

Transient Voltage Suppressors (TVS) Data Sheet

Description

The 5.0SMDJ series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events

Features

- For surface mounted applications in order to optimize board space
- Low leakage
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- 5000W peak pulse power capability at 10/1000μs waveform
- Fast response time
- Typical IR less than 5μA above 22V
- High Temperature soldering: 260°C /10 seconds at terminals
- Typical maximum temperature coefficient $\Delta V_{BR} = 0.1\% \times V_{BR}@25^{\circ}\text{C} \times \Delta T$
- Plastic package has Underwriters Laboratory Flammability 94V-0
- Matte tin lead-free Plated
- Meets MSL level 1, per J-STD-020
- Halogen free and RoHS compliant
- Whisker test is conducted based on JEDEC JESD201A per its table 4a and 4c
- IEC 61000-4-2 ESD 30KV(Air),30KV(contact)

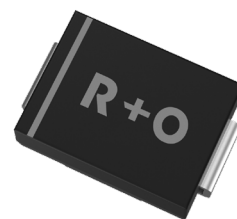
Breakdown Voltage

11.0 to 180 V

Peak Pulse Power

5000 W

DO-214AB(SMC)



Bi-directional



Uni-directional



Applications

TVS devices are ideal for the protection of I/O interfaces, AC/DC power supply, Low frequency signal transmission line (RS232, RS485, etc.)

Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	VALUE	SYMBOL
Peak Pulse Power Dissipation with a 10/1000μs waveform (Fig.1)(Note 1), (Note 2)	P_{PPM}	5000	W
Peak Pulse Current with a 10/1000μs waveform.(Note1, Fig.3)	I_{PP}	See Next Table	A
Power Dissipation on Infinite Heat Sink at Ta=75° C(Fig.5)	$P_{M(AV)}$	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3, Fig.5)	I_{FSM}	300	A
Operating junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C
Typical thermal resistance junction to lead	$R_{\theta J-L}$	15	°C /W
Typical thermal resistance junction to ambient	$R_{\theta J-A}$	75	°C /W

Note :

(1) Non-repetitive current pulse, per Fig. 3 and derated above Ta = 25°C per Fig. 2.

(2) Mounted on 8.0mm x 8.0mm Copper Pads to each terminal.

(3) 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

5.0SMDJ SERIES

5000W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS

● Package Outline Dimensions (SMC/DO-214AB)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.85	3.27	0.112	0.129
B	6.60	7.11	0.261	0.281
C	5.59	6.22	0.221	0.246
D	1.99	2.61	0.078	0.103
E	0.76	1.52	0.030	0.060
F	-	0.20	-	0.008
G	7.75	8.13	0.306	0.321
H	0.15	0.31	0.006	0.012

● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
M	3.82	-	0.151	-
J	3.03	-	0.120	-
K	-	3.84	-	0.152

● Electrical Characteristics (Ta=25°C Unless otherwise specified)

