

Surface Mount Transient Voltage Suppressors (TVS)

SACB Series 5.0 To 50 V 500W Low Capacitance

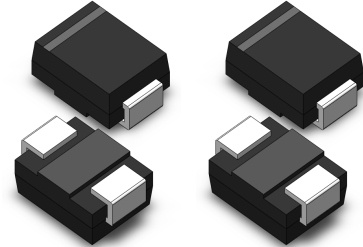
Description

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

Features

- u Glass passivated chip
- u 500W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle): 0.01%
- u Low leakage
- u Excellent clamping capability
- u Very fast response time
- u RoHS compliant

Uni-directional



Applications

TVS devices are ideal for the protection of I/O interfaces, V_{CC} bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000 μ s waveform ⁽¹⁾	P_{PPM}	500	Watts
Peak Pulse Current with a 10/1000 μ s waveform.(Fig.2) ⁽¹⁾	I_{PP}	See Next Table	Amps
Power Dissipation on Infinite Heat Sink at $T_L=75^\circ\text{C}$ (Fig.2)	$P_{M(AV)}$	3.0	Watt
Operating junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2

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

Part Number	Device Marking Code	Reverse Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} @ $I_T=1.0\text{mA}$ (V)	Maximum Reverse Leakage I_R @ V_{RWM} (μA)	Maximum Clamping Voltage V_C @ I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Junction Capacitance @0V (pF)	Working Inverse Blocking Voltage V_{WIB} (V)	Inverse Blocking Leakage Current I_{IB} @ V_{WIB} (mA)	Peak Inverse Voltage V_{PIB} (V)
			MIN							
SACB5.0	SAD	5.0	7.60	300	10.0	44.0	45	75	1	100
SACB6.0	SAE	6.0	7.90	300	11.2	41.0	45	75	1	100
SACB7.0	SAF	7.0	8.33	300	12.6	38.0	45	75	1	100
SACB8.0	SAG	8.0	8.89	100	13.4	36.0	45	75	1	100
SACB8.5	SAH	8.5	9.44	50	14.0	34.0	45	75	1	100
SACB10	SAK	10.0	11.10	5	16.3	29.0	45	75	1	100
SACB12	SAL	12.0	13.30	5	19.0	25.0	45	75	1	100
SACB15	SAM	15.0	16.67	5	23.6	20.0	45	75	1	100
SACB18	SAN	18.0	20.00	5	28.8	15.0	45	75	1	100
SACB22	SAP	22.0	24.40	5	35.4	14.0	45	75	1	100
SACB26	SAQ	26.0	28.90	5	42.3	11.1	45	75	1	100
SACB30	SAR	30.0	33.30	5	48.6	10.0	45	75	1	100
SACB36	SAS	36.0	40.00	5	60.0	8.6	45	75	1	100
SACB45	SAT	45.0	50.00	5	77.0	6.8	45	150	1	200
SACB50	SAU	50.0	55.50	5	88.0	5.8	45	150	1	200

