

SA5.0 THRU SA180CA**GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR
VOLTAGE-5.0 TO 180 Volts
500 Watt Peak Pulse Power****FEATURES**

- Plastic package has Underwriters Laboratory Flammability Classification 94 V-O
- Glass passivated junction
- 500W Peak Pulse Power capability on 10/1000 μ s waveform
- Glass passivated junction
- Low incremental surge resistance
- Excellent clamping capability
- Repetition rate (duty cycle): 0.01%
- Fast response time: typically less than 1.0 ps from 0 volts to BV for unidirectional and 5.0ns for bidirectional and 5.0ns for bi directional
- Typical IR less than 1 μ A above 10V
- High temperature soldering guaranteed: 300°C/10 seconds/ .375", (9.5mm) lead length, 5lbs., (2.3kg) tension

MECHANICAL DATA

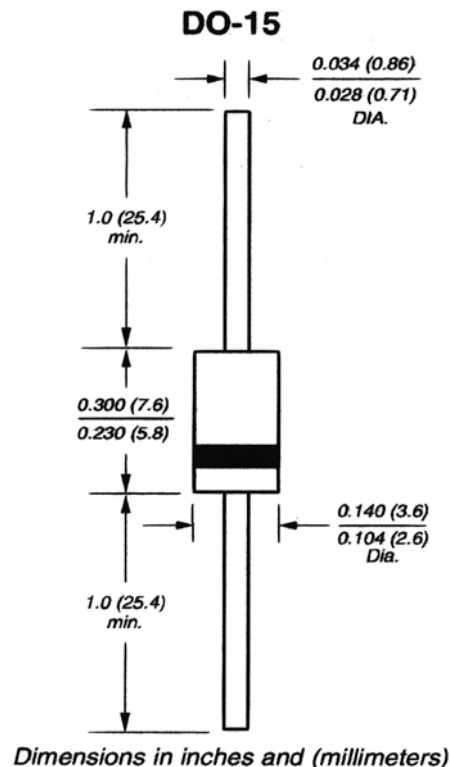
Case: JEDEC DO-15 Molded plastic over glass passivated junction

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

Polarity: Color band denoted positive end (cathode) except Bipolar

Mounting Position: Any

Weight: 0.015 ounces, 0.4 grams

**DEVICES FOR BIPOLAR APPLICATIONS**

For Bidirectional use C or CA Suffix for types SA5.0 thru types SA180 (e.g. SA5.0C, SA180CA)
Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000 μ s waveform (NOTE 1, Fig.1)	P _{ppm}	Minimum 500	Watts
Peak Pulse Current of on 10/1000 μ s waveform (Note 1)	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)}	3.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load, Unidirectional only (JEDEC Method)(Note 3)	I _{FSM}	70	Amps
Operatings and Storage Temperature Range	T _j , T _{stg}	-55 +175	°C

NOTES:

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

MDE Semiconductor, Inc.

78-150 Calle Tampico, Unit 210, La Quinta, CA., USA 92253 Tel: 760-564-8656 • Fax: 760-564-2414

