

Description

SMDJ 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

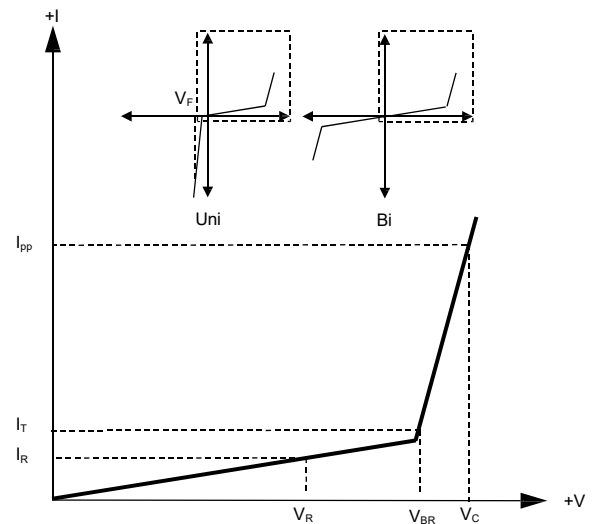
- Package: SMC plastic package.
- Lead Finish: Matte Tin
- Case Material: Epoxy Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020

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}	3000	W	(Note1)(Note2)
Steady State Power Dissipation	P _D	6.5	W	(Note3)
Peak Forward Surge Current	I _{FSM}	300	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 8x8mm 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				
SMDJ5.0A	SMDJ5.0CA	RDE	DDE	5	6.4	7	10	9.2	326.1	800
SMDJ6.0A	SMDJ6.0CA	RDG	DDG	6	6.67	7.37	10	10.3	291.3	800
SMDJ6.5A	SMDJ6.5CA	RDK	DDK	6.5	7.22	7.98	10	11.2	267.9	500
SMDJ7.0A	SMDJ7.0CA	PDM	DDM	7	7.78	8.6	10	12	250	200
SMDJ7.5A	SMDJ7.5CA	PDP	DDP	7.5	8.33	9.21	1	12.9	232.6	100
SMDJ8.0A	SMDJ8.0CA	PDR	DDR	8	8.89	9.83	1	13.6	220.6	50
SMDJ8.5A	SMDJ8.5CA	PDT	DDT	8.5	9.44	10.4	1	14.4	208.3	20
SMDJ9.0A	SMDJ9.0CA	PDV	DDV	9	10	11.1	1	15.4	194.8	10
SMDJ10A	SMDJ10CA	PDX	DDX	10	11.1	12.3	1	17	176.5	5
SMDJ11A	SMDJ11CA	PDZ	DDZ	11	12.2	13.5	1	18.2	164.8	2
SMDJ12A	SMDJ12CA	PEE	DEE	12	13.3	14.7	1	19.9	150.8	2
SMDJ13A	SMDJ13CA	PEG	DEG	13	14.4	15.9	1	21.5	139.5	2
SMDJ14A	SMDJ14CA	PEK	DEK	14	15.6	17.2	1	23.2	129.3	2
SMDJ15A	SMDJ15CA	PEM	DEM	15	16.7	18.5	1	24.4	123	2
SMDJ16A	SMDJ16CA	PEP	DEP	16	17.8	19.7	1	26	115.4	2
SMDJ17A	SMDJ17CA	PER	DER	17	18.9	20.9	1	27.6	108.7	2
SMDJ18A	SMDJ18CA	PET	DET	18	20	22.1	1	29.2	102.7	2
SMDJ20A	SMDJ20CA	PEV	DEV	20	22.2	24.5	1	32.4	92.6	2

