

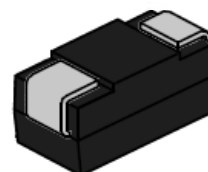


## Pxxx1SBP Series TSS

Rev.1.2

### DESCRIPTION:

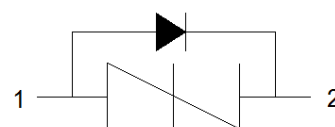
Pxxx1SBP series thyristors are a type of semiconductor component. They are designed for transient surge protection.



SMA

### FEATURES:

- ✧ 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.
- ✧ Fails short circuit when surged in excess of ratings.
- ✧ Non degenerative.
- ✧ UL 497B item recognized. (File No.: E480698).
- ✧ IEC61000-4-2 (ESD)  $\pm 30\text{kV}$  (air),  $\pm 30\text{kV}$  (contact).



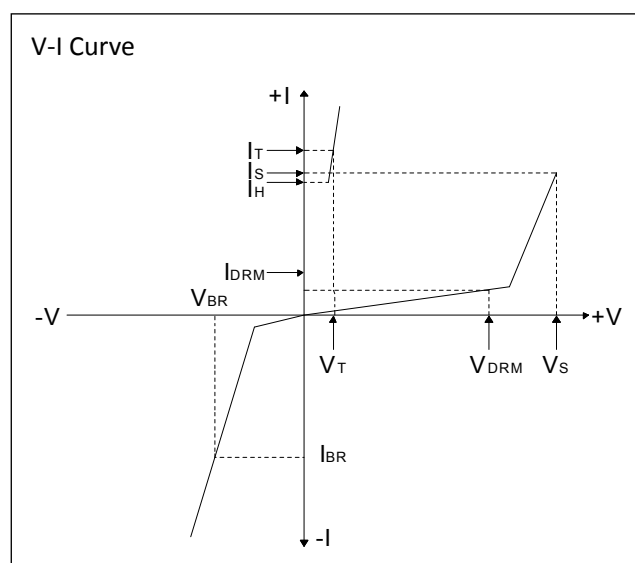
Symbol

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

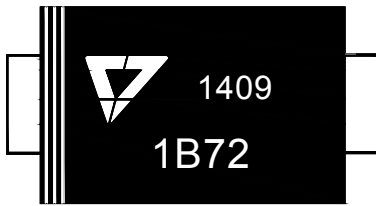
Parameter	Symbol	Value	Unit
Storage temperature range	$T_{STG}$	-60 to +150	$^\circ\text{C}$
Operating junction temperature range	$T_J$	-40 to +150	$^\circ\text{C}$
Repetitive peak pulse current@10/1000 $\mu\text{s}$	$I_{PP}$	80	A
Typical thermal resistance junction to ambient	$R_{\theta JA}$	120	$^\circ\text{C/W}$

### 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
$V_{BR}$	Reverse breakdown voltage
$I_{BR}$	Test current



MARKING



1B72 : Device Marking Code  
1409: In ninth week, 2014

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

Part Number	$I_{\text{DRM}}@V_{\text{DRM}}$ PIN2-1		$I_{\text{DRM}2}^{\text{①}}@V_{\text{DRM}}$ PIN2-1		$V_s^{\text{②}}@I_s$ PIN2-1		$V_T@I_T$ PIN2-1		$I_H$ PIN2-1	$C_o^{\text{③}}$ PIN2-1	$V_{\text{BR}}@I_{\text{BR}}$ PIN1-2		Marking
	$\mu\text{A}$	V	$\mu\text{A}$	V	V	mA	V	A	mA	pF	V	mA	
	max		max		max	max	max	max	max	max	max	max	
P0721SBP	1	75	80	75	88	200	1.8	2.2	50	150	18	1	1B72
P0901SBP	1	85	80	85	100	200	1.8	2.2	50	150	18	1	1B90
P1101SBP	1	95	80	95	115	200	1.8	2.2	50	150	18	1	1B110
P1301SBP	1	120	80	120	140	200	1.8	2.2	50	150	18	1	1B130
P1801SBP	1	175	80	175	210	200	1.8	2.2	50	150	18	1	1B18
P2501SBP	1	220	80	220	250	200	1.8	2.2	50	150	18	1	1B25

