

Advance Information

Silicon Controlled Rectifiers

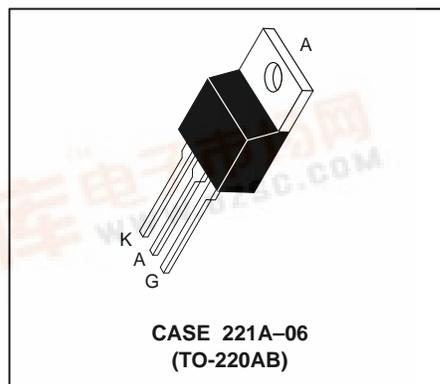
Reverse Blocking Thyristors

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°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Repetitive Off-State Voltage (1) Peak Repetitive Reverse Voltage (T _J = -40 to 125°C)	V _{DRM} V _R RM	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 ² t	26.5	A ² sec
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 _{θJC} R _{θJA}	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.

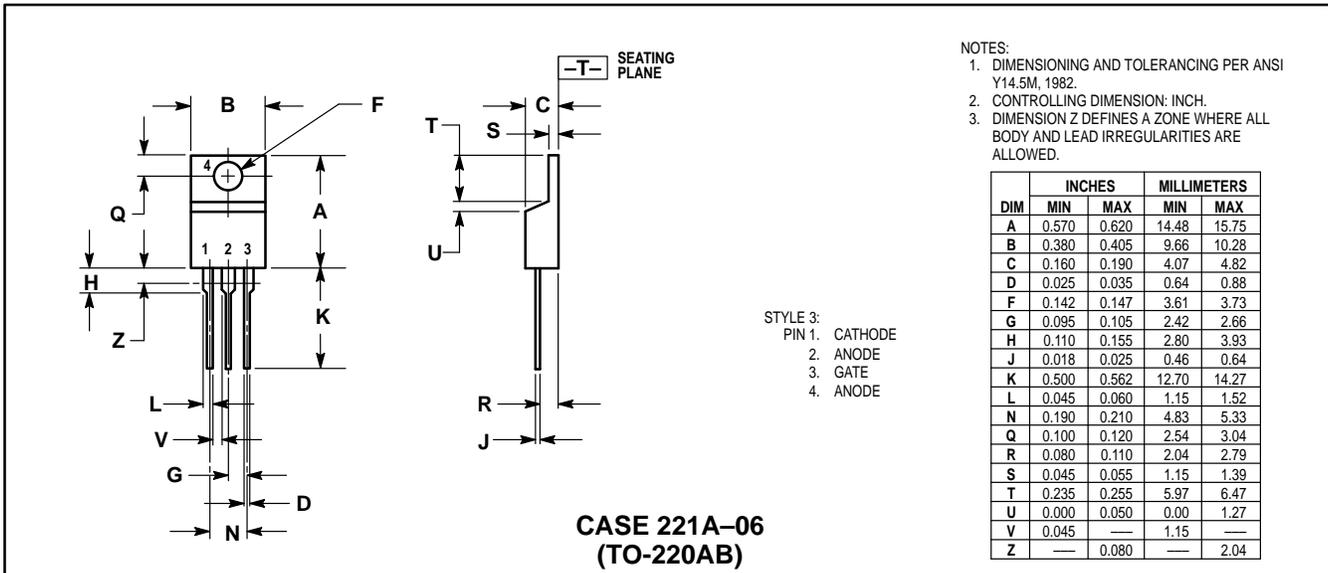
MCR8 SERIES

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Peak Forward Blocking Current Peak Reverse Blocking Current ($V_{AK} = \text{Rated } V_{DRM} \text{ or } V_{RRM}, \text{ Gate Open}$)	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$ I_{DRM} I_{RRM}	— —	— —	0.01 2.0	mA
ON CHARACTERISTICS					
Peak On-State Voltage* ($I_{TM} = 16 \text{ A}$)	V_{TM}	—	—	1.8	Volts
Gate Trigger Current (Continuous dc) ($V_D = 12 \text{ V}, R_L = 100 \Omega$)	I_{GT}	2.0	7.0	15	mA
Gate Trigger Voltage (Continuous dc) ($V_D = 12 \text{ V}, R_L = 100 \Omega$)	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 ($V_D = \text{Rated } V_{DRM}, \text{ Exponential Waveform, Gate Open, } T_J = 125^\circ\text{C}$)	(dv/dt)	50	200	—	V/ μs

*Indicates Pulse Test: Pulse Width $\leq 2.0 \text{ ms}$, Duty Cycle $\leq 2\%$.

PACKAGE DIMENSIONS



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