

# MR5005, MR5010, MR5020 (SILICON) MR5030, MR5040

## 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 @  $T_C = 150^\circ\text{C}$
- 600 Amp Surge Capability
- Reverse Polarity Available
- Rugged Construction

## SILICON POWER RECTIFIERS

50-400 VOLTS  
50 AMPERE



### MAXIMUM RATINGS

Rating	Symbol	MR5005	MR5010	MR5020	MR5030	MR5040	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	50	100	200	300	400	Volts
Working Peak Reverse Voltage	$V_{RWM}$						
DC Blocking Voltage	$V_R$						
Non-Repetitive Peak Reverse Voltage	$V_{RSM}$	75	150	250	400	450	Volts
RMS Reverse Voltage	$V_R(\text{RMS})$	35	70	140	210	280	Volts
Average Rectified Forward Current (Single phase, resistive load, $T_C = 150^\circ\text{C}$ )	$I_O$	← 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 →					$^\circ\text{C}$

### THERMAL CHARACTERISTICS

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

### ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Instantaneous Forward Voltage ( $I_F = 157 \text{ Amp}, T_J = 25^\circ\text{C}$ ) ( $I_F = 50 \text{ Amp}, T_J = 25^\circ\text{C}$ )	$V_F$	—	1.10	1.18	Volts
Reverse Current (rated dc voltage) ( $T_C = 25^\circ\text{C}$ ) ( $T_C = 150^\circ\text{C}$ )	$I_R$	—	0.05	0.2	mA
		—	1.0	2.0	

### MECHANICAL CHARACTERISTICS

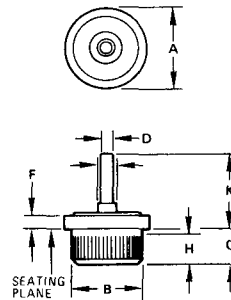
**CASE:** Welded hermetically sealed construction

**FINISH:** All external surfaces corrosion resistant, terminal readily solderable

**WEIGHT:** 9 grams (approx.)

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

**MOUNTING POSITION:** Any



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	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
F	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 043-04

FIGURE 1 - CURRENT DERATING

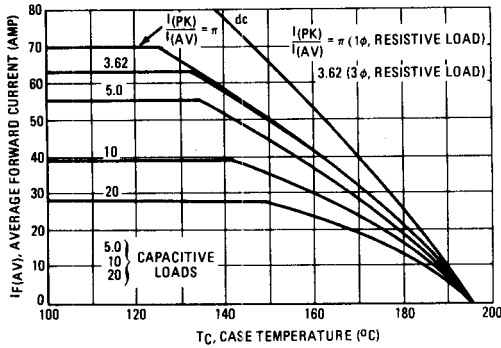


FIGURE 3 - MAXIMUM FORWARD VOLTAGE

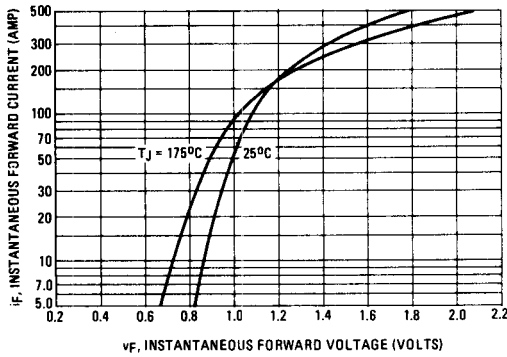


FIGURE 5 - THERMAL RESPONSE

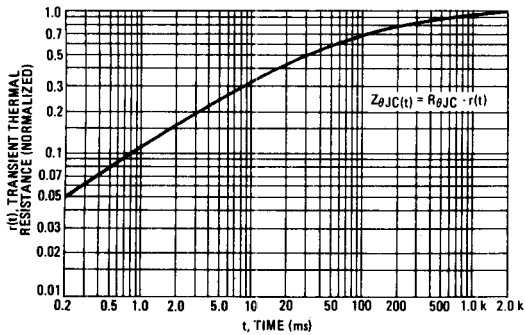


FIGURE 2 - FORWARD POWER DISSIPATION

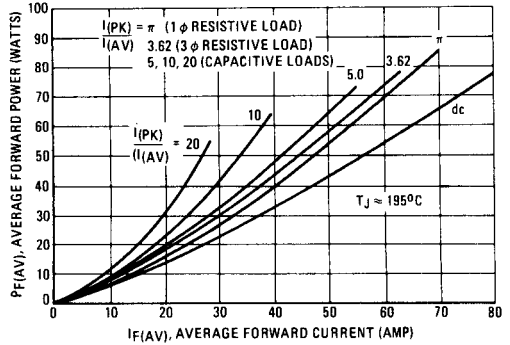
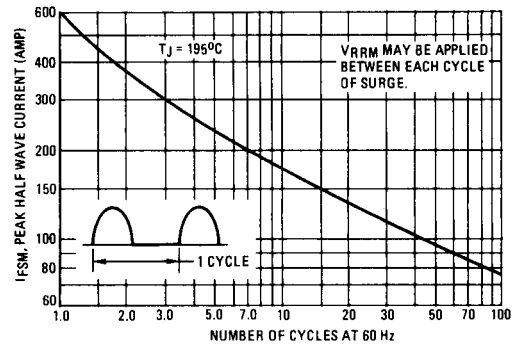


FIGURE 4 - MAXIMUM NON-REPETITIVE SURGE CAPABILITY



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.

