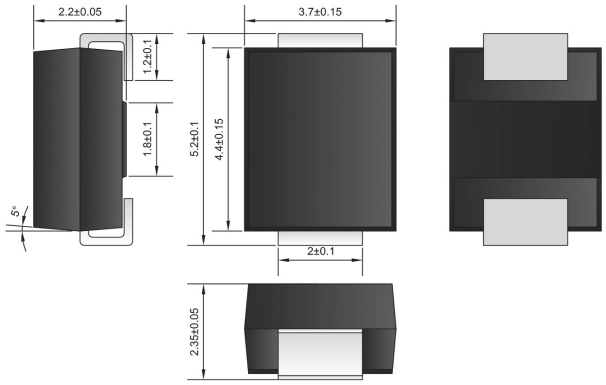
1.0SMBJ5.0(C)A THRU 1.0SMBJ200(C)A

1000W Surface Mount Transient Voltage Suppressors

■ Features

- 1000W peak pulse power capability with a 10/1000us waveform, repetition rate (duty cycle): 0.01%.
- Excellent clamping capability.
- Low incremental surge resistance.
- Glass passivated chip junction.
- Ultra high-speed switching.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228

■ Outline SMB(DO-214AA)

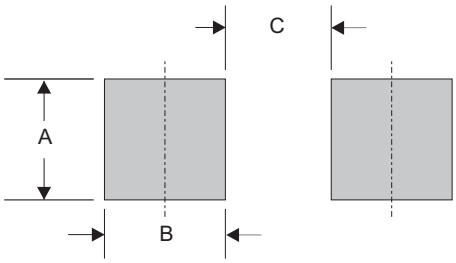


Dimensions in millimeters

■ Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, DO-214AA / SMB
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Weight : 0.003 ounce, 0.091 gram

■ SMB foot print



A	B	C
0.091 (2.30)	0.098 (2.50)	0.071 (1.80)

Dimensions in inches and (millimeters)

■ Maximum ratings and electrical characteristics

Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Parameter	Conditions	Symbol	SMBJ series	UNIT
Peak power dissipation	with a 10/1000us waveform, note 1	P_{PPM}	1000	W
Peak forward surge current	8.3ms single half sine-wave superimposed on rate load (JEDEC method), note 2	I_{FSM}	100	A
Steady state power dissipation	on infinite heatsink at T_L = 75°C	P_D	5.0	W
Peak pulse current	with a 10/1000us waveform, note 1	I_{PPM}	See Table 1	A
Maximum instantaneous forward voltage	at 50A for unidirectional only, note 3	V_F	3.5 / 5.0	V
Operating temperature		T_J	-55 ~ +150	°C
Storage temperature		T_{STG}	-55 ~ +150	°C

Notes : 1. Non-repetitive current pulse, per Fig. 3 and derated above T_A=25°C per Fig. 2.
2. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.
3. V_F < 3.5V for devices of V_{BR} < 200V and V_F <5.0V for devices of V_{BR} > 201V.

