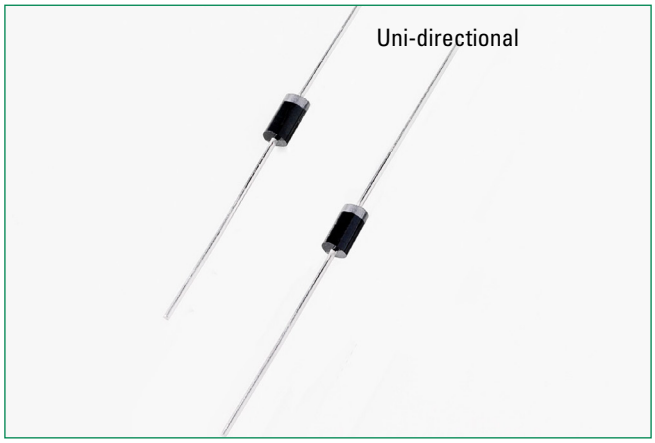
SAC Series
Axial Leaded – 500W



Additional Information

Resources | Accessories | Samples

Agency Approvals

Agency	Agency File Number
	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

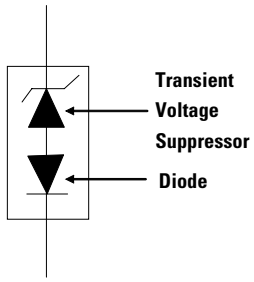
Note:
1. Non-repetitive current pulse , per Fig. 3 and derated above T_J (initial) = 25°C per Fig. 2.

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

Features & Benefits
- 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/30sec / 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, VCC bus and other vulnerable circuits used in telecom, computer, industrial and consumer electronic applications.

Schematic



Revised: GD. 06/17/21

SAC Series
Axial Leaded – 500W

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

Part Number	Reverse Stand off Voltage V_R (V)	Breakdown Voltage V_{BR} (V)		Maximum Reverse Leakage I_R @ V_R (µA)	Maximum Clamping Voltage V_C @I_{PP} (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
		MIN	MAX								
SAC5.0	5.0	7.6	8.3	300	13.2	46.2	50	700	1	800	X
SAC6.0	6.0	7.9	9.3	300	12.2	43.1	50	700	1	800	X
SAC7.0	7.0	8.3	10.5	300	13.7	39.9	50	700	1	800	X
SAC8.0	8.0	8.9	10.9	100	13.9	37.8	50	700	1	800	X
SAC8.5	8.5	9.4	11.5	50	14.7	35.7	50	700	1	800	X
SAC10	10	11.1	13.6	5	17.2	30.5	50	700	1	800	X
SAC12	12	13.3	16.3	1	20.0	26.3	50	700	1	800	X
SAC15	15	16.7	20.4	1	25.0	21.0	50	700	1	800	X
SAC18	18	20.0	24.4	1	33.3	15.8	50	700	1	800	X
SAC22	22	24.4	29.8	1	35.7	14.7	50	700	1	800	X
SAC26	26	28.9	35.3	1	45.0	11.7	50	700	1	800	X
SAC30	30	33.3	41.1	1	50.0	10.5	50	700	1	800	X
SAC36	36	40.0	48.9	1	58.1	9.0	50	700	1	800	X
SAC45	45	50.0	61.1	1	73.5	7.1	50	700	1	800	X
SAC50	50	55.5	66.6	1	86.2	6.1	50	700	1	800	X
SAC55	55	60.5	66.9	1	87.0	5.7	50	700	1	800	X
SAC60	60	66.0	72.9	1	95.0	5.3	50	700	1	800	X
SAC65	65	71.5	79.0	1	103.0	4.9	50	700	1	800	X
SAC70	70	77.0	85.1	1	111.0	4.5	50	700	1	800	X
SAC75	75	82.5	91.2	1	119.0	4.2	50	700	1	800	X
SAC80	80	88.0	97.2	1	127.0	3.9	50	700	1	800	
SAC85	85	93.5	103.3	1	135.0	3.7	45	700	1	800	X
SAC90	90	99.0	109.4	1	143.0	3.5	45	700	1	800	X
SAC95	95	104.5	115.5	1	151.0	3.3	45	700	1	800	X
SAC100	100	110.0	121.0	1	158.0	3.2	40	700	1	800	X
SAC110	110	120.0	133.0	1	173.0	2.9	40	700	1	800	X
SAC120	120	131.0	145.0	1	189.0	2.6	40	700	1	800	X
SAC130	130	142.0	160.0	1	209.0	2.4	35	700	1	800	X
SAC140	140	153.0	170.0	1	219.0	2.3	35	700	1	800	X
SAC150	150	164.0	182.0	1	237.0	2.1	35	700	1	800	X

