TSSCxxxB1X Series

Surge Protection Device

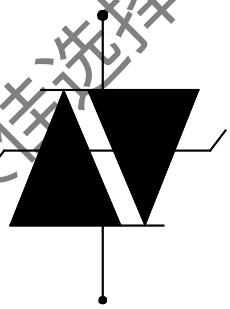
TOP-EMC

Features

- For surface mounted applications to optimize board space
- Low profile package
- Bidirectional crowbar protection
- Low leakage current : I = 5uA max
- Low on-state voltage
- Low Capacitance
- Response Time is < 1us
- 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
TSSCxxxB1X	2500	13 Inch

Maximum Ratings and Electrical Characteristics

Symbol	Parameter		Value	Unit
I_{PP}	Non-repetitive peak pulse current	10/1000 us 10/560 us 5/310 us 8/20 us	100 150 150 400	A
V_{PP}	Non-repetitive peak pulse voltage	10/700us	6000	V
V_{ESD}	ESD Rating per IEC61000-4-2：	Contact Air	8 15	KV
Ts	Storage temperature range		-40 to +150	℃
Tj	Maximum junction temperature		150	℃

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.

Electrical Parameters (T=25℃)

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 Characteristics (Tamb=25℃)

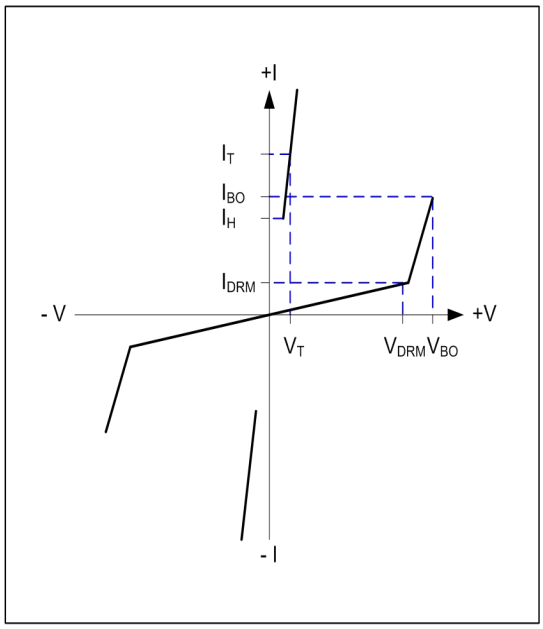
Type	V_{DRM}	I_{DRM}	V_{BO}	I_{BO}	V_T	I_T	C_O	I_H
	Min.		Max.	Max.	Max.		Tpy.	Tpy.
	V	μA	V	mA	V	A	pF	mA
TSSC006B1X	6	5	25	800	4	2.2	100	50
TSSC015B1X	15	5	35	800	4	2.2	100	50
TSSC025B1X	25	5	40	800	4	2.2	100	50
TSSC058B1X	58	5	77	800	4	2.2	100	150
TSSC065B1X	65	5	88	800	4	2.2	100	150
TSSC075B1X	75	5	98	800	4	2.2	90	150
TSSC090B1X	90	5	130	800	4	2.2	90	150
TSSC120B1X	120	5	160	800	4	2.2	90	150
TSSC140B1X	140	5	180	800	4	2.2	85	150
TSSC170B1X	170	5	220	800	4	2.2	85	150
TSSC180B1X	180	5	220	800	4	2.2	85	150
TSSC190B1X	190	5	260	800	4	2.2	80	150
TSSC220B1X	220	5	300	800	4	2.2	80	150
TSSC275B1X	275	5	350	800	4	2.2	35	150
TSSC320B1X	320	5	400	800	4	2.2	35	150
TSSC340B1X	340	5	450	800	4	2.2	32	120
TSSC360B1X	360	5	460	800	4	2.2	32	150
TSSC460B1X	460	5	540	800	4	2.2	32	150
TSSC500B1X	500	5	600	800	4	2.2	32	150

