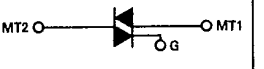
Triacs
Silicon Bidirectional Triode Thyristors

T6400
T6410
T6420
Series

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

- Glass Passivated Junctions and Center Gate Fire
- Press Fit Stud — T6400
  Stud — T6410
  Isolated Stud — T6420
- Gate Triggering Guaranteed in All 4 Quadrants

TRIACs
40 AMPERES RMS
200 thru 800 VOLTS



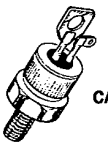
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Off-State Voltage, Note 1 (T_J = −65 to +110°c) Gate Open T6400B, T6410B, T6420B T6400D, T6410D, T6420D T6400M, T6410M, T6420M T6400N, T6410N, T6420N	V_{DRM}	 200 400 600 800	Volts
On-State Current RMS (T_C (Pressfit) = 70°C (Conduction Angle = 360°) T_C (Stud) = 65°C	$I_{T(RMS)}$	40	Amps
Peak Surge Current (Non-Repetitive) (One Full Cycle, 60 Hz)	I_{TSM}	300	Amps
Circuit Fusing (T_J = −65 to +110°C, t = 1.25 to 10 ms)	I^2t	450	A^2s
Peak Gate Power (Pulse Width = 10 μs)	P_{GM}	40	Watts
Average Gate Power	$P_{G(AV)}$	0.75	Watt
Peak Gate Current (Pulse Width = 1 μs)	I_{GTM}	12	Amps
Operating Temperature Range	T_C	−65 to +110	°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 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.



CASE 263-04
STYLE 2
T6410
STUD

CASE 310-02
STYLE 2
T6400
PRESS FIT

CASE 311-02
STYLE 2
T6420
ISOLATED STUD

ELECTRICAL CHARACTERISTICS (T_C = 25°C 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 = 110°C		—	—	4	mA
Maximum On-State Voltage (Either Direction) (I_T = 100 A Peak)	V_{TM}	—	1.5	2	Volts
Gate Trigger Current (Continuous dc), Note 1 (V_D = 12 Vdc, R_L = 30 Ohms	I_{GT}				mA
$V_{MT2(+)}$, $V_{G(+)}$		—	15	50	
$V_{MT2(+)}$, $V_{G(-)}$		—	30	80	
$V_{MT2(-)}$, $V_{G(-)}$		—	20	50	
$V_{MT2(-)}$, $V_{G(+)}$		—	40	80	
$V_{MT2(+)}$, $V_{G(+)}$, $V_{MT2(-)}$, $V_{G(-)}$, T_C = −65°C		—	—	125	
$V_{MT2(+)}$, $V_{G(-)}$, $V_{MT2(-)}$, $V_{G(+)}$, T_C = −65°C		—	—	240	
Gate Trigger Voltage (Continuous dc) (V_D = 12 Vdc, R_L = 30 Ohms, T_C = 25°C	V_{GT}	—	1.35	2.5	Volts
T_C = −65°C		—	—	3.4	
(V_D = Rated V_{DRM}, R_L = 125 Ohms, T_C = 110°C)		0.2	—	—	
Holding Current (Either Direction) (V_D = 12 Vdc, Gate Open) (Initiating Current = 500 mA) T_C = 25°C	I_{HO}	—	25	60	mA
T_C = −65°C		—	—	100	
Gate Controlled Turn-On Time (Rated V_{DRM}, I_T = 60 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 = 22 A/ms, Gate Unenergized, V_D = Rated V_{DROM}, $I_{T(RMS)}$ = 40 A, T_C (Pressfit) = 70°C T_C (Stud) = 65°C	dv/dt(c)	—	5	—	V/μs

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

FIGURE 1 – ON-STATE POWER DISSIPATION

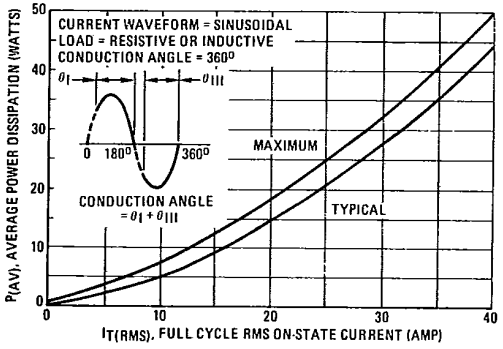


FIGURE 2 – RMS CURRENT DERATING