MOTOROLA

MR1120 thru MR1126
MR1128 MR1130

MEDIUM-CURRENT SILICON RECTIFIER

Medium-current silicon rectifiers feature high surge current capacity, and low forward voltage drop.

MEDIUM-CURRENT SILICON RECTIFIERS

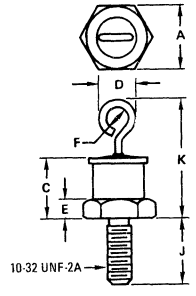
50-1000 VOLTS
12 AMPERES

MAXIMUM RATINGS

Rating	Symbol	MR 1120	MR 1121	MR 1122	MR 1123	MR 1124	MR 1125	MR 1126	MR 1128	MR 1130	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	50	100	200	300	400	500	600	800	1000	Volts
Non-Repetitive Peak Reverse Voltage (one half-wave, single phase, 60 cycle peak)	V_{RSM}	100	200	300	400	500	600	720	100	1200	Volts
RMS Reverse Voltage	$V_{R(RMS)}$	35	70	140	210	280	350	420	560	700	Volts
Average Rectified Forward Current (single phase, resistive load, 60 Hz, T_C = 150°C)	I_O	12									Amp
Peak Repetitive Forward Current (T_C = 150°C)	I_{FRM}	75									Amp
Non-Repetitive Peak Surge Current (superimposed on rated current at rated voltage, T_C = 150°C)	I_{FSM}	300 (for 1/2 cycle)									Amp
I^2t Rating (non-repetitive, 1 ms < t < 8.3 ms)	I^2t	375									$A_{(rms)}{}^2s$
Maximum Junction Operating and Storage Temperature Range	T_J, T_{stg}	-65 to +190									°C

ELECTRICAL CHARACTERISTICS (All Types)

Characteristic	Symbol	Max	Unit
Full Cycle Average Forward Voltage Drop (I_O = 12 Amps and Rated V_r, T_C = 150°C, Half Wave Rectifier)	$V_{F(AV)}$	0.55	Volts
DC Forward Voltage Drop (I_F = 12 Adc, T_C = 25°C)	V_F	1.0	Volts
Full Cycle Average Reverse Current (I_O = 12 Amps and Rated V_r, T_C = 150°C, Half Wave Rectifier)	$I_{R(AV)}$	1.5	mA
DC Reverse Current (Rated V_R, T_C = 25°C)	I_R	0.5	mA



DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
A	10.77	11.10	0.424	0.437
C	–	10.29	–	0.405
D	–	6.35	–	0.250
E	1.91	4.45	0.075	0.175
F	1.52	–	0.060	–
J	10.72	11.51	0.422	0.453
K	–	20.32	–	0.800

CASE 245-01

THERMAL CHARACTERISTICS

Maximum Steady State DC Thermal Resistance, $R_{\theta JC}$: 2.5°C/Watt

MECHANICAL CHARACTERISTICS

CASE: Welded, hermetically sealed construction.

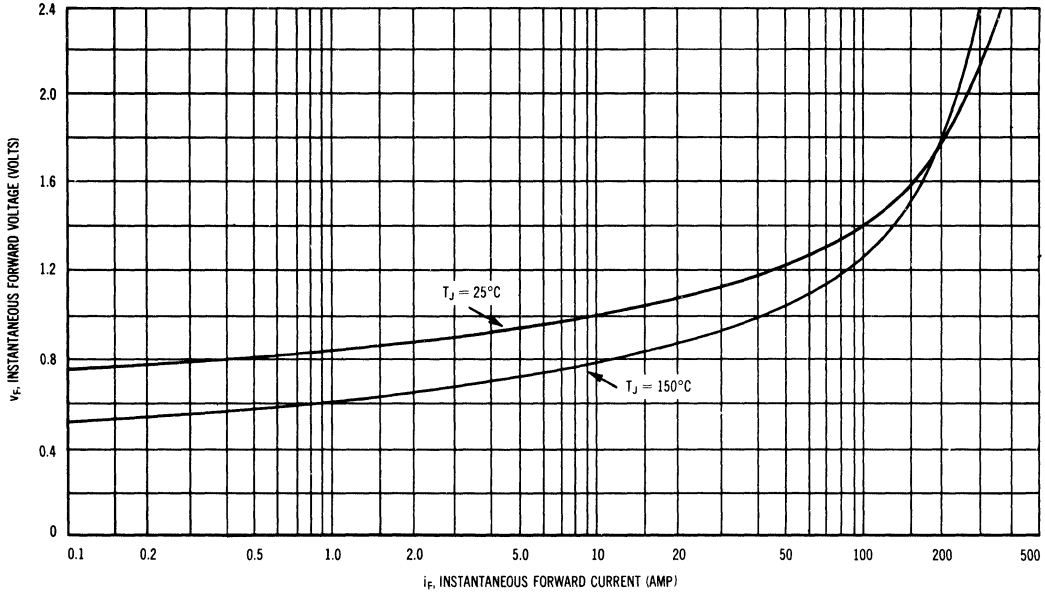
FINISH: All external surfaces corrosion-resistant and the terminal lug is readily solderable.

