

# SA5.0 THRU SA180CA



500 WATT PEAK POWER TRANSIENT VOLTAGE SUPPRESSORS



## FEATURES

- \* 500 Watts Surge Capability at 1ms
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time: Typically less than 1.0ps from 0 volt to BV min.
- \* Typical  $I_R$  less than  $1\mu A$  above 10V
- \* High temperature soldering guaranteed:  $260^\circ C$  / 10 seconds / .375"(9.5mm) lead length, 5lbs.(2.3kg) tension

## MECHANICAL DATA

- \* Case: Molded plastic
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Lead: Axial leads, solderable per MIL-STD-202, method 208 guaranteed
- \* Polarity: Color band denotes cathode end
- \* Mounting position: Any
- \* Weight: 0.40 grams

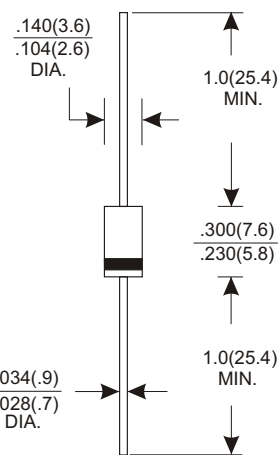
## VOLTAGE RANGE

5.0 to 180 Volts

500 Watts Peak Power

3.0 Watts Steady State

DO-15



Dimensions in inches and (millimeters)

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating  $25^\circ C$  ambient temperature unless otherwise specified.  
Single phase half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

RATINGS	SYMBOL	VALUE	UNITS
Peak Power Dissipation at $T_A=25^\circ C$ , $T_P=1ms$ (NOTE 1)	$P_{PK}$	Minimum 500	Watts
Steady State Power Dissipation at $T_L=75^\circ C$ Lead Length .375"(9.5mm) (NOTE 2)	$P_D$	3.0	Watts
Peak Forward Surge Current at 8.3ms Single Half Sine-Wave superimposed on rated load (JEDEC method) (NOTE 3)	$I_{FSM}$	70	Amps
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +175	$^\circ C$

### NOTES:

1. Non-repetitive current pulse per Fig. 3 and derated above  $T_A=25^\circ C$  per Fig. 2.
2. Mounted on Copper Pad area of 1.6" X 1.6" (40mm X 40mm) per Fig.5.
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum.

## DEVICES FOR BIPOLAR APPLICATIONS

1. For Bidirectional use C or CA Suffix for types SA5.0 thru SA180.
2. Electrical characteristics apply in both directions.

