SYNSEMI SEMICONDUCTOR

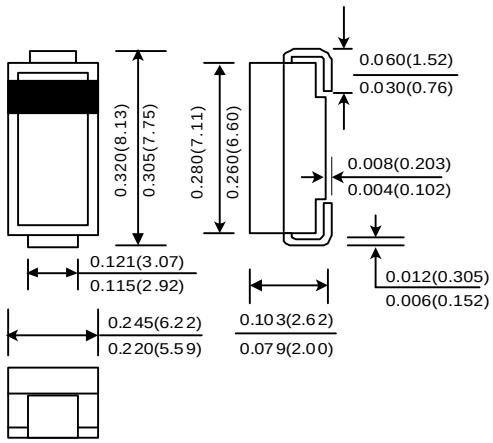
1.5SMC6.8A ~ 1.5SMC220CA

Surface Mount Transient Voltage Suppressors
Peak Pulse Power 1500W
Breakdown Voltage 6.8 to 220V

FEATURES :

* 1500W surge capability at 1ms
* Excellent clamping capability
* Low zener impedance
* Fast response time : typically less then 1.0 ps from 0 volt to $V_{BR(min.)}$

SMC (DO-214AB)



Dimensions in inches and (millimeter)

MECHANICAL DATA

* Case : SMC Molded plastic
* Epoxy : UL94V-O rate flame retardant
* Lead : Lead Formed for Surface Mount
* Polarity : Color band denotes cathode end except Bipolar.
* Mounting position : Any
* Weight : 0.21 grams

DEVICES FOR BIPOLAR APPLICATIONS

For Bi-directional use CA Suffix
Electrical characteristics apply in both directions

MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Unit
Peak Power Dissipation , Tp=1ms (Note1)	P_{PK}	Minimum 1500	W
Steady State Power Dissipation at T_L = 75 °C	P_D	5.0	W
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 2)	I_{FSM}	200	A
Operating and Storage Temperature Range	T_J, T_{STG}	- 55 to + 150	°C

Notes :

(1) Non-repetitive Current pulse, per Fig. 5 and derated above Ta = 25 °C per Fig. 1
(2) 8.3 ms single half sine-wave, duty cycle = 4 pulses per minutes maximum.

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ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

Type	Breakdown Voltage @ It (Note 1)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Reverse Current	Maximum Clamping Voltage @ I_{RSM}	Maximum Temperature Co-efficient of V_{BR}
	V_{BR} (V)		It	V_{RWM}	I_R	I_{RSM}	V_{RSM}	
	Min.	Max.	(mA)	(V)	(μA)	(A)	(V)	(% / °C)
1.5SMC6.8A	6.45	7.14	10	5.80	1000	143	10.5	0.057
1.5SMC7.5A	7.13	7.88	10	6.40	500	132	11.3	0.061
1.5SMC8.2A	7.79	8.61	10	7.02	200	124	12.1	0.065
1.5SMC9.1A	8.65	9.55	1.0	7.78	50	112	13.4	0.068
1.5SMC10A	9.50	10.5	1.0	8.55	10	103	14.5	0.073
1.5SMC11A	10.5	11.6	1.0	9.40	5.0	96.0	15.6	0.075
1.5SMC12A	11.4	12.6	1.0	10.2	5.0	90.0	16.7	0.078
1.5SMC13A	12.4	13.7	1.0	11.1	5.0	82.0	18.2	0.081
1.5SMC15A	14.3	15.8	1.0	12.8	5.0	71.0	21.2	0.084
1.5SMC16A	15.2	16.8	1.0	13.6	5.0	67.0	22.5	0.086
1.5SMC18A	17.1	18.9	1.0	15.3	5.0	59.5	25.2	0.088
1.5SMC20A	19.0	21.0	1.0	17.1	5.0	54.0	27.7	0.090
1.5SMC22A	20.9	23.1	1.0	18.8	5.0	49.0	30.6	0.092
1.5SMC24A	22.8	25.2	1.0	20.5	5.0	45.0	33.2	0.094
1.5SMC27A	25.7	28.4	1.0	23.1	5.0	40.0	37.5	0.096
1.5SMC30A	28.5	31.5	1.0	25.6	5.0	36.0	41.4	0.097
1.5SMC33A	31.4	34.7	1.0	28.2	5.0	33.0	45.7	0.098
1.5SMC36A	34.2	37.8	1.0	30.8	5.0	30.0	49.9	0.099
1.5SMC39A	37.1	41.0	1.0	33.3	5.0	28.0	53.9	0.100
1.5SMC43A	40.9	45.2	1.0	36.8	5.0	25.3	59.3	0.101
1.5SMC47A	44.7	49.4	1.0	40.2	5.0	23.2	64.8	0.101
1.5SMC51A	48.5	53.6	1.0	43.6	5.0	21.4	70.1	0.102
1.5SMC56A	53.2	58.8	1.0	47.8	5.0	19.5	77.0	0.103
1.5SMC62A	58.9	65.1	1.0	53.0	5.0	17.7	85.0	0.104
1.5SMC68A	64.6	71.4	1.0	58.1	5.0	16.3	92.0	0.104
1.5SMC75A	71.3	78.8	1.0	64.1	5.0	14.6	103	0.105
1.5SMC82A	77.9	86.1	1.0	70.1	5.0	13.3	113	0.105
1.5SMC91A	86.5	95.5	1.0	77.8	5.0	12.0	125	0.106
1.5SMC100A	95.0	105	1.0	85.5	5.0	11.0	137	0.106
1.5SMC110A	105	116	1.0	94.0	5.0	9.9	152	0.107
1.5SMC120A	114	126	1.0	102	5.0	9.1	165	0.107
1.5SMC130A	124	137	1.0	111	5.0	8.4	179	0.107
1.5SMC150A	143	158	1.0	128	5.0	7.2	207	0.108
1.5SMC160A	152	168	1.0	136	5.0	6.8	219	0.108
1.5SMC170A	162	179	1.0	145	5.0	6.4	234	0.108
1.5SMC180A	171	189	1.0	154	5.0	6.1	246	0.108
1.5SMC200A	190	210	1.0	171	5.0	5.5	274	0.108
1.5SMC220A	209	231	1.0	185	5.0	4.6	328	0.108

