

Silicon Controlled Rectifiers

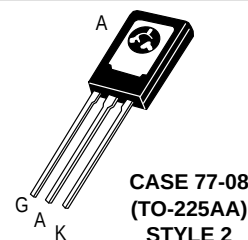
Reverse Blocking Triode Thyristors

... 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.

- Passivated 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
- Recommended Electrical Replacement for C106

2N6240

SCRs
4 AMPERES RMS
400 VOLTS



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

Rating	Symbol	Value	Unit
*Repetitive Peak Forward and Reverse Blocking Voltage ⁽¹⁾ (1/2 Sine Wave) ($R_{GK} = 1000 \text{ ohms}$, $T_C = -40$ to $+110^\circ\text{C}$)	V_{DRM} or V_{RRM}	400	Volts
*Non-repetitive Peak Reverse Blocking Voltage (1/2 Sine Wave, $R_{GK} = 1000 \text{ ohms}$, $T_C = -40^\circ$ to $+110^\circ\text{C}$)	V_{RSM}	450	Volts
*Average On-State Current ($T_C = -40$ to $+90^\circ\text{C}$) ($T_C = +100^\circ\text{C}$)	$I_{T(AV)}$	2.6 1.6	Amps
*Surge On-State Current (1/2 Sine Wave, 60 Hz, $T_C = +90^\circ\text{C}$) (1/2 Sine Wave, 1.5 ms, $T_C = +90^\circ\text{C}$)	I_{TSM}	25 35	Amps
Circuit Fusing ($t = 8.3 \text{ ms}$)	I^2t	2.6	A^2s
*Peak Gate Power (Pulse Width = $10 \mu\text{s}$, $T_C = 90^\circ\text{C}$)	P_{GM}	0.5	Watts

*Indicates JEDEC Registered Data.

(continued)

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, 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.

2N6240

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

Rating	Symbol	Value	Unit
*Average Gate Power ($t = 8.3 \text{ ms}$, $T_C = 90^\circ\text{C}$)	$P_{G(AV)}$	0.1	Watt
Peak Forward Gate Current	I_{GM}	0.2	Amp
Peak Reverse Gate Voltage	V_{RGM}	6	Volts
*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 ⁽¹⁾	—	6	in. lb.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Min	Max	Unit
*Thermal Resistance, Junction to Case	$R_{\theta JC}$	—	3	$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	—	75	$^\circ\text{C/W}$

*Indicates JEDEC Registered Data.

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ and $R_{GK} = 1000 \text{ ohms}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
*Peak Forward or Reverse Blocking Current ($V_{AK} = \text{Rated } V_{DRM} \text{ or } V_{RRM}$) $T_C = 25^\circ\text{C}$ $T_C = 110^\circ\text{C}$	I_{DRM}, I_{RRM}	— —	— —	10 200	μA μA
*Peak Forward "On" Voltage ($I_{TM} = 8.2 \text{ A Peak}$, Pulse Width = 1 to 2 ms, 2% Duty Cycle)	V_{TM}	—	—	2.2	Volts
Gate Trigger Current (Continuous dc) ⁽²⁾ ($V_{AK} = 12 \text{ Vdc}$, $R_L = 24 \text{ Ohms}$) *($V_{AK} = 12 \text{ Vdc}$, $R_L = 24 \text{ Ohms}$, $T_C = -40^\circ\text{C}$)	I_{GT}	— —	— —	200 500	μA
Gate Trigger Voltage (Continuous dc) (Source Voltage = 12 V, $R_S = 50 \text{ Ohms}$) *($V_{AK} = 12 \text{ Vdc}$, $R_L = 24 \text{ Ohms}$, $T_C = -40^\circ\text{C}$)	V_{GT}	—	—	1	Volts
Gate Non-Trigger Voltage ($V_{AK} = \text{Rated } V_{DRM}$, $R_L = 100 \text{ Ohms}$, $T_C = 110^\circ\text{C}$)	V_{GD}	0.2	—	—	Volts
Holding Current ($V_{AK} = 12 \text{ Vdc}$, $I_{GT} = 2 \text{ mA}$) $T_C = 25^\circ\text{C}$ *(Initiating On-State Current = 200 mA) $T_C = -40^\circ\text{C}$	I_H	— —	— —	5 10	mA
*Total Turn-On Time (Source Voltage = 12 V, $R_S = 6 \text{ k Ohms}$) ($I_{TM} = 8.2 \text{ A}$, $I_{GT} = 2 \text{ mA}$, Rated V_{DRM}) (Rise Time = 20 ns, Pulse Width = 10 μs)	t_{gt}	—	2	—	μs
Forward Voltage Application Rate ($V_D = \text{Rated } V_{DRM}$, $T_C = 110^\circ\text{C}$)	dv/dt	—	10	—	V/ μs

*Indicates JEDEC Registered Data.

