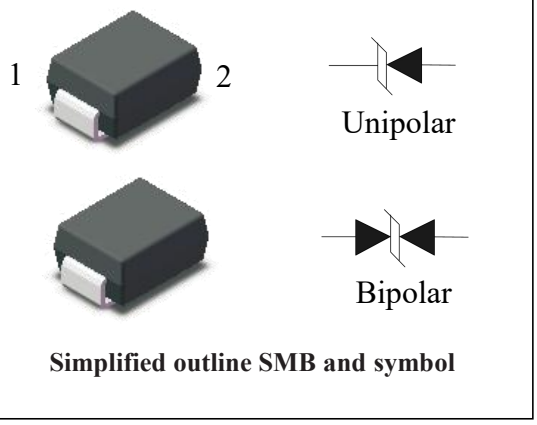
SMBJxx(C)A

Power Transient Voltage Suppressor

Features

- 600 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



Simplified outline SMB and symbol

Mechanical Characteristics

- JEDEC DO-214AA 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}	600	Watts
Peak pulse current (10/1000μs) (see Note2&3)	I_{PPM}	See Electrical Characteristics	A
Peak Forward surge current (see Note4&5)	I_{FSM}	100	A
Power Dissipation on infinite heat sink T_L = 50 °C (Fig5)	P_D	5.0	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.

Electrical Characteristics

Part Number		Reverse Stand off Voltage V_{RWM}	Breakdown Voltage V_{BR}(Volts)@I_T		Test Current I_T	Maximum Clamping Voltage V_c@I_{PP}	Maximum Peak Pulse Current I_{PP}	Maximum Reverse Leakage I_R@V_{RWM}
UNI-POLAR	BI-POLAR	(Volts)	MIN	MAX	(mA)	(Volts)	(Amps)	(μA)
SMBJ6.8A	SMBJ6.8CA	5.80	6.45	7.14	10	10.5	58.1	1000
SMBJ7.5A	SMBJ7.5CA	6.40	7.13	7.88	10	11.3	54.0	500
SMBJ8.2A	SMBJ8.2CA	7.02	7.79	8.61	10	12.1	50.4	200
SMBJ9.1A	SMBJ9.1CA	7.78	8.65	9.55	1	13.4	45.5	50
SMBJ10A	SMBJ10CA	8.55	9.50	10.50	1	14.5	42.1	10
SMBJ11A	SMBJ11CA	9.40	10.50	11.60	1	15.6	39.1	5
SMBJ12A	SMBJ12CA	10.20	11.40	12.60	1	16.7	36.5	5
SMBJ13A	SMBJ13CA	11.10	12.40	13.70	1	18.2	33.5	1
SMBJ15A	SMBJ15CA	12.80	14.30	15.80	1	21.2	28.8	1
SMBJ16A	SMBJ16CA	13.60	15.20	16.80	1	22.5	27.1	1
SMBJ18A	SMBJ18CA	15.30	17.10	18.90	1	25.5	24.2	1
SMBJ20A	SMBJ20CA	17.10	19.00	21.00	1	27.7	22.0	1
SMBJ22A	SMBJ22CA	18.80	20.90	23.10	1	30.6	19.9	1
SMBJ24A	SMBJ24CA	20.50	22.80	25.20	1	33.2	18.4	1
SMBJ27A	SMBJ27CA	23.10	25.70	28.40	1	37.5	16.3	1
SMBJ30A	SMBJ30CA	25.60	28.50	31.50	1	41.4	14.7	1
SMBJ33A	SMBJ33CA	28.20	31.40	34.70	1	45.7	13.3	1
SMBJ36A	SMBJ36CA	30.80	34.20	37.80	1	49.9	12.2	1
SMBJ39A	SMBJ39CA	33.30	37.10	41.00	1	53.9	11.3	1
SMBJ43A	SMBJ43CA	36.80	40.90	45.20	1	59.3	10.3	1
SMBJ47A	SMBJ47CA	40.20	44.70	49.40	1	64.8	9.4	1
SMBJ51A	SMBJ51CA	43.60	48.50	53.60	1	70.1	8.7	1
SMBJ56A	SMBJ56CA	47.80	53.20	58.80	1	77.0	7.9	1
SMBJ62A	SMBJ62CA	53.00	58.90	65.10	1	85.0	7.2	1
SMBJ68A	SMBJ68CA	58.10	64.60	71.40	1	92.0	6.6	1
SMBJ75A	SMBJ75CA	64.10	71.30	78.80	1	103.0	5.9	1
SMBJ82A	SMBJ82CA	70.10	77.90	86.10	1	113.0	5.4	1
SMBJ91A	SMBJ91CA	77.80	86.50	95.50	1	125.0	4.9	1

Electrical Characteristics (Cont.)

