P0080SB - P5000SB Series

ROHS

DO-214AA(SMB)　@10/700μS，4KV

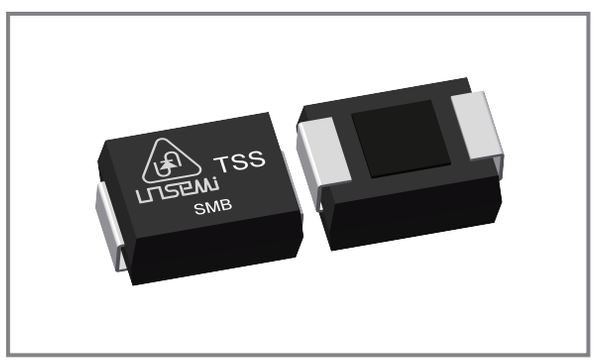
Thyristor Surge Suppressors (TSS)

www.unsemi.com.tw

Description

P0080SB- P5000SB Series are designed to protect broadband equipment such as modems, line card, CPE and DSL from damaging over-voltage transients.

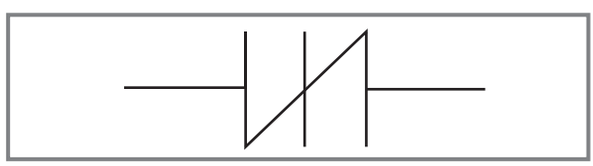
The series provides a surface mount solution that enables equipment to comply with global regulatory standards.



Features and Benefits

- Low voltage overshoot
- Low on-state voltage
- Does not degrade surge capability after multiple surge events within limit
- Fails short circuit when surged in excess of ratings
- Low Capacitance

Schematic Symbol

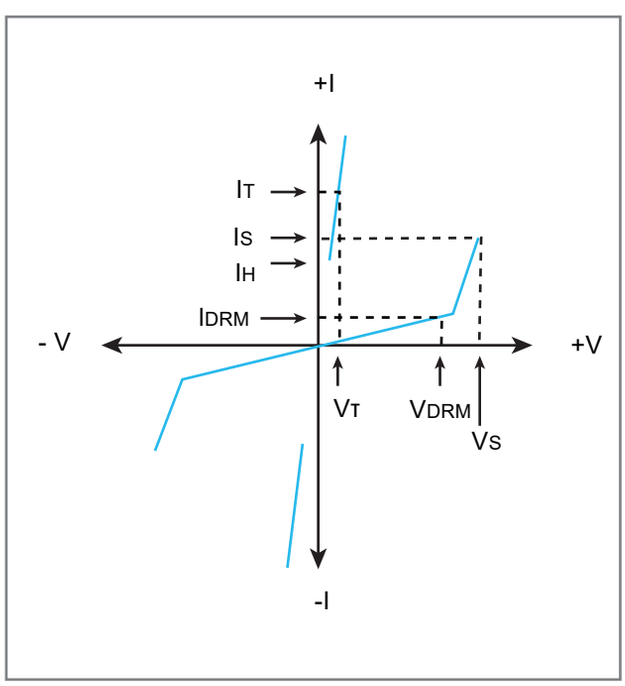


Applicable Global Standards

- TIA-968-A
- ITU K.20/21 Enhanced level
- ITU K.20/21 Basic Level
- GR 1089 Inter building
- IEC 61000-4-5
- YD/T 1082
- YD/T 993
- YD/T 950

Electrical Parameters

Parameter	Definition
I_S	**Switching Current -** maximum current required to switch to on state
I_{DRM}	**Leakage Current -** maximum peak off-state current measured at VDRM
I_H	**Holding Current -** minimum current required to maintain on state
I_T	**On-state Current -** maximum rated continuous on-state bcurrent
V_S	**Switching Voltage -** maximum voltage prior to switching to on stat
V_{DRM}	**Peak Off-state Voltage -** maximum voltage that can be applied while maintaining off state
V_T	**On-state Voltage -** maximum voltage measured at rated on-state current
C_0	**Off-state Capacitance -** typical capacitance measured in off state



