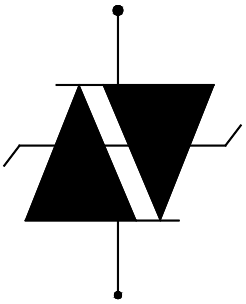
PxxxxSC Series

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

SMB



Schematic Diagram

Ordering Information

Device	Qty per Reel	Reel Size
PxxxxSC	3000	13 Inch

Maximum Ratings and Electrical Characteristics

Symbol	Parameter		Value	Unit
I_{PP}	Non-repetitive peak pulse current	10/1000 us 5/310 us 8/20 us	100 150 400	A
V_{PP}	Non-repetitive peak pulse voltage	10/700us	6000	V
V_{ESD}	ESD Rating per IEC61000-4-2:	Contact Air	8 15	KV
Ts	Storage temperature range		-40 to +150	℃
Tj	Maximum junction temperature		150	℃

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.*

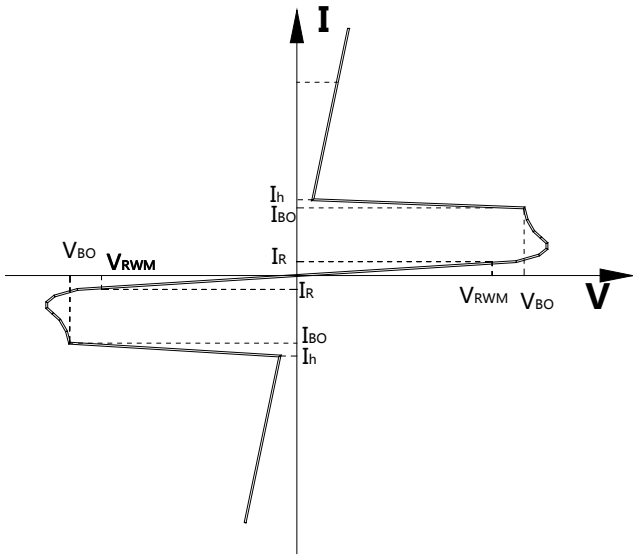
Electrical Parameters (T_{amb}=25℃)								
Type	V_{RM}	I_{RM}	V_{BO}	I_{BO}	V_T	I_T	C_O	I_H
	Min.		**Max.**	**Max.**	**Max.**		**Tpy.**	**Tpy.**
	V	**μA**	**V**	**mA**	**V**	**A**	**pF**	**mA**
P0080SC	6	5	25	800	4	2.2	100	50
P0220SC	15	5	35	800	4	2.2	100	50
P0300SC	25	5	40	800	4	2.2	100	50
P0640SC	58	5	77	800	4	2.2	100	150
P0720SC	65	5	88	800	4	2.2	100	150
P0900SC	75	5	98	800	4	2.2	90	150
P1100SC	90	5	130	800	4	2.2	90	150
P1300SC	120	5	160	800	4	2.2	90	150
P1500SC	140	5	180	800	4	2.2	85	150
P1800SC	170	5	220	800	4	2.2	85	150
P2000SC	180	5	220	800	4	2.2	85	150
P2300SC	190	5	260	800	4	2.2	150	150
P2600SC	220	5	300	800	4	2.2	150	150
P3100SC	275	5	350	800	4	2.2	80	150
P3500SC	320	5	400	800	4	2.2	65	150
P3800SC	340	5	450	800	4	2.2	32	50
P4200SC	400	5	540	800	4	2.2	32	50
P4500SC	420	5	540	800	4	2.2	65	50
P8500SC	750	5	940	800	4	2.2	25	50

Notes:

• All measurements are made at an ambient temperature of 25 ℃. I_{PP} applies to -40 ℃ through +85 ℃ 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}	Break over current
I_{RM}	Leakage current at VRM
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

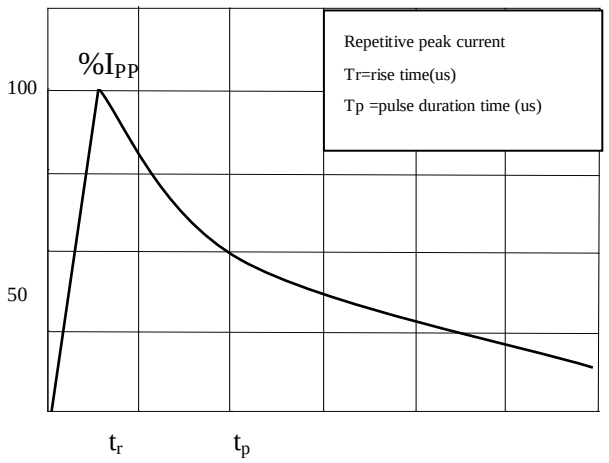


Fig.1 Pulse Waveform (5/310us)

