

Description

1.5SMC Series transient voltage suppressors are excellent overvoltage protective devices.

The Series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.



SMC (DO-214AB)

Features

- Excellent clamping capability
- Low leakage current
- High surge capability
- Glass passivated chip
- Epoxy resin package
- Built-in strain relief
- Will not fatigue
- RoHS Compliant
- Fast response time: typically less than 1.0ps from 0 Volts to VBR min

Mechanical Characteristics

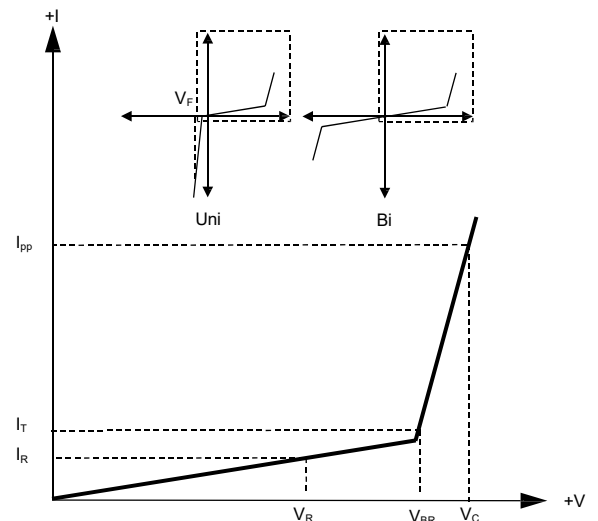
- Package: SMC plastic package.
- Lead Finish: Matte Tin
- Case Material: Epoxy Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020

Applications

- Telecom
- Computer
- Industrial electronic
- Consumer electronic

Electrical Parameters

Parameter	Definition
C_J	Junction Capacitance - typical capacitance measured with 0V or V_R bias
I_{PP}	Peak Pulse Current - maximum rated peak impulse current
V_C	Clamping Voltage - Peak voltage measured across the suppressor at a specified I_{ppm} (peak impulse current)
V_{BR}	Breakdown Voltage - Maximum voltage that flows though the TVS at a specified test current (I_T)
I_R	Leakage Current - maximum peak off-state current measured at V_R
V_R	Peak Off-state Voltage - maximum voltage that can be applied while maintaining off state



Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Units	Remarks
Peak Pulse Power Dissipation	P _{PPM}	1500	W	(Note1)(Note2)
Steady State Power Dissipation	P _D	6.5	W	(Note3)
Peak Forward Surge Current	I _{FSM}	200	A	(Note4)
Maximum Instantaneous Forward Voltage at 100A	V _{FM}	3.5/5	V	(Note5)
Typical Thermal Resistance Junction to Lead	R _{θJL}	15	°C/W	
Typical Thermal Resistance Junction to Ambient	R _{θJA}	75	°C/W	
Operating Temperature Range	T _J	-55 to 150	°C	
Storage Temperature Range	T _{STG}	-55 to 150	°C	

Notes1: Non-repetitive current pulse , 10/1000us Waveform.

Notes2: Mounted on copper pad area of 8×8mm to each terminal.

Notes3: Infinite HeatSink at T_L=50°C

Notes4: Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4 perminute maximum.

Notes5: For UnidirectionalOnly, V_{FM}<3.5V for V_{BR} ≤200V and V_{FM}<5.0V for V_{BR}≥201V.

Electrical Characteristics (TA=25°C unless otherwise)

