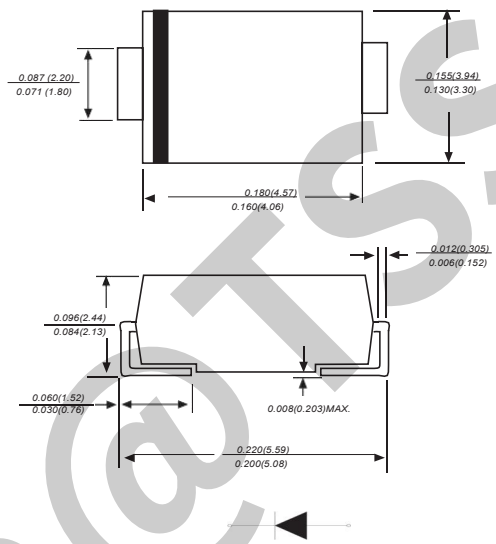
Thyristor Surge Suppressors for Surface Mounted Applications

Features

- Quick response to surge voltage
- Excellent capability of absorbing transient surge
- Solid-state silicon technology, non degenerative
- Eliminates overvoltage caused by fast rising transients
- For surface mounted applications to optimize board space
- Low profile package
- Low leakage current: I=5uA max
- Low on-state voltage
- Low Capacitance
- Bidirectional crowbar protection
- Response Time is < 1us
- GR 1089 Intra-building
- Solid-state silicon technology
- YD/T 950 IEC 61000-4-5
- YD/T 993 ITU K.20/21
- YD/T 1082 TIA-968-A
- ROHS compliant
- Meets MSL 1 Requirements

DO-214AA/SMB



Dimensions in inches and (millimeters)

Applications

- Serial ports
- Data lines and security systems
- Network and telecom
- Audio / Video line

Maximum Ratings and Electrical Characteristics

Part Number: P0060SB ~ P4200SB			
Symbol	Parameter	Value	Unit
I_{PP}	10/1000 us	80	A
	10/560 us 8/20 us	100	
		250	
	2/10 us	250	
V_{PP}	10/700 us	4000	V
V_{TSM}	60Hz	25	A
di/dt		500	A/us
T_J	Operating Junction Temperature	-55 to +125	˚C
T_s	Storage Temperature Range	-55 to +125	˚C
$R_{\theta JA}$	Junction to Ambient on printed circuit	90	˚C/W

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.

RoHS Compliant and Halogen Free

Part Number & Electrical Parameter

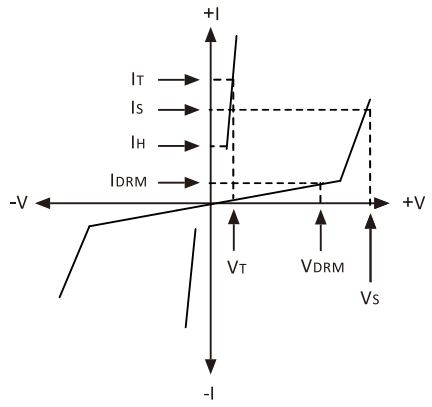
T=25℃ RH=45%-75%

PART NUMBER	V_{DRM} V Min.	I_{DRM} uA Max.	V_s v Max.	I_S mA	V_T V Max.	I_T A	I_H mA Min.	C_O pF Typ.
P0060SB	6	5	15	800	4	2.2	40	80
P0080SB	6	5	25	800	4	2.2	40	80
P0150SB	15	5	25	800	4	2.2	40	80
P0300SB	25	5	40	800	4	2.2	40	80
P0640SB	58	5	77	800	4	2.2	120	60
P0720SB	65	5	88	800	4	2.2	120	60
P0900SB	75	5	98	800	4	2.2	120	55
P1100SB	90	5	130	800	4	2.2	120	55
P1300SB	120	5	160	800	4	2.2	120	55
P1500SB	140	5	180	800	4	2.2	120	60
P1800SB	170	5	220	800	4	2.2	120	60
P2300SB	190	5	260	800	4	2.2	120	55
P2600SB	220	5	300	800	4	2.2	120	50
P3100SB	275	5	350	800	4	2.2	120	45
P3500SB	320	5	400	800	4	2.2	120	40
P4200SB	400	5	520	800	4	2.2	≤50	40