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

Figure 1 - Peak Pulse Power Rating Curve

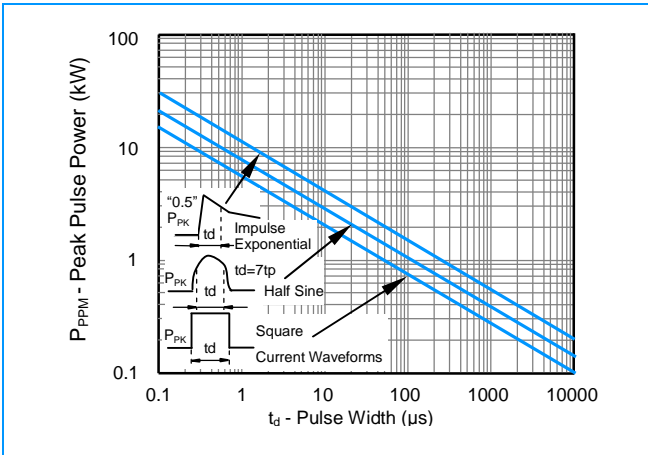


Figure 2 - Pulse Derating Curve

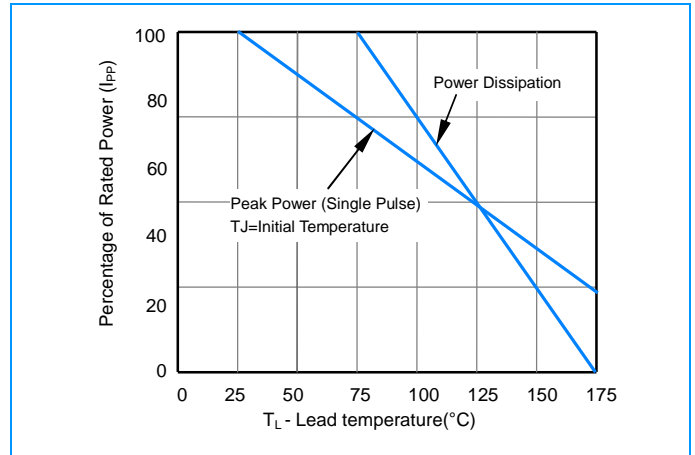


Figure 3 - Pulse Waveform

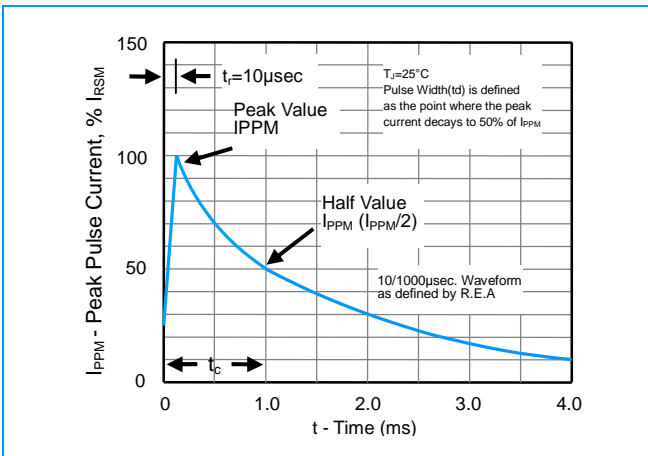
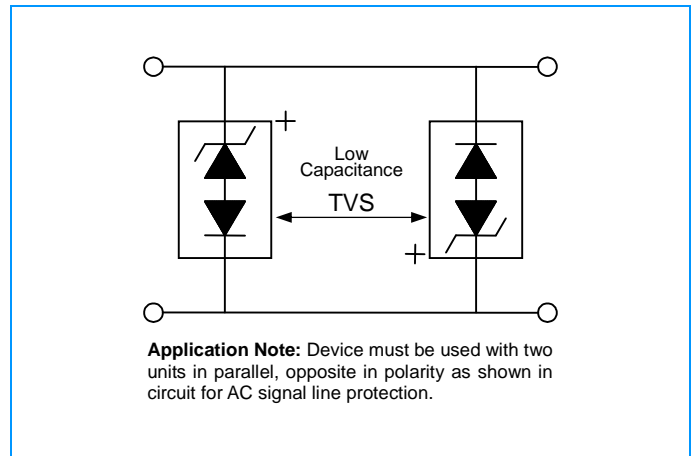


Figure 4 - AC Line Protection Application



Application Note: Device must be used with two units in parallel, opposite in polarity as shown in circuit for AC signal line protection.

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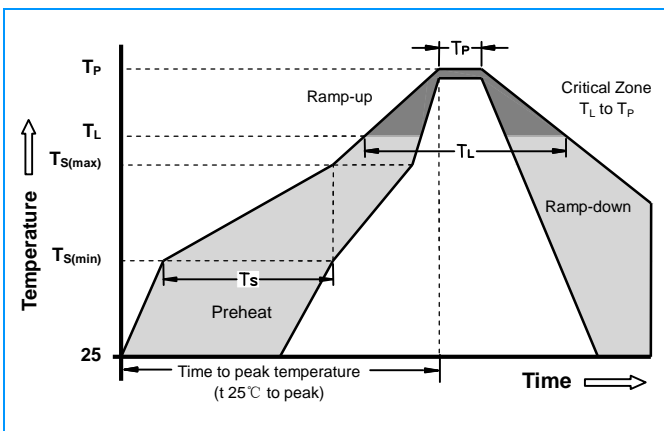
Physical Specifications

Weight	0.015 ounce, 0.4 gram
Case	JEDEC DO-204AC (DO-15) Molded Plastic over glass passivated junction
Polarity	Color band denotes cathode except Bipolar
Terminal	Matte Tin-plated leads, Solderable per JESD22-B102D

Environmental Specifications

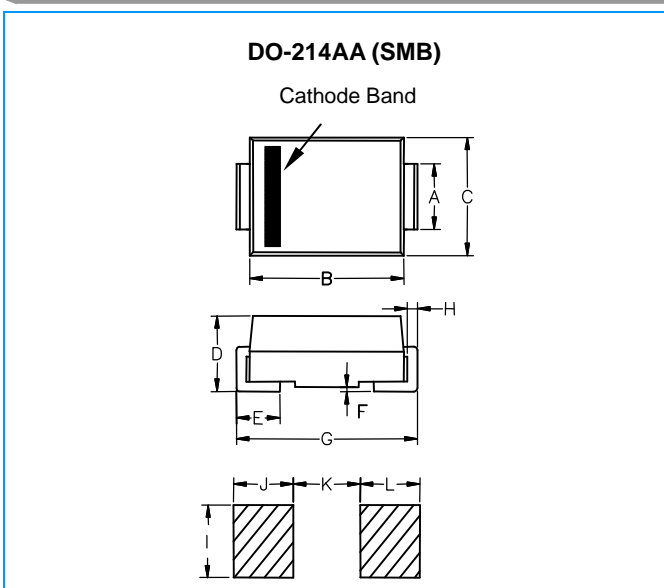
Temperature Cycle	JESD22-A104
Pressure Cooker	JESD22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

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 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (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		280°C

Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.077	0.087	1.960	2.200
B	0.171	0.191	4.350	4.850
C	0.130	0.155	3.300	3.940
D	0.084	0.096	2.130	2.440
E	0.030	0.060	0.750	1.520
F	-	0.008	-	0.203
G	0.201	0.216	5.100	5.500
H	0.006	0.012	0.152	0.305
I	0.089	-	2.260	-
J	0.085	-	2.160	-
K	-	0.107	-	2.740
L	0.085	-	2.160	-