Part Number (Uni)	Part Number (Bi)	Marking Code		Reverse Stand off Voltage V _R (V)	Breakdown Voltage V _{BR} @ I _T (V)		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{PP} (V)	Maximum Peak Pulse Current I _{PP} (A)	Maximun Reverse Leakage I _R @ V _R (μA)
		Uni	Bi		Min	Max				
1.5SMC6.8A	1.5SMC6.8CA	6V8A	6V8C	5.80	6.45	7.14	10	10.5	144.8	1000
1.5SMC7.5A	1.5SMC7.5CA	7V5A	7V5C	6.40	7.13	7.88	10	11.3	134.5	500
1.5SMC8.2A	1.5SMC8.2CA	8V2A	8V2C	7.02	7.79	8.61	10	12.1	125.6	200
1.5SMC9.1A	1.5SMC9.1CA	9V1A	9V1C	7.78	8.65	9.50	1	13.4	113.4	50
1.5SMC10A	1.5SMC10CA	10A	10C	8.55	9.50	10.50	1	14.5	104.8	10
1.5SMC11A	1.5SMC11CA	11A	11C	9.40	10.50	11.60	1	15.6	97.4	5
1.5SMC12A	1.5SMC12CA	12A	12C	10.20	11.40	12.60	1	16.7	91.0	5
1.5SMC13A	1.5SMC13CA	13A	13C	11.10	12.40	13.70	1	18.2	83.5	1
1.5SMC15A	1.5SMC15CA	15A	15C	12.80	14.30	15.80	1	21.2	71.7	1
1.5SMC16A	1.5SMC16CA	16A	16C	13.60	15.20	16.80	1	22.5	67.6	1
1.5SMC18A	1.5SMC18CA	18A	18C	15.30	17.10	18.90	1	25.2	60.3	1
1.5SMC20A	1.5SMC20CA	20A	20C	17.10	19.00	21.00	1	27.7	54.9	1
1.5SMC22A	1.5SMC22CA	22A	22C	18.80	20.90	23.10	1	30.6	49.7	1
1.5SMC24A	1.5SMC24CA	24A	24C	20.50	22.80	25.20	1	33.2	45.8	1
1.5SMC27A	1.5SMC27CA	27A	27C	23.10	25.70	28.40	1	37.5	40.5	1
1.5SMC30A	1.5SMC30CA	30A	30C	25.60	28.50	31.50	1	41.4	36.7	1
1.5SMC33A	1.5SMC33CA	33A	33C	28.20	31.40	34.70	1	45.7	33.3	1
1.5SMC36A	1.5SMC36CA	36A	36C	30.80	34.20	37.80	1	49.9	30.5	1

Electrical Characteristics (TA=25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Marking Code		Reverse Stand off Voltage V _R (V)	Breakdown Voltage V _{BR} @ I _T (V)		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{PP} (V)	Maximum Peak Pulse Current I _{PP} (A)	Maximun Reverse Leakage I _R @ V _R (μA)
		Uni	Bi		Min	Max				
1.5SMC39A	1.5SMC39CA	39A	39C	33.30	37.10	41.00	1	53.9	28.2	1
1.5SMC43A	1.5SMC43CA	43A	43C	36.80	40.90	45.20	1	59.3	25.6	1
1.5SMC47A	1.5SMC47CA	47A	47C	40.20	44.70	49.40	1	64.8	23.5	1
1.5SMC51A	1.5SMC51CA	51A	51C	43.60	48.50	53.60	1	70.1	21.7	1
1.5SMC56A	1.5SMC56CA	56A	56C	47.80	53.20	58.80	1	77.0	19.7	1
1.5SMC62A	1.5SMC62CA	62A	62C	53.00	58.90	65.10	1	85.0	17.9	1
1.5SMC68A	1.5SMC68CA	68A	68C	58.10	64.60	71.40	1	92.0	16.5	1
1.5SMC75A	1.5SMC75CA	75A	75C	64.10	71.30	78.80	1	103.0	14.8	1
1.5SMC82A	1.5SMC82CA	82A	82C	70.10	77.90	86.10	1	113.0	13.5	1
1.5SMC91A	1.5SMC91CA	91A	91C	77.80	86.50	95.50	1	125.0	12.2	1
1.5SMC100A	1.5SMC100CA	100A	100C	85.50	95.00	105.00	1	137.0	11.1	1
1.5SMC110A	1.5SMC110CA	110A	110C	94.00	105.00	116.00	1	152.0	10.0	1
1.5SMC120A	1.5SMC120CA	120A	120C	102.00	114.00	126.00	1	165.0	9.2	1
1.5SMC130A	1.5SMC130CA	130A	130C	111.00	124.00	137.00	1	179.0	8.5	1
1.5SMC150A	1.5SMC150CA	150A	150C	128.00	143.00	158.00	1	207.0	7.3	1
1.5SMC160A	1.5SMC160CA	160A	160C	136.00	152.00	168.00	1	219.0	6.9	1
1.5SMC170A	1.5SMC170CA	170A	170C	145.00	162.00	179.00	1	234.0	6.5	1
1.5SMC180A	1.5SMC180CA	180A	180C	154.00	171.00	189.00	1	246.0	6.2	1
1.5SMC200A	1.5SMC200CA	200A	200C	171.00	190.00	210.00	1	274.0	5.5	1
1.5SMC220A	1.5SMC220CA	220A	220C	185.00	209.00	231.00	1	328.0	4.6	1
1.5SMC250A	1.5SMC250CA	250A	250C	214.00	237.00	263.00	1	344.0	4.4	1
1.5SMC300A	1.5SMC300CA	300A	300C	256.00	285.00	315.00	1	414.0	3.7	1