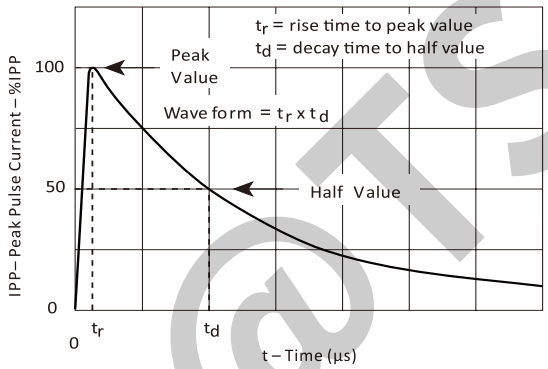
1. $_S$ is measured at 100KV/S
2. ff-state capacitance is measured in V_{DC}=2V, V_{RMS}=1V, F=1MH$_Z$
3. All measurements are made at an ambient temperature of 25˚C

Typical Device Characteristics

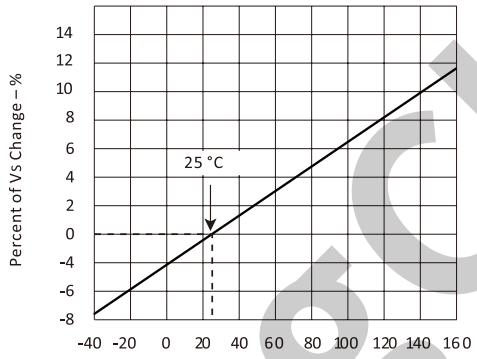
V-I Characteristics



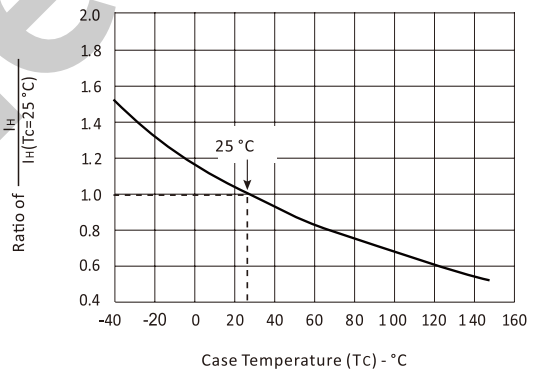
tr x td Pulse Waveform



Normalized V_s Change vs. Junction Temperature

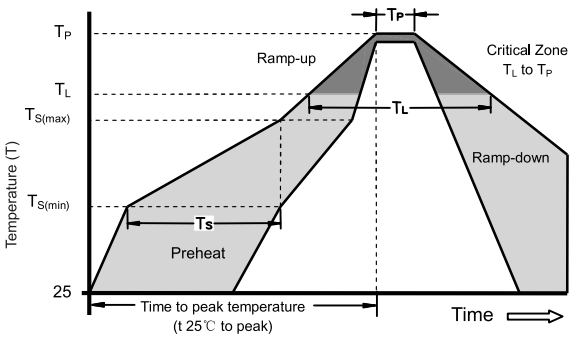


Normalized DC Holding Current vs. Case Temperature



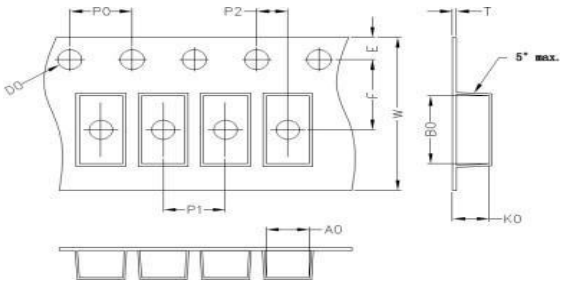
Soldering Parameters

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 secs
Average ramp up rate (Liquidus Temp (TL) to peak		3°C/second max
TS(max)to TL - Ramp-up Rate		3°C/second max
Reflow	Temperature (TL) (Liquidus)	217°C
	Time (min to max) (tL)	60 – 150 seconds
Peak Temperature (TP)		260°C
Time within 5°C of actual peak Temperature (tp)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (TP)		8 minutes Max.
Do not exceed		260°C

