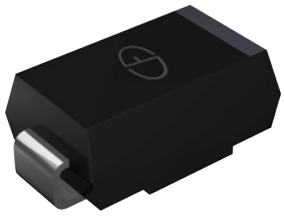
GOOD-ARK
SEMICONDUCTOR

1.5SMC6.8A thru 1.5SMC550CA

Surface Mount Transient Voltage Suppressors
Peak Pulse Power 1500W Breakdown Voltage 6.8V to 550V

Features

- Glass passivated junction chip
- Low incremental surge resistance
- Low inductance
- Excellent clamping capability
- 1500W peak pulse power capability with a 10/1000uS waveform, repetition rate (duty cycle): 0.01%
- Fast response time
- IEC 61000-4-2 ESD 30kV (Air), 30kV (Contact)
- ESD protection of data lines in accordance with IEC61000-4-2
- EFT protection of data lines in accordance with IEC61000-4-4
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Moisture sensitivity level MSL=1



DO-214AB(SMC)

RoHS
COMPLIANT

Mechanical Data

- Case: JEDEC DO-214AB (SMC) molded plastic over passivated junction
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: For uni-directional types the band denotes the cathode, which is positive with respect to the anode under normal TVS operation
- Weight: 0.007oz., 0.21g

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000uS Waveform[1, 2] (Fig. 1)	P_{PPM}	Minimum 1500	W
Peak Pulse Current with a 10/1000uS Waveform[1] (Fig. 3)	I_{PPM}	See Next Table	A
Power Dissipation on Infinite Heatsink, T_A =50°C	$P_{M(AV)}$	6.5	W
Peak Forward Surge Current 8.3mS Single Half Sine-Wave Uni-directional only[2]	I_{FSM}	200	A
Thermal Resistance Junction to Ambient Air[3]	$R_{\theta JA}$	75	°C/W
Thermal Resistance Junction to Leads	$R_{\theta JL}$	15	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes: 1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25°C per Fig. 2
2. Mounted on 0.31 x 0.31" (8.0 x 8.0mm) copper pads to each terminal
3.Mounted on minimum recommended pad layout

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Electrical Characteristics

T_A=25°C unless otherwise specified, V_F=3.5V at I_F=100A (uni-directional only)

