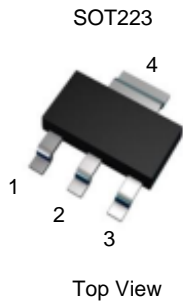


Product Summary

V_{DRM} V_{RRM}	I_{T(RMS)}	I_{GT}	T_J
800V	1A	10mA	+125°C

Mechanical Data

- Package: SOT223
- Package Material: Molded Plastic, "Green" Molding Compound
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.112 grams (Approximate)



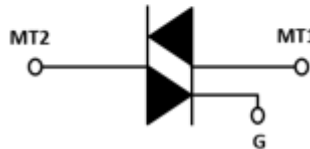
Features

- Glass Passivated for Voltage Ruggedness and Reliability
- High Voltage Capability
- High Junction Operating Temperature Capability
- Triggering in Three Quadrants Only
- **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](https://www.diodes.com/quality/product-definitions/) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

Applications

- General-purpose motor controls
- Small loads in washing machines
- Solenoid drivers
- Digital control drivers

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

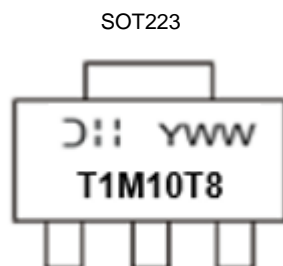


Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
T1M10T800G-13	SOT223	2500pcs	Tape & Reel

- 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



T1M10T8 = Product Type Marking Code
 DIII = Manufacturer's Code Marking
 Y = Last Digit of Year (ex: 4 = 2024)
 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	T _J = -40°C to +125°C, sine wave 50Hz to 60Hz; gate open	V _{DRM}	800	V
		V _{RDM}	800	
RMS On-State Current	T _C = +105°C	I _{T(RMS)}	1	A
Non Repetitive Surge Peak On-State Current	Full cycle, t = 20ms, f = 50Hz	I _{TSM}	13.8	A
	Full cycle, t = 16.7ms, f = 60Hz		13.8	
I ² t Value for Fusing	t _P = 10ms	I ² t	0.79	A/μs
Rate of Rise of On-State Current	V _{AK} = V _{DRM}	di/dts	65	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	Max	Unit
On-State Voltage	I _T = 1A, I _{GT} = 20mA	V _T	1.5	V
Gate Trigger Current	V _{AK} = 12V, R _L = 100Ω	I _{GT1}	10	mA
		I _{GT2}		
		I _{GT3}		
Holding Current	V _{AK} = 12V, R _L = 100Ω, I _{GT} = 20mA, I _T = 100mA	I _{H1} I _{H3}	12	mA
Latching Current	V _{AK} = 12V, R _L = 100Ω, I _{GT} = 20mA	I _{L1}	12	mA
		I _{L2}	35	
		I _{L3}	12	
Gate Trigger Voltage	V _{AK} = 12V, R _L = 100Ω	V _{GT1} V _{GT2} V _{GT3}	1	V

OFF Characteristics

Characteristic	Test Condition	Symbol	Max	Unit
Forward and Reverse Leakage Current	Gate open, rated V _{DRM} and V _{RDM}	T _J = +25°C I _{DRM}	5	μA
		T _J = +125°C I _{RDM}	0.5	mA

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

Characteristic	Test Condition	Symbol	Min	Max	Unit
Rate of Rise of Off-State Voltage	V _D = 536V, gate open T _J = +125°C	dv/dt	—	40	V/μs
Rate of Change of Commutating Current	Without snubber (dv/dt) _c = 10V/μs T _J = +125°C	(di/dt) _c	1.0	—	A/ms

Thermal Characteristics

Characteristic	Symbol	Typ	Unit
Thermal Resistance (Note 5)	R _{θJA}	95	°C/W
	R _{θJC}	16	
	R _{θJL}	18	

Note: 5. Thermal resistance junction to case, lead and ambient in accordance with JESD-51.
Unit mounted on 16.5mm x 15mm x 1mm PCB. (Cu pad of 4 pins)