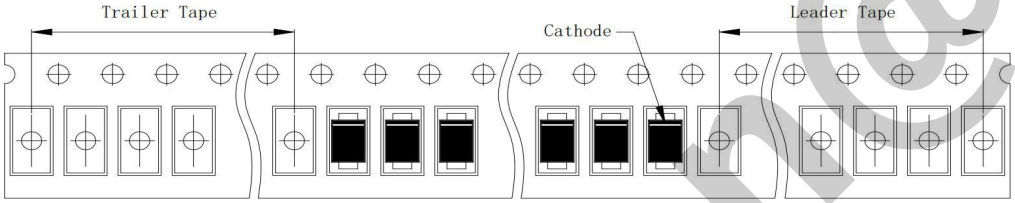


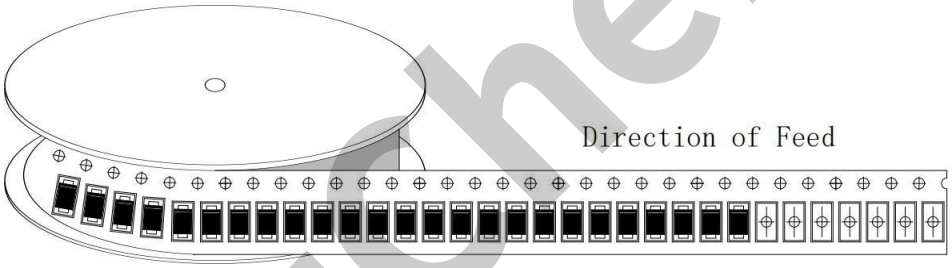
Package Information

Carrier Dimension(mm)

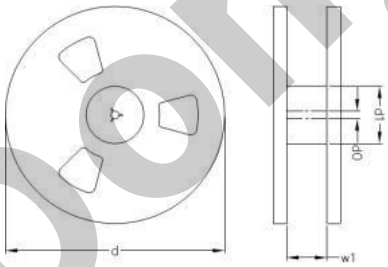


A0	B0	K0	D0	E	F
3.80 ¡À0.2	5.40¡À0.2	2.45 ¡À0.2	1.55 ¡À0.1	1.75 ¡À0.2	5.50 ¡À0.2
P0	**P1**	**P2**	**T**	**W**	
4.0 ¡À0.1	8.0 ¡À0.1	2.0 ¡À0.1	0.25¡À0.05	12 ¡À0.5	
Leader Tape	25 Empty Pockets				
Trailer Tape	25 Empty Pockets				





Reel Dimension(mm)



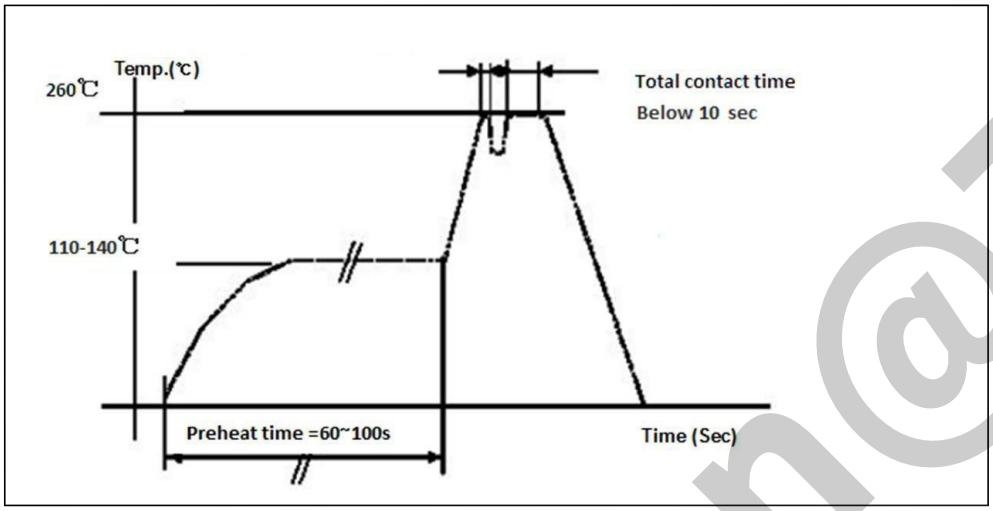
d	d0	d1	w1	t1
330 ¡À2.0	13.5¡À0.2	100 ¡À0.5	13.5 ¡À0.5	1.20 ¡À0.2