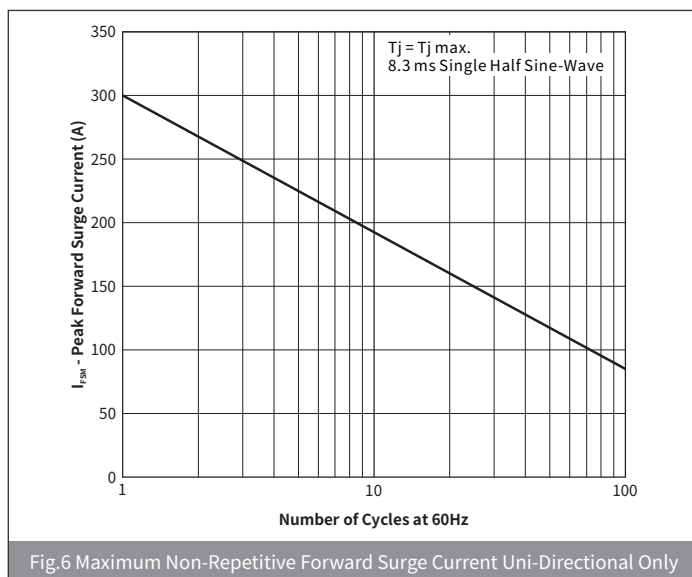
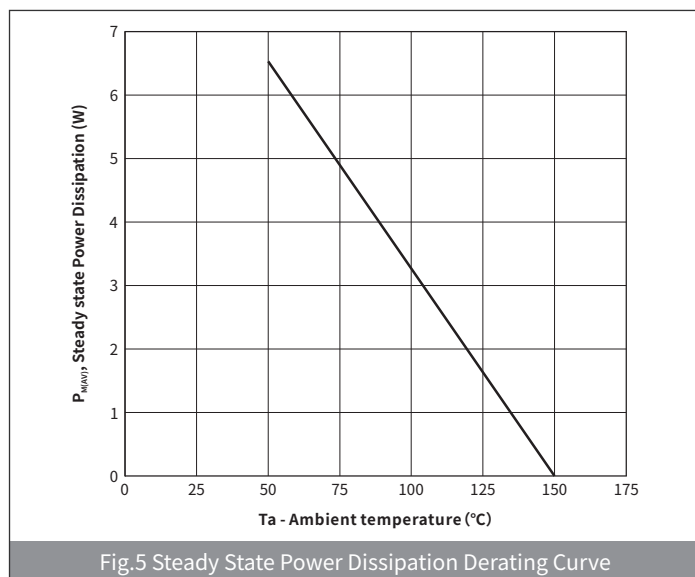
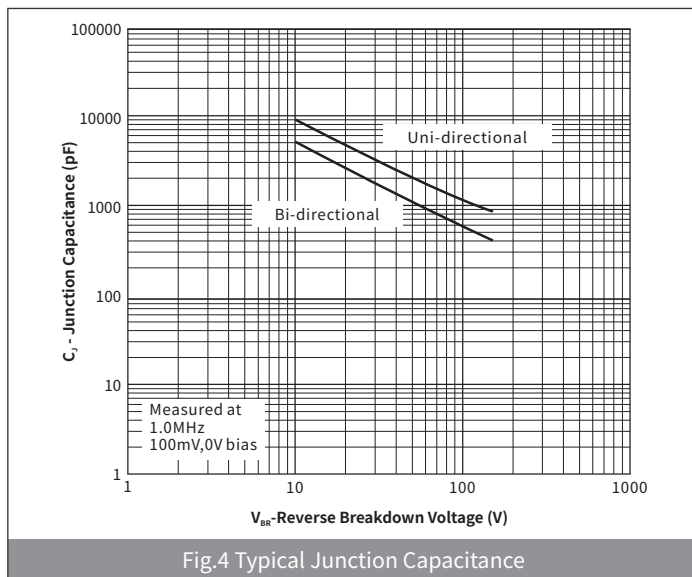
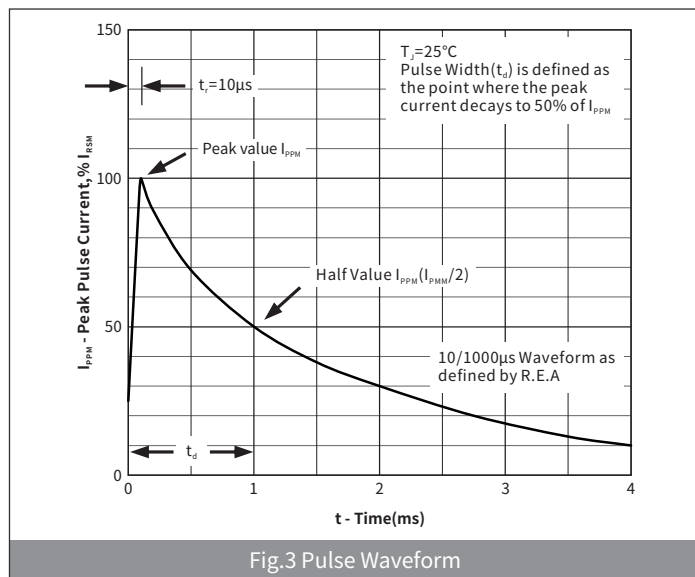
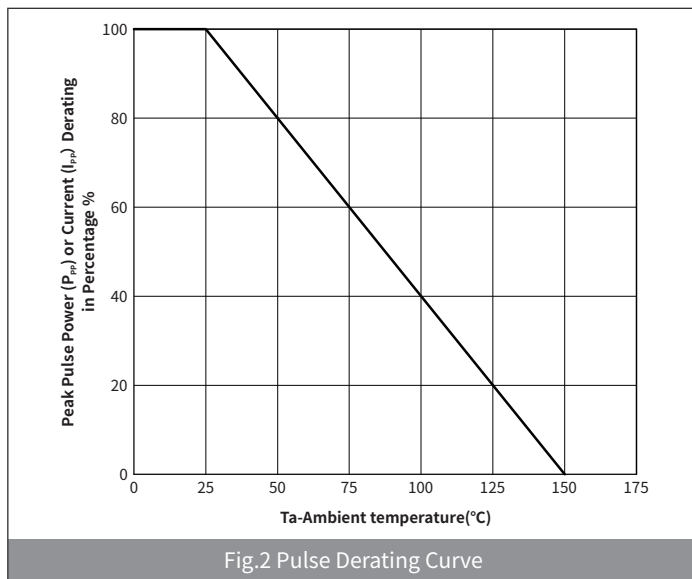
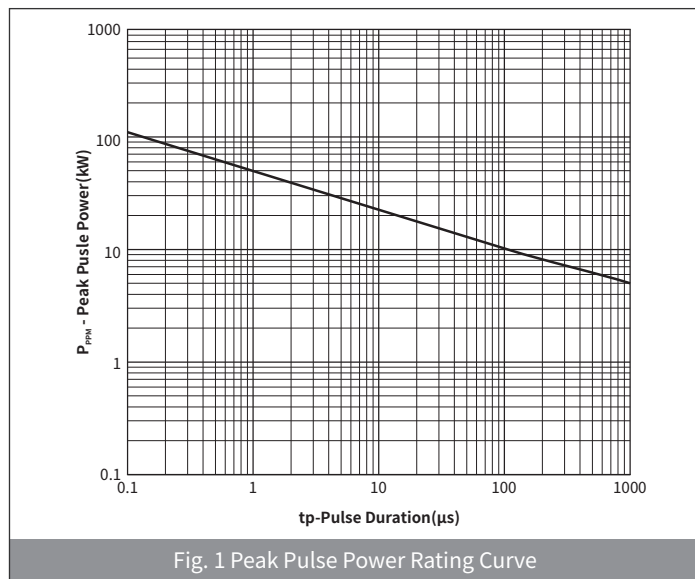
Part Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage V_{BR} (V) @ I_T		Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current	Reverse Leakage @ V_{RWM}
Uni	Bi	Uni	Bi	V_{RWM} (V)	Min.	Max.	I_T (mA)	V_C (V)	I_{PP} (A)	I_R (μ A)
5.0SMDJ11A	5.0SMDJ11CA	5PEN	5BEN	11	12.20	13.50	10	18.2	274.7	800
5.0SMDJ12A	5.0SMDJ12CA	5PEP	5BEP	12	13.30	14.70	10	19.9	251.3	800
5.0SMDJ13A	5.0SMDJ13CA	5PEQ	5BEQ	13	14.40	15.90	10	21.5	232.6	500
5.0SMDJ14A	5.0SMDJ14CA	5PER	5BER	14	15.60	17.20	10	23.2	215.5	200
