

Triacs

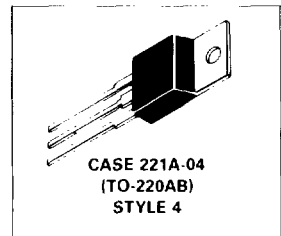
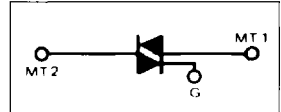
Silicon Bidirectional Triode Thyristors

... 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 Two Modes (2N6342A, 2N6343A, 2N6344A, 2N6345A) or Four Modes (2N6346A, 2N6347A, 2N6348A, 2N6349A)
- For 400 Hz Operation, Consult Factory
- 8 Ampere Devices Available as 2N6342 thru 2N6349

**2N6342A
thru
2N6349A**

**TRIACs
12 AMPERES RMS
200 thru 800 VOLTS**



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MAXIMUM RATINGS

Rating	Symbol	Value	Unit
*Peak Repetitive Off-State Voltage ($T_J = -40$ to $+110^\circ\text{C}$) 1/2 Sine Wave 50 to 60 Hz, Gate Open	V_{DRM}	200 400 600 800	Volts
*RMS On-State Current (Full Cycle Sine Wave 50 to 60 Hz)	$I_T(\text{RMS})$	12 6	Amps
*Peak Non-Repetitive Surge Current (One Full Cycle, 60 Hz, $T_C = -55$ to $+80^\circ\text{C}$) Preceded and Followed by Rated Current	I_{TSM}	120	Amps
Circuit Fusing ($t = 8.3$ ms)	I^2t	59	A^2s
*Peak Gate Power ($T_C = -55$ to $+80^\circ\text{C}$, Pulse Width ≤ 2 μs)	P_{GM}	20	Watts
*Average Gate Power ($T_C = -55$ to $+80^\circ\text{C}$, $t = 8.3$ 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 $+125$	$^\circ\text{C}$
*Storage Temperature Range	T_{stg}	40 to $+150$	$^\circ\text{C}$

*Indicates JEDEC Registered Data.

2N6342A thru 2N6349A

THERMAL CHARACTERISTICS

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

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

Characteristic	Symbol	Min	Typ	Max	Unit
*Peak Forward or Reverse Blocking Current (Rated V_{DRM} or V_{RRM} , gate open) $T_J = 25^{\circ}C$ $T_J = 110^{\circ}C$	I_{DRM}, I_{RRM}	—	—	10 2	μA mA
*Peak On-State Voltage (Either Direction) ($I_{TM} = 17 A$ Peak; Pulse Width = 1 to 2 ms, Duty Cycle = 2%)	V_{TM}	—	1.3	1.75	Volts
Gate Trigger Current (Continuous dc) ($V_D = 12 V_{dc}, R_L = 100 \text{ Ohms}$) MT2(+), G(+) All Types MT2(+), G(-) 2N6346A thru 2N6349A MT2(-), G(+) All Types MT2(-), G(-) 2N6346A thru 2N6349A *MT2(+), G(+); MT2(-), G(-) $T_C = 40^{\circ}C$ All Types *MT2(+), G(-); MT2(-), G(+) $T_C = 40^{\circ}C$ 2N6346A thru 2N6349A	I_{GT}	—	6 6 10 25 — —	50 75 50 75 100 125	mA
Gate Trigger Voltage (Continuous dc) ($V_D = 12 V_{dc}, R_L = 100 \text{ ohms}$) MT2(+), G(+) All Types MT2(+), G(-) 2N6346A thru 2N6349A MT2(-), G(+) All Types MT2(-), G(-) 2N6346A thru 2N6349A *MT2(+), G(+); MT2(-), G(-) $T_C = 40^{\circ}C$ All Types *MT2(+), G(-); MT2(-), G(+) $T_C = 40^{\circ}C$ 2N6346A thru 2N6349A ($V_D = \text{Rated } V_{DRM}, R_L = 10 \text{ k ohms}, T_J = 100^{\circ}C$) *MT2(+), G(+); MT2(-), G(-) All Types *MT2(+), G(-); MT2(-), G(+) $T_C = 40^{\circ}C$ 2N6346A thru 2N6349A	V_{GT}	—	0.9 0.9 1.1 1.4 — —	2 2.5 2 2.5 2.5 3	Volts
Holding Current (Either Direction) ($V_D = 12 V_{dc}$, Gate Open) ($I_T = 200 \text{ mA}$) $T_C = 25^{\circ}C$ * $T_C = 40^{\circ}C$	I_H	—	6 —	40 75	mA
*Turn-On Time ($V_D = \text{Rated } V_{DRM}, I_{TM} = 17 A, I_{GT} = 120 \text{ mA}$, Rise Time = 0.1 μs , Pulse Width = 2 μs)	t_{gt}	—	1.5	2	μs
Critical Rate of Rise of Commutation Voltage ($V_D = \text{Rated } V_{DRM}, I_{TM} = 17 A$, Commutating $di/dt = 6.5 A/ms$, Gate Unenergized, $T_C = 80^{\circ}C$)	$dv/dt(c)$	—	5	—	$V/\mu s$

*Indicates JEDEC Registered Data.

