

**Description**

PxxxxSB-MC Series SMB thyristor surge suppressors protect telecommunications equipment such as modems, line cards, fax machines, and other CPE.

The Series are used to enable equipment to meet various regulatory requirements including GR 1089, ITU K.20, K.21 and K.45, IEC 60950, UL 60950, and TIA-968 (formerly known as FCC Part 68).



SMB (DO-214AA)

**Features**

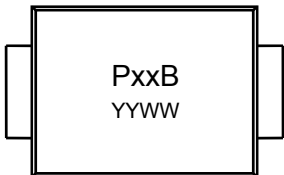
- Silicon technology
- Cannot be damaged by voltage
- Very Low capacitance
- Eliminate voltage overshoot
- Epoxy resin package
- Will not fatigue
- Complies with following standards:
  - GR1089
  - ITU K.20, K.21 and K.45
  - IEC 60950
  - UL 60950
  - TIA-968
- RoHS Compliant

**Mechanical Characteristics**

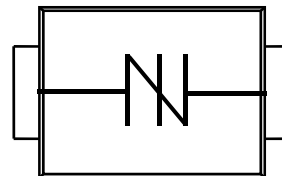
- Package: SMB (3.67×5.4×2.3mm)
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020

**Applications**

- COMMERCIAL SYSTEMS
- INDUSTRIAL & INSTRUMENTATION
- COMMUNICATIONS

**Marking Information**


PxxB = Type Code  
YYWW = Date Code

**Pin Configuration**

**Summary of Packing Options**

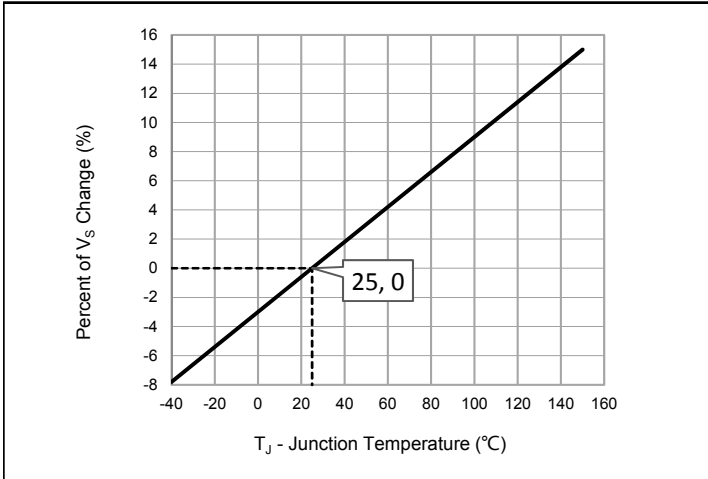
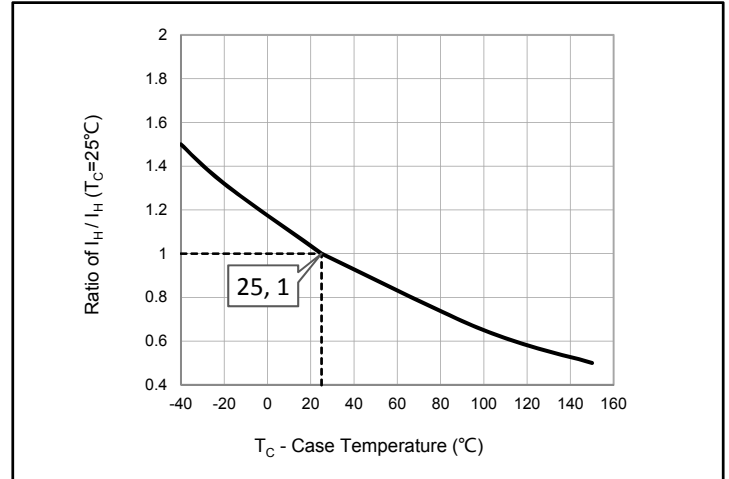
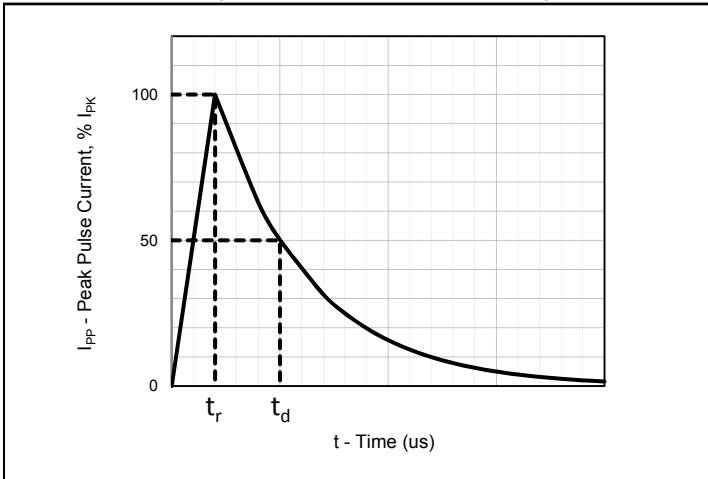
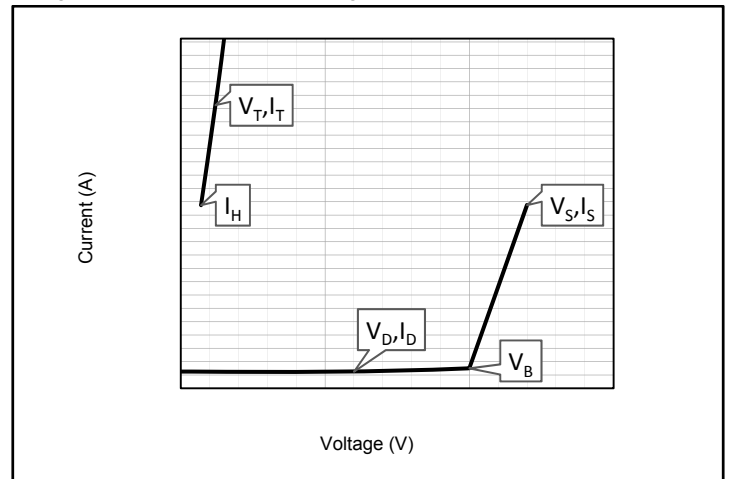
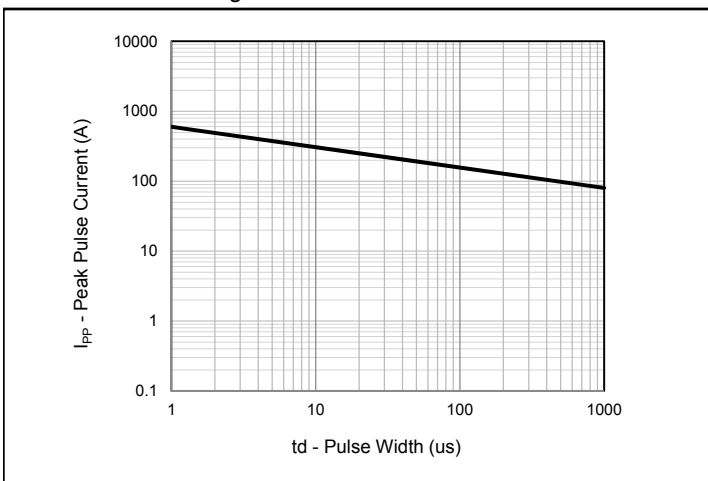
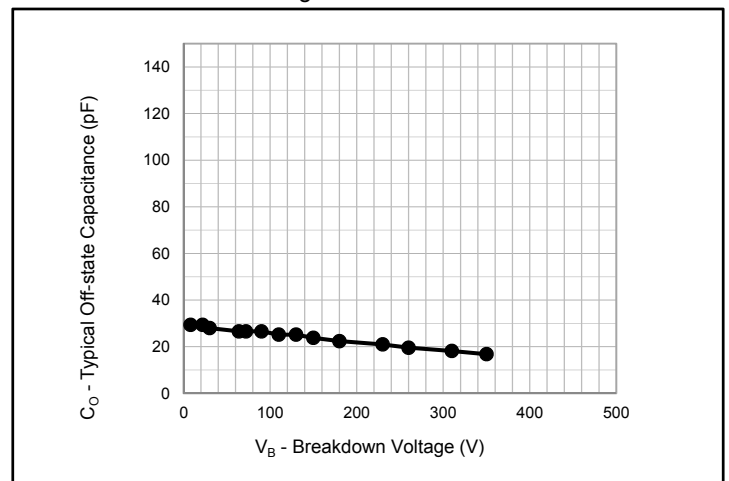
Package	Packing Description	Packing Quantity	Industry Standard
SMB	Tape/Reel, 13" reel	3000	EIA-481-1
	Tape/Reel, 7" reel	500	EIA-481-1