Revised: GD. 06/17/21

SAC Series
Axial Leaded – 500W

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

Figure 1:
Peak Pulse Power Rating Curve

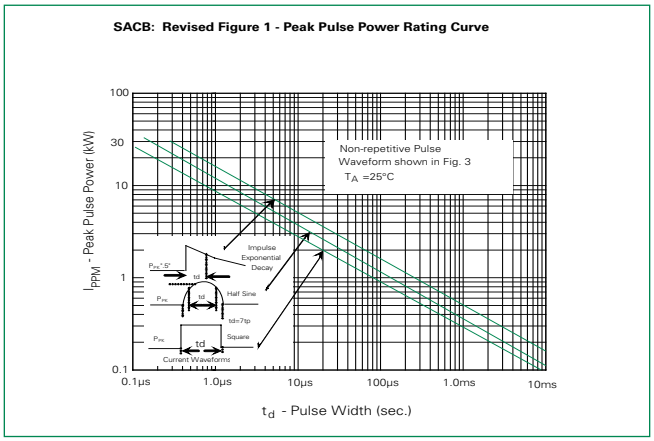


Figure 2:
Peak Pulse Power Derating Curve

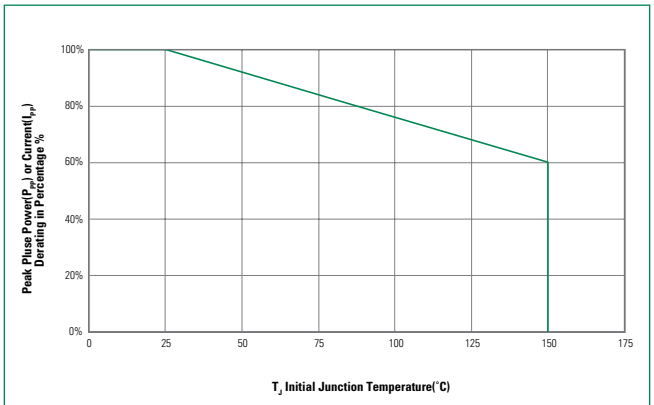


Figure 3:
Pulse Waveform

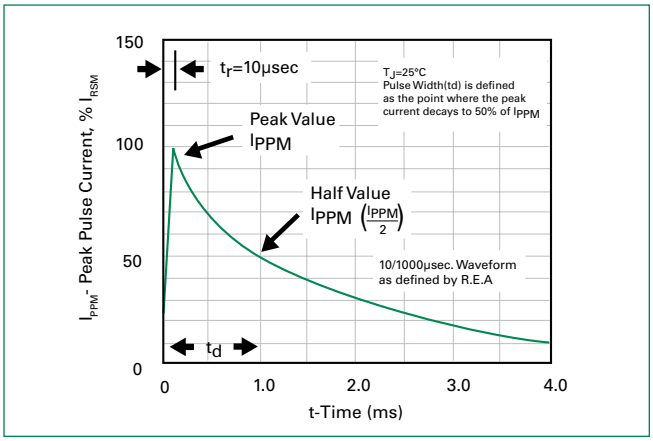
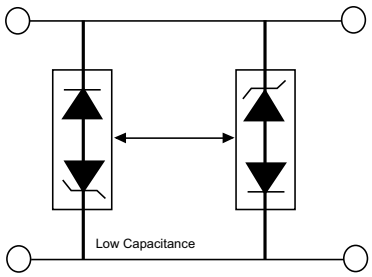


