


### SACB Series



#### Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E230531

#### Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at T <sub>J</sub> = 25°C by 10/1000µs Waveform (fig.1)( Note 1)	P <sub>PPM</sub>	500	W
Power Dissipation on Infinite Heat Sink at T <sub>L</sub> = 50°C	P <sub>D</sub>	3.0	W
Operating Temperature Range	T <sub>J</sub>	-65 to 150	°C
Storage Temperature Range	T <sub>STG</sub>	-65 to 175	°C

Note:

1. Non-repetitive current pulse, per Fig. 3 and derated above T<sub>J</sub> (initial) = 25°C per Fig. 2.

#### Description

SACB series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

#### Features

- 500W peak pulse power capability at 10/1000µs waveform, repetition rate (duty cycles):0.01%
- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Typical failure mode is short from over-specified voltage or current
- Whisker test is conducted based on JEDEC JESD201A per its table 4a and 4c
- IEC-61000-4-2 ESD 30kV(Air), 30kV (Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2
- EFT protection of data lines in accordance with IEC 61000-4-4
- V<sub>BR</sub> @T<sub>J</sub> = V<sub>BR</sub> @25°C x (1 + α T x (T<sub>J</sub> - 25)) (α T:Temperature Coefficient, typical value is 0.1%)
- Glass passivated chip junction
- Fast response time: typically less than 1.0ps from 0V to BV min
- Excellent clamping capability
- Low incremental surge resistance
- High temperature to reflow soldering guaranteed: 260°C/40sec
- Plastic package is flammability rated V-0 per Underwriters Laboratories
- Meet MSL level1, per J-STD-020, LF maximum peak of 260°C
- Matte tin lead-free plated
- Halogen free and RoHS compliant
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/JEDEC J-STD-609A.01)

#### Additional Information



Datashheet



Resources



Samples

#### Applications

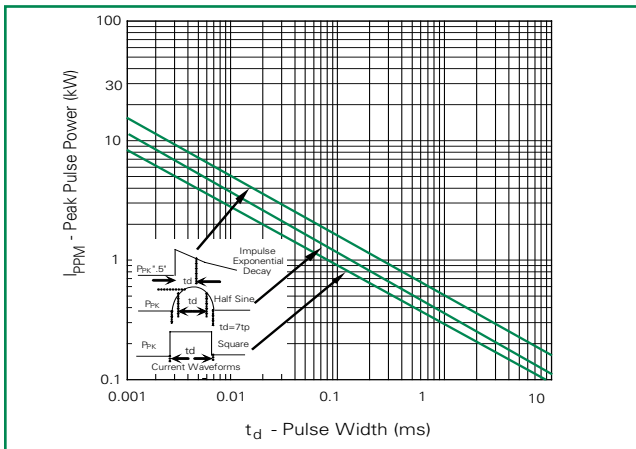
TVS devices are ideal for the protection of I/O Interfaces, V<sub>CC</sub> bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