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Electrical Characteristics

Part Number	Marking	V_{DRM} @I_{DRM}=5μA	I_{DRM}	V_S @100V/μS	I_S	V_T @I_T=2.2A	I_T	I_H	C_O @1MHz
		V Min.	μA Max.	V Max.	mA Max.	V Max.	A Max.	mA Min.	pF Typ.
P0080SB	P008B	6	5	25	800	4	2.2	50	70
P0300SB	P03B	25	5	40	800	4	2.2	50	70
P0640SB	P06B	58	5	77	800	4	2.2	150	60
P0720SB	P07B	65	5	88	800	4	2.2	150	60
P0900SB	P09B	75	5	98	800	4	2.2	150	55
P1100SB	P11B	90	5	130	800	4	2.2	150	55
P1300SB	P13B	120	5	160	800	4	2.2	150	55
P1500SB	P15B	140	5	180	800	4	2.2	150	60
P1800SB	P18B	170	5	220	800	4	2.2	150	60
P2000SB	P20B	180	5	220	800	4	2.2	150	60
P2300SB	P23B	190	5	260	800	4	2.2	150	55
P2600SB	P26B	220	5	300	800	4	2.2	150	50
P3100SB	P31B	275	5	350	800	4	2.2	150	45
P3500SB	P35B	320	5	400	800	4	2.2	150	40
P3800SB	P38B	360	5	460	800	4	2.2	150	30
P4200SB	P42B	400	5	520	800	4	2.2	150	30
P4500SB	P45B	420	5	540	800	4	2.2	150	30
P5000SB	P50B	440	5	600	800	4	2.2	150	30

Notes:
- Absolute maximum ratings measured at TA= 25ºC (unless otherwise noted).
- Devices are bi-directional.

Surge Ratings

Series	2/10μS[1]	8/20μS[1]	10/160μS[1]	10/560μS[1]	10/1000μS[1]	5/320μS[1]	I_{TSM} 50/60Hz	di/dt
	2/10μS[2]	1.2/50μS[2]	10/160μS[2]	10/560μS[2]	10/1000μS[2]	10/700μS[2]		
	A min	A min	A min	A min	A min	A min	A min	Amps/μs max
B	250	250	250	200	80	100	30	500

Notes:
1. Current waveform in μs
2. Voltage waveform in μs

- Peak pulse current rating (IPP) is repetitive and guaranteed for the life of the product.
- IPP ratings applicable over temperature range of -40ºC to +85ºC
- The device must initially be in thermal equilibrium with -40°C < TJ < +150°C

Thermal Considerations

Package	Symbol	Parameter	Value	Unit
DO-214AA 	T_J	Operating Junction Temperature Range	- 40 to +150	°C
	Ts	Storage Temperature Range	- 40 to +150	°C
	$R_{\theta JA}$	Thermal Resistance: Junction to Ambient	90	°C/W

