

362-750 to 797  
803

## Silicon Controlled Rectifier Reverse Blocking Triode Thyristors

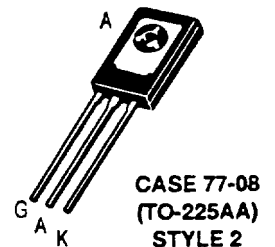
... Glassivated PNP devices designed for high volume consumer applications such as temperature, light, and speed control; process and remote control, and warning systems where reliability of operation is important.

- Glassivated Surface for Reliability and Uniformity
- Power Rated at Economical Prices
- Practical Level Triggering and Holding Characteristics
- Flat, Rugged, Thermopad Construction for Low Thermal Resistance, High Heat Dissipation and Durability

### C106 Series\*

\*Motorola preferred devices

SCRs  
4 AMPERES RMS  
50 thru 600 VOLTS



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

| Rating   | Symbol                       | Value                          | Unit                 |
|--|------------------------------|--------------------------------|----------------------|
| Peak Repetitive Forward and Reverse Blocking Voltage <sup>(1)</sup><br>( $R_{GK} = 1\text{ k}\Omega$ )<br>( $T_C = -40^\circ$ to $110^\circ\text{C}$ ) | $V_{DRM}$<br>or<br>$V_{RRM}$ | 50<br>100<br>200<br>400<br>600 | Volts                |
| RMS Forward Current<br>(All Conduction Angles)   | $I_T(\text{RMS})$            | 4                              | Amps                 |
| Average Forward Current<br>( $T_A = 30^\circ\text{C}$ )  | $I_T(\text{AV})$             | 2.55                           | Amps                 |
| Peak Non-repetitive Surge Current<br>(1/2 Cycle, 60 Hz, $T_J = -40$ to $+110^\circ\text{C}$ )  | $I_{TSM}$                    | 20                             | Amps                 |
| Circuit Fusing ( $t = 8.3\text{ ms}$ )   | $I^2t$                       | 1.65                           | $\text{A}^2\text{s}$ |
| Peak Gate Power  | $P_{GM}$                     | 0.5                            | Watt                 |
| Average Gate Power   | $P_{G(\text{AV})}$           | 0.1                            | Watt                 |
| Peak Forward Gate Current  | $I_{GFM}$                    | 0.2                            | Amp                  |

1.  $V_{DRM}$  and  $V_{RRM}$  for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; however, (cont.) 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.

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

## MAXIMUM RATINGS — continued

| Rating                               | Symbol    | Value       | Unit    |
|--------------------------------------|-----------|-------------|---------|
| Peak Reverse Gate Voltage            | $V_{GRM}$ | 6           | Volts   |
| Operating Junction Temperature Range | $T_J$     | -40 to +110 | °C      |
| Storage Temperature Range            | $T_{stg}$ | -40 to +150 | °C      |
| Mounting Torque(1)                   | —         | 6           | in. lb. |

1. Torque rating applies with use of compression washer (B52200F006). Mounting torque in excess of 6 in. lb. does not appreciably lower case-to-sink thermal resistance. Anode lead and heatsink contact pad are common.

For soldering purposes (either terminal connection or device mounting), soldering temperatures shall not exceed +200°C. For optimum results, an activated flux (oxide removing) is recommended.

THERMAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ ,  $R_{GK} = 1\text{ k}\Omega$  unless otherwise noted.)

| Characteristic                          | Symbol          | Max | Unit |
|---|-----------------|-----|------|
| Thermal Resistance, Junction to Case    | $R_{\theta JC}$ | 3   | °C/W |
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 75  | °C/W |

