



**THE DATASHEET OF  
TB1100L-13**



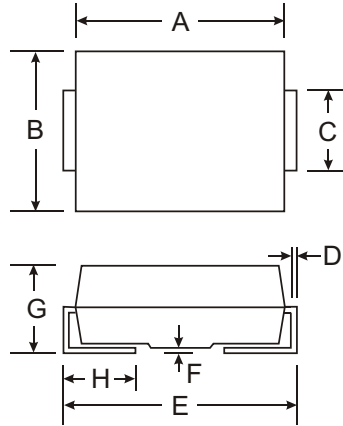
### Features

- 30A Peak Pulse Current @ 10/1000 s
- 150A Peak Pulse Current @ 8/20 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

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### 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		

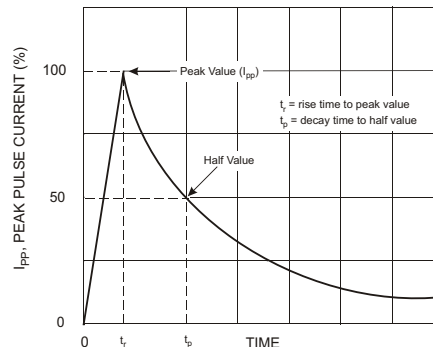
### Maximum Ratings @ T<sub>A</sub> = 25 C unless otherwise specified

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 <sub>pp</sub>	30	A
Non-Repetitive Peak On-State Current @ 8.3ms (one-half cycle)	I <sub>TSM</sub>	15	A
Junction Temperature Range	T <sub>j</sub>	-40 to +150	C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	C
Thermal Resistance, Junction to Lead	R <sub>JL</sub>	30	°C/W
Thermal Resistance, Junction to Ambient	R <sub>JA</sub>	120	°C/W
Typical Positive Temperature Coefficient for Breakdown Voltage	VBR/ T <sub>j</sub>	0.1	%/°C

### Maximum Rated Surge Waveform

Waveform	Standard	I <sub>pp</sub> (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

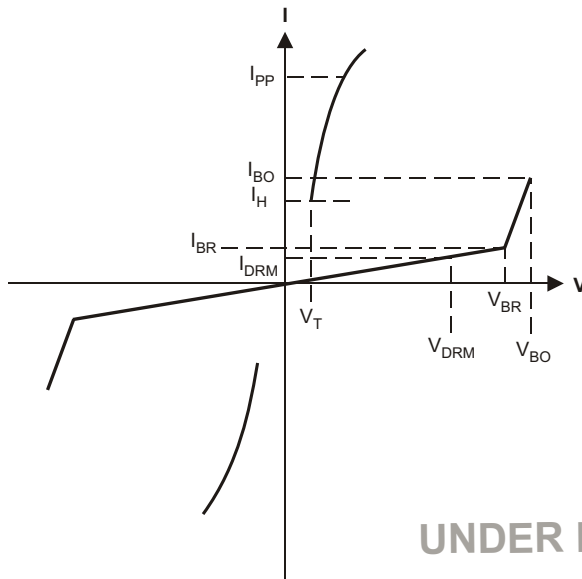


**Electrical Characteristics** @  $T_A = 25\text{ C}$  unless otherwise specified

Part Number	Rated Repetitive Off-State Voltage	Off-State Leakage Current @ $V_{DRM}$	Breakover Voltage	On-State Voltage @ $I_T = 1\text{ A}$	Breakover Current $I_{BO}$		Holding Current $I_H$		Off-State Capacitance	Marking Code
	$V_{DRM}$ (V)	$I_{DRM}$ ( $\mu\text{A}$ )	$V_{BO}$ (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:
- $I_H > (V_L/R_L)$  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.
  - Off-state capacitance measured at  $f = 1.0\text{ MHz}$ ,  $1.0V_{RMS}$  signal,  $V_R = 2V_{DC}$  bias.



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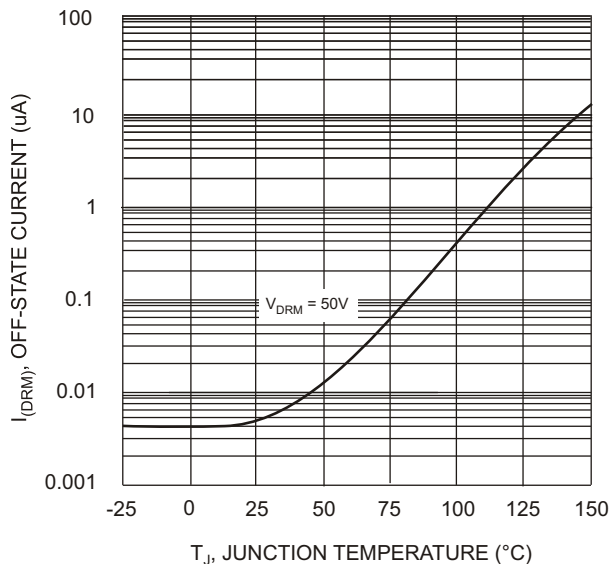


