

1000W Transient Voltage Suppressors

TVS Diodes - 1000W > 1.0SMBJ Series



Description

The 1.0SMBJ 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
- Reliable low cost construction utilizing molded plastic technique
- Plastic material has UL flammability classification 94V-0
- Typical IR less than 1uA above 10V
- Fast response time: typically less than 1.0ps from 0 Volts to VBR min
- Glass passivated junction
- Low inductance



Package: DO-214AA / SMB

Applications

- I/O interface
- AC/DC power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

Electrical Characteristics

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at TA=25°C by 10x1000μs waveform (Fig.1)(Note 1), (Note 2)	PPPM	1000	W
Power Dissipation on infinite heat sink at TA=50°C	PM(AV)	5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	IFSM	100	A
Operating Junction and Storage Temperature Range	TJ, TSTG	-55 to 150	°C
Typical Thermal Resistance Junction to Lead	RθJL	20	°C/W
Typical Thermal Resistance Junction to Ambient	RθJA	100	°C/W

- Notes:**
1. Non-repetitive current pulse, per Fig.3 and derated above TA=25°C per Fig.2.
 2. Mounted on 5.0mm×5.0mm (0.03mm thick) copper pads to each terminal.
 3. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.

Electrical Characteristics (TA=25°C)



Part Number		Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Maximum Clamping Voltage@IPP	Peak Pulse Current	Reverse Leakage@VRWM	Delivery Time
Uni-Polar	Bi-polar	VRWM(V)	Min	Max	IT(mA)	VC(V)	IPP(A)	IR(μA)	days
1.0SMBJ5.0A	1.0SMBJ5.0CA	5.0	6.40	7.00	10	9.2	108.7	100	12days
1.0SMBJ6.0A	1.0SMBJ6.0CA	6.0	6.67	7.37	10	10.3	97.09	100	12days
1.0SMBJ6.5A	1.0SMBJ6.5CA	6.5	7.22	7.98	10	11.2	89.29	500	12days
1.0SMBJ7.0A	1.0SMBJ7.0CA	7.0	7.78	8.60	10	12.0	83.33	50	12days
1.0SMBJ7.5A	1.0SMBJ7.5CA	7.5	8.33	9.21	1	12.9	77.52	50	12days
1.0SMBJ8.0A	1.0SMBJ8.0CA	8.0	8.89	9.83	1	13.6	73.53	50	12days
1.0SMBJ8.5A	1.0SMBJ8.5CA	8.5	9.44	10.4	1	14.4	69.44	50	12days
1.0SMBJ9.0A	1.0SMBJ9.0CA	9.0	10.0	11.1	1	15.4	64.94	20	12days
1.0SMBJ10A	1.0SMBJ10CA	10	11.1	12.3	1	17.0	58.82	10	12days
1.0SMBJ11A	1.0SMBJ11CA	11	12.2	13.5	1	18.2	54.95	5	12days
1.0SMBJ12A	1.0SMBJ12CA	12	13.3	14.7	1	19.9	50.25	2	12days
1.0SMBJ13A	1.0SMBJ13CA	13	14.4	15.9	1	21.5	46.51	1	12days
1.0SMBJ14A	1.0SMBJ14CA	14	15.6	17.2	1	23.2	43.10	1	12days
1.0SMBJ15A	1.0SMBJ15CA	15	16.7	18.5	1	24.4	40.98	1	12days
1.0SMBJ16A	1.0SMBJ16CA	16	17.8	19.7	1	26.0	38.46	1	12days
1.0SMBJ17A	1.0SMBJ17CA	17	18.9	20.9	1	27.6	36.23	1	12days
1.0SMBJ18A	1.0SMBJ18CA	18	20.0	22.1	1	29.2	34.25	1	12days
1.0SMBJ20A	1.0SMBJ20CA	20	22.2	24.5	1	32.4	30.86	1	12days
1.0SMBJ22A	1.0SMBJ22CA	22	24.4	26.9	1	35.5	28.17	1	12days
1.0SMBJ24A	1.0SMBJ24CA	24	26.7	29.5	1	38.9	25.71	1	12days
1.0SMBJ26A	1.0SMBJ26CA	26	28.9	31.9	1	42.1	23.75	1	12days
1.0SMBJ28A	1.0SMBJ28CA	28	31.1	34.4	1	45.4	22.03	1	12days
1.0SMBJ30A	1.0SMBJ30CA	30	33.3	36.8	1	48.4	20.66	1	12days
1.0SMBJ33A	1.0SMBJ33CA	33	36.7	40.6	1	53.3	18.76	1	12days
1.0SMBJ36A	1.0SMBJ36CA	36.0	40.0	44.2	1	58.1	17.21	1	12days
1.0SMBJ40A	1.0SMBJ40CA	40.0	44.4	49.1	1	64.5	15.5	1	12days
1.0SMBJ43A	1.0SMBJ43CA	43.0	47.8	52.8	1	69.4	14.4	1	12days

