Silicon Avalanche Diodes

500 Watt Axial Leaded Transient Voltage Suppressors

RoHS SA Series

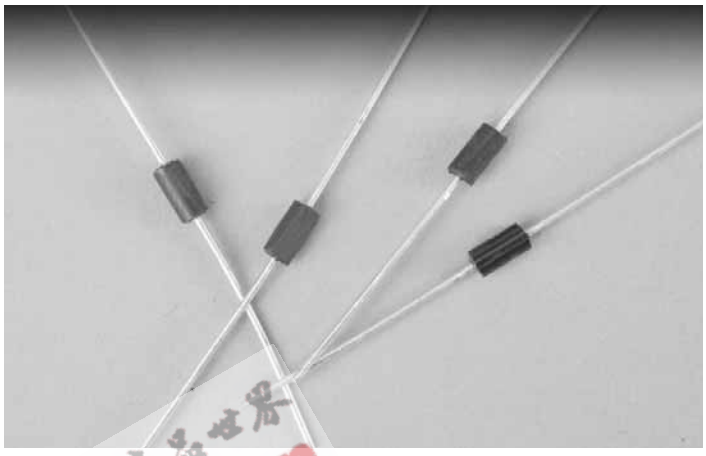
The SA Series is designed specifically to protect sensitive electronics equipment from voltage transients induced by lightning and other transient voltage events. These devices are ideal for the protection of I/O interfaces, Vcc bus and other vulnerable circuits used in computer and consumer electronic applications.

FEATURES

- **RoHS** Compliant
- 5.0 to 180 Volts
- Uni-directional and Bi-directional
- Glass passivated chip junction
- 500W peak pulse power capability on 10/1000µs waveform
- Excellent clamping capability
- Repetition rate (duty cycle): 0.01%
- Low incremental surge resistance
- Fast response time: typically less than 1.0ps from 0 Volts to BV for unidirectional and 5.0ns for bidirectional types
- Typical IR less than 1µA above 10V
- High temperature soldering guaranteed: 265˚C/10 seconds/.375",(9.5mm) lead length, 5lbs.,(2.3kg) tension

Agency Approvals: Recognized under the Components Program of Underwriters Laboratories.

Agency File Number: E128662



MAXIMUM RATINGS AND CHARACTERISTICS @25˚C AMBIENT TEMPERATURE (unless otherwise noted)

RATING	SYMBOL	VALUE	UNIT
Peak Pulse Power Dissipation on 10/1000µs waveform(Note 1, FIG. 1)	P_{PPM}	Min 500	Watts
Peak Pulse Current of on 10/1000µs waveform (Note 1, FIG. 3)	I_{PPM}	SEE TABLE 1	Amps
Steady State Power Dissipation at T_L=75˚C, Lead lengths .375", (9.5mm)(Note 2)	$P_M(AV)$	3	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 3)	I_{FSM}	70	Amps
Operating junction and Storage Temperature Range	T_j, T_{STG}	-55 to +175	°C

Notes:
1. Non-repetitive current pulse, per Fig.3 and derated above T_A= 25˚C per Fig.2
2. Mounted on Copper Pad area of 1.6x1.6"(40x40mm) per Fig.5.
3. 8.3 ms single half sine-wave, or equivalent square wave, Duty cycle= 4 pulses per minutes maximum.

ORDERING INFORMATION

SA | | | | C | A | | |

- Voltage
- Bi-Directional
- 5% Voltage Tolerance
- Packing Option

B = Bulk (1000 pcs)

T = Tape and reeled (4000 pcs)

Mechanical Specifications:

Weight: 0.015 ounce, 0.4 gram

Case: JEDEC DO-15 Molded Plastic over passivated junction

Mounting Position: Any

Polarity: Color band denotes cathode except Bidirectional

Terminal: Plated Axial leads, solderable per MIL-STD-750, Method 2026

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ELECTRICAL SPECIFICATION @ Tamb 25°C