■ Electrical characteristics

table 1

Part No.	Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Peak Forward Surge Current	Maximum Clamping Voltage @I_{PP}		Maximum Leakage Current	Marking Code	
	V_{RWM}	$V_{BR\,Min}$	$V_{BR\,Max}$	I_T	I_{FSM}	V_C	I_{PP}	I_R@V_{RWM}		
	Volts	Volts	Volts	mA	A	Volts	A	uA	UNI	BI
1.0SMBJ5.0(C)A	5.0	6.40	7.00	10	100	9.2	108.7	500	A5	C5
1.0SMBJ6.0(C)A	6.0	6.67	7.37	10	100	10.3	97.1	500	A6	C6
1.0SMBJ6.5(C)A	6.5	7.22	7.98	10	100	11.2	89.3	200	A6V	C6V
1.0SMBJ7.0(C)A	7.0	7.78	8.60	10	100	12.0	83.4	200	A7	C7
1.0SMBJ7.5(C)A	7.5	8.33	9.21	1.0	100	12.9	77.6	100	C7V	C7V
1.0SMBJ8.0(C)A	8.0	8.89	9.83	1.0	100	13.6	73.6	50	A8	C8
1.0SMBJ8.5(C)A	8.5	9.44	10.40	1.0	100	14.4	69.5	10	A8V	C8V
1.0SMBJ9.0(C)A	9.0	10.00	11.10	1.0	100	15.4	65.0	5	A9	C9
1.0SMBJ10(C)A	10.0	11.10	12.30	1.0	100	17.0	58.9	5	A10	C10
1.0SMBJ11(C)A	11.0	12.20	13.50	1.0	100	18.2	55.0	5	A11	C11
1.0SMBJ12(C)A	12.0	13.30	14.70	1.0	100	19.9	50.3	5	A12	C12
1.0SMBJ13(C)A	13.0	14.40	15.90	1.0	100	21.5	46.6	5	A13	C13
1.0SMBJ14(C)A	14.0	15.60	17.20	1.0	100	23.2	43.1	5	A14	C14
1.0SMBJ15(C)A	15.0	16.70	18.50	1.0	100	24.4	41.0	5	A15	C15
1.0SMBJ16(C)A	16.0	17.80	19.70	1.0	100	26.0	38.5	5	A16	C16
1.0SMBJ17(C)A	17.0	18.90	20.90	1.0	100	27.6	36.3	5	A17	C17
1.0SMBJ18(C)A	18.0	20.00	22.10	1.0	100	29.2	34.3	5	A18	C18
1.0SMBJ19(C)A	19.0	21.10	23.30	1.0	100	30.8	32.5	5	A19	C19
1.0SMBJ20(C)A	20.0	22.20	24.50	1.0	100	32.4	30.9	5	A20	C20
1.0SMBJ22(C)A	22.0	24.40	26.90	1.0	100	35.5	28.2	5	A22	C22
1.0SMBJ24(C)A	24.0	26.70	29.50	1.0	100	38.9	25.7	5	A24	C24
1.0SMBJ26(C)A	26.0	28.90	31.90	1.0	100	42.1	23.8	5	A26	C26
1.0SMBJ28(C)A	28.0	31.10	34.40	1.0	100	45.4	22.1	5	A28	C28
1.0SMBJ30(C)A	30.0	33.30	36.80	1.0	100	48.4	20.7	5	A30	C30
1.0SMBJ33(C)A	33.0	36.70	40.60	1.0	100	53.3	18.8	5	A33	C33
1.0SMBJ36(C)A	36.0	40.00	44.20	1.0	100	58.1	17.3	5	A36	C36
1.0SMBJ40(C)A	40.0	44.40	49.10	1.0	100	64.5	15.5	5	A40	C40
1.0SMBJ43(C)A	43.0	47.80	52.80	1.0	100	69.4	14.4	5	A43	C43
1.0SMBJ45(C)A	45.0	50.00	55.30	1.0	100	72.7	13.8	5	A45	C45
1.0SMBJ48(C)A	48.0	53.30	58.90	1.0	100	77.4	13.0	5	A48	C48
1.0SMBJ51(C)A	51.0	56.70	62.70	1.0	100	82.4	12.2	5	A51	C51
1.0SMBJ54(C)A	54.0	60.00	66.30	1.0	100	87.1	11.5	5	A54	C54
1.0SMBJ58(C)A	58.0	64.40	71.20	1.0	100	93.6	10.7	5	A58	C58
1.0SMBJ60(C)A	60.0	66.70	73.70	1.0	100	96.8	10.4	5	A60	C60
1.0SMBJ64(C)A	64.0	71.10	78.60	1.0	100	103.0	9.7	5	A64	C64
1.0SMBJ70(C)A	70.0	77.80	86.00	1.0	100	113.0	8.9	5	A70	C70

■ Electrical characteristics

Part No.	Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Peak Forward Surge Current	Maximum Clamping Voltage @I_{PP}		Maximum Leakage Current	Marking Code	
	V_{RWM}	$V_{BR\,Min}$	$V_{BR\,Max}$	I_T	I_{FSM}	V_C	I_{PP}	I_R@V_{RWM}		
	Volts	Volts	Volts	mA	A	Volts	A	uA	UNI	BI
1.0SMBJ75(C)A	75.0	83.00	92.10	1.0	100	121.0	8.3	5	A75	C75
1.0SMBJ78(C)A	78.0	86.70	95.80	1.0	100	126.0	8.0	5	A78	C78
1.0SMBJ80(C)A	80.0	88.80	97.60	1.0	100	129.6	7.7	5	A80	C80
1.0SMBJ85(C)A	85.0	94.40	104.00	1.0	100	137.0	7.3	5	A85	C85
1.0SMBJ90(C)A	90.0	100.00	111.00	1.0	100	146.0	6.9	5	A90	C90
1.0SMBJ100(C)A	100.0	111.00	123.00	1.0	100	162.0	6.2	5	A100	C100
1.0SMBJ110(C)A	110.0	122.00	135.00	1.0	100	177.0	5.7	5	A110	C110
1.0SMBJ120(C)A	120.0	133.00	147.00	1.0	100	193.0	5.2	5	A120	C120
1.0SMBJ130(C)A	130.0	144.00	159.00	1.0	100	209.0	4.8	5	A130	C130
1.0SMBJ140(C)A	140.0	155.00	171.00	1.0	100	226.8	4.4	5	A140	C140
1.0SMBJ150(C)A	150.0	167.00	185.00	1.0	100	243.0	4.2	5	A150	C150
1.0SMBJ160(C)A	160.0	178.00	197.00	1.0	100	259.0	3.9	5	A160	C160
1.0SMBJ170(C)A	170.0	189.00	209.00	1.0	100	275.0	3.7	5	A170	C170
1.0SMBJ180(C)A	180.0	200.00	220.00	1.0	100	291.6	3.5	5	A180	C180
1.0SMBJ190(C)A	190.0	211.00	232.00	1.0	100	307.8	3.3	5	A190	C190
1.0SMBJ200(C)A	200.0	224.00	247.00	1.0	100	324.0	3.1	5	A200	C200

Note 1. Suffix 'C' denotes bi-directional devices. Suffix 'A' denotes 5% tolerance devices, no suffix denotes 10% tolerance devices.
2. For bi-directional types having V_{RWM} of 10 volts and less, the I_R limit is doubled.

