T8M10T800UD/T8M35T800UD

TRIACS
SILICON BIDIRECTIONAL THYRISTORS

Product Summary

V_{DRM} V_{RRM}	$I_{T(RMS)}$	I_{GT}	T_J
800V	8A	10mA 35mA	+125°C

Features

- Glass Passivated for Voltage Ruggedness and Reliability
- High Voltage Capability
- High Junction Operating Temperature Capability
- Triggering in Three Quadrants Only
- Internally Insulated Package
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

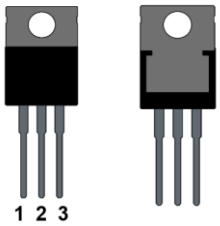
Mechanical Data

- Package: TO220AB
- Package Material: Molded Plastic, "Green" Molding Compound UL Flammability Classification Rating 94V-0
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 2.08 grams (Approximate)

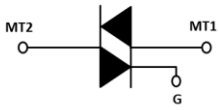
Applications

- General-purpose motor controls
- Power control tools, electric drills, heating systems
- Home applications, fan controls, light dimmers, food processors, coffee machines

TO220AB (Type WX)



PIN ASSIGNMVENT	
1	Main Terminal 1
2	Main Terminal 2
3	Gate



Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
T8M10T800UD	TO220AB (Type WX)	50pcs	Tube
T8M35T800UD	TO220AB (Type WX)	50pcs	Tube

Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information

T8MxxT800UD = Product Type Marking Code (xx = 10 or 35)
= Manufacturer's Code Marking
Y = Last Digit of Year (ex: 3 = 2023)
WW = Week Code (01 to 53)

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Test Conditions	Symbol	Value	Unit
Repetitive Peak Off-State Voltage	I_{DRM}, I_{RRM} = 5μA	V_{DRM} V_{RRM}	800	V
RMS On-State Current	T_J = +125°C	$I_{T(RMS)}$	8	A
Non-Repetitive Surge Peak On-State Current	Full cycle, t = 20ms, f = 50Hz	I_{TSM}	55	A
	Full cycle, t = 16.7ms, f = 60Hz		60	
I^2t Value for Fusing	t_P = 10ms	I^2t	15.1	A/μs
Rate of Rise of On-State Current	V_{AK} = V_{DRM}	dI/dts	100	A/μs
Storage and Operating Junction Temperature		T_{STG}, T_J	-40 to +125	°C

ON Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Test Condition	Symbol	T8M10T800UD	T8M35T800UD	Unit
			Max	Max	
On-State Voltage	I_T = 8A, I_{GT} = 70mA	V_T	1.6	1.6	V
Gate Trigger Current	V_{AK} = 12V, R_L = 100Ω	I_{GT1} I_{GT2} I_{GT3}	10	35	mA
Holding Current	V_{AK} = 12V, R_L = 100Ω, I_{GT} = 70mA I_T = 100mA	I_{H1} I_{H3}	15	50	mA
Latching Current	V_{AK} = 12V, R_L = 100Ω, I_{GT} = 70mA	I_{L1} I_{L1} I_{L3}	25 40 25	50 80 50	mA
Gate Trigger Voltage	V_{AK} = 12V, R_L = 100Ω	V_{GT1} V_{GT2} V_{GT3}	1.5	1.5	V

Dynamic Electrical Characteristics (@T_J = +125°C, unless otherwise specified.)

Characteristic	Test Condition	Symbol	T8M10T800UD		T8M35T800UD		Unit
			Max	Min	Max	Min	
Rate of Rise of Off-State Voltage	V_D = 536V, gate open T_J = +125°C	dV/dt	40	—	2000	—	V/μs
Rate of Change of Commutating Current	Without snubber T_J = +125°C	(dI/dt)c	—	—	—	4.5	A/ms
	(dV/dt)c = 10V/μs T_J = +125°C		—	2.8	—	—	A/ms

OFF Characteristics

Characteristic	Test Condition		Symbol	Max	Unit
Forward and Reverse Leakage Current	Gate open, rated V_{DRM} and V_{RRM}	T_J = +25°C	I_{DRM}	5	μA
		T_J = +125°C	I_{RRM}	2	mA

Thermal Characteristics

Characteristic	Symbol	Typ	Unit
Thermal Resistance (Note 5)	$R_{\theta JA}$ $R_{\theta JC}$ $R_{\theta JL}$	10.5 3.3 3	°C/W

Note: 5. Thermal resistance junction to case, lead and ambient in accordance with JESD-51.
Unit mounted on 80mm x 80mm x 1.5mm copper heatsink.