Part Number		Reverse Stand off Voltage V_{RWM}	Breakdown Voltage V_{BR}(Volts)@I_T		Test Current I_T	Maximum Clamping Voltage V_c@I_{PP}	Maximum Peak Pulse Current I_{PP}	Maximum Reverse Leakage I_R@V_{RWM}
UNI-POLAR	BI-POLAR	(Volts)	MIN	MAX	(mA)	(Volts)	(Amps)	(μA)
SMBJ100A	SMBJ100CA	85.50	95.00	105.00	1	137.0	4.5	1
SMBJ110A	SMBJ110CA	94.00	105.00	116.00	1	152.0	4.0	1
SMBJ120A	SMBJ120CA	102.00	114.00	126.00	1	165.0	3.7	1
SMBJ130A	SMBJ130CA	111.00	124.00	137.00	1	179.0	3.4	1
SMBJ150A	SMBJ150CA	128.00	143.00	158.00	1	207.0	2.9	1
SMBJ160A	SMBJ160CA	136.00	152.00	168.00	1	219.0	2.8	1
SMBJ170A	SMBJ170CA	145.00	162.00	179.00	1	234.0	2.6	1
SMBJ180A	SMBJ180CA	154.00	171.00	189.00	1	246.0	2.5	1
SMBJ200A	SMBJ200CA	171.00	190.00	210.00	1	274.0	2.2	1
SMBJ220A	SMBJ220CA	185.00	209.00	231.00	1	328.0	1.9	1
SMBJ250A	SMBJ250CA	214.00	237.00	263.00	1	344.0	1.8	1
SMBJ300A	SMBJ300CA	256.00	285.00	315.00	1	414.0	1.5	1
SMBJ350A	SMBJ350CA	300.00	332.00	368.00	1	482.0	1.3	1
SMBJ400A	SMBJ400CA	342.00	380.00	420.00	1	548.0	1.1	1
SMBJ440A	SMBJ440CA	376.00	418.00	462.00	1	602.0	1.0	1
SMBJ480A	SMBJ480CA	408.00	456.00	504.00	1	658.0	0.9	1
SMBJ500A	SMBJ500CA	434.00	485.00	535.00	1	698.0	0.9	1
SMBJ530A	SMBJ530CA	477.00	503.50	556.50	1	725.0	0.8	1
SMBJ540A	SMBJ540CA	486.00	513.00	567.00	1	740.0	0.8	1
SMBJ550A	SMBJ550CA	495.00	522.50	577.50	1	760.0	0.8	1
SMBJ600A	SMBJ600CA	512.00	570.00	630.00	1	828.0	0.75	1

