

TSSBxxxB1X Series

Surge Protection Device

TOP-EMC

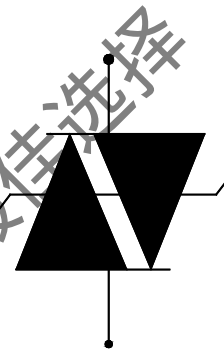
Features

- For surface mounted applications to optimize board space
- Low profile package
- Bidirectional crowbar protection
- Low leakage current : $I = 5\mu\text{A max}$
- Low on-state voltage
- Low Capacitance
- Response Time is $< 1\mu\text{s}$
- YD/T 950 IEC 61000-4-5
- YD/T 993 ITU K.20/21
- YD/T 1082 TIA-968-A
- GR 1089 Intra-building
- Solid-state silicon technology
- Meets MSL 1 Requirements
- ROHS compliant



SMB/DO-214AA

RoHS
COMPLIANT



SCHEMATIC DIAGRAM

Ordering Information

Device	Qty per Reel	Reel Size
TSSBxxxB1X	2500	13 Inch

Maximum Ratings and Electrical Characteristics

Symbol	Parameter	Value	Unit	
I_{PP}	Non-repetitive peak pulse current	10/1000 us	80	A
		5/310 us	150	
		8/20 us	250	
V_{PP}	Non-repetitive peak pulse voltage	10/700us	4000	V
V_{ESD}	ESD Rating per IEC61000-4-2:	Contact	8	KV
		Air	15	
T_s	Storage temperature range	-40 to +150	$^{\circ}\text{C}$	
T_j	Maximum junction temperature	150	$^{\circ}\text{C}$	

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

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Electrical Parameters (T=25°C)

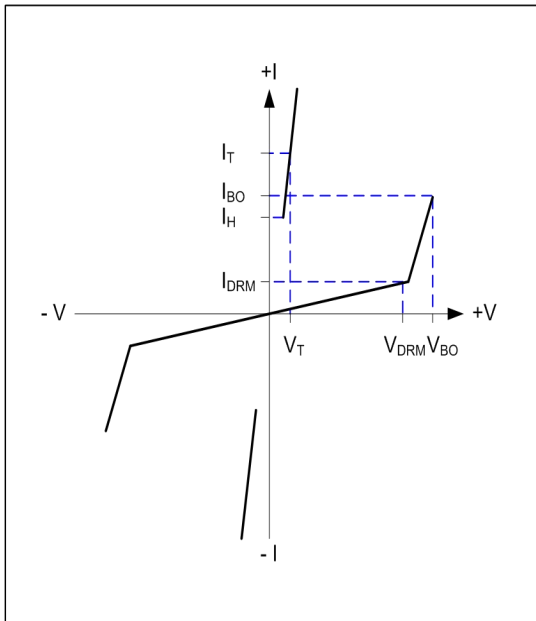
Symbol	Parameter
V_{DRM}	Stand-off voltage
V_{BR}	Breakdown voltage
V_{BO}	Switching Voltage
I_{BO}	Break over current
I_{DRM}	Leakage current at VRM
I_{PP}	Peak pulse current
I_H	Holding current
V_T	On-state Voltage at I_T
C_O	Off-state Capacitance

