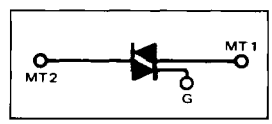
Triacs
Silicon Bidirectional Triode Thyristors

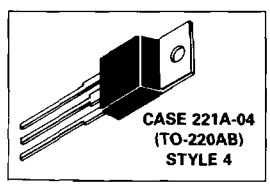
2N6342A thru 2N6345A
2N6346A thru 2N6349A

TRIACs
12 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 (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





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

Rating	Symbol	Value	Unit
*Peak Repetitive Off-State Voltage, Note 1 (Gate Open, T_J = −40 to +110°C) 1/2 Sine Wave 50 to 60 Hz, Gate Open 2N6342A, ***2N6346A*** ***2N6343A, 2N6347A*** ***2N6344A, 2N6348A*** 2N6345A, ***2N6349A***	V_{DRM}	 200 400 600 800	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^2t	59	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

*Indicates JEDEC Registered Data.

Note 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.

Devices listed in bold, italic are Motorola preferred devices.

THERMAL CHARACTERISTICS

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

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

Characteristic	Symbol	Min	Typ	Max	Unit
*Peak Blocking Current	I_{DRM}				
(V_D = Rated V_{DRM}, gate open) T_J = 25°C		—	—	10	μA
T_J = 110°C		—	—	2	mA
*Peak On-State Voltage (Either Direction)	V_{TM}	—	1.3	1.75	Volts
(I_{TM} = 17 A Peak; Pulse Width = 1 to 2 ms, Duty Cycle ≤ 2%)					
Gate Trigger Current (Continuous dc)	I_{GT}				mA
(V_D = 12 Vdc, R_L = 100 Ohms)					
MT2(+), G(+) All Types		—	6	50	
MT2(+), G(−) 2N6346A thru 2N6349A		—	6	75	
MT2(−), G(−) All Types		—	10	50	
MT2(−), G(+) 2N6346A thru 2N6349A		—	25	75	
*MT2(+), G(+); MT2(−), G(−) T_C = −40°C All Types		—	—	100	
*MT2(+), G(−); MT2(−), G(+) T_C = −40°C 2N6346A thru 2N6349A		—	—	125	
Gate Trigger Voltage (Continuous dc)	V_{GT}				Volts
(V_D = 12 Vdc, R_L = 100 ohms)					
MT2(+), G(+) All Types		—	0.9	2	
MT2(+), G(−) 2N6346A thru 2N6349A		—	0.9	2.5	
MT2(−), G(−) All Types		—	1.1	2	
MT2(−), G(+) 2N6346A thru 2N6349A		—	1.4	2.5	
*MT2(+), G(+); MT2(−), G(−) T_C = −40°C All Types		—	—	2.5	
*MT2(+), G(−); MT2(−), G(+) T_C = −40°C 2N6346A thru 2N6349A		—	—	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(−) 2N6346A thru 2N6349A		0.2	—	—	
Holding Current (Either Direction)	I_H				mA
(V_D = 12 Vdc, Gate Open) T_C = 25°C		—	6	40	
(I_T = 200 mA) *T_C = −40°C		—	—	75	
*Turn-On Time	t_{gt}	—	1.5	2	μs
(V_D = Rated V_{DRM}, I_{TM} = 17 A, I_{GT} = 120 mA, Rise Time = 0.1 μs, Pulse Width = 2 μs)					
Critical Rate of Rise of Commutation Voltage	dv/dt(c)	—	5	—	V/μs
(V_D = Rated V_{DRM}, I_{TM} = 17 A, Commutating di/dt = 6.1 A/ms, Gate Unenergized, T_C = 80°C)					

*Indicates JEDEC Registered Data.

