



Data Sheet

Customer :

Product : Glass Passivated Junction Tran-sient Voltage Suppressor

Part No.: SA Series

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Edition : REV.A



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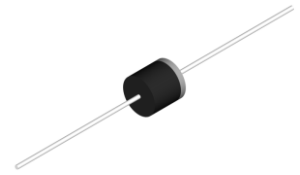
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31-Jan-11	31-Jan-11	31-Jan-11	31-Jan-11	
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500 Watt Peak Power 1 Watts Steady State Voltage : 6.8 to 144Volts

■ Features

- Plastic package has underwrites laboratory flammability classification 94V-0
- Glass passivated chip junction in DO-15 package
- 500W Peak Pulse Power capability on 10/1000 μ s waveform
- Repetition rate(duty cycle):0.01%
- Excellent clamping capability
- Low incremental surge resistance
- Fast response time: typically less than 1.0 ps from 0 volts to BV for unidirectional and 5.0ns for bidirectional types
- Typical I_D less than 1 μ A above 10V
- High temperature soldering guaranteed: 300°C/10seconds/.375"(9.5mm) lead length/51bs.,(2.3kg) tension



■ Mechanical Data

Case : JEDEC DO-15 molded plastic Molded plastic over passivated junction

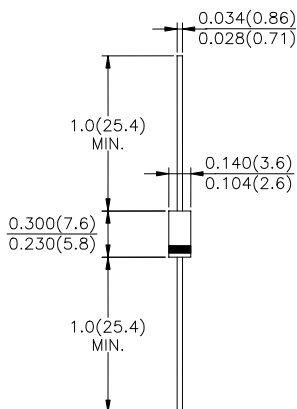
Terminals : Plated Axial lead, solderable per MIL-STD-202, Method 2026

Polarity : Color band denotes positive end (cathode) except Bidirectionals types

Mounting Position : Any

Weight : 0.015 ounce, 0.4 gram

■ Package Dimensions in inches(millimeters): DO-15



■ Maximum Ratings And Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified..

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000 μ s waveform (Note 1,2) Fig.1	P_{PPM}	Minimum 500	W
Peak Pulse Current of on 10/1000 μ s waveform (Note 1) Fig.3	I_{PPM}	See table1	A
Steady Power Dissipation at $T_L=75^\circ\text{C}$ Lead Lengths .375", (9.5mm) (Note 2)	$P_{M(AV_0)}$	1.0	W
Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Lade(JEDEC Method) (Note 3)	I_{FSM}	70	A
Operating Junction and Storage temperature Range	T_J, T_{STG}	-65 ~ +175	°C