①  $I_{\text{DRM}2}$  is measured at  $T_A=150^{\circ}\text{C}$

②  $V_s$  is measured at 100kV/s

③ 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	$I_{\text{PP}}(\text{A})_{\text{min}}$			
	2/10 $\mu\text{s}$	8/20 $\mu\text{s}$	10/360 $\mu\text{s}$	10/1000 $\mu\text{s}$
B	250	250	100	80

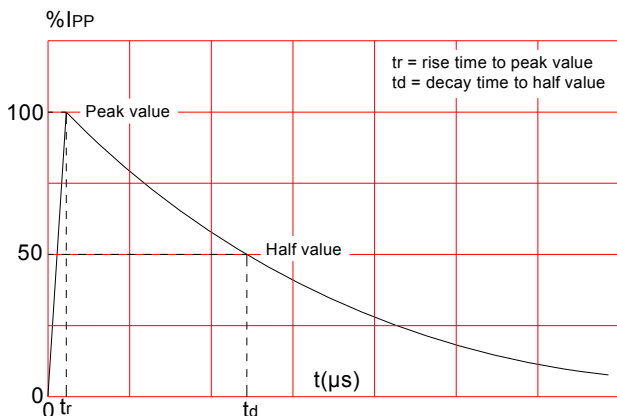
**ORDERING INFORMATION**

	<b>P</b>	<b>072</b>	<b>1</b>	<b>S</b>	<b>B</b>	<b>P</b>
Series code P: SIDAC						For customer
	Median voltage				Surge ratings	
		Uni-direction		Package type:SMT		

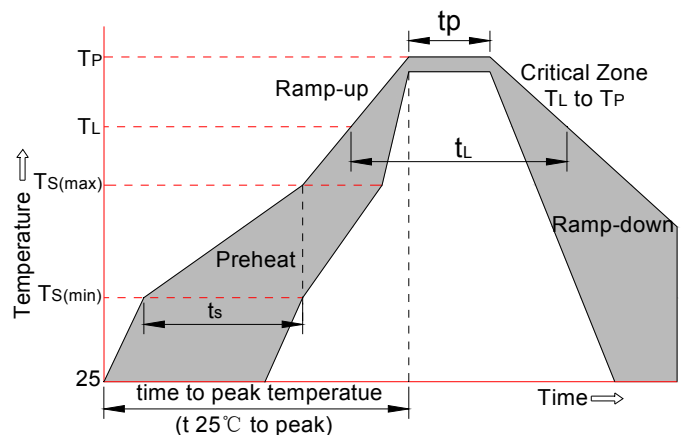
**SOLDERING PARAMETERS**

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) (ts)	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

