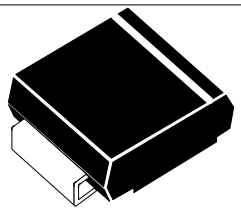
1.5SMCxx(C)A

Power Transient Voltage Suppressor

Features



SMC
(JEDEC DO-214AB)

- 1500 watts Peak Pulse Power (10/1000μs)
- Unidirectional and Bidirectional Protection
- Fast Response Time: Typically < 1ns
- Excellent Clamping Capability
- Built-in Strain relief
- Low inductance
- Low profile package
- High temperature solder:260℃/10 seconds at terminal

Mechanical Characteristics

- JEDEC DO-214AB package
- Molding compound flammability rating: UL 94V-0
- Marking: Marking Code
- Packaging: Tape and Reel per EIA 481
- RoHS &UL497B Compliant

Applications

- I/O Interfaces
- Power lines
- Automotive and Telecommunication
- Computers &Consumer Electronics
- Industrial Electronics

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp =10/1000μs) (see Note1,2&3)	P_{PPM}	1500	Watts
Peak pulse current (10/1000μs) (see Note2 &3)	I_{PPM}	See next table	A
Peak forward surge current (see Note4 &5)	I_{FSM}	200	A
Power dissipation on infinite heat sink T_L = 50 °C (Fig5)	P_D	6.5	W
Operating junction temperature range	T_J	-65 to + 150	℃
Storage temperature range	T_{STG}	-65 to + 150	℃

Note1: Peak Pulse Power Rating as Pulse Width , per Fig1.

Note2: Peak Pulse Power or Current Derated above T_A=25℃ Per Fig. 2 and Non-Repetitive Current Pulse, Per Fig.3.

Note3: Mounted on 5.0x5.0mm^2 copper pad to each terminal.

Note4: 8.3ms Single Half Sine Wave or Equivalent Square Wave.

Note5: Maximum Forward Surge Current only for Unidirectional Device per Fig6.

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Electrical Characteristics

Part Number		Reverse Stand off Voltage V_{RWM} (Volts)	Breakdown Voltage V_{BR}(Volts)@I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C@I_{PP} (Volts)	Maximum Peak Pulse Current I_{PP} (Amps)	Maximum Reverse Leakage I_R@V_{RWM} (μA)
UNI-POLAR	BI-POLAR		MIN	MAX				
1.5SMC6.8A	1.5SMC6.8CA	5.8	6.45	7.14	10	10.5	144.8	1000
1.5SMC7.5A	1.5SMC7.5CA	6.4	7.13	7.88	10	11.3	134.5	500
1.5SMC8.2A	1.5SMC8.2CA	7.02	7.79	8.61	10	12.1	125.6	200
1.5SMC9.1A	1.5SMC9.1CA	7.78	8.65	9.5	1	13.4	113.4	50
1.5SMC10A	1.5SMC10CA	8.55	9.5	10.5	1	14.5	104.8	10
1.5SMC11A	1.5SMC11CA	9.4	10.5	11.6	1	15.6	97.4	5
1.5SMC12A	1.5SMC12CA	10.2	11.4	12.6	1	16.7	91	5
1.5SMC13A	1.5SMC13CA	11.1	12.4	13.7	1	18.2	83.5	1
1.5SMC15A	1.5SMC15CA	12.8	14.3	15.8	1	21.2	71.7	1
1.5SMC16A	1.5SMC16CA	13.6	15.2	16.8	1	22.5	67.6	1
1.5SMC18A	1.5SMC18CA	15.3	17.1	18.9	1	25.2	60.3	1
1.5SMC20A	1.5SMC20CA	17.1	19	21	1	27.7	54.9	1
1.5SMC22A	1.5SMC22CA	18.8	20.9	23.1	1	30.6	49.7	1
1.5SMC24A	1.5SMC24CA	20.5	22.8	25.2	1	33.2	45.8	1
1.5SMC27A	1.5SMC27CA	23.1	25.7	28.4	1	37.5	40.5	1
1.5SMC30A	1.5SMC30CA	25.6	28.5	31.5	1	41.4	36.7	1
1.5SMC33A	1.5SMC33CA	28.2	31.4	34.7	1	45.7	33.3	1
1.5SMC36A	1.5SMC36CA	30.8	34.2	37.8	1	49.9	30.5	1
1.5SMC39A	1.5SMC39CA	33.3	37.1	41	1	53.9	28.2	1
1.5SMC43A	1.5SMC43CA	36.8	40.9	45.2	1	59.3	25.6	1
1.5SMC47A	1.5SMC47CA	40.2	44.7	49.4	1	64.8	23.5	1
1.5SMC51A	1.5SMC51CA	43.6	48.5	53.6	1	70.1	21.7	1
1.5SMC56A	1.5SMC56CA	47.8	53.2	58.8	1	77	19.7	1
1.5SMC62A	1.5SMC62CA	53	58.9	65.1	1	85	17.9	1
1.5SMC68A	1.5SMC68CA	58.1	64.6	71.4	1	92	16.5	1
1.5SMC75A	1.5SMC75CA	64.1	71.3	78.8	1	103	14.8	1
1.5SMC82A	1.5SMC82CA	70.1	77.9	86.1	1	113	13.5	1