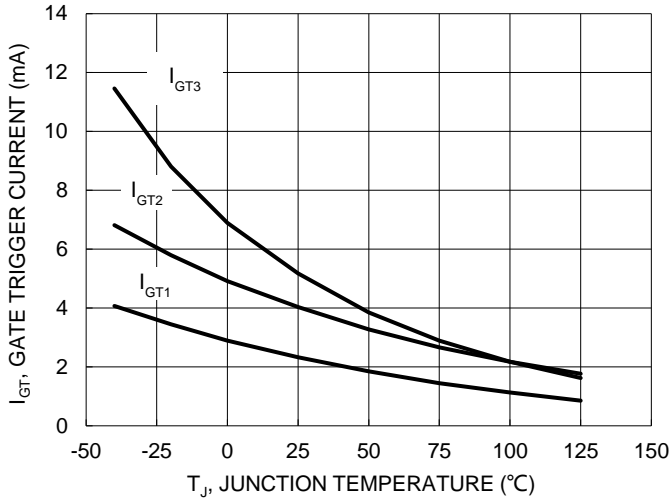


Figure 1. Typical Gate Trigger Current vs. Junction Temperature

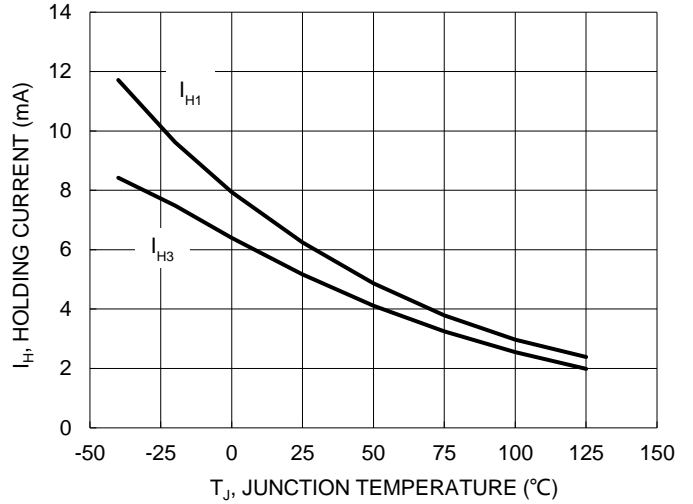


Figure 2. Typical Holding Current vs. Junction Temperature

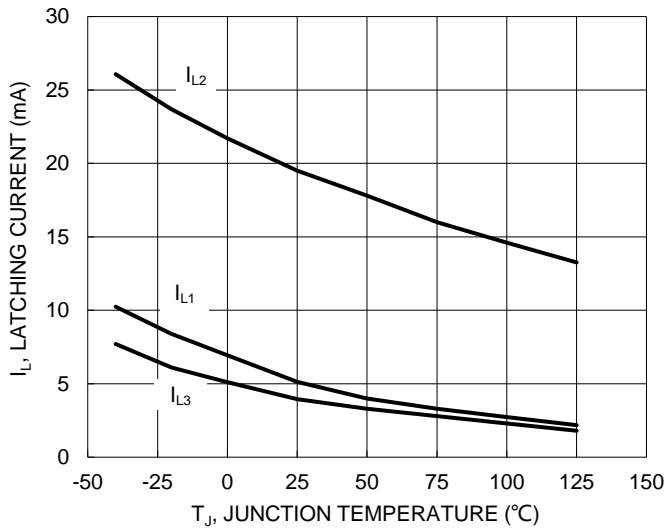


Figure 3. Typical Latching Current vs. Junction Temperature

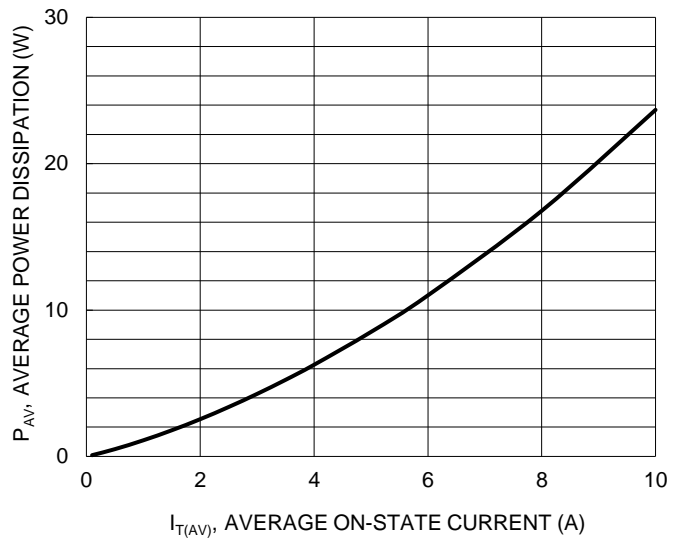


Figure 4. On-State Power Dissipation

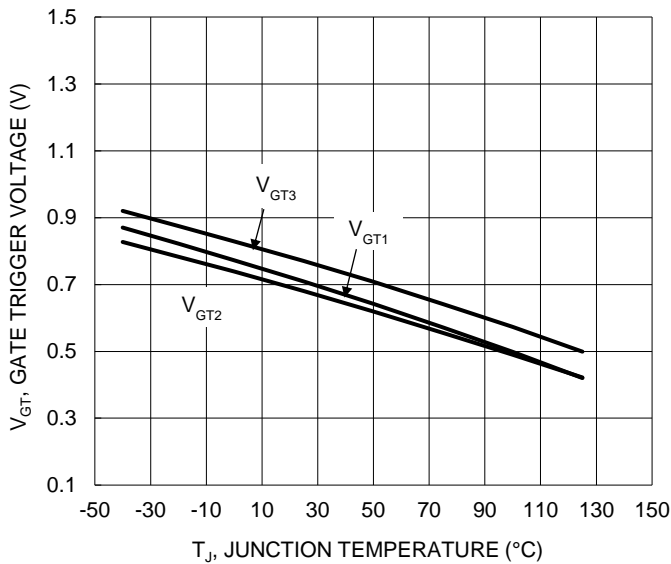


Figure 5. Typical Gate Trigger Voltage vs. Junction Temperature

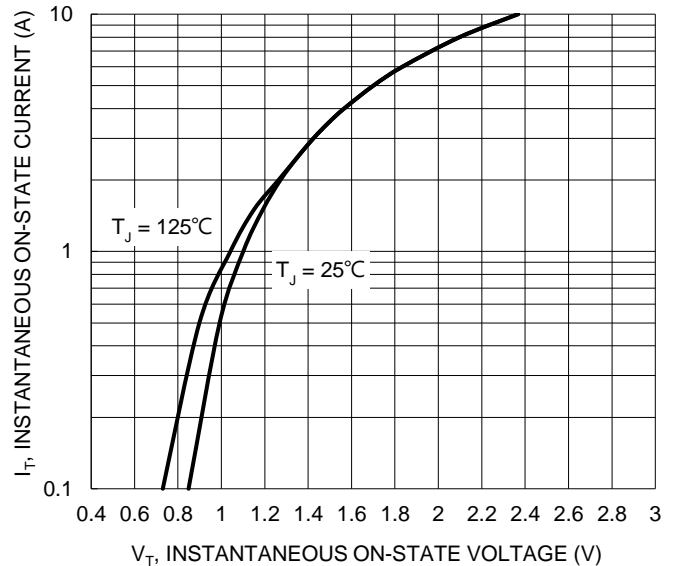
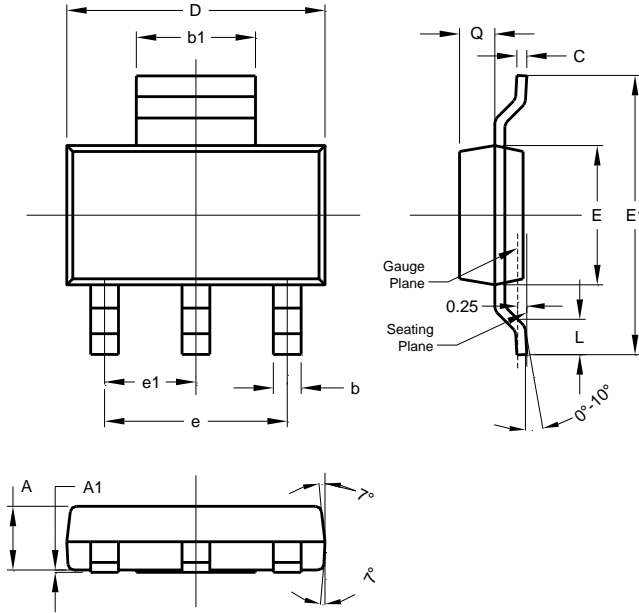


Figure 6. On-State Characteristics

Package Outline Dimensions

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

SOT223

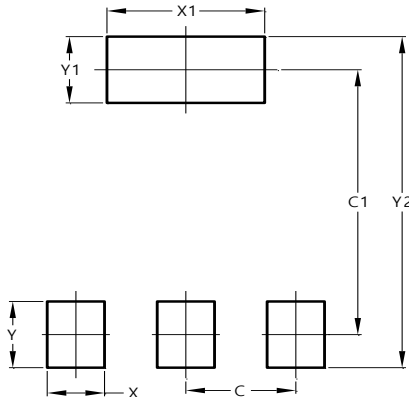


SOT223			
Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b	0.60	0.80	0.70
b1	2.90	3.10	3.00
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	-	-	4.60
e1	-	-	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89
All Dimensions in mm			

Suggested Pad Layout

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

SOT223



Dimensions	Value (in mm)
C	2.30
C1	6.40
X	1.20
X1	3.30
Y	1.60
Y1	1.60
Y2	8.00

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