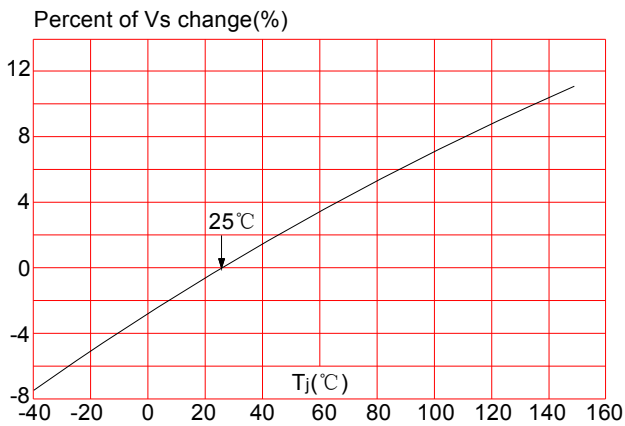
**FIG.1: tr × td pulse waveform**



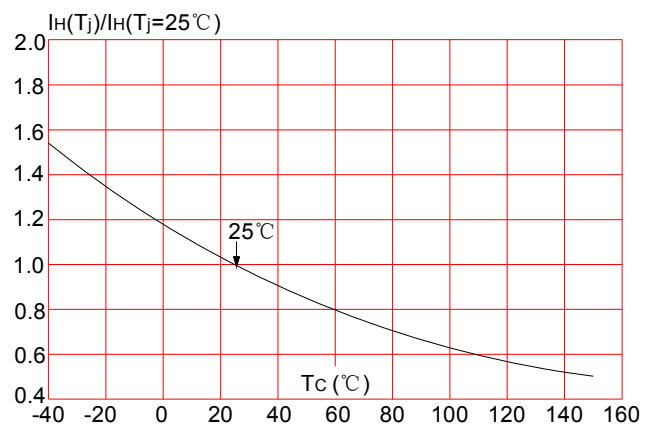
**FIG.2: Reflow condition**



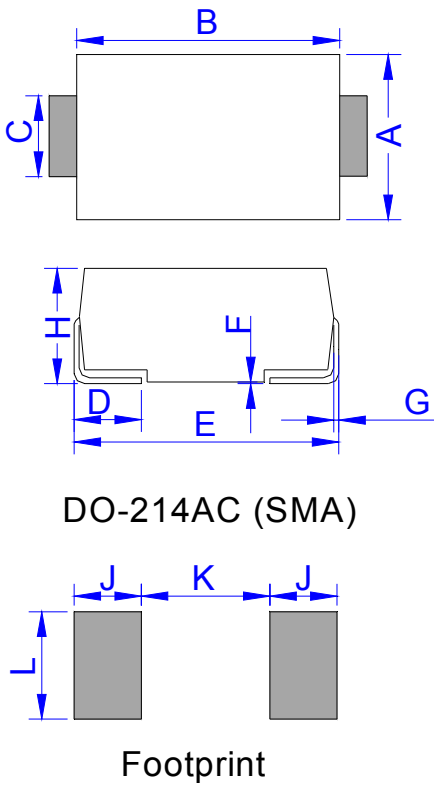
**FIG.3:** Normalized Vs change vs. junction temperature



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

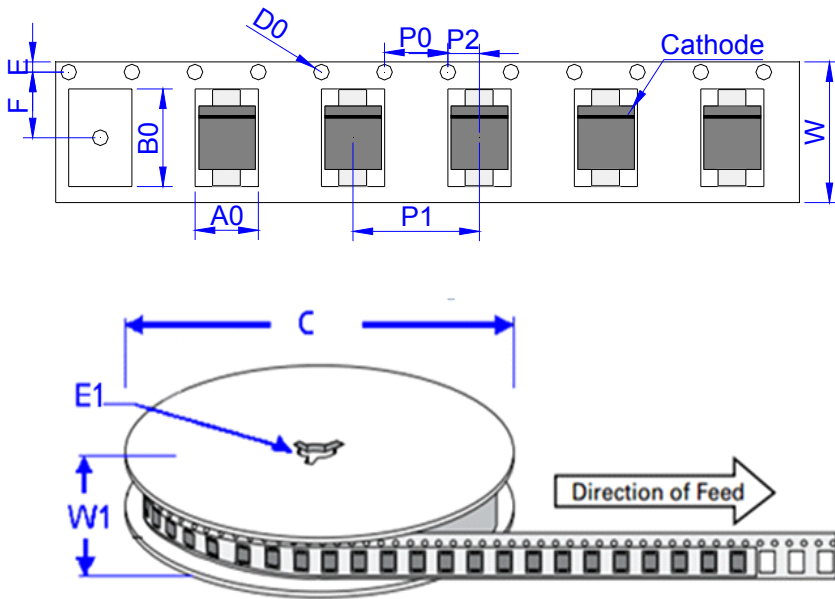


**PACKAGE MECHANICAL DATA**



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	3.00	0.102	0.118
B	4.15	4.65	0.163	0.183
C	1.25	1.65	0.049	0.065
D	0.95	1.52	0.037	0.060
E	4.90	5.30	0.193	0.209
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.00	2.44	0.079	0.096
J	2.00		0.079	
K		2.30		0.091
L	1.80		0.071	

TAPE AND REEL SPECIFICATION-SMA



Ref.	Dimensions	
	Millimeters	Inches
A0	2.79 ± 0.3	0.110 ± 0.012
B0	5.33 ± 0.3	0.210 ± 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	4.00 ± 0.2	0.157 ± 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
Pxxx1SBP	0.068	7,500	120,000	13 inch reel pack

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