Fig. 1 Off-State Current vs. Junction Temperature

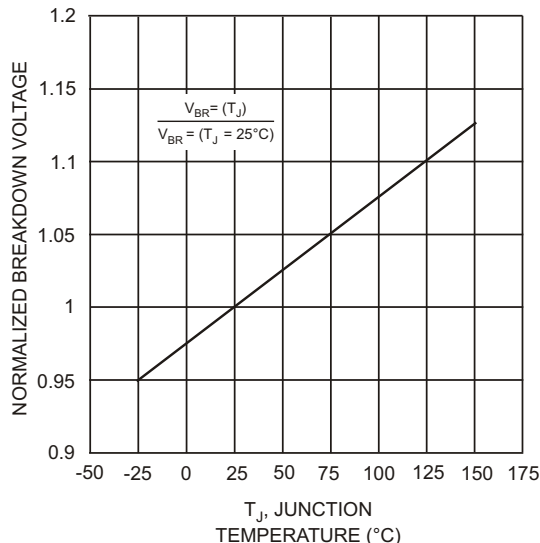


Fig. 2 Relative Variation of Breakdown Voltage vs. Junction Temperature

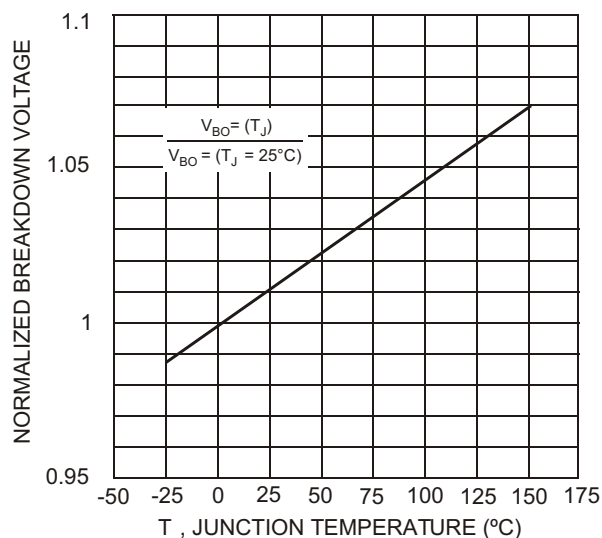


Fig. 3 Relative Variation of Breakover Voltage vs. Junction Temperature

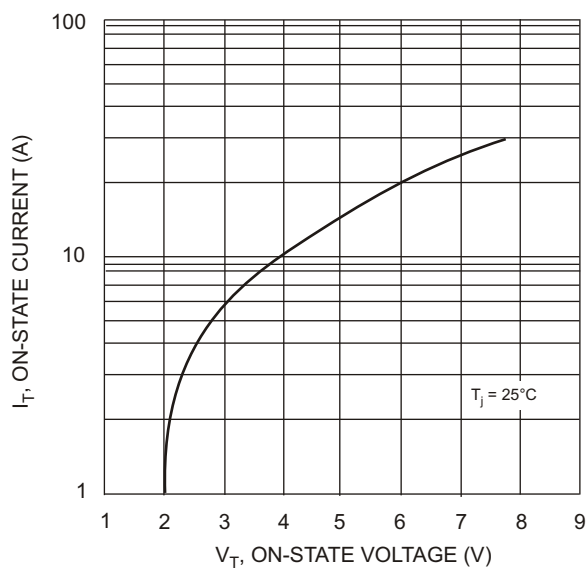


Fig. 4 On-State Current vs. On-State Voltage

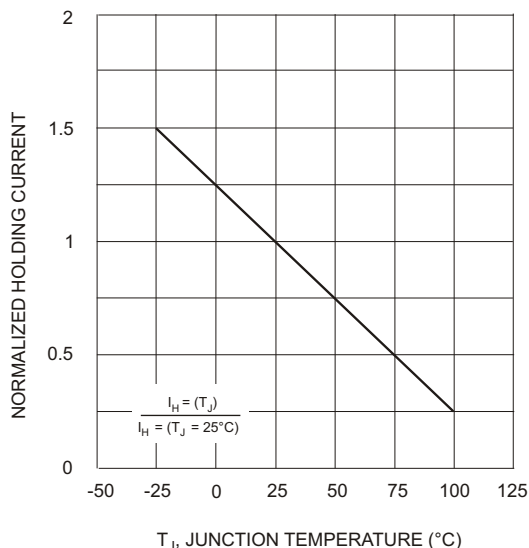


Fig. 5 Relative Variation of Holding Current vs. Junction Temperature

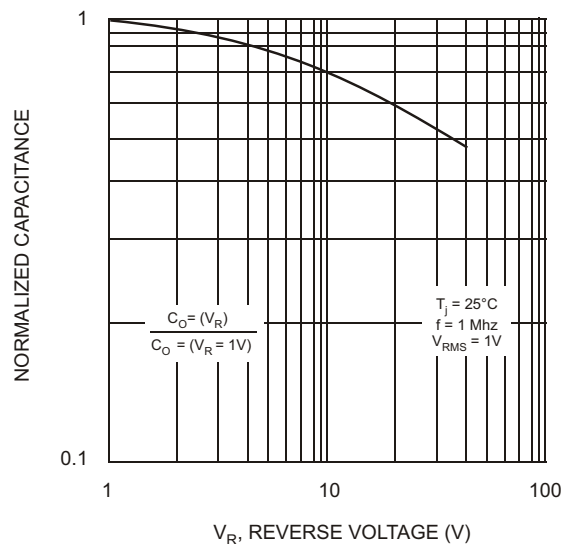


Fig. 6 Relative Variation of Junction Capacitance vs. Reverse Voltage Bias

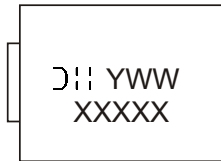
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**Ordering Information** (Note 3)

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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