Package Specifications

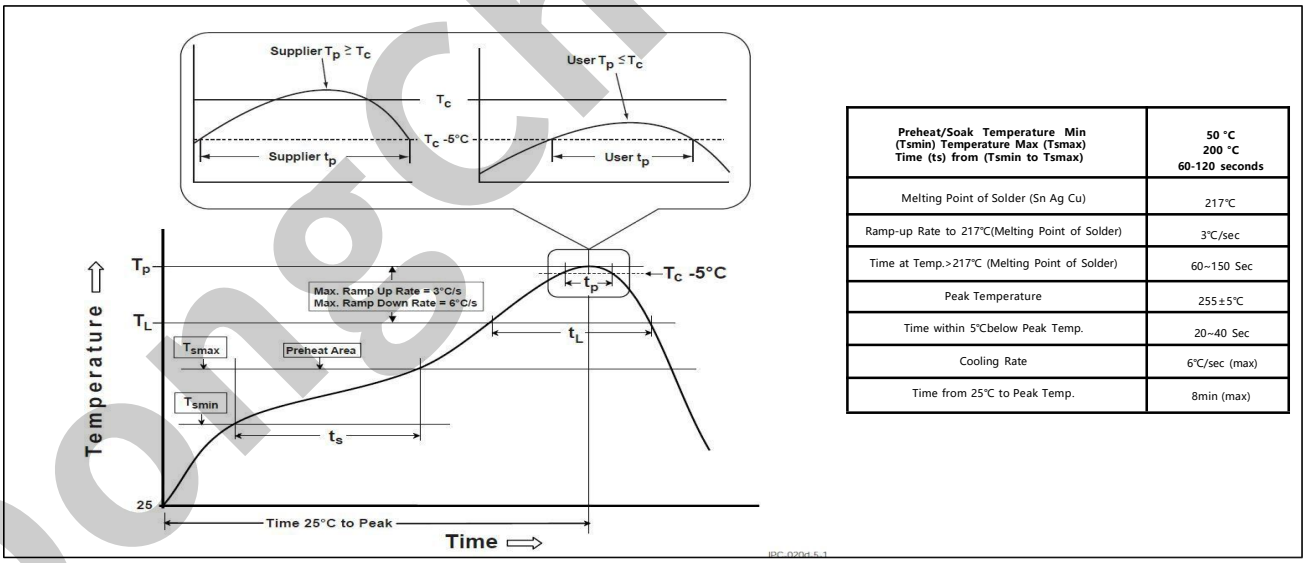
Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SMB	13'	330	3.0	340*340*40	6.0	440*360*360	60

Recommended Soldering Profile for Rectifier Diodes (Pb Free)

a) Wave Soldering Profile



b) Reflow Soldering Profile (Pb Free Application), refer to IPC/JEDEC J-STD-020



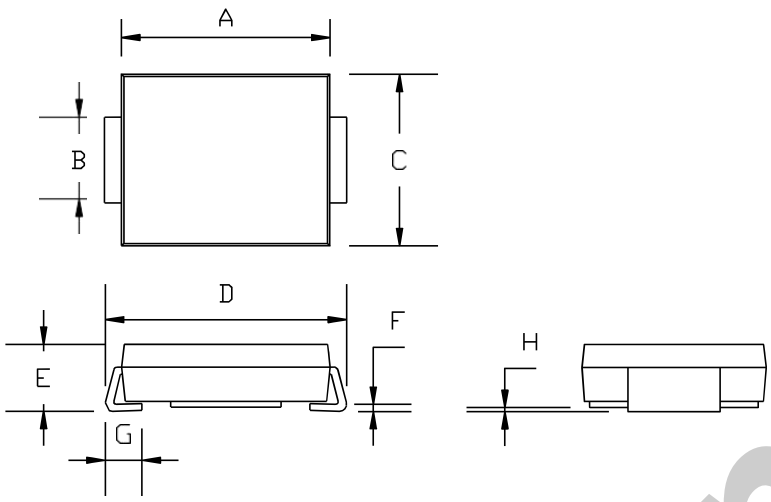
Preheat/Soak Temperature Min (Tsmin) Temperature Max (Tsmax) Time (ts) from (Tsmin to Tsmax)	50 °C 200 °C 60-120 seconds
Melting Point of Solder (Sn Ag Cu)	217℃
Ramp-up Rate to 217℃(Melting Point of Solder)	3℃/sec
Time at Temp.>217℃ (Melting Point of Solder)	60~150 Sec
Peak Temperature	255±5℃
Time within 5℃below Peak Temp.	20~40 Sec
Cooling Rate	6℃/sec (max)
Time from 25℃ to Peak Temp.	8min (max)

c) Manual Soldering

When using an electric soldering iron for manual soldering, it is recommended that the temperature does not exceed 300°C and the soldering time is less than 10 seconds.

Package Mechanical Data

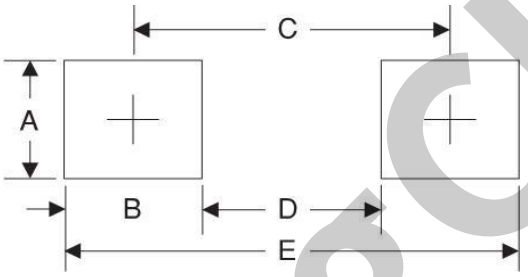
DO-214AA(SMB)



DO-214AA (SMB)		
Dim	Min	Max
A	4.05	4.75
B	1.85	2.15
C	3.30	3.90
D	5.00	5.50
E	2.10	2.60
F	0.15	0.30
G	0.75	1.50
H	0.05	0.20

Dimensions in millimeters

Suggested Pad Layout



Symbol	Unit (mm)	Unit (inch)
A	2.30	0.091
B	2.00	0.078
C	4.10	0.161
D	2.10	0.083
E	6.10	0.240

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