Rating And Characteristic Curves (TA=25°C unless otherwise noted)

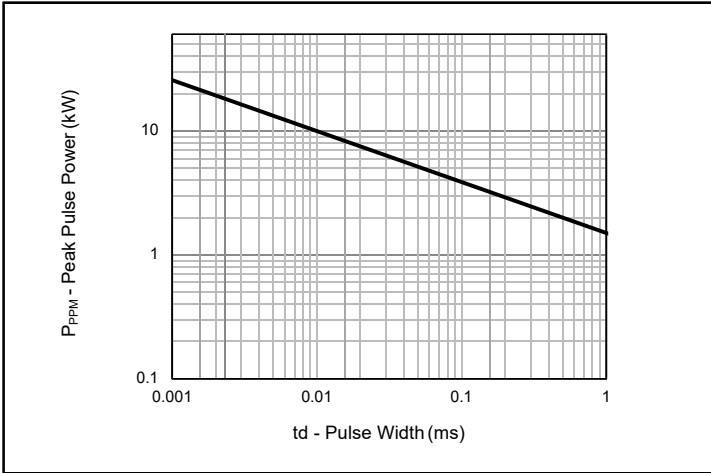


Fig.1 - Peak Pulse Power Rating

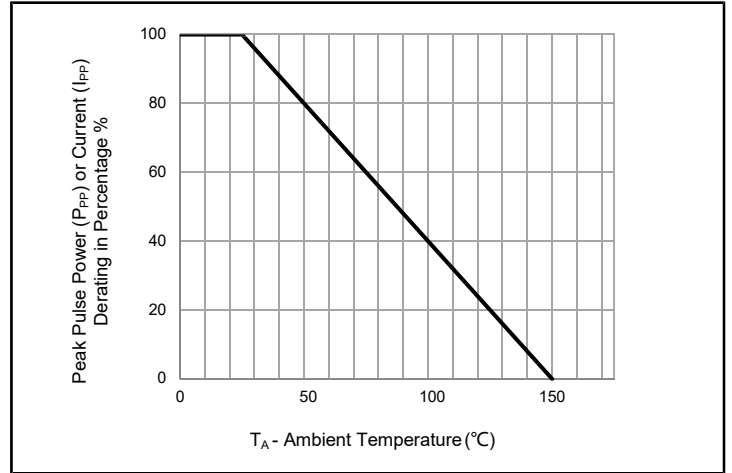


Fig.2 - Pulse Derating Curve

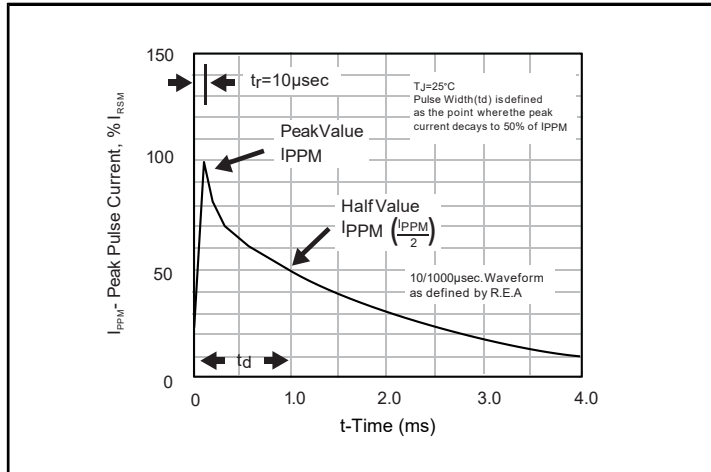


Fig.3 - Pulse Waveform

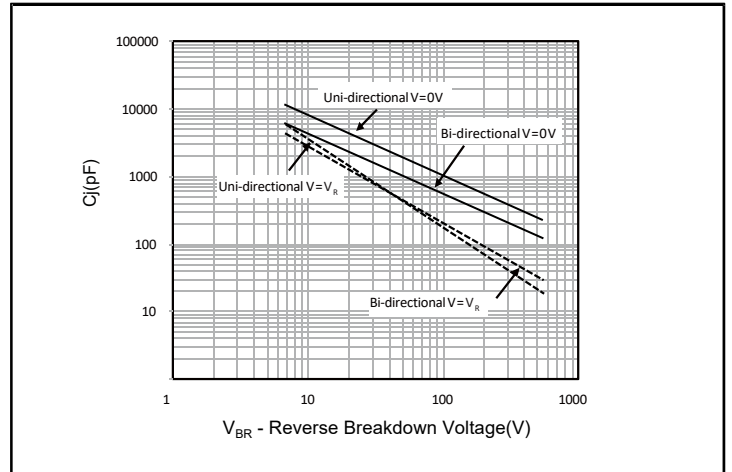


Fig.4 - Typical Junction Capacitance

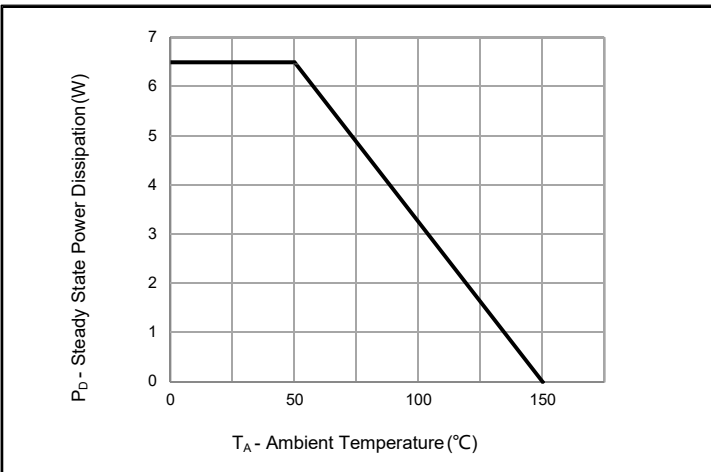


