Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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Littelfuse
Expertise Applied | Answers Delivered

SAC Series

Agency Approvals

AGENCY	AGENCY FILE NUMBER
UL	E230531

Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation by 10/1000µs Test Waveform (Fig.1) (Note 1)	P_{PPM}	500	W
Steady State Power Dissipation on Infinite Heat Sink at T_L=75°C)	P_D	3.0	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-65 to 175	°C
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	20	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	75	°C/W

Note:
1. Non-repetitive current pulse , per Fig. 3 and derated above T_J (initial) = 25°C per Fig. 2.

Description

The SAC 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 %
- Glass passivated chip junction in DO-15 Package
- Fast response time: typically less than 1.0ps from 0 Volts to BV min
- Typical failure mode is short from over-specified voltage or current
- Whisker test is conducted based on JEDECJESD201A 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
- Low incremental surge resistance
- EFT protection of data lines in accordance with IEC 61000-4-4
- High temperature to reflow soldering guaranteed: 260°C/40sec / 0.375",(9.5mm) lead length, 5 lbs., (2.3kg) tension
- Plastic package is flammability rated V-0 per Underwriters Laboratories
- Matte tin lead–free plated
- Ideal for data line applications
- 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)

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.

Electrical Characteristics (T_A=25°C unless otherwise noted)

Part Number	Reverse Stand off Voltage V_R (V)	Breakdown Voltage V_{BR} (V) MIN	Maximum Reverse Leakage I_R @ V_R (µA)	Maximum Clamping Voltage at I_{pp}=5.0A V_C (V)	Maximum Peak Pulse Current (Fig.3) I_{PP} (A)	Maximum Junction Capacitance @ 0 Volts (pF)	Working Inverse Blocking Voltage V_{WIB} (V)	Inverse Blocking Leakage Current at I_{IB} @ V_{WIB} (mA)	Peak Inverse Blocking Voltage V_{PIB} (V)	Agency Approval UL
SAC5.0	5.0	7.60	300	10.0	44.0	50	75	1.0	100	X
SAC6.0	6.0	7.90	300	11.2	41.0	50	75	1.0	100	X
SAC7.0	7.0	8.33	300	12.6	38.0	50	75	1.0	100	X
SAC8.0	8.0	8.89	100	13.4	36.0	50	75	1.0	100	X
SAC8.5	8.5	9.44	50	14.0	34.0	50	75	1.0	100	X
SAC10	10.0	11.10	5	16.3	29.0	50	75	1.0	100	X
SAC12	12.0	13.30	1	19.0	25.0	50	75	1.0	100	X
SAC15	15.0	16.70	1	23.6	20.0	50	75	1.0	100	X
SAC18	18.0	20.00	1	28.8	15.0	50	75	1.0	100	X
SAC22	22.0	24.40	1	35.4	14.0	50	75	1.0	100	X
SAC26	26.0	28.90	1	42.3	11.1	50	75	1.0	100	X
SAC30	30.0	33.30	1	48.6	10.0	50	75	1.0	100	X
SAC36	36.0	40.00	1	60.0	8.6	50	75	1.0	100	X
SAC45	45.0	50.00	1	77.0	6.8	50	150	1.0	200	X
SAC50	50.0	55.50	1	88.0	5.8	50	150	1.0	200	X

Revised: 11/20/15

Transient Voltage Suppression Diodes

Axial Leaded – 500W > SAC series

Ratings and Characteristic Curves (T_A=25°C unless otherwise noted)