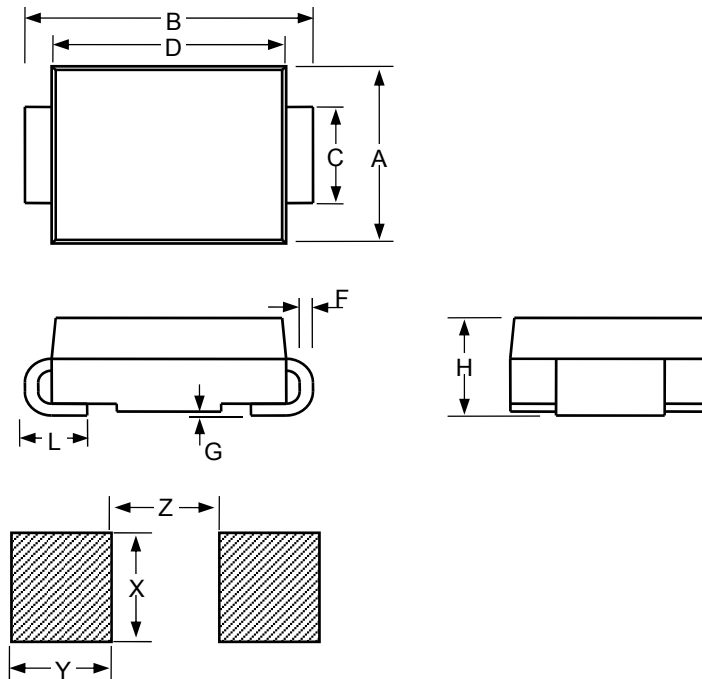
**Absolute Maximum Ratings**

Parameter	Symbol	Value	Units	Remarks
Peak Pulse Voltage	$V_{PP}$	4000	V	10/700us
Peak Pulse Current	$I_{PP}$	80	A	10/1000us
Peak Pulse Current	$I_{PK}$	250	A	8/20us
Peak One-cycle Surge Current	$I_{TSM}$	25	A	60Hz
Rate of Rise of Current	$di/dt$	500	A/us	
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	20	$^{\circ}C/W$	
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	100	$^{\circ}C/W$	
Operating Temperature Range	$T_J$	-40 to 150	$^{\circ}C$	
Storage Temperature Range	$T_{STG}$	-55 to 150	$^{\circ}C$	

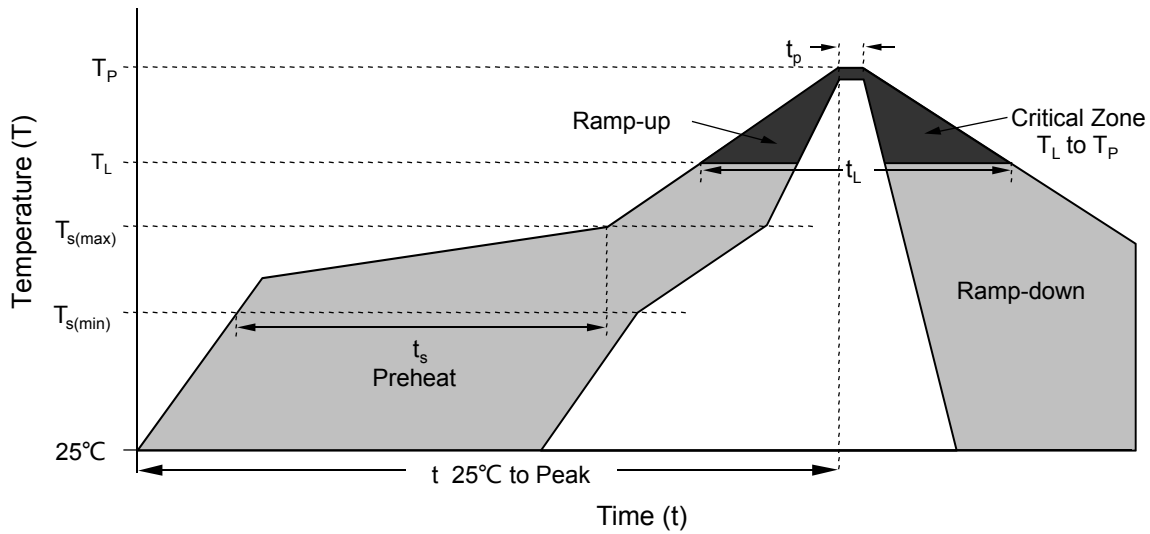
**Electrical Characteristics ( $T_A=25^{\circ}C$  unless otherwise noted)**

