



PINGWEI ENTERPRISE

SA SERIES

TRANSIENT VOLTAGE SUPPRESSOR

FEATURE

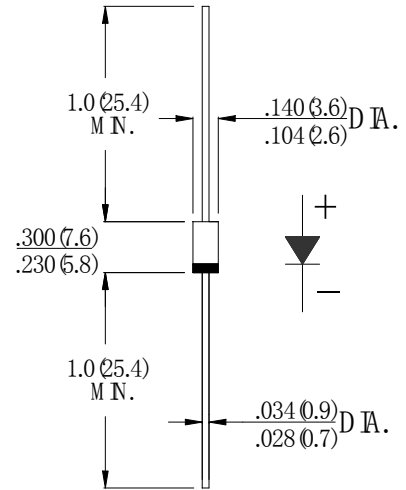
- . Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- . 500W surge capability at $10 \times 100\mu\text{s}$ waveform, Duty cycle: 0.01%
- . Excellent clamping capability
- . Low zener impedance
- . Fast response time: Typically less than 1.0ps from 0 volts to V_{BR} for unidirectional and 5.0ns for bidirectional
- . Typical IR less than $1\mu\text{A}$ above 10V
- . High temperature soldering guaranteed: 260°C / 10 seconds / .375" lead length / 5lbs tension

MECHANICAL DATA

- . Terminal: Plated axial leads solderable per MIL-STD 202E, method 208C
- . Case: Molded with UL-94 Class V-0 recognized Flame Retardant Epoxy
- . Polarity: color band denotes cathode except bipolar

Voltage Range 5.0 to 170 V
500 W Peak Power
1.0W Steady State

DO-15



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise stated.
Single-phase, half-wave, 60HZ, resistive or inductive load.
For capacitive load, derate current by 20%

Type Number	SYMBOL	Value	units
Peak Power Dissipation at $T_A=25^\circ\text{C}$, $T_p=1\text{ms}$ (note 1)	P_{PPM}	Minimum 500	W
Steady State Power Dissipation .375" lead length at $T_L=75^\circ\text{C}$ (note 2)	P_D	1.0	W
Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (note 3)	I_{FSM}	60	A
Storage Temperature	T_{STG}	-55 to +150	$^\circ\text{C}$
Operating Junction Temperature	T_J	-55 to +125	$^\circ\text{C}$

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 Pad Area of 1.6×1.6 " ($40 \times 40\text{mm}$) Per Fig.5 .
3. 8.3ms Single Half Sine-wave or Equivalent Square Wave, Duty Cycle=4 Pulses Per Minutes Maximum.

Devices for Bipolar Applications

1. For Bidirectional Use C or CA Suffix for Types SA5.0 thru Types SA170.
2. Electrical Characteristics Apply in Both Directions.

ELECTRICAL CHARACTERISTICS(TA=25°C unless otherwise noted)