Typical Characteristics

Figure 1: Peak Pulse Power Rating Curve

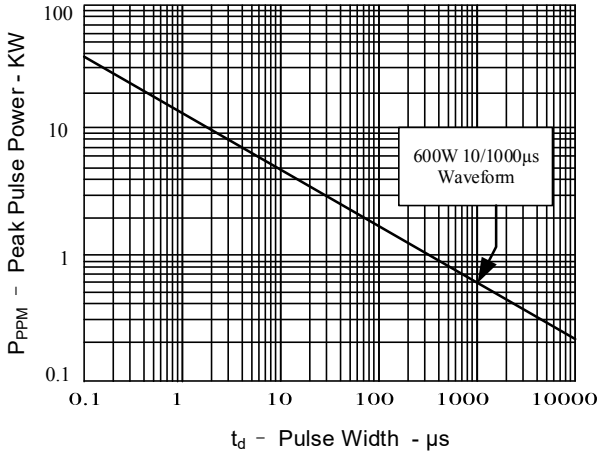


Figure 2: Pulse Derating Curve

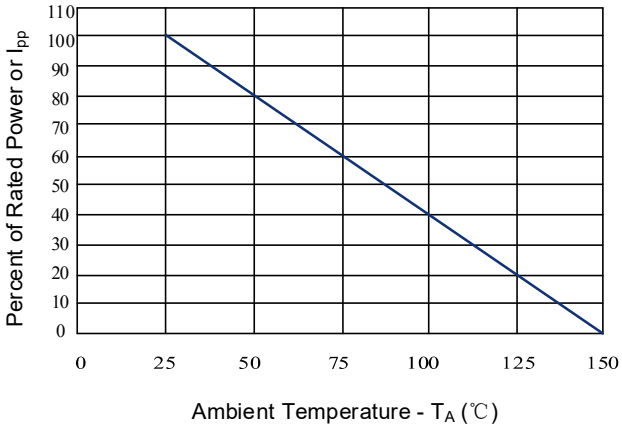


Figure 3: Pulse Waveform

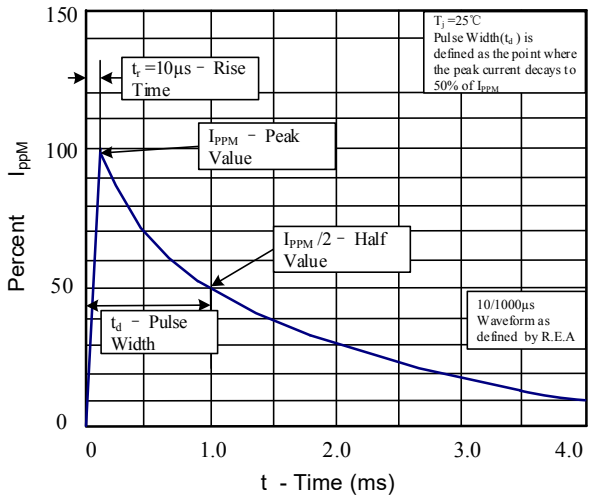


Figure 4: Typical Junction Capacitance

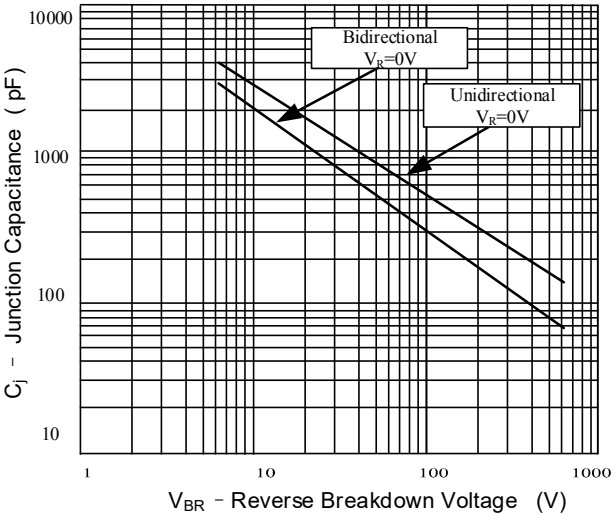


Figure 5: Steady State Power Dissipation Derating Curve

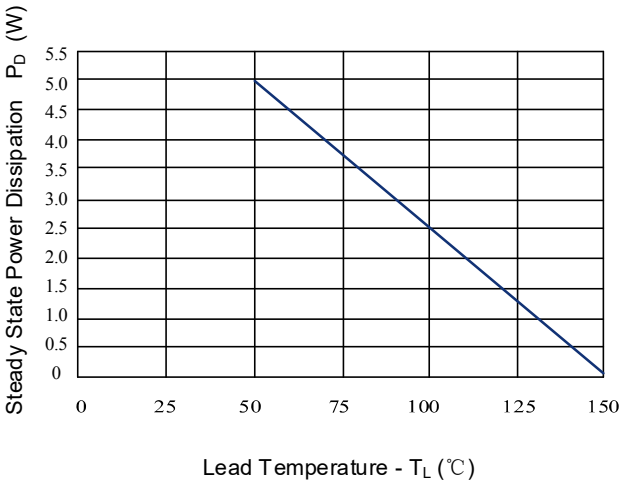
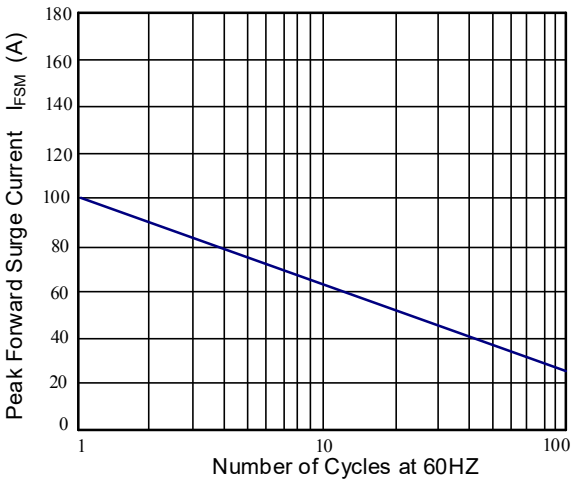
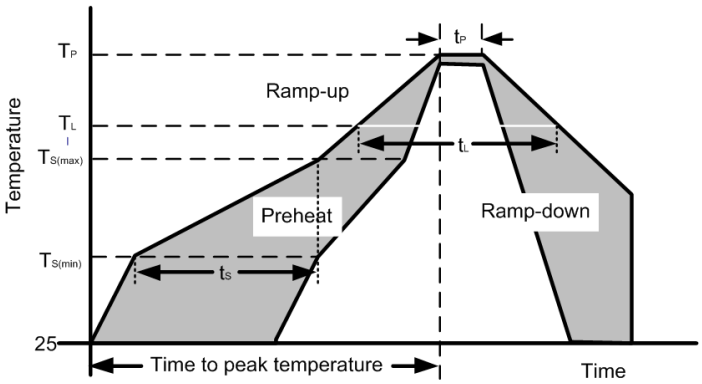