Notes:

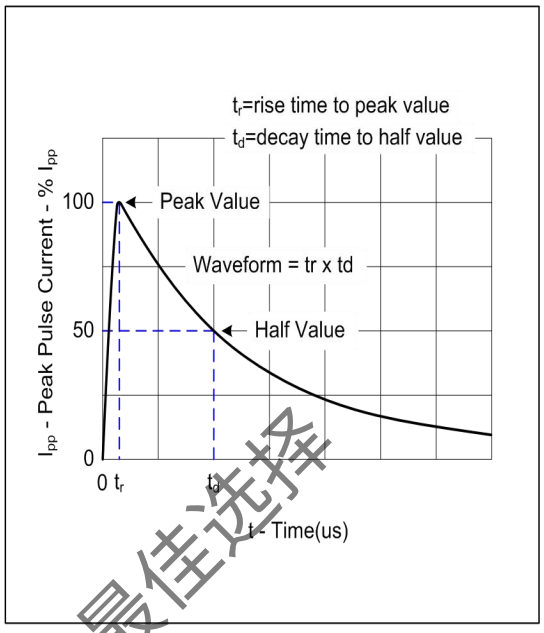
• All measurements are made at an ambient temperature of 25 ℃. I_{PP} applies to -40 ℃ through +85 ℃ temperature range.

• Off-state capacitance (C_O) is measured at 1 MHz with a 2 V bias and is typical value.