Characteristic Curves

Figure 1 - V- I Characteristics

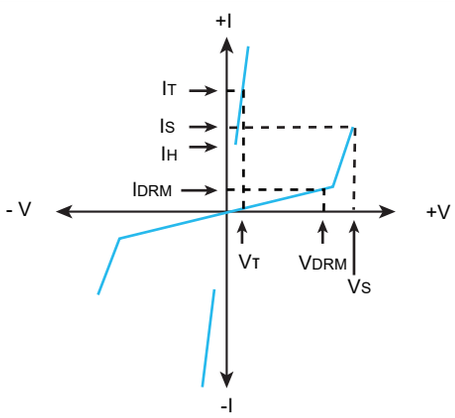


Figure 2 - $t_r \times t_d$ Pulse Waveform

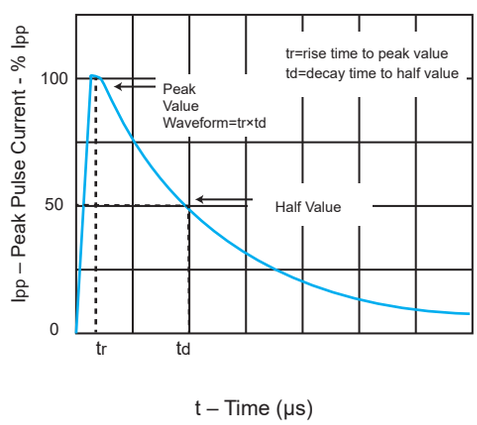


Figure 3 - Normalized VS Change Versus Junction Temperature

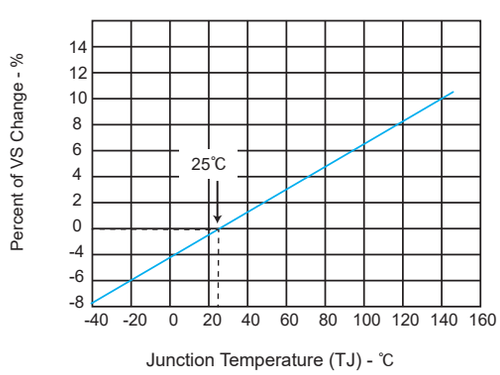
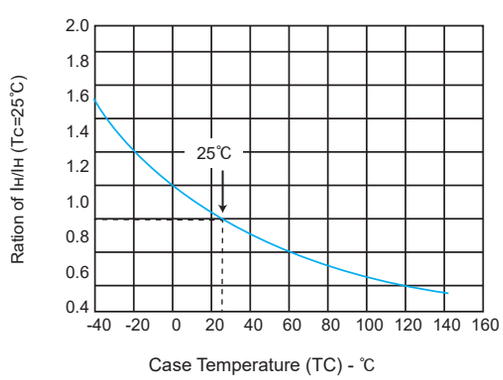
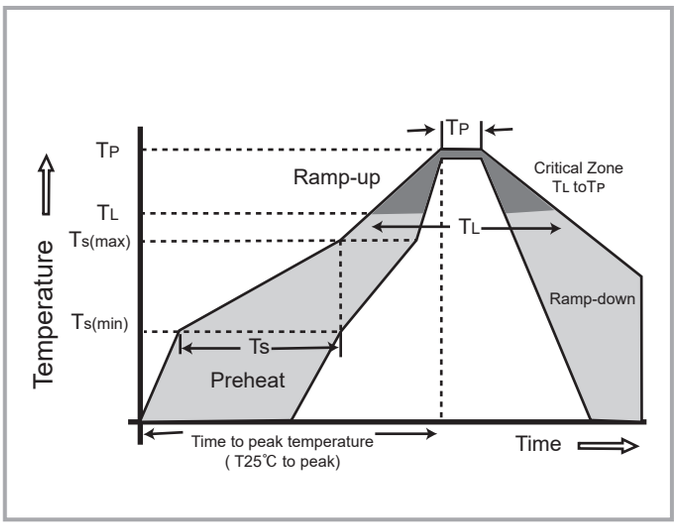


