MCR8 SERIES*

*Motorola preferred devices

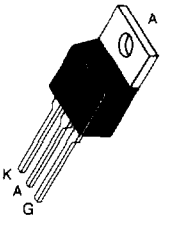
Advance Information

Silicon Controlled Rectifiers
Reverse Blocking Thyristors

SCRs
8 AMPERES RMS
400 thru 800
VOLTS

Designed primarily for half–wave ac control applications, such as motor controls, heating controls, and power supplies; or wherever half–wave, silicon gate–controlled devices are needed.

- Blocking Voltage to 800 Volts
- On-State Current Rating of 8 Amperes RMS
- High Surge Current Capability — 80 Amperes
- Industry Standard TO–220AB Package for Ease of Design
- Glass Passivated Junctions for Reliability and Uniformity



CASE 221A–06
(TO-220AB)

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Repetitive Off-State Voltage (1) Peak Repetitive Reverse Voltage (T_J = –40 to 125°C) MCR8D MCR8M MCR8N	V_{DRM} V_{RRM}	 400 600 800	Volts
On-State RMS Current (All Conduction Angles)	$I_{T(RMS)}$	8	A
Peak Non-repetitive Surge Current (One Half Cycle, 60 Hz, T_J = 125°C)	I_{TSM}	80	A
Circuit Fusing Consideration (t = 8.3 ms)	I^2t	26.5	A^2sec
Peak Gate Power (Pulse Width ≤ 1.0 μs, T_C = 80°C)	P_{GM}	5.0	Watts
Average Gate Power (t = 8.3 ms, T_C = 80°C)	$P_{G(AV)}$	0.5	Watts
Peak Gate Current (Pulse Width ≤ 1.0 μs, T_C = 80°C)	I_{GM}	2.0	A
Operating Junction Temperature Range	T_J	–40 to +125	°C
Storage Temperature Range	T_{stg}	–40 to +150	°C

THERMAL CHARACTERISTICS

Thermal Resistance — Junction to Case — Junction to Ambient	$R_{\theta JC}$ $R_{\theta JA}$	2.0 62.5	°C/W
Maximum Lead Temperature for Soldering Purposes 1/8" from Case for 10 Seconds	T_L	260	°C

NOTE: V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

This document contains information on a new product. Specifications and information herein are subject to change without notice.

Preferred devices are Motorola recommended choices for future use and best overall value.

REV 1

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Peak Forward Blocking Current Peak Reverse Blocking Current (V_{AK} = Rated V_{DRM} or V_{RRM}, Gate Open)	T_J = 25°C T_J = 125°C	I_{DRM} I_{RRM}	— —	— —	0.01 2.0	mA
ON CHARACTERISTICS						
Peak On-State Voltage* (I_{TM} = 16 A)		V_{TM}	—	—	1.8	Volts
Gate Trigger Current (Continuous dc) (V_D = 12 V, R_L = 100 Ω)		I_{GT}	2.0	7.0	15	mA
Gate Trigger Voltage (Continuous dc) (V_D = 12 V, R_L = 100 Ω)		V_{GT}	0.5	0.65	1.0	Volts
Hold Current (Anode Voltage =12 V)		I_H	4.0	22	30	mA
DYNAMIC CHARACTERISTICS						
Critical Rate of Rise of Off-State Voltage (V_D = Rated V_{DRM}, Exponential Waveform, Gate Open, T_J = 125°C)		(dv/dt)	50	200	—	V/μs

*Indicates Pulse Test: Pulse Width ≤ 2.0 ms, Duty Cycle ≤ 2%.