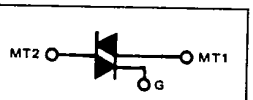
Triacs
Silicon Bidirectional Triode Thyristors

2N5571 thru 2N5574 2N6145 thru 2N6147 T4100M T4110M

TRIACs
15 AMPERES RMS
200 thru 600 VOLTS



. . . designed primarily for industrial and military applications for the control of ac loads in applications such as light dimmers, power supplies, heating controls, motor controls, welding equipment and power switching systems; or wherever full-wave, silicon gate controlled solid-state devices are needed.

- All Diffused and Glass Passivated Junctions for Greater Stability
- Pressfit, Stud and Isolated Stud Packages
- Gate Triggering Guaranteed In All 4 Quadrants

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
*Peak Repetitive Off-State Voltage (T_J = −65 to +100°C) 1/2 Sine Wave 50 to 60 Hz, Gate Open 2N5571, 2N5573, 2N6145 2N5572, 2N5574, 2N6146 T4100M, T4110M, 2N6147	V_{DRM}	 200 400 600	Volts
*Peak Gate Voltage	V_{GM}	20	Volts
*RMS On-State Current (T_C = −65 to +80°C) (T_C = +85°C)	$I_{T(RMS)}$	 15 10	Amps
*Peak Non-Repetitive Surge Current (One Full cycle of surge current at 60 Hz, preceded and followed by rated current, T_C = 85°C)	I_{TSM}	100	Amps
Circuit Fusing (T_C = −65 to +80°C, t = 1 to 8.3 ms)	I^2t	40	A^2s
Peak Gate Power *(T_C = 80°C, Pulse Width = 1 μs) 2N5571 thru 2N5574 T4100M, T4110M *(T_C = 80°C, Pulse Width = 2 μs) 2N6145 thru 2N6147	P_{GM}	 16 16 20	Watts
*Average Gate Power (T_C = 80°C, Pulse Width = 8.3 ms)	$P_{G(AV)}$	0.5	Watt
*Peak Gate Current	I_{GM}	2	Amps
*Operating Junction Temperature Range	T_J	−65 to +100	°C
*Storage Temperature Range	T_{stg}	−65 to +150	°C
Stud Torque *2N5573, 2N5574, T4110M *2N6145, 2N6146, 2N6147	—	 30	in. lb.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
*Thermal Resistance, Junction to Case	$R_{\theta JC}$	1	°C/W

*Indicates JEDEC Registered Data.

CASE 174-04
(TO-203)
STYLE 3
2N5571
2N5572
T4100M

CASE 175-03
STYLE 3
2N5573
2N5574
T4110M

CASE 311-02
STYLE 2
2N6145
2N6146
2N6147

2N5571 thru 2N5574 • 2N6145 thru 2N6147 • T4100M • T4110M

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}) T_C = 25°C T_C = 100°C	I_{DRM}, I_{RRM}	— —	— —	10 2	μA mA
*Peak On-State Voltage (I_{TM} = 21 A Peak, Pulse Width = 1 to 2 ms, Duty Cycle ≤ 2%)	V_{TM}	—	1.3	1.8	Volts
Gate Trigger Current (Continuous dc), Note 1 (V_D = 12 Vdc, R_L = 30 Ohms) MT2(+), G(+); MT2(−), G(−) MT2(+), G(−); MT2(−), G(+) *MT2(+), G(+); MT2(−), G(−), T_C = −65°C *MT2(+), G(−); MT2(−), G(+), T_C = −65°C	I_{GT}	 — — — —	 — — — —	 50 80 150 200	mA
Gate Trigger Voltage (Continuous dc) (All Quadrants) (V_D = 12 Vdc, R_L = 30 Ohms) T_C = 25°C *T_C = −65°C *(V_D = Rated V_{DRM}, R_L = 10 k ohms, T_C = +100°C)	V_{GT}	— — 0.2	— — —	2.5 4 —	Volts
Holding Current (V_D − 12 Vdc, Gate Open) (Initiating Current = 500 mA) T_C = 25°C *T_C = −65°C	I_H	— —	— —	75 300	mA
Gate Controlled Turn-On Time (Rated V_{DRM}, I_{TM} = 21 A Peak, I_{GT} = 160 mA, Rise Time = 0.1 μs, Pulse Width = 2 μs)	t_{gt}	—	1	2	μs
*Critical Rate-of-Rise of Commutation Voltage (Rated V_{DRM}, I_{TM} = 21 A Peak, Commutating di/dt = 8 A/ms, gate unenergized T_C = 80°C 2N5571 thru 2N5574, T4100M, T4110M T_C = 75°C 2N6145 thru 2N6147	dv/dt(c)	 2 2	 10 10	 — —	V/μs
Critical Rate-of-Rise of Off-State Voltage (Rated V_{DRM}, Exponential Voltage Rise, Gate Open, T_C = 100°C) *2N5571, 2N5573, 2N6145 *2N5572, 2N5574, 2N6146 T4100M, T4110M, 2N6147	dv/dt	 30 20 10	 150 100 75	 — — —	V/μs

*Indicates JEDEC Registered Data.
Note 1. All Voltage polarities referenced to main terminal 1.