Part Number (Uni)	Part Number (Bi)	Marking Code		Breakdown Voltage[1]		Test Current	Stand-off Voltage	Maximum Reverse Leakage[3] @ Vwm	Maximum Peak Pulse Current[2]	Maximum Clamping Voltage	Maximum Temperature Coefficient
		UNI	BI	V_{BR} Min.	V_{BR} Max.	I_T	V_{WM}	I_D	I_{PPM}	V_C @I_{PPM}	$V_{(BR)}$
				V	V	mA	V	μA	A	V	(% / °C)
1.5SMC6.8A	1.5SMC6.8CA	6V8A	6V8C	6.45	7.14	10	5.8	1000	143	10.5	0.057
1.5SMC7.5A	1.5SMC7.5CA	7V5A	7V5C	7.13	7.88	10	6.4	500	133	11.3	0.061
1.5SMC8.2A	1.5SMC8.2CA	8V2A	8V2C	7.79	8.61	10	7.02	200	124	12.1	0.065
1.5SMC9.1A	1.5SMC9.1CA	9V1A	9V1C	8.65	9.55	1	7.78	50	112	13.4	0.068
1.5SMC10A	1.5SMC10CA	10A	10C	9.5	10.5	1	8.55	10	103	14.5	0.073
1.5SMC11A	1.5SMC11CA	11A	11C	10.5	11.6	1	9.4	5	96.2	15.6	0.075
1.5SMC12A	1.5SMC12CA	12A	12C	11.4	12.6	1	10.2	5	89.8	16.7	0.078
1.5SMC13A	1.5SMC13CA	13A	13C	12.4	13.7	1	11.1	5	82.4	18.2	0.081
1.5SMC15A	1.5SMC15CA	15A	15C	14.3	15.8	1	12.8	1	70.8	21.2	0.084
1.5SMC16A	1.5SMC16CA	16A	16C	15.2	16.8	1	13.6	1	66.7	22.5	0.086
1.5SMC18A	1.5SMC18CA	18A	18C	17.1	18.9	1	15.3	1	59.5	25.2	0.089
1.5SMC20A	1.5SMC20CA	20A	20C	19	21	1	17.1	1	54.2	27.7	0.09
1.5SMC22A	1.5SMC22CA	22A	22C	20.9	23.1	1	18.8	1	49	30.6	0.092
1.5SMC24A	1.5SMC24CA	24A	24C	22.8	25.2	1	20.5	1	45.2	33.2	0.094
1.5SMC27A	1.5SMC27CA	27A	27C	25.7	28.4	1	23.1	1	40	37.5	0.096
1.5SMC30A	1.5SMC30CA	30A	30C	28.5	31.5	1	25.6	1	36.2	41.4	0.097
1.5SMC33A	1.5SMC33CA	33A	33C	31.4	34.7	1	28.2	1	32.8	45.7	0.098
1.5SMC36A	1.5SMC36CA	36A	36C	34.2	37.8	1	30.8	1	30.1	49.9	0.099
1.5SMC39A	1.5SMC39CA	39A	39C	37.1	41	1	33.3	1	27.8	53.9	0.1
1.5SMC43A	1.5SMC43CA	43A	43C	40.9	45.2	1	36.8	1	25.3	59.3	0.101
1.5SMC47A	1.5SMC47CA	47A	47C	44.7	49.4	1	40.2	1	23.1	64.8	0.101
1.5SMC51A	1.5SMC51CA	51A	51C	48.5	53.6	1	43.6	1	21.4	70.1	0.102
1.5SMC56A	1.5SMC56CA	56A	56C	53.2	58.8	1	47.8	1	19.5	77	0.103
1.5SMC62A	1.5SMC62CA	62A	62C	58.9	65.1	1	53	1	17.6	85	0.104
1.5SMC68A	1.5SMC68CA	68A	68C	64.6	71.4	1	58.1	1	16.3	92	0.104
1.5SMC75A	1.5SMC75CA	75A	75C	71.3	78.8	1	64.1	1	14.6	104	0.105
1.5SMC82A	1.5SMC82CA	82A	82C	77.9	86.1	1	70.1	1	13.3	113	0.105
1.5SMC91A	1.5SMC91CA	91A	91C	86.5	95.5	1	77.8	1	12	125	0.106

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Electrical Characteristics

T_A=25°C unless otherwise specified, V_F=3.5V at I_F=100A (uni-directional only)

Part Number (Uni)	Part Number (Bi)	Marking Code		Breakdown Voltage[1]		Test Current	Stand-off Voltage	Maximum Reverse Leakage[3] @ Vwm	Maximum Peak Pulse Current[2]	Maximum Clamping Voltage	Maximum Temperature Coefficient
		UNI	BI	V_{BR} Min.	V_{BR} Max.	I_T	V_{WM}	I_D	I_{PPM}	V_C @I_{PPM}	$V_{(BR)}$
				V	V	mA	V	μA	A	V	(% / °C)
1.5SMC100A	1.5SMC100CA	100A	100C	95	105	1	85.5	1	10.9	137	0.106
1.5SMC110A	1.5SMC110CA	110A	110C	105	116	1	94	1	9.9	152	0.107
1.5SMC120A	1.5SMC120CA	120A	120C	114	126	1	102	1	9.1	165	0.107
1.5SMC130A	1.5SMC130CA	130A	130C	124	137	1	111	1	8.4	179	0.107
1.5SMC150A	1.5SMC150CA	150A	150C	143	158	1	128	1	7.2	207	0.106
1.5SMC160A	1.5SMC160CA	160A	160C	152	168	1	136	1	6.8	219	0.108
1.5SMC170A	1.5SMC170CA	170A	170C	162	179	1	145	1	6.4	234	0.108
1.5SMC180A	1.5SMC180CA	180A	180C	171	189	1	154	1	6.1	246	0.108
1.5SMC200A	1.5SMC200CA	200A	200C	190	210	1	171	1	5.5	274	0.108
1.5SMC220A	1.5SMC220CA	220A	220C	209	231	1	185	1	4.6	328	0.108
1.5SMC250A	1.5SMC250CA	250A	250C	237	263	1	214	1	4.4	344	0.108
1.5SMC300A	1.5SMC300CA	300A	300C	285	315	1	256	1	3.7	414	0.108
1.5SMC350A	1.5SMC350CA	350A	350C	332	368	1	300	1	3.2	482	0.108
1.5SMC400A	1.5SMC400CA	400A	400C	380	420	1	342	1	2.8	548	0.108
1.5SMC440A	1.5SMC440CA	440A	440C	418	462	1	376	1	2.5	602	0.108
1.5SMC480A	1.5SMC480CA	480A	480C	456	504	1	408	1	2.3	658	0.108
1.5SMC510A	1.5SMC510CA	510A	510C	485	535	1	434	1	2.1	698	0.108
1.5SMC530A	1.5SMC530CA	530A	530C	503.5	556.5	1	477	1	2.1	725	0.108
1.5SMC540A	1.5SMC540CA	540A	540C	513	567	1	459	1	2	740	0.108
1.5SMC550A	1.5SMC550CA	550A	550C	522.5	577.5	1	495	1	2	760	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 Fig. 3 and derate per Fig. 2
3.For bidirectional types with V_R 10 volts and less, the I_D limit is doubled

