

Triacs

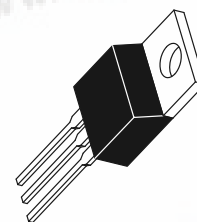
Silicon Bidirectional Triode Thyristors

... designed primarily for full-wave ac control applications, such as light dimmers, motor controls, heating controls and power supplies; or wherever full-wave silicon gate controlled solid-state devices are needed. Triac type thyristors switch from a blocking to a conducting state for either polarity of applied anode voltage with positive or negative gate triggering.

- Blocking Voltage to 800 Volts
- All Diffused and Glass Passivated Junctions for Greater Parameter Uniformity and Stability
- Small, Rugged, Thermowatt Construction for Low Thermal Resistance, High Heat Dissipation and Durability
- Gate Triggering Guaranteed in Four Modes (2N6348A, 2N6349A)
- For 400 Hz Operation, Consult Factory
- 8 Ampere Devices Available as 2N6344 thru 2N6349

2N6348A
2N6349A

TRIACs
12 AMPERES RMS
600 and 800 VOLTS



CASE 221A-07
(TO-220AB)
STYLE 4

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted.)

Rating	Symbol	Value	Unit
*Peak Repetitive Off-State Voltage ⁽¹⁾ (Gate Open, T _J = -40 to +110°C 1/2 Sine Wave 50 to 60 Hz, Gate Open 2N6348A 2N6349A	V _{DRM}	600 800	Volts
*RMS On-State Current (T _C = +80°C) (Full Cycle Sine Wave 50 to 60 Hz) (T _C = +95°C)	I _{T(RMS)}	12 6	Amps
*Peak Non-repetitive Surge Current (One Full Cycle, 60 Hz, T _C = +80°C) Preceded and Followed by Rated Current	I _{TSM}	120	Amps
Circuit Fusing (t = 8.3 ms)	i ² t	59	A ² s
*Peak Gate Power (T _C = +80°C, Pulse Width = 2 μs)	P _{GM}	20	Watts
*Average Gate Power (T _C = +80°C, t = 8.3 ms)	P _{G(AV)}	0.5	Watt
*Peak Gate Current	I _{GM}	2	Amps
*Peak Gate Voltage	V _{GM}	±10	Volts
*Operating Junction Temperature Range	T _J	-40 to +125	°C
*Storage Temperature Range	T _{stg}	-40 to +150	°C

*Indicates JEDEC Registered Data.

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.



2N6348A 2N6349A

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
*Thermal Resistance, Junction to Case	$R_{\theta JC}$	2	$^{\circ}\text{C}/\text{W}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
*Peak Blocking Current ($V_D = \text{Rated } V_{DRM}$, gate open) $T_J = 25^{\circ}\text{C}$ $T_J = 110^{\circ}\text{C}$	I_{DRM}	— —	— —	10 2	μA mA
*Peak On-State Voltage (Either Direction) ($I_{TM} = 17 \text{ A Peak}$; Pulse Width = 1 to 2 ms, Duty Cycle $\leq 2\%$)	V_{TM}	—	1.3	1.75	Volts
Gate Trigger Current (Continuous dc) ($V_D = 12 \text{ Vdc}$, $R_L = 100 \text{ Ohms}$) MT2(+), G(+) MT2(+), G(-) MT2(-), G(-) MT2(-), G(+) *MT2(+), G(+); MT2(-), G(-) $T_C = -40^{\circ}\text{C}$ *MT2(+), G(-); MT2(-), G(+), $T_C = -40^{\circ}\text{C}$	I_{GT}	— — — — —	6 6 10 25	50 75 50 75	mA
Gate Trigger Voltage (Continuous dc) ($V_D = 12 \text{ Vdc}$, $R_L = 100 \text{ ohms}$) MT2(+), G(+) MT2(+), G(-) MT2(-), G(-) MT2(-), G(+) *MT2(+), G(+); MT2(-), G(-) $T_C = -40^{\circ}\text{C}$ *MT2(+), G(-); MT2(-), G(+), $T_C = -40^{\circ}\text{C}$ ($V_D = \text{Rated } V_{DRM}$, $R_L = 10 \text{ k ohms}$, $T_J = 100^{\circ}\text{C}$) *MT2(+), G(+); MT2(-), G(-) *MT2(+), G(-); MT2(-), G(-)	V_{GT}	— — — — — 0.2 0.2	0.9 0.9 1.1 1.4	2 2.5 2 2.5 2.5 — —	Volts
Holding Current (Either Direction) ($V_D = 12 \text{ Vdc}$, Gate Open) $T_C = 25^{\circ}\text{C}$ ($I_T = 200 \text{ mA}$) $*T_C = -40^{\circ}\text{C}$	I_H	— —	6 —	40 75	mA
*Turn-On Time ($V_D = \text{Rated } V_{DRM}$, $I_{TM} = 17 \text{ A}$, $I_{GT} = 120 \text{ mA}$, Rise Time = $0.1 \mu\text{s}$, Pulse Width = $2 \mu\text{s}$)	t_{gt}	—	1.5	2	μs
Critical Rate of Rise of Commutation Voltage ($V_D = \text{Rated } V_{DRM}$, $I_{TM} = 17 \text{ A}$, Commutating $di/dt = 6.1 \text{ A/ms}$, Gate Unenergized, $T_C = 80^{\circ}\text{C}$)	$dv/dt(c)$	—	5	—	$\text{V}/\mu\text{s}$