Figure 4:
AC Line Protection Application

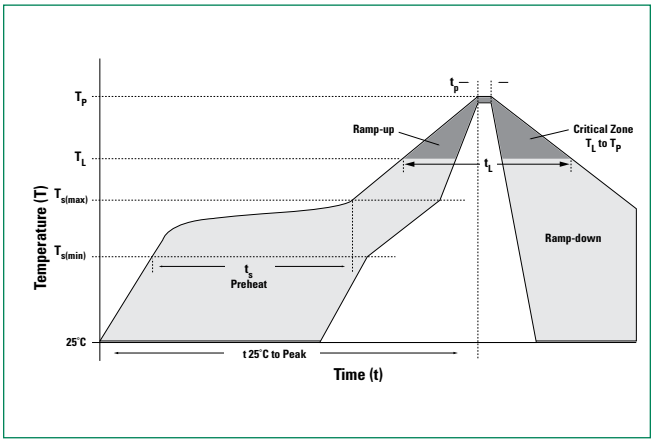


Application Note: Device must be used with two units in parallel, opposite in polarity as shown in circuit for AC signal line protection.

SAC Series
Axial Leaded – 500W

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)		$260^{+0/-5}$ °C
Time within 5°C of actual peak Temperature (t_p)		30 seconds max
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

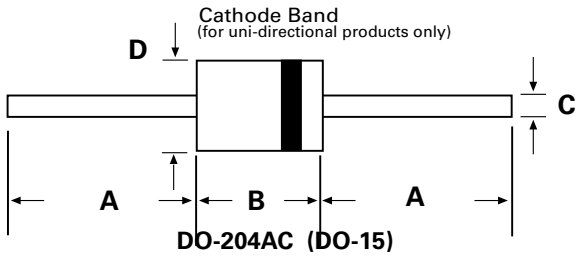
Physical Specifications

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

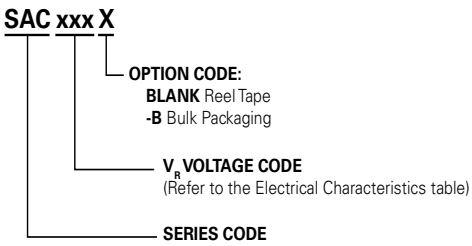


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	1.000	-	25.40	-
B	0.230	0.300	5.80	7.60
C	0.028	0.034	0.71	0.86
D	0.104	0.140	2.60	3.60

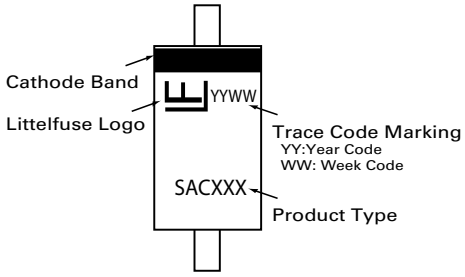
Revised: GD. 06/17/21

SAC Series
Axial Leaded – 500W

Part Numbering System



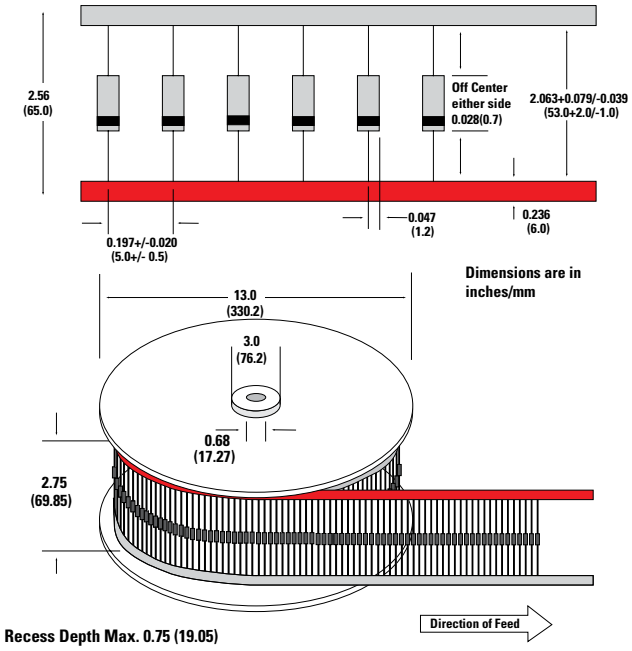
Part Marking System



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.

Tape and Reel Specification



Revised: GD. 06/17/21