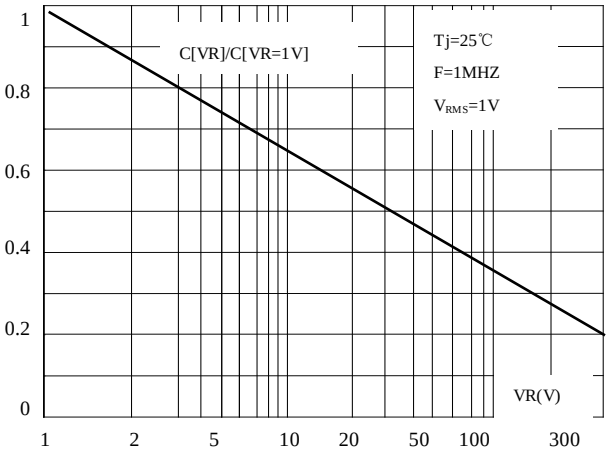


Fig. 2 Relation Variation Of Junction Capacitance Versus Reverse Voltage Applied (Typical Values)

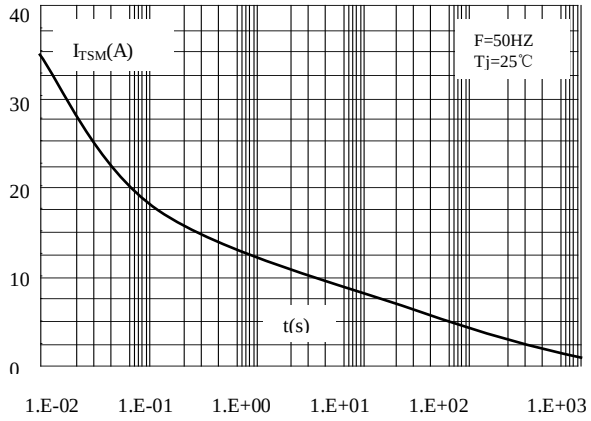


Fig.3 Non Repetitive Surge Peek On-State Current Versus Overload Duration

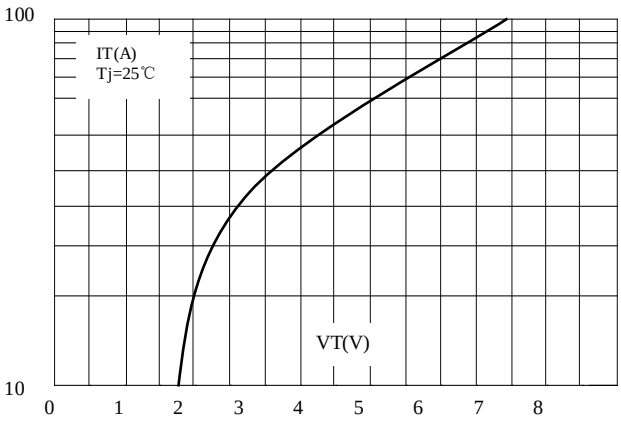


Fig.4 On-State Voltage Versus On-State Current (Typical Values)

