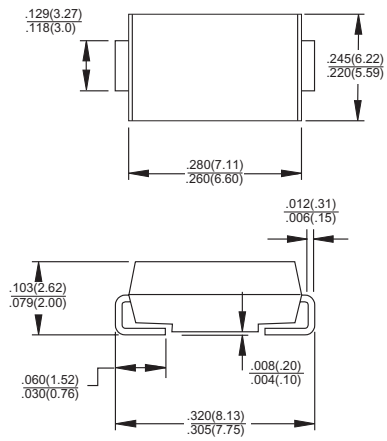
1.5SMC SERIES

Surface Mount Transient Voltage Suppressor

Voltage Range
6.8 to 200 Volts
1500 Watts Peak Power

SMC/DO-214AB



Dimensions in inches and (millimeters)

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 μA above 10V
- ✧ High temperature soldering guaranteed: 260^{O}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

Mechanical Data

- ✧ Case: Molded plastic
- ✧ Terminals: Solder plated
- ✧ Polarity: Indicated by cathode band
- ✧ Standard packaging: 16mm tape (EIA STD RS-481)
- ✧ Weight: 0.21gram

Maximum Ratings and Electrical Characteristics

Rating at 25℃ ambient temperature unless otherwise specified.

Type Number	Symbol	Value	Units
Peak Power Dissipation at T_A=25^{O}C, Tp=1ms (Note 1)	P_{PK}	Minimum 1500	Watts
Power Dissipation on Intinite Heatsink, T_A=50^{O}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)	Rθ JA	50	^{O}C/W
Thermal Resistance Junction to Leads	Rθ JL	15	^{O}C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to + 150	^{O}C

Notes: 1. Non-repetitive Current Pulse Per Fig. 3 and Derated above T_A=25^{O}C Per Fig. 2.
2. Mounted on 8.0mm^2 (.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^2(.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.

REV.1 Jan.-2004

ELECTRICAL CHARACTERISTICS (TA=25^{O}C unless otherwise noted)

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

ELECTRICAL CHARACTERISTICS (TA=25^{O}C unless otherwise noted)

GENERAL PART NUMBER	Device Marking Code	Breakdown Voltage VBR (Volts) (Note 1) Min	Breakdown Voltage VBR (Volts) (Note 1) Max	Test Curre @IT(mA)	Stand-Off Voltage VWM (Volts)	Maximum Reverse Leakage at Vwm ID (uA)	Maximum Peak Surge Current IPPM (Note 2)(Amps)	Maximum Clamping Voltage at IPPM VC(volts)	Maximum Temperature Coefficient of VBR(% / ^{O}C)
1.5SMC100	FWJ	90.0	110.0	1.0	81.0	5.0	10.9	144.0	0.106
1.5SMC100A	FXJ	95.0	105.0	1.0	85.5	5.0	11.4	137.0	0.106
1.5SMC110	FYJ	99.0	121.0	1.0	89.2	5.0	9.9	158.0	0.107
1.5SMC110A	FZJ	105.0	116.0	1.0	94.0	5.0	10.3	152.0	0.107
1.5SMC120	GDJ	108.0	132.0	1.0	97.2	5.0	9.1	173.0	0.107
1.5SMC120A	GEJ	114.0	126.0	1.0	102.0	5.0	9.5	165.0	0.107
1.5SMC130	GFJ	117.0	143.0	1.0	106.0	5.0	8.4	187.0	0.107
1.5SMC130A	GGJ	124.0	137.0	1.0	111.0	5.0	8.7	179.0	0.107
1.5SMC150	GHJ	135.0	165.0	1.0	121.0	5.0	7.3	215.0	0.108
1.5SMC150A	GKJ	143.0	158.0	1.0	128.0	5.0	7.6	207.0	0.108
1.5SMC160	GLJ	144.0	176.0	1.0	130.0	5.0	6.8	230.0	0.108
1.5SMC160A	GMJ	152.0	168.0	1.0	136.0	5.0	7.1	219.0	0.108
1.5SMC170	GNJ	153.0	187.0	1.0	138.0	5.0	6.4	244.0	0.108
1.5SMC170A	GPJ	162.0	179.0	1.0	145.0	5.0	6.7	234.0	0.108
1.5SMC180	GQJ	162.0	198.0	1.0	146.0	5.0	6.1	258.0	0.108
1.5SMC180A	GRJ	171.0	189.0	1.0	154.0	5.0	6.4	246.0	0.108
1.5SMC200	GSJ	180.0	220.0	1.0	162.0	5.0	5.4	287.0	0.108
1.5SMC200A	GTJ	190.0	210.0	1.0	171.0	5.0	5.7	274.0	0.108

