DC COMPONENTS CO., LTD.

RECTIFIER SPECIALISTS

SA5.0 THRU SA220CA

TECHNICAL SPECIFICATIONS OF TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE RANGE - 5.0 to 220Volts *PEAK PULSE POWER - 500 Watts*

FEATURES

* Glass passivated junction
* 500 Watts Peak Pulse Power capability on 10/1000 µs waveform
* Excellent clamping capability
* Low zener impedance
* Fast response time

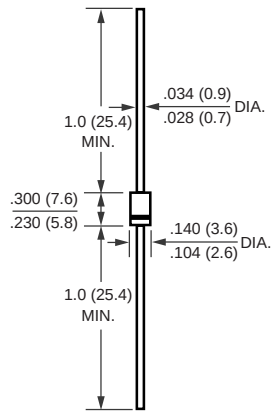
MECHANICAL DATA

* Case: Molded plastic
* Epoxy: UL 94V-0 rate flame retardant
* Lead: MIL-STD-202E, Method 208 guaranteed
* Polarity: Color band denotes positive end (cathode) except bidirectional types
* Mounting position: Any
* Weight: 0.4 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load,
For capacitive load, derate current by 20%.

DO-15



Dimensions in inches and (millimeters)

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA suffix (e.g. SA5.0C, SA220CA).
Electrical characteristics apply in both directions

	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000 µs waveform (Note1,FIG.1)	P_{PPM}	Minimum 500	Watts
Steady State Power Dissipation at T = 75°C Lead Lengths .375"(9.5mm) (Note 2)	$P_{M(AV)}$	1.0	Watts
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load(JEDEC Method) (Note 3)	I_{FSM}	70	Amps
Maximum Instantaneuos Forwaard Voltage at 50A for Unidirectional only	V_F	3.5	Volts
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 TA = 25°C per Fig. 2.
2. Mounted on Copper Leaf area of 1.6 X 1.6"(40 X 40mm) per Fig. 5
3. 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

RATING AND CHARACTERISTIC CURVES (SA5.0 THRU SA220CA)