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

2. Mounted on Copper Lead area of 1.57 in² (40mm²) per Fig.5

3. 8.3mm single half sine-wave, duty cycle=4 pulses minutes maximum



■Electrical Characteristics

Item Part No.		Reverse Stand-Off Voltage VTWN (V)	Breakdown Voltage VBR(V) @IT		Test Current IT (mA)	Maximum Clamping Voltage @I _{PP} VC (V)	Peak Pulse Current I _{PP} (A)	Reveres Leakage @VRWM IR(μA)	
			Min	Max				UNI	BI
SA5.0	SA5.0C	5.0	6.40	7.30	10	9.6	52.3	600	1200
SA5.0A	SA5.0CA	5.0	6.40	7.00	10	9.2	54.3	600	1200
SA6.0	SA6.0C	6.0	6.67	8.15	10	11.4	43.9	600	1200
SA6.0A	SA6.0CA	6.0	6.67	7.37	10	10.3	48.5	600	1200
SA6.5	SA6.5C	6.5	7.22	8.82	10	12.3	40.7	400	800
SA6.5A	SA6.5CA	6.5	7.22	7.98	10	11.2	44.7	400	800
SA7.0	SA7.0C	7.0	7.78	9.51	10	13.3	37.8	150	300
SA7.0A	SA7.0CA	7.0	7.78	8.60	10	12.0	41.7	150	300
SA7.5	SA7.5C	7.5	8.33	10.2	1	14.3	35.0	50	100
SA7.5A	SA7.5CA	7.5	8.33	9.21	1	12.9	38.8	50	100
SA8.0	SA8.0C	8.0	8.89	10.9	1	15.0	33.3	25	50
SA8.0A	SA8.0CA	8.0	8.89	9.83	1	13.6	36.7	25	50
SA8.5	SA8.5C	8.5	9.44	11.5	1	15.9	31.4	10	20
SA8.5A	SA8.5CA	8.5	9.44	10.4	1	14.4	34.7	10	20
SA9.0	SA9.0C	9.0	10.0	12.2	1	16.9	29.5	5	
SA9.0A	SA9.0CA	9.0	10.0	11.1	1	15.4	32.5	5	
SA10	SA10C	10.0	11.1	13.6	1	18.8	26.6	3	
SA10A	SA10CA	10.0	11.1	12.3	1	17.0	29.4	3	
SA11	SA11C	11.0	12.2	14.9	1	20.1	24.9	3	
SA11A	SA11CA	11.0	12.2	13.5	1	18.2	27.4	3	
SA12	SA12C	12.0	13.3	16.3	1	22.0	22.7	3	
SA12A	SA12CA	12.0	13.3	14.7	1	19.9	25.1	3	
SA13	SA13C	13.0	14.4	17.6	1	23.8	21.0	3	
SA13A	SA13CA	13.0	14.4	15.9	1	21.5	23.2	3	
SA14	SA14C	14.0	15.6	19.1	1	25.8	19.4	3	
SA14A	SA14CA	14.0	15.6	17.2	1	23.2	21.5	3	
SA15	SA15C	15.0	16.7	20.4	1	26.9	18.8	3	
SA15A	SA15CA	15.0	16.7	18.5	1	24.4	20.6	3	
SA16	SA16C	16.0	17.8	21.8	1	28.8	17.6	3	
SA16A	SA16CA	16.0	17.8	19.7	1	26.0	19.2	3	
SA17	SA17C	17.0	18.9	23.1	1	30.5	16.4	3	
SA17A	SA17CA	17.0	18.9	20.9	1	27.6	16.1	3	
SA18	SA18C	18.0	20.0	24.4	1	32.2	15.5	3	
SA18A	SA18CA	18.0	20.0	22.1	1	29.2	17.2	3	
SA20	SA20C	20.0	22.2	27.1	1	35.8	13.9	3	
SA20A	SA20CA	20.0	22.2	24.5	1	32.4	15.4	3	
SA22	SA22C	22.0	24.4	29.8	1	39.4	12.7	3	
SA22A	SA22CA	22.0	24.4	26.9	1	35.5	14.1	3	
SA24	SA24C	24.0	26.7	32.6	1	43.0	11.6	3	
SA24A	SA24CA	24.0	26.7	29.5	1	38.9	12.8	3	
SA26	SA26C	26.0	28.9	35.3	1	46.6	10.7	3	
SA26A	SA26CA	26.0	28.9	31.9	1	42.1	11.9	3	
SA28	SA28C	28.0	31.1	38.0	1	50.0	9.9	3	
SA28A	SA28CA	28.0	31.1	34.4	1	45.4	11.0	3	
SA30	SA30C	30.0	33.3	40.7	1	53.5	9.3	3	
SA30A	SA30CA	30.0	33.3	36.8	1	48.4	10.3	3	
SA33	SA33C	33.0	36.7	44.9	1	59.0	8.5	3	
SA33A	SA33CA	33.0	36.7	40.6	1	53.3	9.4	3	
SA36	SA36C	36.0	40.0	48.9	1	64.3	7.8	3	
SA36A	SA36CA	36.0	40.0	44.2	1	58.1	8.6	3	
SA40	SA40C	40.0	44.4	54.3	1	71.4	7.0	3	
SA40A	SA40CA	40.0	44.4	49.1	1	64.5	7.8	3	



