

# PxxxxSB Series

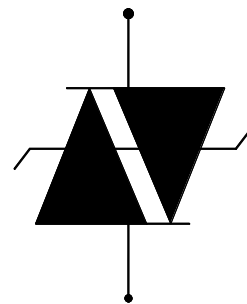
Thyristors Solid Protection Device Bidirectional transient voltage suppressors

## 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
- WeiPan technology



**SMB**



**Schematic Diagram**

## Ordering Information

Device	Qty per Reel	Reel Size
PxxxxSB	2500	13 Inch

## Maximum Ratings and Electrical Characteristics

Symbol	Parameter	Value	Unit
I <sub>PP</sub>	Non-repetitive peak pulse current	10/1000 us	80
		5/310 us	100
		8/20 us	250
V <sub>PP</sub>	Non-repetitive peak pulse voltage	10/700us	4000
V <sub>ESD</sub>	ESD Rating per IEC61000-4-2:	Contact	8
		Air	15
T <sub>s</sub>	Storage temperature range	-40 to +150	°C
T <sub>j</sub>	Maximum junction temperature	150	°C

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.

\*Other voltages may be available upon request.

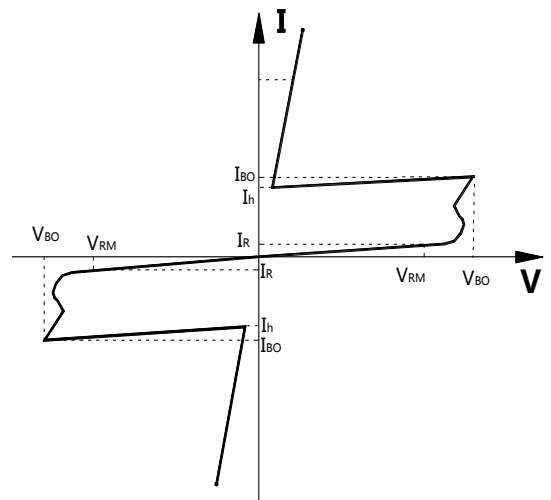
**Electrical Parameters** ( $T_{amb}=25^{\circ}C$ )

Type	$V_{RM}$	$I_{RM}$	$V_{BO}$	$I_{BO}$	$V_T$	$I_T$	$C_O$	$I_H$
	Min.	Max.		Max.	Max.		Typ.	Typ.
	V	$\mu A$	V	mA	V	A	pF	mA
P0080SB	6	5	25	800	4	2.2	70	50
P0300SB	25	5	40	800	4	2.2	70	50
P0640SB	58	5	77	800	4	2.2	60	150
P0720SB	65	5	88	800	4	2.2	60	150
P0900SB	75	5	98	800	4	2.2	55	150
P1100SB	90	5	130	800	4	2.2	55	150
P1300SB	120	5	160	800	4	2.2	55	150
P1500SB	140	5	180	800	4	2.2	60	150
P1800SB	170	5	220	800	4	2.2	60	150
P2000SB	180	5	220	800	4	2.2	60	150
P2300SB	190	5	260	800	4	2.2	55	150
P2600SB	220	5	300	800	4	2.2	50	150
P3100SB	275	5	350	800	4	2.2	45	150
P3500SB	320	5	400	800	4	2.2	40	150
P4000SB	360	5	460	800	4	2.2	40	150
P4500SB	460	5	540	800	4	2.2	40	150
P5000SB	500	5	600	800	4	2.2	40	150

Notes:

- All measurements are made at an ambient temperature of 25 °C.  $I_{PP}$  applies to -40 °C through +85 °C temperature range.
- Off-state capacitance ( $C_O$ ) is measured at 1 MHz, with a 2 V bias and is typical value.

Symbol	Parameter
$V_{RM}$	Stand-off voltage
$V_{BR}$	Breakdown voltage
$V_{BO}$	Switching Voltage
$I_{BO}$	Breakover current
$I_{RM}$	Leakage current at $V_{RM}$
$I_{PP}$	Peak pulse current
$I_H$	Holding current
$V_T$	On-state Voltage at $I_T$
$C_O$	Off-state Capacitance



Typical electrical characterist applications

Rating and Characteristics Curves

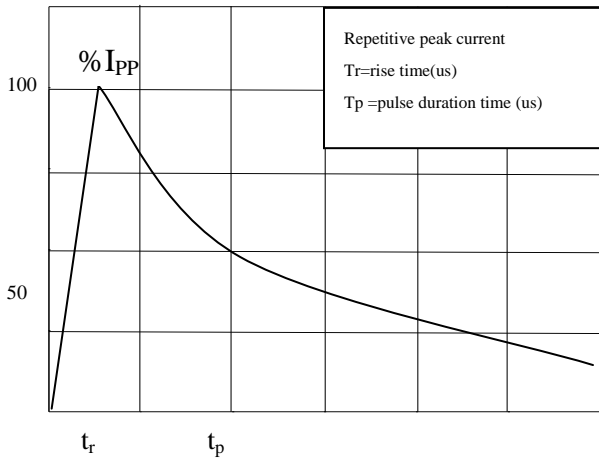


Fig.1 Pulse Waveform (5/310us)

