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ON Semiconductor
T2322B

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sales@integrated-circuit.com

T2322B

Sensitive Gate Triacs

Silicon Bidirectional Thyristors

Designed primarily for ac power switching. The gate sensitivity of these triacs permits the use of economical transistorized or integrated circuit control circuits, and it enhances their use in low-power phase control and load-switching applications.

Features

- Very High Gate Sensitivity
- Low On-State Voltage at High Current Levels
- Glass-Passivated Chip for Stability
- Small, Rugged Thermopad Construction for Low Thermal Resistance, High Heat Dissipation and Durability
- Pb−Free Package is Available*

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Peak Repetitive Off-State Voltage (Note 1) (T_J = 25 to 110°C, Gate Open)	V_{DRM}, V_{RRM}	200	V
On-State RMS Current (T_C = 70°C) (Full Cycle Sine Wave 50 to 60 Hz)	$I_{T(RMS)}$	2.5	A
Peak Non−Repetitive Surge Current (One Full Cycle, Sine Wave 60 Hz, T_C = 70°C)	I_{TSM}	25	A
Circuit Fusing Consideration (t = 8.3 ms)	I^2t	2.6	A^2s
Peak Gate Power (Pulse Width ≤ 10 μs, T_C = 70°C)	P_{GM}	10	W
Average Gate Power (t = 8.3 ms, T_C = 70°C)	$P_{G(AV)}$	0.5	W
Peak Gate Current (Pulse Width = 10 μs, T_C = 70°C)	I_{GM}	0.5	A
Operating Junction Temperature Range	T_J	−40 to +110	°C
Storage Temperature Range	T_{stg}	−40 to +150	°C
Mounting Torque (6-32 Screw) (Note 2)	−	8.0	in. lb.

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

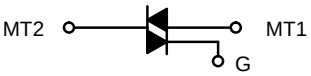
1. V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.
2. Torque rating applies with use of torque washer (Shakeproof WD19523 or equivalent). Mounting Torque 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.

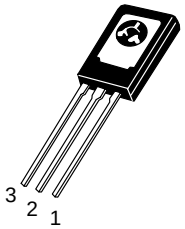
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

ON Semiconductor®

http://onsemi.com

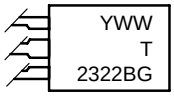
TRIACS
2.5 AMPERES RMS
200 VOLTS





TO−225AA
(formerly TO−126)
CASE 077
STYLE 5

MARKING DIAGRAM



Y = Year
WW = Work Week
T2322B = Device Code
G = Pb−Free Package

PIN ASSIGNMENT	
1	Main Terminal 1
2	Main Terminal 2
3	Gate

ORDERING INFORMATION

Device	Package	Shipping
T2322B	TO225AA	500 Units/Box
T2322BG	TO225AA (Pb−Free)	500 Units/Box

T2322B

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	3.5	°C/W
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	60	°C/W
Maximum Lead Temperature for Soldering Purposes 1/8″ from Case for 10 Sec	T_L	260	°C

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted; Electricals apply in both directions)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Peak Repetitive Blocking Current (V_D = Rated V_{DRM}, $V_{RRM;}$ Gate Open)	T_J = 25°C T_J = 110°C	$I_{DRM,}$ I_{RRM}	− −	− 0.2	10 0.75	μA mA
ON CHARACTERISTICS						
Peak On-State Voltage (Note 3) (I_{TM} = ±10 A)		V_{TM}	−	1.7	2.2	V
Gate Trigger Current (Continuous dc) (V_D = 12 V, R_L = 100 Ω) All Quadrants		I_{GT}	−	−	10	mA
Gate Trigger Voltage (Continuous dc) (V_D = 12 Vdc, R_L = 100 Ω, T_C = 25°C)		V_{GT}	−	1.0	2.2	V
Gate Non−Trigger Voltage (V_D = 12 V, R_L = 100 Ω, T_C = 110°C)		V_{GD}	0.15	−	−	V
Holding Current (V_D = 12 V, I_T (Initiating Current) = ±200 mA, Gate Open)		I_H	−	15	30	mA
Gate Controlled Turn-On Time (V_D = Rated V_{DRM}, I_{TM} = 10 A pk, I_G = 60 mA, tr = 0.1 μsec)		t_{gt}	−	1.8	2.5	μs
DYNAMIC CHARACTERISTICS						
Critical Rate-of-Rise of Off-State Voltage (V_D = Rated V_{DRM}, Exponential Waveform, T_C = 100°C)		dv/dt	10	100	−	V/μs
Critical Rate-of-Rise of Commutation Voltage (V_D = Rated V_{DRM}, I_{TM} = 3.5 A pk, Commutating di/dt = 1.26 A/ms, Gate Unenergized, T_C = 90°C)		dv/dt(c)	1.0	4.0	−	V/μs

