TB0640L - TB3500L

30A BI-DIRECTIONAL SURFACE MOUNT THYRISTOR SURGE PROTECTIVE DEVICE

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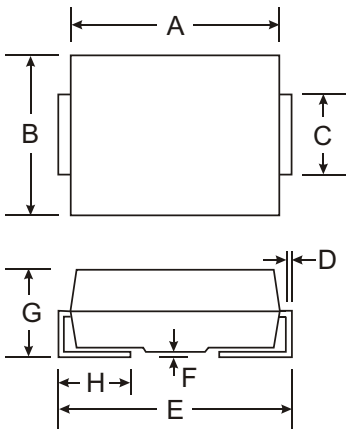
Features

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- 30A Peak Pulse Current @ 10/1000μs
- 150A Peak Pulse Current @ 8/20μs
- 58 - 320V Stand-Off Voltages
- Oxide-Glass Passivated Junction
- Bi-Directional Protection In a Single Device
- High Off-State impedance and Low On-State Voltage

Mechanical Data

- Case: SMB, Molded Plastic
- Plastic Material: UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solder Plated Terminal - Solderable per MIL-STD-202, Method 208
- Polarity: None; Bi-Directional Devices Have No Polarity Indicator
- Weight: 0.093 grams (approx.)
- Marking: Date Code and Marking Code (See Page 4)
- Ordering Information: See Page 4



SMB		
Dim	Min	Max
A	4.06	4.57
B	3.30	3.94
C	1.96	2.21
D	0.15	0.31
E	5.21	5.59
F	0.05	0.20
G	2.01	2.62
H	0.76	1.52
All Dimensions in mm		

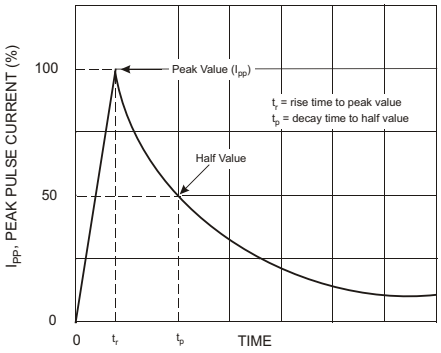
Maximum Ratings @ T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic		Symbol	Value	Unit
Non-Repetitive Peak Impulse Current	@10/1000us	I_{pp}	30	A
Non-Repetitive Peak On-State Current	@8.3ms (one-half cycle)	I_{TSM}	15	A
Junction Temperature Range		T_j	-40 to +150	°C
Storage Temperature Range		T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Lead		$R_{\theta JL}$	30	°C/W
Thermal Resistance, Junction to Ambient		$R_{\theta JA}$	120	°C/W
Typical Positive Temperature Coefficient for Breakdown Voltage		$\Delta VBR/\Delta T_j$	0.1	%/°C

Maximum Rated Surge Waveform

Waveform	Standard	Ipp (A)
2/10 us	GR-1089-CORE	200
8/20 us	IEC 61000-4-5	150
10/160 us	FCC Part 68	100
10/700 us	ITU-T, K20/K21	60
10/560 us	FCC Part 68	50
10/1000 us	GR-1089-CORE	30



