

# 1.5SMC SERIES

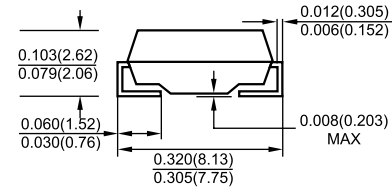
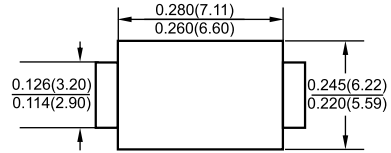
1500 Watts Surface Mount Transient Voltage Suppressor

## SMC/DO-214AB



### Features

- ✧ For surface mounted application in order to optimize board space
- ✧ Low profile package
- ✧ Built-in strain relief
- ✧ Glass passivated junction
- ✧ Excellent clamping capability
- ✧ 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°C / 10 seconds at terminals
- ✧ Plastic material used carries Underwriters Laboratory Flammability Classification 94V-0
- ✧ 1500 watts peak pulse power capability with a 10 x 1000 us waveform by 0.01% duty cycle



Dimensions in inches and (millimeters)

### Mechanical Data

- ✧ Case: Molded plastic
- ✧ Terminals: Solder plated
- ✧ Polarity: Indicated by cathode band
- ✧ Weight: 0.21gram

### Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified.

Type Number	Symbol	Value	Units
Peak Power Dissipation at $T_A=25^\circ\text{C}$ , $T_p=1\text{ms}$ ( Note 1)	$P_{PK}$	Minimum 1500	Watts
Power Dissipation on Intinite Heatsink, $T_A=50^\circ\text{C}$	$P_{M(AV)}$	6.5	W
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (Note 2, 3) - Unidirectional Only	$I_{FSM}$	200	Amps
Thermal Resistance Junction to Ambient Air (Note 4)	$R_{\theta JA}$	50	$^\circ\text{C/W}$
Thermal Resistance Junction to Leads	$R_{\theta JL}$	15	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to + 150	$^\circ\text{C}$

- Notes:
1. Non-repetitive Current Pulse Per Fig. 3 and Derated above  $T_A=25^\circ\text{C}$  Per Fig. 2.
  2. Mounted on 8.0mm<sup>2</sup> (.013mm Thick) Copper Pads to Each Terminal.
  3. 8.3ms Single Half Sine-wave or Equivalent Square Wave, Duty Cycle=4 Pulses Per Minute Maximum.
  4. Mounted on 5.0mm<sup>2</sup> (.013mm thick) land areas.

#### Devices for Bipolar Applications

1. For Bidirectional Use C or CA Suffix for Types 1.5SMC6.8 through Types 1.5SMC200A.
2. Electrical Characteristics Apply in Both Directions.