# RATING AND CHARACTERISTIC CURVES (SA5.0 THRU SA180CA)

FIG.1-PEAK PULSE POWER DERATING CURVE

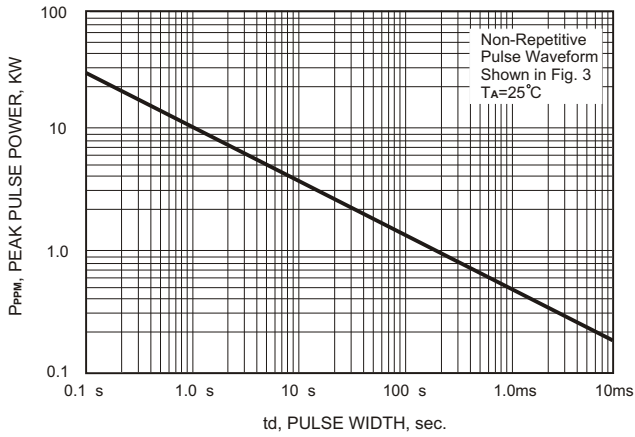


FIG.2-PULSE DERATING CURVE

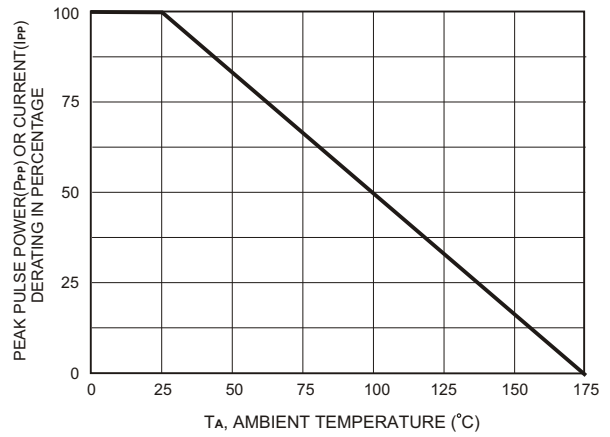


FIG.3-PULSE WAVE FORM

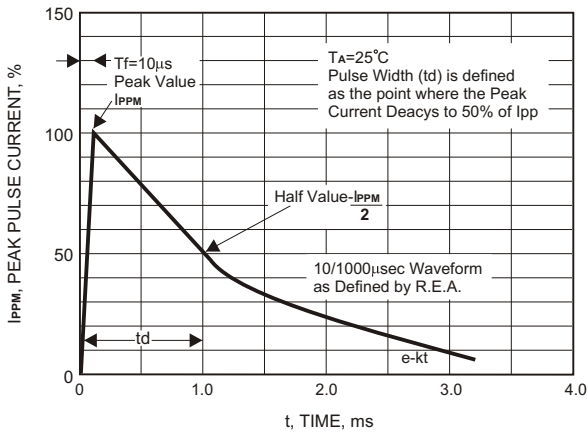


FIG.4-TYPICAL JUNCTION CAPACITANCE

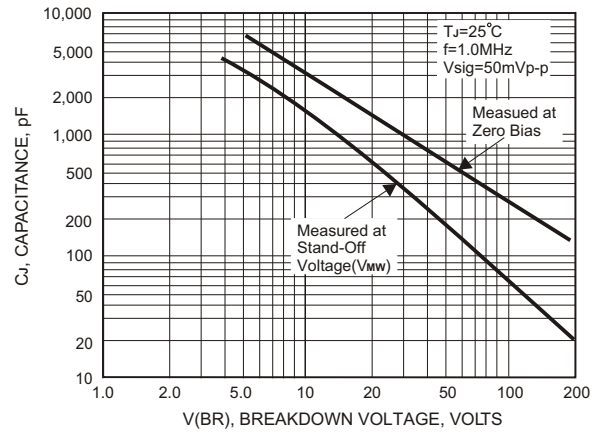


FIG.5-STEADY STATE POWER DERATING CURVE

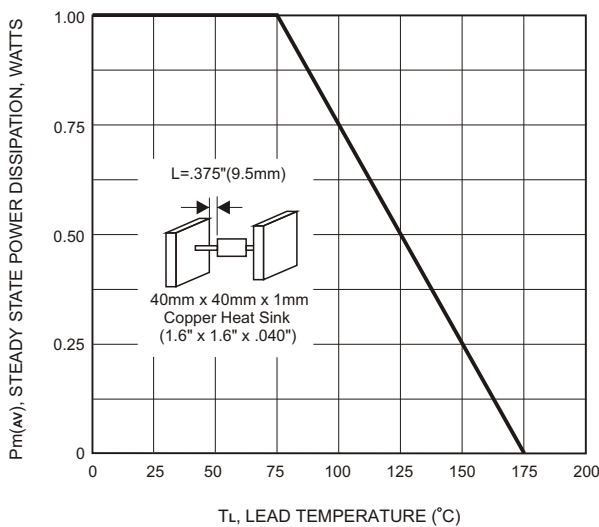
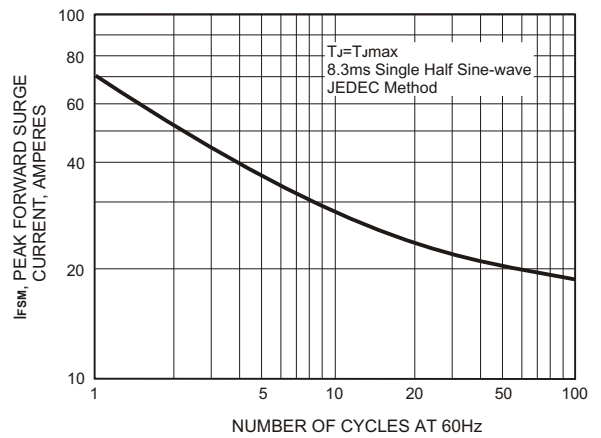


