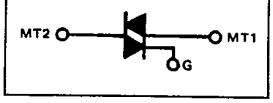
Triacs
Bidirectional Triode Thyristors

2N5567 thru 2N5570 T4101M T4111M T4121 Series

TRIACs 10 AMPERES RMS 200 thru 600 VOLTS

... designed primarily for industrial and military applications for the fullwave control of ac loads in applications such as light dimmers, power supplies, heating controls, motor controls, welding equipment and power switching systems.

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



CASE 174-04
(TO-203)
STYLE 3
2N5567
2N5568
T4101M

CASE 175-03
STYLE 3
2N5569
2N5570
T4111M

CASE 235-03
STYLE 2
T4121 SERIES

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 2N5567, 2N5569, T4121B 2N5568, 2N5570, T4121D T4101M, T4111M, T4121M	V_{DRM}	 200 400 600	Volts
*Peak Gate Voltage	V_{GM}	20	Volts
*RMS On-State Current (T_C = −65 to +85°C) (T_C = +90°C) Full cycle, Sine Wave, 50 to 60 Hz	$I_{T(RMS)}$	 10 6.7	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 Considerations (T_C = −65 to +85°C, t = 1 to 8.3 ms)	I^2t	40	A^2s
Peak Gate Power *(T_C = 85°C, Pulse Width = 1 μs)	P_{GM}	16	Watts
*Average Gate Power (T_C = 85°C, Pulse Width = 8.3 ms)	$P_{G(AV)}$	0.5	Watt
*Operating Junction Temperature Range	T_J	−65 to +100	°C
*Storage Temperature Range	T_{stg}	−65 to +150	°C
Stud Torque	—	30	in. lb.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
*Thermal Resistance, Junction to Case Stud and Pressfit Isolated Stud	$R_{\theta JC}$	 1 1.1	°C/W

*Indicates JEDEC Registered Data.

2N5567 thru 2N5570 • T4101M • T4111M • T4121 Series

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_J = 25°C	I_{DRM}, I_{RRM}	—	—	10	μA
T_J = 100°C		—	—	2	mA
*Peak On-State Voltage (I_{TM} = 14.2 A Peak, Pulse Width = 1 to 2 ms, Duty Cycle ≤ 2%)	V_{TM}	—	1.3	1.65	Volts
Gate Trigger Current (Continuous dc), Note 1 (V_D = 12 Vdc, R_L = 12 Ohms)	I_{GT}				mA
MT2(+), G(+); MT2(−), G(−)		—	—	25	
MT2(+), G(−); MT2(−), G(+)		—	—	40	
*MT2(+), G(+); MT2(−), G(−), T_C = −65°C		—	—	100	
*MT2(+), G(−); MT2(−), G(+), T_C = −65°C		—	—	150	
Gate Trigger Voltage (Continuous dc) (All Quadrants)	V_{GT}				Volts
(V_D = 12 Vdc, R_L = 12 Ohms T_C = 25°C		—	—	2.5	
*T_C = −65°C		—	—	4	
(V_D = Rated V_{DRM}, R_L = 125 Ω) T_C = 100°C		0.2	—	—	
Holding Current	I_H				mA
(V_D = 12 Vdc, Gate Open) T_C = 25°C		—	—	30	
*T_C = −65°C		—	—	200	
Gate Controlled Turn-On Time (V_D = Rated V_{DRM}, I_{TM} = 15 A Peak, I_{GT} = 160 mA, Rise Time = 0.1 μs, Pulse Width = 2 μs) MT2(+), G(+); MT2(−), G(−)	t_{gt}	—	1	2.5	μs
*Critical Rate-of-Rise of Commutation Voltage (V_D = Rated V_{DRM}, I_{TM} = 14.2 A Peak, Commutating di/dt = 5.4 A/ms, gate unenergized) T_C = 85°C	dv/dt(c)	2	10	—	V/μs
Critical Rate-of-Rise of Off-State Voltage (V_D = Rated V_{DRM}, Exponential Voltage Rise, Gate Open, T_C = 100°C)	dv/dt				V/μs
*2N5567, *2N5569, T4121B		30	150	—	
*2N5568, *2N5570, T4121D		20	100	—	
T4101M, T4111M, T4121M		10	75	—	