RATING AND CHARACTERISTIC CURVES SA5.0 THRU SA180CA

Fig. 1 – Peak Pulse Power Rating Curve

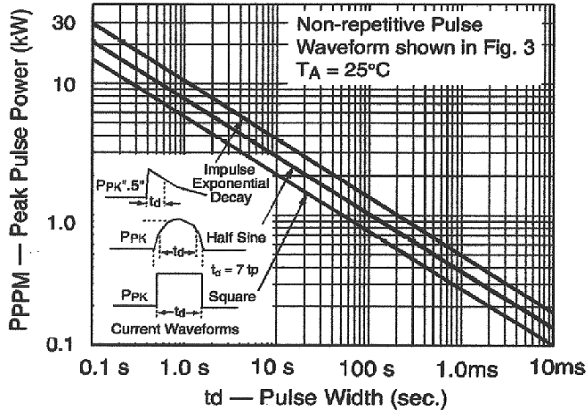


Fig. 2 – Pulse Derating Curve

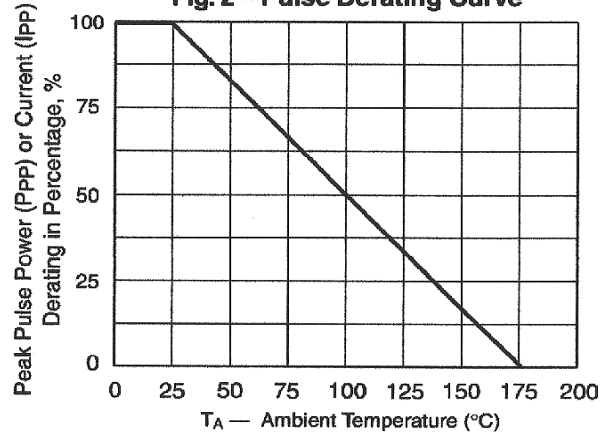


Fig. 3 – Pulse Waveform

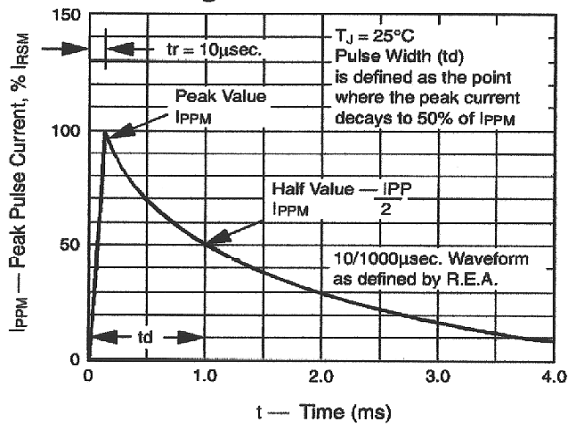


Fig. 4 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

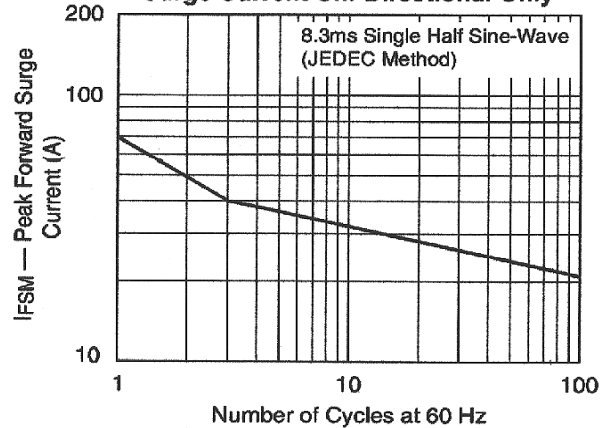


Fig. 5 – Steady State Power Derating Curve

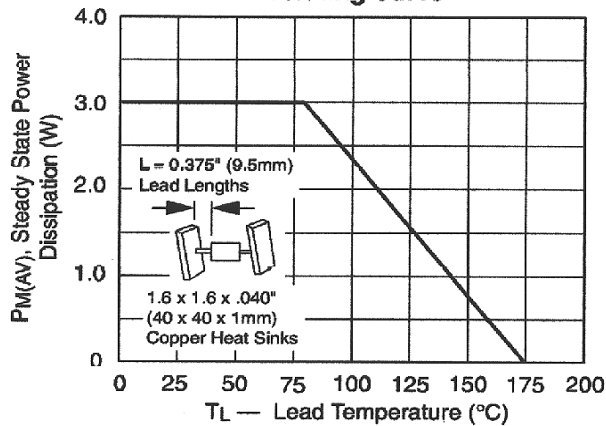
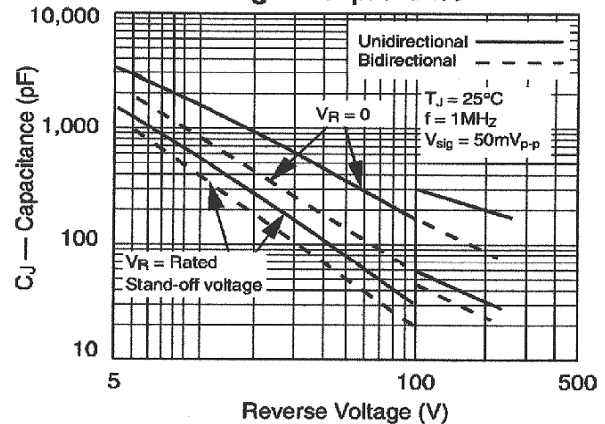


Fig. 6 – Capacitance



MDE Semiconductor, Inc.

78-150 Calle Tampico, Unit 210, La Quinta, CA., USA 92253 Tel: 760-564-8656 • Fax: 760-564-2414

500 Watt Surface Mount TVS

UNI-DIRECTIONAL PART NUMBER	REVERSE STANDOFF VOLTAGE VRWM (V)	BREAKDOWN VOLTAGE VBR (V) MIN. @ IT	BREAKDOWN VOLTAGE VBR (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

MDE Semiconductor, Inc.

78-150 Calle Tampico, Unit 210, La Quinta, CA., USA 92253 Tel: 760-564-8656 • Fax: 760-564-2414

500 Watt Surface Mount TVS

UNI- CIRECTIONAL PART NUMBER	REVERSE STANDOFF VOLTAGE VRWM (V)	BREAKDOWN VOLTAGE VBR (V) MIN. @ IT	BREAKDOWN VOLTAGE VBR (V) MAX. @ IT	TEST CURRENT (It) mA	MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V)	PEAK PULSE CURRENT Ipp (A)	REVERSE LEAKAGE @ VRWM IR (μA)
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
SA43	43.00	47.80	58.40	1	76.7	6.60	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
SA54A	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	5
SA90	90.00	100.00	122.00	1	160	3.2	3
SA90A	90.00	100.00	111.00	1	146	3.5	3
SA100	100.00	111.00	136.00	1	179	2.8	3
SA100A	100.00	111.00	123.00	1	162	3.1	3
SA110	110.00	122.00	149.00	1	196	2.6	3
SA110A	110.00	122.00	135.00	1	177	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	2.6	3
SA130	130.00	144.00	176.00	1	230	2.2	3
SA130A	130.00	144.00	159.00	1	209	2.4	3
SA150	150.00	167.00	204.00	1	268	1.9	3
SA150A	150.00	167.00	185.00	1	243	2.1	3
SA160	160.00	178.00	218.00	1	287	1.7	3
SA160A	160.00	178.00	197.00	1	259	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	1.9	3
SA180	180.00	200.00	244.00	1	320	1.56	3
SA180A	180.00	200.00	233.00	1	289	1.73	3

For Bidirectional type having Vrwm of 10volts and less, the IR limit is double.