FIG. 1 - PEAK PULSE POWER RATING CURVE

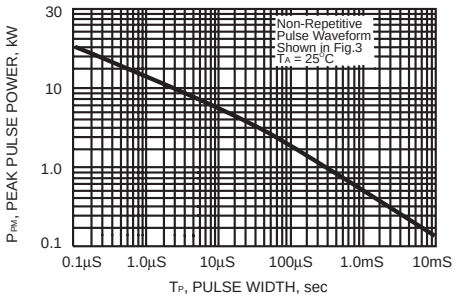


FIG. 2 - PULSE DERATING CURVE

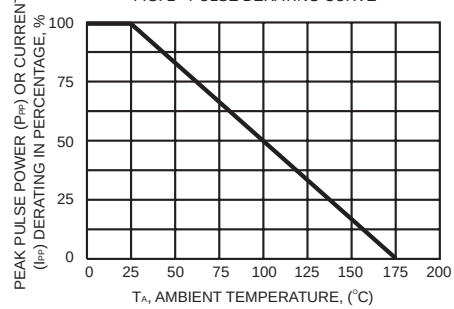


FIG. 3 - PULSE WAVEFORM

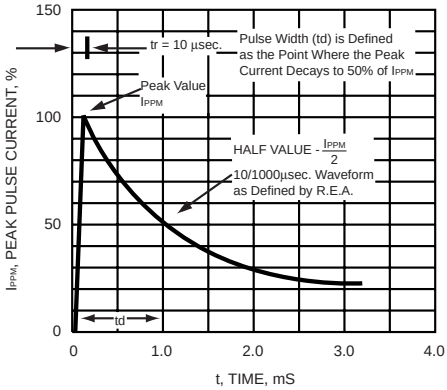


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

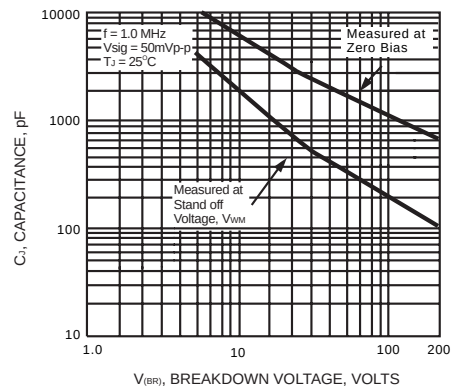


FIG. 5 - STEADY STATE POWER DERTING CURVE

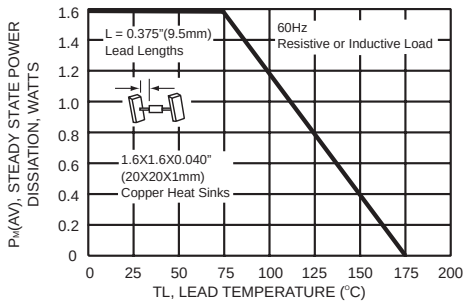


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL

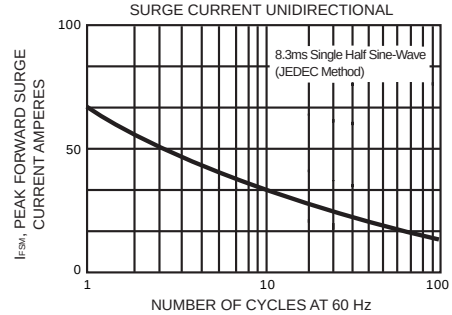
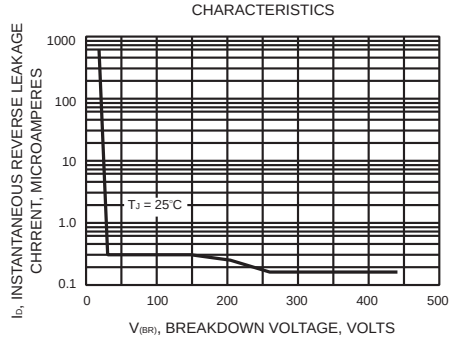


FIG. 7 - TYPICAL REVERSE LEAKAGE CHARACTERISTICS



SA (500W) SERIES TRANSIENT VOLTAGE SUPPRESSORS

TYPE	Reverse Stand-off Voltage	Breakdown Voltage @ IT		Test Current	Maximum Reverse Leakage @ VRWM		Maximum Clamping Voltage @ IPP	Maximum Peak Pulse Current
	VRWM	VBR		IT	IR		VC	IPP
		Min.	Max.		UNI-	BI-		
	V	V	V	mA	μA	μA	V	A
SA5.0	5.0	6.40	7.55	10	600	1200	9.6	52.3
SA5.0A	5.0	6.40	7.25	10	600	1200	9.2	54.3
SA6.0	6.0	6.67	8.45	10	600	1200	11.4	43.9
SA6.0A	6.0	6.67	7.67	10	600	1200	10.3	48.5
SA6.5	6.5	7.22	9.14	10	400	800	12.3	40.7
SA6.5A	6.5	7.22	8.30	10	400	800	11.2	44.7
SA7.0	7.0	7.78	9.86	10	150	300	13.3	37.8
SA7.0A	7.0	7.78	8.95	10	150	300	12.0	41.7
SA7.5	7.5	8.33	10.67	1	50	100	14.3	35.0
SA7.5A	7.5	8.33	9.58	1	50	100	12.9	38.8
SA8.0	8.0	8.89	11.30	1	25	50	15.0	33.3
SA8.0A	8.0	8.89	10.23	1	25	50	13.6	36.7
SA8.5	8.5	9.44	11.92	1	10	20	15.9	31.4
SA8.5A	8.5	9.44	10.82	1	10	20	14.4	34.7
SA9.0	9.0	10.0	12.6	1	5	10	16.9	29.5
SA9.0A	9.0	10.0	11.5	1	5	10	15.4	32.5
SA10	10	11.1	14.1	1	3		18.8	26.6
SA10A	10	11.1	12.8	1	3		17.0	29.4
SA11	11	12.2	15.4	1	3		20.1	24.9
SA11A	11	12.2	14.0	1	3		18.2	27.4
SA12	12	13.3	16.9	1	3		22.0	22.7
SA12A	12	13.3	15.3	1	3		19.9	25.1
SA13	13	14.4	18.2	1	3		23.8	21.0
SA13A	13	14.4	16.5	1	3		21.5	23.2
SA14	14	15.6	19.8	1	3		25.8	19.4
SA14A	14	15.6	17.9	1	3		23.2	21.5
SA15	15	16.7	21.1	1	3		26.9	18.8
SA15A	15	16.7	19.2	1	3		24.4	20.6
SA16	16	17.8	22.6	1	3		28.8	17.6
SA16A	16	17.8	20.5	1	3		26.0	19.2
SA17	17	18.9	23.9	1	3		30.5	16.4
SA17A	17	18.9	21.7	1	3		27.6	16.1
SA18	18	20.0	25.3	1	3		32.2	15.5
SA18A	18	20.0	23.3	1	3		29.2	17.2
SA20	20	22.2	28.1	1	3		35.8	13.9
SA20A	20	22.2	25.5	1	3		32.4	15.4
SA22	22	24.4	30.9	1	3		39.4	12.7
SA22A	22	24.4	28.0	1	3		35.5	14.1
SA24	24	26.7	33.8	1	3		43.0	11.6
SA24A	24	26.7	30.7	1	3		38.9	12.8
SA26	26	28.9	36.6	1	3		46.6	10.7
SA26A	26	28.9	33.2	1	3		42.1	11.9
SA28	28	31.1	39.4	1	3		50.0	9.9
SA28A	28	31.1	35.8	1	3		45.4	11.0
SA30	30	33.3	42.2	1	3		53.5	9.3
SA30A	30	33.3	38.3	1	3		48.4	10.3
SA33	33	36.7	46.5	1	3		59.0	5.8
SA33A	33	36.7	42.2	1	3		53.3	9.4
SA36	36	40.0	50.7	1	3		64.3	7.8
SA36A	36	40.0	46.0	1	3		58.1	8.6
SA40	40	44.4	56.3	1	3		71.4	7.0
SA40A	40	44.4	51.1	1	3		64.5	7.8

