

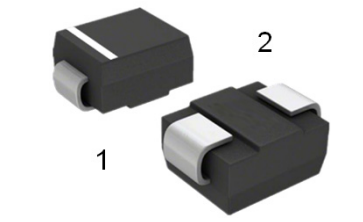
2000W Surface Mount Transient Voltage Suppressor

Description

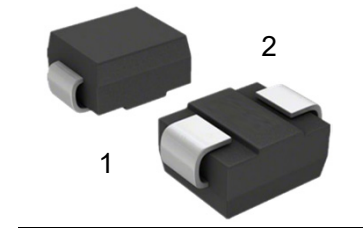
The 2.0SMBJxxA Series are designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

Feature

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- 2000W peak pulse power capability with a 10/1000us waveform
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- Component in accordance to RoHS
- Solder dip 265°C max. 10s, per JESD 22-B106



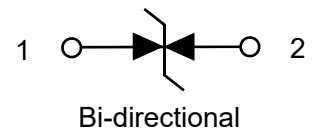
SMB(Uni)



SMB(Bi)

Mechanical Characteristics

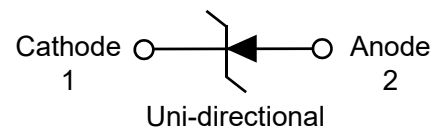
- Case: DO-214AA(SMB)
- Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, Halogen-free
- Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
- Polarity: Cathode line denotes the cathode end



Circuit Diagram

Applications

- Power lines
- I/O Interface.
- Automotive and Telecommunication Industrial Electronics



Circuit Diagram

Absolute maximum rating@25°C

Rating		Symbol	Value	Units
Peak Pulse Power Dissipation with 10/1000 μ s Waveform ¹⁾²⁾		P_{PPM}	2000	W
Power Dissipation on Infinite Heatsink @ $T_L=75^{\circ}\text{C}^{2)}$		P_D	5.0	W
Peak Pulse Current with 10/1000 μ s Waveform ¹⁾		I_{PPM}	See next table	A
Peak Forward Surge Current , 8.3 ms single half sine-wave ³⁾		I_{FSM}	100(Uni)	A
Maximum Instantaneous Forward Voltage @25A ⁴⁾		V_F	3.5/5.0(Uni)	V
Electrostatic Discharge	IEC61000-4-2 Air Discharge	ESD	± 30	kV
	IEC61000-4-2 Contact Discharge		± 30	
Thermal Resistance Junction-to-Lead		$R_{\theta JL}$	20	$^{\circ}\text{C/W}$
Thermal Resistance Junction-to-Ambient		$R_{\theta JA}$	60	$^{\circ}\text{C/W}$
Operating Junction Temperature and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^{\circ}\text{C}$

Transient Voltage Suppressor

2.0SMBJxxA Series

Electrical characteristics per line@25°C(unless otherwise specified)