Electrical Parameters (T _{amb} =25°C)								
Type	V_{RM}	I_{RM}	V_{BO}	I_{BO}	V_T	I_T	C_O	I_H
	Min.		Max.	Max.	Max.		Typ.	Typ.
	V	μA	V	mA	V	A	pF	mA
TSSB006B1X	6	5	25	800	4	2.2	70	50
TSSB025B1X	25	5	40	800	4	2.2	70	50
TSSB058B1X	58	5	77	800	4	2.2	60	150
TSSB065B1X	65	5	88	800	4	2.2	60	150
TSSB075B1X	75	5	98	800	4	2.2	55	150
TSSB090B1X	90	5	130	800	4	2.2	55	150
TSSB120B1X	120	5	160	800	4	2.2	55	150
TSSB140B1X	140	5	180	800	4	2.2	60	150
TSSB170B1X	170	5	220	800	4	2.2	60	150
TSSB180B1X	180	5	220	800	4	2.2	60	150
TSSB190B1X	190	5	260	800	4	2.2	55	150
TSSB220B1X	220	5	300	800	4	2.2	50	150
TSSB275B1X	275	5	350	800	4	2.2	45	150
TSSB320B1X	320	5	400	800	4	2.2	40	150
TSSB360B1X	360	5	460	800	4	2.2	40	150
TSSB460B1X	460	5	540	800	4	2.2	40	150
TSSB500B1X	500	5	600	800	4	2.2	40	150

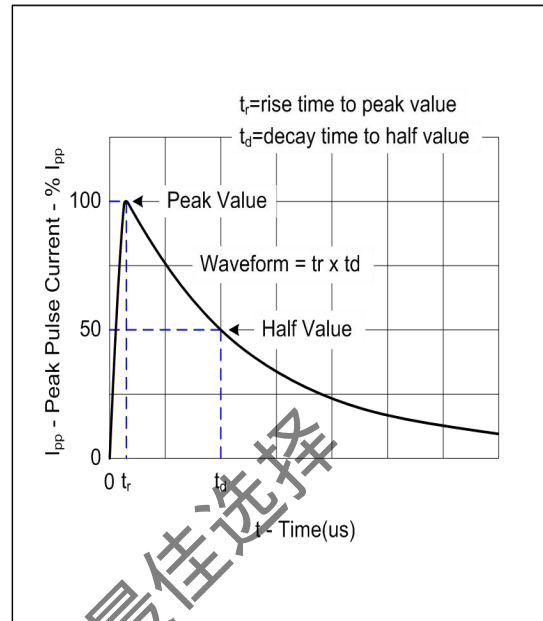
Notes:

- All measurements are made at an ambient temperature of 25 °C. I_{PP} applies to -40 °C through +85 °C temperature range.
- Off-state capacitance (C_O) is measured at 1 MHz with a 2 V bias and is typical value.

