

Description

PxxxxSA 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
- 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

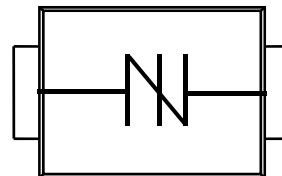
- COMMERCIAL SYSTEMS
- INDUSTRIAL & INSTRUMENTATION
- COMMUNICATIONS

Marking Information



PxxA = 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}	3000	V	10/700us
Peak Pulse Current	I_{PP}	45	A	10/1000us
Peak Pulse Current	I_{PK}	150	A	8/20us
Peak One-cycle Surge Current	I_{TSM}	20	A	60Hz
Rate of Rise of Current	di/dt	500	A/us	
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	20	°C/W	
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	100	°C/W	
Operating Temperature Range	T_J	-40 to 150	°C	
Storage Temperature Range	T_{STG}	-55 to 150	°C	

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

Part Number	Marking	I_H mA MIN	V_S V 100KV/S MAX	I_{S_MAX} mA	V_T V @ I_T MAX	I_T A	I_D uA @ V_D MAX	V_D V	C_O pF 1MHz, 2V _{DC} TYP
P0080SA	P008A	40	25	500	4	2.2	5	6	53
P0220SA	P02A	40	30	500	4	2.2	5	15	53
P0300SA	P03A	40	40	500	4	2.2	5	25	50
P0640SA	P06A	120	77	800	4	2.2	5	58	48
P0720SA	P07A	120	88	800	4	2.2	5	65	48
P0900SA	P09A	120	98	800	4	2.2	5	75	48
P1100SA	P11A	120	130	800	4	2.2	5	90	45
P1300SA	P13A	120	160	800	4	2.2	5	120	45
P1500SA	P15A	120	180	800	4	2.2	5	140	43
P1800SA	P18A	120	220	800	4	2.2	5	170	40
P2300SA	P23A	120	260	800	4	2.2	5	190	38
P2600SA	P26A	120	300	800	4	2.2	5	220	35
P3100SA	P31A	120	350	800	4	2.2	5	275	33
P3500SA	P35A	120	400	800	4	2.2	5	320	30
P4500SA	P45A	120	530	800	4	2.2	5	400	23