Part Number	Marking	$I_H$	$V_S$	$I_{S\_MAX}$	$V_T$	$I_T$	$I_D$	$V_D$	$C_O$
		mA	V 100KV/S MAX	mA	V @ $I_T$ MAX	A	uA @ $V_D$ MAX	V	pF 1MHz, 2V <sub>DC</sub> TYP
P0080SB-MC	P008B	40	25	500	4	2.2	5	6	29
P0220SB-MC	P02B	40	30	500	4	2.2	5	15	29
P0300SB-MC	P03B	40	40	500	4	2.2	5	25	28
P0640SB-MC	P06B	120	77	800	4	2.2	5	58	27
P0720SB-MC	P07B	120	88	800	4	2.2	5	65	27
P0900SB-MC	P09B	120	98	800	4	2.2	5	75	27
P1100SB-MC	P11B	120	130	800	4	2.2	5	90	25
P1300SB-MC	P13B	120	160	800	4	2.2	5	120	25
P1500SB-MC	P15B	120	180	800	4	2.2	5	140	24
P1800SB-MC	P18B	120	220	800	4	2.2	5	170	22
P2300SB-MC	P23B	120	260	800	4	2.2	5	190	21
P2600SB-MC	P26B	120	300	800	4	2.2	5	220	20
P3100SB-MC	P31B	120	350	800	4	2.2	5	275	18
P3500SB-MC	P35B	120	400	800	4	2.2	5	320	17
P4500SB-MC	P45B	120	530	800	4	2.2	5	400	13

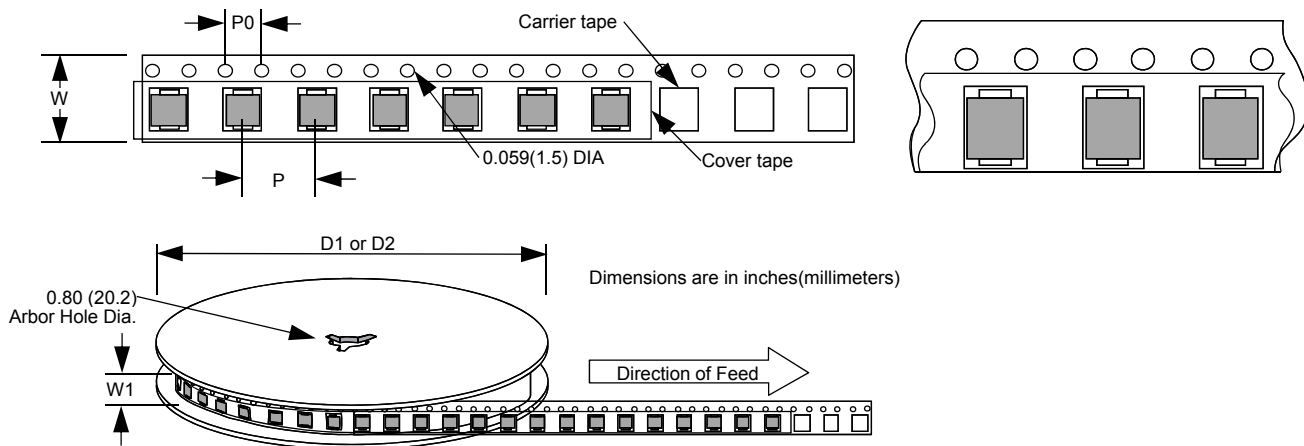
**Rating And Characteristic Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)**

**Fig.1 - Peak Pulse Current Rating**

**Fig.2 - Normalized DC Holding Current vs. Case Temperature**

**Fig.3 - tr/td us Pulse Waveform**

**Fig.4 - VI Curve**

**Fig.5 - Peak Pulse Current Rating**

**Fig.6 - Typical Off-state Capacitance**



SMB						
Dimension	Inches			Millimeters		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.134	0.144	0.155	3.4	3.67	3.94
B	0.205	0.213	0.22	5.21	5.4	5.59
C	0.075	0.079	0.083	1.9	2	2.1
D	0.169		0.185	4.3		4.7
L	0.03		0.06	0.76		1.52
F	0.006		0.012	0.152		0.305
G	-		0.008	-		0.203
H	0.085	0.091	0.096	2.15	2.3	2.45
X		0.11			2.8	
Y		0.079			2	
Z		0.079			2	



Reflow Condition		Lead-free assembly
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/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/second max
Reflow	- Temperature ( $T_L$ ) (Liquidus)	217°C
	- Time ( $t_L$ )	60 – 150 secs
Peak Temperature ( $T_P$ )		260 <sup>+0/-5</sup> °C
Time within 5°C of actual peak Temperature ( $t_p$ )		20 – 40 secs
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (t)		8 minutes Max.
Do not exceed		260°C

**Tape and Reel Specification**


Dimension	Inches			Millimeters		
	MIN	NOM	MAX	MIN	NOM	MAX
P		0.315			8	
P0		0.157			4	
W		0.472			12	
W1		0.492			12.5	
D1		7			177.8	
D2		13			330.2	

**Disclaimer**
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