Fig.5 - Steady State Power Dissipation Derating Curve

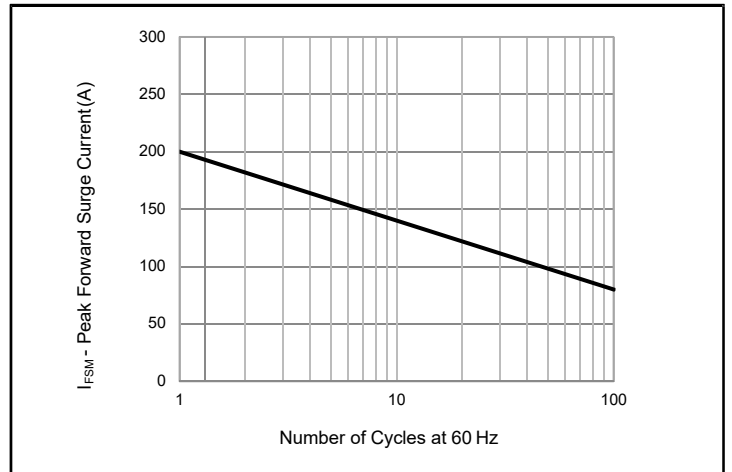
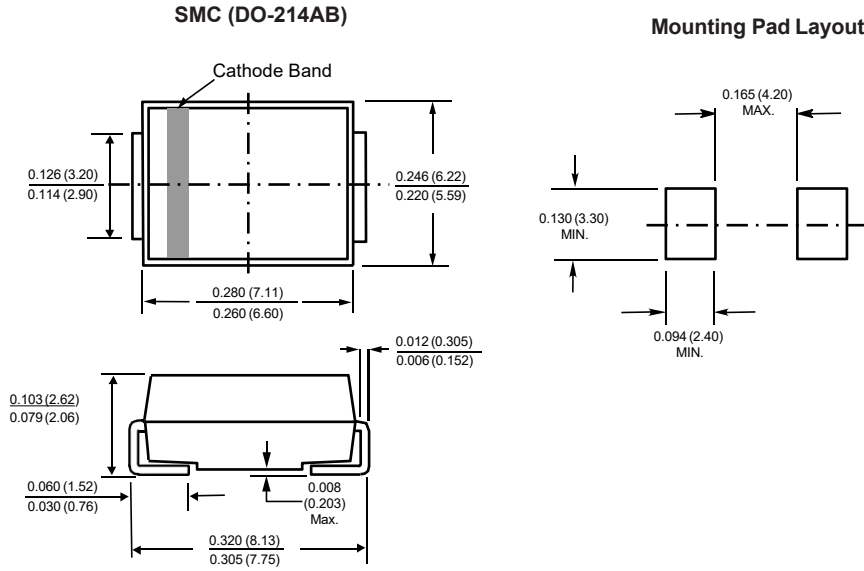
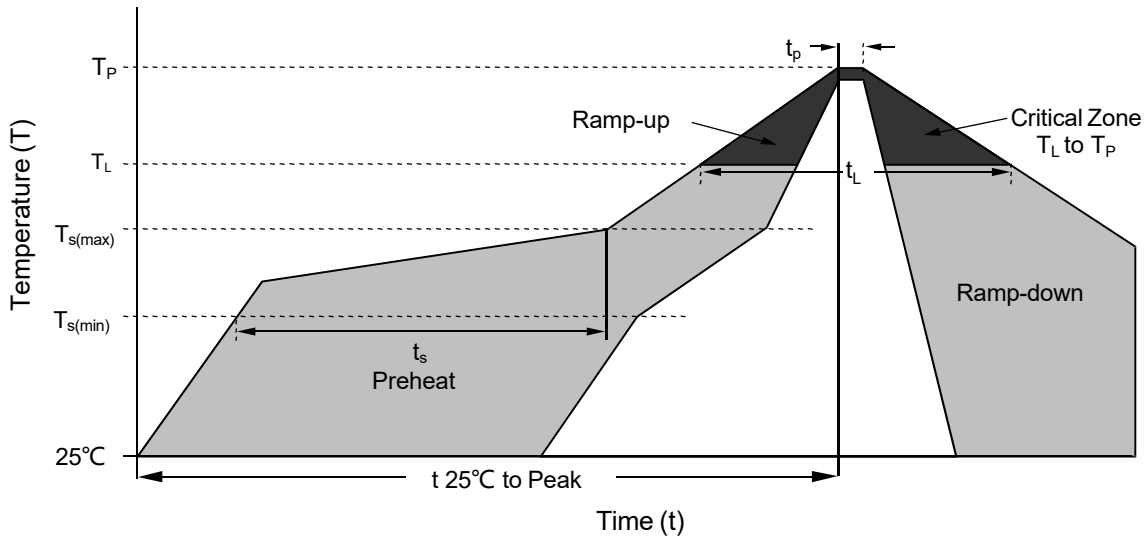


Fig.6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

Package Outline Dimensions in inches (millimeters)

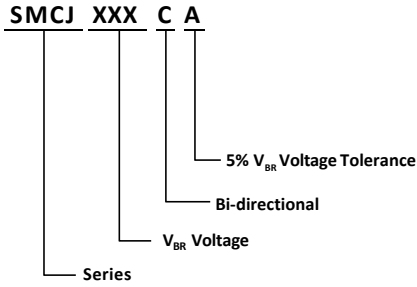


Soldering Parameters

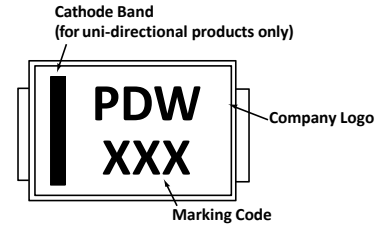


Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (t_L)	60 – 150 secs
Peak Temperature (T_P)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 secs
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (t)		8 minutes Max.
Do not exceed		260°C

Part Numbering System



Part Marking System



Summary of Packing Options

Package	Packing Description	Packing Quantity
SMC	Tape/Reel, 13" reel	3000

Tape and Reel Specification