■ Electrical Characteristics

Item		Reverse Stand-Off Voltage VTWN (V)	Breakdown Voltage VBR(V) @IT		Test Current IT (mA)	Maximum Clamping Voltage @I _{PP} VC (V)	Peak Pulse Current I _{PP} (A)	Revers Leakage @VRWM IR(μA)	
Part No.			Min	Max				UNI	BI
UNI-Directional	BI-Directional								
SA43	SA43C	43.0	47.8	58.4	1	76.7	6.5	3	
SA43A	SA43CA	43.0	47.8	52.8	1	69.4	7.2	3	
SA45	SA45C	45.0	50.0	61.1	1	80.3	6.2	3	
SA45A	SA45CA	45.0	50.0	55.3	1	72.7	6.9	3	
SA48	SA48C	48.0	53.3	65.1	1	85.5	5.8	3	
SA48A	SA48CA	48.0	53.3	58.9	1	77.4	6.5	3	
SA51	SA51C	51.0	56.7	69.3	1	91.1	5.5	3	
SA51A	SA51A	51.0	56.7	62.7	1	82.4	6.1	3	
SA54	SA54C	54.0	60.0	73.3	1	96.3	5.2	3	
SA54A	SA54CA	54.0	60.0	66.3	1	87.1	5.7	3	
SA58	SA58C	58.0	64.4	78.7	1	103	4.9	3	
SA58A	SA58CA	58.0	64.4	71.2	1	93.6	5.3	3	
SA60	SA60C	60.0	66.7	81.5	1	107	4.7	3	
SA60A	SA60CA	60.0	66.7	73.7	1	96.8	5.2	3	
SA64	SA64C	64.0	71.1	86.9	1	114	4.4	3	
SA64A	SA64CA	64.0	71.1	78.6	1	103	4.9	3	
SA70	SA70C	70.0	77.8	95.1	1	125	4.0	3	
SA70A	SA70CA	70.0	77.8	86.0	1	113	4.4	3	
SA75	SA75C	75.0	83.3	102	1	134	3.7	3	
SA75A	SA75CA	75.0	83.3	92.1	1	121	4.1	3	
SA78	SA78C	78.0	86.7	106	1	139	3.6	3	
SA78A	SA78CA	78.0	86.7	95.8	1	126	4.0	3	
SA85	SA85C	85.0	94.4	115	1	151	3.3	3	
SA85A	SA85CA	85.0	94.4	104	1	137	3.6	3	
SA90	SA90C	90.0	100	122	1	160	3.1	3	
SA90A	SA90CA	90.0	100	111	1	146	3.4	3	
SA100	SA100C	100	111	136	1	179	2.8	3	
SA100A	SA100CA	100	111	123	1	162	3.1	3	
SA110	SA110C	110	122	149	1	196	2.6	3	
SA110A	SA110CA	110	122	135	1	177	2.8	3	
SA120	SA120C	120	133	163	1	214	2.3	3	
SA120A	SA120CA	120	133	147	1	193	2.0	3	
SA130	SA130C	130	144	176	1	231	2.2	3	
SA130A	SA130CA	130	144	159	1	209	2.4	3	
SA150	SA150C	150	167	204	1	268	1.9	3	
SA150A	SA150CA	150	167	185	1	243	2.1	3	
SA160	SA160C	160	178	218	1	287	1.7	3	
SA160A	SA160CA	160	178	197	1	259	1.9	3	
SA170	SA170C	170	189	231	1	304	1.6	3	
SA170A	SA170CA	170	189	209	1	275	1.8	3	

