

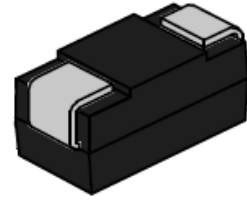


## PxxxxSB Series TSS

Rev.5.3

### DESCRIPTION:

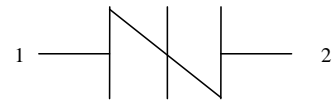
PxxxxSB series thyristors are a type of semiconductor component. They are designed to protect baseband equipment from damaging overvoltage transients. Such as modems, telephones, line cards, answering machines, FAX machines, T1/E1, xDSL and more.



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)  $\pm 30\text{kV}$  (air),  $\pm 30\text{kV}$  (contact).
- ✧ Non degenerative.



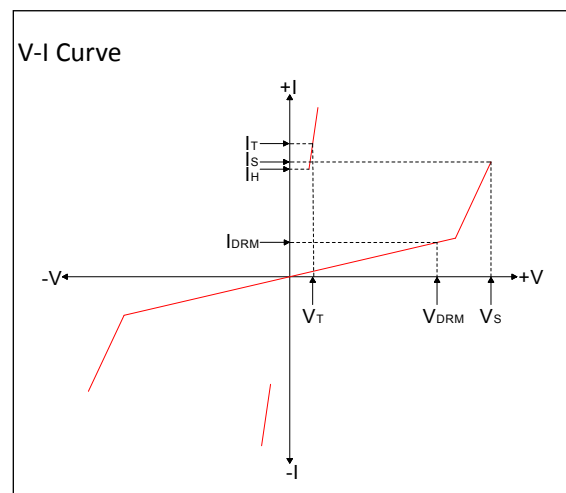
Symbol

### ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ , RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	$T_{STG}$	-60 to +150	$^\circ\text{C}$
Operating junction temperature range	$T_J$	-40 to +125	$^\circ\text{C}$
Repetitive peak pulse current@10/1000 $\mu\text{s}$	$I_{PP}$	80	A

### ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ )

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	$I_{\text{DRM}}@V_{\text{DRM}}$		$V_{\text{S}}^{\text{①}}@I_{\text{S}}$		$V_{\text{T}}@I_{\text{T}}$		$I_{\text{H}}$	$C_{\text{O}}^{\text{②}}$	Marking
	$\mu\text{A}$	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  $V_{\text{S}}$  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	$I_{\text{PP}}$ (A) min			
	2/10 $\mu\text{s}$	8/20 $\mu\text{s}$	10/360 $\mu\text{s}$	10/1000 $\mu\text{s}$
B	250	250	125	80

ORDERING INFORMATION

<b>P</b>	<b>022</b>	<b>0</b>	<b>S</b>	<b>B</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

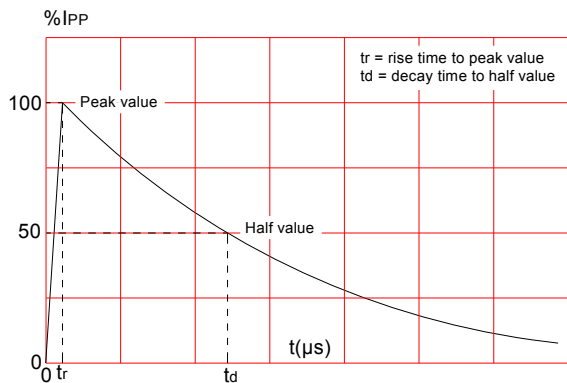
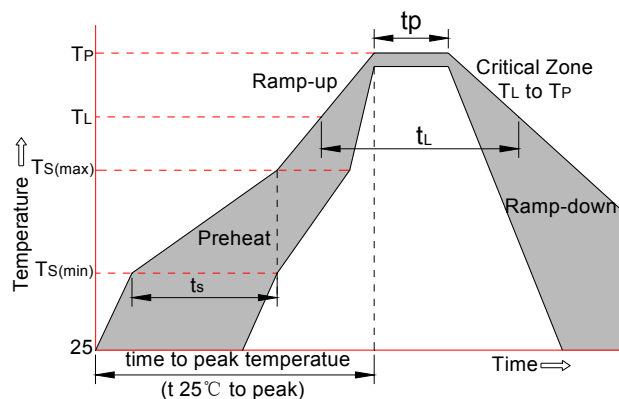
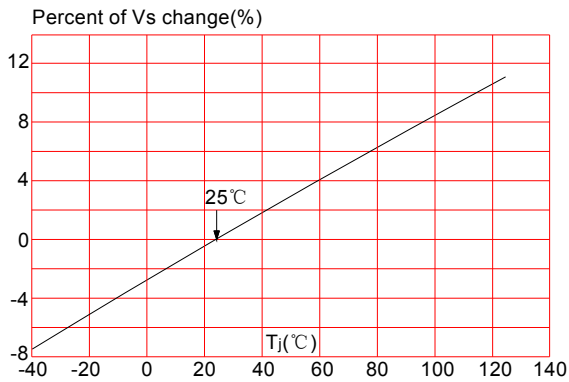


