

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

| Rating | 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 _{RPM} | 400 600 800 | V |
| On-state RMS current (all conduction angles) | I _{T(RMS)} | 8 | A |
| Peak non-repetitive surge current (one half-cycle, 60Hz, T _J = 125°C) | I _{TSM} | 80 | A |
| Circuit fusing (t = 8.3ms) | I ² t | 26.5 | A ² s |
| Peak gate power (pulse width ≤ 1.0μs, T _C = 80°C) | P _{GM} | 5 | W |
| Average gate power (t = 8.3ms, T _C = 80°C) | P _{G(AV)} | 0.5 | W |
| Peak gate current (pulse width ≤ 1.0μs, T _C = 80°C) | I _{GM} | 2 | A |
| Operating temperature range | T _J | -40 to +125 | °C |
| Storage temperature range | T _{stg} | -40 to +150 | °C |

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Maximum | Unit |
|---|------------------|---------|------|
| Thermal resistance, junction to case | R _{θJC} | 2.0 | °C/W |
| Thermal resistance, junction to ambient | R _{θJA} | 62.5 | °C/W |
| Maximum lead temperature for soldering purposes 1/8" from case for 10s | T _L | 260 | °C |

Note 1: V_{DRM} and V_{RPM} 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.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|--------------------------------------|--------|--------|-------------|------|
| OFF CHARACTERISTICS | | | | | |
| Peak forward blocking current Peak reverse blocking current (V _{AK} = Rated V _{DRM} or V _{RPM} , gate open) T _J = 25°C T _J = 125°C | I _{DRM} I _{RPM} | - - | - - | 0.01 2.0 | mA |
| ON CHARACTERISTICS | | | | | |
| Peak on-state voltage * (I _{TM} = 16A) | V _{TM} | - | - | 1.8 | V |
| Gate trigger current (continuous dc) (V _D = 12V, R _L = 100Ω) | I _{GT} | 2.0 | 7.0 | 15 | mA |

MCR8D, MCR8M, MCR8N

SILICON CONTROLLED RECTIFIERS

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

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|----------|-----|------|-----|------------------|
| Gate trigger voltage (continuous dc) ($V_D = 12\text{V}$, $R_L = 100\Omega$) | V_{GT} | 0.5 | 0.65 | 1.0 | V |
| Holding current (anode voltage = 12V) | I_H | 4.0 | 22 | 30 | mA |
| DYNAMIC CHARACTERISTICS | | | | | |
| Critical rate of rise of off-state voltage ($V_D = \text{rated } V_{DRM}$, exponential waveform, gate open, $T_J = 125^\circ\text{C}$) | dv/dt | 50 | 200 | - | V/ μs |

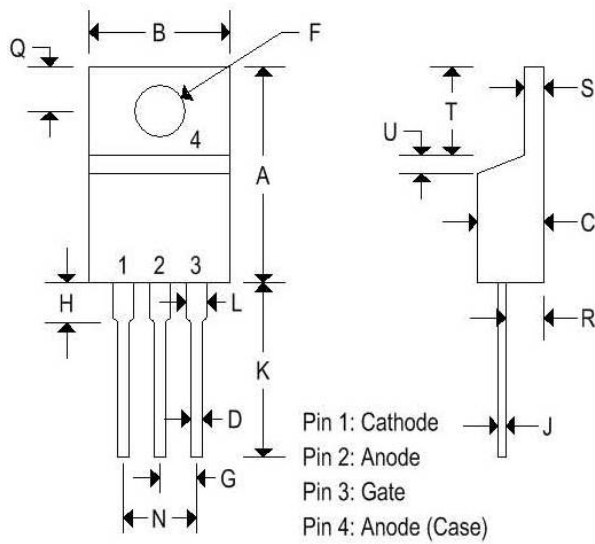
* Pulse width $\leq 2.0\text{ms}$, duty cycle $\leq 2\%$.

MCR8D, MCR8M, MCR8N

SILICON CONTROLLED RECTIFIERS

MECHANICAL CHARACTERISTICS

| | |
|---------|---------------|
| Case | TO-220AB |
| Marking | Alpha-numeric |
| Pin out | See below |



| | TO-220AB | | | |
|---|----------|-------|-------------|--------|
| | Inches | | Millimeters | |
| | Min | Max | Min | Max |
| A | 0.575 | 0.620 | 14.600 | 15.750 |
| B | 0.380 | 0.405 | 9.650 | 10.290 |
| C | 0.160 | 0.190 | 4.060 | 4.820 |
| D | 0.025 | 0.035 | 0.640 | 0.890 |
| F | 0.142 | 0.147 | 3.610 | 3.730 |
| G | 0.095 | 0.105 | 2.410 | 2.670 |
| H | 0.110 | 0.155 | 2.790 | 3.930 |
| J | 0.014 | 0.022 | 0.360 | 0.560 |
| K | 0.500 | 0.562 | 12.700 | 14.270 |
| L | 0.045 | 0.055 | 1.140 | 1.390 |
| N | 0.190 | 0.210 | 4.830 | 5.330 |
| Q | 0.100 | 0.120 | 2.540 | 3.040 |
| R | 0.080 | 0.110 | 2.040 | 2.790 |
| S | 0.045 | 0.055 | 1.140 | 1.390 |
| T | 0.235 | 0.255 | 5.970 | 6.480 |
| U | - | 0.050 | - | 1.270 |
| V | 0.045 | - | 1.140 | - |
| Z | - | 0.080 | - | 2.030 |