

# 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 A above 10V
- \* High temperature soldering guaranteed: 260°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

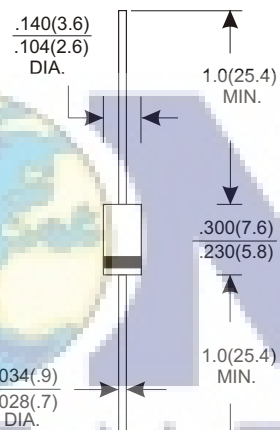
### VOLTAGE RANGE

5.0 to 180 Volts

500 Watts Peak Power

3.0 Watts Steady State

DO-15



### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 25°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 $T_A=25^\circ\text{C}$ , $T_P=1\text{ms}$ (NOTE 1)	$P_{PK}$	Minimum 500	Watts
Steady State Power Dissipation at $T_L=75^\circ\text{C}$ 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	°C

#### NOTES:

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

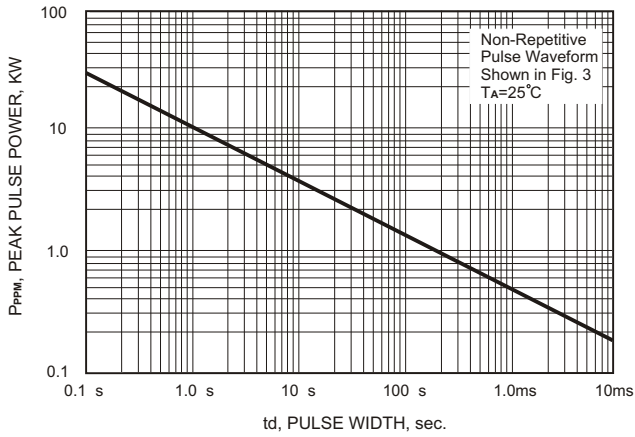


FIG.2-PULSE DERATING CURVE

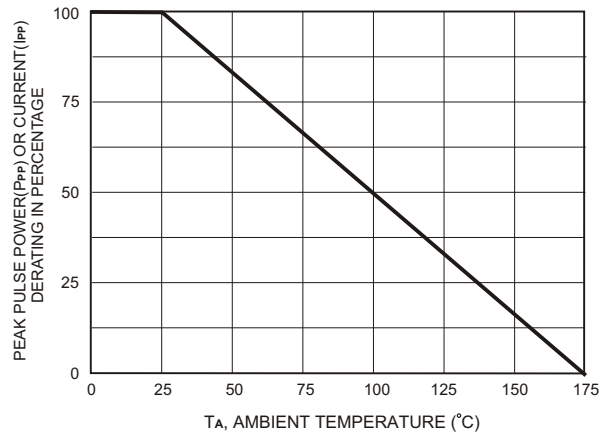


FIG.3-PULSE WAVE FORM

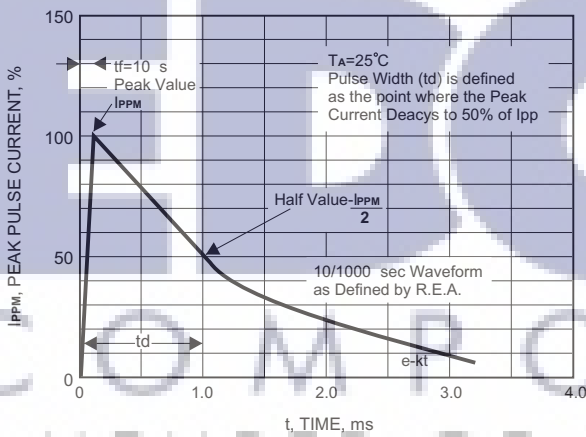


FIG.4-TYPICAL JUNCTION CAPACITANCE

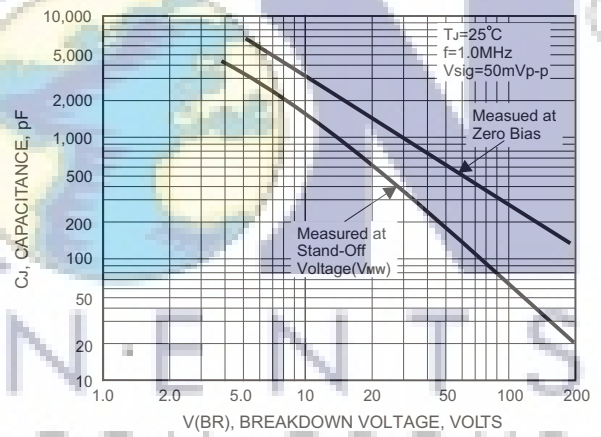


FIG.5-STEADY STATE POWER DERATING CURVE

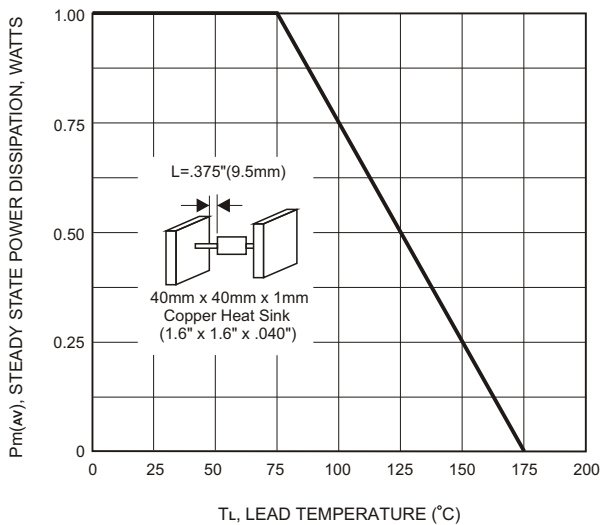
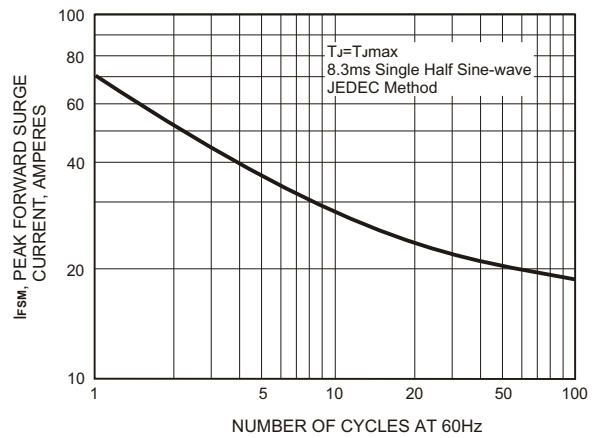


FIG.6-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT, UNIDIRECTIONAL



# 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( A)
SA5.0(C)A	5.00	6.40	7.00	10	9.2	55.4	600
SA6.0(C)A	6.00	6.67	7.37	10	10.3	49.5	600
SA6.5(C)A	6.50	7.22	7.98	10	11.2	45.5	400
SA7.0(C)A	7.00	7.78	8.60	10	12.0	42.5	150
SA7.5(C)A	7.50	8.33	9.21	1	12.9	39.5	50
SA8.0(C)A	8.00	8.89	9.83	1	13.6	37.5	25
SA8.5(C)A	8.50	9.44	10.40	1	14.4	35.4	10
SA9.0(C)A	9.00	10.00	11.10	1	15.4	33.1	5
SA10(C)A	10.00	11.10	12.30	1	17.0	30.0	3
SA11(C)A	11.00	12.20	13.50	1	18.2	28.0	3
