

Sensitive Gate Triacs Silicon Bidirectional Triode Thyristors

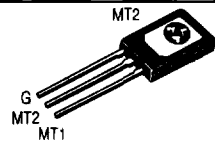
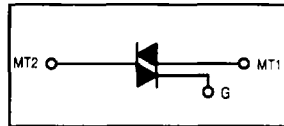
... designed primarily for ac power switching. The gate sensitivity of these triacs permits the use of economical transistorized or integrated circuit control circuits, and it enhances their use in low-power phase control and load-switching applications.

- Very High Gate Sensitivity
- Low On-State Voltage at High Current Levels
- Glass-Passivated Chip for Stability
- Small, Rugged Thermopad Construction for Low Thermal Resistance, High Heat Dissipation and Durability

**T2322
T2323
Series***

*Motorola preferred devices

**SENSITIVE GATE TRIACS
2.5 AMPERES RMS
200 thru 600 VOLTS**



CASE 77-08
(TO-225AA)
STYLE 5

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

| Rating | Suffix | Symbol | Value | Unit |
|--|-------------|---------------------|-------------------|----------------------|
| Peak Repetitive Off-State Voltage ⁽¹⁾ ($T_J = 25$ to 100°C , Gate Open) T2322, T2323 | B D M | V_{DRM} | 200 400 600 | Volts |
| RMS On-State Current ($T_C = 70^\circ\text{C}$) (Full-Cycle Sine Wave 50 to 60 Hz) | | $I_{\text{T(RMS)}}$ | 2.5 | Amps |
| Peak Non-repetitive Surge Current (One Full Cycle, 60 Hz) | | I_{TSM} | 25 | Amps |
| Circuit Fusing ($t = 8.3$ ms) | | I^2t | 2.6 | A^2s |
| Peak Gate Power (1 μs) | | P_{GM} | 10 | Watts |
| Average Gate Power ($T_C = 60^\circ\text{C} + 38.3$ ms) | | $P_{\text{G(AV)}}$ | 0.15 | Watt |
| Peak Gate Current (1 μs) | | I_{GM} | 0.5 | Amp |
| Operating Junction Temperature Range | | T_J | -40 to +110 | $^\circ\text{C}$ |
| Storage Temperature Range | | T_{stg} | -40 to +150 | $^\circ\text{C}$ |
| Mounting Torque (6-32 Screw) ⁽²⁾ | | — | 8 | in. lb. |

1. V_{DRM} for all types can be applied on a continuous basis. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.
2. Torque rating applies with use of torque washer (Shakeproof WD19523 or equivalent). Mounting Torque in excess of 6 in. lb. does not appreciably lower case-to-sink thermal resistance. Main terminal 2 and heat-sink contact pad are common.
For soldering purposes (either terminal connection or device mounting), soldering temperatures shall not exceed $+200^\circ\text{C}$, for 10 seconds. Consult factory for lead bending options.

Preferred devices are Motorola recommended choices for future use and best overall value.

T2322 T2323 Series

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|-----------------|-----|---------------|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 3.5 | $^{\circ}C/W$ |
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 60 | $^{\circ}C/W$ |

ELECTRICAL CHARACTERISTICS ($T_C = 25^{\circ}C$ and either polarity of MT2 to MT1 voltage unless otherwise noted.)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|-----------|-------------|-------------|----------------|---------------|
| Peak Blocking Current ($V_D = \text{Rated } V_{DRM}$, Gate Open) $T_J = 25^{\circ}C$ $T_J = 100^{\circ}C$ | I_{DRM} | — — | — 0.2 | 10 0.75 | μA mA |
| Peak On-State Voltage* ($I_{TM} = 10 A$) T2323 Series T2322 Series | V_{TM} | — — | 1.7 1.7 | 2.6 2.2 | Volts |
| Gate Trigger Current (Continuous dc) ($V_D = 12 V$, $R_L = 30 \Omega$) All Modes MT2(+), G(+); MT2(-), G(-) MT2(+), G(-); MT2(-), G(+) | I_{GT} | — — — | — — — | 10 25 40 | mA |
| Gate Trigger Voltage (Continuous dc) ($V_D = 12 V_{dc}$, $R_L = 30 \Omega$, $T_C = 25^{\circ}C$) ($V_D = V_{DRM}$, $R_L = 125 \Omega$, $T_C = 100^{\circ}C$) | V_{GT} | — 0.15 | 1 — | 2.2 — | Volts |
| Holding Current ($V_D = 12 V$, $I_{TM} = 150 mA$, Gate Open) | I_H | — | 15 | 30 | mA |
| Gate Controlled Turn-On Time ($V_D = \text{Rated } V_{DRM}$, $I_{TM} = 10 A$ pk, $I_G = 60 mA$) | t_{gt} | — | 1.8 | 2.5 | μs |
| Critical Rate-of-Rise of Off-State Voltage ($V_D = \text{Rated } V_{DRM}$, Exponential Waveform, $T_C = 100^{\circ}C$) | dv/dt | 10 | 100 | — | V/ μs |
| Critical Rate-of-Rise of Commutation Voltage ($V_D = \text{Rated } V_{DRM}$, $I_{TM} = 3.5 A$ pk, Commutating $di/dt = 1.26 A/ms$, Gate Unenergized, $T_C = 90^{\circ}C$) | dv/dt(c) | 1 | 4 | — | V/ μs |

*Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 2\%$.