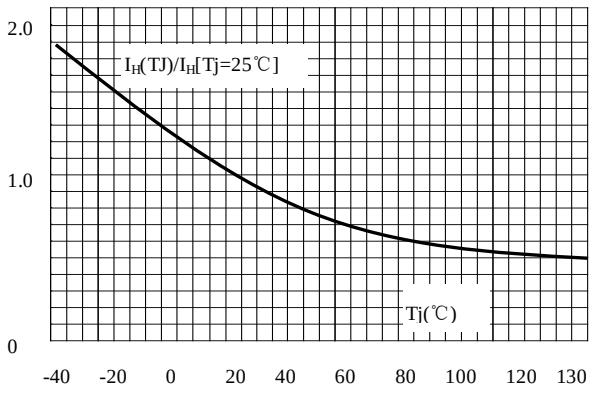


Fig.5 Relative Variation of Hold Current Versus Junction Temperature

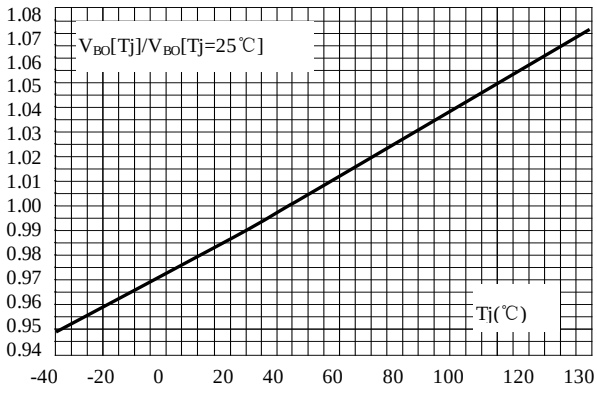


Fig.6 Relative Variation of Break Over Voltage Versus Junction Temperature

Typical electrical characterist applications

Rating and Characteristics Curves

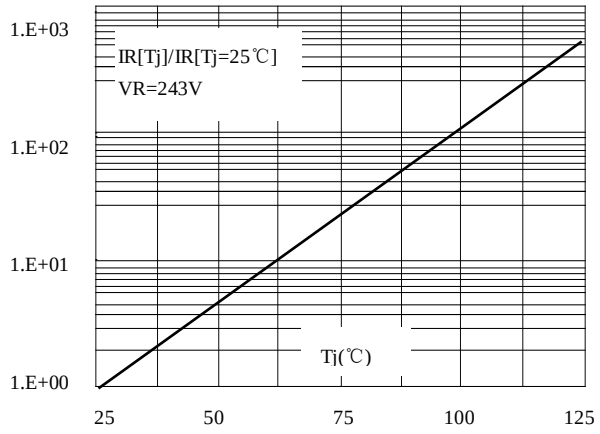


Fig.7 Relative Variation Of Leakage Current Versus Reverse Voltage (Typical Values)

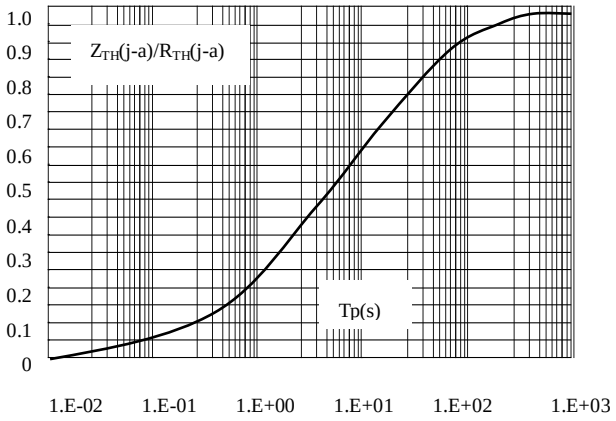
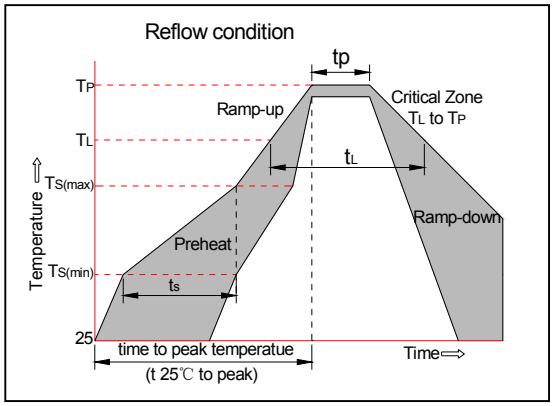