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)	Maximum Reverse Leakage I _R @ V _R (μA)
		Uni	Bi		Min	Max				
SMDJ22A	SMDJ22CA	GEX	BEX	22	24.4	26.9	1	35.5	42.3	1
SMDJ24A	SMDJ24CA	GEZ	BEZ	24	26.7	29.5	1	38.9	38.6	1
SMDJ26A	SMDJ26CA	GFE	BFE	26	28.9	31.9	1	42.1	35.7	1
SMDJ28A	SMDJ28CA	GFG	BFG	28	31.1	34.4	1	45.4	33.1	1
SMDJ30A	SMDJ30CA	GFK	BFK	30	33.3	36.8	1	48.4	31	1
SMDJ33A	SMDJ33CA	GFM	BFM	33	36.7	40.6	1	53.3	28.2	1
SMDJ36A	SMDJ36CA	GFP	BFP	36	40	44.2	1	58.1	25.9	1
SMDJ40A	SMDJ40CA	GFR	BFR	40	44.4	49.1	1	64.5	23.3	1
SMDJ43A	SMDJ43CA	GFT	BFT	43	47.8	52.8	1	69.4	21.7	1
SMDJ45A	SMDJ45CA	GFV	BFV	45	50	55.3	1	72.7	20.6	1
SMDJ48A	SMDJ48CA	GFX	BFX	48	53.3	58.9	1	77.4	19.4	1
SMDJ51A	SMDJ51CA	GFZ	BFZ	51	56.7	62.7	1	82.4	18.2	1
SMDJ54A	SMDJ54CA	GGE	BGE	54	60	66.3	1	87.1	17.3	1
SMDJ58A	SMDJ58CA	GGG	BGG	58	64.4	71.2	1	93.6	16.1	1
SMDJ60A	SMDJ60CA	GGK	BGK	60	66.7	73.7	1	96.8	15.5	1
SMDJ64A	SMDJ64CA	GGM	BGM	64	71.1	78.6	1	103	14.6	1
SMDJ70A	SMDJ70CA	GGP	BGP	70	77.8	86	1	113	13.3	1
SMDJ75A	SMDJ75CA	GGR	BGR	75	83.3	92.1	1	121	12.4	1
SMDJ78A	SMDJ78CA	GGT	BGT	78	86.7	95.8	1	126	11.9	1
SMDJ85A	SMDJ85CA	GGV	BGV	85	94.4	104	1	137	11	1
SMDJ90A	SMDJ90CA	GGX	BGX	90	100	111	1	146	10.3	1
SMDJ100A	SMDJ100CA	GGZ	BGZ	100	111	123	1	162	9.3	1
SMDJ110A	SMDJ110CA	GHE	BHE	110	122	135	1	177	8.5	1
SMDJ120A	SMDJ120CA	GHG	BHG	120	133	147	1	193	7.8	1
SMDJ130A	SMDJ130CA	GHK	BHK	130	144	159	1	209	7.2	1
SMDJ150A	SMDJ150CA	GHM	BHM	150	167	185	1	243	6.2	1
SMDJ160A	SMDJ160CA	GHP	BHP	160	178	197	1	259	5.8	1
SMDJ170A	SMDJ170CA	GHR	BHR	170	189	209	1	275	5.5	1
SMDJ180A	SMDJ180CA	GHT	BHT	180	201	222	1	292	5.1	1
SMDJ200A	SMDJ200CA	GHV	BHV	200	224	247	1	324	4.6	1
SMDJ220A	SMDJ220CA	GHX	BHX	220	246	272	1	356	4.2	1
SMDJ250A	SMDJ250CA	GHZ	BHZ	250	279	309	1	405	3.7	1
SMDJ300A	SMDJ300CA	GJE	BJE	300	335	371	1	486	3.1	1
SMDJ350A	SMDJ350CA	GJG	BJG	350	391	432	1	567	2.6	1
SMDJ400A	SMDJ400CA	GJK	BJK	400	447	494	1	648	2.3	1
SMDJ440A	SMDJ440CA	GJM	BJM	440	492	543	1	713	2.1	1