Figure 6: Maximum Non-Repetitive Forward Surge Current Only Unidirectional



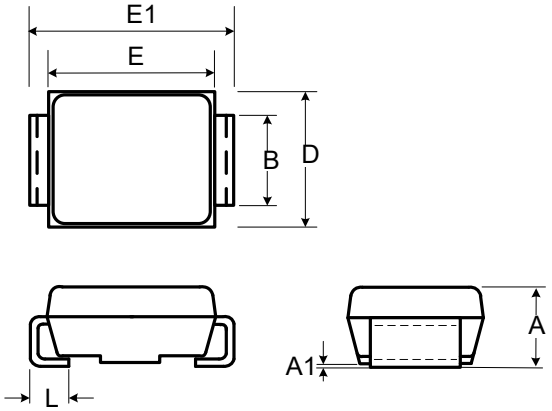
Soldering Parameters

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
$T_{s(max)}$ to T_L - 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 5°C of 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

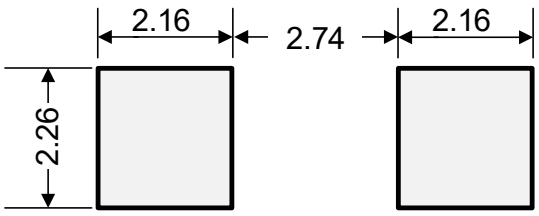


Outline Drawing – SMB(DO-214AA)

Ref.（mm）	Millimeters	
	Min.	Max.
A	2.130	2.600
A1	-	0.300
B	1.900	2.200
E	4.100	4.750
E1	5.210	5.590
D	3.300	3.940
L	0.760	1.520

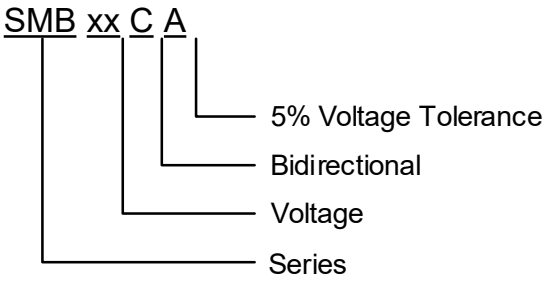


Recommended Solder Pad Layout

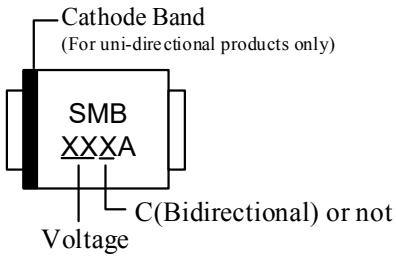


Dimensions in mm

Part Numbering System



Part Marking System



Package Information

Package Type	Description	Quantity（pcs）	Standard
SMB(DO-214AA)	Tape & Reel -12mm/13″ tape	3000	EIA-481-D

Contact Information

TANI website: **http://www.tanisemi.com** Email:tani@tanisemi.com

For additional information, please contact your local Sales Representative.

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