SA (500W) SERIES TRANSIENT VOLTAGE SUPPRESSORS

TYPE	Reverse Stand-off Voltage	Breakdown Voltage @ I_T		Test Current	Maximum Reverse Leakage @ V_{RWM}		Maximum Clamping Voltage @ I_{PP}	Maximum Peak Pulse Current
	V_{RWM}	V_{BR}		I_T	I_R		V_C	I_{PP}
		Min.	Max.		UNI-	BI-		
	V	V	V	mA	µA	µA	V	A
SA43	43	47.8	60.5	1	3		76.7	6.5
SA43A	43	47.8	54.9	1	3		69.4	7.2
SA45	45	50.0	63.3	1	3		80.3	6.2
SA45A	45	50.0	57.5	1	3		72.7	6.9
SA48	48	53.3	67.5	1	3		85.5	5.8
SA48A	48	53.3	61.3	1	3		77.4	6.5
SA51	51	56.7	71.8	1	3		91.1	5.5
SA51A	51	56.7	65.2	1	3		82.4	6.1
SA54	54	60.0	76.0	1	3		96.3	5.2
SA54A	54	60.0	69.0	1	3		87.1	5.7
SA58	58	64.4	81.6	1	3		103.0	4.9
SA58A	58	64.4	74.1	1	3		93.6	5.3
SA60	60	66.7	84.5	1	3		107.0	4.7
SA60A	60	66.7	76.7	1	3		96.8	5.2
SA64	64	71.1	90.1	1	3		114	4.4
SA64A	64	71.1	81.8	1	3		103	4.9
SA70	70	77.8	98.6	1	3		125	4.0
SA70A	70	77.8	89.5	1	3		113	4.4
SA75	75	83.3	105.7	1	3		134	3.7
SA75A	75	83.3	95.8	1	3		121	4.1
SA78	78	86.7	109.8	1	3		139	3.6
SA78A	78	86.7	99.7	1	3		126	4.0
SA85	85	94.4	119.2	1	3		151	3.3
SA85A	85	94.4	108.2	1	3		137	3.6
SA90	90	100	126.5	1	3		160	3.1
SA90A	90	100	115.5	1	3		146	3.4
SA100	100	111	141.0	1	3		179	2.8
SA100A	100	111	128.0	1	3		162	3.1
SA110	110	122	154.5	1	3		196	2.6
SA110A	110	122	140.5	1	3		177	2.8
SA120	120	133	169.0	1	3		214	2.3
SA120A	120	133	153.0	1	3		193	2.0
SA130	130	144	182.5	1	3		231	2.2
SA130A	130	144	165.5	1	3		209	2.4
SA150	150	167	211.5	1	3		268	1.9
SA150A	150	167	192.5	1	3		243	2.1
SA160	160	178	226.0	1	3		287	1.7
SA160A	160	178	205.0	1	3		259	1.9
SA170	170	189	239.5	1	3		304	1.6
SA170A	170	189	217.5	1	3		275	1.8
SA180	180	198	253.8	1	3		322	1.6
SA180A	180	198	230.4	1	3		292	1.7
SA190	190	209	267.9	1	3		340	1.5
SA190A	190	209	243.2	1	3		308	1.6
SA200	200	220	282.0	1	3		358	1.4
SA200A	200	220	256.0	1	3		324	1.5
SA210	210	231	296.1	1	3		376	1.3
SA210A	210	231	268.8	1	3		340	1.5
SA220	220	242	310.2	1	3		394	1.3
SA220A	220	242	281.6	1	3		356	1.4

NOTES:1. V_{BR} measured after I_T applied for 300µs. I_T= Square Wave Pulse or equivalent.

2. For Bidirectional use "**C**" or "**CA**" Suffix for all types (e.g.: SA5.0**C**, SA5.0**CA**, SA220**C**, SA220**CA**). Electrical characteristics apply in both directions.

3. For bidirectional types having V_{RWM} of 10 volts and less, the I_D limit is doubled.