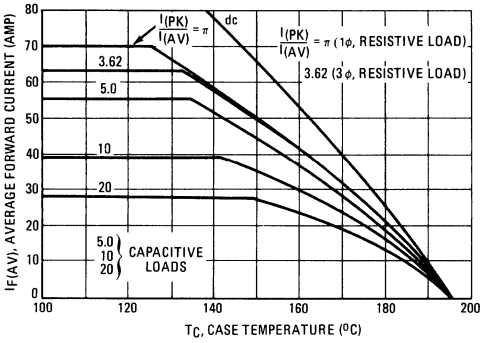


FIGURE 2 – FORWARD POWER DISSIPATION

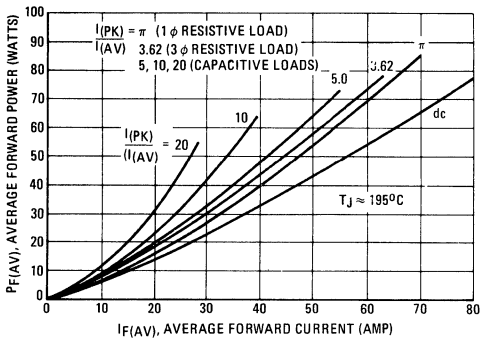


FIGURE 3 – MAXIMUM FORWARD VOLTAGE

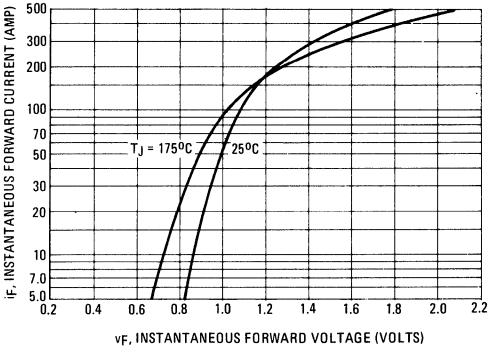


FIGURE 4 – MAXIMUM NON-REPETITIVE SURGE CAPABILITY

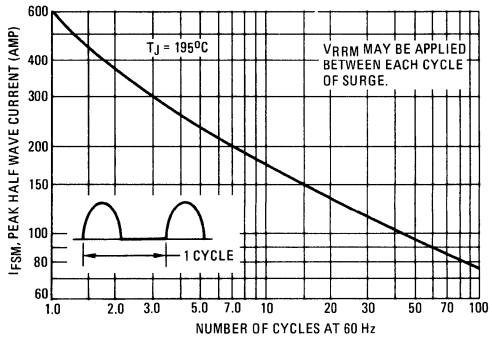
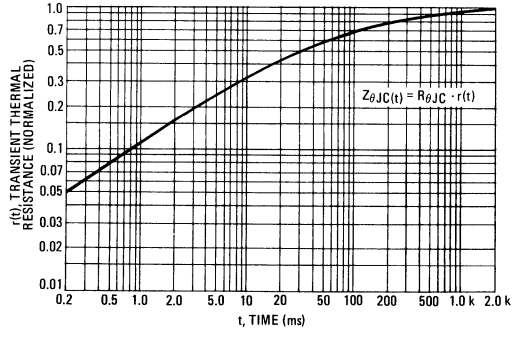
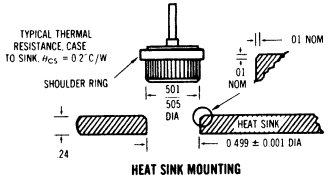


FIGURE 5 – THERMAL RESPONSE

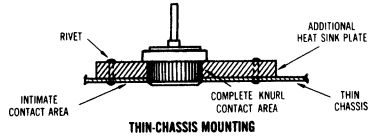


Recommended procedures for mounting are as follows:

1. Drill a hole in the heat sink 0.499 ± 0.001 inch in diameter.
2. Break the hole edge as shown to provide a guide into the hole and prevent shearing off the knurled side of the rectifier.
3. The depth and width of the break should be 0.010 inch maximum to retain maximum heat sink surface contact.
4. To prevent damage to the rectifier during press-in, the pressing force should be applied only on the shoulder ring of the rectifier case as shown.
5. The pressing force should be applied evenly about the shoulder ring to avoid tilting or canting of the rectifier case in the hole during the press-in operation. Also, the use of a thermal lubricant such as D.C. 340 will be of considerable aid.



HEAT SINK MOUNTING



THIN-CHASSIS MOUNTING

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