

## Silicon Controlled Rectifier

### Reverse Blocking Triode Thyristor

... designed for industrial and consumer applications such as power supplies; battery chargers; temperature, motor, light, and welder controls.

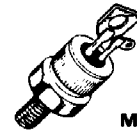
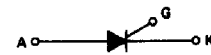
- Economical for a Wide Range of Uses
- High Surge Current —  $I_{TSM} = 550$  Amps
- Rugged Construction in Either Pressfit, Stud, or Isolated Stud
- Glass Passivated Junctions for Maximum Reliability

**MCR63-1  
 thru 10  
 MCR64-1  
 thru 10  
 MCR65-1  
 thru 10**

**SCRs  
 55 AMPERES RMS  
 25 thru 800 VOLTS**

#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Forward and Reverse Blocking Voltage	V <sub>DRM</sub> <sup>(1)</sup> or V <sub>RRM</sub>	25	Volts
		-1	
		50	
		-2	
		100	
		-3	
		200	
		-4	
		300	
		-5	
400			
-6			
500			
-7			
600			
-8			
700			
-9			
800			
-10			
800			
Non-Repetitive Peak Reverse Blocking Voltage (t ≤ 5 ms)	V <sub>RSM</sub>	35	Volts
		-1	
		75	
		-2	
		150	
		-3	
		300	
		-4	
		400	
		-5	
500			
-6			
600			
-7			
700			
-8			
800			
-9			
900			
-10			
900			
Forward Current RMS	I <sub>T(RMS)</sub>	55	Amps
Peak Surge Current (One cycle, 60 Hz, T <sub>J</sub> = -40 to +125°C)	I <sub>TSM</sub>	550	Amps
Circuit Fusing Considerations (T <sub>J</sub> = -40 to +125°C, t = 1 to 8.3 ms)	i <sup>2</sup> t	1255	A <sup>2</sup> s
Peak Gate Power	P <sub>GFM</sub>	20	Watts
Average Gate Power (Pulse Width ≤ 2 μs)	P <sub>GF(AV)</sub>	0.5	Watt
Peak Forward Gate Current	I <sub>GFM</sub>	2	Amps
Peak Gate Voltage — Forward	V <sub>GFM</sub>	10	Volts
Reverse	V <sub>GRM</sub>	10	
Operating Junction Temperature Range	T <sub>J</sub>	-40 to +125	°C
Storage Temperature Range	T <sub>stg</sub>	-40 to +150	°C
Stud Torque	—	30	in. lb.



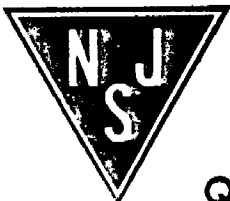
MCR64 Series



MCR63 Series



MCR65 Series



MCR63-1 thru MCR63-10 • MCR64-1 thru MCR64-10 • MCR65-1 thru MCR65-10

**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case Pressfit and Stud	$R_{\theta JC}$	1	$^{\circ}C/W$
Isolated Stud		1.1	

(1)  $V_{RRM}$  for all types can be applied on a continuous dc basis without incurring damage Ratings apply for zero or negative gate voltage. Devices shall not have a positive bias applied to the gate concurrently with a negative potential on the anode.

**ELECTRICAL CHARACTERISTICS** ( $T_C = 25^{\circ}C$  unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
Peak Forward or Reverse Blocking Current (Rated $V_{DRM}$ or $V_{RRM}$ , gate open) $T_J = 25^{\circ}C$ $T_J = 125^{\circ}C$	$I_{DRM}, I_{RRM}$	—	10 2	$\mu A$ mA
Forward "On" Voltage ( $I_{TM} = 175 A$ Peak)	$V_{TM}$	—	2	Volts
Gate Trigger Current (Continuous dc) ( $V_D = 12 V, R_L = 50 \Omega$ ) $T_C = 25^{\circ}C$ $T_C = -40^{\circ}C$	$I_{GT}$	—	40 75	mA
Gate Trigger Voltage (Continuous dc) ( $V_D = 12 V, R_L = 50 \Omega$ ) $T_C = 25^{\circ}C$ $T_C = -40^{\circ}C$ ( $V_D = \text{Rated } V_{DRM}, R_L = 1 k\Omega, T_J = 125^{\circ}C$ )	$V_{GT}$	— — 0.2	3 3.5 —	Volts
Holding Current ( $V_D = 12 V, R_L = 50 \Omega$ , Gate Open)	$I_H$	—	60	mA
Forward Voltage Application Rate ( $T_J = 125^{\circ}C, V_D = \text{Rated } V_{DRM}$ )	$dv/dt$	50	—	$V/\mu s$