

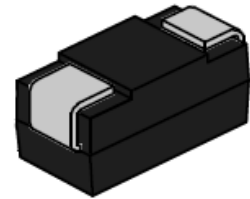


## CPxxxxSB Series TSS

Rev.4.2

### DESCRIPTION:

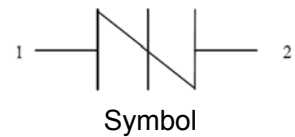
CPxxxxSB series thyristors are a type of semiconduct component. They are designed to protect baseband equipment from damaging overvoltage transients. Such as modems, telephones, line cards, answering machines, FAX machines, T1/E1, xDSL and more.



SMB

### FEATURES:

- ✧ Lower capacitance.
- ✧ Low profile package.
- ✧ Low on-state voltage.
- ✧ Excellent capability of absorbing transient surge.
- ✧ Quick response to surge voltage (ns Level).
- ✧ Eliminates overvoltage caused by fast rising transients.
- ✧ Moisture sensitivity level: Level 1.
- ✧ Non degenerative.

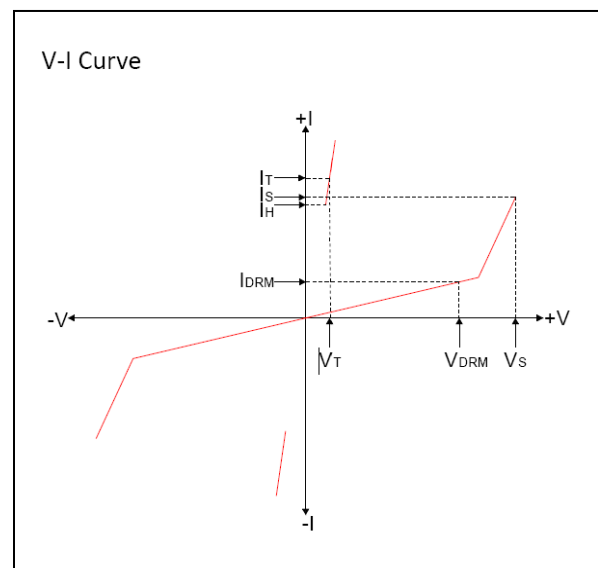


### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T <sub>STG</sub>	-60 to +150	°C
Operating junction temperature range	T <sub>J</sub>	-40 to +125	°C
Repetitive peak pulse current	I <sub>PP</sub>	80	A

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C)

Symbol	Parameter
V <sub>DRM</sub>	Peak off-state voltage
I <sub>DRM</sub>	Off-state current
V <sub>S</sub>	Switching voltage
I <sub>S</sub>	Switching current
V <sub>T</sub>	On-state voltage
I <sub>T</sub>	On-state current
I <sub>H</sub>	Holding current
C <sub>O</sub>	Off-state capacitance



## MARKING



CP22B: Device Marking Code  
2009: In ninth week, 2020

ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C, continued)

Part Number	I <sub>DRM</sub> @V <sub>DRM</sub>		V <sub>S</sub> <sup>①</sup> @I <sub>S</sub>		V <sub>T</sub> @I <sub>T</sub>		I <sub>H</sub>	Co <sup>②</sup>	Marking
	μA	V	V	mA	V	A	mA	pF	
	max		max	max	max	max	min	max	
CP0220SB	1	18	30	800	4	2.2	30	50	CP22B
CP0300SB	1	25	40	800	4	2.2	30	50	CP03B
CP0640SB	1	58	77	800	4	2.2	120	40	CP06B
CP0720SB	1	66	87	800	4	2.2	120	40	CP07B
CP0900SB	1	75	98	800	4	2.2	120	40	CP09B
CP1100SB	1	90	130	800	4	2.2	120	35	CP11B
CP1300SB	1	120	160	800	4	2.2	120	35	CP13B
CP1500SB	1	140	180	800	4	2.2	120	35	CP15B
CP1800SB	1	170	220	800	4	2.2	120	35	CP18B
CP2300SB	1	190	260	800	4	2.2	120	30	CP23B
CP2600SB	1	220	300	800	4	2.2	120	30	CP26B
CP3100SB	1	275	350	800	4	2.2	120	25	CP31B
CP3500SB	1	320	400	800	4	2.2	120	25	CP35B
CP3800SB	1	340	450	800	4	2.2	120	25	CP38B