*Indicates JEDEC Registered Data.

FIGURE 1 – RMS CURRENT DERATING

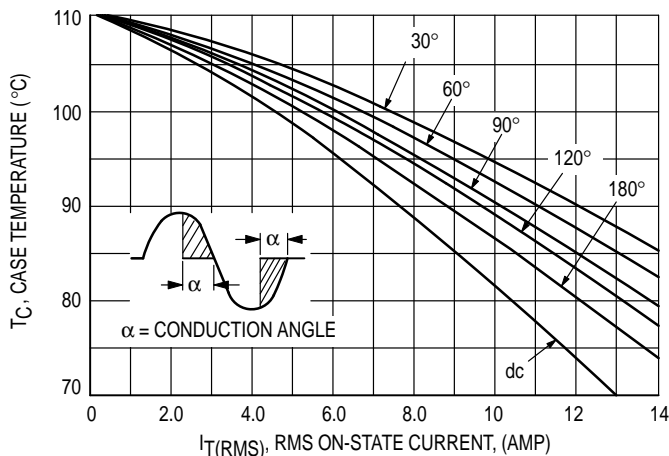


FIGURE 2 – ON-STATE POWER DISSIPATION

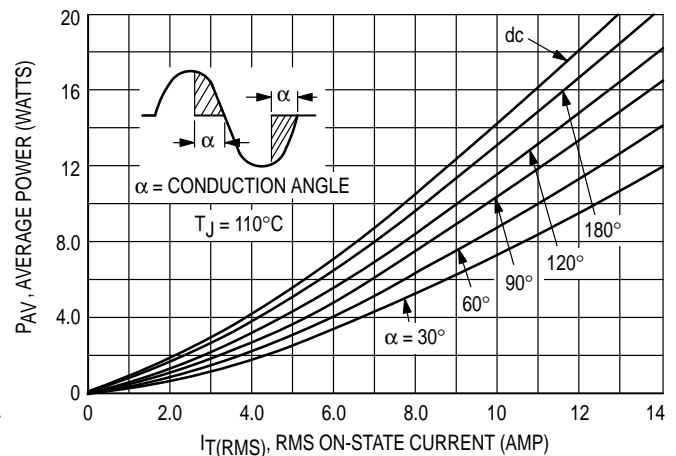


FIGURE 3 – TYPICAL GATE TRIGGER VOLTAGE

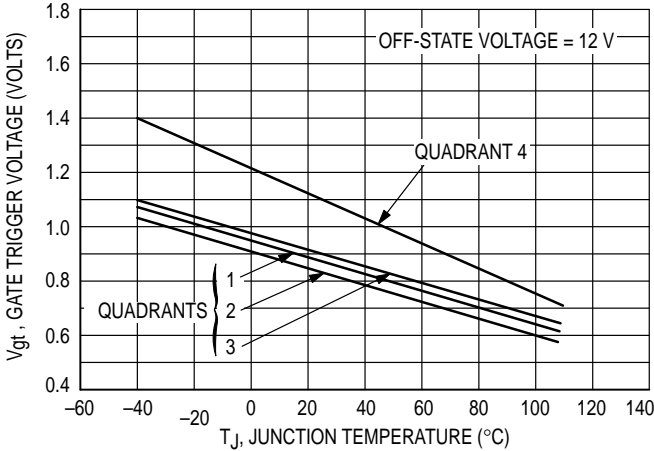


FIGURE 4 – TYPICAL GATE TRIGGER CURRENT

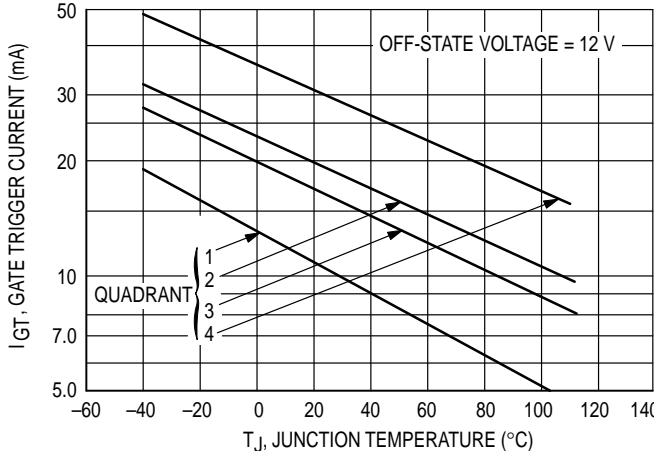


FIGURE 5 – ON-STATE CHARACTERISTICS