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Electrical Characteristics (Cont.)

Part Number		Reverse Stand off Voltage V_{RWM} (Volts)	Breakdown Voltage V_{BR}(Volts)@I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C@I_{PP} (Volts)	Maximum Peak Pulse Current I_{PP} (Amps)	Maximum Reverse Leakage I_R@V_{RWM} (μA)
UNI-POLAR	BI-POLAR		MIN	MAX				
1.5SMC91A	1.5SMC91CA	77.8	86.5	95.5	1	125	12.2	1
1.5SMC100A	1.5SMC100CA	85.5	95	105	1	137	11.1	1
1.5SMC110A	1.5SMC110CA	94	105	116	1	152	10	1
1.5SMC120A	1.5SMC120CA	102	114	126	1	165	9.2	1
1.5SMC130A	1.5SMC130CA	111	124	137	1	179	8.5	1
1.5SMC150A	1.5SMC150CA	128	143	158	1	207	7.3	1
1.5SMC160A	1.5SMC160CA	136	152	168	1	219	6.9	1
1.5SMC170A	1.5SMC170CA	145	162	179	1	234	6.5	1
1.5SMC180A	1.5SMC180CA	154	171	189	1	246	6.2	1
1.5SMC200A	1.5SMC200CA	171	190	210	1	274	5.5	1
1.5SMC220A	1.5SMC220CA	185	209	231	1	328	4.6	1
1.5SMC250A	1.5SMC250CA	214	237	263	1	344	4.4	1
1.5SMC300A	1.5SMC300CA	256	285	315	1	414	3.7	1
1.5SMC350A	1.5SMC350CA	300	332	368	1	482	3.2	1
1.5SMC400A	1.5SMC400CA	342	380	420	1	548	2.8	1
1.5SMC440A	1.5SMC440CA	376	418	462	1	602	2.5	1
1.5SMC480A	1.5SMC480CA	408	456	504	1	658	2.3	1
1.5SMC510A	1.5SMC510CA	434	485	535	1	698	2.1	1
1.5SMC530A	1.5SMC530CA	477	503.5	556.5	1	725	2.1	1
1.5SMC540A	1.5SMC540CA	459	513	567	1	740	2	1
1.5SMC550A	1.5SMC550CA	495	522.5	577.5	1	760	2	1

For bidirectional type VR of 10 volts and less, the IR limit is double.