Rating and Characteristic Curves – T8M10T800UD

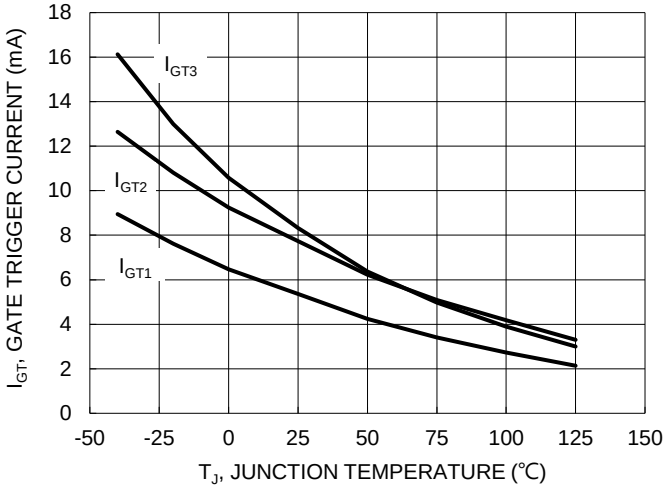


Figure 1. Typical Gate Trigger Current vs. Junction Temperature

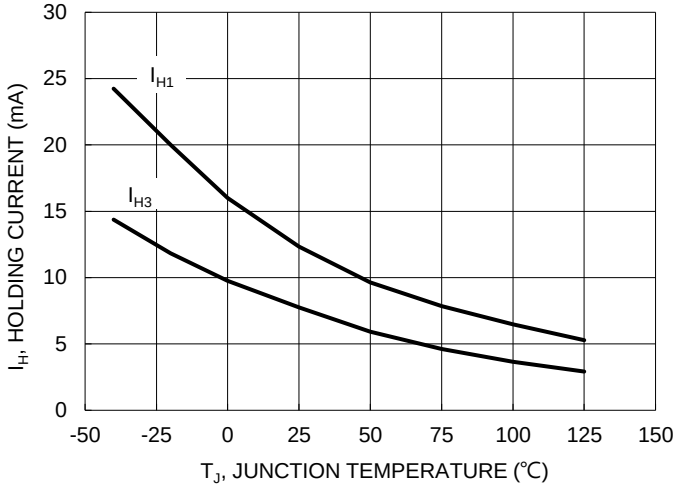


Figure 2. Typical Holding Current vs. Junction Temperature

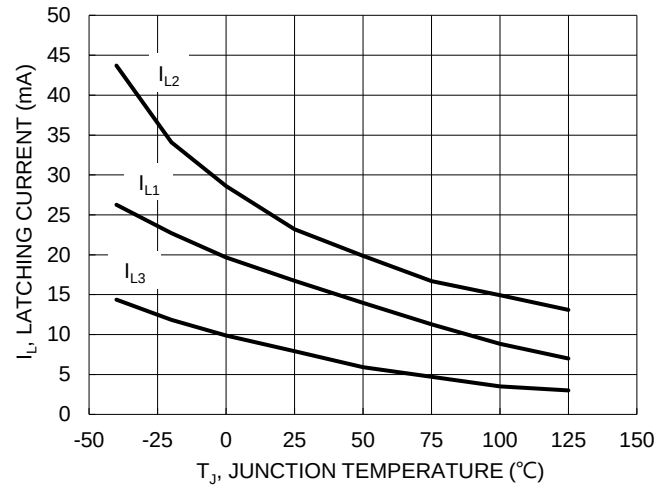


Figure 3. Typical Latching Current vs. Junction Temperature

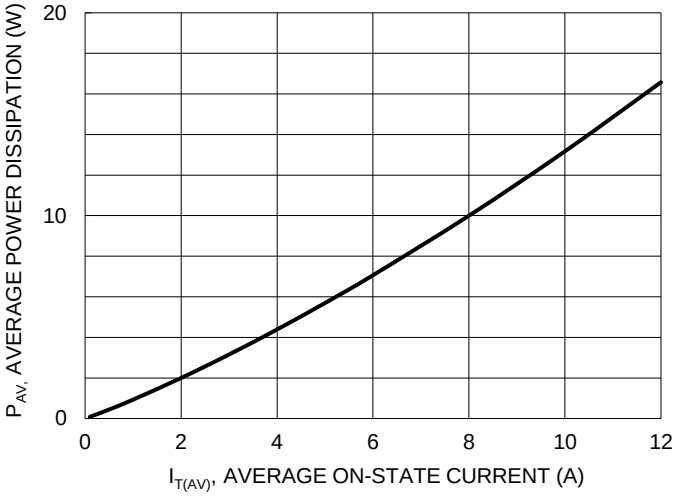


