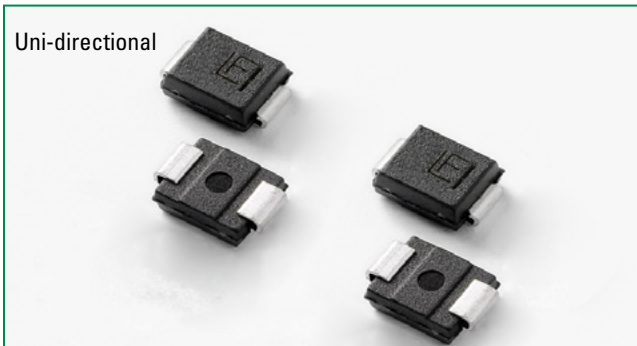


### SACB Series



Uni-directional



#### Agency Approvals

| AGENCY                                                                            | AGENCY FILE NUMBER |
|-----------------------------------------------------------------------------------|--------------------|
|  | E230531            |

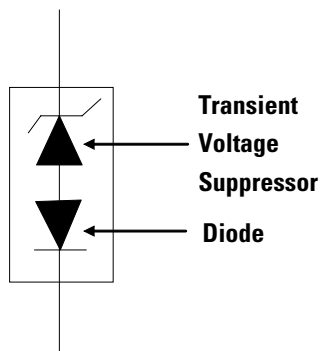
#### Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25 °C unless otherwise noted)

| Parameter                                                                                      | Symbol           | Value      | Unit |
|------------------------------------------------------------------------------------------------|------------------|------------|------|
| Peak Pulse Power Dissipation at T <sub>J</sub> = 25 °C by 10/1000 μs Waveform (fig.1)( Note 1) | P <sub>PPM</sub> | 500        | W    |
| Power Dissipation on Infinite Heat Sink at T <sub>J</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.

#### Schematic



#### Description

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

#### Features

- 500 W peak pulse power capability at 10/1000 μs waveform, repetition rate (duty cycles):0.01%
- For surface mounted applications in order to optimize board space
- 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 pass Class 1 and Class 2
- IEC-61000-4-2 ESD 30 kV(Air), 30 kV (Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2
- V<sub>BR</sub> @ T<sub>J</sub> = V<sub>BR</sub> @ 25 °C x (1 + αT x (T<sub>J</sub> - 25))  
(αT: Temperature Coefficient, typical value is 0.1 %)
- Glass passivated chip junction
- Low dynamic resistance
- High temperature to reflow soldering guaranteed: 260 °C/40 sec
- UL Recognized compound meeting flammability rating V-0
- 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)
- Recognized to UL 497B as an Isolated Loop Circuit Protector
- Products manufactured in the Philippines are available. -Parts with an E suffix are manufactured outside China. ( See Ordering and Packaging Options section for details)

#### Additional Information



Datasheet



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.

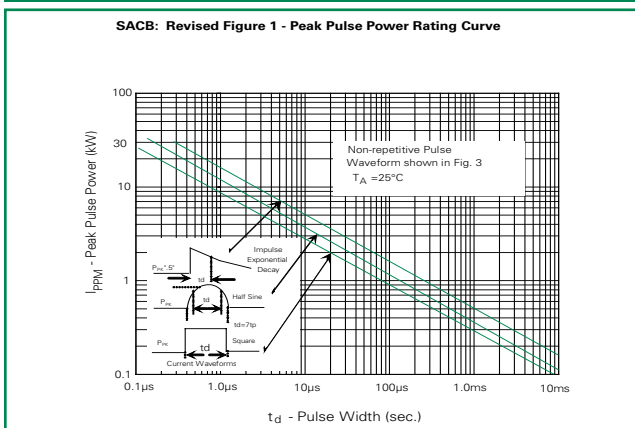
### Electrical Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)

| 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 $V_{WIB} @ I_{IB}$ (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                                                                                                   |

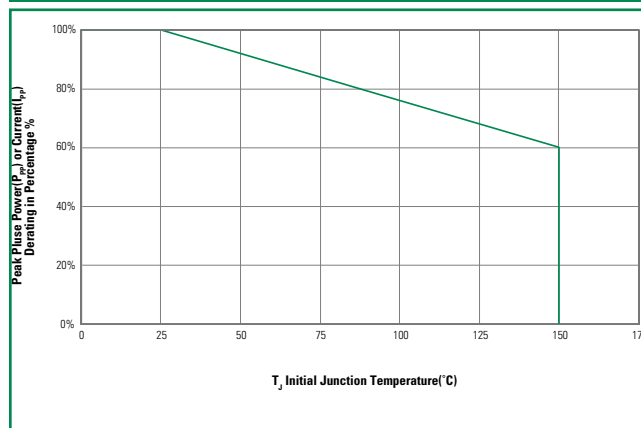
Add "E" to the part number for C00 Ex-China Site.