FIG.6-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT, UNIDIRECTIONAL



# 500 Watt Axial Lead TVS



UNI DIRECTIONAL PART NUMBER	REVERSE STAND-OFF VOLTAGE VRWM (V)	BREAKDOWN VOLTAGE VBR (V) MIN. @IT	BREAKDOWN VOLTAGE VRB (V) MAX. @IT	TEST CURRENT IT (mA)	MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V)	PEAK PULSE CURRENT Ipp (A)	REVERSE LEAKAGE @ VRWM IR(μA)
SA5.0	5.00	6.40	7.30	10	9.6	53.1	600
SA5.0A	5.00	6.40	7.00	10	9.2	55.4	600
SA6.0	6.00	6.67	8.15	10	11.4	44.7	600
SA6.0A	6.00	6.67	7.37	10	10.3	49.5	600
SA6.5	6.50	7.22	8.82	10	12.3	41.5	400
SA6.5A	6.50	7.22	7.98	10	11.2	45.5	400
SA7.0	7.00	7.78	9.51	10	13.3	38.3	150
SA7.0A	7.00	7.78	8.60	10	12.0	42.5	150
SA7.5	7.50	8.33	10.20	1	14.3	35.7	50
SA7.5A	7.50	8.33	9.21	1	12.9	39.5	50
SA8.0	8.00	8.89	10.90	1	15.0	34.0	25
SA8.0A	8.00	8.89	9.83	1	13.6	37.5	25
SA8.5	8.50	9.44	11.50	1	15.9	32.1	10
SA8.5A	8.50	9.44	10.40	1	14.4	35.4	10
SA9.0	9.00	10.00	12.20	1	16.9	30.2	5
SA9.0A	9.00	10.00	11.10	1	15.4	33.1	5
SA10	10.00	11.10	13.60	1	18.8	27.1	3
SA10A	10.00	11.10	12.30	1	17.0	30.0	3
SA11	11.00	12.20	14.90	1	20.1	25.4	3
SA11A	11.00	12.20	13.50	1	18.2	28.0	3
SA12	12.00	13.30	16.30	1	22.0	23.2	3
SA12A	12.00	13.30	14.70	1	19.9	25.6	3
SA13	13.00	14.40	17.60	1	23.8	21.4	3
SA13A	13.00	14.40	15.90	1	21.5	23.7	3
SA14	14.00	15.60	19.10	1	25.8	19.8	3
SA14A	14.00	15.60	17.20	1	23.2	22.0	3
SA15	15.00	16.70	20.40	1	26.9	19.0	3
SA15A	15.00	16.70	18.50	1	24.4	20.9	3
SA16	16.00	17.80	21.80	1	28.8	17.7	3
SA16A	16.00	17.80	19.70	1	26.0	19.6	3
SA17	17.00	18.90	23.10	1	30.5	16.7	3
SA17A	17.00	18.90	20.90	1	27.6	18.5	3
SA18	18.00	20.00	24.40	1	32.2	15.8	3
SA18A	18.00	20.00	22.10	1	29.2	17.5	3
SA20	20.00	22.20	27.10	1	35.8	14.2	3
SA20A	20.00	22.20	24.50	1	32.4	15.7	3
SA22	22.00	24.40	29.80	1	39.4	12.9	3
SA22A	22.00	24.40	26.90	1	35.5	14.4	3
SA24	24.00	26.70	32.60	1	43.0	11.9	3
SA24A	24.00	26.70	29.50	1	38.9	13.1	3
SA26	26.00	28.90	35.30	1	46.6	10.9	3
SA26A	26.00	28.90	31.90	1	42.1	12.1	3
SA28	28.00	31.10	38.00	1	50.1	10.2	3
SA28A	28.00	31.10	34.40	1	45.4	11.2	3
SA30	30.00	33.30	40.70	1	53.5	9.5	3
SA30A	30.00	33.30	36.80	1	48.4	10.5	3
SA33	33.00	36.70	44.90	1	59.0	8.6	3
SA33A	33.00	36.70	40.60	1	53.3	9.6	3
SA36	36.00	40.00	48.90	1	64.3	7.9	3
SA36A	36.00	40.00	44.20	1	58.1	8.8	3
SA40	40.00	44.40	54.30	1	71.4	7.1	3
SA40A	40.00	44.40	49.10	1	64.5	7.9	3