Part Number		Marking		V _{RMW}	V _{BR@I_T}		I _T	V _{C@I_{PP}}	I _{PP}	I _{R@V_{RWM}}
Uni	Bi	Uni	Bi	V	min(V)	max(V)	mA	V	A	μA
2.0SMBJ11AA	2.0SMBJ11CAA	2.0PGDZ	2.0PBDZ	11	12.2	13.5	1	18.2	109.89	1
2.0SMBJ12AA	2.0SMBJ12CAA	2.0PGEE	2.0PBEE	12	13.3	14.7	1	19.9	100.5	1
2.0SMBJ13AA	2.0SMBJ13CAA	2.0PGEG	2.0PBEG	13	14.4	15.9	1	21.5	93.02	1
2.0SMBJ14AA	2.0SMBJ14CAA	2.0PGEK	2.0PBK	14	15.6	17.2	1	23.2	86.2	1
2.0SMBJ15AA	2.0SMBJ15CAA	2.0PGEM	2.0PBEM	15	16.7	18.5	1	24.4	81.96	1
2.0SMBJ16AA	2.0SMBJ16CAA	2.0PGEP	2.0PBEP	16	17.8	19.7	1	26	76.92	1
2.0SMBJ17AA	2.0SMBJ17CAA	2.0PGER	2.0PBER	17	18.9	20.9	1	27.6	72.46	1
2.0SMBJ18AA	2.0SMBJ18CAA	2.0PGET	2.0PBET	18	20	22.1	1	29.2	68.49	1
2.0SMBJ20AA	2.0SMBJ20CAA	2.0PGEV	2.0PBEV	20	22.2	24.5	1	32.4	61.72	1
2.0SMBJ22AA	2.0SMBJ22CAA	2.0PGEX	2.0PBEX	22	24.4	26.9	1	35.5	56.33	1
2.0SMBJ24AA	2.0SMBJ24CAA	2.0PGEZ	2.0PBEZ	24	26.7	29.5	1	38.9	51.41	1
2.0SMBJ26AA	2.0SMBJ26CAA	2.0PGFE	2.0PBF	26	28.9	31.9	1	42.1	47.5	1
2.0SMBJ28AA	2.0SMBJ28CAA	2.0PGFG	2.0PBF	28	31.1	34.4	1	45.4	44.05	1
2.0SMBJ30AA	2.0SMBJ30CAA	2.0PGFK	2.0PBF	30	33.3	36.8	1	48.4	41.32	1
2.0SMBJ33AA	2.0SMBJ33CAA	2.0PGFM	2.0PBF	33	36.7	40.6	1	53.3	37.52	1
2.0SMBJ36AA	2.0SMBJ36CAA	2.0PGFP	2.0PBF	36	40	44.2	1	58.1	34.42	1
2.0SMBJ40AA	2.0SMBJ40CAA	2.0PGFR	2.0PBF	40	44.4	49.1	1	64.5	31	1
2.0SMBJ43AA	2.0SMBJ43CAA	2.0PGFT	2.0PBF	43	47.8	52.8	1	69.4	28.81	1
2.0SMBJ45AA	2.0SMBJ45CAA	2.0PGFV	2.0PBF	45	50	55.3	1	72.7	27.51	1
2.0SMBJ48AA	2.0SMBJ48CAA	2.0PGFX	2.0PBF	48	53.3	58.9	1	77.4	25.83	1
2.0SMBJ51AA	2.0SMBJ51CAA	2.0PGFZ	2.0PBF	51	56.7	62.7	1	82.4	24.27	1
2.0SMBJ54AA	2.0SMBJ54CAA	2.0PGGE	2.0PBGE	54	60	66.3	1	87.1	22.96	1
2.0SMBJ58AA	2.0SMBJ58CAA	2.0PGGG	2.0PBGG	58	64.4	71.2	1	93.6	21.36	1
2.0SMBJ60AA	2.0SMBJ60CAA	2.0PGGK	2.0PBGK	60	66.7	73.7	1	96.8	20.66	1
2.0SMBJ64AA	2.0SMBJ64CAA	2.0PGGM	2.0PBG	64	71.1	78.6	1	103	19.41	1
2.0SMBJ70AA	2.0SMBJ70CAA	2.0PGGP	2.0PBG	70	77.8	86	1	113	17.69	1
2.0SMBJ75AA	2.0SMBJ75CAA	2.0PGGR	2.0PBGR	75	83.3	92.1	1	121	16.52	1
2.0SMBJ78AA	2.0SMBJ78CAA	2.0PGGT	2.0PBG	78	86.7	95.8	1	126	15.87	1
2.0SMBJ85AA	2.0SMBJ85CAA	2.0PGGV	2.0PBG	85	94.4	104	1	137	14.59	1
2.0SMBJ90AA	2.0SMBJ90CAA	2.0PGGX	2.0PBG	90	100	111	1	146	13.69	1
2.0SMBJ100AA	2.0SMBJ100CAA	2.0PGGZ	2.0PBG	100	111	123	1	162	12.34	1
2.0SMBJ110AA	2.0SMBJ110CAA	2.0PGHE	2.0PBHE	110	122	135	1	177	11.29	1
2.0SMBJ120AA	2.0SMBJ120CAA	2.0PGHG	2.0PBHG	120	133	147	1	193	10.36	1
2.0SMBJ130AA	2.0SMBJ130CAA	2.0PGHK	2.0PBHK	130	144	159	1	209	9.56	1
2.0SMBJ150AA	2.0SMBJ150CAA	2.0PGHM	2.0PBHM	150	167	185	1	243	8.23	1
2.0SMBJ160AA	2.0SMBJ160CAA	2.0PGHP	2.0PBHP	160	178	197	1	259	7.72	1
2.0SMBJ170AA	2.0SMBJ170CAA	2.0PGHR	2.0PBHR	170	189	209	1	275	7.27	1

