

*Advance Information*

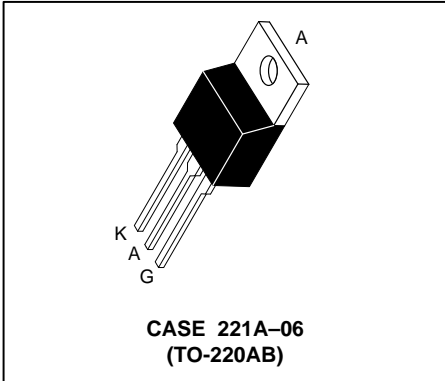
**Silicon Controlled Rectifiers  
Reverse Blocking Thyristors**

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

**MCR8  
SERIES\***  
\*Motorola preferred devices

SCRs  
8 AMPERES RMS  
400 thru 800  
VOLTS



**MAXIMUM RATINGS** ( $T_J = 25^\circ\text{C}$  unless otherwise noted)

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

**THERMAL CHARACTERISTICS**

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

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

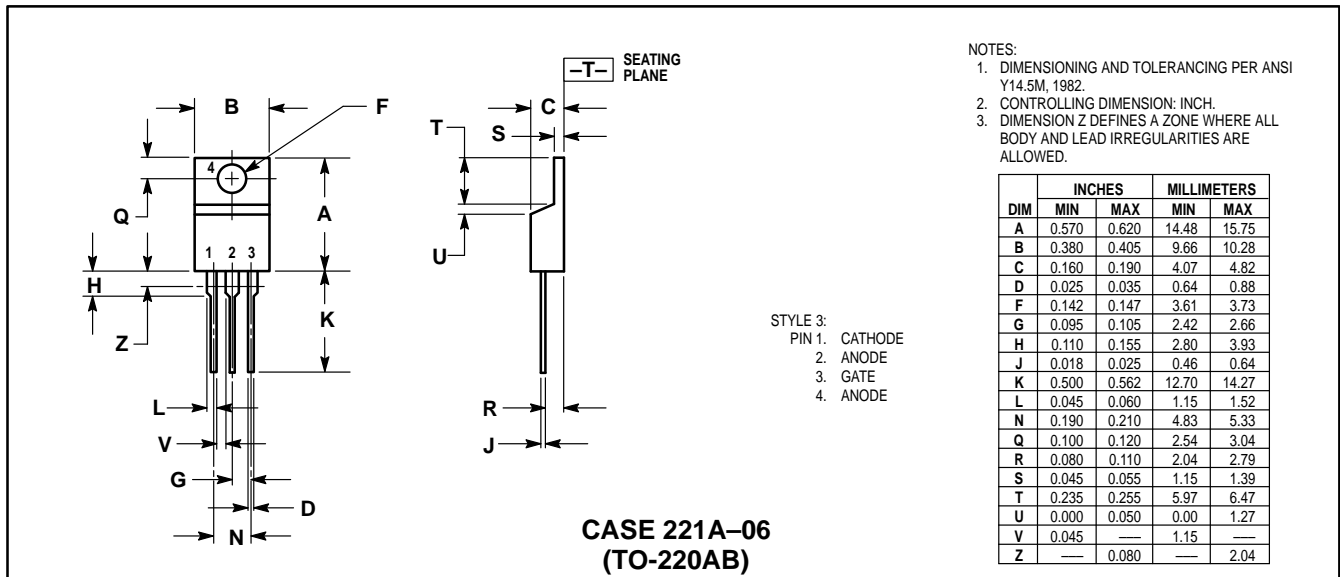
# MCR8 SERIES

## ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Peak Forward Blocking Current Peak Reverse Blocking Current (V <sub>AK</sub> = Rated V <sub>DRM</sub> or V <sub>RRM</sub> , Gate Open)	T <sub>J</sub> = 25°C T <sub>J</sub> = 125°C I <sub>DRM</sub> I <sub>RRM</sub>	— —	— —	0.01 2.0	mA
<b>ON CHARACTERISTICS</b>					
Peak On-State Voltage* (I <sub>TM</sub> = 16 A)	V <sub>TM</sub>	—	—	1.8	Volts
Gate Trigger Current (Continuous dc) (V <sub>D</sub> = 12 V, R <sub>L</sub> = 100 Ω)	I <sub>GT</sub>	2.0	7.0	15	mA
Gate Trigger Voltage (Continuous dc) (V <sub>D</sub> = 12 V, R <sub>L</sub> = 100 Ω)	V <sub>GT</sub>	0.5	0.65	1.0	Volts
Hold Current (Anode Voltage = 12 V)	I <sub>H</sub>	4.0	22	30	mA
<b>DYNAMIC CHARACTERISTICS</b>					
Critical Rate of Rise of Off-State Voltage (V <sub>D</sub> = Rated V <sub>DRM</sub> , Exponential Waveform, Gate Open, T <sub>J</sub> = 125°C)	(dv/dt)	50	200	—	V/μs

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

## PACKAGE DIMENSIONS



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MCR8/D