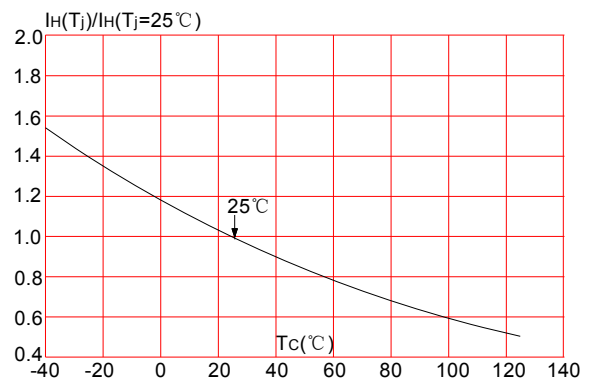
FIG.2: Reflow condition



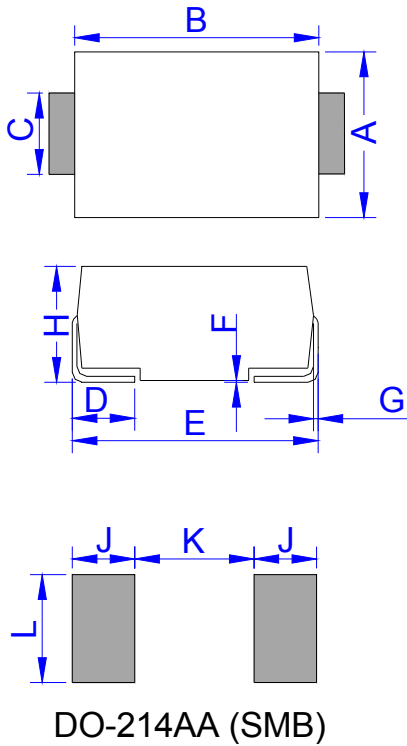
**FIG.3:** Normalized  $V_s$  change vs. junction temperature



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

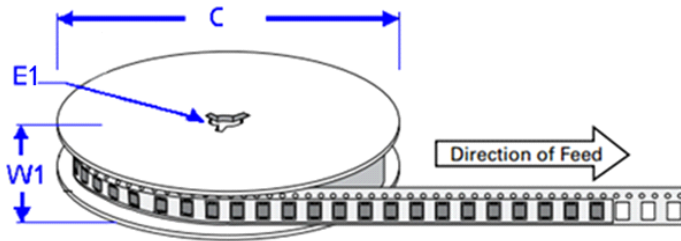
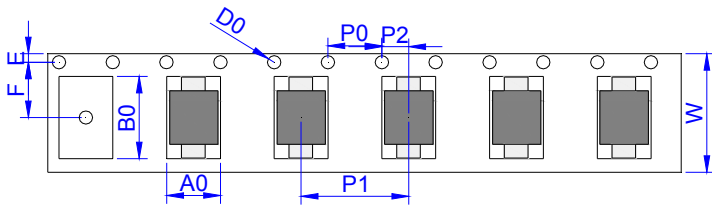


**PACKAGE MECHANICAL DATA**



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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