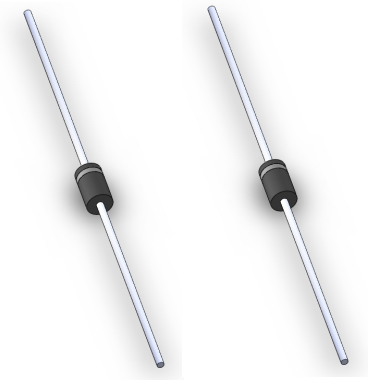
Axial Lead Transient Voltage Suppressors (TVS)

SAC Series 5.0 To 50 V 500W Low Capacitance

Description

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

Uni-directional



Features

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

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℃ unless otherwise noted)

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

Notes:

1. Non-repetitive current pulse , per Fig. 3 and derated above TA= 25°C per Fig. 2

Electrical Characteristics (T_A=25℃ unless otherwise noted)

Part Number	Reverse Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} @I_T=1.0mA (V) MIN	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)
SAC5.0	5.0	7.60	300	10.0	44.0	50	75	1	100
SAC6.0	6.0	7.90	300	11.2	41.0	50	75	1	100
SAC7.0	7.0	8.33	300	12.6	38.0	50	75	1	100
SAC8.0	8.0	8.89	100	13.4	36.0	50	75	1	100
SAC8.5	8.5	9.44	50	14.0	34.0	50	75	1	100
SAC10	10.0	11.10	5	16.3	29.0	50	75	1	100
SAC12	12.0	13.30	5	19.0	25.0	50	75	1	100
SAC15	15.0	16.67	5	23.6	20.0	50	75	1	100
SAC18	18.0	20.00	5	28.8	15.0	50	75	1	100
SAC22	22.0	24.40	5	35.4	14.0	50	75	1	100
SAC26	26.0	28.90	5	42.3	11.1	50	75	1	100
SAC30	30.0	33.30	5	48.6	10.0	50	75	1	100
SAC36	36.0	40.00	5	60.0	8.6	50	75	1	100
SAC45	45.0	50.00	5	77.0	6.8	50	150	1	200
SAC50	50.0	55.50	5	88.0	5.8	50	150	1	200

Axial Lead Transient Voltage Suppressors (TVS)

SAC Series 5.0 To 50 V 500W Low Capacitance

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

Figure 1 - Peak Pulse Power Rating Curve

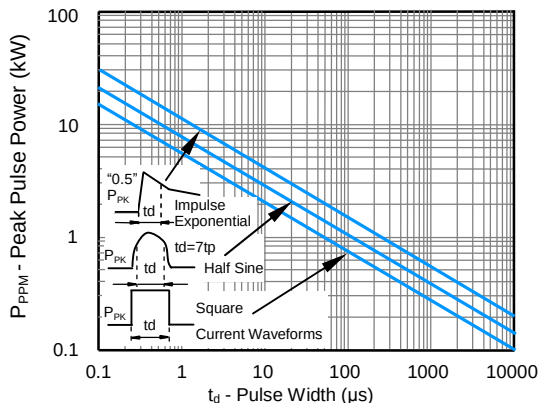


Figure 2 - Pulse Derating Curve

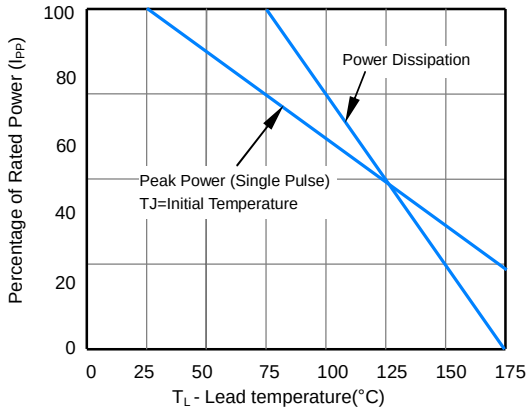


Figure 3 - Pulse Waveform

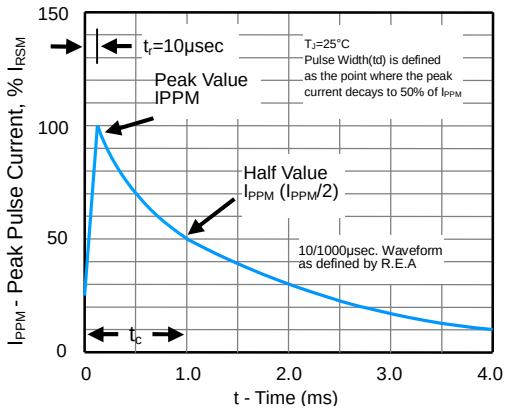
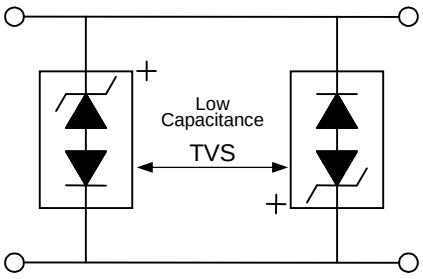


Figure 4 – AC Line Protection Application



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

Axial Lead Transient Voltage Suppressors (TVS)

SAC Series 5.0 To 50 V 500W Low Capacitance

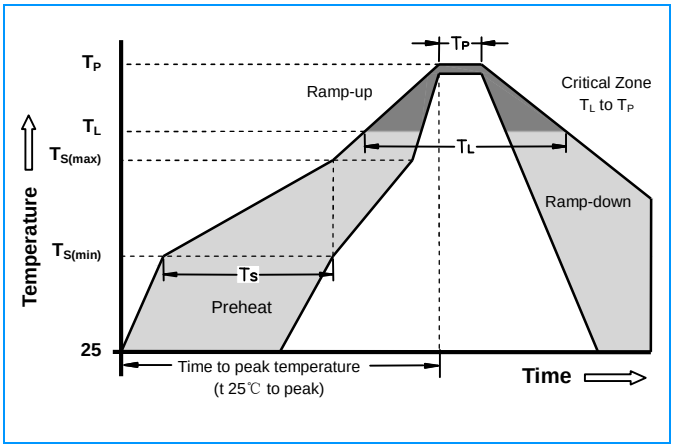
Physical Specifications

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

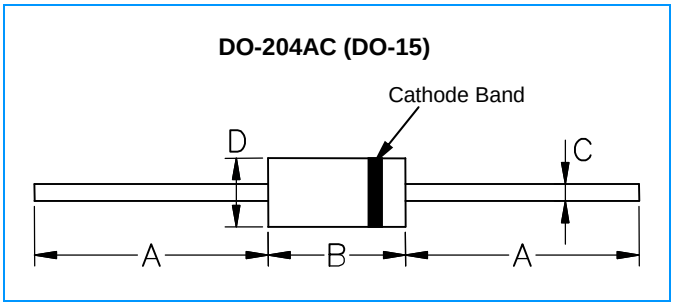
Temperature Cycle	JESD22-A104
Pressure Cooker	JESD22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

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 TL - 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	1.000	-	25.40	-
B	0.230	0.300	5.85	7.63
C	0.028	0.033	0.71	0.84
D	0.102	0.142	2.60	3.61