Figure 1 - Peak Pulse Power Rating Curve

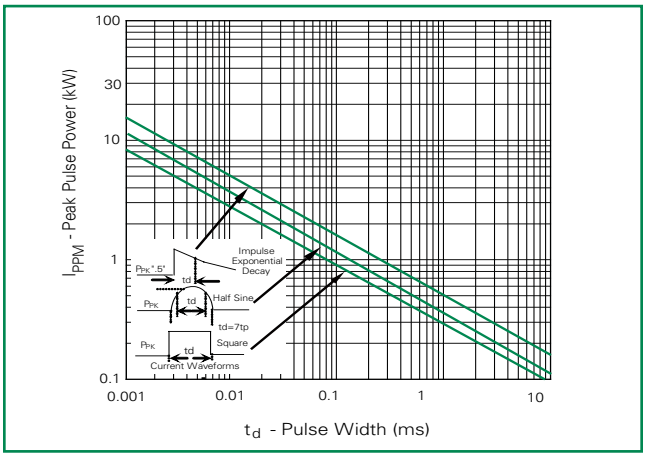


Figure 2 - Peak Pulse Power Derating Curve

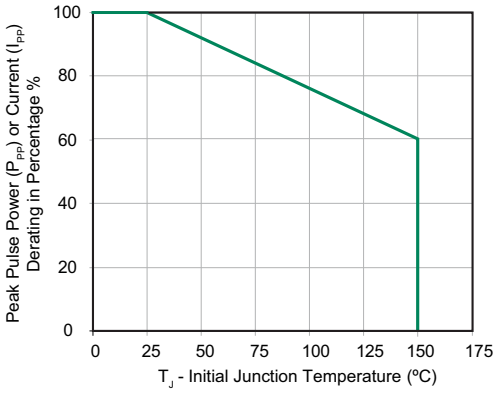


Figure 3 - Pulse Waveform

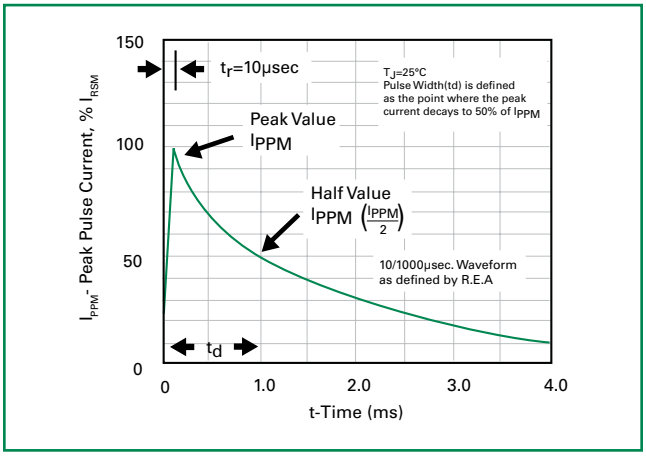
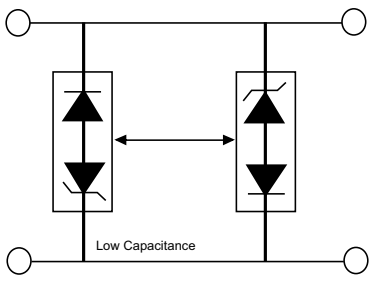


Figure 4 - AC Line Protection Application



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

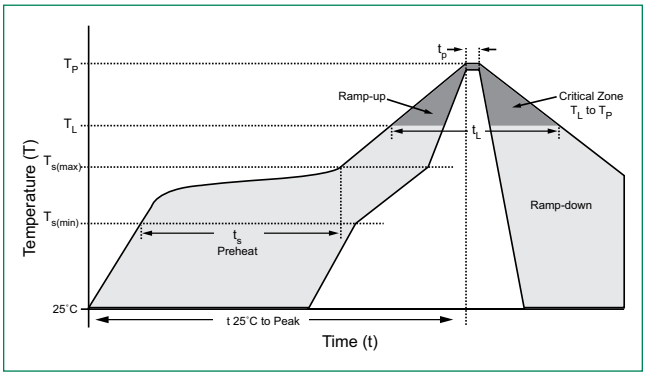
Additional Infomarion

Datasheet | **Resources** | **Samples**

Revised: 11/20/15

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)		$260^{+0/-5}$ °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		260°C



Flow/Wave Soldering (Solder Dipping)

