Features

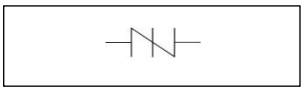
RoHS Compliant

- No degrade after multiple surge events.
- Low over shoot voltage
- Fail short if surge rating over specification
- Plastic package is flammability rated V-0 per UL-94
- IEC61000-4-2 +/-30kV both contact and air
- IEC61000-4-4 50A(5/50nS)

Applications

SMA TSS is designed to protect baseband equipment such as phones, faxes, modems, line cards, CPE and DSL from damaging overvoltage transients. Also it is widely used on suvillance CVBS port surge protecttion.

Function Diagram



Characteristics (T =25°C unless otherwise noted)

Part Number	Marking	V_{DRM}@5uA (Volts) Min	VS @100V/uS (Volts) Max	IH (mA) Min	IS (mA) Max	IT (A) Max	VT @ IT=2A	Capacitance (pF) 1MHz, 2V bias Min	Capacitance (pF) 1MHz, 2V bias Max
P0080S1BLRP	P-8B	6	25	50	800	2.2	4	20	35
P0080S1BLRP-LVs	P8BL	6.5	13	20	800	2.2	4	20	35
P0220S1BLRP	P2BB	22	30	50	800	2.2	4	40	100
P0300S1BLRP	P03B	25	40	50	800	2.2	4	40	100
P3500S1BLRP	P35B	320	400	50	800	2.2	4	20	35

Surge Ratings

Series	I_{PP}									I_{TSM} 50/60 Hz	di/dt
	0.2/310[1] 0.5/700 [2]	2/10 [1] 2/10 [2]	8/20 [1] 1.2/50 [2]	10/160[1] 10/160[2]	10/560[1] 10/560[2]	5/320 [1] 9/720 [2]	10/360[1] 10/360[2]	10/1000 [1] 10/1000 [2]	5/310 [1] 10/700 [2]		
	A min	A min	A min	A min	A min	A min	A min	A min	A min	A min	Amps/µs max
B	-	250	250	90	60	75	75	55	100	25	500

Notes:

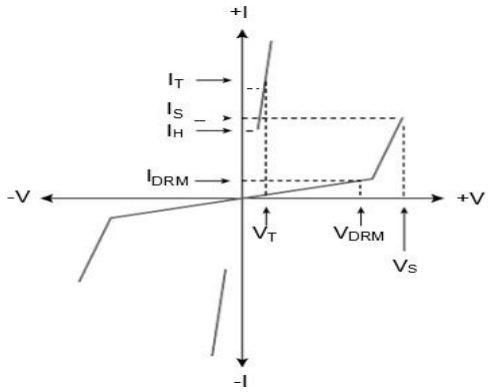
1 Current waveform in µs

2 Voltage waveform in µs

Absolute Maximum Ratings (TA=25℃, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T_{STG}	-60 to +150	℃
Operating junction temperature range	T_J	-40 to +125	℃

I-V Curve Characteristics



V_{DRM} Stand-off Voltage -- Maximum voltage that can be applied to the TSS without operation

V_S Switch on Voltage -- Maximum voltage that trigger the TSS to on state

V_T Turn on Voltage -- Voltage drop after TSS is triggered on

I_{DRM} Reverse Leakage Current -- Current measured at V_{DRM}

I_S Switch on Current -- Maximum current that trigger the TSS to on state

Ratings and Characteristic Curves (T =25°C unless otherwise noted)