Transient Voltage Suppressor

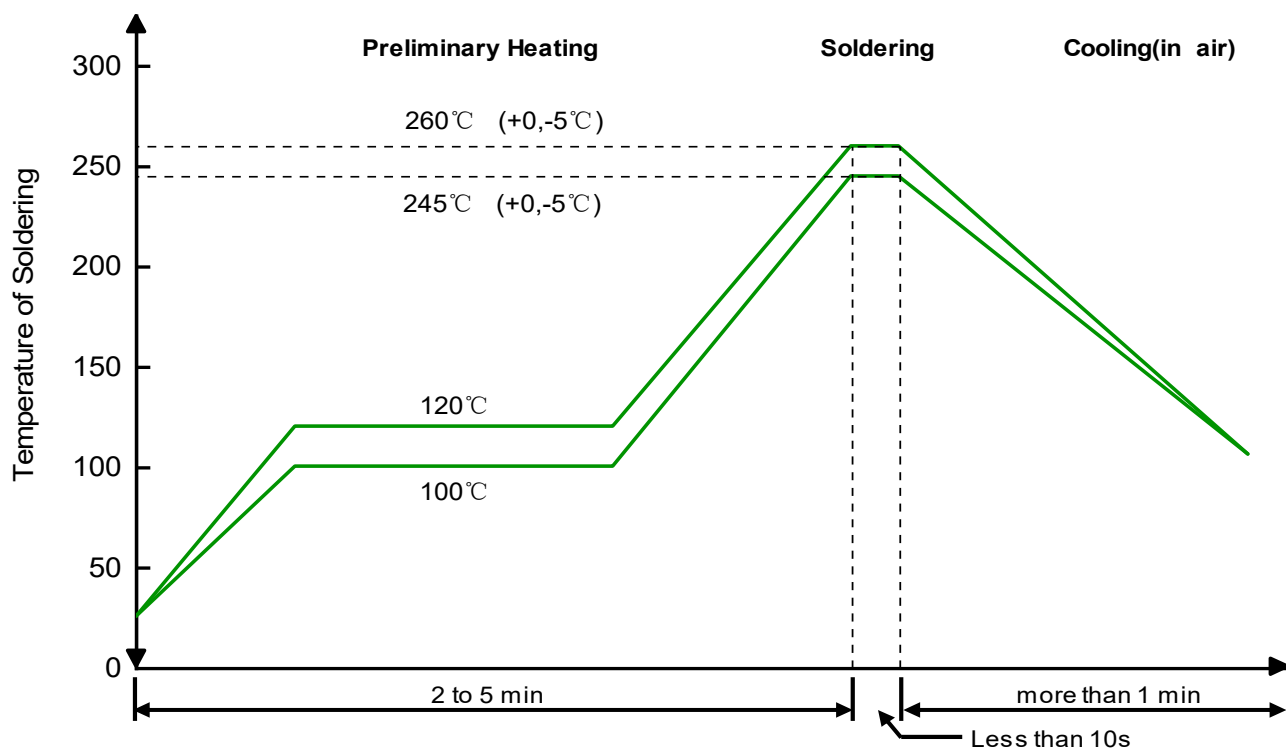
2.0SMBJxxA Series

Part Number		Marking		V_{RMW}	$V_{BR}@I_T$		I_T	$V_C@I_{PP}$	I_{PP}	$I_R@V_{RWM}$
Uni	Bi	Uni	Bi	V	min(V)	max(V)	mA	V	A	μA
2.0SMBJ180AA	2.0SMBJ180CAA	2.0PGHT	2.0PBHT	180	201	222	1	292	6.84	1
2.0SMBJ200AA	2.0SMBJ200CAA	2.0PGHV	2.0PBHV	200	224	247	1	324	6.17	1
2.0SMBJ220AA	2.0SMBJ220CAA	2.0PGHX	2.0PBHX	220	246	272	1	356	5.61	1
2.0SMBJ250AA	2.0SMBJ250CAA	2.0PGHZ	2.0PBHZ	250	279	309	1	405	4.93	1
2.0SMBJ300AA	2.0SMBJ300CAA	2.0PGIE	2.0PBIE	300	335	371	1	486	4.11	1
2.0SMBJ350AA	2.0SMBJ350CAA	2.0PGIG	2.0PBIG	350	391	432	1	567	3.52	1
2.0SMBJ400AA	2.0SMBJ400CAA	2.0PGIK	2.0PBIK	400	447	494	1	648	3.08	1
2.0SMBJ440AA	2.0SMBJ440CAA	2.0PGIM	2.0PBIM	440	492	543	1	713	2.8	1

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^{\circ}C$ per Fig.2.
2. Mounted on 0.3 x 0.3" (8.0 x 8.0 mm) copper pads to each terminal
3. Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum
4. $V_F=3.5V$ Max for devices of $V_{BR}\leq 200V$, and $V_F=5.0V$ Max for devices of $V_{BR} > 200V$
5. Pulse Test: $t_p\leq 50ms$
6. Surge current waveform per Fig. 3 and derated per Fig.2

Solder Reflow Recommendation



Remark: Pb free for 260°C; Pb for 245°C.

