

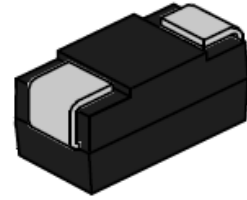


PxxxxSB Series TSS

Rev.5.3

DESCRIPTION:

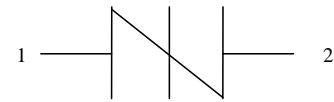
PxxxxSB series thyristors are a type of semiconductor component. They are designed to protect baseband equipment from damaging overvoltage transients. Such as modems, telephones, line cards, answering machines, FAX machines, T1/E1, xDSL and more.



SMB

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.



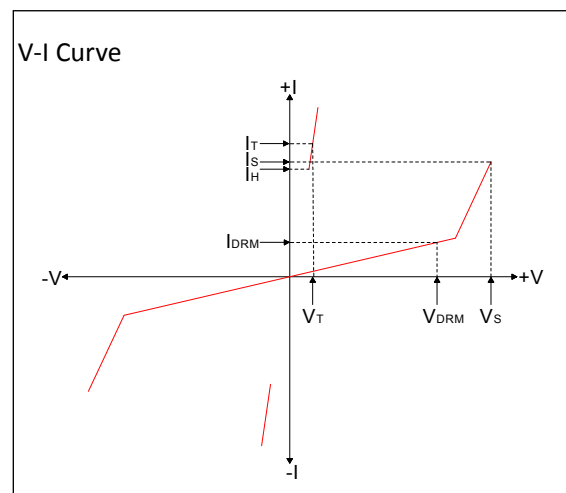
Symbol

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

Parameter	Symbol	Value	Unit
Storage temperature range	T _{STG}	-60 to +150	°C
Operating junction temperature range	T _J	-40 to +125	°C
Repetitive peak pulse current@10/1000μs	I _{PP}	80	A

ELECTRICAL CHARACTERISTICS (T_A=25°C)

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 ($T_A=25^\circ\text{C}$, continued)

Part Number	$I_{\text{DRM}}@V_{\text{DRM}}$		$V_{\text{S}}^{\text{①}}@I_{\text{S}}$		$V_{\text{T}}@I_{\text{T}}$		I_{H}	$C_{\text{O}}^{\text{②}}$	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 $V_{\text{DC}}=2\text{V}$, $V_{\text{RMS}}=1\text{V}$, $f=1\text{MHz}$