■ Rating and characteristic curves

Fig.1 - Pealk Pulse Power Rating Curve

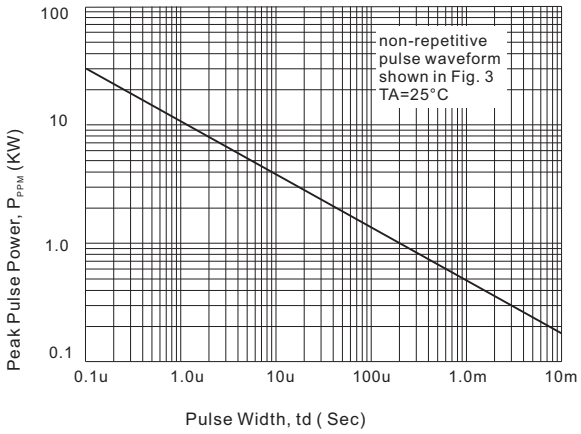


Fig.2 - Pulse Derating Curve

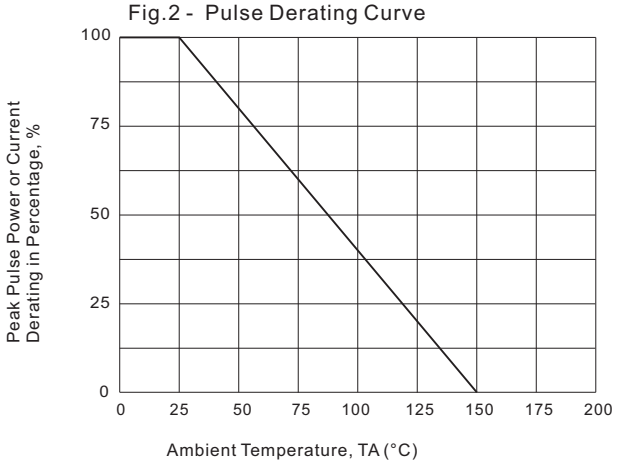


Fig.3 - Pulse Waveform

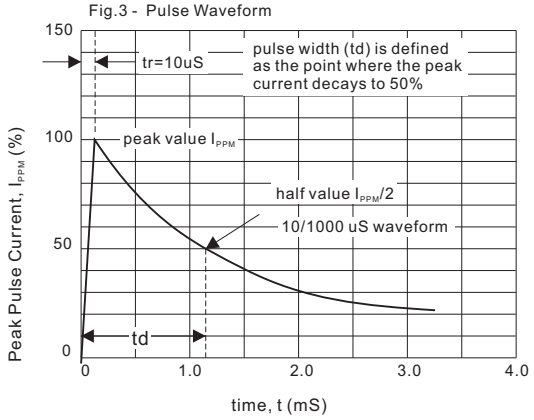


Fig.4 - Typical Junction Capacitance

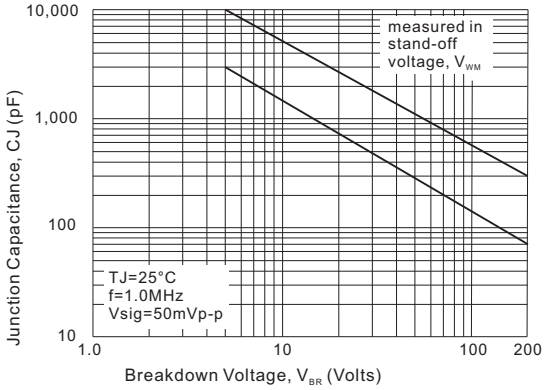


Fig.5 - Steady State Power Derating Curve

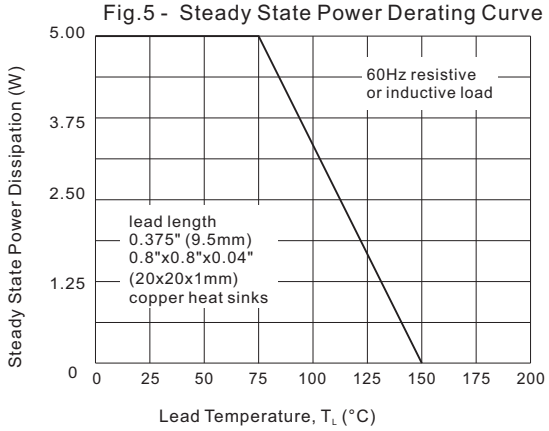


Fig.6 - Maximum Non-Repetitive
Forward Surge Current