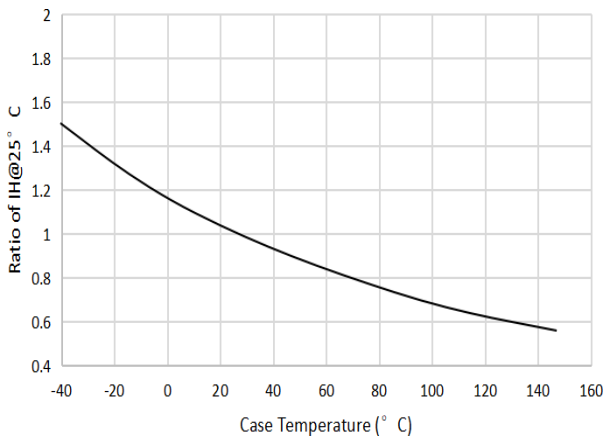


Figure 1. DC holding current Vs. Case temperature

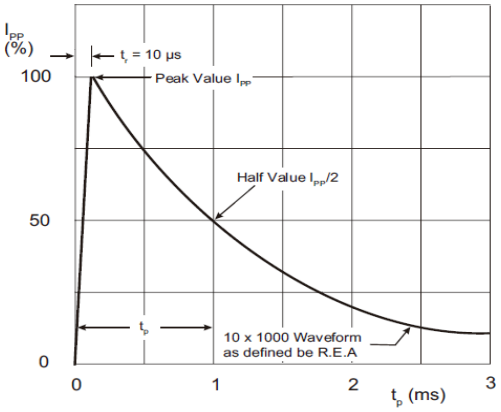


Figure2. Pulse waveform

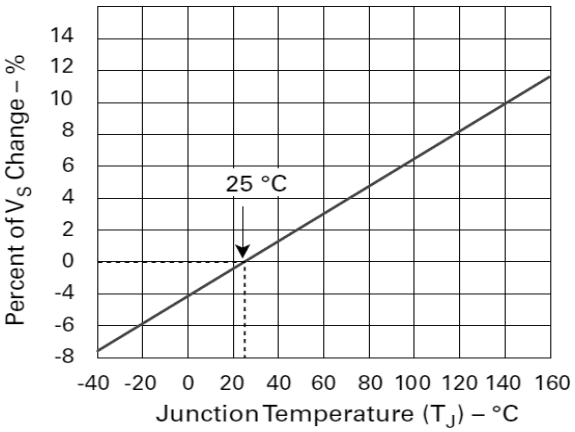
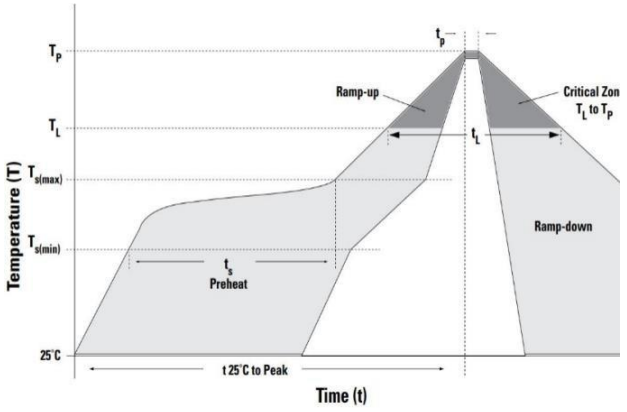


Figure 3. Peak pulse power rating curve

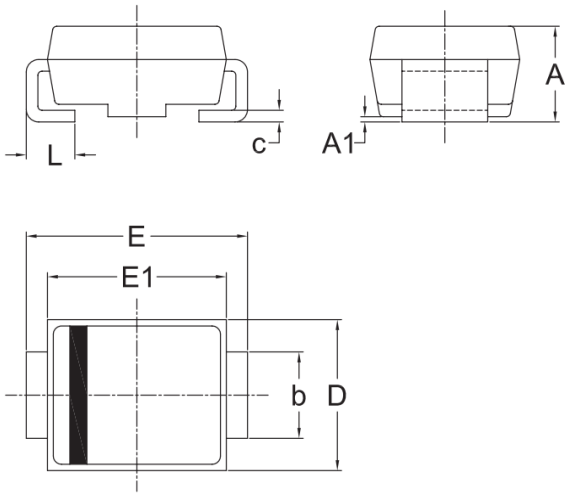
Soldering Parameters

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_A) to peak		3°C/second max
$T_{S(max)}$ to T_A - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_A) (Liquidus)	217°C
	- Time (min to max) (t_s)	60 – 150 seconds
Peak Temperature (T_P)		$260^{+0/-5}$ °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		260°C