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SA43	43.00	47.80	58.40	1	76.7	6.6	3
SA43A	43.00	47.80	52.80	1	69.4	7.3	3
SA45	45.00	50.00	61.10	1	80.3	6.4	3
SA45A	45.00	50.00	55.30	1	72.7	7.0	3
SA48	48.00	53.30	65.20	1	85.5	6.0	3
SA48A	48.00	53.30	58.90	1	77.4	6.6	3
SA51	51.00	56.70	69.30	1	91.1	5.6	3
SA51A	51.00	56.70	62.70	1	82.4	6.2	3
SA54	54.00	60.00	73.30	1	96.3	5.3	3
SA54A	54.00	60.00	66.30	1	87.1	5.9	3
SA58	58.00	64.40	78.70	1	103.0	5.0	3
SA58A	58.00	64.40	71.20	1	93.6	5.4	3
SA60	60.00	66.70	81.50	1	107.0	4.8	3
SA60A	60.00	66.70	73.70	1	96.8	5.3	3
SA64	64.00	71.10	86.90	1	114.0	4.5	3
SA64A	64.00	71.10	78.60	1	103.0	5.0	3
SA70	70.00	77.80	95.10	1	125.0	4.1	3
SA70A	70.00	77.80	86.00	1	113.0	4.5	3
SA75	75.00	83.30	102.00	1	134.0	3.8	3
SA75A	75.00	83.30	92.10	1	121.0	4.2	3
SA78	78.00	86.70	106.00	1	139.0	3.7	3
SA78A	78.00	86.70	95.80	1	126.0	4.0	3
SA85	85.00	94.40	115.00	1	151.0	3.4	3
SA85A	85.00	94.40	104.00	1	137.0	3.7	3
SA90	90.00	100.00	122.00	1	160.0	3.2	3
SA90A	90.00	100.00	111.00	1	146.0	3.5	3
SA100	100.00	111.00	136.00	1	179.0	2.8	3
SA100A	100.00	111.00	123.00	1	162.0	3.1	3
SA110	110.00	122.00	149.00	1	196.0	2.6	3
SA110A	110.00	122.00	135.00	1	177.0	2.9	3
SA120	120.00	133.00	163.00	1	214.0	2.4	3
SA120A	120.00	133.00	147.00	1	193.0	2.6	3
SA130	130.00	144.00	176.00	1	230.0	2.2	3
SA130A	130.00	144.00	159.00	1	209.0	2.4	3
SA150	150.00	167.00	204.00	1	268.0	1.9	3
SA150A	150.00	167.00	185.00	1	243.0	2.1	3
SA160	160.00	178.00	218.00	1	287.0	1.7	3
SA160A	160.00	178.00	197.00	1	259.0	2.0	3
SA170	170.00	189.00	231.00	1	304.0	1.7	3
SA170A	170.00	189.00	209.00	1	275.0	1.9	3
SA180	180.00	200.00	244.00	1	320.0	1.6	3
SA180A	180.00	200.00	233.00	1	289.0	1.7	3