DIGITRON SEMICONDUCTORS

T2801 SERIES — BIDIRECTIONAL TRIODE THYRISTORS

Available Non-RoHS (standard) or RoHS compliant (add PBF suffix).
Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Repetitive peak off-stage voltage(1) (T_J = -40 to +100°C, gate open) T2801B T2801C T2801D T2801E T2801M	V_{DRM}	 200 300 400 500 600	Volts
RMS on-state current (conduction angle = 360°, T_C = 80°C)	$I_{T(RMS)}$	6	Amps
Peak non-repetitive surge current (One Cycle, 60Hz)	I_{TSM}	80	Amps
Circuit fusing considerations (T_J = -40 to +100°C, t = 1 to 8.3ms)	I^2t	35	A^2s
Peak gate power (pulse width = 2.0µs, T_C = 80°C)	P_{GM}	16	Watts
Average gate power (T_C = 80°C, t = 8.3ms)	$P_{G(AV)}$	0.35	Watts
Peak 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, either polarity of MT2 to MT1 voltage unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Peak off state current (Rated V_{DRM} @ T_J = 100°C)	I_{DRM}	-	-	2	mA
Peak on-state voltage (I_{TM} = 30A peak, pulse width = 1 to 2ms, duty cycle ≤ 2%)	V_{TM}	-	2	3	Volts
DC gate trigger current (continuous dc)(2) (V_D = 12V, R_L = 12Ω)	I_{GT}	-	25	80	mA
DC gate trigger voltage (continuous dc) (2) (V_D = 12V, R_L = 12Ω) (V_D = V_{DRM}, R_L = 125Ω, T_C = 100°C)	V_{GT}	- 0.2	1.5 -	4 -	Volts
Holding current (either direction) (V_D = 12V, gate open, I_T = 150mA)	I_H	-	100	-	mA
Gate controlled turn on time(2) (V_D = Rated V_{DRM}, I_T = 10A, I_{GT} = 80mA, rise time = 0.1µs)	t_{gt}	-	2.2	-	µs
Critical rate of rise of commutating voltage (Rated V_{DRM}, $I_{T(RMS)}$ = 6A, 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) T2801B T2801C T2801D T2801E	dv/dt	 50 40 30 20	 - - - -	 - - - -	V/µs

Note 2: Applies for MT2(+), G(+); MT2(-), G (-)

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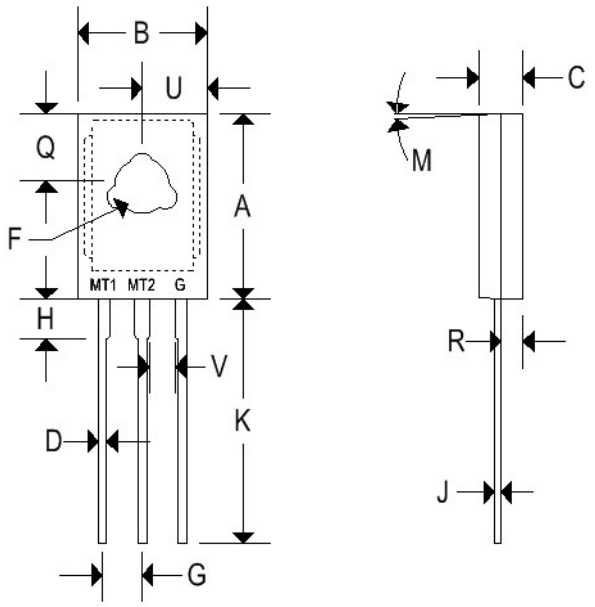
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D I G I T R O N S E M I C O N D U C T O R S

T2801 SERIES — BIDIRECTIONAL TRIODE THYRISTORS

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

FIGURE 1 – CURRENT DERATING

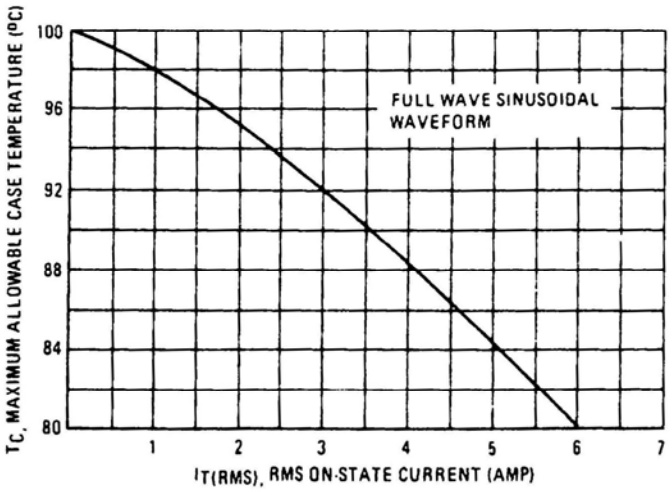
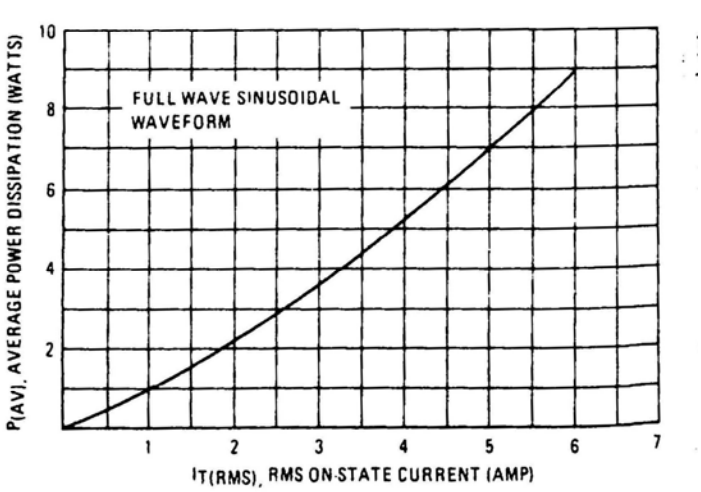


FIGURE 2 – POWER DISSIPATION



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