Typical Characteristics

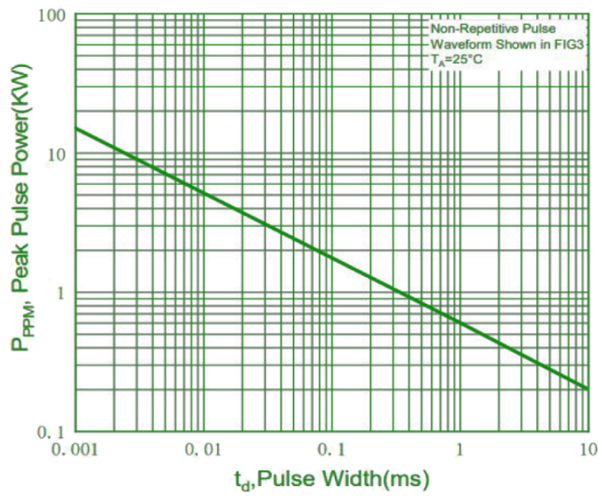


Fig. 1 - Power Derating Curve

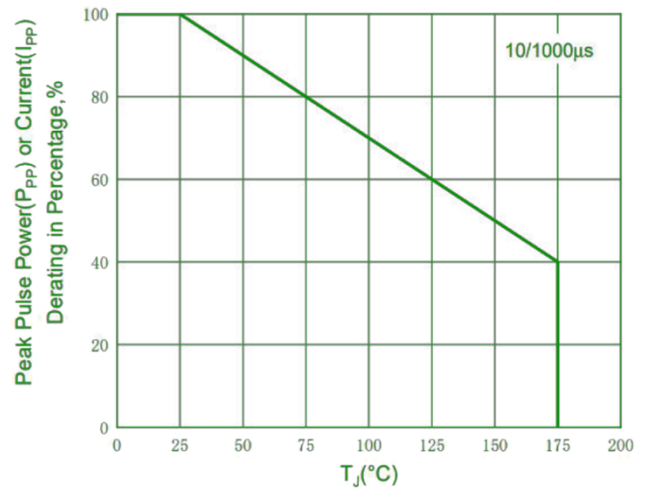


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

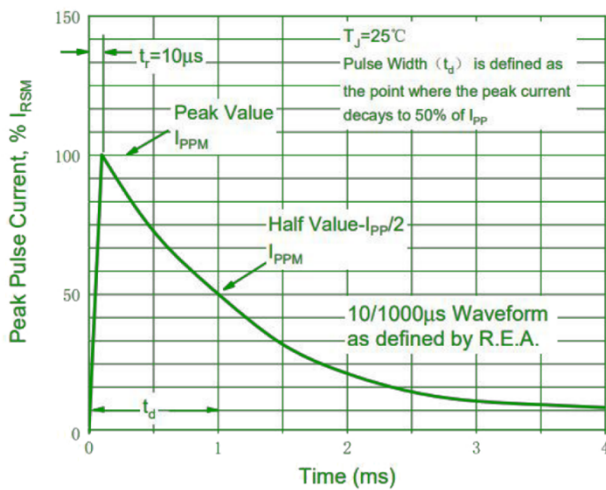


Fig. 3 - Pulse Waveform

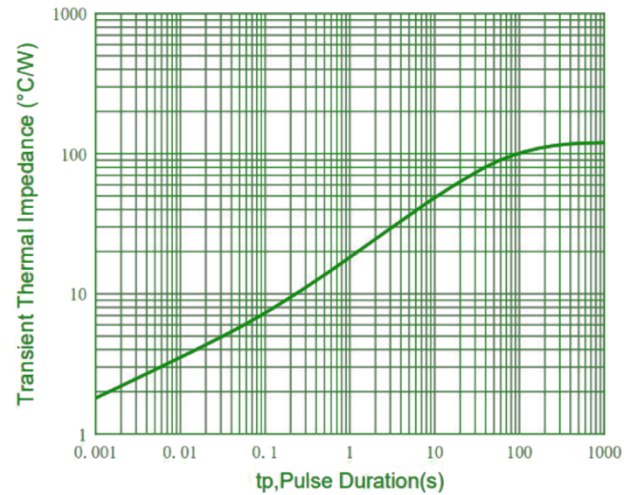


Fig. 4 - Typical Transient Thermal Impedance

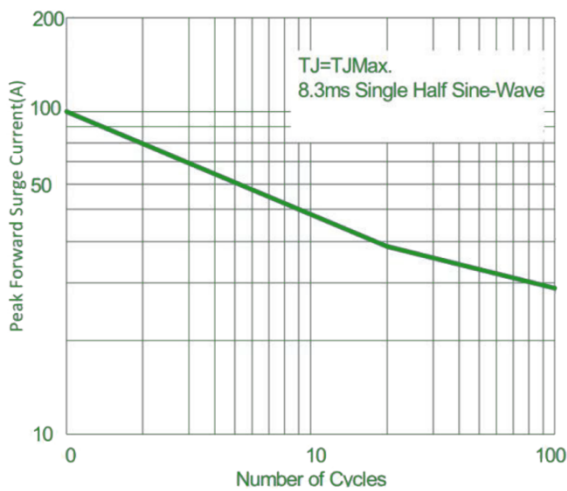


Fig. 5 - Maximum Non-Repetitive Surge Current

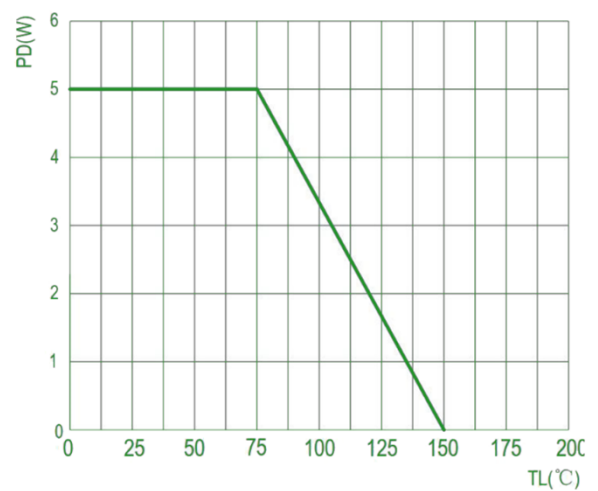


Fig. 6 - Steady State Power Dissipation

2.0SMBJxxA Series

Technical drawing of a mechanical part showing dimensions and tolerances. The drawing includes a top view and a side view. The top view shows a rectangular part with a central slot and two circular features. The side view shows the profile of the part with a curved top edge. Dimensions and tolerances are specified throughout the drawing.

Key dimensions and tolerances:

- Overall width: 12.00 ± 0.30
- Distance between centerlines of the two circular features: 4.00 ± 0.10