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

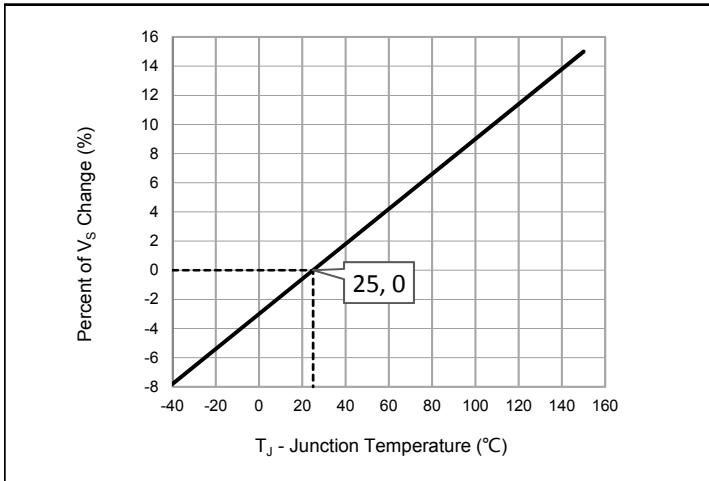


Fig.1 - Peak Pulse Current Rating

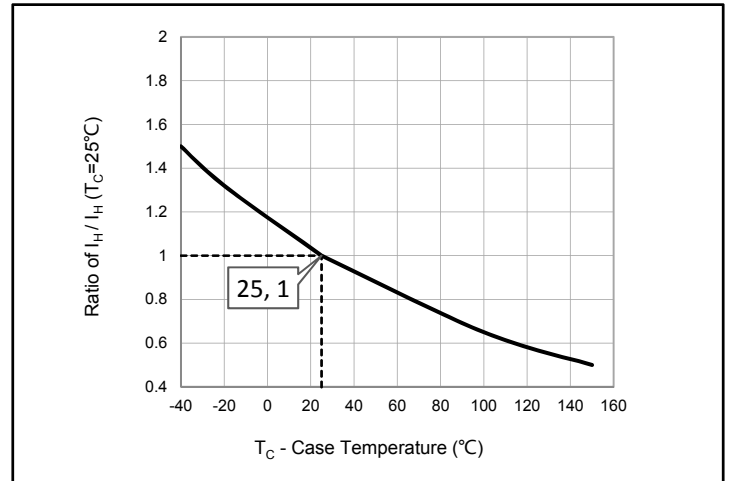


Fig.2 - Normalized DC Holding Current vs. Case Temperature

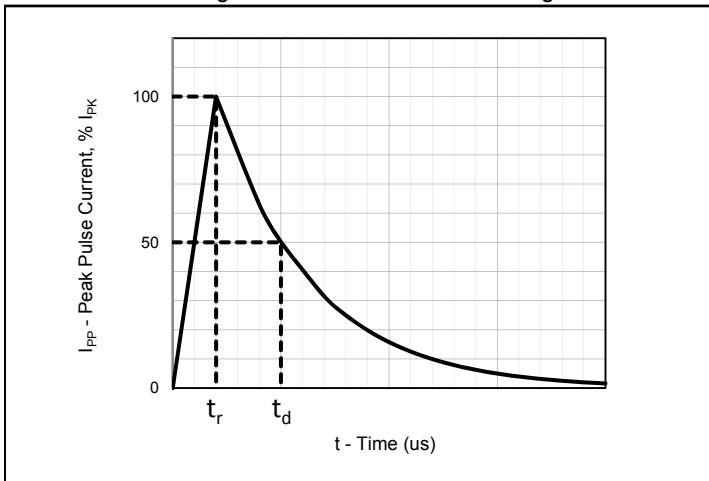