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

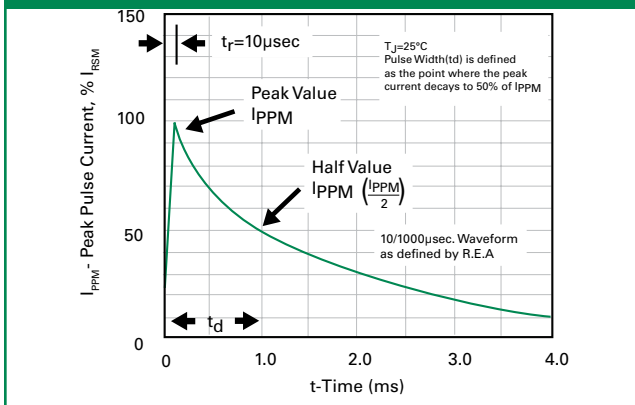
**Figure 1 - Peak Pulse Power Rating Curve**



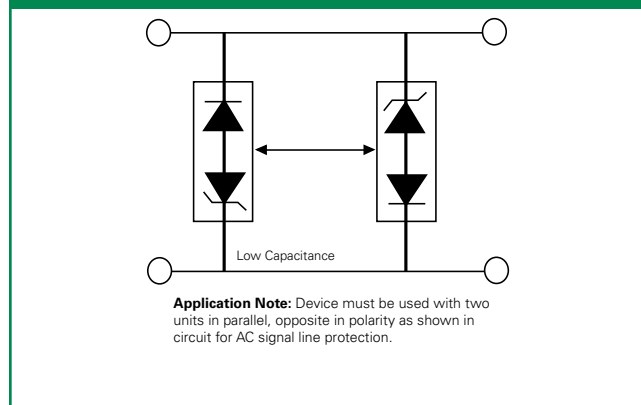
**Figure 2 - Peak Pulse Power Derating Curve**



**Figure 3 - Pulse Waveform**

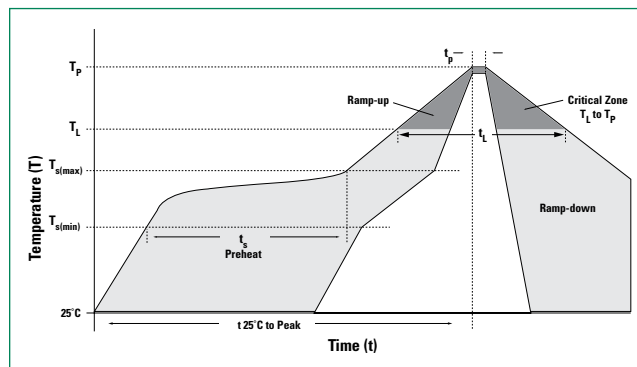


**Figure 4 - AC Line Protection Application**



### 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 – 120 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 ( $t_p$ )   |                                    | 30 seconds              |
| Ramp-down Rate                                         |                                    | 6°C/second max          |
| Time 25°C to peak Temperature ( $T_p$ )                |                                    | 8 minutes Max.          |
| Do not exceed                                          |                                    | 260°C                   |



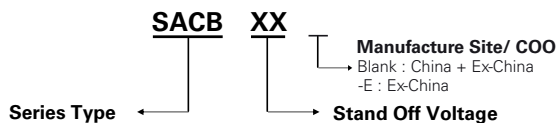
### Physical Specifications

|                 |                                                                    |
|-----------------|--------------------------------------------------------------------|
| <b>Weight</b>   | 0.003oz., 0.093g                                                   |
| <b>Case</b>     | JEDEC DO-214AA molded plastic body over glass passivated junction. |
| <b>Polarity</b> | Uni-directional products are denoted with a cathode band           |
| <b>Terminal</b> | Matte Tin-plated leads. Solderable per JESD22-B102.                |