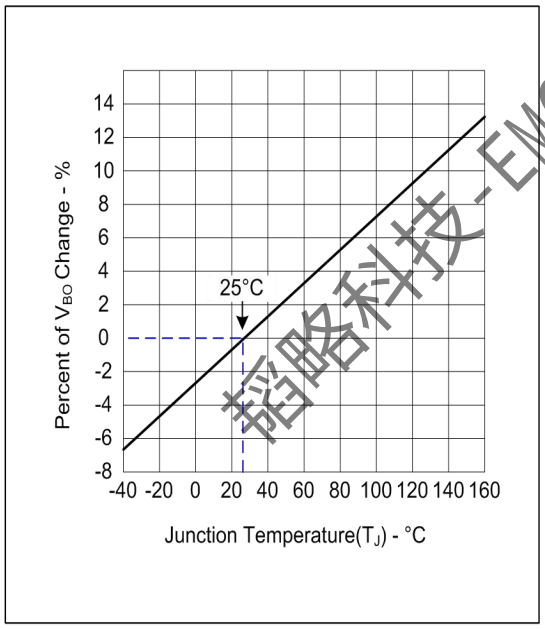
Typical Characteristics



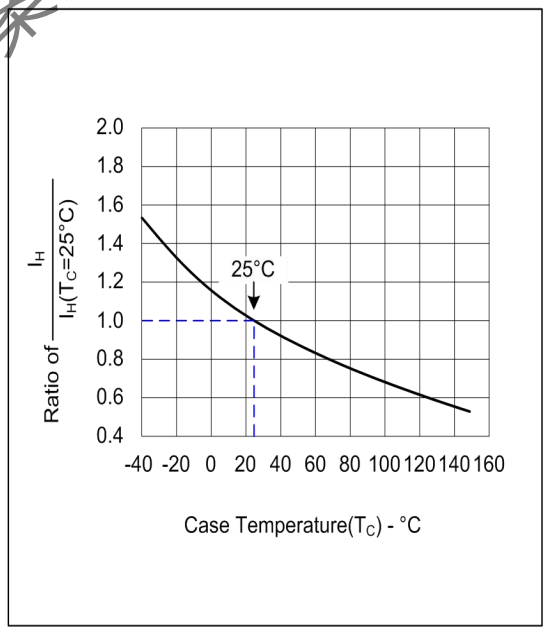
V - I Characteristics



t_r X t_d Pulse Waveform



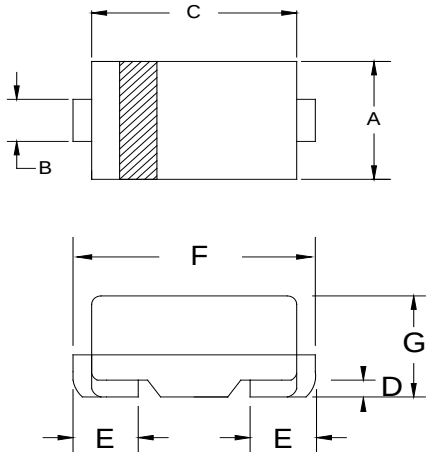
Normalized V_{BO} Change versus Junction Temperature



Normalized DC Holding Current versus Case Temperature

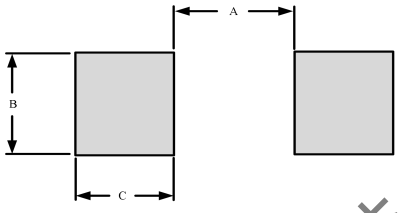
Package Dimensions

SMB



DIM	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	3.30	3.62	3.94	0.130	0.142	0.155
B	1.95	2.60	3.20	0.077	0.102	0.126
C	4.06	4.40	4.57	0.160	0.173	0.180
D	0.125	0.20	0.305	0.005	0.008	0.012
E	0.76	1.14	1.52	0.030	0.045	0.06
F	5.20	5.40	5.59	0.205	0.213	0.22
G	2.05	2.30	2.50	0.080	0.090	0.098

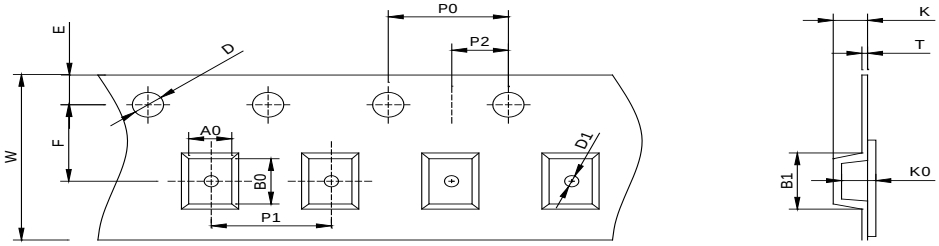
Recommend Solder Pad Layout



DIM(mm)	MILLIMETERS
A	2.20
B	2.80
C	2.20

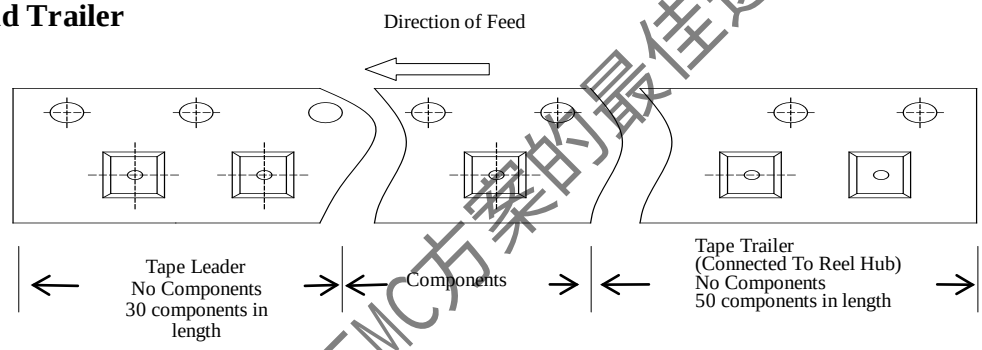
Tape and Reel

SMB Reel Dim



Reel Dim	Tape	A0	B0	B1	D	D1	E	F	K0	T	W	P0	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

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	C	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:V_{DRM}
(6) Direction Type: Bidirectional
(7) Lines Protected: 1X=1 line

Contant Information

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