Part Numbers		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PP} (Volts)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_R (µA)
Uni-Polar	Bi-Polar		MIN	MAX				
SA5.0A	SA5.0CA	5.0	6.40	7.00	10	9.2	55.4	600
SA6.0A	SA6.0CA	6.0	6.67	7.37	10	10.3	49.5	600
SA6.5A	SA6.5CA	6.5	7.22	7.98	10	11.2	45.5	400
SA7.0A	SA7.0CA	7.0	7.78	8.60	10	12.0	42.5	150
SA7.5A	SA7.5CA	7.5	8.33	9.21	1	12.9	39.5	50
SA8.0A	SA8.0CA	8.0	8.89	9.83	1	13.6	37.5	25
SA8.5A	SA8.5CA	8.5	9.44	10.40	1	14.4	35.4	10
SA9.0A	SA9.0CA	9.0	10.00	11.10	1	15.4	33.1	5
SA10A	SA10CA	10.0	11.10	12.30	1	17.0	30.0	3
SA11A	SA11CA	11.0	12.20	13.50	1	18.2	28.0	3
SA12A	SA12CA	12.0	13.30	14.70	1	19.9	25.6	3
SA13A	SA13CA	13.0	14.40	15.90	1	21.5	23.7	3
SA14A	SA14CA	14.0	15.60	17.20	1	23.2	22.0	3
SA15A	SA15CA	15.0	16.70	18.50	1	24.4	20.9	3
SA16A	SA16CA	16.0	17.80	19.70	1	26.0	19.6	3
SA17A	SA17CA	17.0	18.90	20.90	1	27.6	18.5	3
SA18A	SA18CA	18.0	20.00	22.10	1	29.2	17.5	3
SA20A	SA20CA	20.0	22.20	24.50	1	32.4	15.7	3
SA22A	SA22CA	22.0	24.40	26.90	1	35.5	14.4	3
SA24A	SA24CA	24.0	26.70	29.50	1	38.9	13.1	3
SA26A	SA26CA	26.0	28.90	31.90	1	42.1	12.1	3
SA28A	SA28CA	28.0	31.10	34.40	1	45.4	11.2	3
SA30A	SA30CA	30.0	33.30	36.80	1	48.4	10.5	3
SA33A	SA33CA	33.0	36.70	40.60	1	53.3	9.6	3
SA36A	SA36CA	36.0	40.00	44.20	1	58.1	8.8	3
SA40A	SA40CA	40.0	44.40	49.10	1	64.5	7.9	3
SA43A	SA43CA	43.0	47.80	52.80	1	69.4	7.3	3
SA45A	SA45CA	45.0	50.00	55.30	1	72.7	7.0	3
SA48A	SA48CA	48.0	53.30	58.90	1	77.4	6.6	3
SA51A	SA51CA	51.0	56.70	62.70	1	82.4	6.2	3
SA54A	SA54CA	54.0	60.00	66.30	1	87.1	5.9	3
SA58A	SA58CA	58.0	64.40	71.20	1	93.6	5.4	3
SA60A	SA60CA	60.0	66.70	73.70	1	96.8	5.3	3
SA64A	SA64CA	64.0	71.10	78.60	1	103.0	5.0	3
SA70A	SA70CA	70.0	77.80	86.00	1	113.0	4.5	3
SA75A	SA75CA	75.0	83.30	92.10	1	121.0	4.2	3
SA78A	SA78CA	78.0	86.70	95.80	1	126.0	4.0	3
SA85A	SA85CA	85.0	94.40	104.00	1	137.0	3.7	3
SA90A	SA90CA	90.0	100.00	111.00	1	146.0	3.5	3
SA100A	SA100CA	100.0	111.00	123.00	1	162.0	3.1	3
SA110A	SA110CA	110.0	122.00	135.00	1	177.0	2.9	3
SA120A	SA120CA	120.0	133.00	147.00	1	193.0	2.6	3
SA130A	SA130CA	130.0	144.00	159.00	1	209.0	2.4	3
SA150A	SA150CA	150.0	167.00	185.00	1	243.0	2.1	3
SA160A	SA160CA	160.0	178.00	197.00	1	259.0	2.0	3
SA170A	SA170CA	170.0	189.00	209.00	1	275.0	1.9	3
SA180A	SA180CA	180.0	200.00	233.00	1	289.0	1.7	3

For bidirectional type having Vrwm of 10 volts and less, the IR limit is double.
For parts without A , the VBR is ± 10%

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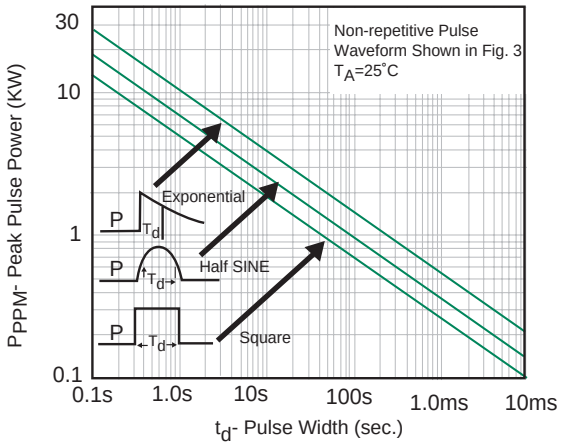