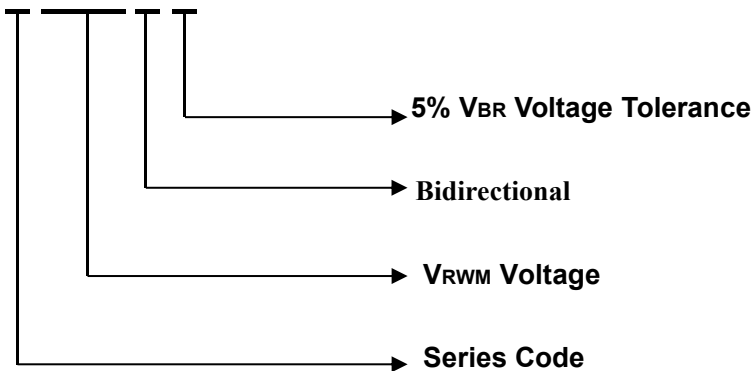
Electrical Characteristics (TA=25°C)continued

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage V _{BR} (Volts)@I _T		Test Current	Maximum Clamping Voltage@I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}	Delivery Time
Uni-Polar	Bi-polar	V _{RWM} (V)	Min	Max	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μA)	days
1.0SMBJ45A	1.0SMBJ45CA	45.0	50.0	55.3	1	72.7	13.76	1	12days
1.0SMBJ48A	1.0SMBJ48CA	48.0	53.3	58.9	1	77.4	12.92	1	12days
1.0SMBJ51A	1.0SMBJ51CA	51.0	56.7	62.7	1	82.4	12.14	1	12days
1.0SMBJ54A	1.0SMBJ54CA	54.0	60.0	66.3	1	87.1	11.48	1	12days
1.0SMBJ58A	1.0SMBJ58CA	58.0	64.4	71.2	1	93.6	10.68	1	12days
1.0SMBJ60A	1.0SMBJ60CA	60.0	66.7	73.7	1	96.8	10.33	1	12days
1.0SMBJ64A	1.0SMBJ64CA	64.0	71.1	78.6	1	103.0	9.70	1	12days
1.0SMBJ70A	1.0SMBJ70CA	70.0	77.8	86.0	1	113.0	8.85	1	12days
1.0SMBJ75A	1.0SMBJ75CA	75.0	83.3	92.1	1	121.0	8.26	1	12days


Notes:For bidirectional type having V_{RWM} of 10 volts and less, the I_R limit is double.

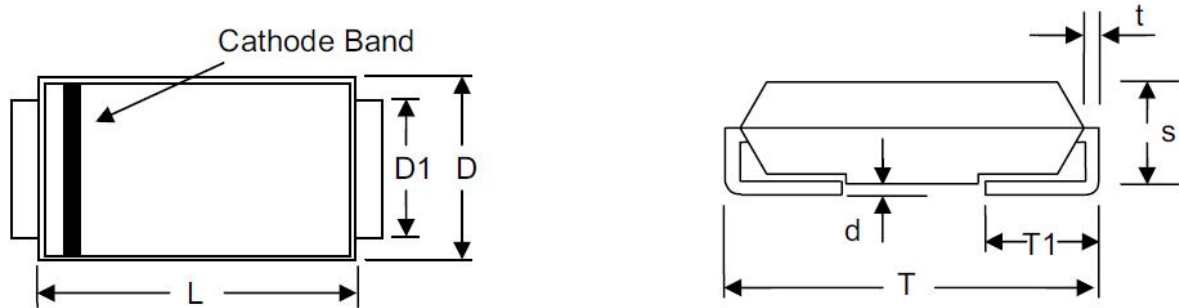
Description of Part Number

1.0SMBJ XXX C A



Packing Options

Package Type	Description	Packing Quantity	Industry Standard
 DO-214AA	Embossed Carrier Reel Pack	3000PCS	EIA-481-1



SMB/DO-214AA

Item	Millimeters		Inches	
	Min.	Max.	Min.	Max.
L	4.06	4.57	0.160	0.180
D	3.30	3.94	0.130	0.155
D1	1.95	2.20	0.077	0.086
T	5.21	5.59	0.205	0.220
T1	0.76	1.52	0.030	0.060
d	-	0.203	-	0.008
s	2.13	2.47	0.084	0.097
t	0.152	0.305	0.006	0.012