Notes:

(1) V_{BR} measured after It applied for 300 μs., It = square wave pulse or equivalent.

(2) V_F = 3.5 Vmax., I_F = 100 Amps. (6.8 Volts thru 91 Volts)
V_F = 5.0 Vmax., I_F = 100 Amps. (100 Volts thru 220 Volts) per 1/2 square or equivalent sine wave.
PW = 8.3 ms, duty cycle = 4 pulses per minute maximum.

(3) For Bi-directional types with V_R 10 Volts and less, the I_R limit is doubled.

(4) "1.5SMC" will be omitted in marking on the diode.

RATING AND CHARACTERISTIC CURVES

FIG.1 - PULSE DERATING CURVE

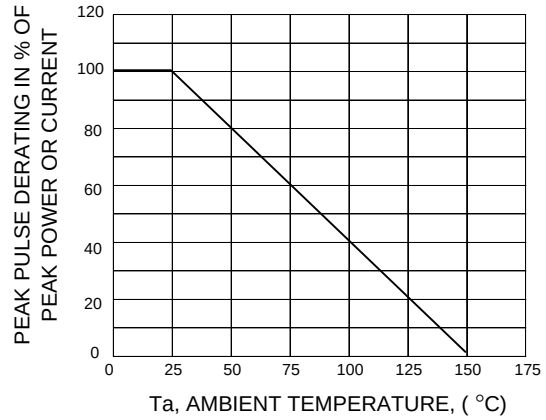

FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

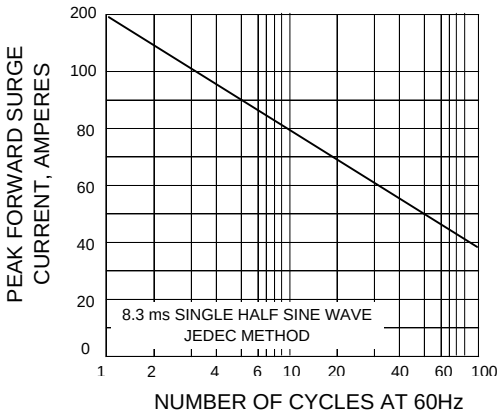

FIG.3 - STEADY STATE POWER DERATING

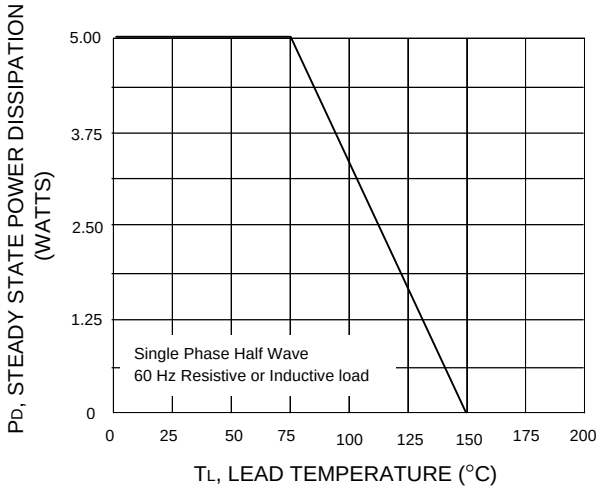

FIG.4 - PULSE RATING CURVE

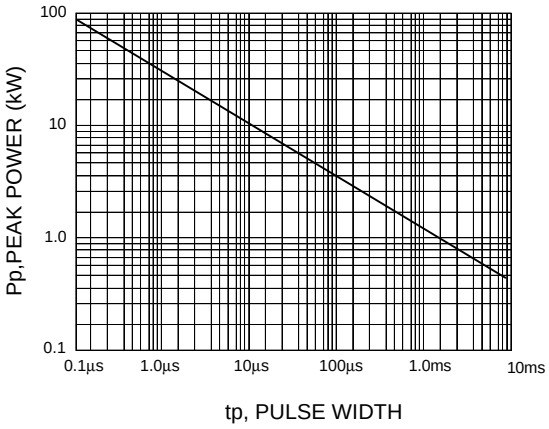

FIG.5 - PULSE WAVEFORM