1. Torque rating applies with use of compression washer (B52200F006 or equivalent). 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-209 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.
2. Measurement does not include R_{GK} current.

FIGURE 1 – MAXIMUM CASE TEMPERATURE

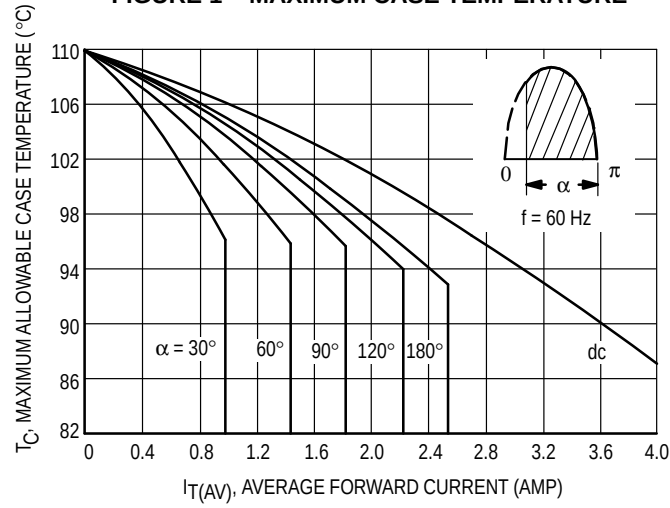
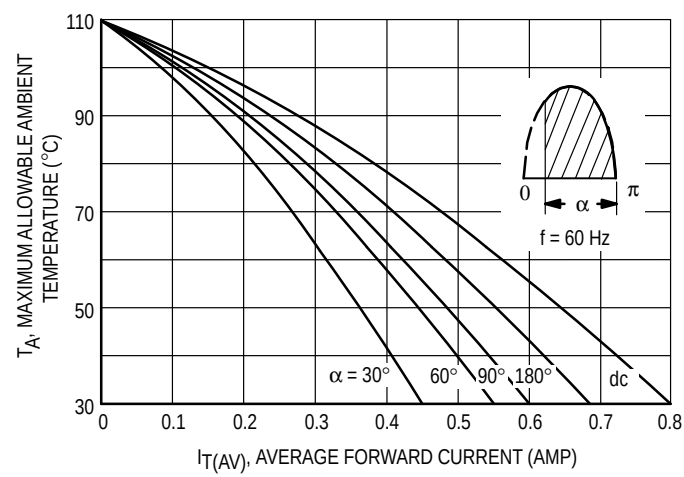
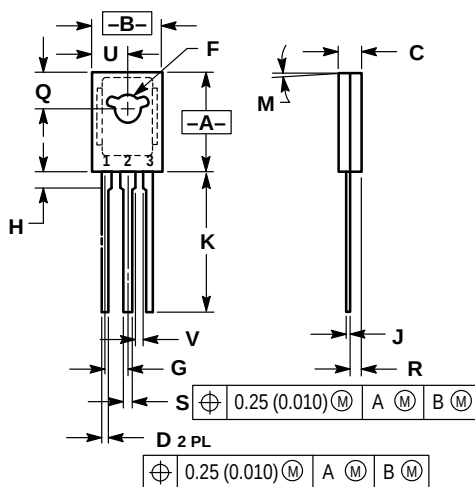


FIGURE 2 – MAXIMUM AMBIENT TEMPERATURE



PACKAGE DIMENSIONS



STYLE 2:
PIN 1. CATHODE
2. ANODE
3. GATE

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.425	0.435	10.80	11.04
B	0.295	0.305	7.50	7.74
C	0.095	0.105	2.42	2.66
D	0.020	0.026	0.51	0.66
F	0.115	0.130	2.93	3.30
G	0.094 BSC		2.39 BSC	
H	0.050	0.095	1.27	2.41
J	0.015	0.025	0.39	0.63
K	0.575	0.655	14.61	16.63
M	5° TYP		5° TYP	
Q	0.148	0.158	3.76	4.01
R	0.045	0.055	1.15	1.39
S	0.025	0.035	0.64	0.88
U	0.145	0.155	3.69	3.93
V	0.040	—	1.02	—

CASE 77-08
(TO-225AA)

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USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
P.O. Box 5405, Denver, Colorado 80217. 1-303-675-2140 or 1-800-441-2447

JAPAN: Motorola Japan Ltd.; SPD, Strategic Planning Office, 141,
4-32-1 Nishi-Gotanda, Shinagawa-ku, Tokyo, Japan. 81-3-5487-8488

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ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; Silicon Harbour Centre,
2, Dai King Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong.
852-26629298

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