① V<sub>S</sub> is measured at 100KV/s

② Off-state capacitance is measured in V<sub>DC</sub>=2V, V<sub>RMS</sub>=1V, f=1MHz

## SURGE RATINGS

Series	I <sub>PP</sub> (A) min			
	2/10μs	8/20μs	10/360μs	10/1000μs
B	250	250	125	80

## ORDERING INFORMATION

CP	022	0	S	B
Low capacitance sidactor	Median Voltage	0:Bi-directional,1:Uni	Package type	Surge Ratings:4KV(10/700μs)

## SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.2)
Pre Heat	-Temperature Min (T <sub>s(min)</sub> )	+150°C
	-Temperature Max(T <sub>s(max)</sub> )	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp(T <sub>L</sub> )to peak)		3°C/sec. Max
T <sub>s(max)</sub> to T <sub>L</sub> - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T <sub>L</sub> )(Liquidus)	+217°C
	-Temperature(t <sub>L</sub> )	60-150 secs.
Peak Temp (T <sub>p</sub> )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t <sub>p</sub> )		30secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T <sub>P</sub> )		8 min. Max
Do not exceed		+260°C

FIG.1: tr × td pulse waveform

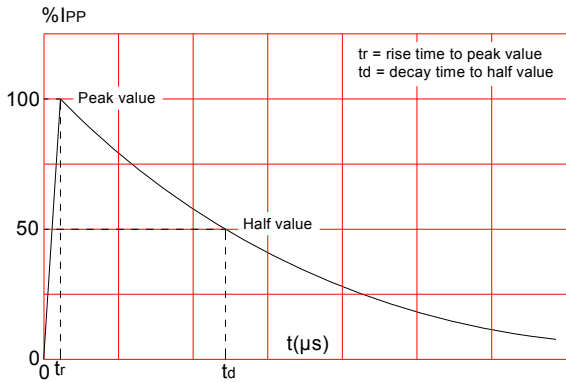


FIG.2: Reflow condition

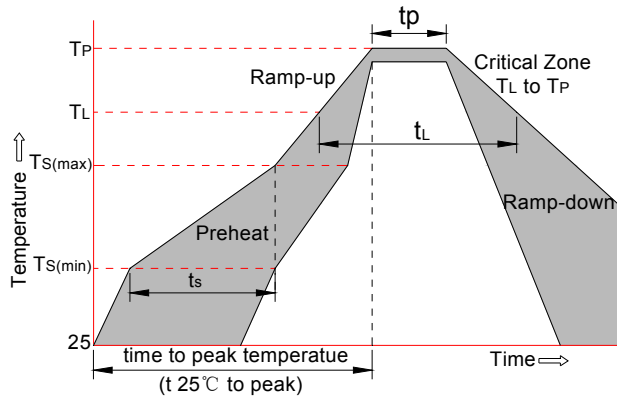