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Electrical Characteristics

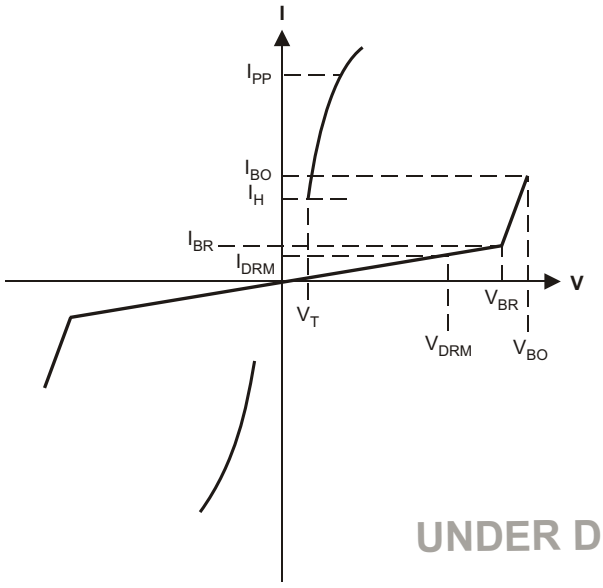
@ T_A = 25°C unless otherwise specified

Part Number	Rated Repetitive Off-State Voltage	Off-State Leakage Current @ V_{DRM}	Breakover Voltage	On-State Voltage @ I_T = 1A	Breakover Current I_{BO}		Holding Current I_H		Off-State Capacitance	Marking Code
	V_{DRM} (V)	I_{DRM} (uA)	V_{BO} (V)	V_T (V)	Min (mA)	Max (mA)	Min (mA)	Max (mA)	C_O (pF)	
TB0640L	58	5	77	3.5	50	800	150	800	100	T064L
TB0720L	65	5	88	3.5	50	800	150	800	100	T072L
TB0900L	75	5	98	3.5	50	800	150	800	100	T090L
TB1100L	90	5	130	3.5	50	800	150	800	60	T110L
TB1300L	120	5	160	3.5	50	800	150	800	60	T130L
TB1500L	140	5	180	3.5	50	800	150	800	60	T150L
TB1800L	160	5	220	3.5	50	800	150	800	60	T180L
TB2300L	190	5	265	3.5	50	800	150	800	40	T230L
TB2600L	220	5	300	3.5	50	800	150	800	40	T260L
TB3100L	275	5	350	3.5	50	800	150	800	40	T310L
TB3500L	320	5	400	3.5	50	800	150	800	40	T350L

Symbol	Parameter
V_{DRM}	Stand-off Voltage
I_{DRM}	Leakage current at stand-off voltage
V_{BR}	Breakdown voltage
I_{BR}	Breakdown current
V_{BO}	Breakover voltage
I_{BO}	Breakover current
I_H	Holding current NOTE: 1
V_T	On state voltage
I_{PP}	Peak pulse current
C_O	Off-state capacitance NOTE: 2

Notes: 1. $I_H > (V_L/R_L)$ If this criterion is not obeyed, the TSPD triggers but does not return correctly to high-resistance state. The surge recovery time does not exceed 30ms.

2. Off-state capacitance measured at f = 1.0MHz, 1.0V_{RMS} signal, $V_R = 2V_{DC}$ bias.



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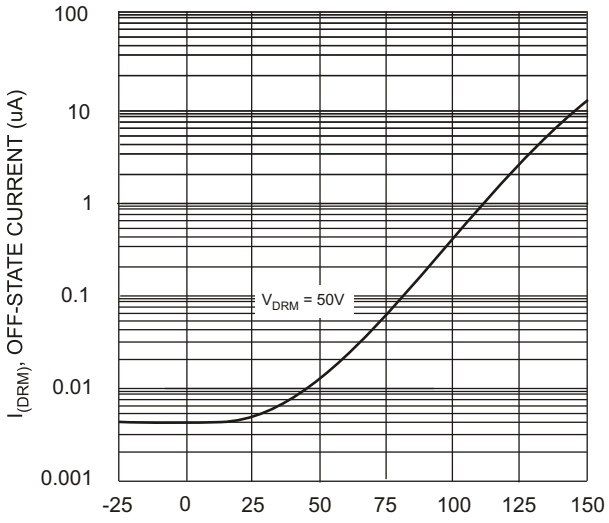