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Ratings and Characteristic Curves (TA = 25 °C unless otherwise noted)

Fig. 1 – Peak Pulse Power Rating Curve

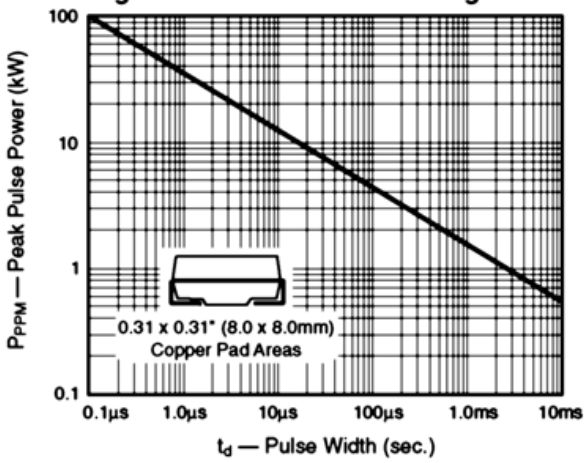


Fig. 2 – Pulse Derating Curve

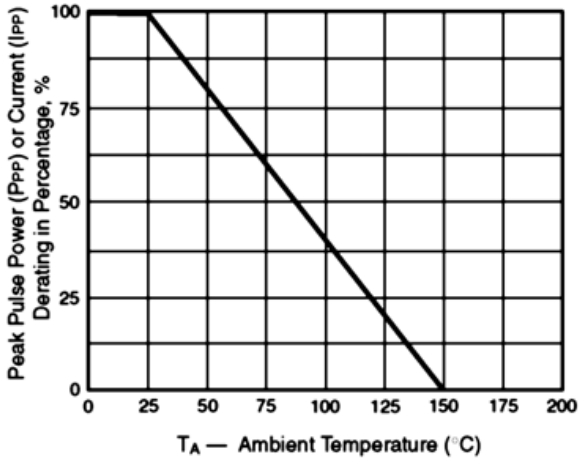


Fig. 3 – Pulse Waveform

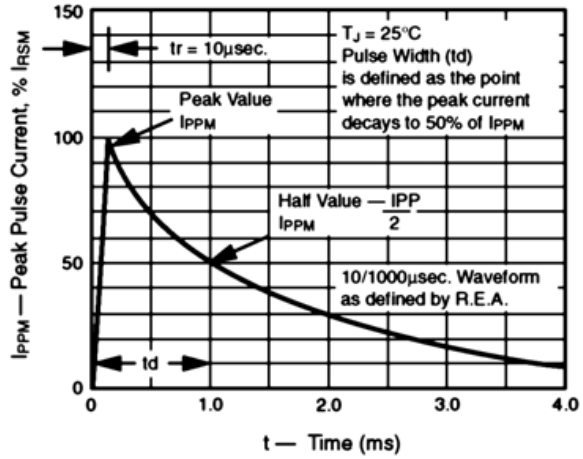


Fig. 4 – Typical Junction Capacitance Uni-Directional

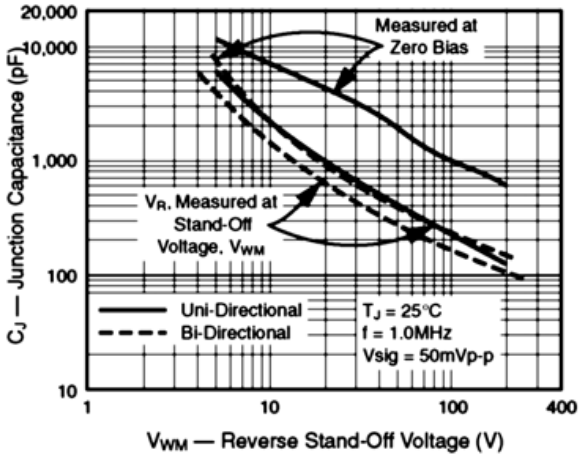


Fig. 5 – Typical Transient Thermal Impedance

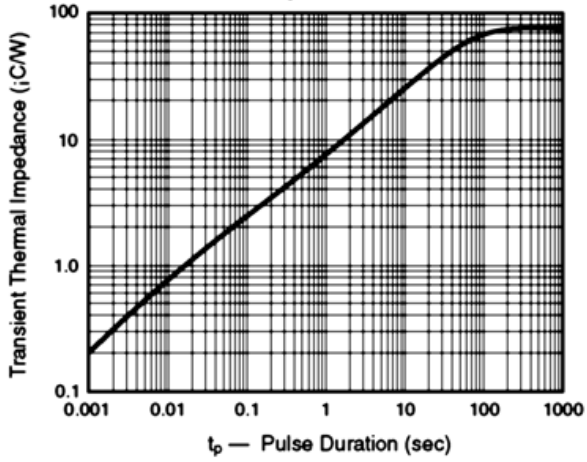
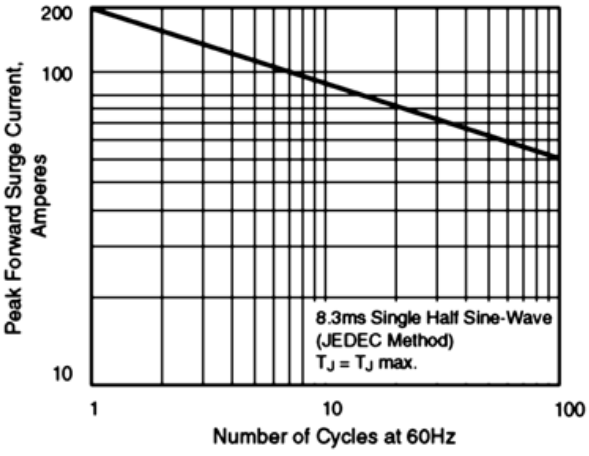


Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Use Only