Rating and Characteristic Curve

Fig. 1 - PEAK PULSE POWER VS PULSE TIME

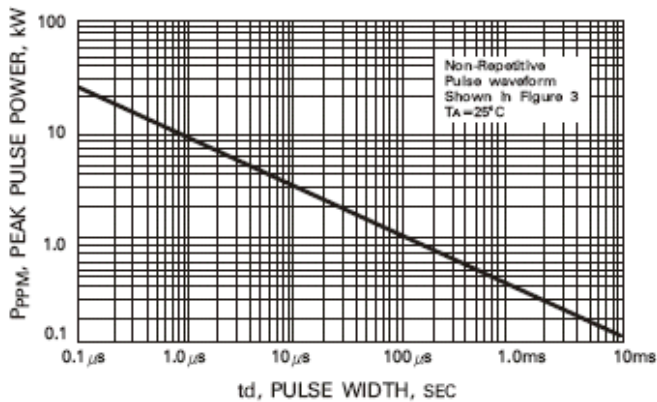


Fig. 2 - PULSE DERATING CURVE

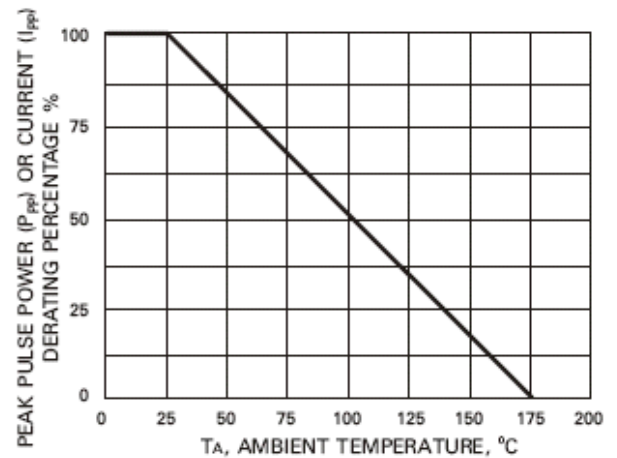


Fig. 3 - PULSE WAVEFORM

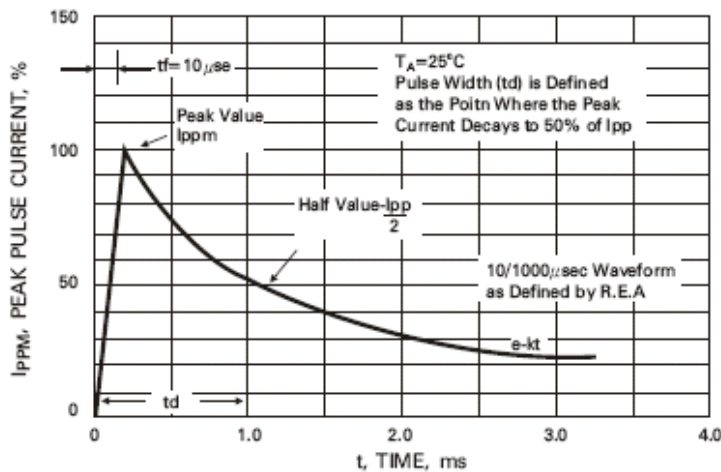


Fig. 4 - TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

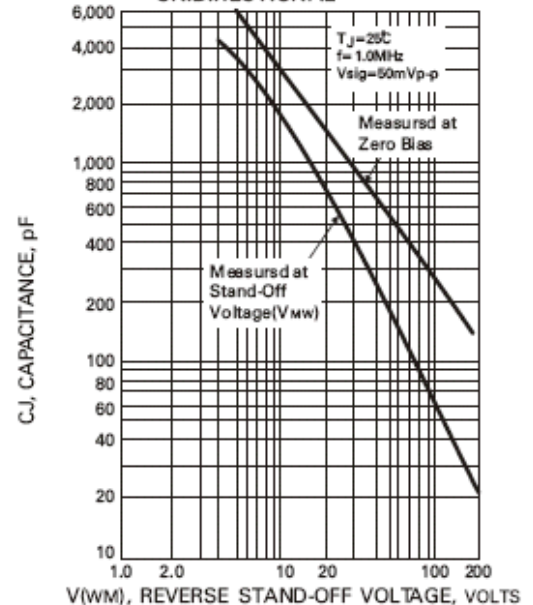


Fig. 5 - STEADY STATE POWER DERATING CURVE

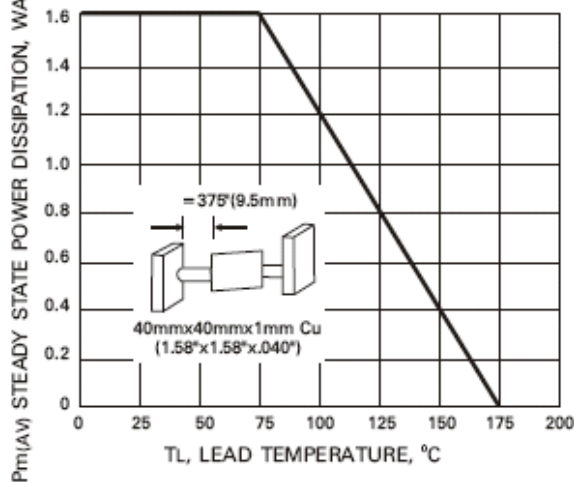