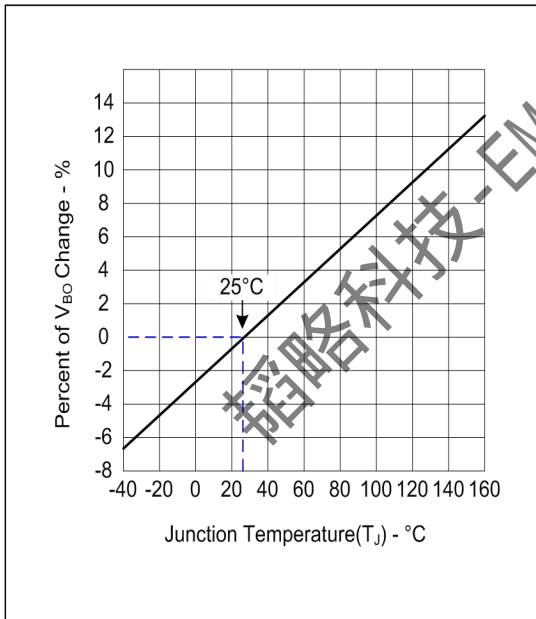
Typical Characteristics



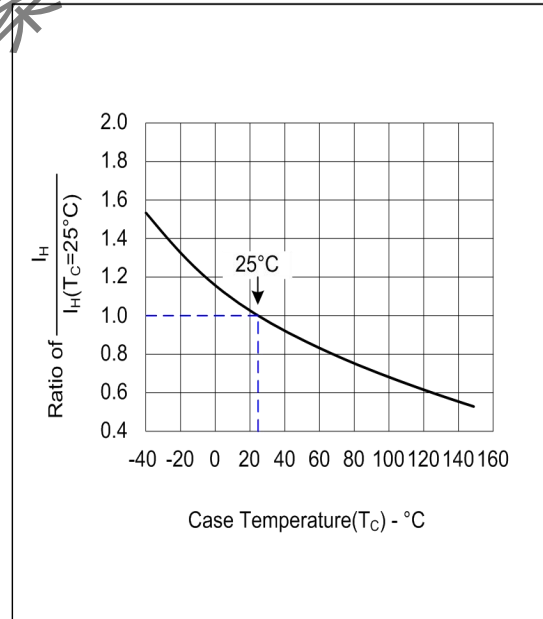
V - I Characteristics



$t_r \times t_d$ Pulse Waveform

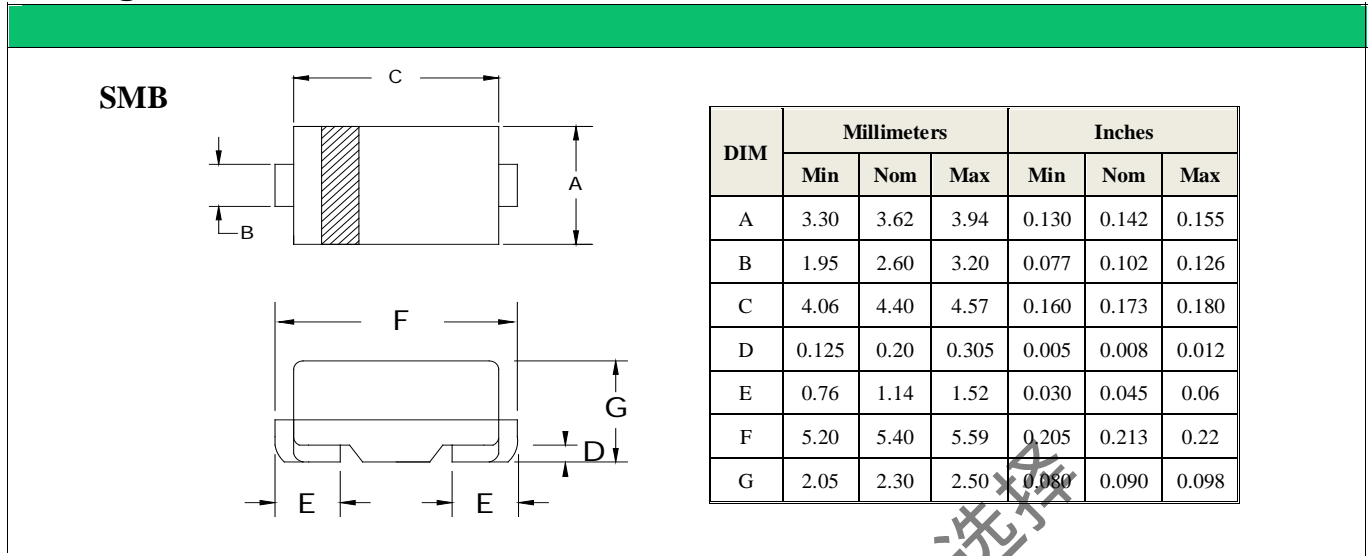


Normalized V_{BO} Change versus Junction Temperature

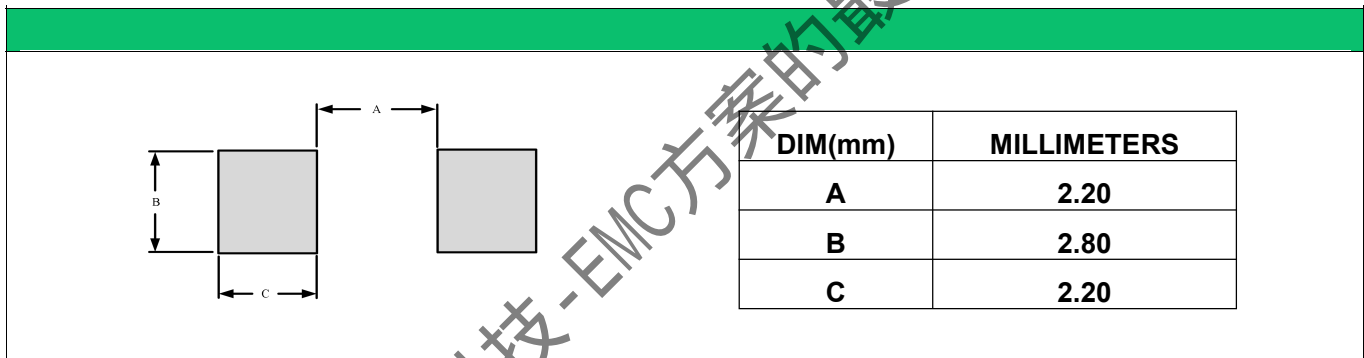


Normalized DC Holding Current versus Case Temperature

Package Dimensions



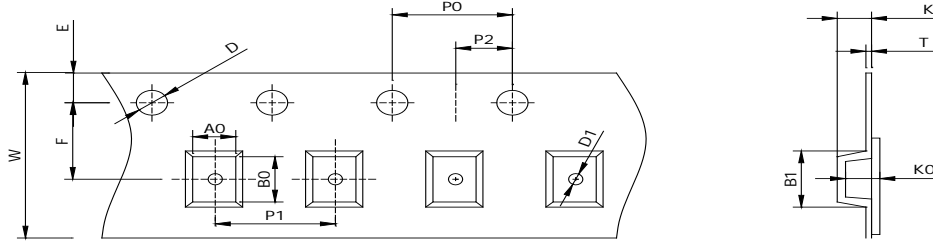
Recommend Solder Pad Layout



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Tape and Reel

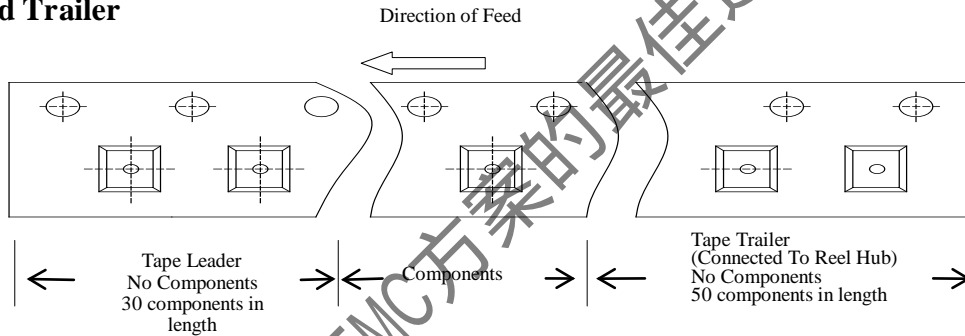
SMB Reel Dim



Reel Dim	Tape	A0	B0	B1	D	D1	E	F	K0	T	W	PO	P1	P2
330	12	3.7	5.6	8.2	1.5	1.5	1.75	5.5	3.0	0.50	12.0	4.0	8.0	2.0

Dimension is in mm

Leader and Trailer



The LEADER is a minimum of 30 components in length and it consists of empty cavities with sealed cover tape
The TRAILER is a minimum of 50 components in length and it consists of empty cavities with sealed cover tape.

Part Numbering System

T S S B xxx B 1X
① ② ③ ④ ⑤ ⑥ ⑦

- (1) Company Name: TOP-EMC
- (2) Product Function: Surge
- (3) Chip Size (EIA): S=SMB M=SMA
- (4) Vpp(10/700us): A=2.5-3KV B=4KV C=6KV D=8KV E=1.5-2KV
- (5) Repetitive Peak Off-state Voltage:VDRM
- (6) Direction Type: Bidirectional
- (7) Lines Protected: 1X=1 line

Contact Information

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