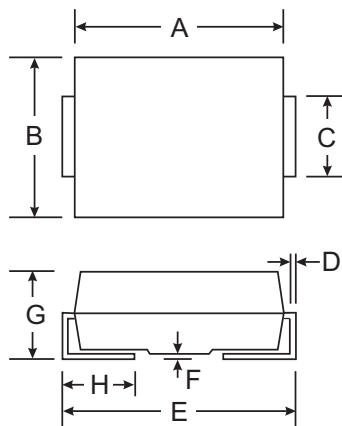


Features

- 30A Peak Pulse Current @ 10/1000 μ s
- 150A Peak Pulse Current @ 8/20 μ s
- 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
- Helps Equipment Meet GR-1089-CORE, IEC 61000-4-5, FCC Part 68, ITU-T K.20/K.21, and UL497B
- UL Listed Under Recognized Component Index, File Number 156346
- **Lead Free Finish/RoHS Compliant (Note 1)**

Mechanical Data

- Case: SMB
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208
- Polarity: None; Bi-Directional Devices Have No Polarity Indicator
- Marking: Date Code and Marking Code (See Page 4)
- Ordering Information: See Page 4
- Weight: 0.093 grams (approximate)



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		

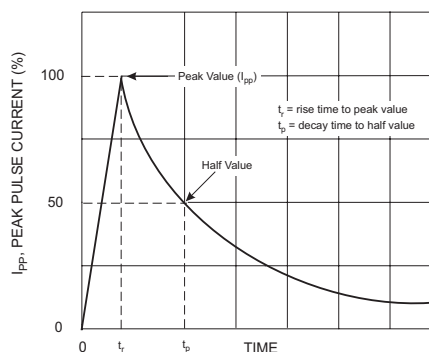
Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

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 @ 10/1000 μ s	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	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$
Thermal Resistance, Junction to Lead	$R_{\theta JL}$	30	$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	120	$^\circ\text{C/W}$
Typical Positive Temperature Coefficient for Breakdown Voltage	$\Delta V_{BR}/\Delta T_J$	0.1	$\%/^\circ\text{C}$

Maximum Rated Surge Waveform

Waveform	Standard	I_{PP} (A)
2/10 μ s	GR-1089-CORE	200
8/20 μ s	IEC 61000-4-5	150
10/160 μ s	FCC Part 68	100
10/700 μ s	ITU-T, K.20/K.21	60
10/560 μ s	FCC Part 68	50
10/1000 μ s	GR-1089-CORE	30



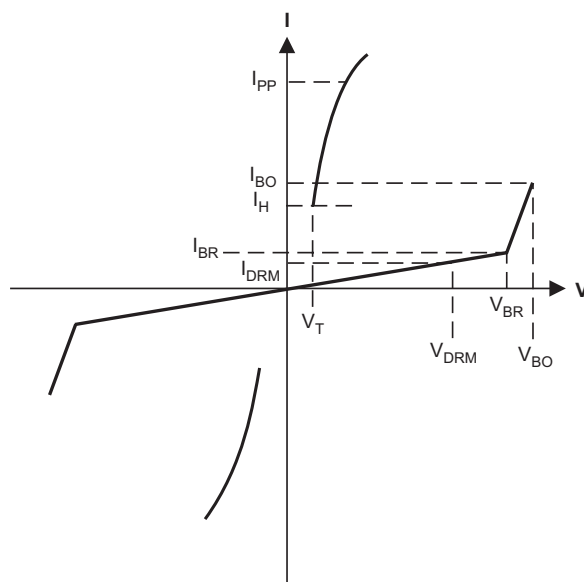
Electrical Characteristics

@ 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: 2
V _T	On state voltage
I _{PP}	Peak pulse current
C _O	Off-state capacitance NOTE: 3

- Notes:
1. RoHS revision13.2.2003. Glass and High Temperature Solder Exemptions Applied, see *EU Directive Annex Notes 5 and 7*.
 2. 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.
 3. Off-state capacitance measured at f = 1.0MHz, 1.0V_{RMS} signal, V_R = 2V_{DC} bias.