3. Pulse Test: Pulse Width ≤ 1.0 ms, Duty Cycle ≤ 2%.

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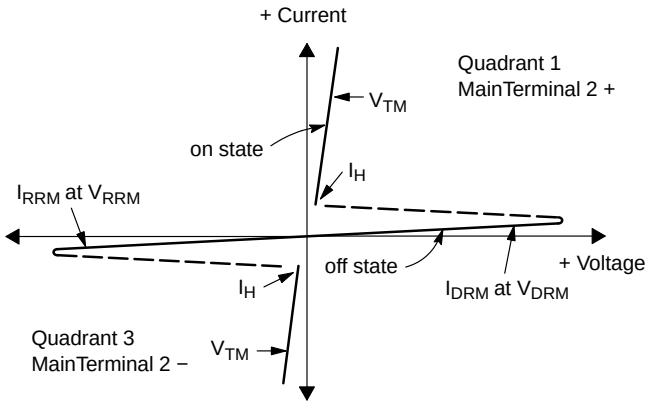
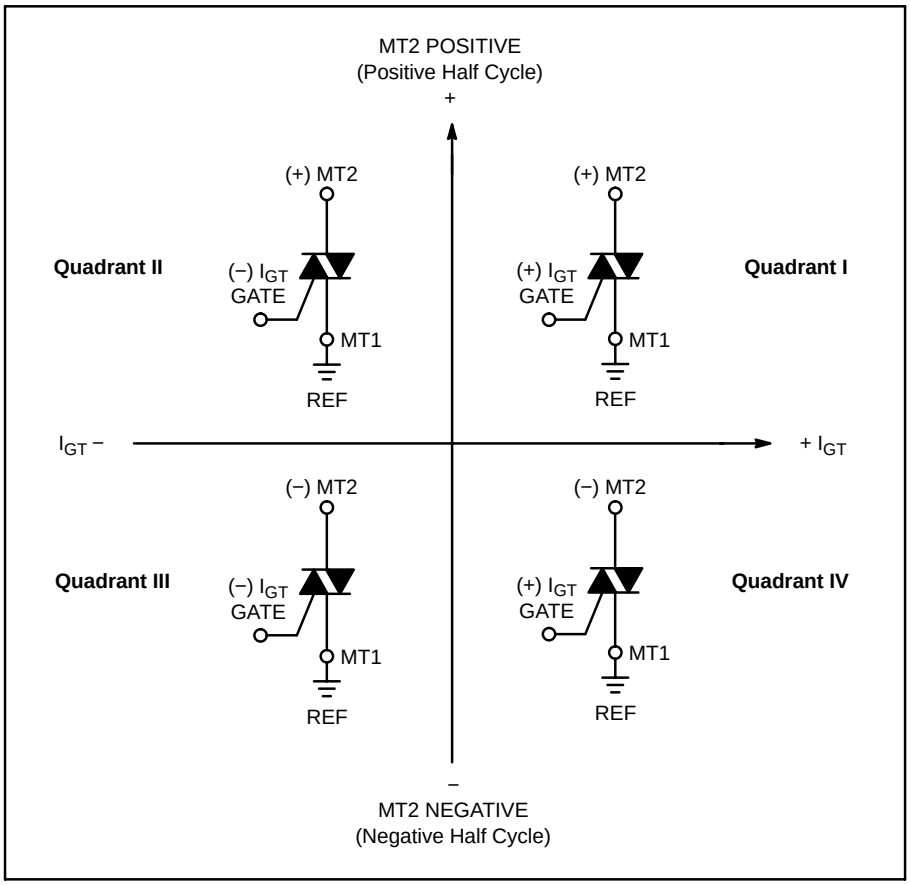
Voltage Current Characteristic of Triacs (Bidirectional Device)

Symbol	Parameter
V_{DRM}	Peak Repetitive Forward Off State Voltage
I_{DRM}	Peak Forward Blocking Current
V_{RRM}	Peak Repetitive Reverse Off State Voltage
I_{RRM}	Peak Reverse Blocking Current
V_{TM}	Maximum On State Voltage
I_H	Holding Current



Quadrant Definitions for a Triac

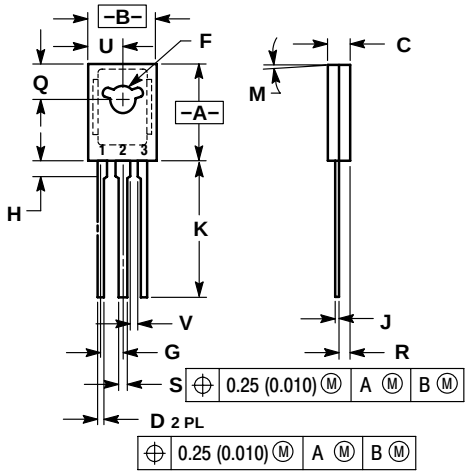


All polarities are referenced to MT1.
With in−phase signals (using standard AC lines) quadrants I and III are used.

T2322B

PACKAGE DIMENSIONS

TO−225
CASE 77−09
ISSUE Z



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 077−01 THRU −08 OBSOLETE, NEW STANDARD 077−09.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.425	0.435	10.80	11.04
B	0.295	0.305	7.50	7.74
C	0.095	0.105	2.42	2.66
D	0.020	0.026	0.51	0.66
F	0.115	0.130	2.93	3.30
G	0.094 BSC		2.39 BSC	
H	0.050	0.095	1.27	2.41
J	0.015	0.025	0.39	0.63
K	0.575	0.655	14.61	16.63
M	5° TYP		5° TYP	
Q	0.148	0.158	3.76	4.01
R	0.045	0.065	1.15	1.65
S	0.025	0.035	0.64	0.88
U	0.145	0.155	3.69	3.93
V	0.040	---	1.02	---

STYLE 5:
PIN 1. MT 1
2. MT 2
3. GATE

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
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T2322/D