

MCR407-1 (SILICON)

thru

MCR407-4



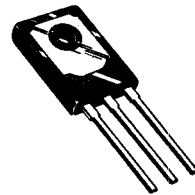
PLASTIC SILICON CONTROLLED RECTIFIERS

... Annular PNP devices designed for high volume consumer applications such as temperature, light, and speed control; process and remote control, and warning systems where reliability of operation is important.

- Annular Passivated Surface for Reliability and Uniformity
- Power Rated at Economical Prices
- Practical Level Triggering and Holding Characteristics
- Flat, Rugged, Thermopad Construction-for Low Thermal Resistance, High Heat Dissipation and Durability

THYRISTORS

4.0 AMPERES RMS
30 thru 200 VOLTS

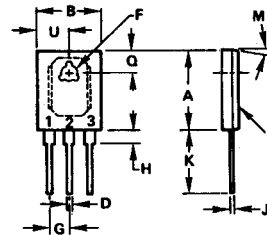


MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Repetitive Peak Reverse Blocking Voltage (Note 1) MCR407-1	V_{RRM}	30	Volts
-2		60	
-3		100	
-4		200	
RMS On-State Current (All Conduction Angles)	$I_T(RMS)$	4.0	Amp
Average On-State Current ($T_C = 89^\circ C$)	$I_T(AV)$	2.55	Amp
Peak Non-Repetitive Surge Current (One cycle, 60 Hz, $T_J = -40$ to $+110^\circ C$)	I_{TSM}	20	Amp
Circuit Fusing Considerations ($T_J = -40$ to $+110^\circ C$) $t = 1.0$ to 8.3 ms)	$I^2 t$	1.6	$A^2 s$
Peak Gate Power	P_{GFM}	0.5	Watt
Average Gate Power	$P_{GF(AV)}$	0.1	Watt
Peak Gate Current	I_{GFM}	0.2	Amp
Peak Gate Voltage	V_{GRM}	6.0	Volts
Operating Junction Temperature Range	T_J	-40 to +110	$^\circ C$
Storage Temperature Range	T_{stg}	-40 to +150	$^\circ C$
Mounting Torque (6-32 Screw) (Note 2)	-	8.0	in. lb.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.0	$^\circ C/W$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	50	$^\circ C/W$



STYLE 1:
PIN 1. CATHODE
2. ANODE
3. GATE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	16.13	16.38	0.635	0.645
B	12.57	12.83	0.495	0.505
C	3.18	3.43	0.125	0.135
D	1.09	1.24	0.043	0.049
F	3.51	3.76	0.138	0.148
G	4.22	BSC	0.166	BSC
H	2.67	2.92	0.105	0.115
J	0.813	0.864	0.032	0.034
K	15.11	16.38	0.595	0.645
M	90° TYP		90° TYP	
Q	4.70	4.95	0.185	0.195
R	1.91	2.16	0.075	0.085
U	6.22	6.48	0.245	0.255

CASE 90-05

NOTE:
1. LEADS WITHIN .005" RAD OF TRUE POSITION (TP) AT MMC

MCR407-1 thru MCR407-4 (continued)

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted, $R_{GK} = 1000$ ohms)

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Forward Blocking Voltage ($T_J = 110^\circ\text{C}$) Note 1	V_{DRM}	30 60 100 200	— — — —	— — — —	Volts
Peak Forward Blocking Current (Rated V_{DRM} , $T_J = 100^\circ\text{C}$)	I_{DRM}	—	—	100	μA
Peak Reverse Blocking Current (Rated V_{RRM} , $T_J = 110^\circ\text{C}$)	I_{RRM}	—	—	100	μA
Peak On-State Voltage ($I_{TM} = 4.0$ A)	V_{TM}	—	—	2.6	Volts
Gate Trigger Current (Continuous dc) (Anode Voltage = 7.0 Vdc, $R_L = 100$ ohms)	I_{GT}	—	—	500	μA
Gate Trigger Voltage (Continuous dc) (Anode Voltage = 7.0 Vdc, $R_L = 100$ ohms) (Anode Voltage = Rated V_{DRM} , $R_L = 100$ ohms, $T_J = 110^\circ\text{C}$)	V_{GT}	— 0.2	— —	1.0 —	Volts
Holding Current (Anode Voltage = 7.0 Vdc)	I_H	—	—	5.0	mA
Forward Voltage Application Rate ($T_J = 110^\circ\text{C}$)	dv/dt	—	10	—	V/ μs

NOTES:

1. V_{DRM} and V_{RRM} for all types can be applied on a continuous dc basis without incurring damage. Ratings apply for zero or negative gate voltage but positive gate voltage shall not be applied concurrently with a negative potential on the anode. When checking forward or reverse blocking capability, thyristor devices should not be tested with a constant current source in a manner that the voltage applied exceeds the rated blocking voltage.

2. Torque rating applies with use of torque washer (Shakeproof WD19522 #6 or equivalent). Mounting torque in excess of 8 in. lbs. does not appreciably lower case-to-sink thermal resistance. Anode lead and heatsink contact pad are common.

For soldering purposes (either terminal connection or device mounting), soldering temperatures shall not exceed $+225^\circ\text{C}$. For optimum results, an activated flux (oxide removing) is recommended.

CURRENT DERATING

FIGURE 1 – MAXIMUM CASE TEMPERATURE

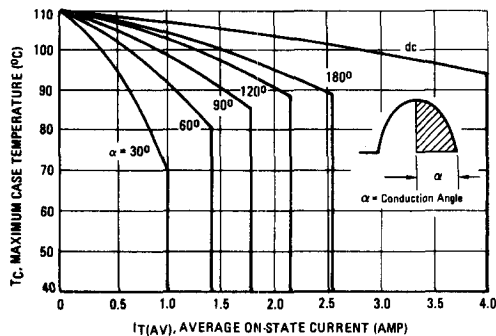


FIGURE 2 – MAXIMUM AMBIENT TEMPERATURE