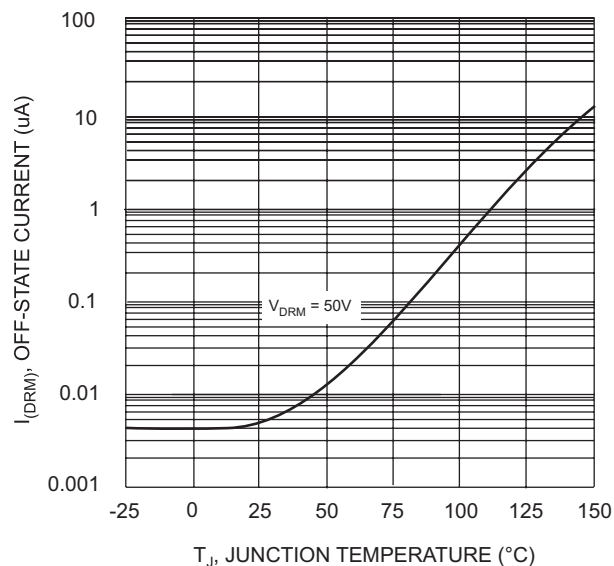


Fig. 1 Off-State Current vs. Junction Temperature

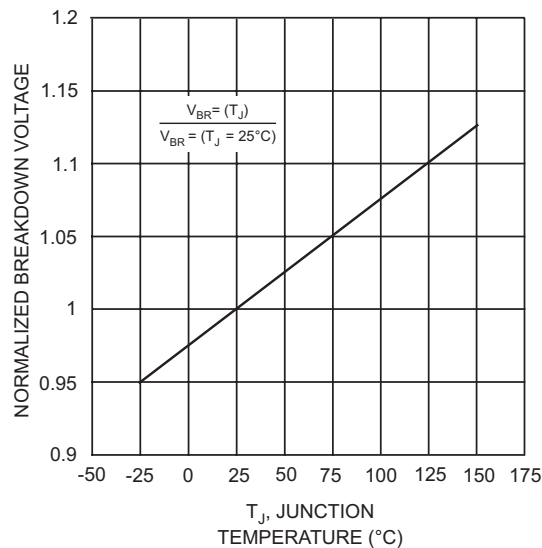


Fig. 2 Relative Variation of Breakdown Voltage vs. Junction Temperature

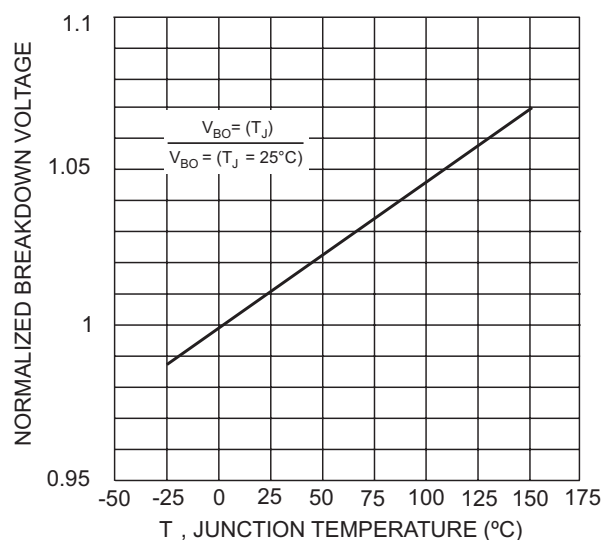


Fig. 3 Relative Variation of Breakover Voltage vs. Junction Temperature

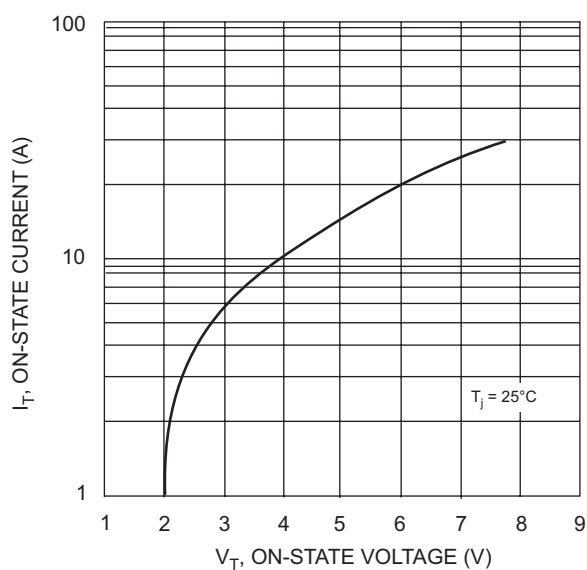


Fig. 4 On-State Current vs. On-State Voltage

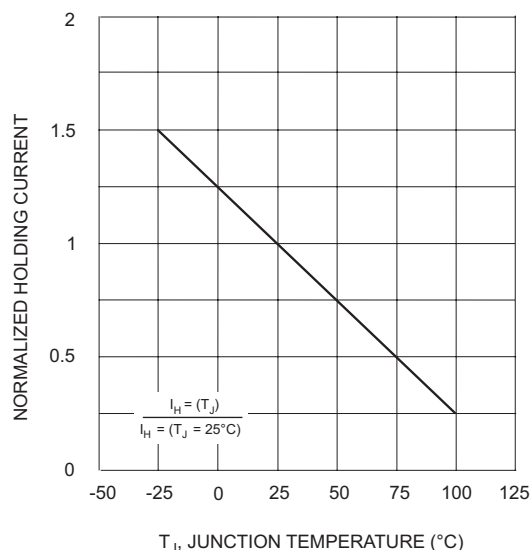


Fig. 5 Relative Variation of Holding Current vs. Junction Temperature

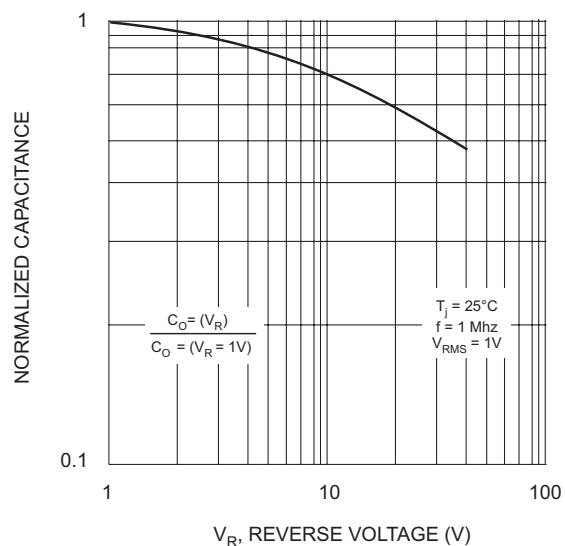


Fig. 6 Relative Variation of Junction Capacitance vs. Reverse Voltage Bias

Ordering Information (Note 4)

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

Notes: 4. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



XXXXX = Product Type Marking Code (See Table on Page 2)
 YWW = Date Code Marking
 Y = Year ex: 2 = 2002
 WW = Week

Date Code Key

Year	2002	2003	2004	2005	2006	2007	2008	2009
Code	2	3	4	5	6	7	8	9

IMPORTANT NOTICE

Diodes, Inc. and its subsidiaries reserve the right to make changes without further notice to any product herein to make corrections, modifications, enhancements, improvements, or other changes. Diodes, Inc. does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

The products located on our website at www.diodes.com are not recommended for use in life support systems where a failure or malfunction of the component may directly threaten life or cause injury without the express written approval of Diodes Incorporated.