Ratings and Characteristics Curve

Figure 1. Peak Pulse Power Rating Curve

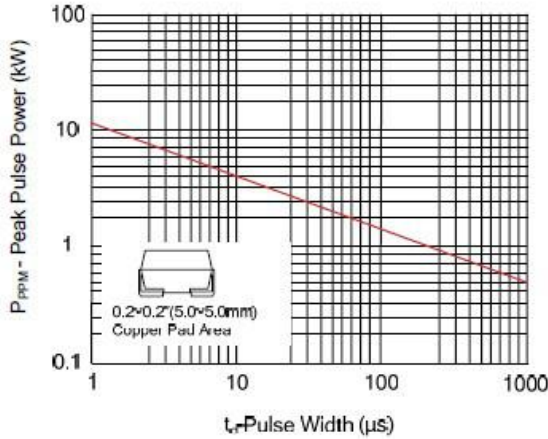


Figure 2. Pulse Derating Curve

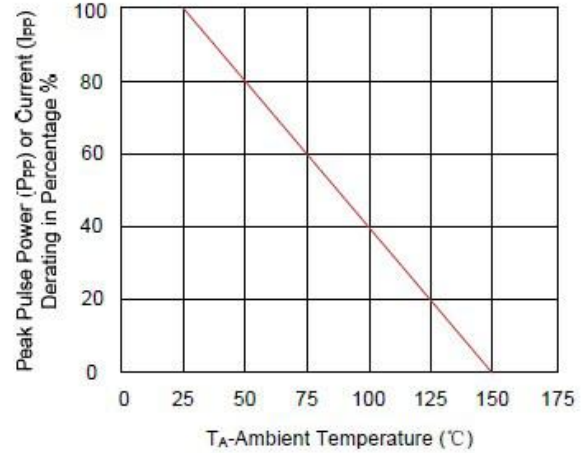


Figure 3. Pulse Waveform

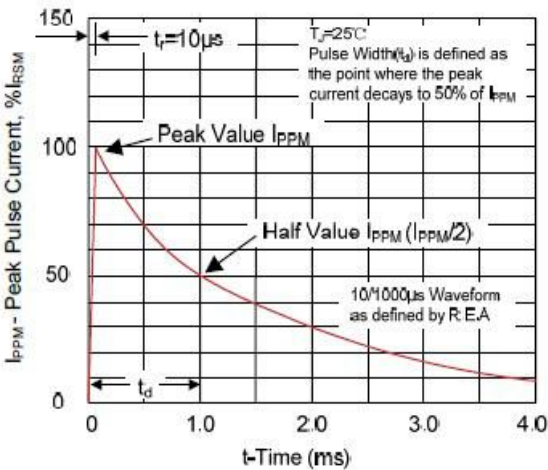


Figure 4. Typical Junction Capacitance

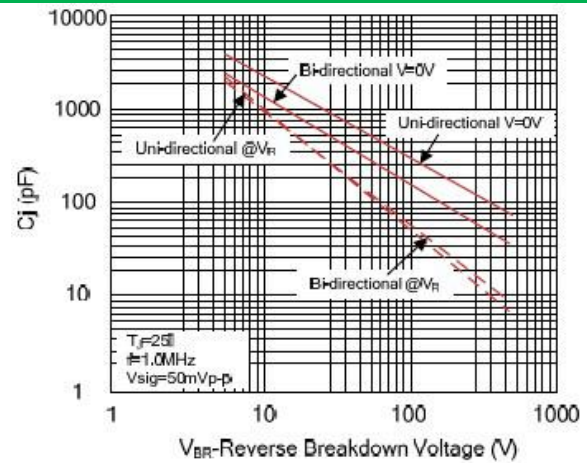


Figure 5. Steady State Power Dissipation Derating Curve

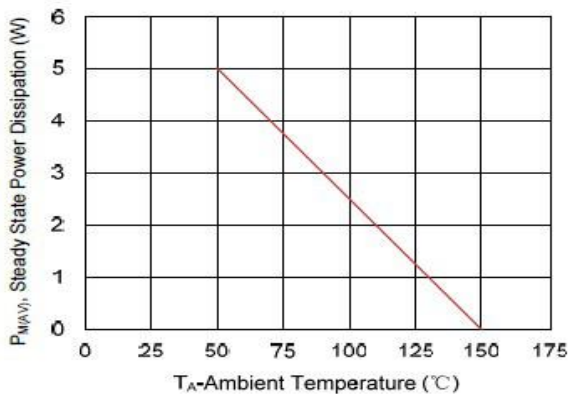


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