Typical Characteristics

Figure 1: Peak Pulse Power Rating Curve

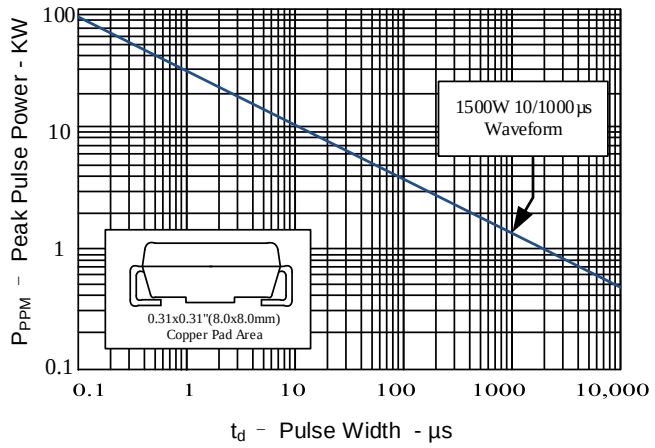


Figure 2: Pulse Derating Curve

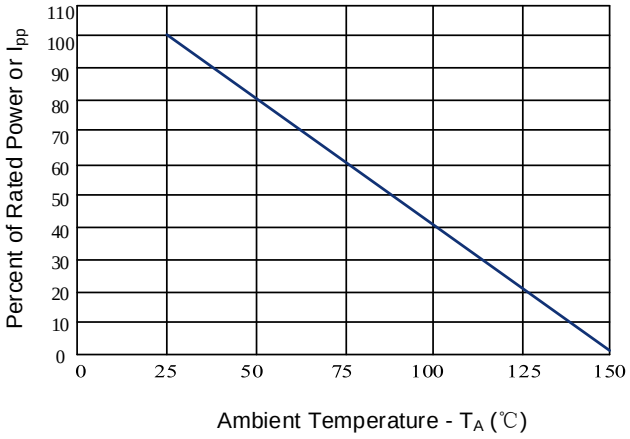


Figure 3: Pulse Waveform

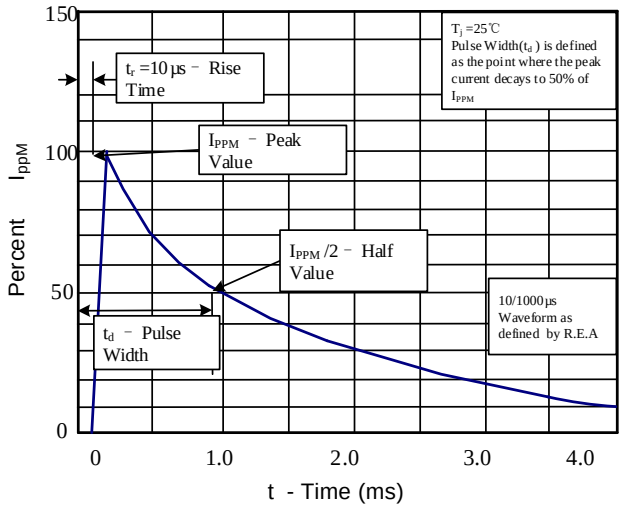


Figure 4: Typical Junction Capacitance

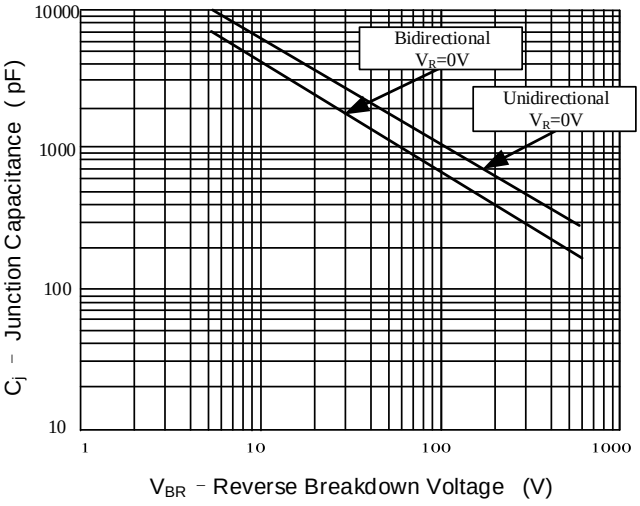


Figure 5: Steady State Power Dissipation Derating Curve

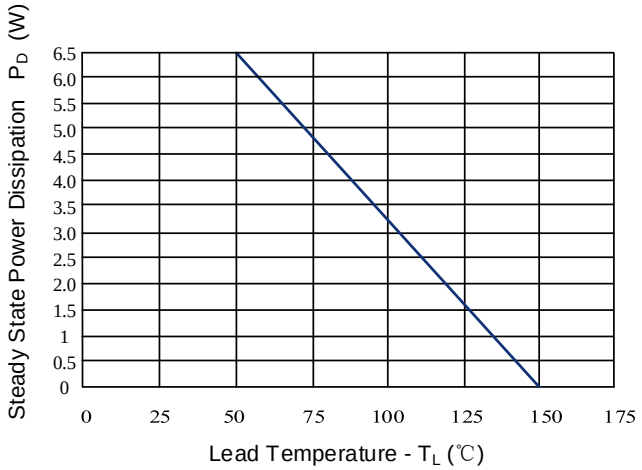
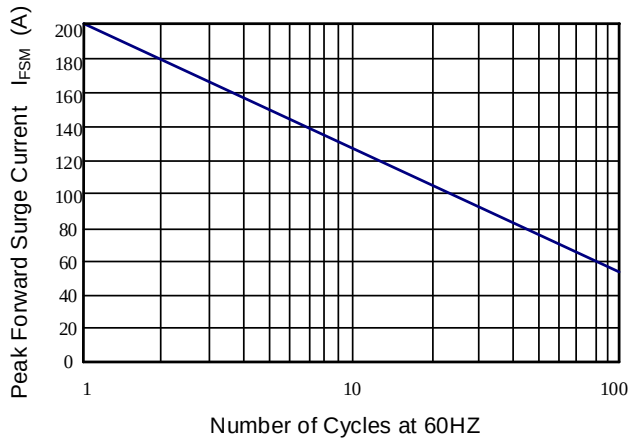
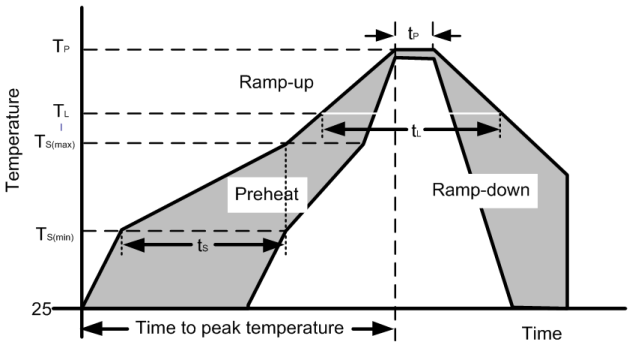


