

# DIGITRON SEMICONDUCTORS

## T2500 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
<b>Repetitive peak off-stage voltage</b> <sup>(1)</sup> (T <sub>J</sub> = -40 to +100°C, gate open) T2500B T2500D T2500M T2500N	V <sub>DRM</sub>	200 400 600 800	Volts
<b>RMS on-state current</b> (full sine wave 50 to 60Hz, T <sub>C</sub> = 80°C)	I <sub>T(RMS)</sub>	6	Amps
<b>Peak non-repetitive surge current</b> (One Cycle, 60Hz, T <sub>C</sub> = 80°C)	I <sub>TSM</sub>	60	Amps
<b>Circuit fusing considerations</b> (T <sub>J</sub> = -40 +100°C, t = 1.25 to 10ms)	I <sup>2</sup> t	18	A <sup>2</sup> s
<b>Peak gate power</b> (T <sub>C</sub> = 80°C, pulse width = 1.0μs)	P <sub>GM</sub>	16	Watts
<b>Average gate power</b> (T <sub>C</sub> = 80°C, t = 8.3ms)	P <sub>G(AV)</sub>	0.2	Watts
<b>Peak trigger current</b> (pulse width = 10μs)	I <sub>GM</sub>	4	Amps
<b>Operating junction temperature range</b>	T <sub>J</sub>	-40 to +100	°C
<b>Storage temperature range</b>	T <sub>stg</sub>	-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
<b>Thermal resistance, junction to case</b>	R <sub>θJC</sub>	2.7	°C/W

### ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C, either polarity of MT2 to MT1 voltage unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>Peak off state current</b> (Rated V <sub>DRM</sub> @ T <sub>J</sub> = 100°C, gate open)	I <sub>DRM</sub>	-	-	2	mA
<b>Peak on-state voltage</b> (I <sub>TM</sub> = 30A peak)	V <sub>TM</sub>	-	-	2	Volts
<b>DC gate trigger current</b> (continuous dc) (V <sub>D</sub> = 12V, R <sub>L</sub> = 12Ω) MT2(+), G(+) MT2(+), G(-) MT2(-), G(-) MT2(-), G(+)	I <sub>GT</sub>	-	10 20 15 30	25 60 25 60	mA
<b>DC gate trigger voltage</b> (continuous dc) all quadrants (V <sub>D</sub> = 12V, R <sub>L</sub> = 12Ω) (V <sub>D</sub> = V <sub>DRM</sub> , R <sub>L</sub> = 125Ω, T <sub>C</sub> = 100°C)	V <sub>GT</sub>	- 0.2	1.25 -	2.5 -	Volts
<b>Holding current</b> (either direction) (V <sub>D</sub> = 12V, gate open, I <sub>T</sub> = 150mA, T <sub>C</sub> = 25°C)	I <sub>H</sub>	-	15	30	mA
<b>Gate controlled turn on time</b> (V <sub>D</sub> = Rated V <sub>DRM</sub> , I <sub>T</sub> = 10A, I <sub>GT</sub> = 160mA, rise time = 0.1μs)	t <sub>gt</sub>	-	1.6	-	μs
<b>Critical rate of rise of commutating voltage</b> (Rated V <sub>DRM</sub> , I <sub>T(RMS)</sub> = 6A, commutating di/dt = 3.2A/ms, gate unenergized, T <sub>C</sub> = 80°C)	dv/dt(c)	-	10	-	V/μs
<b>Critical rate of rise of off-state voltage</b> (Rated V <sub>DRM</sub> , exponential voltage rise, gate open, T <sub>C</sub> = 100°C) T2500B T2500D, M, N	dv/dt	100 75	- -	- -	V/μs

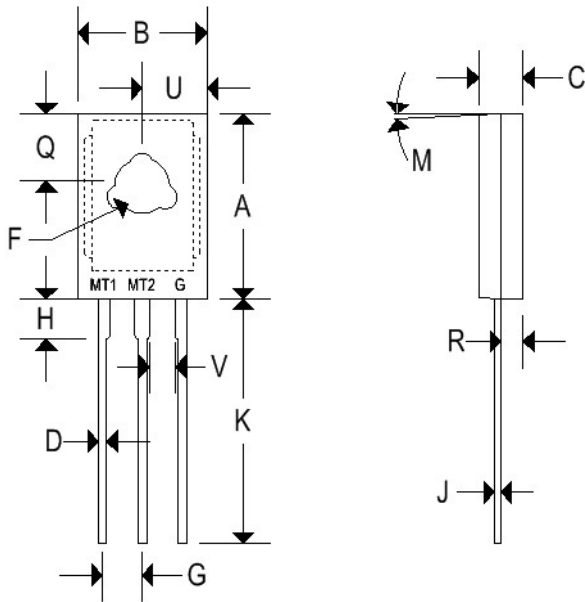
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BIDIRECTIONAL TRIODE THYRISTORS

## 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