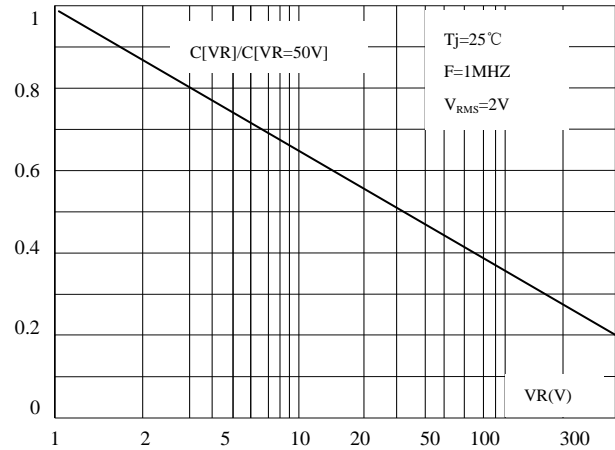


Fig. 2 Relation Variation of Junction Capacitance Versus Reverse Voltage Applied (Typical Values)

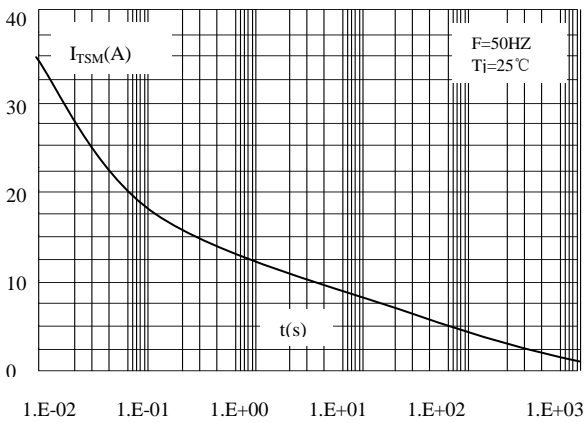


Fig.3 Non Repetitive Surge Peak On-State Current Versus Overload Duration

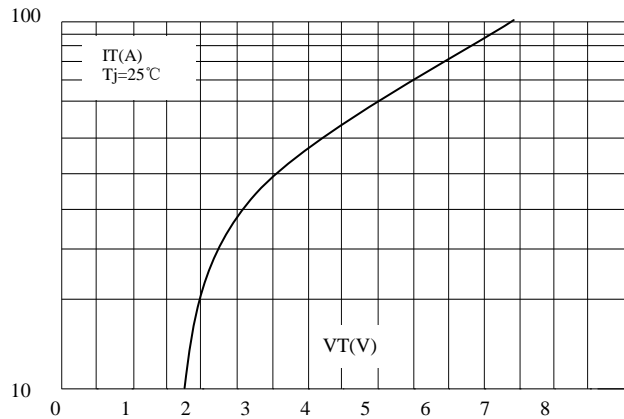


Fig.4 On-State Voltage Versus On-State Current (Typical Values)