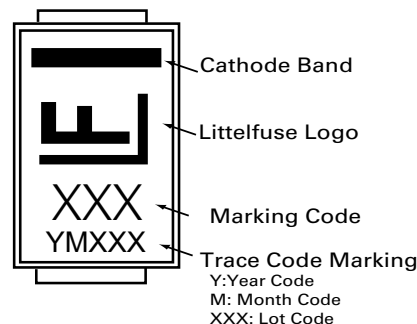
### Environmental Specifications

|                                                        |                                                                                            |
|--------------------------------------------------------|--------------------------------------------------------------------------------------------|
| <b>High Temp Voltage Blocking (HTRB)</b>               | 100 % DC reverse voltage rated 150 °C, 1008 hours JEDEC, JESD22-A-108                      |
| <b>Biased Temp &amp; Humidity (H3TRB)</b>              | 80 % breakdown voltage (+85 °C) 85 %RH, 1008 hours JEDEC, JESD22-A-101                     |
| <b>Unbiased Highly Accelerated Stress Test (UHAST)</b> | 96 hours at TA = 130 °C/85 %RH. JEDEC, JESD22-A-118                                        |
| <b>Temp Cycling (TC)</b>                               | -55 °C to +150 °C, 15 min. dwell, 1000 cycles. JEDEC, JESD22-A104                          |
| <b>Moisture Sensitivity Level (MSL)</b>                | 85 %RH, +85 °C, 168 hours, 3 reflow cycles (+260 °C Peak). JEDEC, JEDEC-J-STD-020, Level 1 |
| <b>Resistance to Solder Heat (RSH)</b>                 | +260 °C, 30 seconds JEDEC, JEDEC JESD22-A-111                                              |

### Part Numbering System



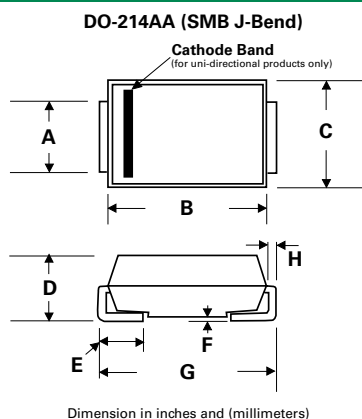
### Part Marking System



### Ordering and Packaging Options

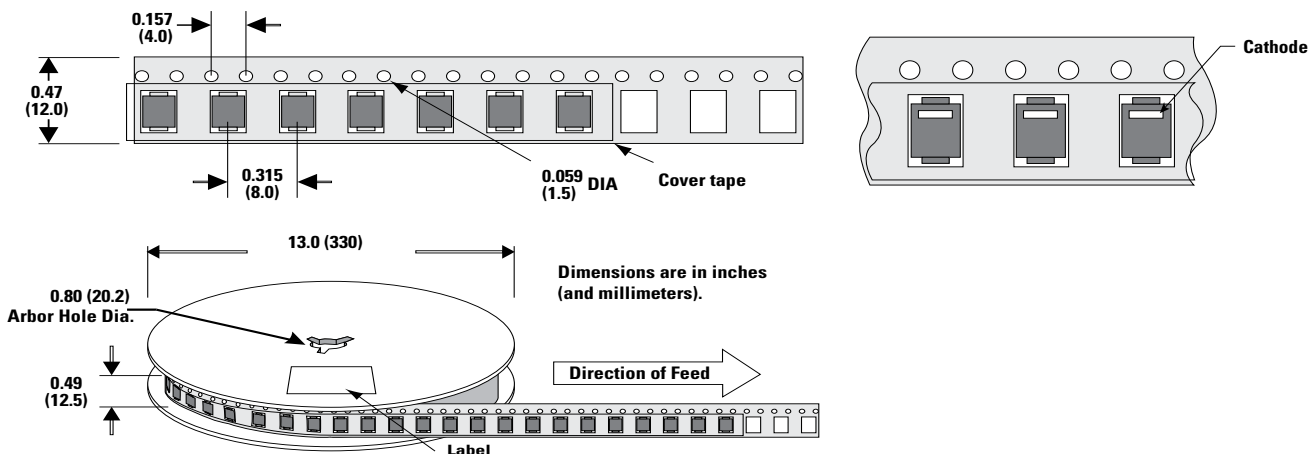
| Part number | Component Package | Quantity | Packaging Option                 | Packaging Specification | Manufacture Site/ COO |
|-------------|-------------------|----------|----------------------------------|-------------------------|-----------------------|
| SACBXX      | DO-214AA          | 3000     | Tape & Reel - 12mm tape/13" reel | EIA STD RS-481          | China + Ex-China      |
| SACBXX-E    | DO-214AA          | 3000     | Tape & Reel - 12mm tape/13" reel | EIA STD RS-481          | Ex-China              |

### Dimensions



| 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 |

### Tape and Reel Specification



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