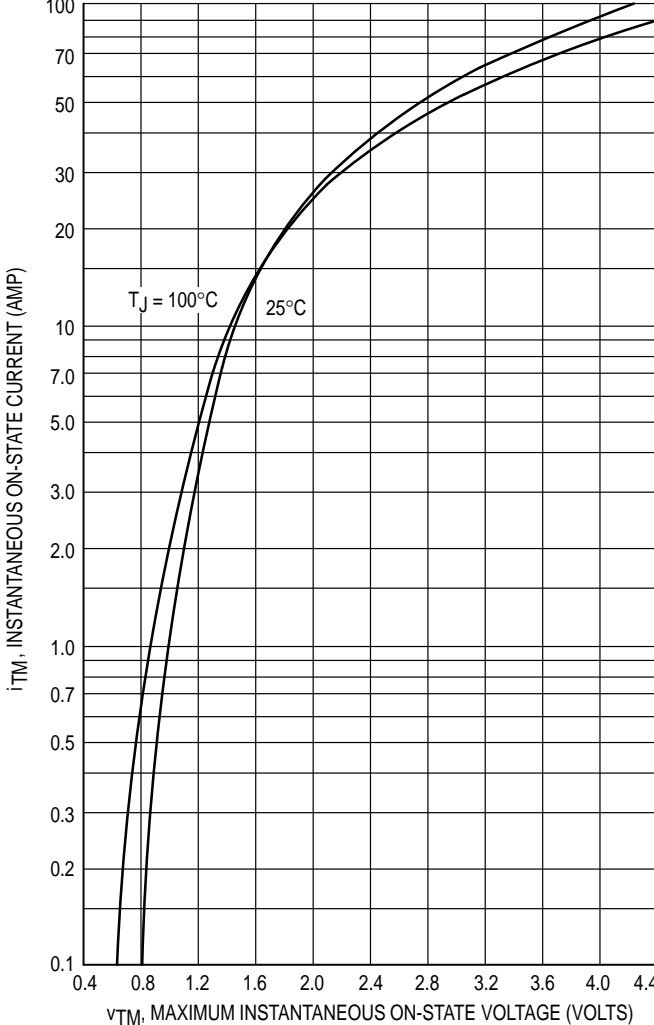


FIGURE 6 – TYPICAL HOLDING CURRENT

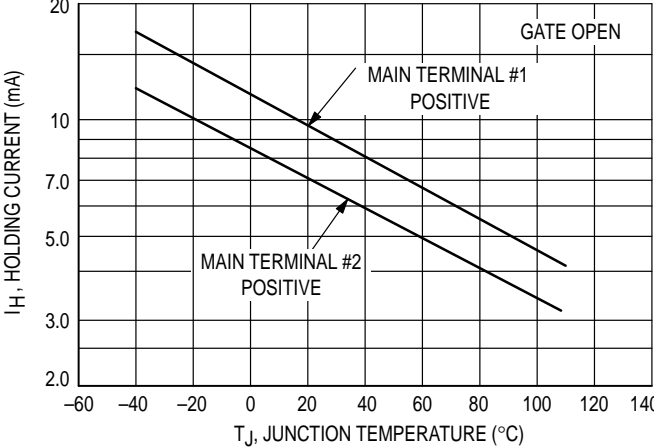
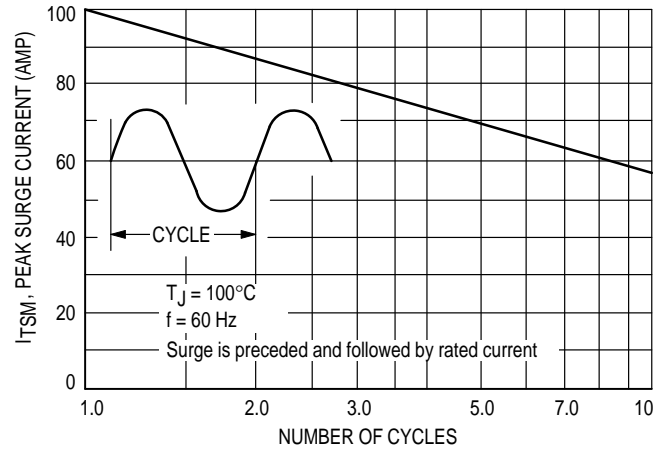
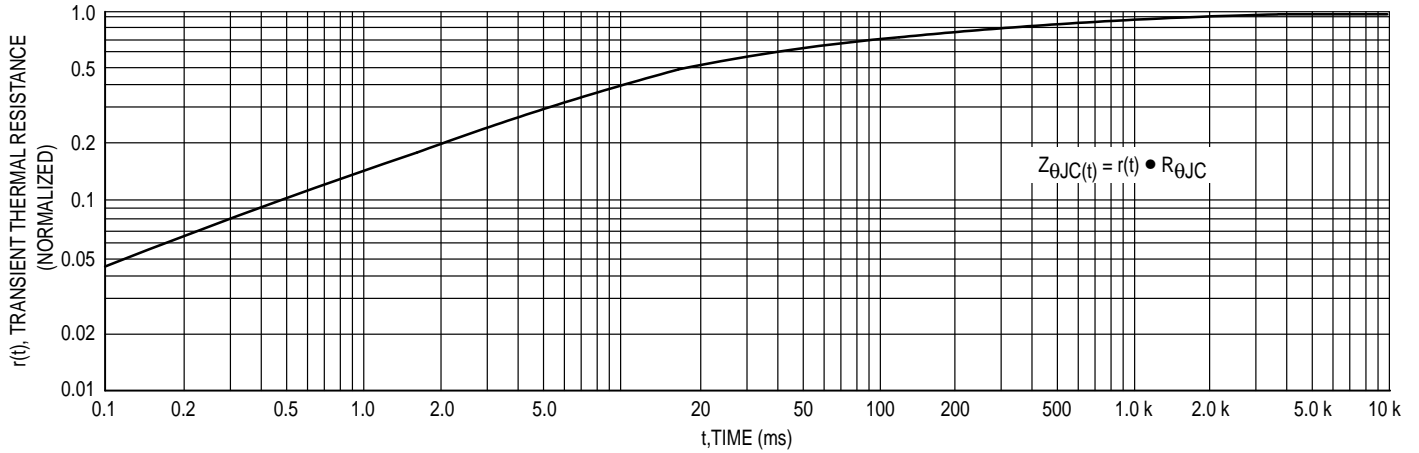


FIGURE 7 – MAXIMUM NON-REPETITIVE SURGE CURRENT



2N6348A 2N6349A

FIGURE 8 – TYPICAL THERMAL RESPONSE



PACKAGE DIMENSIONS

STYLE 4:
 PIN 1. MAIN TERMINAL 1
 PIN 2. MAIN TERMINAL 2
 PIN 3. GATE
 PIN 4. MAIN TERMINAL 2

NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.014	0.022	0.36	0.55
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	—	1.15	—
Z	—	0.080	—	2.04

**CASE 221A-07
(TO-220AB)
ISSUE Z**

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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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