SURGE RATINGS

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

ORDERING INFORMATION

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

SOLDERING PARAMETERS

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

FIG.1: $t_r \times t_d$ pulse waveform

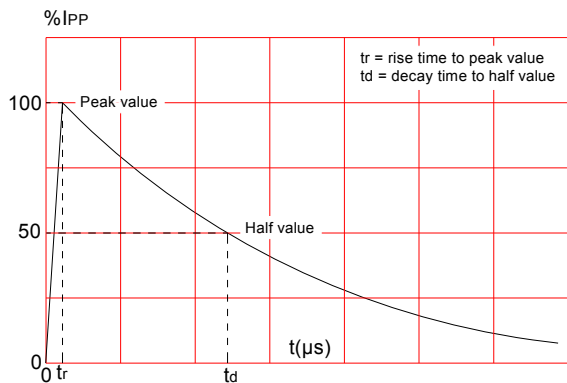


FIG.2: Reflow condition

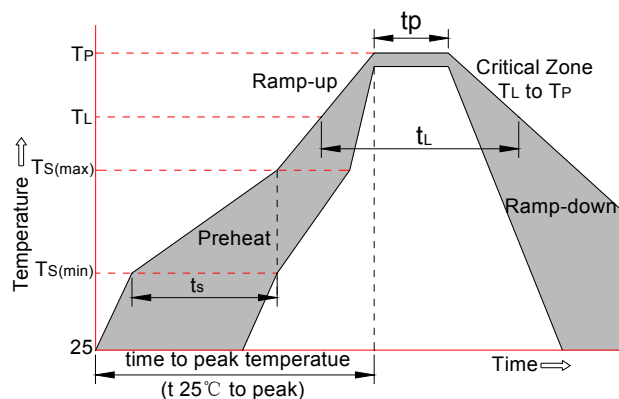


FIG.3: Normalized V_s change vs. junction temperature

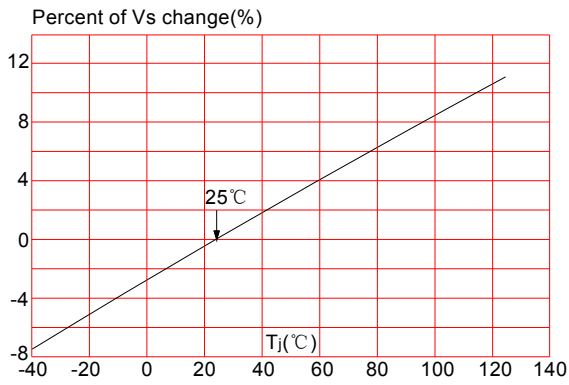
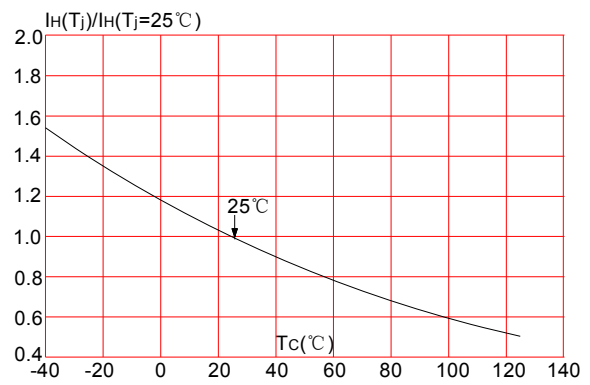
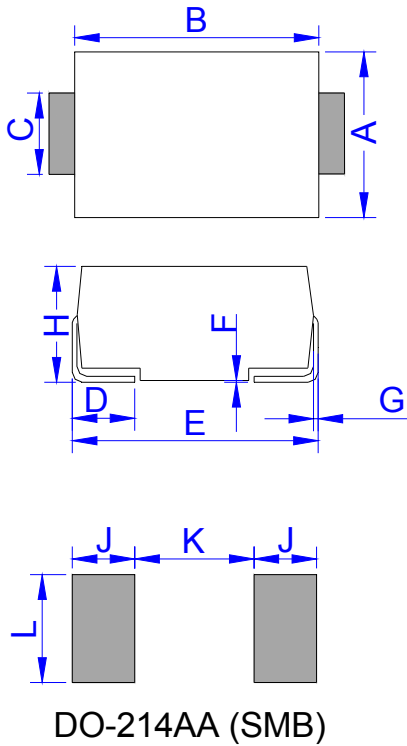


FIG.4: Normalized DC holding current vs. case temperature

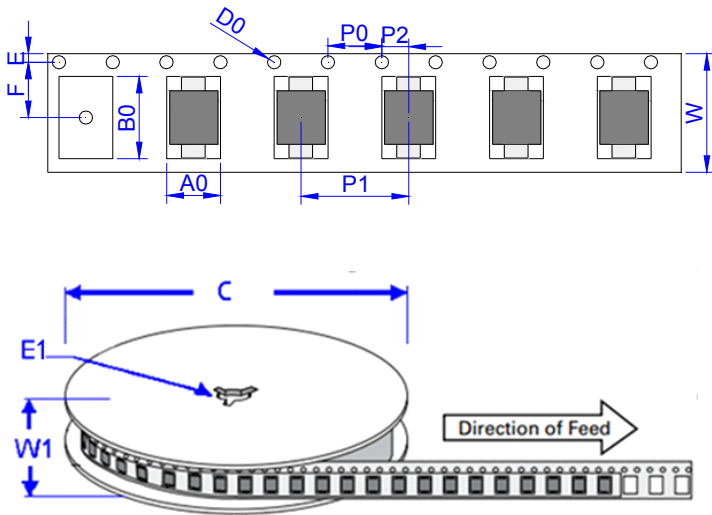


PACKAGE MECHANICAL DATA



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

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