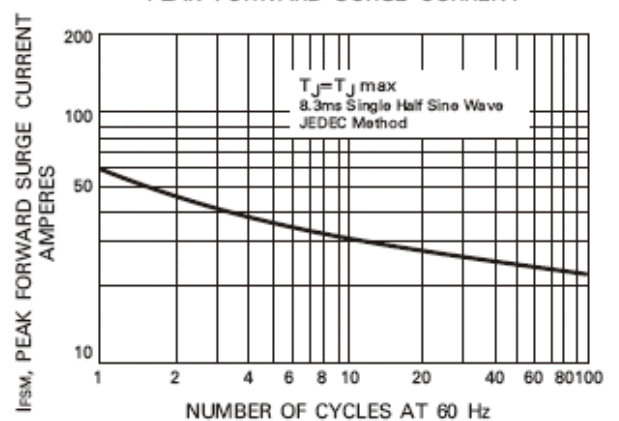
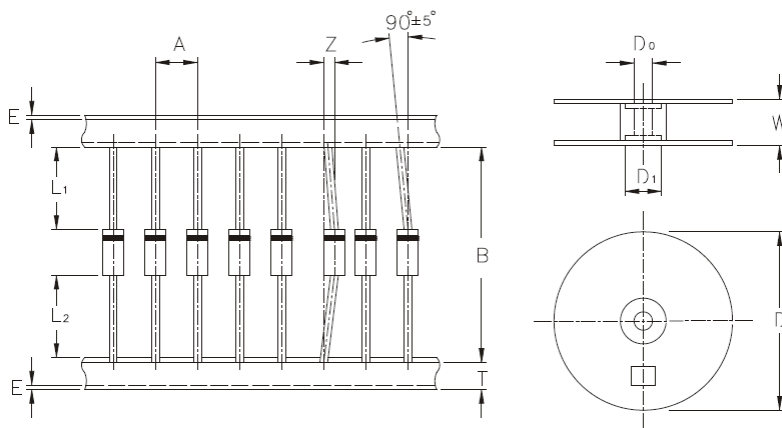


Fig. 6 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

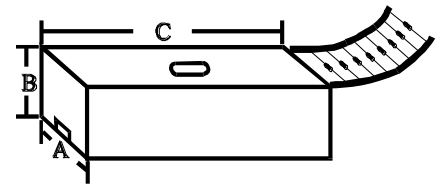


■ Taping/Packing Specifications

Reel Packing



Ammo Packing



Unit: mm

Packaging Type	Packing Methods			Reel Packing	
	A	B1-B2 Max	S	Across Flange (A)	Qty
	52+1/-0	1.2	5	72	5,000

Unit: mm

Packaging Type	Packing Methods			Ammo Packing			
	A	B1-B2 Max	S	A	B	C	Qty
	26+1/-0	1.0	5	80	75	264	5,000