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

3

FIGURE 1 – RMS CURRENT DERATING (Isolated Stud)

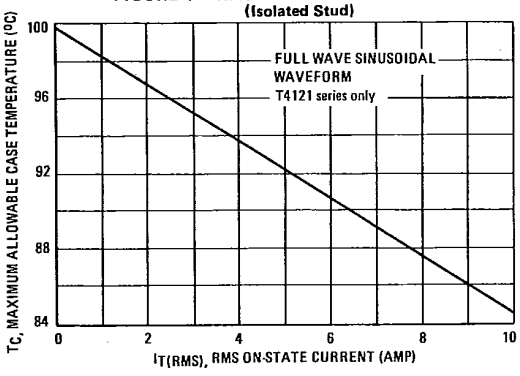


FIGURE 2 – RMS CURRENT DERATING (Pressfit and Stud)

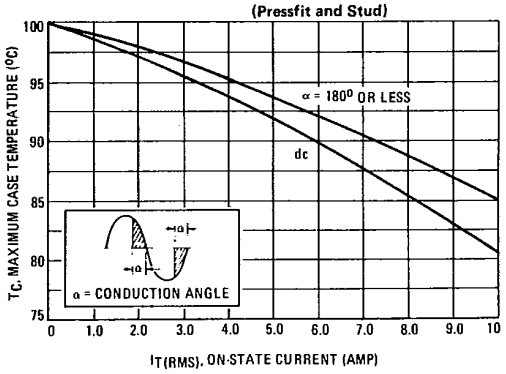


FIGURE 3 – POWER DISSIPATION
(Isolated Stud)

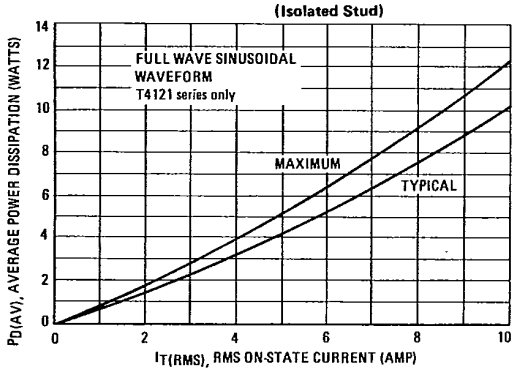


FIGURE 4 – POWER DISSIPATION
(Pressfit and Stud)