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

| Characteristic   | Symbol             | Min                | Typ         | Max           | Unit                           |
|--|--------------------|--------------------|-------------|---------------|--------------------------------|
| Peak Forward or Reverse Blocking Current<br>( $V_{AK} = \text{Rated } V_{DRM} \text{ or } V_{RRM}$ , $R_{GK} = 1000\text{ Ohms}$ ) $T_J = 25^\circ\text{C}$<br>$T_J = 110^\circ\text{C}$   | $I_{DRM}, I_{RRM}$ | —<br>—             | —<br>—      | 10<br>100     | $\mu\text{A}$<br>$\mu\text{A}$ |
| Forward "On" Voltage<br>( $I_{FM} = 1\text{ A Peak}$ )   | $V_{TM}$           | —                  | —           | 2.2           | Volts                          |
| Gate Trigger Current (Continuous dc)<br>( $V_{AK} = 6\text{ Vdc}$ , $R_L = 100\text{ Ohms}$ )<br>( $V_{AK} = 6\text{ Vdc}$ , $R_L = 100\text{ Ohms}$ , $T_C = -40^\circ\text{C}$ )   | $I_{GT}$           | —<br>—             | 30<br>75    | 200<br>500    | $\mu\text{A}$                  |
| Gate Trigger Voltage (Continuous dc)<br>( $V_{AK} = 6\text{ Vdc}$ , $R_L = 100\text{ Ohms}$ , $R_{GK} = 1000\text{ Ohms}$ ) $T_J = 25^\circ\text{C}$<br>( $V_{AK} = \text{Rated } V_{DRM}$ , $R_L = 3000\text{ Ohms}$ ,<br>$R_{GK} = 1000\text{ Ohms}$ , $T_J = 110^\circ\text{C}$ ) $T_J = -40^\circ\text{C}$ | $V_{GT}$           | 0.4<br>0.5<br>0.2  | —<br>—<br>— | 0.8<br>1<br>— | Volts                          |
| Holding Current<br>( $V_D = 12\text{ Vdc}$ , $R_{GK} = 1000\text{ Ohms}$ ) $T_J = 25^\circ\text{C}$<br>$T_J = -40^\circ\text{C}$<br>$T_J = +110^\circ\text{C}$   | $I_{HX}$           | 0.3<br>0.4<br>0.14 | —<br>—<br>— | 3<br>6<br>2   | mA                             |
| Forward Voltage Application Rate<br>( $T_J = 110^\circ\text{C}$ , $R_{GK} = 1000\text{ Ohms}$ , $V_D = \text{Rated } V_{DRM}$ )  | $dv/dt$            | —                  | 8           | —             | V/ $\mu\text{s}$               |
| Turn-On Time   | $t_{gt}$           | —                  | 12          | —             | $\mu\text{s}$                  |
| Turn-Off Time  | $t_q$              | —                  | 40          | —             | $\mu\text{s}$                  |

FIGURE 1 — AVERAGE CURRENT DERATING

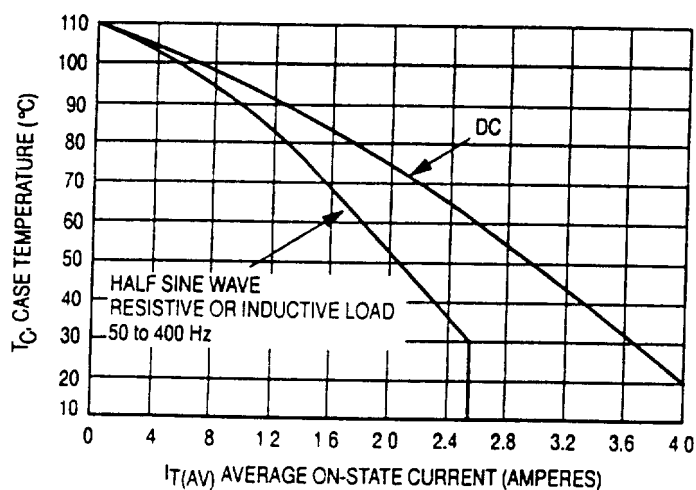


FIGURE 2 — MAXIMUM ON-STATE POWER DISSIPATION