### RATINGS AND CHARACTERISTIC CURVES (1.5SMC SERIES)

FIG.1- PEAK PULSE POWER RATING CURVE

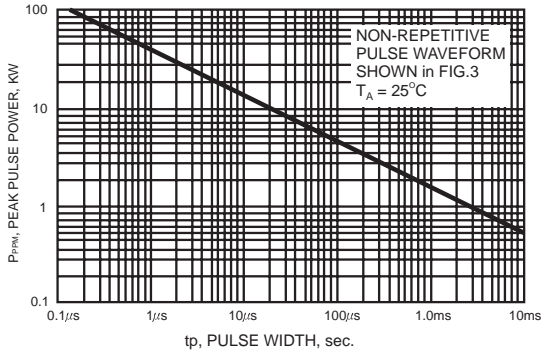


FIG.2- PULSE DERATING CURVE

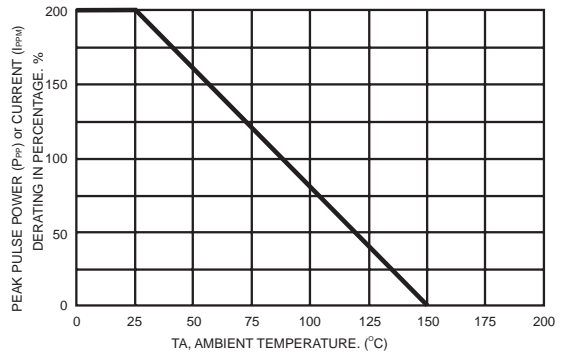


FIG.3- CLAMPING POWER PULSE WAVEFORM

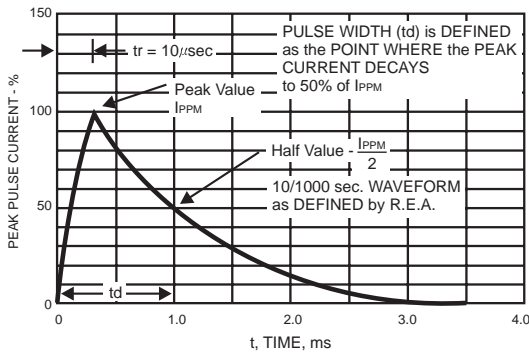


FIG.4- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY

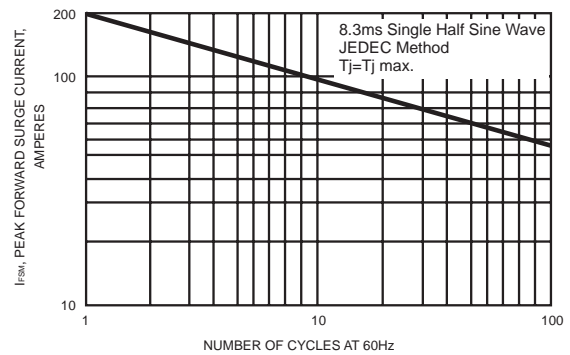
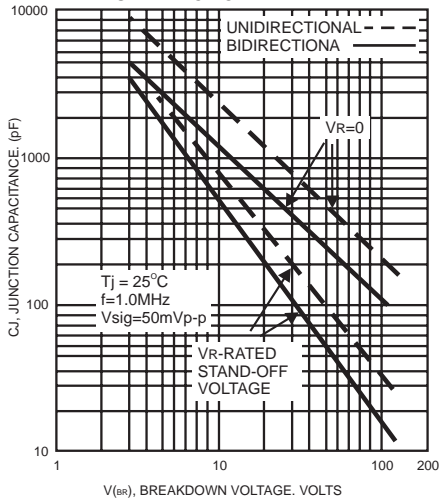