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

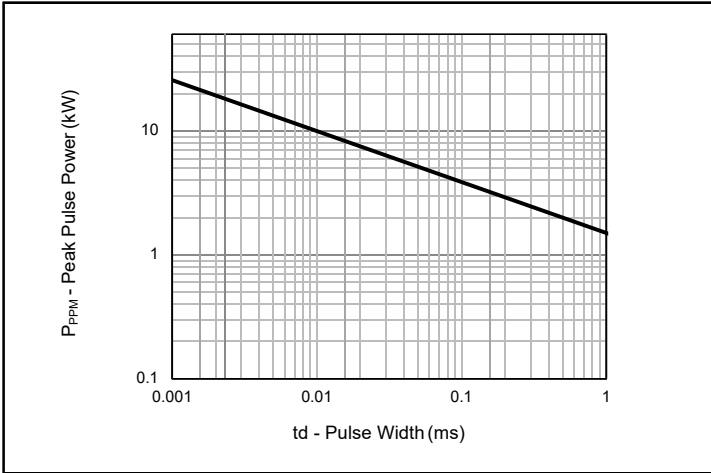


Fig.1 - Peak Pulse Power Rating

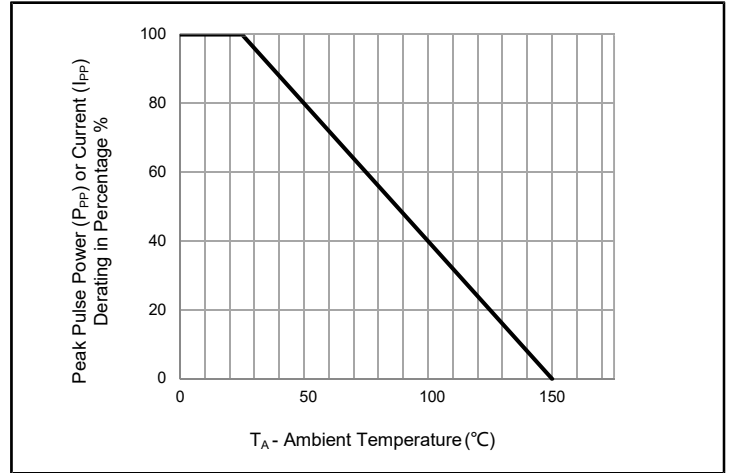


Fig.2 - Pulse Derating Curve

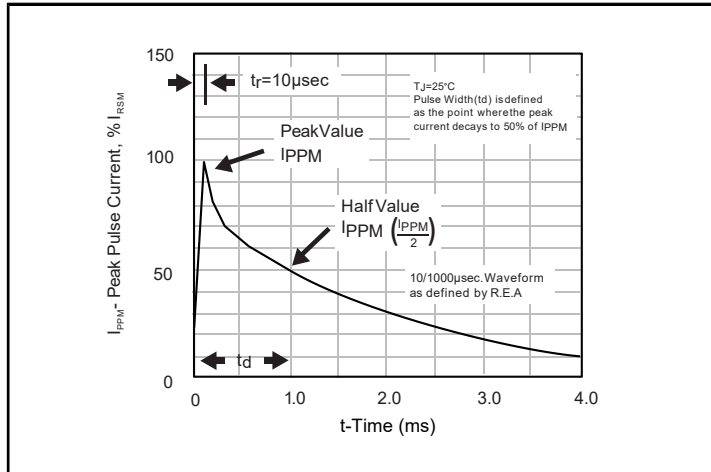


Fig.3 - Pulse Waveform

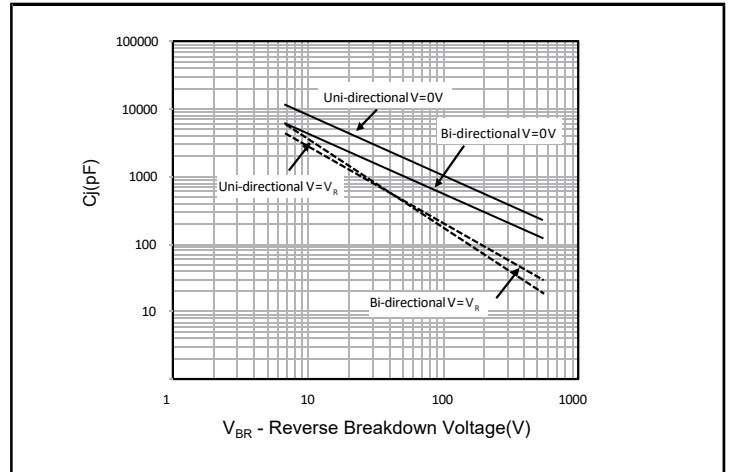


Fig.4 - Typical Junction Capacitance

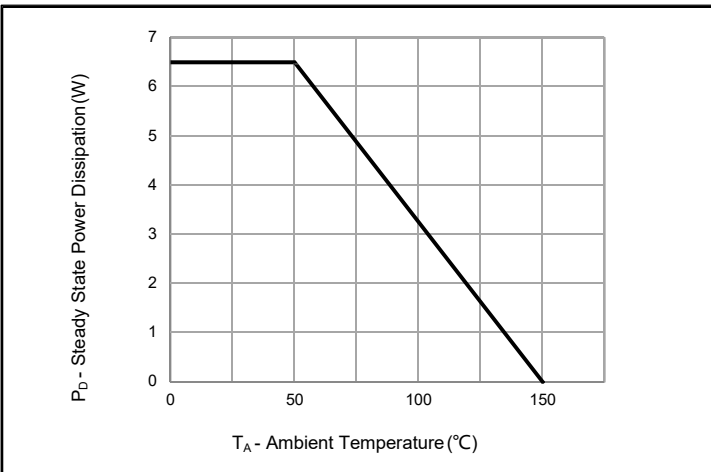


Fig.5 - Steady State Power Dissipation Derating Curve

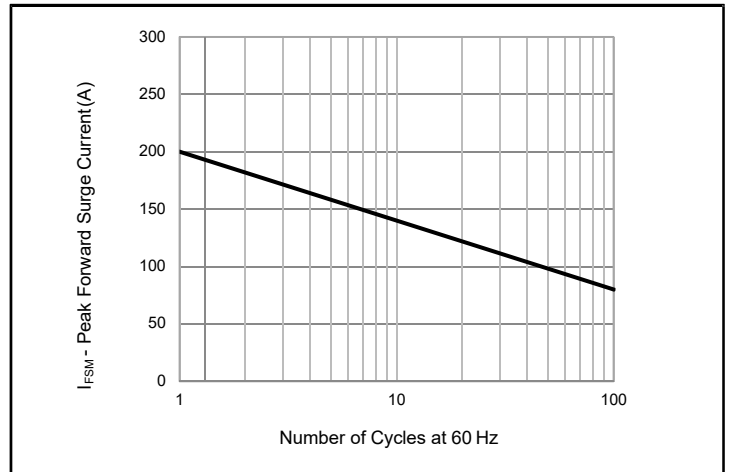
