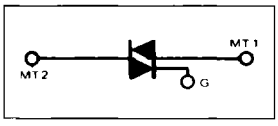
Triacs
Silicon Bidirectional Triode Thyristors

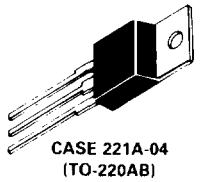
2N6342 thru 2N6349

TRIACs
8 AMPERES RMS
200 thru 800 VOLTS

. . . 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 (2N6342, 2N6343, 2N6344, 2N6345) or Four Modes (2N6346, 2N6347, 2N6348, 2N6349)
- For 400 Hz Operation, Consult Factory
- 12 Ampere Devices Available as 2N6342A thru 2N6349A





CASE 221A-04
(TO-220AB)
STYLE 4

3

MAXIMUM RATINGS

Rating		Symbol	Value	Unit
*Peak Repetitive Off-State Voltage (T_J 40 to + 100°C) 1/2 Sine Wave 50 to 60 Hz, Gate Open	2N6342, 2N6346 2N6343, 2N6347 2N6344, 2N6348 2N6345, 2N6349	V_{DRM}	 200 400 600 800	Volts
*RMS On-State Current Full Cycle Sine Wave 50 to 60 Hz	(T_C + 80°C) (T_C + 90°C)	$I_{T(RMS)}$	8 4	Amps
*Peak Non-Repetitive Surge Current (One Full Cycle, 60 Hz, T_C + 80°C) Preceded and followed by Rated Current		I_{TSM}	100	Amps
Circuit Fusing (t 8.3 ms)		I^2t	40	A^2s
*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

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
*Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.2	°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°C, and Either Polarity of MT2 to MT1 Voltage, 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°C	I_{DRM}, I_{RRM}	—	—	10	μA
T_J 100°C		—	—	2	mA
*Peak On-State Voltage (I_{TM} 11 A Peak; Pulse Width 1 to 2 ms, Duty Cycle ≤ 2%)	V_{TM}	—	1.3	1.55	Volts
Gate Trigger Current (Continuous dc) (V_D = 12 Vdc, R_L 100 Ohms) (Minimum Gate Pulse Width 2 μs)	I_{GT}				mA
MT2(+), G(+) All Types		—	12	50	
MT2(+), G(−) 2N6346 thru 49		—	12	75	
MT2(−), G(−) All Types		—	20	50	
MT2(−), G(+) 2N6346 thru 49		—	35	75	
*MT2(+), G(+); MT2(−), G(−) T_C −40°C All Types		—	—	100	
*MT2(+), G(−); MT2(−), G(+) T_C −40°C 2N6346 thru 49		—	—	125	
Gate Trigger Voltage (Continuous dc) (V_D = 12 Vdc, R_L = 100 Ohms) (Minimum Gate Pulse Width 2 μs)	V_{GT}				Volts
MT2(+), G(+) All Types		—	0.9	2	
MT2(+), G(−) 2N6346 thru 49		—	0.9	2.5	
MT2(−), G(−) All Types		—	1.1	2	
MT2(−), G(+) 2N6346 thru 49		—	1.4	2.5	
*MT2(+), G(+); MT2(−), G(−) T_C −40°C All Types		—	—	2.5	
*MT2(+), G(−); MT2(−), G(+) T_C −40°C 2N6346 thru 49		—	—	3	
(V_D Rated V_{DRM}, R_L 10 k Ohms, T_J 100°C)					
*MT2(+), G(+); MT2(−), G(−) All Types		0.2	—	—	
*MT2(+), G(−); MT2(−), G(+) 2N6346 thru 49		0.2	—	—	
*Holding Current (V_D 12 Vdc, Gate Open) T_C 25°C	I_H	—	6	40	mA
(I_T 200 mA) *T_C −40°C		—	—	75	
*Turn-On Time (V_D Rated V_{DRM}, I_{TM} 11 A, I_{GT} 120 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 Rated V_{DRM}, I_{TM} 11 A, Commutating di/dt 4.3 A/ms, Gate Unenergized, T_C = 80°C)	dv/dt(c)	—	5	—	V/μs

*Indicates JEDEC Registered Data.

