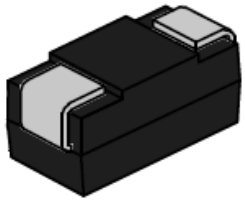
PxxxxSB Series TSS

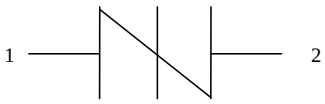
Rev.5.3

DESCRIPTION:

PxxxxSB series thyristors are a type of semiconductor component. They are designed to protect baseband equipment from damaging overvoltage transients. Such as modems, telephones, line cards, answering machines, FAX machines, T1/E1, xDSL and more.



SMB



Symbol

FEATURES:

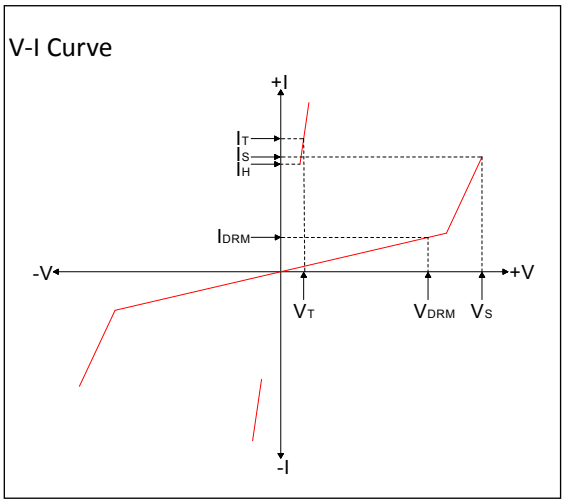
- ✧ Low profile package.
- ✧ Low on-state voltage.
- ✧ Excellent capability of absorbing transient surge.
- ✧ Quick response to surge voltage (ns Level).
- ✧ Eliminates overvoltage caused by fast rising transients.
- ✧ Moisture sensitivity level: Level 1
- ✧ UL 497B item recognized. (File No.: E480698).
- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact).
- ✧ Non degenerative.

ABSOLUTE MAXIMUM RATINGS(T_A=25℃, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T_{STG}	-60 to +150	℃
Operating junction temperature range	T_J	-40 to +125	℃
Repetitive peak pulse current@10/1000μs	I_{PP}	80	A

ELECTRICAL CHARACTERISTICS (T_A=25℃)

Symbol	Parameter
V_{DRM}	Peak off-state voltage
I_{DRM}	Off-state current
V_S	Switching voltage
I_S	Switching current
V_T	On-state voltage
I_T	On-state current
I_H	Holding current
C_O	Off-state capacitance



MARKING

P22B: Device Marking Code
2009: In ninth week, 2020

ELECTRICAL CHARACTERISTICS(T_A=25℃, continued)

Part Number	I_{DRM}@V_{DRM}		V_S①@I_S		V_T@I_T		I_H	C_O②	Marking
	μA	V	V	mA	V	A	mA	pF	
	max		max	max	max	max	min	max	
P0220SB	1	18	30	800	4	2.2	30	80	P22B
P0300SB	1	25	40	800	4	2.2	30	80	P03B
P0640SB	1	58	77	800	4	2.2	120	80	P06B
P0720SB	1	66	87	800	4	2.2	120	75	P07B
P0900SB	1	75	98	800	4	2.2	120	70	P09B
P1100SB	1	90	130	800	4	2.2	120	70	P11B
P1300SB	1	120	160	800	4	2.2	120	60	P13B
P1500SB	1	140	180	800	4	2.2	120	55	P15B
P1800SB	1	170	220	800	4	2.2	120	50	P18B
P2300SB	1	190	260	800	4	2.2	120	50	P23B
P2600SB	1	220	300	800	4	2.2	120	45	P26B
P3100SB	1	275	350	800	4	2.2	120	45	P31B
P3500SB	1	320	400	800	4	2.2	120	40	P35B
P3800SB	1	340	450	800	4	2.2	120	40	P38B

① V_S is measured at 100kV/s
② Off-state capacitance is measured in V_{DC}=2V, V_{RMS}=1V, f=1MHz

SURGE RATINGS

Series	I_{PP} (A) min			
	2/10μs	8/20μs	10/360μs	10/1000μs
B	250	250	125	80

ORDERING INFORMATION

P 022 0 S B

- P: Series code — P: SIDACtor
- 022: Median voltage
- 0: 0: Bi-direction
- S: Package type
- B: Surge ratings:4kV(10/700μs)

SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.2)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L)to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L) (Liquidus)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