Device		Nominal Voltage (V)	Breakdown Voltage @I _T V _{BR} (V)(note1)		Test Current I _T (mA)	Stand-Off Voltage V _{WM} (V)	Maximum Reverse Leakage @V _{WM} I _D (μA)	Maximum Peak Pulse Current I _{PPM} (note2)(A)	Maximum Clamping Voltage @I _{PPM} V _C (V)	Maximum Temperature Coefficient of V _{BR} (%/°C)
			Min	Max						
UNI	BI									
SA5.0	SA5.0C	5.0	6.4	7.3	10	5	600	52	9.6	0.057
SA5.0A	SA5.0CA	5.0	6.4	7	10	5	600	54.3	9.2	0.057
SA6.0	SA6.0C	6.0	6.67	8.15	10	6	600	43.9	11.4	0.061
SA6.0A	SA6.0CA	6.0	6.67	7.37	10	6	600	48.5	10.3	0.061
SA6.5	SA6.5C	6.5	7.22	8.82	10	6.5	400	40.7	12.3	0.061
SA6.5A	SA6.5CA	6.5	7.22	7.98	10	6.5	400	44.7	11.2	0.061
SA7.0	SA7.0C	7.0	7.78	9.51	10	7	150	37.8	13.3	0.065
SA7.0A	SA7.0CA	7.0	7.78	8.6	10	7	150	41.7	12	0.065
SA7.5	SA7.5C	7.5	8.33	10.2	1.0	7.5	50	35	14.3	0.068
SA7.5A	SA7.5CA	7.5	8.33	9.21	1.0	7.5	50	38.8	12.9	0.068
SA8.0	SA8.0C	8.0	8.89	10.9	1.0	8	25	33.3	15	0.068
SA8.0A	SA8.0CA	8.0	8.89	9.83	1.0	8	25	36.7	13.6	0.068
SA8.5	SA8.5C	8.5	9.44	11.5	1.0	8.5	10	31.4	15.9	0.073
SA8.5A	SA8.5CA	8.5	9.44	10.4	1.0	8.5	10	34.7	14.4	0.073
SA9.0	SA9.0C	9.0	10	12.2	1.0	9	5	29.5	16.9	0.075
SA9.0A	SA9.0CA	9.0	10	11.1	1.0	9	5	32.5	15.4	0.075
SA10	SA10C	10.0	11.1	13.6	1.0	10	1	26.6	18.8	0.078
SA10A	SA10CA	10.0	11.1	12.3	1.0	10	1	29.4	17	0.078
SA11	SA11C	11.0	12.2	14.9	1.0	11	1	24.9	20.1	0.081
SA11A	SA11CA	11.0	12.2	13.58	1.0	11	1	27.4	18.2	0.081
SA12	SA12C	12.0	13.3	16.3	1.0	12	1	22.7	22	0.084
SA12A	SA12CA	12.0	13.3	14.7	1.0	12	1	25.1	19.9	0.084
SA13	SA13C	13.0	14.4	17.6	1.0	13	1	21	23.8	0.085
SA13A	SA13CA	13.0	14.4	15.9	1.0	13	1	23.2	21.5	0.085
SA14	SA14C	14.0	15.6	19.1	1.0	14	1	19.4	25.8	0.086
SA14A	SA14CA	14.0	15.6	17.2	1.0	14	1	21.5	23.2	0.086
SA15	SA15C	15.0	16.7	20.4	1.0	15	1	18.8	26.9	0.088
SA15A	SA15CA	15.0	16.7	18.5	1.0	15	1	20.6	24.4	0.088
SA16	SA16C	16.0	17.8	21.8	1.0	16	1	17.6	28.8	0.088
SA16A	SA16CA	16.0	17.8	19.7	1.0	16	1	19.2	26	0.088
SA17	SA17C	17.0	18.9	23.1	1.0	17	1	16.4	30.5	0.090
SA17A	SA17CA	17.0	18.9	23.1	1.0	17	1	18.1	27.6	0.090
SA18	SA18C	18.0	20	22.1	1.0	18	1	15.5	32.2	0.092
SA18A	SA18CA	18.0	20	22.1	1.0	18	1	17.2	29.2	0.092
SA20	SA20C	20.0	22.2	27.1	1.0	20	1	13.9	35.8	0.094
SA20A	SA20CA	20.0	22.2	24.5	1.0	20	1	15.4	32.4	0.094
SA22	SA22C	22.0	24.4	29.8	1.0	22	1	12.7	39.4	0.095
SA22A	SA22CA	22.0	24.4	26.9	1.0	22	1	14.1	35.5	0.095
SA24	SA24C	24.0	26.7	32.6	1.0	24	1	11.6	43	0.096
SA24A	SA24CA	24.0	26.7	29.5	1.0	24	1	12.8	38.9	0.096
SA26	SA26C	26.0	28.9	35.3	1.0	26	1	10.7	46.6	0.097
SA26A	SA26CA	26.0	28.9	31.9	1.0	26	1	11	42.1	0.097
SA28	SA28C	28.0	31.1	38	1.0	28	1	9.9	50.1	0.098
SA28A	SA28CA	28.0	31.1	34.4	1.0	28	1	11	45.4	0.098
SA30	SA30C	30.0	33.3	40.7	1.0	30	1	9.3	53.5	0.099
SA30A	SA30CA	30.0	33.3	36.8	1.0	30	1	10.3	48.4	0.099
SA33	SA33C	33.0	36.7	44.9	1.0	33	1	8.6	59	0.100
SA33A	SA33CA	33.0	36.7	40.6	1.0	33	1	9.4	53.5	0.100