Figure 4. On-State Power Dissipation

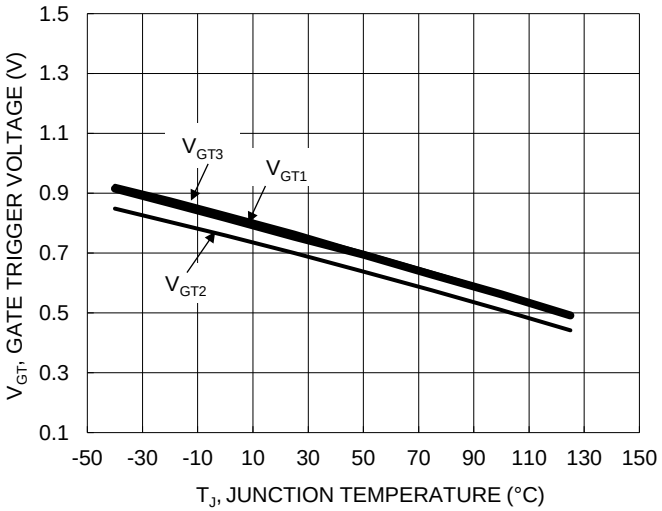


Figure 5. Typical Gate Trigger Voltage vs. Junction Temperature

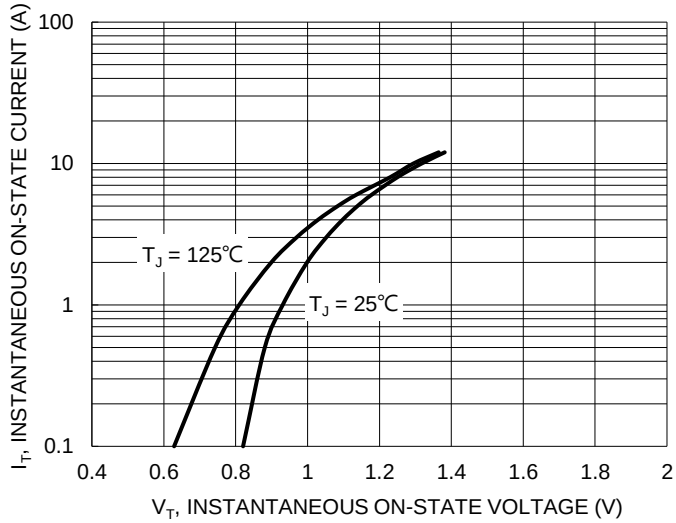


Figure 6. On-State Characteristics

Rating and Characteristic Curves – T8M35T800UD

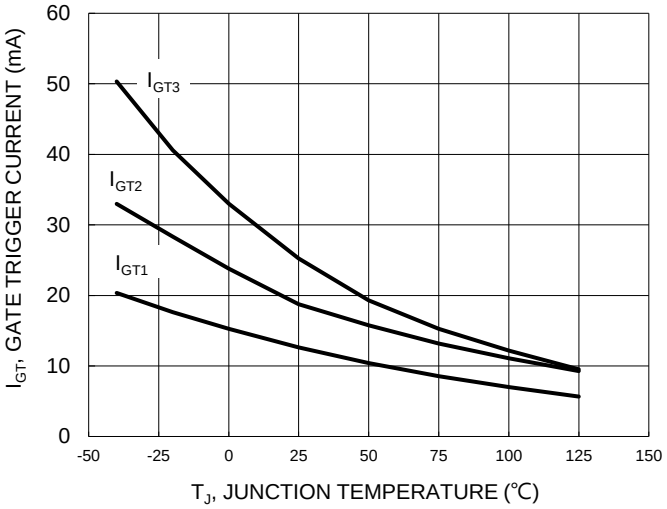


Figure 7. Typical Gate Trigger Current vs. Junction Temperature

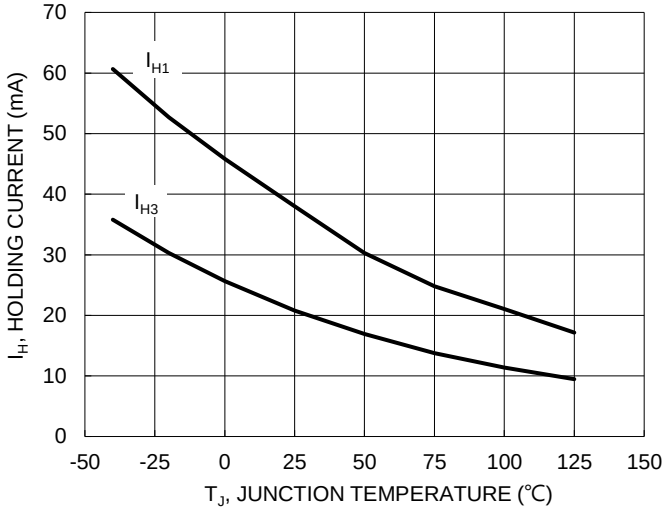