FIG.1: tr × td pulse waveform

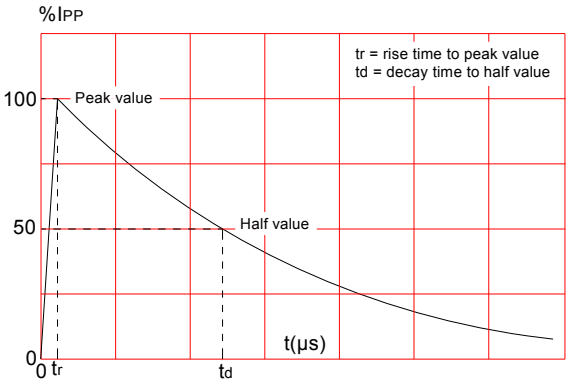


FIG.2: Reflow condition

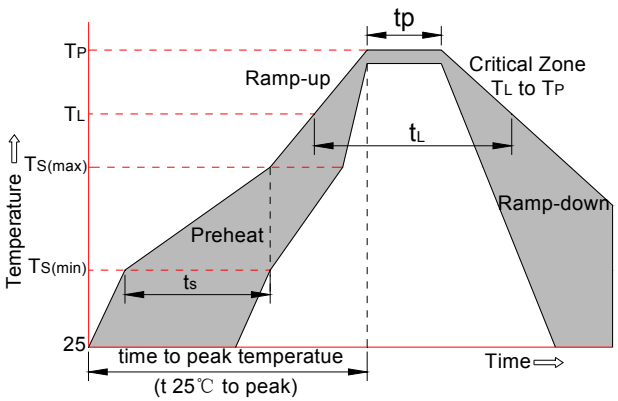


FIG.3: Normalized Vs change vs. junction temperature

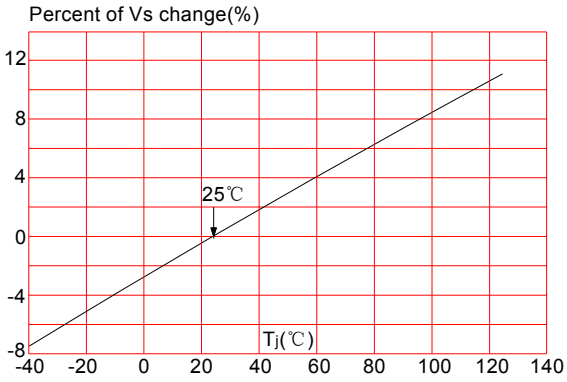
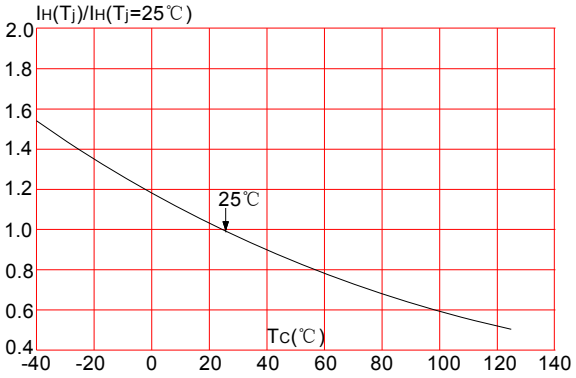
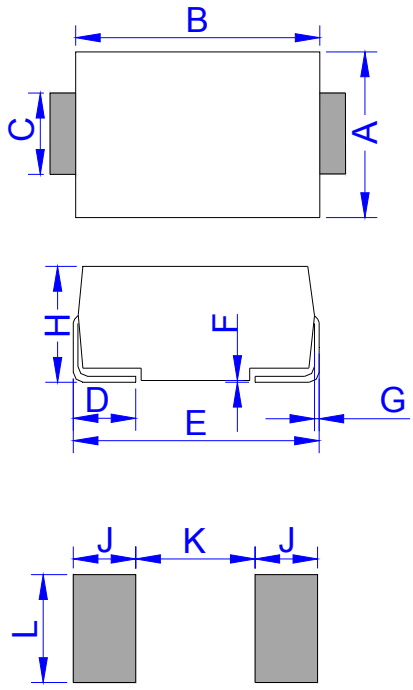


FIG.4: Normalized DC holding current vs. case temperature



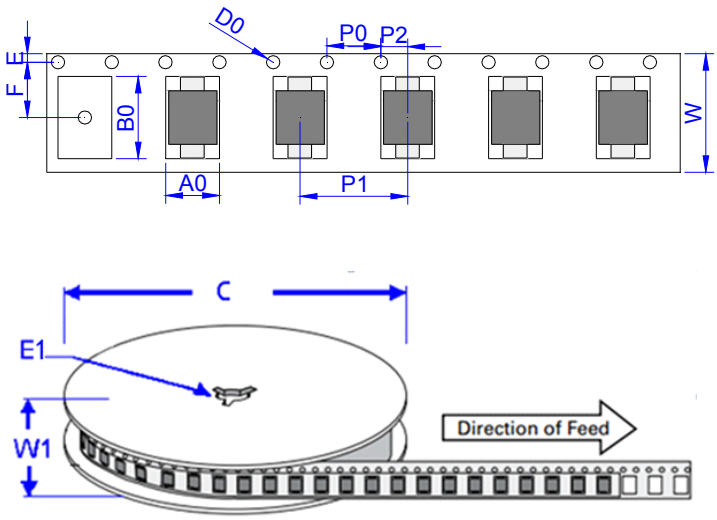
PACKAGE MECHANICAL DATA



DO-214AA (SMB)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	3.30	3.94	0.130	0.155
B	4.30	4.80	0.169	0.189
C	1.90	2.20	0.075	0.087
D	0.95	1.52	0.037	0.060
E	5.20	5.60	0.205	0.220
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.10	2.40	0.083	0.094
J	2.20		0.087	
K		2.60		0.102
L	2.30		0.091	

TAPE AND REEL SPECIFICATION-SMB



Ref.	Dimensions	
	Millimeters	Inches
A0	3.76 ± 0.3	0.148 ± 0.012
B0	5.69± 0.3	0.224 ± 0.012
C	330.0	13.0
D0	1.55 ± 0.1	0.061 ± 0.004
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.3 ± 0.3	0.524± 0.012
F	5.5 ± 0.2	0.217 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	8.00 ± 0.2	0.3145 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	12.0± 0.2	0.472 ± 0.008
W1	15.7 ± 2.0	0.618 ± 0.079

PART No.	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
PxxxxSB	0.098	3,000	48,000	13 inch reel pack