5.0SMDJ15A	5.0SMDJ15CA	5PES	5BES	15	16.70	18.50	1	24.4	204.9	100
5.0SMDJ16A	5.0SMDJ16CA	5PET	5BET	16	17.80	19.70	1	26.0	192.3	50
5.0SMDJ17A	5.0SMDJ17CA	5PEU	5BEU	17	18.90	20.90	1	27.6	181.2	20
5.0SMDJ18A	5.0SMDJ18CA	5PEV	5BEV	18	20.0	22.10	1	29.2	171.2	10
5.0SMDJ20A	5.0SMDJ20CA	5PEW	5BEW	20	22.20	24.50	1	32.4	154.3	5
5.0SMDJ22A	5.0SMDJ22CA	5PEX	5BEX	22	24.4	26.90	1	35.5	140.8	5
5.0SMDJ24A	5.0SMDJ24CA	5PEZ	5BEZ	24	26.70	29.50	1	38.9	128.5	5
5.0SMDJ26A	5.0SMDJ26CA	5PFE	5BFE	26	28.90	31.90	1	42.1	118.8	5
5.0SMDJ28A	5.0SMDJ28CA	5PFG	5BFG	28	31.10	34.40	1	45.4	110.1	5
5.0SMDJ30A	5.0SMDJ30CA	5PFK	5BFK	30	33.30	36.80	1	48.4	103.3	5
5.0SMDJ33A	5.0SMDJ33CA	5PFM	5BFM	33	36.70	40.60	1	53.3	93.8	5
5.0SMDJ36A	5.0SMDJ36CA	5PFP	5BFP	36	40.0	44.20	1	58.1	86.1	5

