

Surface Mount Transient Voltage Suppressor Diodes

SMBJ SERIES

Features

- ◆ Excellent clamping capability
- ◆ Low dynamic impedance
- ◆ Solder dip 260 °C max. 10 s, per JESD 22-B106

Mechanical Data

Case: SMB(DO-214AA) Molded plastic body

Terminals: Tin plated leads, solderable per J-STD- 002
and JESD22-B102

Mounting Position: Any



Maximum Ratings & Electrical Characteristics

Ratings at $T_A = 25^\circ\text{C}$ unless otherwise specified

PARAMETER	SYMBOL	UNIT	Max
Peak power dissipation, with a 10/1000us waveform (1) (2)	P_{PPM}	W	600
Power dissipation, on infinite heat sink at $T_L=75^\circ\text{C}$ (2)	P_D	W	5.0
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only (3)	I_{FSM}	A	100
Operating junction and storage temperature range	T_J, T_{STG}	$^\circ\text{C}$	-55 to +150
Maximum instantaneous forward voltage at 50A for unidirectional only(4)	V_{FM}	V	3.5/5.0
Junction to ambient	$R_{\theta JA}$	$^\circ\text{C/W}$	100
Junction to lead	$R_{\theta JL}$	$^\circ\text{C/W}$	20

Notes:

- (1) Non-repetitive current pulse, per Fig. 3 and derated above $T_A = 25^\circ\text{C}$ per Fig.2.
- (2) Mounted on 0.2x0.2" (5.0 x5.0 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) $V_F=3.5\text{V}$ Max for devices of $V_{BR}\leq 220\text{v}$, and $V_F=5.0\text{v}$ Max for devices of $V_{BR}> 220\text{v}$.
- (5) Mounted on minimum recommended pad layout.