FIG.3: Normalized Vs change vs. junction temperature

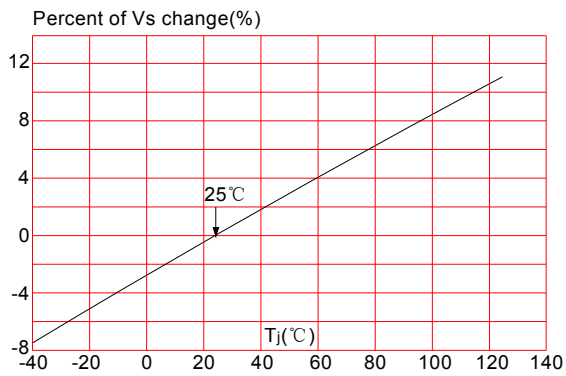
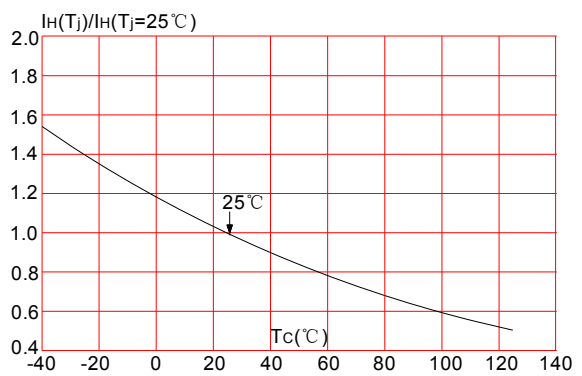
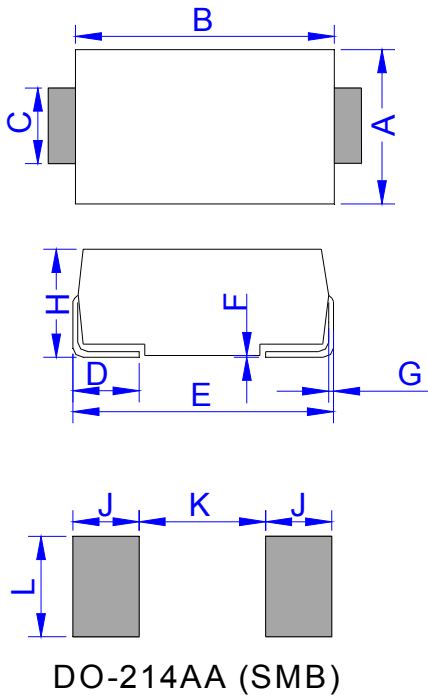


FIG.4: Normalized DC holding current vs. case temperature

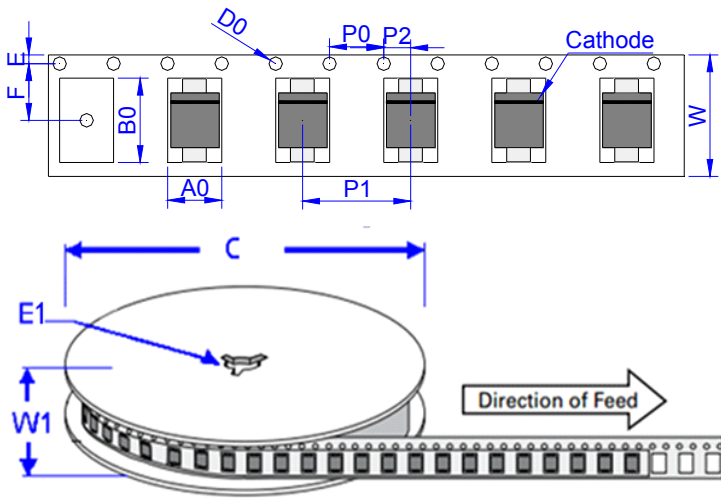


PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	3.30	3.94	0.130	0.155
B	4.30	4.80	0.169	0.189
C	1.90	2.20	0.075	0.087
D	0.95	1.52	0.037	0.060
E	5.20	5.60	0.205	0.220
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.10	2.40	0.083	0.094
J	2.20		0.087	
K		2.60		0.102
L	2.30		0.091	

TAPE AND REEL SPECIFICATION-SMB




Ref.	Dimensions	
	Millimeters	Inches
A0	3.76 ± 0.3	0.148 ± 0.012
B0	5.69 ± 0.3	0.224 ± 0.012
C	330.0	13.0
D0	1.55 ± 0.1	0.061 ± 0.004
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.3 ± 0.3	0.524 ± 0.012
F	5.5 ± 0.2	0.217 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	8.00 ± 0.2	0.3145 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	12.0 ± 0.2	0.472 ± 0.008
W1	15.7 ± 2.0	0.618 ± 0.079

OUTLINE	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)
TAPING	0.098	3,000	48,000	330

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