- Radius of the circular features: $\varnothing 1.50 \pm 0.10$
- Distance from the right edge to the centerline of the right circular feature: 2.00 ± 0.05
- Distance between the centerlines of the two circular features: 8.00 ± 0.10
- Distance from the right edge to the centerline of the right circular feature: 1.75 ± 0.10
- Distance from the right edge to the centerline of the right circular feature: 5.50 ± 0.05
- Radius of the circular features: $\varnothing 1.50 \pm 0.10$

The drawing also includes a label "USER DIRECTION OF FEED" with an arrow pointing to the right, indicating the direction of material flow or assembly.

Unit:mm

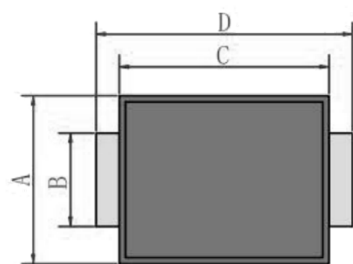
Package	Reel	Shipping
SMB	13"	3000 / Tape & Reel

XXXXXX

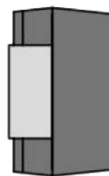


Note: Detailed Marking See table above

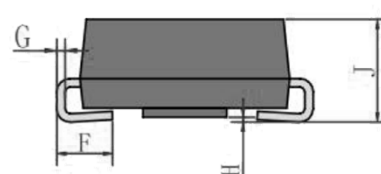
Product Dimension (SMB)



Top View

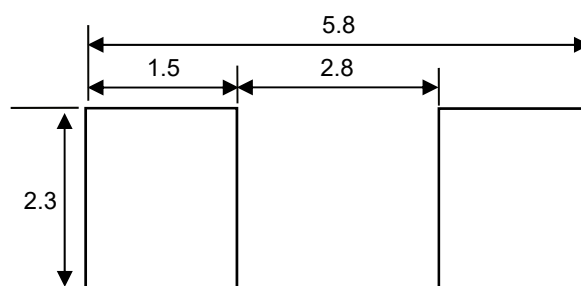


Side View



Side View

Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	3.30	3.90	0.130	0.154
B	1.85	2.15	0.073	0.085
C	4.10	4.75	0.161	0.187
D	5.10	5.60	0.201	0.220
F	0.76	1.41	0.030	0.056
G	0.15	0.31	0.006	0.012
H	0.05	0.20	0.002	0.008
J	2.10	2.30	0.083	0.091



Unit: mm

Suggested PCB Layout

IMPORTANT NOTICE

 and **Prisemi**[®] are registered trademarks of **Prisemi Electronics Co., Ltd** (Prisemi), Prisemi reserves the right to make changes without further notice to any products herein. Prisemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Prisemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in Prisemi data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Prisemi does not convey any license under its patent rights nor the rights of others. The products listed in this document are designed to be used with ordinary electronic equipment or devices, Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

Website: <http://www.prisemi.com>

For additional information, please contact your local Sales Representative.

©Copyright 2009, Prisemi Electronics

 **Prisemi**[®] is a registered trademark of Prisemi Electronics.

All rights are reserved.