● Electrical Characteristics (Ta=25°C Unless otherwise specified)

Part Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage V _{BR} (V) @I _T		Test Current	Maximum Clamping Voltage@I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
Uni	Bi	Uni	Bi	V _{RWM} (V)	Min.	Max.	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μA)
5.0SMDJ40A	5.0SMDJ40CA	5PFR	5BFR	40	44.40	49.10	1	64.5	77.5	5
5.0SMDJ43A	5.0SMDJ43CA	5PFT	5BFT	43	47.80	52.80	1	69.4	72.0	5
5.0SMDJ45A	5.0SMDJ45CA	5PFV	5BFV	45	50.0	55.30	1	72.7	68.8	5
5.0SMDJ48A	5.0SMDJ48CA	5PFX	5BFX	48	53.30	58.90	1	77.4	64.6	5
5.0SMDJ51A	5.0SMDJ51CA	5PFZ	5BFZ	51	56.70	62.70	1	82.4	60.7	5
5.0SMDJ54A	5.0SMDJ54CA	5PGE	5BGE	54	60.0	66.30	1	87.1	57.4	5
5.0SMDJ58A	5.0SMDJ58CA	5PGG	5BGG	58	64.40	71.20	1	93.6	53.4	5
5.0SMDJ60A	5.0SMDJ60CA	5PGK	5BGK	60	66.70	73.70	1	96.8	51.7	5
5.0SMDJ64A	5.0SMDJ64CA	5PGM	5BGM	64	71.10	78.60	1	103.0	48.5	5
5.0SMDJ70A	5.0SMDJ70CA	5PGP	5BGP	70	77.80	86.0	1	113.0	44.2	5
5.0SMDJ75A	5.0SMDJ75CA	5PGR	5BGR	75	83.30	92.10	1	121.0	41.3	5
5.0SMDJ78A	5.0SMDJ78CA	5PGT	5BGT	78	86.70	95.80	1	126.0	39.7	5
5.0SMDJ85A	5.0SMDJ85CA	5PGV	5BGV	85	94.40	104.0	1	137.0	36.5	5
5.0SMDJ90A	5.0SMDJ90CA	5PGX	5BGX	90	100.0	111.0	1	146.0	34.2	5
5.0SMDJ100A	5.0SMDJ100CA	5PGZ	5BGZ	100	111.0	123.0	1	162.0	30.9	5
5.0SMDJ110A	5.0SMDJ110CA	5PHE	5BHE	110	122.0	135.0	1	177.0	28.2	5
5.0SMDJ120A	5.0SMDJ120CA	5PHG	5BHG	120	133.0	147.0	1	193.0	26.0	5
5.0SMDJ130A	5.0SMDJ130CA	5PHK	5BHK	130	144.0	159.0	1	209.0	24.0	5
5.0SMDJ150A	5.0SMDJ150CA	5PHM	5BHM	150	155.0	171.0	1	226.8	22.0	5
5.0SMDJ160A	5.0SMDJ160CA	5PHP	5BHP	160	167.0	185.0	1	243.0	20.6	5
5.0SMDJ170A	5.0SMDJ170CA	5PHR	5BHR	170	178.0	197.0	1	259.0	19.3	5
5.0SMDJ180A	5.0SMDJ180CA	5PHT	5BHT	180	189.0	209.0	1	275.0	18.2	5

