

Advance Information

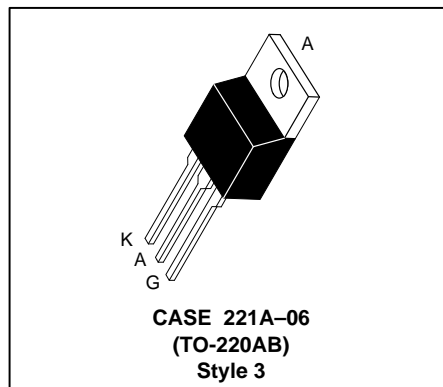
**Silicon Controlled Rectifiers
Reverse Blocking Thyristors**

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 12 Amperes RMS
- High Surge Current Capability — 100 Amperes
- Industry Standard TO-220AB Package for Ease of Design
- Glass Passivated Junctions for Reliability and Uniformity

**MCR12
SERIES***
*Motorola preferred devices

SCRs
12 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°C)	V_{DRM} V_{RRM}	MCR12D MCR12M MCR12N 400 600 800	Volts
On-State RMS Current (All Conduction Angles)	$I_T(\text{RMS})$	12	A
Peak Non-repetitive Surge Current (One Half Cycle, 60 Hz, $T_J = 125^\circ\text{C}$)	I_{TSM}	100	A
Circuit Fusing Consideration ($t = 8.3$ ms)	I^2t	41	A^2sec
Peak Gate Power (Pulse Width ≤ 1.0 μs , $T_C = 80^\circ\text{C}$)	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 ≤ 1.0 μs , $T_C = 80^\circ\text{C}$)	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	$^\circ\text{C}$

(1) 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.

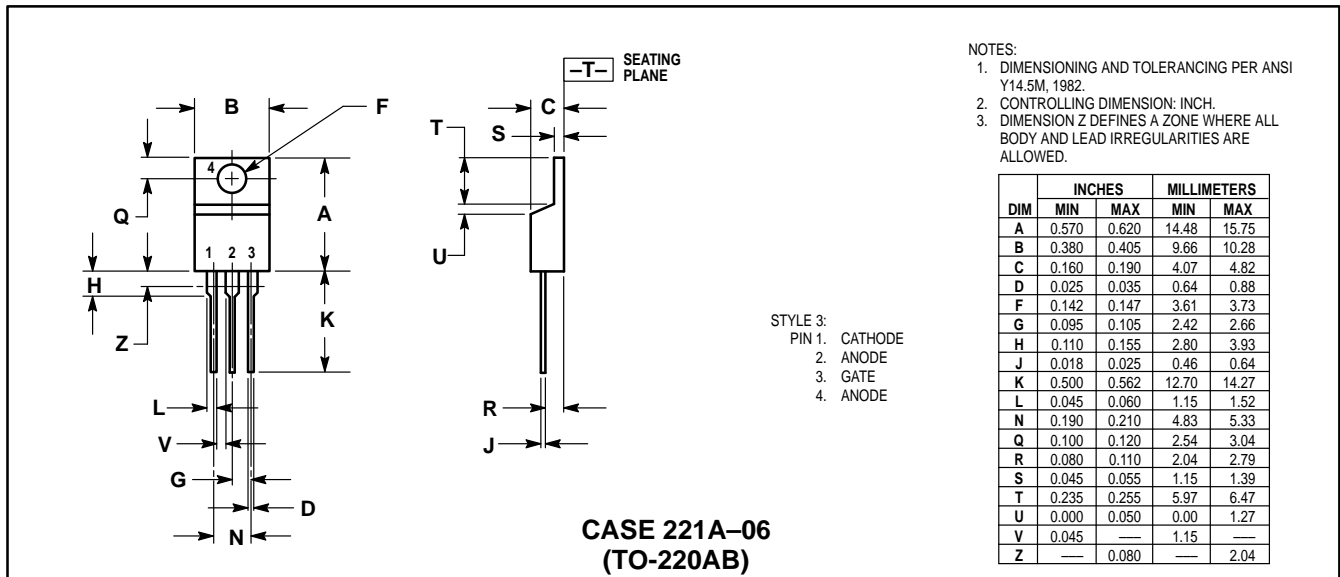
MCR12 SERIES

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} = 24 A)	V _{TM}	—	—	2.2	Volts
Gate Trigger Current (Continuous dc) (V _D = 12 V, R _L = 100 Ω)	I _{GT}	2.0	7.0	20	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	25	40	mA
DYNAMIC CHARACTERISTICS					
Critical Rate of Rise of Off-State Voltage (V _D = Rated V _{DRM} , Exponential Waveform, Gate Open, T _J = 25°C)	(dv/dt)	50	200	—	V/μs

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

PACKAGE DIMENSIONS



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