SA12(C)A	12.00	13.30	14.70	1	19.9	25.6	3
SA13(C)A	13.00	14.40	15.90	1	21.5	23.7	3
SA14(C)A	14.00	15.60	17.20	1	23.2	22.0	3
SA15(C)A	15.00	16.70	18.50	1	24.4	20.9	3
SA16(C)A	16.00	17.80	19.70	1	26.0	19.6	3
SA17(C)A	17.00	18.90	20.90	1	27.6	18.5	3
SA18(C)A	18.00	20.00	22.10	1	29.2	17.5	3
SA20(C)A	20.00	22.20	24.50	1	32.4	15.7	3
SA22(C)A	22.00	24.40	26.90	1	35.5	14.4	3
SA24(C)A	24.00	26.70	29.50	1	38.9	13.1	3
SA26(C)A	26.00	28.90	31.90	1	42.1	12.1	3
SA28(C)A	28.00	31.10	34.40	1	45.4	11.2	3
SA30(C)A	30.00	33.30	36.80	1	48.4	10.5	3
SA33(C)A	33.00	36.70	40.60	1	53.3	9.6	3
SA36(C)A	36.00	40.00	44.20	1	58.1	8.8	3
SA40(C)A	40.00	44.40	49.10	1	64.5	7.9	3

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SA43(C)A	43.00	47.80	52.80	1	69.4	7.3	3
SA45(C)A	45.00	50.00	55.30	1	72.7	7.0	3
SA48(C)A	48.00	53.30	58.90	1	77.4	6.6	3
SA51(C)A	51.00	56.70	62.70	1	82.4	6.2	3
SA54(C)A	54.00	60.00	66.30	1	87.1	5.9	3
SA58(C)A	58.00	64.40	71.20	1	93.6	5.4	3
SA60(C)A	60.00	66.70	73.70	1	96.8	5.3	3
SA64(C)A	64.00	71.10	78.60	1	103.0	5.0	3
SA70(C)A	70.00	77.80	86.00	1	113.0	4.5	3
SA75(C)A	75.00	83.30	92.10	1	121.0	4.2	3
SA78(C)A	78.00	86.70	95.80	1	126.0	4.0	3
SA85(C)A	85.00	94.40	104.00	1	137.0	3.7	3
SA90(C)A	90.00	100.00	111.00	1	146.0	3.5	3
SA100(C)A	100.00	111.00	123.00	1	162.0	3.1	3
SA110(C)A	110.00	122.00	135.00	1	177.0	2.9	3
SA120(C)A	120.00	133.00	147.00	1	193.0	2.6	3
SA130(C)A	130.00	144.00	159.00	1	209.0	2.4	3
SA150(C)A	150.00	167.00	185.00	1	243.0	2.1	3
SA160(C)A	160.00	178.00	197.00	1	259.0	2.0	3
SA170(C)A	170.00	189.00	209.00	1	275.0	1.9	3
SA180(C)A	180.00	200.00	233.00	1	289.0	1.7	3