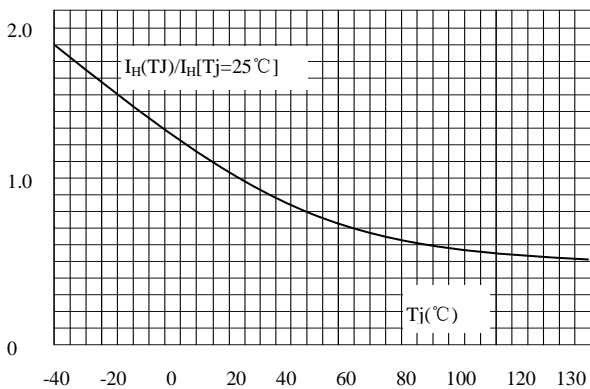


Fig.5 Relative Variation of Hold Current Versus Junction Temperature

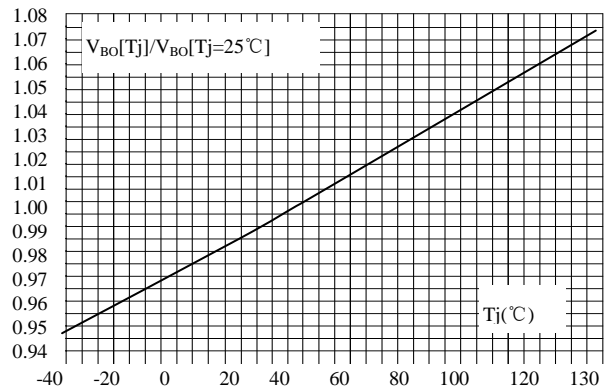


Fig.6 Relative Variation of Break Over Voltage Versus Junction Temperature

Typical electrical characterist applications

Rating and Characteristics Curves

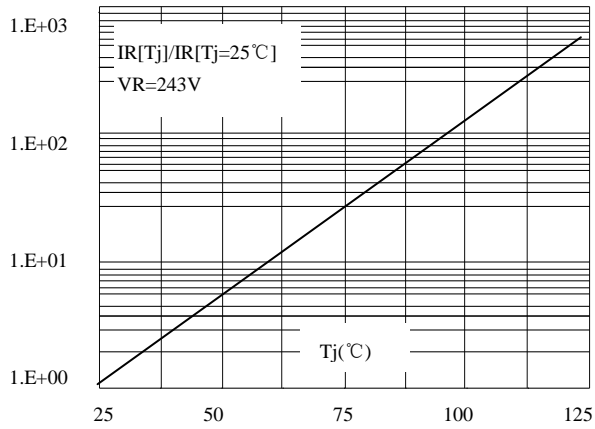


Fig.7 Relative Variation of Leakage Current Versus Reverse Voltage (Typical Values)

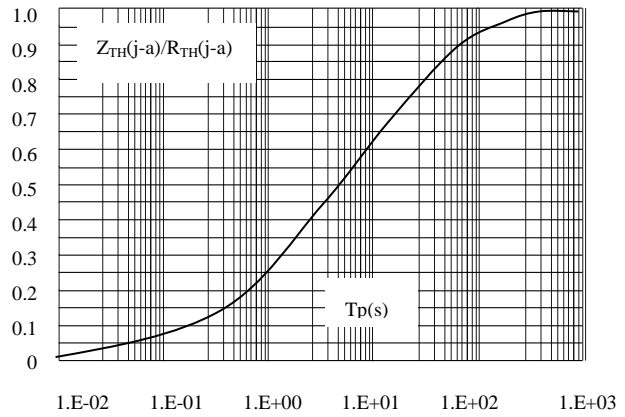


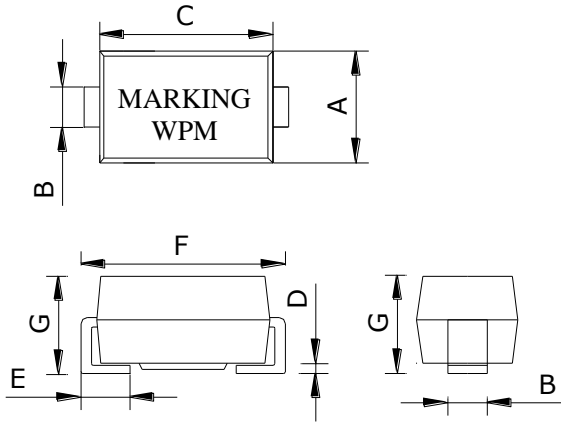
Fig.8 Variation of Thermal Impedance Junction To Ambient Versus Pulse Duration

## Package Information

### SMB

#### Mechanical Data

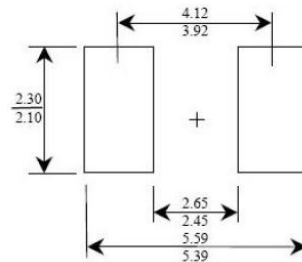
- Case: SMB
- Case Material: Molded Plastic. UL Flammability



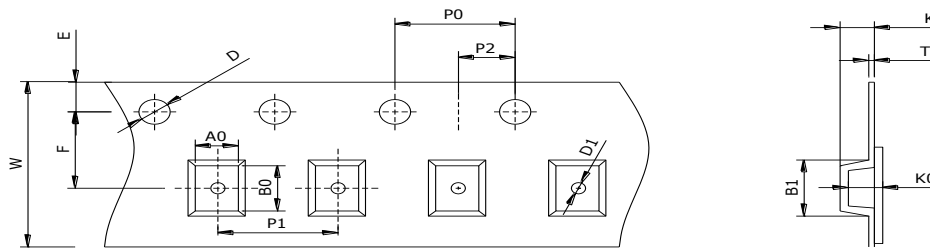
DIM	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	3.30	3.60	3.94	0.130	0.142	0.155
B	1.80	2.00	2.21	0.071	0.079	0.087
C	4.05	4.45	5.30	0.159	0.175	0.209
D	0.051	0.20	0.203	0.002	0.007	0.008
E	0.76	1.14	1.52	0.030	0.045	0.060
F	5.08	5.25	5.59	0.200	0.207	0.220
G	2.05	2.30	2.45	0.081	0.091	0.096

### SMB

#### Recommended Pad outline



#### SMB Reel Dim



Package	Chip Size (mm)	Pocket Size B0×A0×K0(mm)	Tape Width	Reel Diameter	Quantity Per Reel	P0	P1
SMB	5.50×3.80×2.40	5.70×4.00×2.70	12mm	330mm(13inch)	2500	4mm	8mm
D	D1	E	F	K	T	W	
1.5mm	1.0mm	1.75mm	5.5mm	2.45mm	0.5mm	12mm	