Fig.3 - t_r/t_d us Pulse Waveform

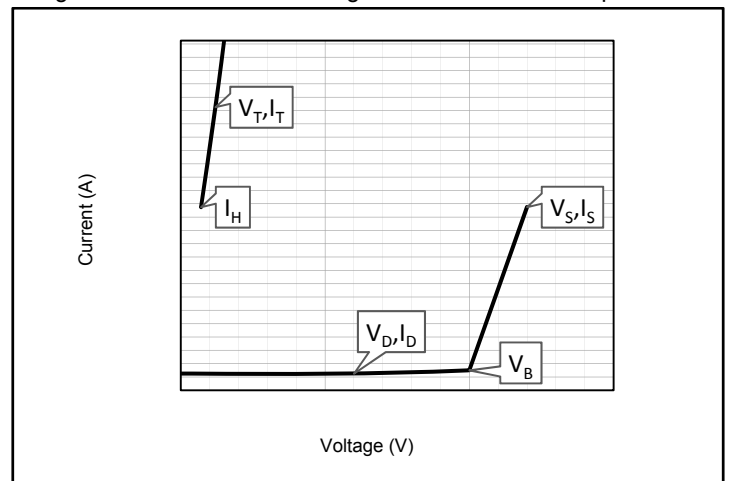


Fig.4 - VI Curve

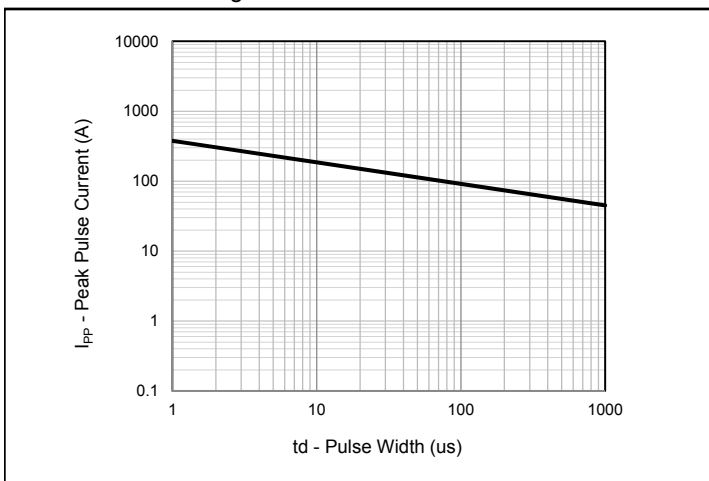


Fig.5 - Peak Pulse Current Rating

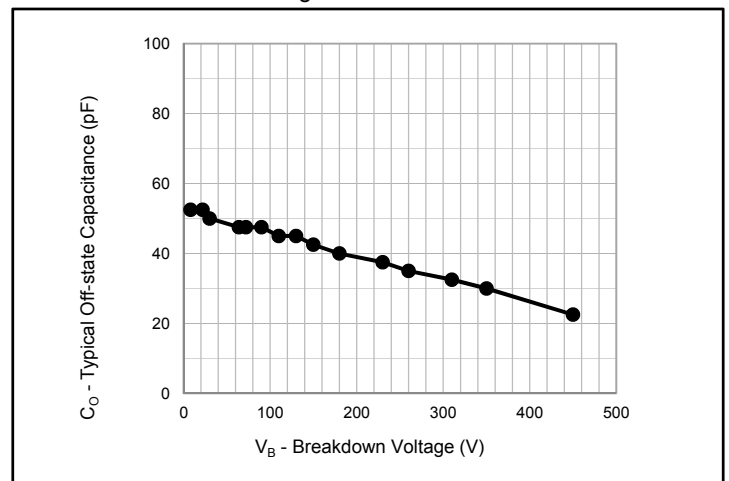
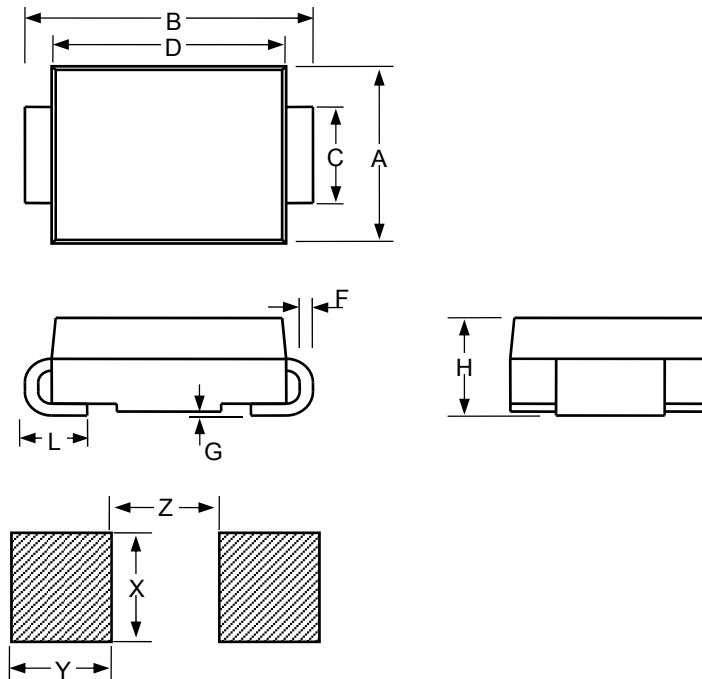