Notes:

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. **For bidirectional use C or Ca suffix for types 1.5SMC 6.8 through 1.5SMC200A.**
5. **All terms and symbols are consistent with ANSI/IEEE C62.35.**

RATINGS AND CHARACTERISTIC CURVES (1.5SMC SERIES)

FIG.1- PEAK PULSE POWER RATING CURVE

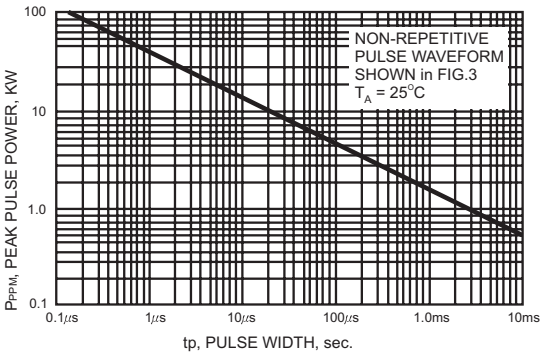


FIG.2- PULSE DERATING CURVE

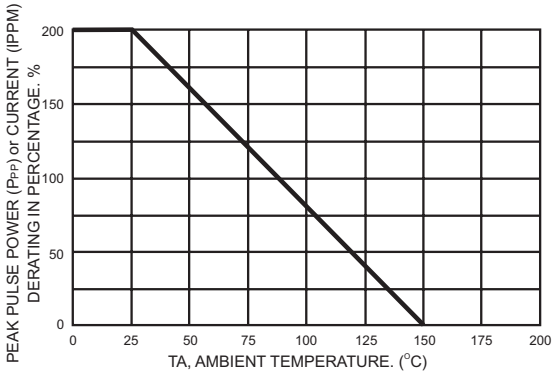


FIG.3- PULSE WAVEFORM

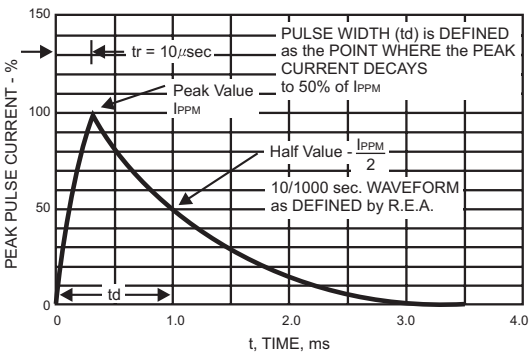


FIG.4- TYPICAL JUNCTION CAPACITANCE
UNIDIRECTIONAL

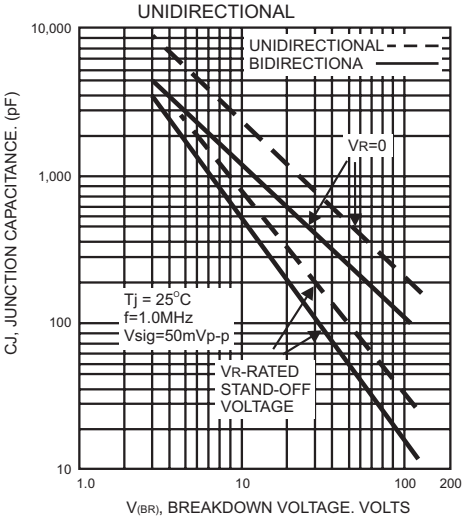
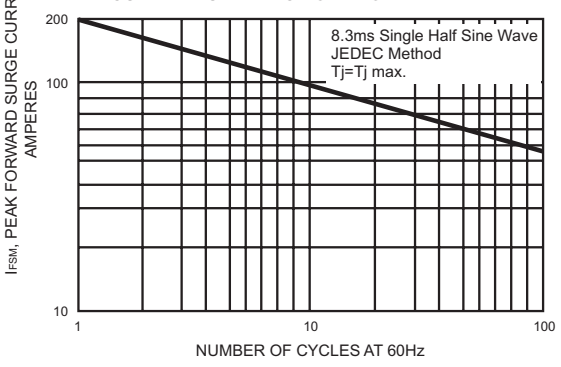


FIG.5- MAXIMUM NON-REPETITIVE FORWARD SURGE
CURRENT UNIDIRECTIONAL ONLY



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