

Advance Information

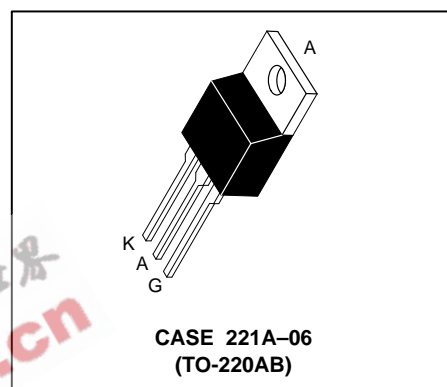
**Silicon Controlled Rectifiers
Reverse Blocking Thyristors**

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°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 | 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 | $^\circ\text{C}$ |

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_J = 25°C unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|----------------|--------|-----|-----|-----|------|
|----------------|--------|-----|-----|-----|------|

OFF CHARACTERISTICS

| | | | | | | |
|---|------------------------|------------------|---|---|------|----|
| Peak Forward Blocking Current | T _J = 25°C | I _{DRM} | — | — | 0.01 | mA |
| Peak Reverse Blocking Current (V _{AK} = Rated V _{DRM} or V _{RPM} , Gate Open) | T _J = 125°C | I _{RRM} | — | — | 2.0 | mA |

ON CHARACTERISTICS

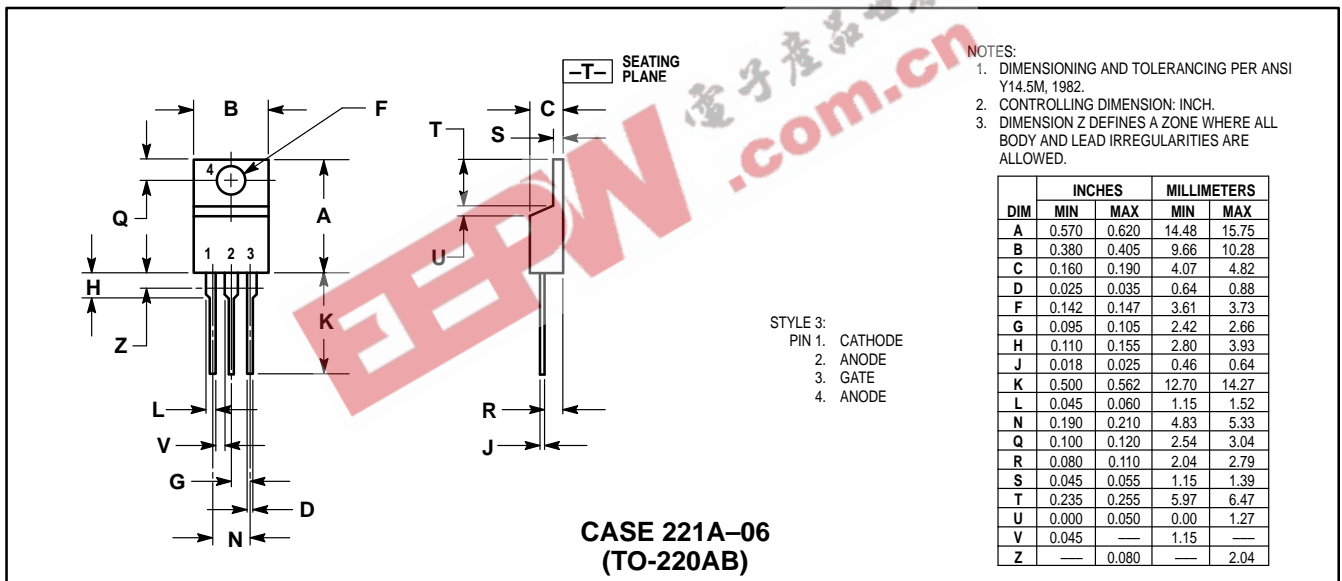
| | | | | | |
|--|-----------------|-----|------|-----|-------|
| Peak On-State Voltage* (I _{TM} = 16 A) | V _{TM} | — | — | 1.8 | Volts |
| Gate Trigger Current (Continuous dc) (V _D = 12 V, R _L = 100 Ω) | I _{GT} | 2.0 | 7.0 | 15 | mA |
| Gate Trigger Voltage (Continuous dc) (V _D = 12 V, R _L = 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%.

PACKAGE DIMENSIONS



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