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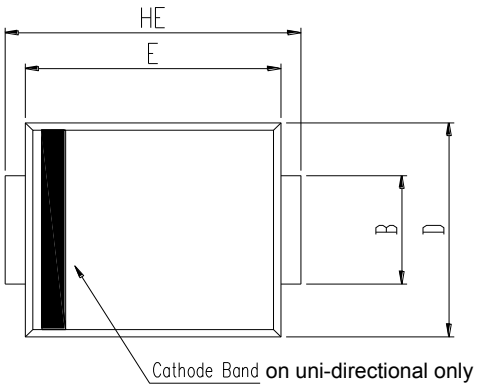
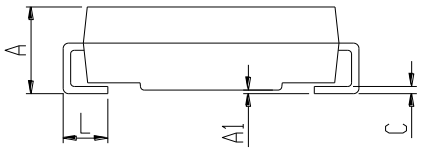
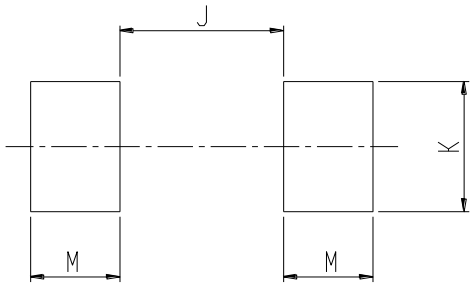
Package Outline Dimensions **DO-214AB(SMC)**





SMC (DO-214AB)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.00	2.62	0.079	0.103
A1	0.00	0.20	0.000	0.008
B	2.92	3.07	0.115	0.121
C	0.15	0.31	0.006	0.012
D	5.59	6.22	0.220	0.245
E	6.60	7.11	0.260	0.280
HE	7.75	8.13	0.305	0.320
L	0.76	1.52	0.030	0.060

Recommended Pad Layout



Recommended Pad Layout (Reference ONLY)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	-	4.60	-	0.181
K	3.20	-	0.126	-
M	2.00	-	0.079	-