Figure 6: Maximum Non-Repetitive Forward Surge Current Only Unidirectional



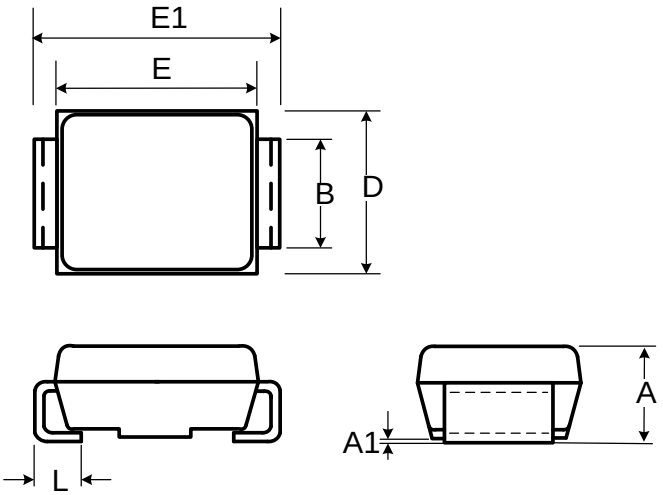
Recommended Soldering Parameters

Reflow Condition		
Pre-Heat	Temperature min ($T_{s(min)}$)	150°C
	Temperature max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60-190 s
Average ramp up rate (Liquidus Temp) (T_L) to peak		3°C/s max
Ts(max) to TL - Ramp-up Rate		3°C/s max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60-150 s
Peak Temperature (T_P)		$260^{+0/-5}$ °C
Time within actual peak Temperature (t_p)		20-40 s
Ramp-down Rate		5°C/s max
Time 25°C to peak Temperature (T_P)		8 minutes max
Do not exceed		260°C

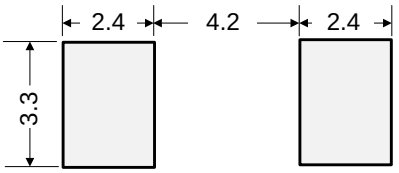


Outline Drawing – SMC(DO-214AB)

Ref.（mm）	Millimeters	
	Min.	Max.
A	2.06	2.70
A1	-	0.30
B	2.90	3.20
E	6.60	7.40
E1	7.75	8.13
D	5.59	6.22
L	0.76	1.52

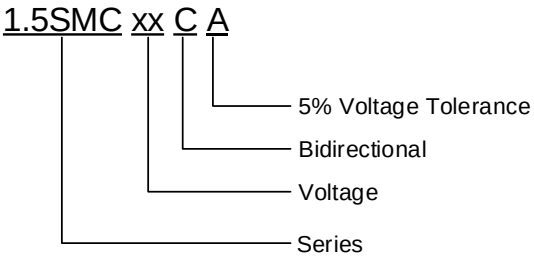


Recommended Solder Pad Layout

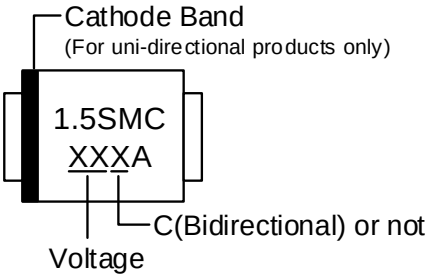


Dimensions in mm

Part Numbering System



Part Marking System



Package Information

Package Type	Description	Quantity（pcs）	Standard
SMC(DO-214AB)	Tape & Reel -16mm/13″ tape	3000	EIA-481-D

Contact Information

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The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
Users should verify actual device performance in their specific applications.