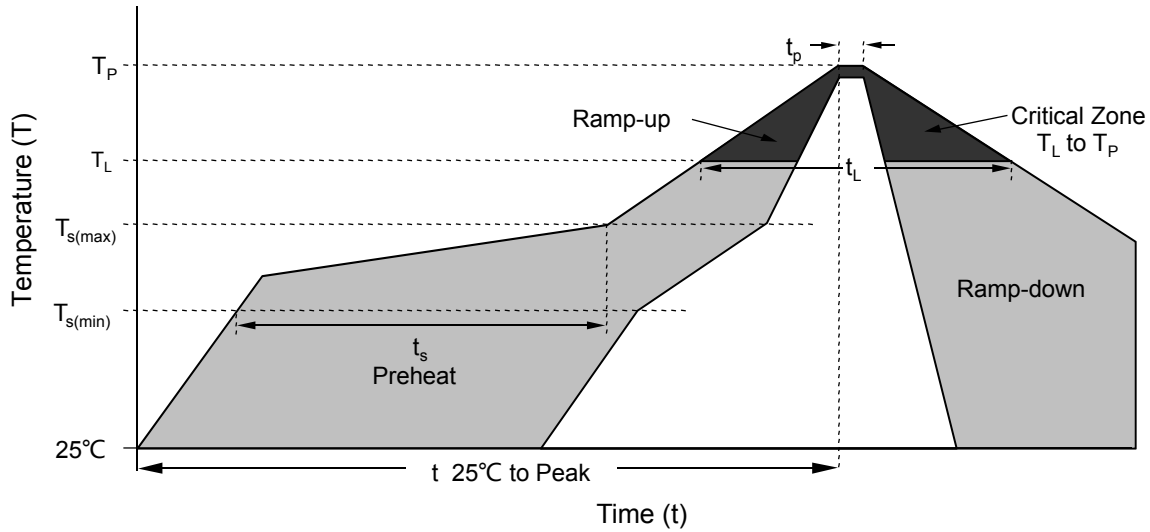
Fig.6 - Typical Off-state Capacitance

Package Dimensions



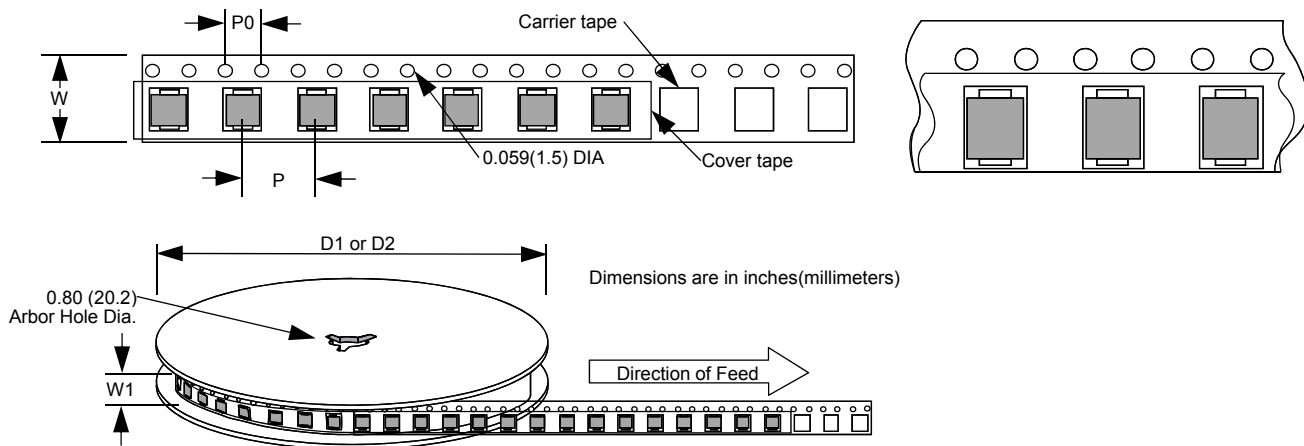
SMB						
Dimension	Inches			Millimeters		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.134	0.144	0.155	3.4	3.67	3.94
B	0.205	0.213	0.22	5.21	5.4	5.59
C	0.075	0.079	0.083	1.9	2	2.1
D	0.169		0.185	4.3		4.7
L	0.03		0.06	0.76		1.52
F	0.006		0.012	0.152		0.305
G	-		0.008	-		0.203
H	0.085	0.091	0.096	2.15	2.3	2.45
X		0.11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

Soldering Parameters



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 ^{+0/-5} °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

Disclaimer

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