FIG.5- TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL





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

GENERAL PART	Device Marking Code	Breakdown Voltage		Test Current @I <sub>T</sub> (mA)	Stand-Off Voltage V <sub>WM</sub> (Volts)	Maximum Reverse Leakage I <sub>B</sub> (uA)	Maximum Peak Surge Current I <sub>PPM</sub> (Note 2)(Amps)	Maximum Clamping Voltage at I <sub>PPM</sub> V <sub>C</sub> (volts)	Maximum Temperature Coefficient of V <sub>BR</sub> (% / °C)
		V <sub>BR</sub> (Volts) (Note 1)							
		Min	Max						
1.5SMC6.8	1.5SMC6.8	6.12	7.48	10	5.50	1000	145	10.8	0.057
1.5SMC6.8A	1.5SMC6.8A	6.45	7.14	10	5.80	1000	150	10.5	0.057
1.5SMC7.5	1.5SMC7.5	6.75	8.25	10	6.05	500	134	11.7	0.061
1.5SMC7.5A	1.5SMC7.5A	7.13	7.88	10	6.40	500	139	11.3	0.061
1.5SMC8.2	1.5SMC8.2	7.38	9.02	10	6.63	200	126	12.5	0.065
1.5SMC8.2A	1.5SMC8.2A	7.79	8.61	10	7.02	200	130	12.1	0.065
1.5SMC9.1	1.5SMC9.1	8.19	10.0	1.0	7.37	50	114	13.8	0.068
1.5SMC9.1A	1.5SMC9.1A	8.65	9.55	1.0	7.78	50	117	13.4	0.068
1.5SMC10	1.5SMC10	9.00	11.0	1.0	8.10	10	105	15.0	0.073
1.5SMC10A	1.5SMC10A	9.50	10.5	1.0	8.55	10	108	14.5	0.073
1.5SMC11	1.5SMC11	9.90	12.1	1.0	8.92	5.0	97	16.2	0.075
1.5SMC11A	1.5SMC11A	10.5	11.6	1.0	9.40	5.0	100	15.6	0.075
1.5SMC12	1.5SMC12	10.8	13.2	1.0	9.72	5.0	91	17.3	0.078
1.5SMC12A	1.5SMC12A	11.4	12.6	1.0	10.2	5.0	94	16.7	0.078
1.5SMC13	1.5SMC13	11.7	14.3	1.0	10.5	5.0	82	19.0	0.081
1.5SMC13A	1.5SMC13A	12.4	13.7	1.0	11.1	5.0	86	18.2	0.081
1.5SMC15	1.5SMC15	13.5	16.5	1.0	12.1	5.0	71	22.0	0.084
1.5SMC15A	1.5SMC15A	14.3	15.8	1.0	12.8	5.0	74	21.2	0.084
1.5SMC16	1.5SMC16	14.4	17.6	1.0	12.9	5.0	67	23.5	0.086
1.5SMC16A	1.5SMC16A	15.2	16.8	1.0	13.6	5.0	70	22.5	0.086
1.5SMC18	1.5SMC18	16.2	19.8	1.0	14.5	5.0	59	26.5	0.088
1.5SMC18A	1.5SMC18A	17.1	18.9	1.0	15.3	5.0	60	25.2	0.088
1.5SMC20	1.5SMC20	18.0	22.0	1.0	16.2	5.0	54	29.1	0.090
1.5SMC20A	1.5SMC20A	19.0	21.0	1.0	17.1	5.0	56	27.7	0.090
1.5SMC22	1.5SMC22	19.8	24.2	1.0	17.8	5.0	49	31.9	0.092
1.5SMC22A	1.5SMC22A	20.9	23.1	1.0	18.8	5.0	51	30.6	0.092
1.5SMC24	1.5SMC24	21.6	26.4	1.0	19.4	5.0	45	34.7	0.094
1.5SMC24A	1.5SMC24A	22.8	25.2	1.0	20.5	5.0	47	33.2	0.094
1.5SMC27	1.5SMC27	24.3	29.7	1.0	21.8	5.0	40	39.1	0.096
1.5SMC27A	1.5SMC27A	25.7	28.4	1.0	23.1	5.0	42	37.5	0.096
1.5SMC30	1.5SMC30	27.0	33.0	1.0	24.3	5.0	36	43.5	0.097
1.5SMC30A	1.5SMC30A	28.5	31.5	1.0	25.6	5.0	38	41.4	0.097
1.5SMC33	1.5SMC33	29.7	36.3	1.0	26.8	5.0	33	47.7	0.098
1.5SMC33A	1.5SMC33A	31.4	34.7	1.0	28.2	5.0	34	45.7	0.098
1.5SMC36	1.5SMC36	32.4	39.6	1.0	29.1	5.0	30	52.0	0.099
1.5SMC36A	1.5SMC36A	34.2	37.8	1.0	30.8	5.0	31	49.9	0.099
1.5SMC39	1.5SMC39	35.1	42.9	1.0	31.6	5.0	27	56.4	0.100
1.5SMC39A	1.5SMC39A	37.1	41.0	1.0	33.3	5.0	29	53.9	0.100
1.5SMC43	1.5SMC43	38.7	47.3	1.0	34.8	5.0	25	61.9	0.101
1.5SMC43A	1.5SMC43A	40.9	45.2	1.0	36.8	5.0	26	59.3	0.101
1.5SMC47	1.5SMC47	42.3	51.7	1.0	38.1	5.0	23	67.8	0.101
1.5SMC47A	1.5SMC47A	44.7	49.4	1.0	40.2	5.0	24	64.8	0.101
1.5SMC51	1.5SMC51	45.9	56.1	1.0	41.3	5.0	21	73.5	0.102
1.5SMC51A	1.5SMC51A	48.5	53.6	1.0	43.6	5.0	22	70.1	0.102
1.5SMC56	1.5SMC56	50.4	61.8	1.0	45.4	5.0	19	80.5	0.103
1.5SMC56A	1.5SMC56A	53.2	58.8	1.0	47.8	5.0	20	77.0	0.103
1.5SMC62	1.5SMC62	55.8	68.2	1.0	50.2	5.0	17	89.0	0.104
1.5SMC62A	1.5SMC62A	58.9	65.1	1.0	53.0	5.0	18	85.0	0.104
1.5SMC68	1.5SMC68	61.2	74.8	1.0	55.1	5.0	16	98.0	0.104
1.5SMC68A	1.5SMC68A	64.6	71.4	1.0	58.1	5.0	17	92.0	0.104
1.5SMC75	1.5SMC75	67.5	82.5	1.0	60.7	5.0	14	108.0	0.105
1.5SMC75A	1.5SMC75A	71.3	78.8	1.0	64.1	5.0	15	103.0	0.105
1.5SMC82	1.5SMC82	73.8	90.2	1.0	66.4	5.0	13	118.0	0.105
1.5SMC82A	1.5SMC82A	77.9	86.1	1.0	70.1	5.0	13.9	113.0	0.105
1.5SMC91	1.5SMC91	81.9	100.0	1.0	73.7	5.0	12	131.0	0.106
1.5SMC91A	1.5SMC91A	86.5	95.50	1.0	77.8	5.0	12.6	125.0	0.106