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

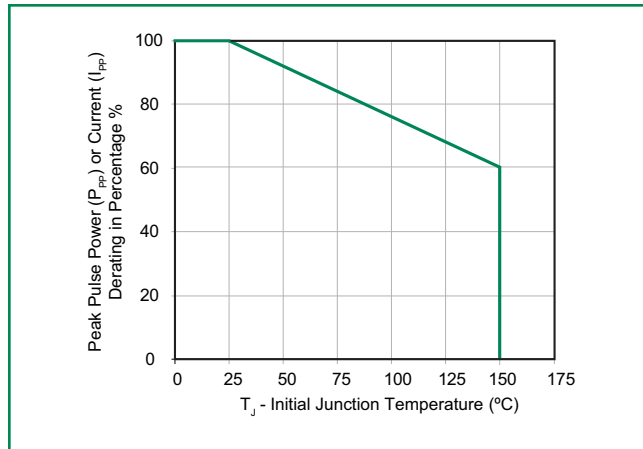
Part Number	Marking Code	Stand-Off Voltage $V_R$ (V)	Minimum Breakdown Voltage at $I_T = 1.0\text{mA}$ $V_{BR}(V)$	Maximum Reverse Leakage at $I_R @ V_R$ ( $\mu\text{A}$ )	Maximum Clamping Voltage at $I_{PP}=5.0\text{A}$ $V_C(V)$	Maximum Peak Pulse Current per (Fig.3) $I_{PP}(A)$	Maximum Junction Capacitance at 0 Volts (pF)	Working Inverse Blocking Voltage $V_{WIB}(V)$	Inverse Blocking Leakage Current at $V_{WIB} @ I_{IB}$ ( $\text{mA}$ )	Peak Inverse Blocking Voltage $V_{PIB}$ (V)	Agency Approval
SACB5.0	SKE	5.0	7.60	300	10.0	44.0	45	75	1.0	100	X
SACB6.0	SKG	6.0	7.90	300	11.2	41.0	45	75	1.0	100	X
SACB7.0	SKM	7.0	8.33	300	12.6	38.0	45	75	1.0	100	X
SACB8.0	SKR	8.0	8.89	100	13.4	36.0	45	75	1.0	100	X
SACB8.5	SKT	8.5	9.44	50	14.0	34.0	45	75	1.0	100	X
SACB10	SKX	10.0	11.10	5	16.3	29.0	45	75	1.0	100	X
SACB12	SLE	12.0	13.30	5	19.0	25.0	45	75	1.0	100	X
SACB15	SLM	15.0	16.70	5	23.6	20.0	45	75	1.0	100	X
SACB18	SLT	18.0	20.00	5	28.8	15.0	45	75	1.0	100	X
SACB22	SLX	22.0	24.40	5	35.4	14.0	45	75	1.0	100	X
SACB26	SME	26.0	28.90	5	42.3	11.1	45	75	1.0	100	X
SACB30	SMK	30.0	33.30	5	48.6	10.0	45	75	1.0	100	X
SACB36	SMP	36.0	40.00	5	60.0	8.6	45	75	1.0	100	X
SACB45	SMV	45.0	50.00	5	77.0	6.8	45	150	1.0	200	X
SACB50	SMZ	50.0	55.50	5	88.0	5.8	45	150	1.0	200	X

### Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

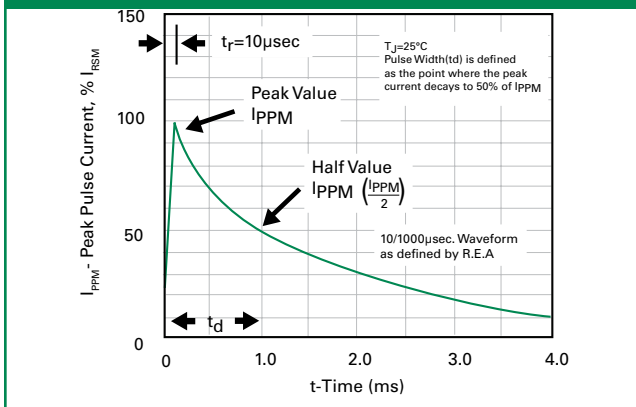
**Figure 1 - Peak Pulse Power Rating Curve**



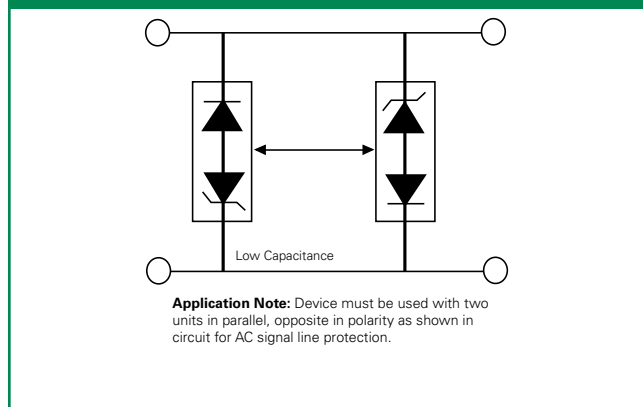
**Figure 2 - Peak Pulse Power Derating Curve**