FIGURE 1 – RMS CURRENT DERATING

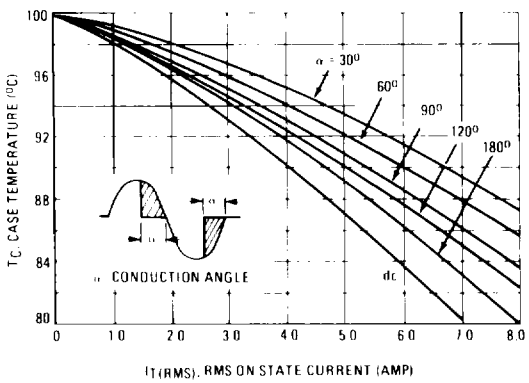


FIGURE 2 – ON-STATE POWER DISSIPATION

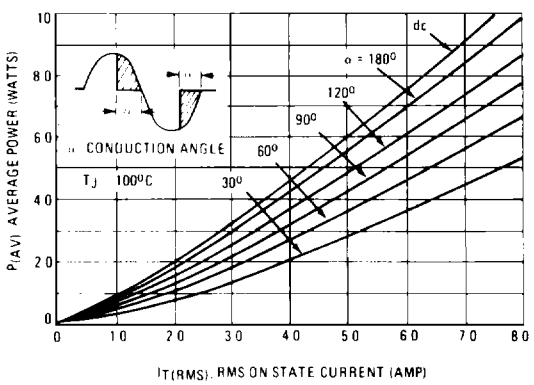


FIGURE 3 – TYPICAL GATE TRIGGER VOLTAGE

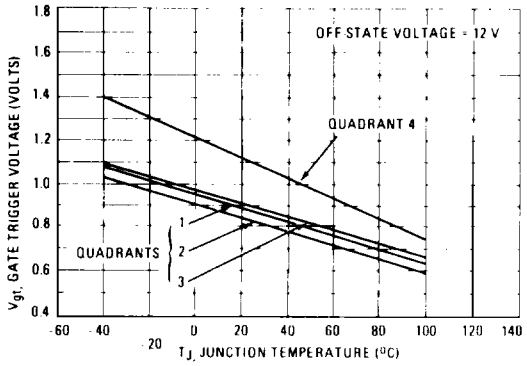


FIGURE 4 – TYPICAL GATE TRIGGER CURRENT

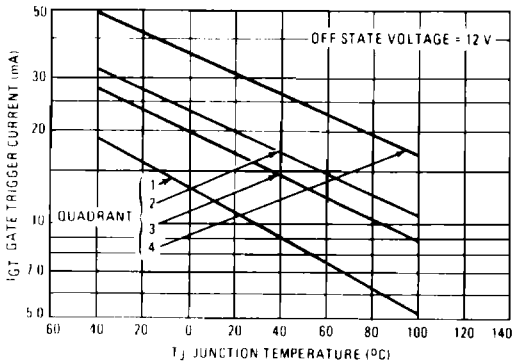


FIGURE 5 – ON-STATE CHARACTERISTICS

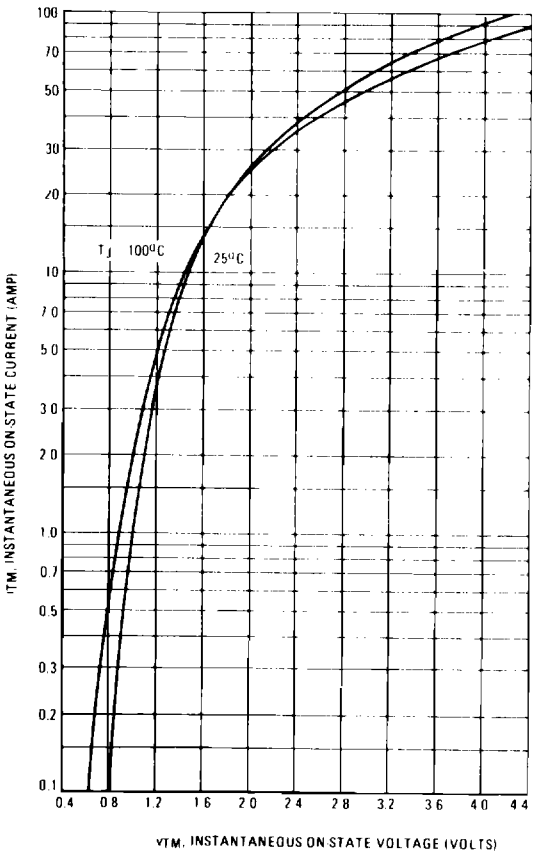


FIGURE 6 – TYPICAL HOLDING CURRENT

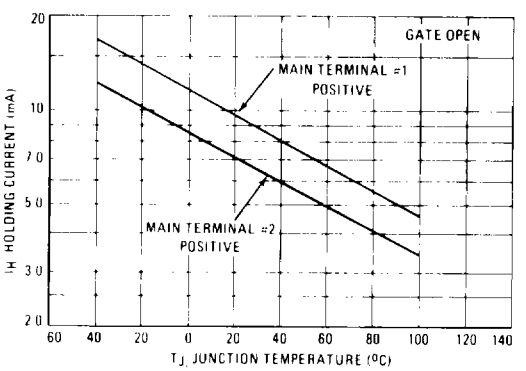


FIGURE 7 – MAXIMUM NON-REPETITIVE SURGE CURRENT

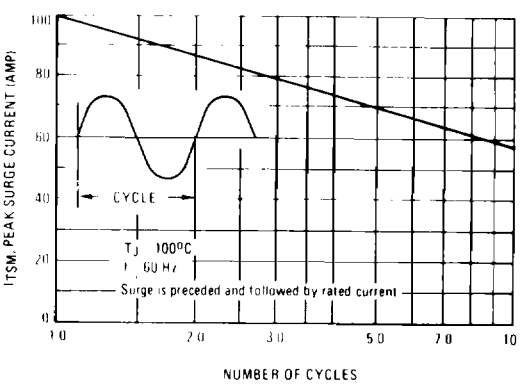


FIGURE 8 – TYPICAL THERMAL RESPONSE