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		V <sub>BR</sub> (Volts) (Note 1)							
		Min	Max						
1.5SMC100	1.5SMC100	90.0	110.0	1.0	81.0	5.0	10.9	144.0	0.106
1.5SMC100A	1.5SMC100A	95.0	105.0	1.0	85.5	5.0	11.4	137.0	0.106
1.5SMC110	1.5SMC110	99.0	121.0	1.0	89.2	5.0	9.9	158.0	0.107
1.5SMC110A	1.5SMC110A	105.0	116.0	1.0	94.0	5.0	10.3	152.0	0.107
1.5SMC120	1.5SMC120	108.0	132.0	1.0	97.2	5.0	9.1	173.0	0.107
1.5SMC120A	1.5SMC120A	114.0	126.0	1.0	102.0	5.0	9.5	165.0	0.107
1.5SMC130	1.5SMC130	117.0	143.0	1.0	106.0	5.0	8.4	187.0	0.107
1.5SMC130A	1.5SMC130A	124.0	137.0	1.0	111.0	5.0	8.7	179.0	0.107
1.5SMC150	1.5SMC150	135.0	165.0	1.0	121.0	5.0	7.3	215.0	0.108
1.5SMC150A	1.5SMC150A	143.0	158.0	1.0	128.0	5.0	7.6	207.0	0.108
1.5SMC160	1.5SMC160	144.0	176.0	1.0	130.0	5.0	6.8	230.0	0.108
1.5SMC160A	1.5SMC160A	152.0	168.0	1.0	136.0	5.0	7.1	219.0	0.108
1.5SMC170	1.5SMC170	153.0	187.0	1.0	138.0	5.0	6.4	244.0	0.108
1.5SMC170A	1.5SMC170A	162.0	179.0	1.0	145.0	5.0	6.7	234.0	0.108
1.5SMC180	1.5SMC180	162.0	198.0	1.0	146.0	5.0	6.1	258.0	0.108
1.5SMC180A	1.5SMC180A	171.0	189.0	1.0	154.0	5.0	6.4	246.0	0.108
1.5SMC200	1.5SMC200	180.0	220.0	1.0	162.0	5.0	5.4	287.0	0.108
1.5SMC200A	1.5SMC200A	190.0	210.0	1.0	171.0	5.0	5.7	274.0	0.108

1. V<sub>BR</sub> measured after I<sub>T</sub> applied for 300us, I<sub>T</sub>=square wave pulse or equivalent.
2. Surge current waveform per Figure 3 and derate per Figure 2.
3. For bipolar types having V<sub>WM</sub> of 10 volts and under, the I<sub>D</sub> limit is doubled.