Fig.8 Variation Of Thermal Impedance Junction To Ambient Versus Pulse Duration

SOLDERING PARAMETERS

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

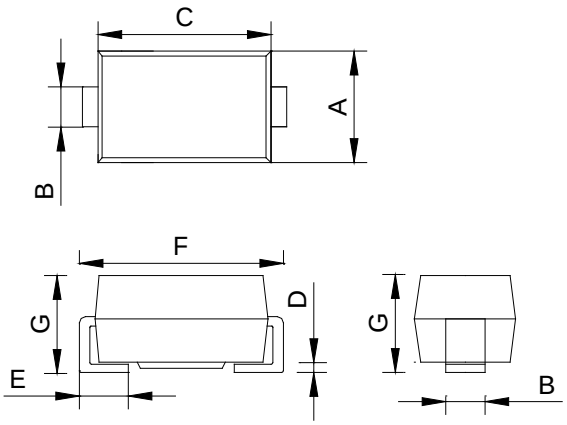


Package information

SMB

SMB Mechanical Data

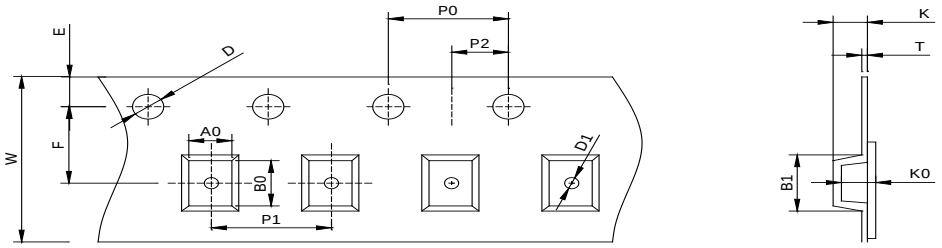
- Case: SMB
- Case Material: Molded Plastic. UL Flammability
- Classification Rating 94V-0
- Polarity Indicator: Cathode Band (Note: Bi-directional devices have no polarity indicator.)
- Weight: 0.003 ounces, 0.093 gram



SMB

DIM	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	3.30	3.62	3.94	0.130	0.142	0.155
B	1.95	2.08	2.20	0.077	0.082	0.087
C	4.06	4.40	4.57	0.160	0.173	0.180
D	0.125	0.20	0.305	0.005	0.008	0.012
E	0.76	1.14	1.52	0.030	0.045	0.06
F	4.95	5.40	5.59	0.194	0.213	0.22
G	2.05	2.30	2.50	0.080	0.090	0.098

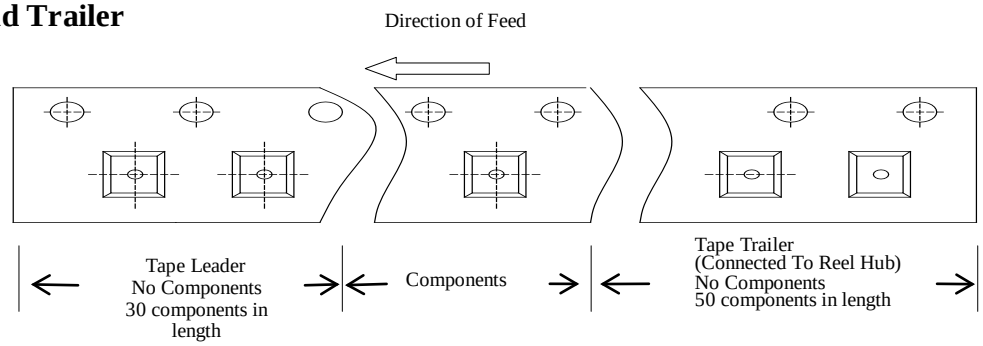
SMB Reel Dim



A0	B0	B1	D	D1	E	F	K0	T	W	P0	P1	P2
4.0	5.9	6.1	1.5	1.5	1.75	5.5	3.0	0.50	12.0	4.0	8.0	2.0

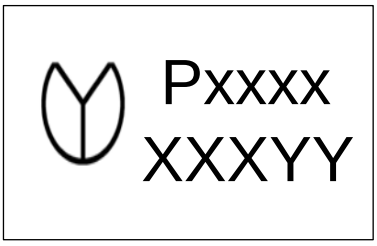
Dimension is in mm

Leader and Trailer

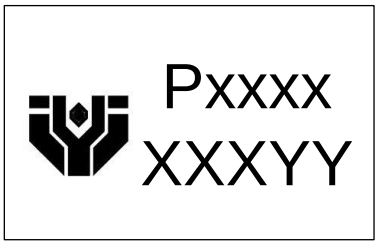


The LEADER is a minimum of 30 components in length and it consists of empty cavities with sealed cover tape
The TRAILER is a minimum of 50 components in length and it consists of empty cavities with sealed cover tape.

Marking Codes



Or



Note:

(1) "Pxxxx" is part number,fixed.

(2) "XXX" is the last 3 characters of the wafer's Lot No.,
"YY" is internal code.