

# DIGITRON SEMICONDUCTORS

## T2322, T2323 SERIES SENSITIVE GATE TRIACS

## SILICON BIDIRECTIONAL THYRISTORS 2.5 AMPERES RMS; 50 THROUGH 600 VOLTS

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 (T<sub>J</sub> = 25°C unless otherwise noted)

Rating	Suffix	Symbol	Value	Unit
<b>Peak Repetitive Off-State Voltage</b> (Note 1) (T <sub>J</sub> = 25 to 100°C, Gate Open) <b>T2322, T2323</b>	F	V <sub>DRM</sub>	50	V
	A		100	
	B		200	
	C		300	
	D		400	
	E		500	
	M		600	
<b>RMS On-State Current (T<sub>C</sub> = 70°C)</b> (Full Cycle Sine Wave 50 to 60 Hz)		I <sub>T(RMS)</sub>	2.5	A
<b>Peak Non-Repetitive Surge Current</b> (One Full Cycle, 60 Hz)		I <sub>TSM</sub>	25	A
<b>Circuit Fusing (t ≤ 8.3ms)</b>		I <sup>2</sup> t	2.6	A <sup>2</sup> s
<b>Peak-Gate Power (1μs)</b>		P <sub>GM</sub>	10	W
<b>Average Gate Power</b> (T <sub>C</sub> = 60°C)		P <sub>G(AV)</sub>	0.15	W
<b>Peak Gate Current (1μs)</b>		I <sub>GM</sub>	0.5	A
<b>Operating Junction Temperature Range</b>		T <sub>J</sub>	-40 to +110	°C
<b>Storage Temperature Range</b>		T <sub>stg</sub>	-40 to +150	°C
<b>Mounting Torque (6-32 Screw)</b> (Note 2)		-	8.0	In. lb.

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
<b>Thermal Resistance Junction to Case</b>	R <sub>θJC</sub>	3.5	°C/W
<b>Thermal Resistance Junction to Ambient</b>	R <sub>θJA</sub>	60	°C/W

### ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise noted; Electrical characteristics apply in both directions)

Characteristics	Symbol	Min	Typ	Max	Unit
<b>Peak Blocking Current</b> (V <sub>D</sub> = Rated V <sub>DRM</sub> , Gate Open)	I <sub>DRM</sub>	T <sub>J</sub> = 25°C	-	10	μA
		T <sub>J</sub> = 100°C	-	0.75	mA
<b>Peak On-State Voltage</b> (Note 3) (I <sub>TM</sub> = 10A)	V <sub>TM</sub>	T2323 Series	-	1.7	V
		T2322 Series	-	2.2	
<b>Gate Trigger Current</b> (Continuous dc) (V <sub>D</sub> = 12V, R <sub>L</sub> = 30Ω) <b>All Modes</b> MT2(+), G(+); MT2(-), G(-) MT2(+), G(-); MT2(-), G(+)	I <sub>GT</sub>	T2322 Series	-	10	mA
		T2323 Series	-	25	
		T2323 Series	-	40	
<b>Gate Trigger Voltage</b> (Continuous dc) (V <sub>D</sub> = 12 Vdc, R <sub>L</sub> = 30Ω, T <sub>C</sub> = 25°C) (V <sub>D</sub> = V <sub>DRM</sub> , R <sub>L</sub> = 125Ω, T <sub>C</sub> = 100°C)	V <sub>GT</sub>	-	1	2.2	V
		0.15	-	-	
<b>Holding Current</b> (V <sub>D</sub> = 12V, I <sub>TM</sub> = 150mA, Gate Open)	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>TM</sub> = 10A pK, I <sub>G</sub> = 60mA)	t <sub>gt</sub>	-	1.8	2.5	μs
<b>Critical Rate of Rise of Off-State Voltage</b> (V <sub>D</sub> = Rated V <sub>DRM</sub> , Exponential Waveform, T <sub>C</sub> = 100°C)	dv/dt	10	100	-	V/μs

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<b>Critical Rate of Rise of Commutation Voltage</b> ( $V_D = \text{Rated } V_{DRM}$ , $I_{TM} = 3.5 \text{ A pk}$ , Commutating $di/dt = 1.26 \text{ A/ms}$ , Gate Unenergized, $T_C = 90^\circ\text{C}$ )	$dv/dt(c)$	1.0	4.0	-	$V/\mu\text{s}$
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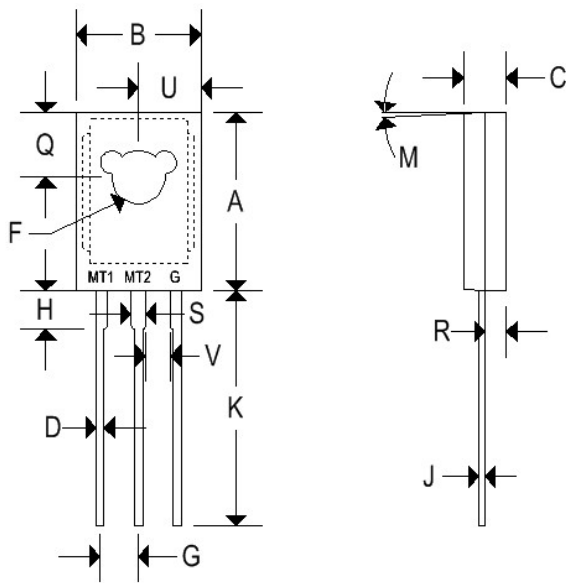
Note 1:  $V_{DRM}$  for all types can be applied on a continuous basis. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

Note 2: Torque rating applies with use of torque washer. Mounting Torque in excess of 6 in. lb. does not appreciably lower case-to-sink thermal resistance. Main terminal 2 and heat-sink contact pad are common. For soldering purposes (either terminal connection or device mounting), soldering temperatures shall not exceed  $+200^\circ\text{C}$ , for 10 seconds.

Note 3: Pulse Test: Pulse Width  $\leq 300\text{ms}$ , Duty Cycle  $\leq 2\%$ .

### MECHANICAL CHARACTERISTICS

<b>Case</b>	TO-126
<b>Marking</b>	Alpha-numeric
<b>Pin out</b>	See below



	TO-126			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.425	0.435	10.80	11.050
B	0.295	0.305	7.490	7.750
C	0.095	0.105	2.410	2.670
D	0.020	0.026	0.510	0.660
F	0.115	0.125	2.920	3.180
G	0.091	0.097	2.310	2.460
H	0.050	0.095	1.270	2.410
J	0.015	0.025	0.380	0.640
K	0.595	0.655	15.110	16.640
M	3° TYP		3° TYP	
Q	0.148	0.158	3.760	4.010
R	0.045	0.055	1.140	1.400
S	0.025	0.035	0.640	0.890
U	0.145	0.155	3.680	3.940
V	0.040	-	1.020	-