Fig. 1 Off-State Current vs. Junction Temperature

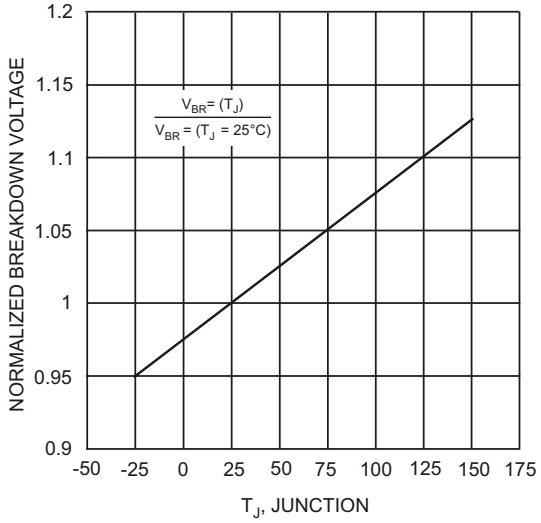


Fig. 2 Relative Variation of Breakdown Voltage vs. Junction Temperature

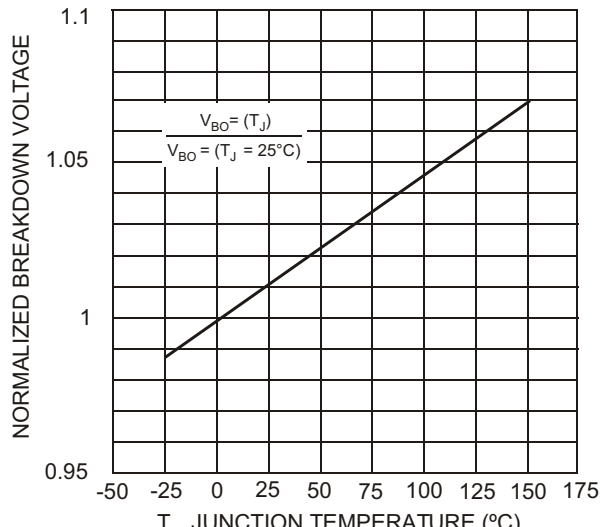


Fig. 3 Relative Variation of Breakover Voltage vs. Junction Temperature

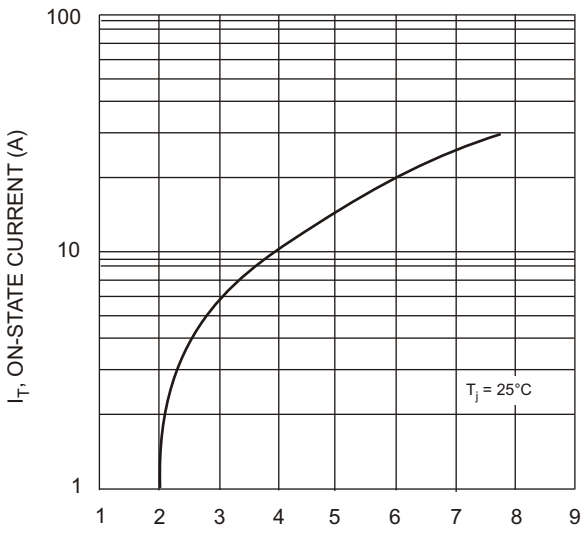


Fig. 4 On-State Current vs. On-State Voltage

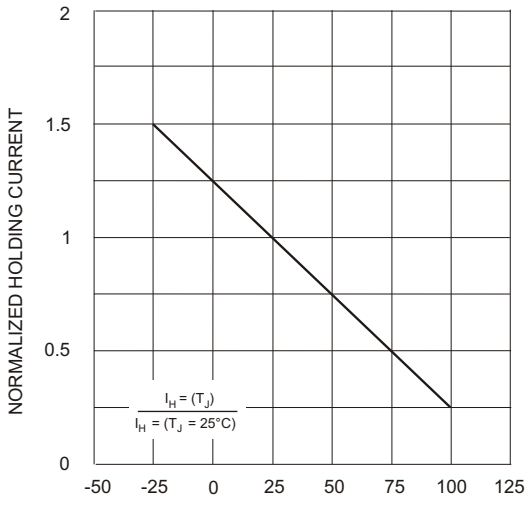


Fig. 5 Relative Variation of Holding Current vs. Junction Temperature

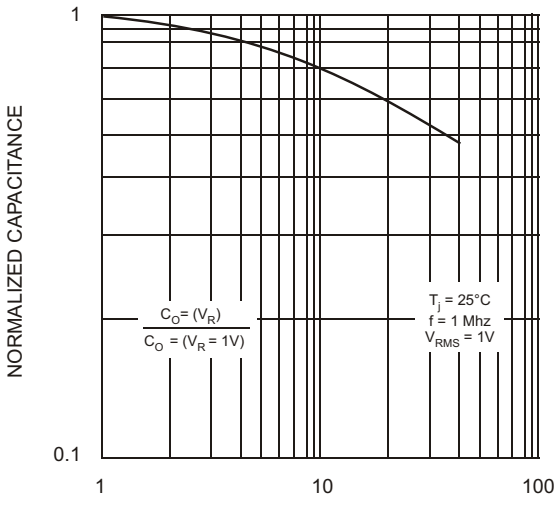


Fig. 6 Relative Variation of Junction Capacitance vs. Reverse Voltage Bias

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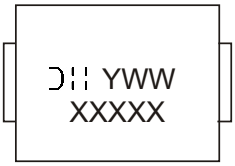
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Ordering Information (Note 3)

Device	Packaging	Shipping
TB0640L-13 TB0720L-13 TB0900L-13 TB1100L-13 TB1300L-13 TB1500L-13 TB1800L-13 TB2300L-13 TB2600L-13 TB3100L-13 TB3500L-13	SMB	3000/Tape & Reel

Notes: 3. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



XXXXX = Product Type Marking Code
YWW = Date Code Marking
Y = Year ex: 2 = 2002
WW = Week

Date Code Key

Year	2002	2003	2004
Code	2	3	4

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