Figure 8. Typical Holding Current vs. Junction Temperature

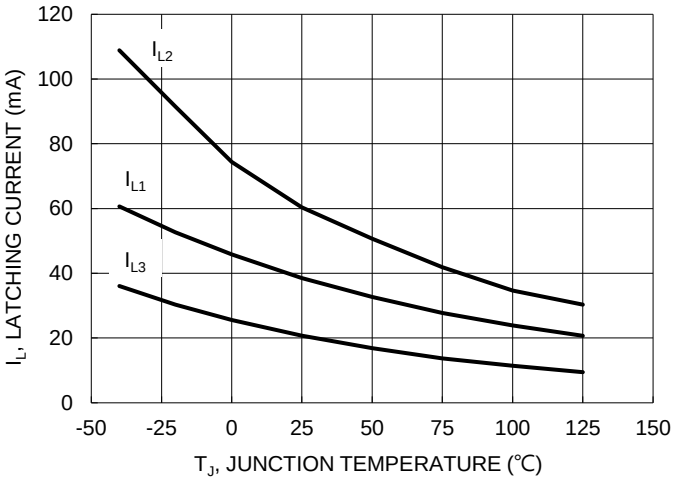


Figure 9. Typical Latching Current vs. Junction Temperature

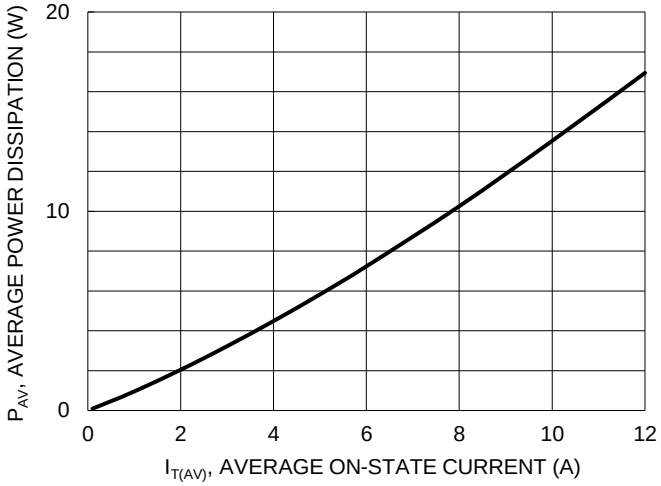


Figure 10. On-State Power Dissipation

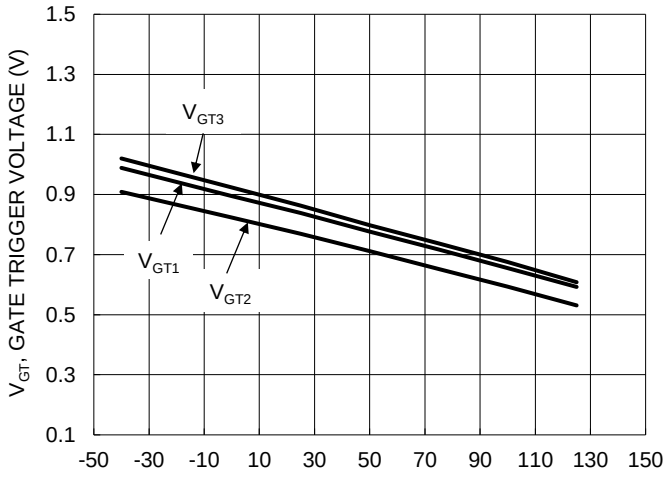


Figure 11. Typical Gate Trigger Voltage vs. Junction Temperature

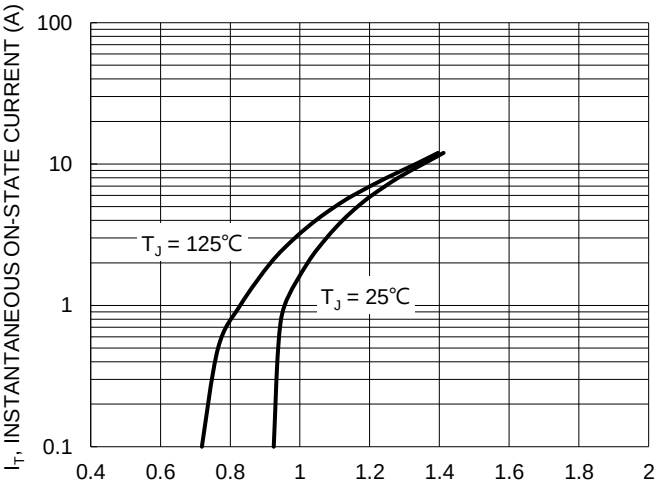
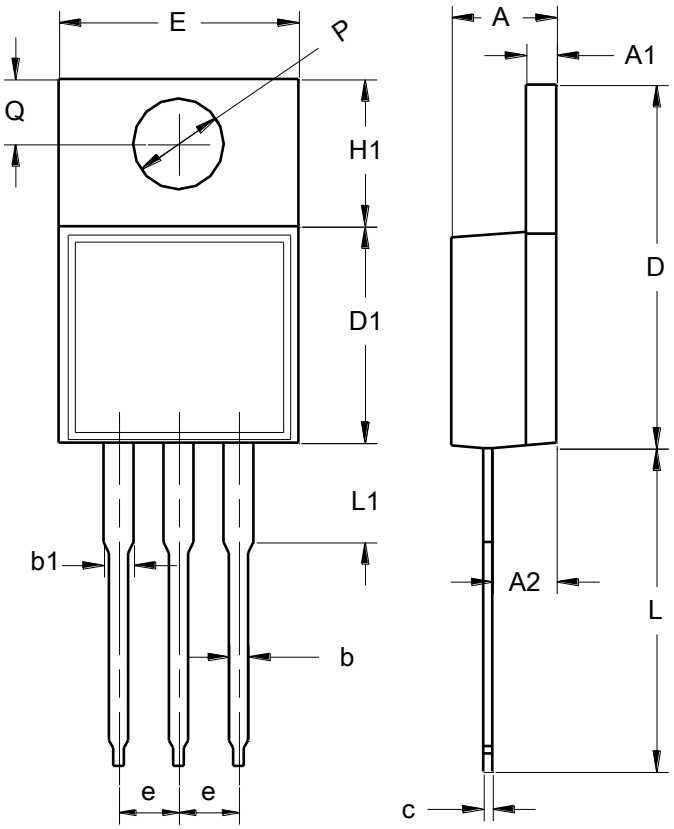


Figure 12. On-State Characteristics

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

TO220AB (Type WX)



TO220AB (Type WX)		
Dim	**Min**	**Max**
A	3.56	4.83
A1	1.14	1.40
A2	2.03	2.92
b	0.51	1.14
b1	1.14	1.70
c	0.30	0.64
D	14.40	15.20
D1	8.26	9.28
E	9.65	10.67
e	2.29	2.79
H1	5.84	6.86
L	12.70	14.73
L1	--	4.20
PØ	3.53	4.09
Q	2.54	3.43
All Dimensions in mm		

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