Peak Temperature :	265°C
Dipping Time :	10 seconds
Soldering :	1 time

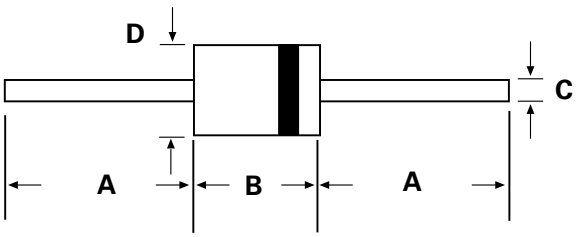
Physical Specifications

Weight	0.015oz., 0.4g
Case	JEDEC DO-204AC (DO-15) molded plastic body over passivated junction.
Polarity	Color band denotes the cathode except Bipolar.
Terminal	Matte Tin axial leads, solderable per JESD22-B102.

Environmental Specifications

High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Temperature Cycling	JESD22-A104
H3TRB	JESD22-A101
RSH	JESD22-B106

Dimensions



DO-204AC (DO-15)

Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	1.000	-	25.40	-
B	0.230	0.300	5.80	7.60
C	0.028	0.034	0.71	0.86
D	0.104	0.140	2.60	3.60

Revised: 11/20/15

Transient Voltage Suppression Diodes

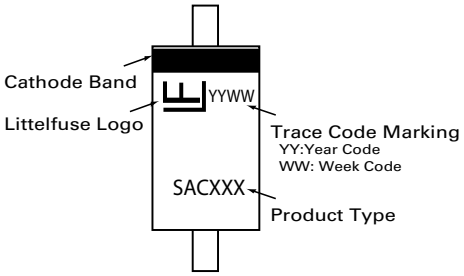
Axial Leaded – 500W > SAC series

Part Numbering System

SAC xxx X

- **OPTION CODE:**
  - **BLANK** Reel Tape
  - **-B** Bulk Packaging
- **V_R VOLTAGE CODE** (Refer to the Electrical Characteristics table)
- **SERIES CODE**

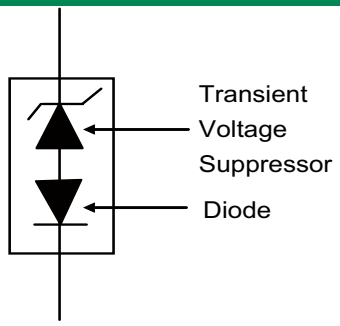
Part Marking System



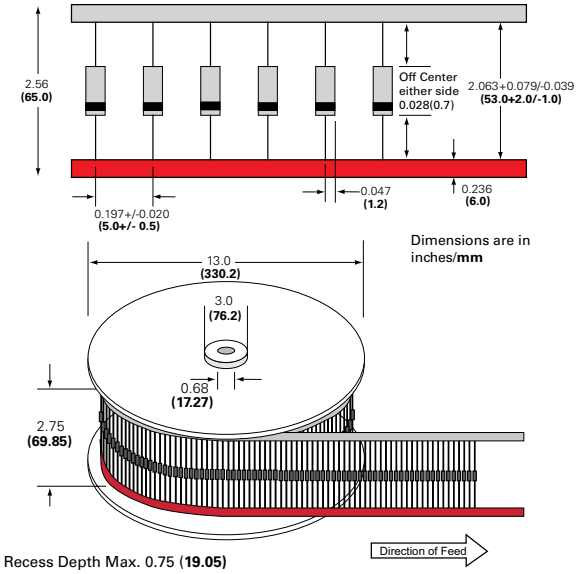
Packaging

Part Number	Component Package	Quantity	Packaging Option	Packaging Specification
SACxxxXX	DO-204AC	4000	Tape & Reel	EIA STD RS-296
SACxxxXX-B	DO-204AC	1000	BULK	Littelfuse Spec.

Schematic



Tape and Reel Specification



Recess Depth Max. 0.75 (**19.05**)

Revised: 11/20/15