Figure 4 - Normalized DC Holding Current Versus Case Temperature

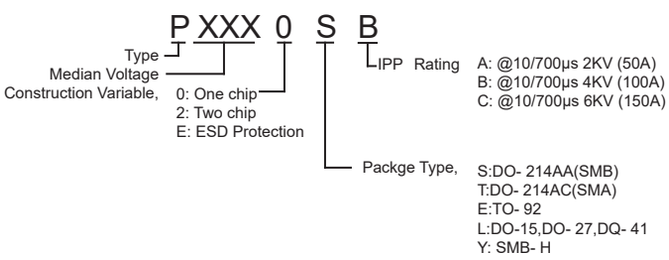


Soldering Parameters

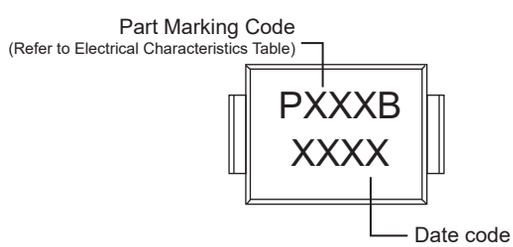


Reflow Condition		Lead–free assembly
Pre Heat	-Temperature Min (Ts(min))	+150°C
	-Temperature Max (Ts(max))	+200°C
	- Time (min to max) (Ts)	60 -180 Seconds
Average ramp up rate (Liquidus Temp TL) to peak		3°C/Second max
Ts(max) to TL - Ramp-up Rate		5°C/Second max
Reflow	- Temperature (TL) (Liquidus)	217°C
	- Time (min to max) (Ts)	60 -150 Seconds
Peak Temperature (TP)		260 +0/-5°C
Time within 5°C of actual peak Temperature (TP)		30 Seconds Max
Ramp-down Rate		6°C/Second Max
Time 25°C to peak Temperature (TP)		8 minutes Max
Do not exceed		+260°C

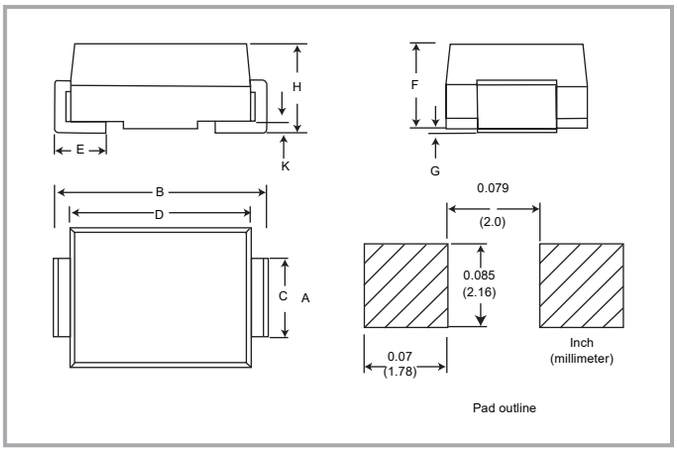
Part Numbering



Part Marking



Dimensions DO-214AA

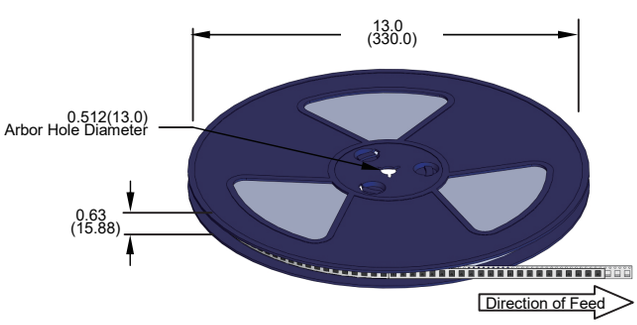


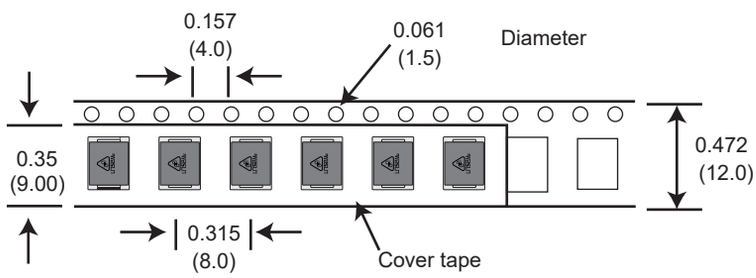
Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.130	0.156	3.30	3.95
B	0.201	0.220	5.10	5.60
C	0.077	0.087	1.95	2.20
D	0.159	0.181	4.05	4.60
E	0.030	0.063	0.76	1.60
F	0.076	0.096	1.90	2.45
G	0.002	0.008	0.05	0.20
H	0.077	0.104	1.95	2.65
K	0.006	0.016	0.15	0.41

Packaging

Part Number	Component Package	Quantity	Packaging Option	Packaging Specification
Pxxx0SB	DO-214AA	2500	Tape & Reel -12mm/13″tape	EIA -481 - D

Tape and Reel Specifications





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