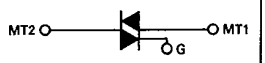
Triacs
Silicon Bidirectional Triode Thyristors

T6401
T6411
T6421
Series

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

- Glass Passivated Junctions and Center Gate Fire
- Press Fit, Stud, Isolated Stud Packages
- Gate Triggering Guaranteed In All 4 Modes

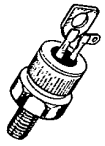
TRIACs
30 AMPERES RMS
200 thru 800 VOLTS



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Repetitive Peak Off-State Voltage, Note 1 (T_J = −65 to +100°C) Gate Open T6401B, T6411B, T6421B T6401D, T6411D, T6421D T6401M, T6411M, T6421M T6401N, T6411N, T6421N	V_{DRM}	 200 400 600 800	Volts
On-State Current RMS (Conduction Angle = 360°) $T_C \leq +65°C$	$I_{T(RMS)}$	30	Amps
Peak Non-Repetitive Surge Current (One Full Cycle, 60 Hz)	I_{TSM}	300	Amps
Circuit Fusing (T_J = −65 to +100°C, t = 1.25 to 10 ms)	I^2t	450	A^2s
Peak Gate Power (Pulse Width = 1 μs)	P_{GM}	40	Watts
Average Gate Power	$P_{G(AV)}$	0.75	Watt
Peak Gate Current Pulse Width ≤ 1 μs)	I_{GTM}	2	Amps
Operating Case Temperature Range	T_C	−65 to +100	°C
Storage Temperature Range	T_{stg}	−65 to +150	°C
Stud Torque	—	30	in. lb.

CASE 263-04
STYLE 2
T6401
PRESS FIT



CASE 310-02
STYLE 2
T6411
STUD

CASE 311-02
STYLE 2
T6421
ISOLATED STUD

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case Pressfit Stud Isolated Stud	$R_{\theta JC}$	0.8 0.9 1	°C/W

Note 1. Ratings apply for open gate conditions. Thyristor devices shall not be tested with a constant current source for blocking capability such that the voltage applied exceeds the rated blocking voltage.

T6401 • T6411 • T6421 Series

ELECTRICAL CHARACTERISTICS (T_C = 25°C, and Either Polarity of MT2 to MT1, 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 T_J = 100°C	I_{DRM}, I_{RRM}	— —	— —	10 4	μA mA
Maximum On-State Voltage (Either Direction) - (I_T = 100 A Peak)	V_{TM}	—	2.1	2.5	Volts
Gate Trigger Current (Continuous dc), Note 1 (V_D = 12 Vdc, R_L = 30 Ohms $V_{MT2(+)}$, $V_{G(+)}$; $V_{MT2(-)}$, $V_{G(-)}$ $V_{MT2(+)}$, $V_{G(-)}$; $V_{MT2(-)}$, $V_{G(+)}$	I_{GT}	 — —	 20 35	 50 80	mA
Gate Trigger Voltage (Continuous dc) (All Trigger Modes) (V_D = 12 Vdc, R_L = 30 Ohms) (V_D = Rated V_{DRM}, R_L = 125 Ohms, T_C = 100°C)	V_{GT}	— 0.2	1.35 —	2.5 —	Volts
Holding Current (V_D = 12 Vdc, Gate Open) (I_T = 150 mA)	I_{HO}	—	—	60	mA
Gate Controlled Turn-On Time (V_D = Rated V_{DRM}, I_{TM} = 45 A, I_{GT} = 200 mA, Rise Time = 0.1 μs)	t_{gt}	—	1.7	3	μs
Critical Rate of Rise of Commutation Voltage, On-State Conditions (di/dt = 16 A/ms, Gate Unenergized, V_D = Rated V_{DRM}, $I_{T(RMS)}$ = 30 A, T_C = Rated Value from Figure 1)	dv/dt(c)	3	20	—	V/μs
Critical Rate of Rise of Off-State Voltage (V_D = Rated V_{DRM}, Exponential Rise, T_C = 100°C) T6401B, T6411B, T6421B T6401D, T6411D, T6421D T6401M, T6411M, T6421M T6401N, T6411N, T6421N	dv/dt	 40 25 20 20	 — — — —	 — — — —	V/μs

Note 1. All voltage polarities referenced to main terminal 1.

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FIGURE 1 – CURRENT DERATING

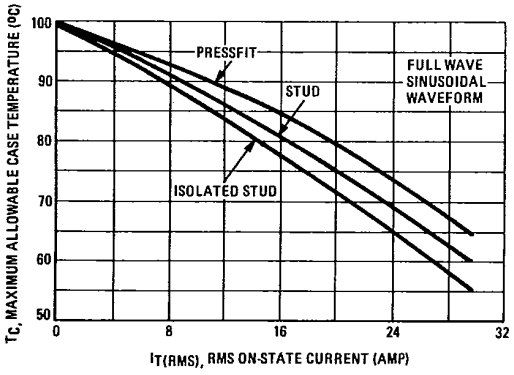

FIGURE 2 – POWER DISSIPATION