DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

T2800 SERIES

SILICON BIDIRECTIONAL THYRISTORS

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Repetitive peak off-stage voltage(1) (T_J = -40 to +100°C, gate open) T2800B T2800C T2800D T2800E T2800M	V_{DRM}	 200 300 400 500 600	Volts
RMS on-state current (conduction angle = 360°, T_C = 80°C)	$I_{T(RMS)}$	8	Amps
Peak non-repetitive surge current (One Cycle, 60Hz, T_J = 80°C)	I_{TSM}	100	Amps
Circuit fusing considerations (T_J = -40 to +100°C, t = 1.25 to 10ms)	I^2t	 50	A^2s
Peak gate power (pulse width = 1.0µs)	P_{GM}	16	Watts
Average gate power	$P_{G(AV)}$	0.35	Watts
Peak gate trigger current (pulse width = 1.0µs)	I_{GM}	4	Amps
Operating junction temperature range	T_J	-40 to +100	°C
Storage temperature range	T_{stg}	-40 to +150	°C

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.

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Thermal resistance, junction to case	$R_{\Theta JC}$	2.2	°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°C and either polarity of MT2 to MT1 voltage unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Peak off state current (Rated V_{DRM} @ T_C = 100°C, gate open)	I_{DRM}	-	-	2	mA
Peak on-state voltage (I_{TM} = 30A peak)	V_{TM}	-	1.7	2	Volts
DC gate trigger current (continuous dc) (V_D = 12V, R_L = 12Ω) MT2(+), G(+) MT2(+), G(-) MT2(-), G(-) MT2(-), G(+)	I_{GT}	 - - - -	 10 20 15 30	 25 60 25 60	mA
DC gate trigger voltage (continuous dc) all polarities (V_D = 12V, R_L = 100Ω) (V_D = V_{DRM}, R_L = 125Ω, T_C = 100°C)	V_{GT}	- 0.2	1.25 -	2.5 -	Volts
Holding current (either direction) (V_D = 12V, gate open, I_T = 125mA)	I_H	-	15	30	mA

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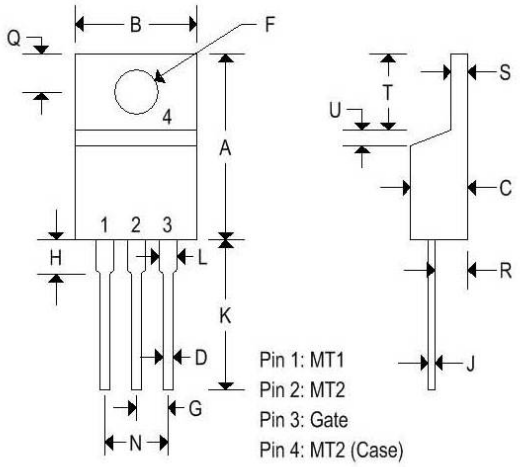
Gate controlled turn on time (V_D = Rated V_{DRM}, I_T = 10A, I_{GT} = 80mA, rise time = 0.1µs)	t_{gt}	-	1.6	-	µs
Critical rate of rise of commutating voltage (Rated V_{DRM}, $I_{T(RMS)}$ = 8A, commutating di/dt = 4.3A/ms, gate unenergized, T_C = 80°C)	dv/dt(c)	-	10	-	V/µs
Critical rate of rise of off-state voltage (Rated V_{DRM}, exponential voltage rise, gate open, T_C = 100°C)	dv/dt				V/µs
T2800B		100	-	-	
T2800C		85	-	-	
T2800D		75	-	-	
T2800E		65	-	-	
T2800M		60	-	-	

MECHANICAL CHARACTERISTICS

Case	TO-220AB
Marking	Alpha-numeric
Pin out	See below



	TO-220AB			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.575	0.620	14.600	15.750
B	0.380	0.405	9.650	10.290
C	0.160	0.190	4.060	4.820
D	0.025	0.035	0.640	0.890
F	0.142	0.147	3.610	3.730
G	0.095	0.105	2.410	2.670
H	0.110	0.155	2.790	3.930
J	0.014	0.022	0.360	0.560
K	0.500	0.562	12.700	14.270
L	0.045	0.055	1.140	1.390
N	0.190	0.210	4.830	5.330
Q	0.100	0.120	2.540	3.040
R	0.080	0.110	2.040	2.790
S	0.045	0.055	1.140	1.390
T	0.235	0.255	5.970	6.480
U	-	0.050	-	1.270
V	0.045	-	1.140	-
Z	-	0.080	-	2.030

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FIGURE 1 – CURRENT DERATING

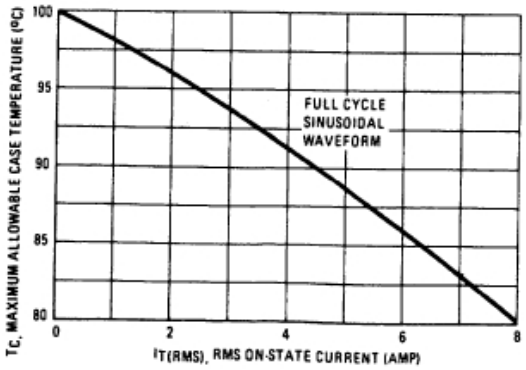

FIGURE 2 – POWER DISSIPATION