

T-25-13

Silicon Controlled Rectifier

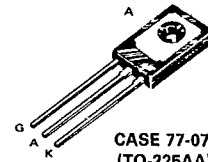
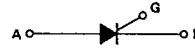
Reverse Blocking Triode Thyristors

... 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

SCRs
4 AMPERES RMS
50 thru 600 VOLTS



CASE 77-07
(TO-225AA)
STYLE 2

MAXIMUM RATINGS

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

(cont.)

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, Note 1	—	6	in. lb.

Note 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. (See AN-290 B)
 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

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	R _{θJC}	3	°C/W
Thermal Resistance, Junction to Ambient	R _{θJA}	75	°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Forward or Reverse Blocking Current (Rated V _{DRM} or V _{RRM} , R _{GK} = 1000 Ohms) T _J = 25°C T _J = 110°C	I _{DRM} , I _{RRM}	—	—	10 100	μA μA
Forward "On" Voltage (I _{FM} = 1 A Peak)	V _{TM}	—	—	2.2	Volts
Gate Trigger Current (Continuous dc) (V _{AK} = 6 Vdc, R _L = 100 Ohms) (V _{AK} = 6 Vdc, R _L = 100 Ohms, T _C = -40°C)	I _{GT}	—	30 75	200 500	μA
Gate Trigger Voltage (Continuous dc) (V _{AK} = 6 Vdc, R _L = 100 Ohms, R _{GK} = 1000 Ohms) T _J = 25°C (V _{AK} = Rated V _{DRM} , R _L = 3000 Ohms, R _{GK} = 1000 Ohms, T _J = 110°C) T _J = -40°C	V _{GT}	0.4 0.5 0.2	— — —	0.8 1 —	Volts
Holding Current (V _D = 12 Vdc, R _{GK} = 1000 Ohms) T _J = 25°C T _J = -40°C T _J = +110°C	I _{HX}	0.3 0.4 0.14	— — —	3 6 2	mA
Forward Voltage Application Rate (T _J = 110°C, R _{GK} = 1000 Ohms, V _D = Rated V _{DRM})	dv/dt	—	8	—	V/μs
Turn-On Time	t _{gt}	—	1.2	—	μs
Turn-Off Time	t _q	—	40	—	μs



FIGURE 1 — AVERAGE CURRENT DERATING

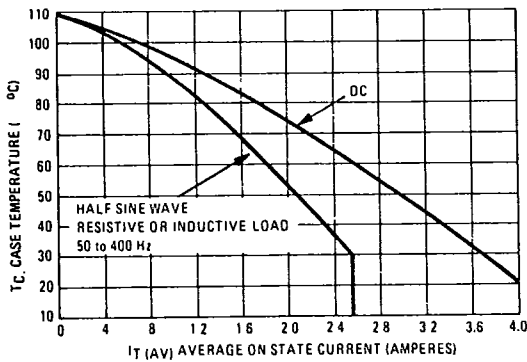
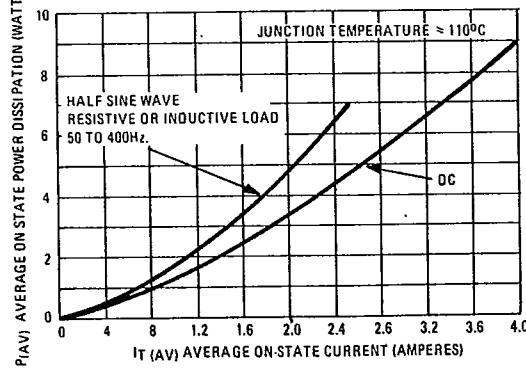


FIGURE 2 — MAXIMUM ON-STATE POWER DISSIPATION



C106 Series

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Package Interchangeability

The dimensional diagrams below compare the critical dimensions of the Motorola C-106 package with competitive devices. It has been demonstrated that the smaller dimensions of the Motorola package make it compatible in most lead-mount and chassis-mount applications. The user is advised to compare all critical dimensions for mounting compatibility.