Note :
(1)Suffix 'A ' denotes 5% tolerance device.
(2)Add suffix ' CA ' after part number to specify Bi-directional devices.
(3)For Bi-Directional devices having VR of 18 volts and less, the IR limit is double.

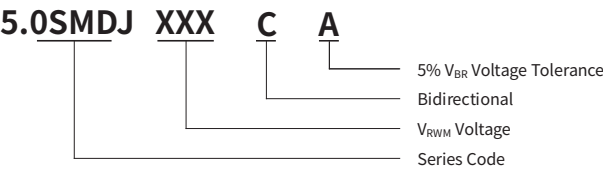
● Ratings And Characteristics Curves ($T_a=25^\circ\text{C}$ Unless otherwise specified)



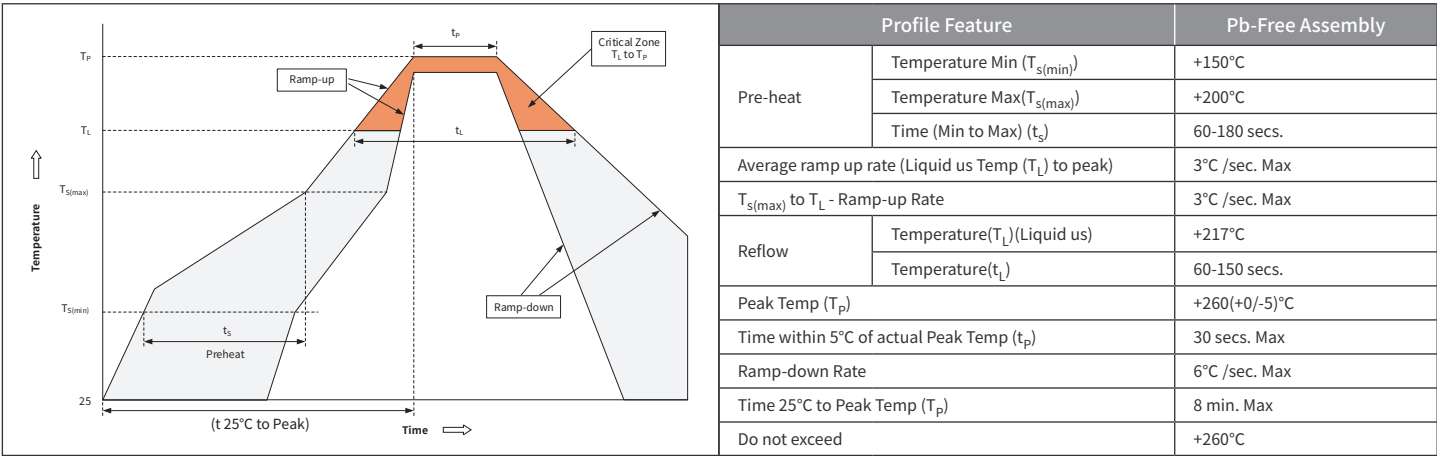
● Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SMC	R3	0.257	3000	6000	48000	13"

● Part Numbering



● Soldering Parameters



● Packaging (SMC/DO-214AB)