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Part No.		Peak Power Dissipation 10/1000μ sec(W)	Reverse Stand-Off Voltage V _{RWM} (V)	Breakdown Voltage V _{BR} (V) Min @ I _T	Breakdown Voltage V _{BR} (V) Max @ I _T	Test Current I _T (mA)	Max Clamping Voltage V _C (V)@ I _{PP}	Peak Pulse Current I _{PP} (A)	Reverse Leakage I _R (μA) @ V _{RWM}
SMBJ5.0A	SMBJ5.0CA	600	5.0	6.40	7.00	10	9.2	65.22	800
SMBJ6.0A	SMBJ6.0CA	600	6.0	6.67	7.37	10	10.3	58.25	800
SMBJ6.5A	SMBJ6.5CA	600	6.5	7.22	7.98	10	11.2	53.57	500
SMBJ7.0A	SMBJ7.0CA	600	7.0	7.78	8.60	10	12.0	50.00	200
SMBJ7.5A	SMBJ7.5CA	600	7.5	8.33	9.21	1	12.9	46.51	100
SMBJ8.0A	SMBJ8.0CA	600	8.0	8.89	9.83	1	13.6	44.12	50
SMBJ8.5A	SMBJ8.5CA	600	8.5	9.44	10.40	1	14.4	41.67	10
SMBJ9.0A	SMBJ9.0CA	600	9.0	10.00	11.10	1	15.4	38.96	5
SMBJ10A	SMBJ10CA	600	10.0	11.10	12.30	1	17.0	35.29	5
SMBJ11A	SMBJ11CA	600	11.0	12.20	13.50	1	18.2	32.97	5
SMBJ12A	SMBJ12CA	600	12.0	13.30	14.70	1	19.9	30.15	5
SMBJ13A	SMBJ13CA	600	13.0	14.40	15.90	1	21.5	27.91	5
SMBJ14A	SMBJ14CA	600	14.0	15.60	17.20	1	23.2	25.86	5
SMBJ15A	SMBJ15CA	600	15.0	16.70	18.50	1	24.4	24.59	5
SMBJ16A	SMBJ16CA	600	16.0	17.80	19.70	1	26.0	23.08	5
SMBJ17A	SMBJ17CA	600	17.0	18.90	20.90	1	27.6	21.74	5
SMBJ18A	SMBJ18CA	600	18.0	20.00	22.10	1	29.2	20.55	5
SMBJ19A	SMBJ19CA	600	19.0	21.10	23.30	1	30.8	19.49	5
SMBJ20A	SMBJ20CA	600	20.0	22.20	24.50	1	32.4	18.52	5
SMBJ22A	SMBJ22CA	600	22.0	24.40	26.90	1	35.5	16.90	5
SMBJ24A	SMBJ24CA	600	24.0	26.70	29.50	1	38.9	15.42	5
SMBJ26A	SMBJ26CA	600	26.0	28.90	31.90	1	42.1	14.25	5
SMBJ28A	SMBJ28CA	600	28.0	31.10	34.40	1	45.4	13.22	5
SMBJ30A	SMBJ30CA	600	30.0	33.30	36.80	1	48.4	12.40	5
SMBJ33A	SMBJ33CA	600	33.0	36.70	40.60	1	53.3	11.26	5
SMBJ36A	SMBJ36CA	600	36.0	40.00	44.20	1	58.1	10.33	5
SMBJ40A	SMBJ40CA	600	40.0	44.40	49.10	1	64.5	9.30	5
SMBJ43A	SMBJ43CA	600	43.0	47.80	52.80	1	69.4	8.65	5
SMBJ45A	SMBJ45CA	600	45.0	50.00	55.30	1	72.7	8.25	5
SMBJ48A	SMBJ48CA	600	48.0	53.30	58.90	1	77.4	7.75	5
SMBJ51A	SMBJ51CA	600	51.0	56.70	62.70	1	82.4	7.28	5
SMBJ54A	SMBJ54CA	600	54.0	60.00	66.30	1	87.1	6.89	5
SMBJ58A	SMBJ58CA	600	58.0	64.40	71.20	1	93.6	6.41	5
SMBJ60A	SMBJ60CA	600	60.0	66.70	73.70	1	96.8	6.20	5
SMBJ64A	SMBJ64CA	600	64.0	71.10	78.60	1	103.0	5.83	5
SMBJ70A	SMBJ70CA	600	70.0	77.80	86.00	1	113.0	5.31	5
SMBJ75A	SMBJ75CA	600	75.0	83.30	92.10	1	121.0	4.96	5
SMBJ78A	SMBJ78CA	600	78.0	86.70	95.80	1	126.0	4.76	5
SMBJ80A	SMBJ80CA	600	80.0	88.80	97.60	1	129.6	4.63	5
SMBJ85A	SMBJ85CA	600	85.0	94.40	104.00	1	137.0	4.38	5
SMBJ90A	SMBJ90CA	600	90.0	100.00	111.00	1	146.0	4.11	5
SMBJ100A	SMBJ100CA	600	100.0	111.00	123.00	1	162.0	3.70	5
SMBJ110A	SMBJ110CA	600	110.0	122.00	135.00	1	177.0	3.39	5
SMBJ120A	SMBJ120CA	600	120.0	133.00	147.00	1	193.0	3.11	5
SMBJ130A	SMBJ130CA	600	130.0	144.00	159.00	1	209.0	2.87	5
SMBJ140A	SMBJ140CA	600	140.0	155.00	171.00	1	226.8	2.65	5
SMBJ150A	SMBJ150CA	600	150.0	167.00	185.00	1	243.0	2.47	5
SMBJ160A	SMBJ160CA	600	160.0	178.00	197.00	1	259.0	2.32	5
SMBJ170A	SMBJ170CA	600	170.0	189.00	209.00	1	275.0	2.18	5
SMBJ180A	SMBJ180CA	600	180.0	200.00	220.00	1	291.6	2.06	5
SMBJ190A	SMBJ190CA	600	190.0	211.00	232.00	1	307.8	1.95	5
SMBJ200A	SMBJ200CA	600	200.0	224.00	247.00	1	324.0	1.85	5
SMBJ220A	SMBJ220CA	600	220.0	246.00	272.00	1	356.0	1.69	5
SMBJ250A	SMBJ250CA	600	250.0	279.00	309.00	1	405.0	1.48	5
SMBJ300A	SMBJ300CA	600	300.0	335.00	371.00	1	486.0	1.23	5
SMBJ350A	SMBJ350CA	600	350.0	391.00	432.00	1	567.0	1.06	5
SMBJ400A	SMBJ400CA	600	400.0	447.00	494.00	1	648.0	0.93	5
SMBJ440A	SMBJ440CA	600	440.0	492.00	543.00	1	713.0	0.84	5