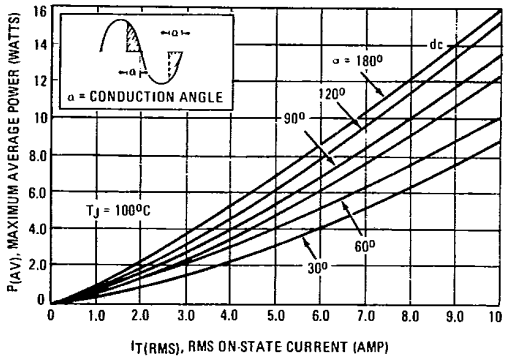


FIGURE 5 – TYPICAL GATE TRIGGER VOLTAGE

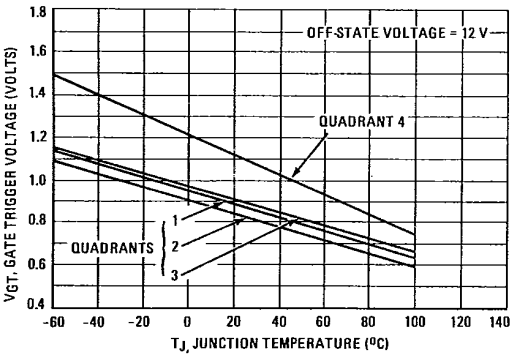


FIGURE 6 – TYPICAL GATE TRIGGER CURRENT

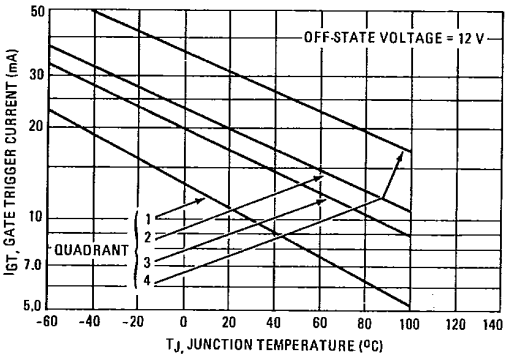


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FIGURE 7 – ON-STATE CHARACTERISTICS

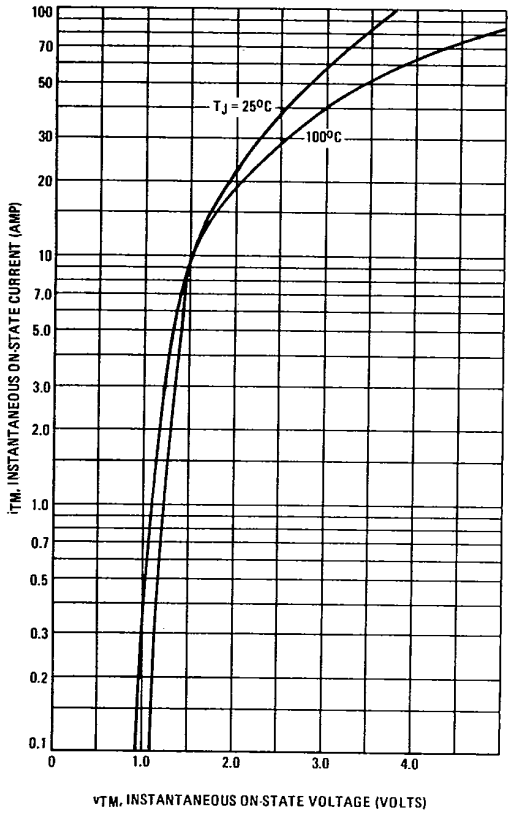

FIGURE 8 – TYPICAL HOLDING CURRENT

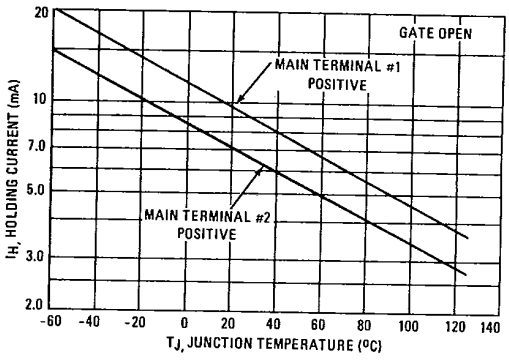

FIGURE 9 – MAXIMUM NON-REPETITIVE SURGE CURRENT

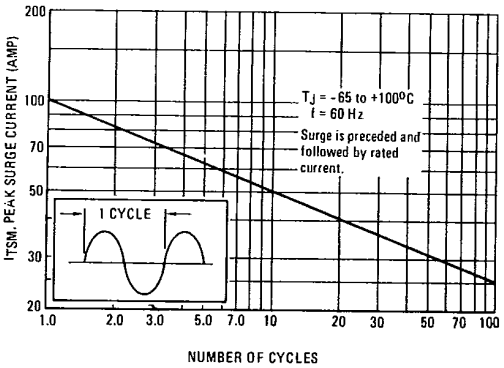

FIGURE 10 – TYPICAL THERMAL RESPONSE