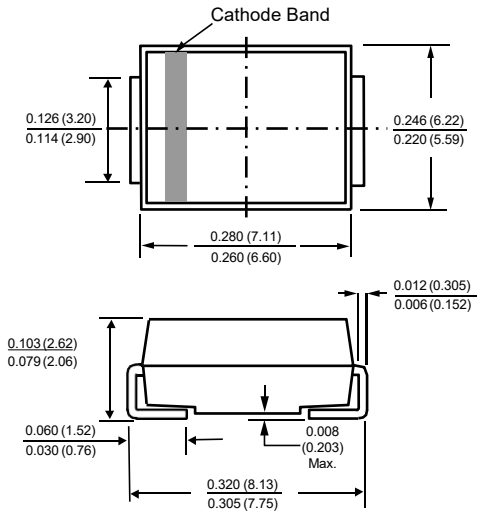


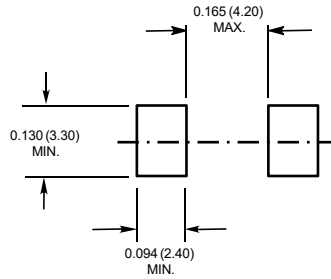
Fig.6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

Package Outline Dimensions in inches (millimeters)

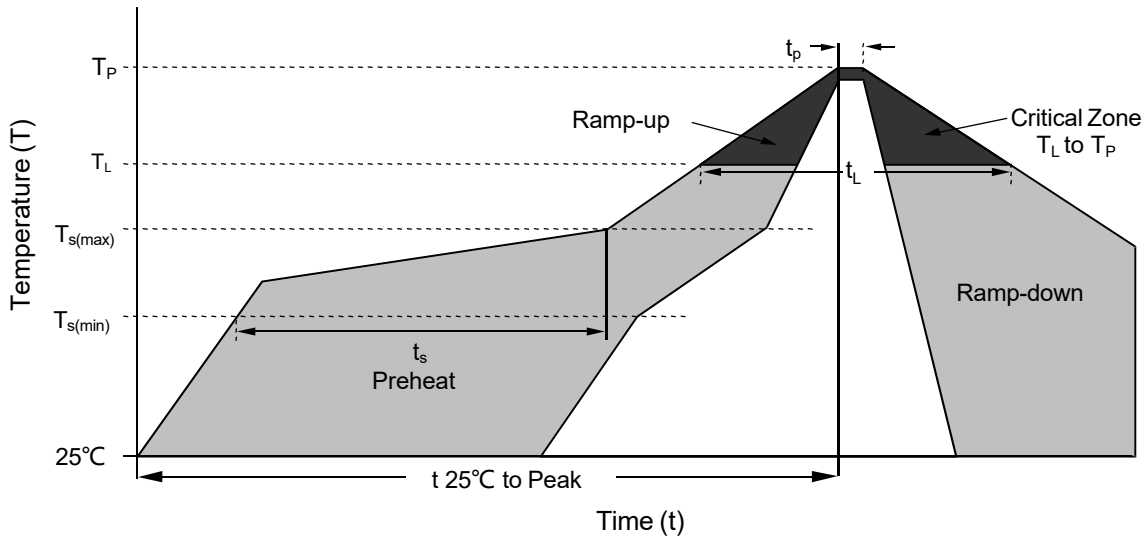
SMC (DO-214AB)



Mounting Pad Layout

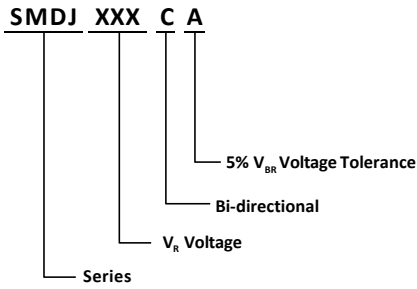


Soldering Parameters

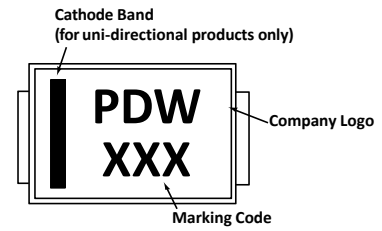


Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (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