Soldering profile



Dimensions



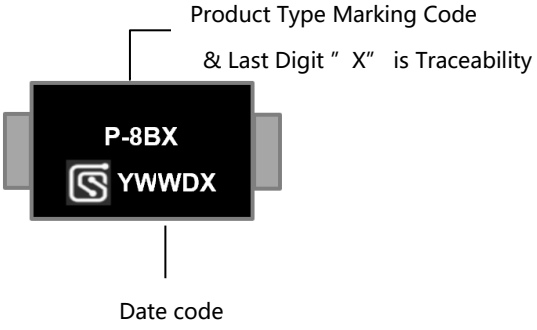
unit		A	A1	b	c	D	E	E1	L
max	mm	2.50	0.30	1.65	0.31	2.85	5.28	4.55	1.55
min		1.90	0	1.25	0.15	2.30	4.70	3.80	0.76

Part Numbering

P XXXX S1 B L RP-LVs

- Low Vs
- Tape&Reel pack
- RoHS compliant
- Surge rating
- DO-214AC
- Reverse Standard off Voltage V_R
- Product series

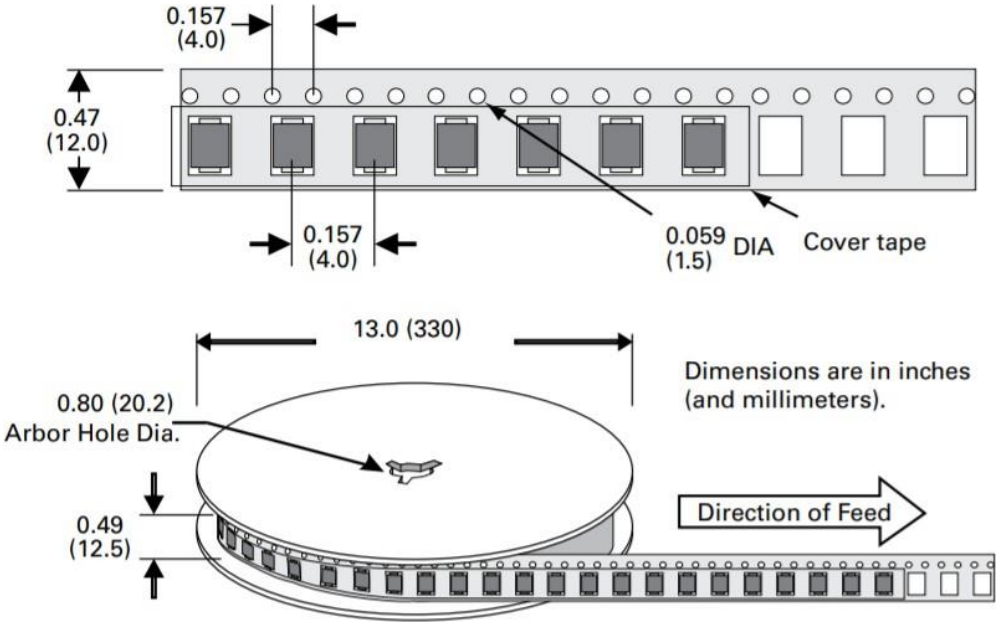
Part Marking



Packing

Part number	Package name	Small packing quantity	Packing method
PXXXXS1B	DO-214AC	5000	Tape & Reel

Tape and Reel Specification



Revision history of Specification

Version	Change Items	Effective Date
1.0	Initial Release	14-Oct-2021
1.1	Add P0080S1BLRP-LVs	16-Oct-2021
1.2	Update Marking	10-Jun-2024
1.3	Add P3500S1BLRP	21-Oct-2025