Device		Nominal Voltage (V)	Breakdown Voltage @I _T V _{BR} (V)(note1)		Test Current I _T (mA)	Stand-Off Voltage V _{WM} (V)	Maximum Reverse Leakage @V _{WM} I _D (μA)	Maximum Peak Pulse Current I _{PPM} (note2)(A)	Maximum Clamping Voltage @I _{PPM} V _C (V)	Maximum Temperature Coefficient of V _{BR} (%/°C)
			Min	Max						
UNI	BI									
SA36	SA36C	36.0	40	48.9	1.0	36	1	7.8	64.3	0.101
SA36A	SA36CA	36.0	40	44.2	1.0	36	1	8.6	58.1	0.101
SA40	SA40C	40.0	44.4	54.3	1.0	40	1	7	71.4	0.101
SA40A	SA40CA	40.0	44.4	49.1	1.0	40	1	7.8	64.5	0.101
SA43	SA43C	43.0	47.8	58.4	1.0	43	1	6.5	76.7	0.102
SA43A	SA43CA	43.0	47.8	52.8	1.0	43	1	7.2	69.4	0.102
SA45	SA45C	45.0	50	61.1	1.0	45	1	6.2	80.3	0.103
SA45A	SA45CA	45.0	50	55.3	1.0	45	1	6.9	72.7	0.103
SA48	SA48C	48.0	53.3	65.2	1.0	48	1	5.8	85.5	0.103
SA48A	SA48CA	48.0	53.3	58.9	1.0	48	1	6.5	77.4	0.103
SA51	SA51C	51.0	56.7	69.3	1.0	51	1	5.5	91.1	0.104
SA51A	SA51CA	51.0	56.7	62.7	1.0	51	1	6.1	82.4	0.104
SA54	SA54C	54.0	60	73.3	1.0	54	1	5.2	96.6	0.104
SA54A	SA54CA	54.0	60	66.3	1.0	54	1	5.7	87.1	0.104
SA58	SA58C	58.0	64.4	78.7	1.0	58	1	4.9	103	0.104
SA58A	SA58CA	58.0	64.4	71.2	1.0	58	1	5.3	93.6	0.104
SA60	SA60C	60.0	66.7	81.5	1.0	60	1	4.7	107	0.105
SA60A	SA60CA	60.0	66.7	73.7	1.0	60	1	5.2	96.8	0.105
SA64	SA64C	64.0	71.1	86.9	1.0	64	1	4.4	114	0.105
SA64A	SA64CA	64.0	71.1	78.6	1.0	64	1	4.9	103	0.105
SA70	SA70C	70.0	77.8	95.1	1.0	70	1	4	125	0.105
SA70A	SA70CA	70.0	77.8	86	1.0	70	1	4.4	113	0.105
SA75	SA75C	75.0	83.3	102	1.0	75	1	3.7	134	0.106
SA75A	SA75CA	75.0	83.3	92.1	1.0	75	1	4.1	121	0.106
SA78	SA78C	78.0	86.7	106	1.0	78	1	3.6	139	0.106
SA78A	SA78CA	78.0	86.7	95.8	1.0	78	1	4	126	0.106
SA85	SA85C	85.0	94.4	115	1.0	85	1	3.3	151	0.106
SA85A	SA85CA	85.0	94.4	104	1.0	85	1	3.6	137	0.106
SA90	SA90C	90.0	100	122	1.0	90	1	3.1	160	0.107
SA90A	SA90CA	90.0	100	111	1.0	90	1	3.4	146	0.107
SA100	SA100C	100.0	111	136	1.0	100	1	2.8	179	0.107
SA100A	SA100CA	100.0	111	123	1.0	100	1	3.1	162	0.107
SA110	SA110C	110.0	122	149	1.0	110	1	2.6	196	0.108
SA110A	SA110CA	110.0	122	135	1.0	110	1	2.8	177	0.108
SA120	SA120C	120.0	133	163	1.0	120	1	2.3	214	0.108
SA120A	SA120CA	120.0	133	147	1.0	120	1	2	193	0.108
SA130	SA130C	130.0	144	176	1.0	130	1	2.2	230	0.108
SA130A	SA130CA	130.0	144	159	1.0	130	1	2.4	209	0.108
SA150	SA150C	150.0	167	204	1.0	150	1	1.9	268	0.108
SA150A	SA150CA	150.0	167	185	1.0	150	1	2.1	243	0.108
SA160	SA160C	160.0	178	218	1.0	160	1	1.7	257	0.108
SA160A	SA160CA	160.0	178	197	1.0	160	1	1.9	259	0.108
SA170	SA170C	170.0	189	231	1.0	170	1	1.6	304	0.108
SA170A	SA170CA	170.0	189	209	1.0	170	1	1.8	275	0.108

Note:

1. V_{BR} measured after I_T applied for 300us, I_T=square wave pulse or equivalent.
2. Surge current waveform per Figure 3 and derate per Figure 2.
3. For bipolar types having V_{WM} of 10 volts and under, the I_D limit is doubled.
4. All terms and symbols are consistent with ANSI/IEEE C62.35.