Fig. 1 Peak Pulse Power Rating Curve

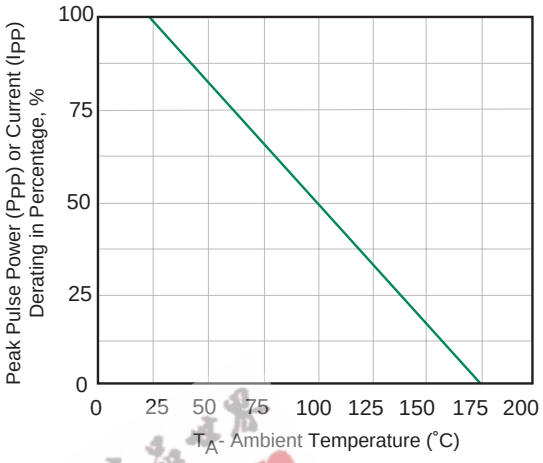

Fig. 2 Pulse Derating Curve

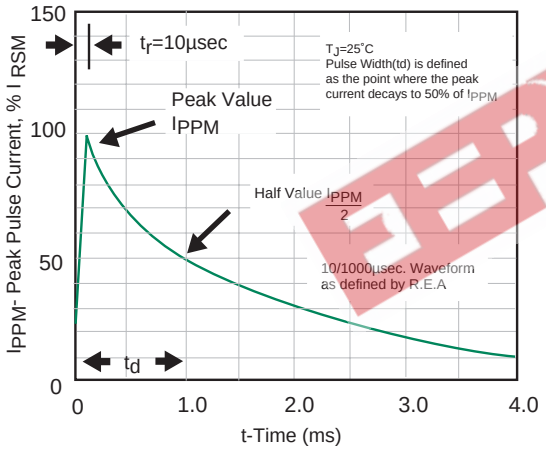

Fig. 3 Pulse Waveform

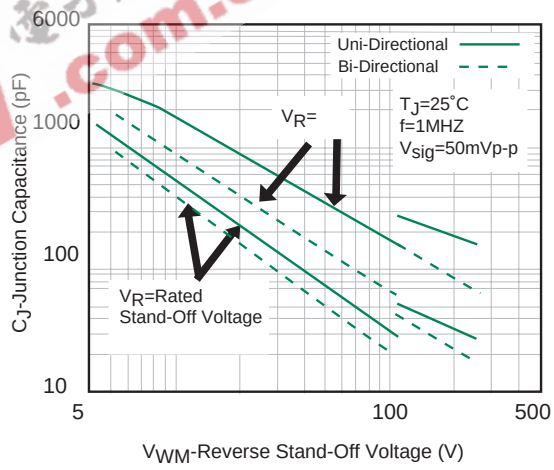

Fig. 4- Typical Junction Capacitance

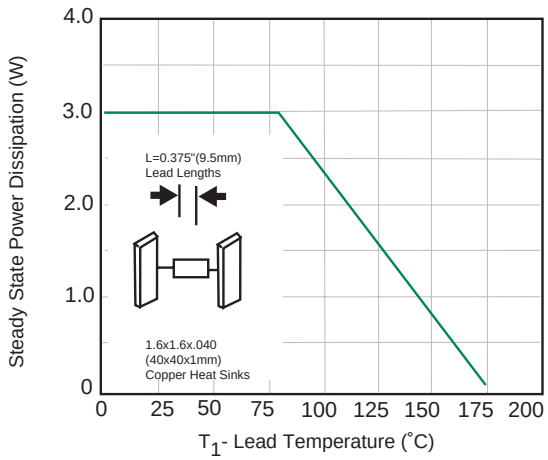

Fig. 5 Steady State Power Derating Curve

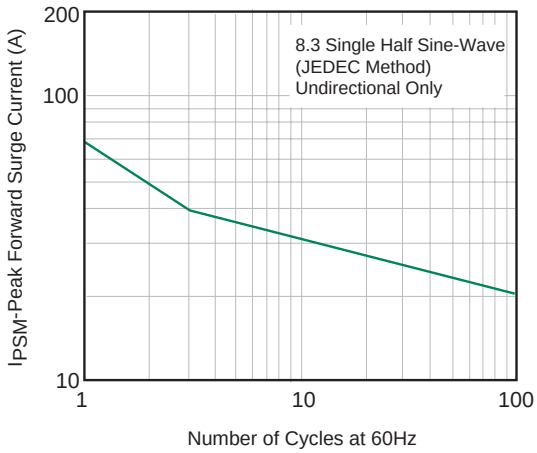

Fig. 6- Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

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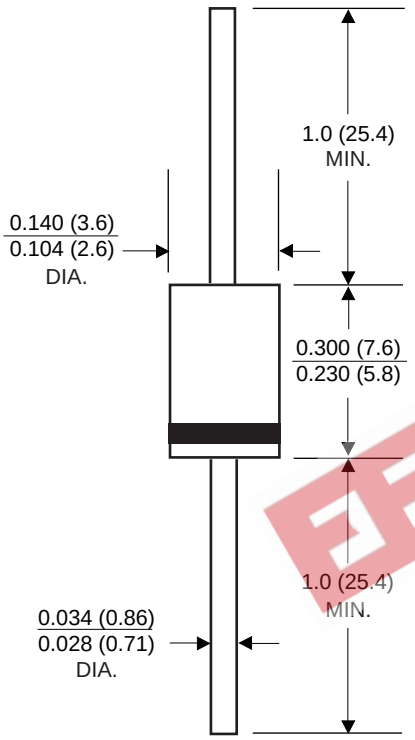
Outline Dimensions

DO-204AC
(DO-15)



Dimensions in inches and (millimeters)