FIGURE 1 – RMS CURRENT DERATING

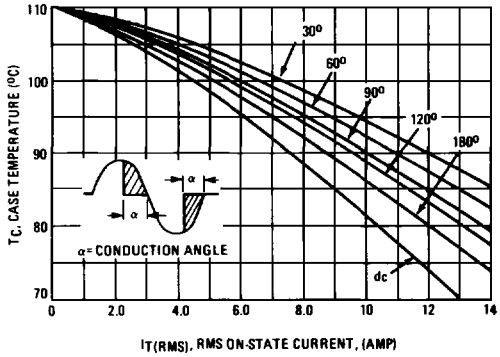

FIGURE 2 – ON-STATE POWER DISSIPATION

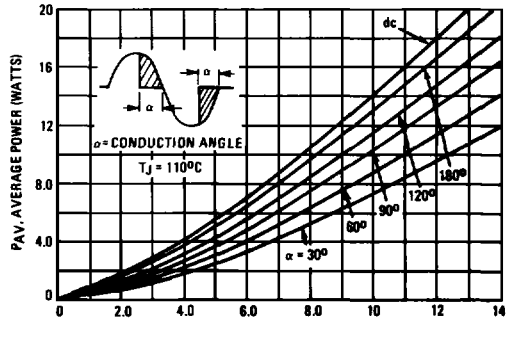

FIGURE 3 – TYPICAL GATE TRIGGER VOLTAGE

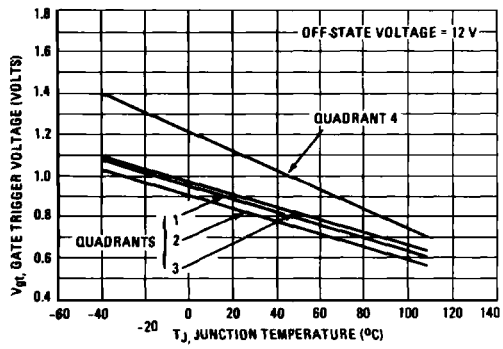

FIGURE 4 – TYPICAL GATE TRIGGER CURRENT

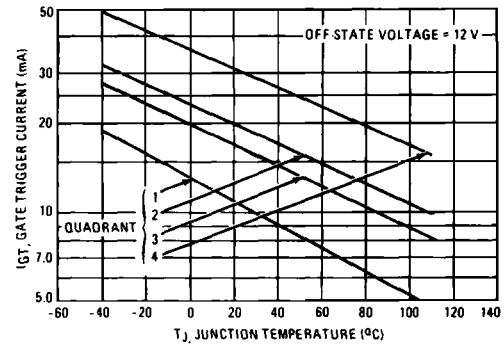

FIGURE 5 – ON-STATE CHARACTERISTICS

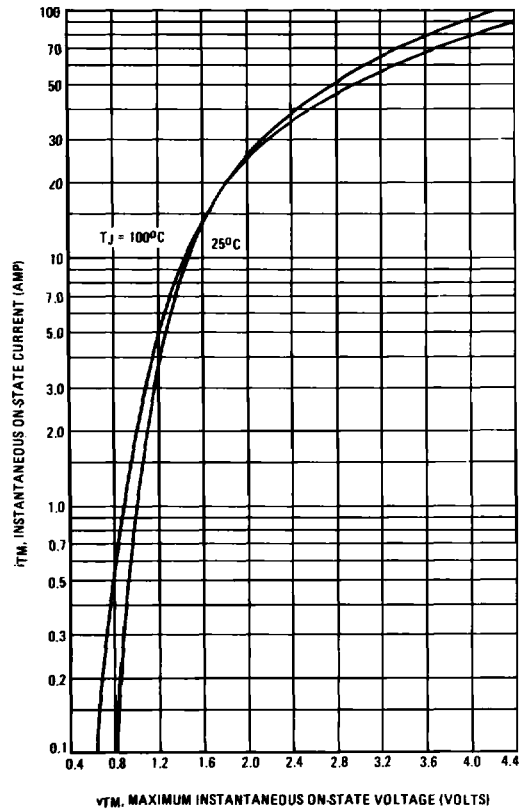

FIGURE 6 – TYPICAL HOLDING CURRENT

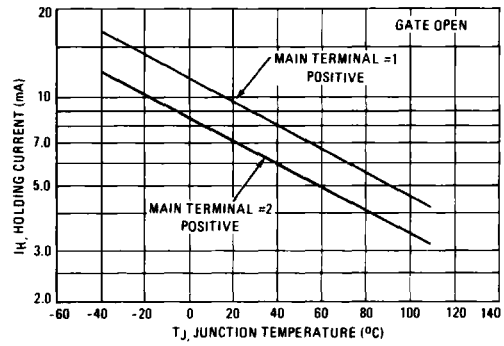

FIGURE 7 – MAXIMUM NON-REPETITIVE SURGE CURRENT

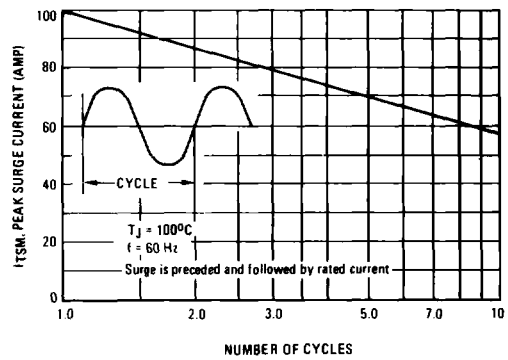

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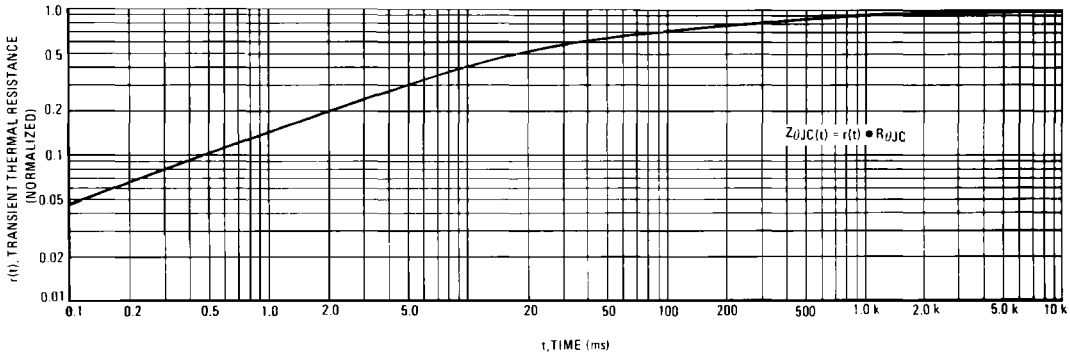
FIGURE 8 – TYPICAL THERMAL RESPONSE



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