FIGURE 1 – RMS CURRENT DERATING

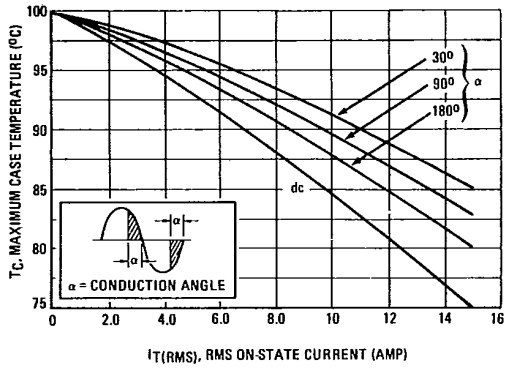


FIGURE 2 – ON-STATE POWER DISSIPATION

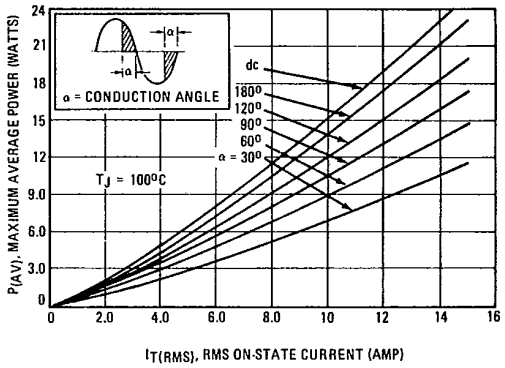


FIGURE 3 – TYPICAL GATE TRIGGER VOLTAGE

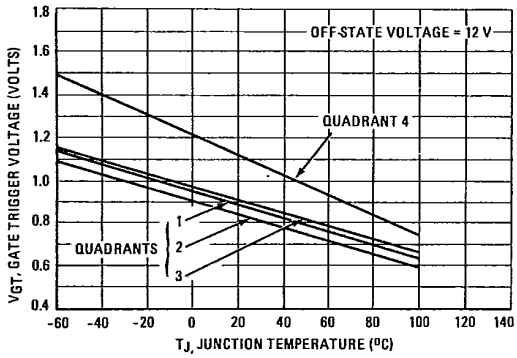


FIGURE 4 – TYPICAL GATE TRIGGER CURRENT

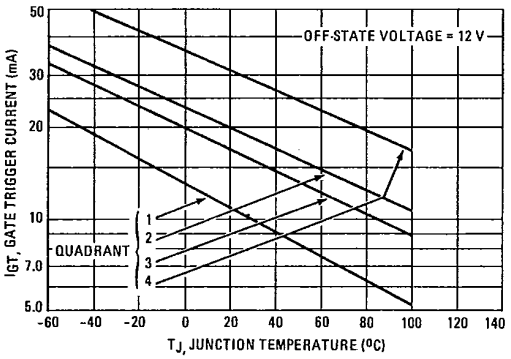


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FIGURE 5 – MAXIMUM ON-STATE CHARACTERISTICS

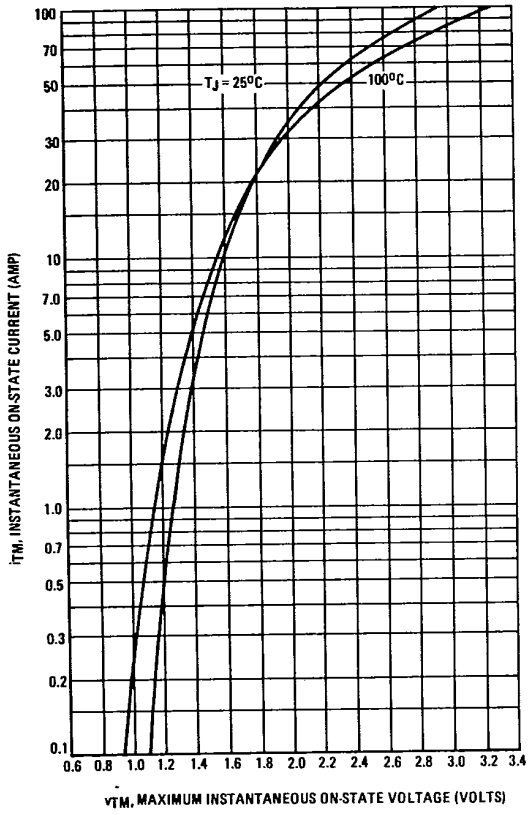

FIGURE 6 – TYPICAL HOLDING CURRENT

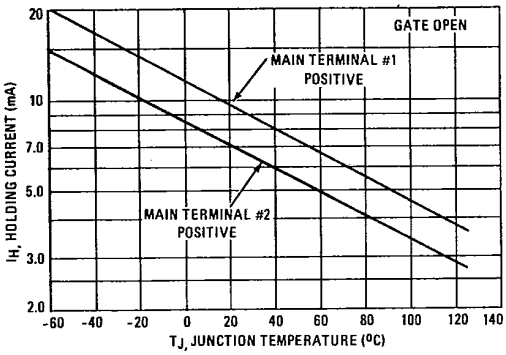

FIGURE 7 – MAXIMUM NON-REPETITIVE SURGE CURRENT

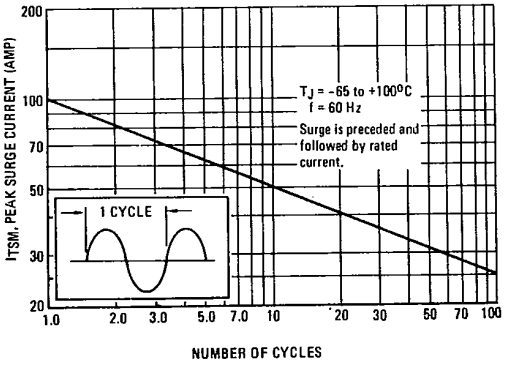

FIGURE 8 – TYPICAL THERMAL RESPONSE