POLARITY: CATHODE-TO-CASE (reverse polarity units are available upon request and are designated by an "R" suffix i.e. MR1120R).

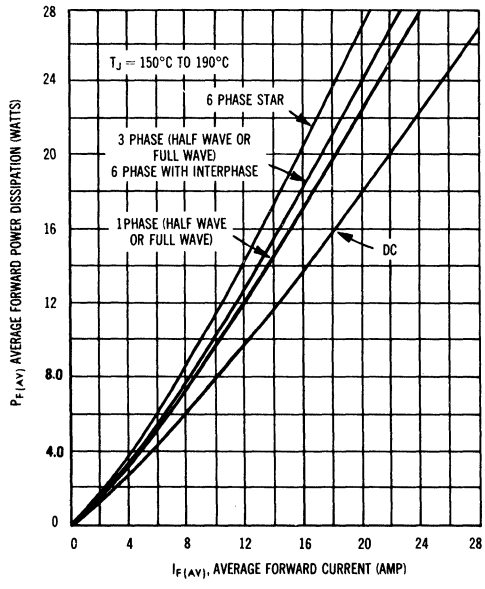
MOUNTING POSITIONS: Any

STUD TORQUE: 15 in-lbs maximum.

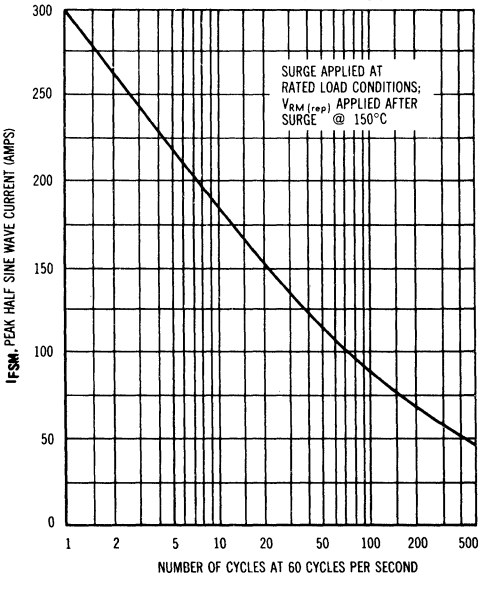
TYPICAL FORWARD CHARACTERISTICS



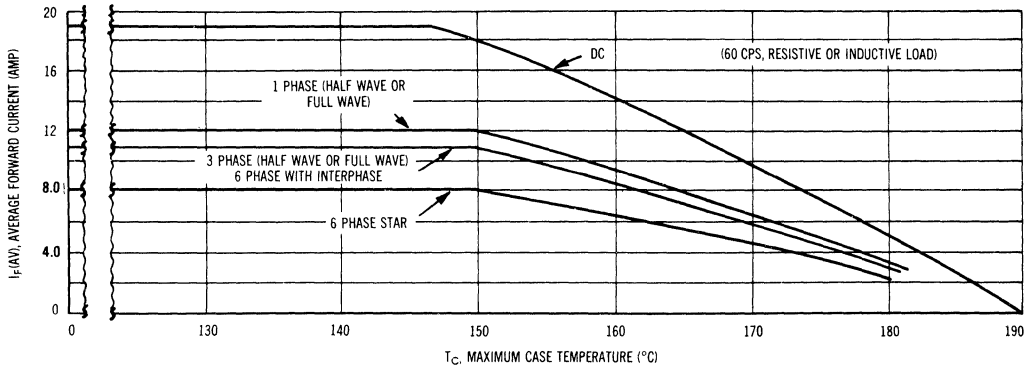
FORWARD POWER DISSIPATION



MAXIMUM ALLOWABLE SURGE CURRENT

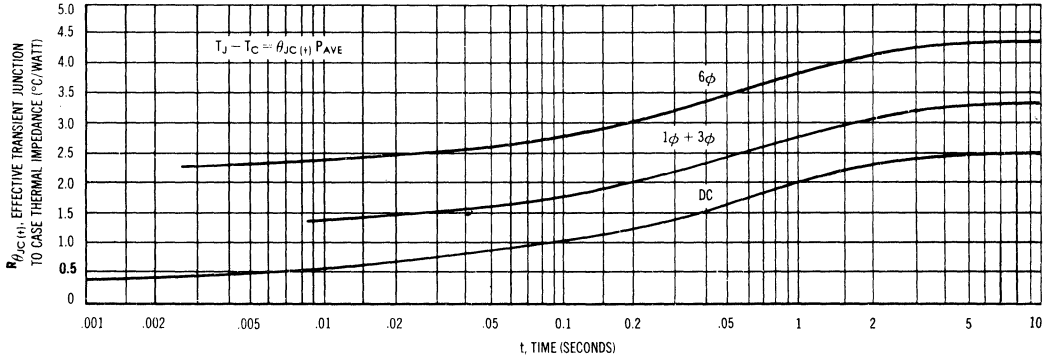


MAXIMUM CURRENT RATINGS



3

EFFECTIVE TRANSIENT THERMAL IMPEDANCE



CURRENT DERATING DATA