FIGURE 1 – RMS CURRENT DERATING

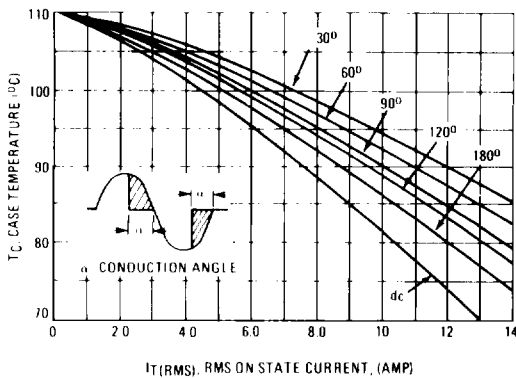
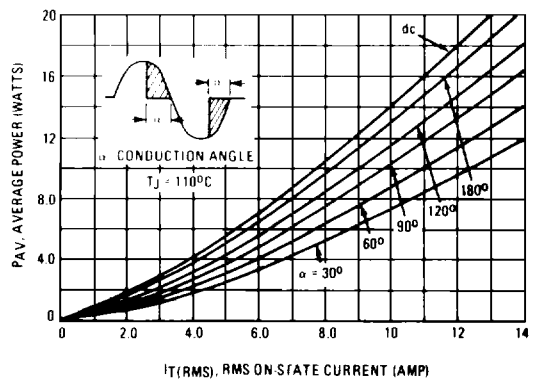


FIGURE 2 – ON-STATE POWER DISSIPATION



2N6342A thru 2N6349A

FIGURE 3 – TYPICAL GATE TRIGGER VOLTAGE

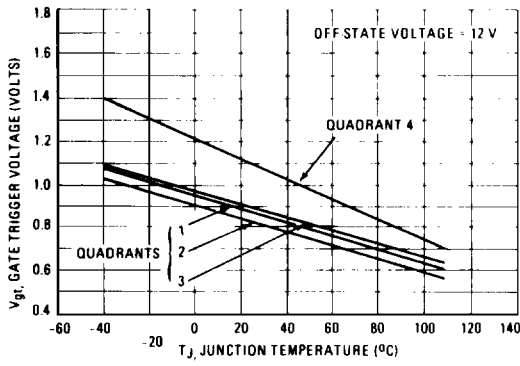


FIGURE 4 – TYPICAL GATE TRIGGER CURRENT

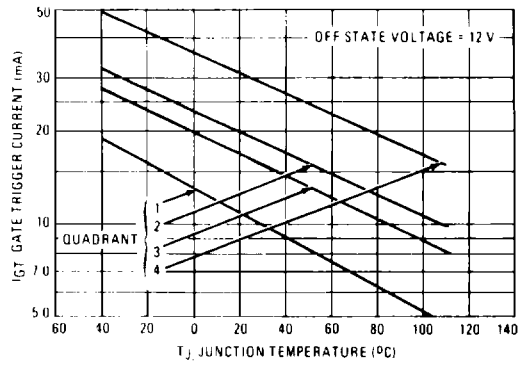


FIGURE 5 – ON-STATE CHARACTERISTICS

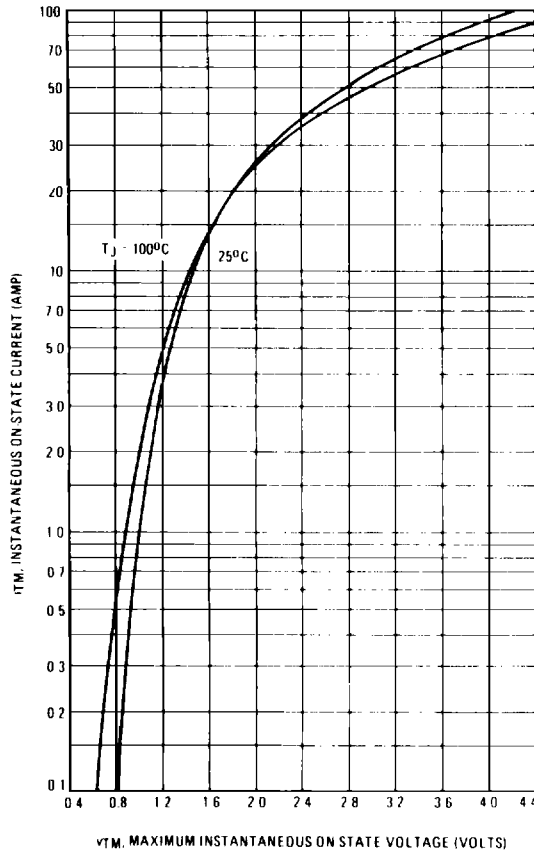


FIGURE 6 – TYPICAL HOLDING CURRENT

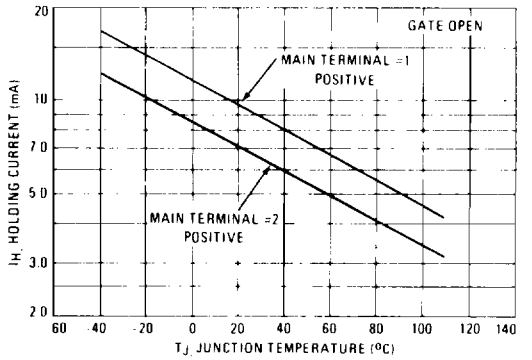
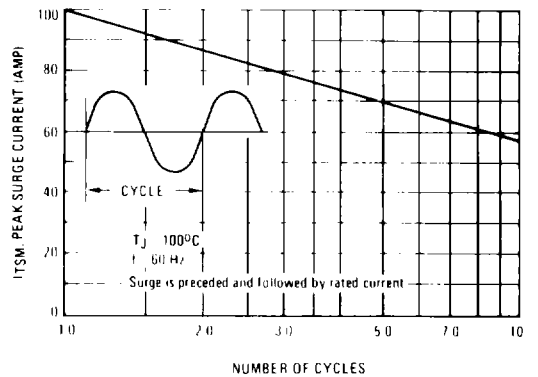


FIGURE 7 – MAXIMUM NON-REPETITIVE SURGE CURRENT



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2N6342A thru 2N6349A

FIGURE 8 – TYPICAL THERMAL RESPONSE