**Figure 3 - Pulse Waveform**

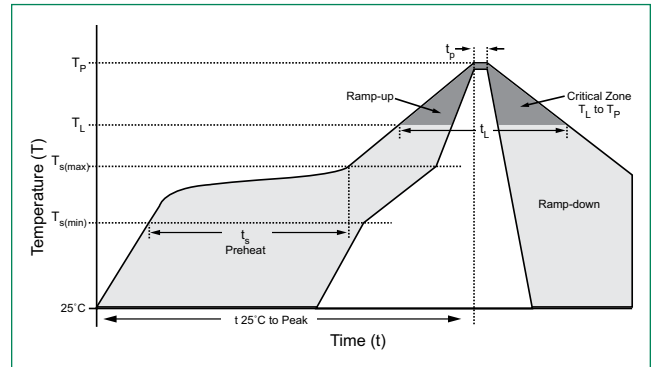


**Figure 4 - AC Line Protection Application**



## 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 <sup>+0/-5</sup> °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



## Flow/Wave Soldering (Solder Dipping)

<b>Peak Temperature :</b>	265°C
<b>Dipping Time :</b>	10 seconds
<b>Soldering :</b>	1 time

## Physical Specifications

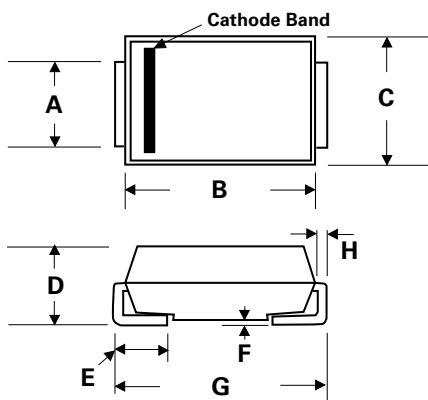
<b>Weight</b>	0.003oz., 0.093g
<b>Case</b>	JEDEC DO-214AA molded plastic body over glass passivated junction.
<b>Polarity</b>	Color band denotes cathode except Bidirectional
<b>Terminal</b>	Matte Tin-plated leads. Solderable per JESD22-B102.

## Environmental Specifications

<b>High Temp. Storage</b>	JESD22-A103
<b>HTRB</b>	JESD22-A108
<b>Temperature Cycling</b>	JESD22-A104
<b>MSL</b>	JEDEC-J-STD-020, Level 1
<b>H3TRB</b>	JESD22-A101
<b>RSH</b>	JESD22-A111

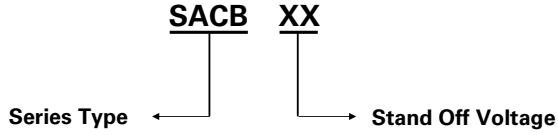
## Dimensions

DO-214AA (SMB J-Bend)

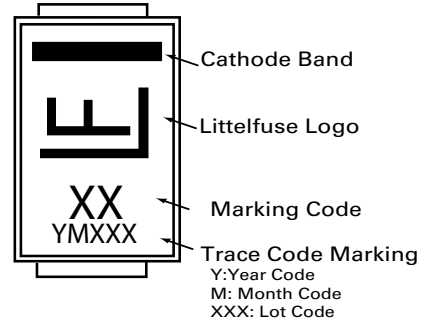


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.077	0.086	1.950	2.200
B	0.160	0.180	4.060	4.570
C	0.130	0.155	3.300	3.940
D	0.084	0.096	2.130	2.440
E	0.030	0.060	0.760	1.520
F	-	0.008	-	0.203
G	0.205	0.220	5.210	5.590
H	0.006	0.012	0.152	0.305

### Part Numbering System



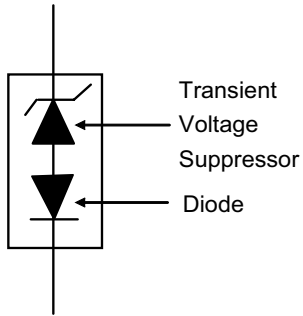
### Part Marking System



### Packaging

Part number	Component Package	Quantity	Packaging Option	Packaging Specification
SACBXX	DO-214AA	3000	Tape & Reel - 12mm tape/13" reel	EIA STD RS-481

### Schematic



### Tape and Reel Specification