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Typical Characteristics

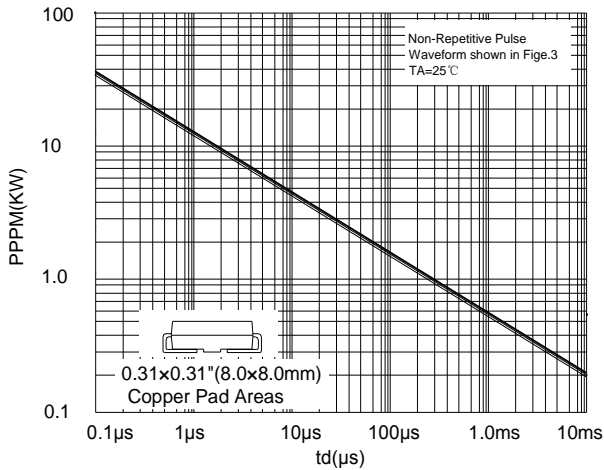


FIG1: Peak Pulse Power Rating Curve

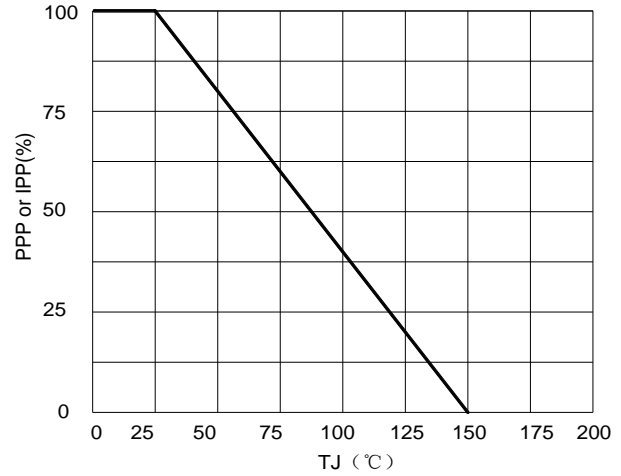


FIG2: Pulse Power or Current vs. Initial Junction Temperature

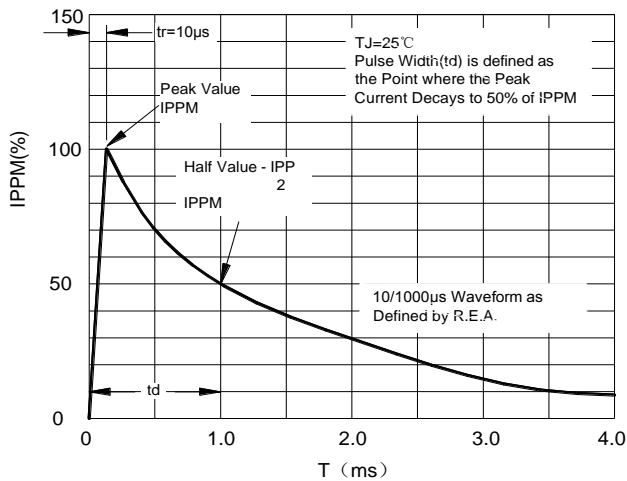


FIG3: Pulse Waveform

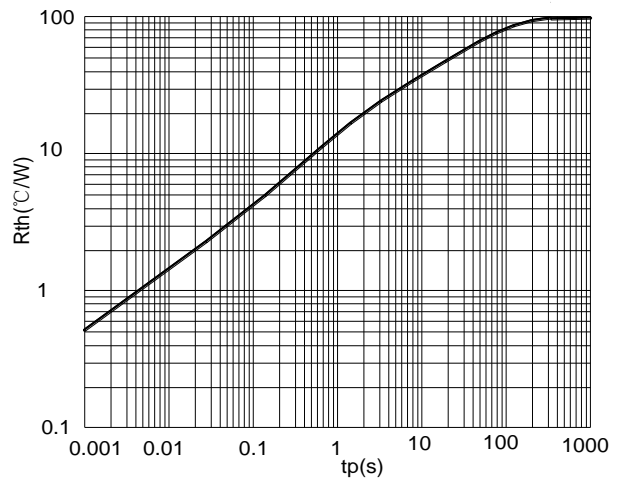


FIG4: Typical Transient Thermal Impedance

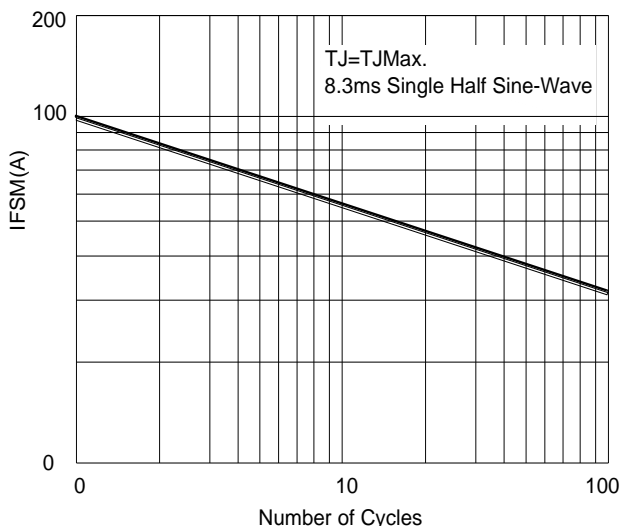


FIG5: Maximum Non-Repetitive Surge Current

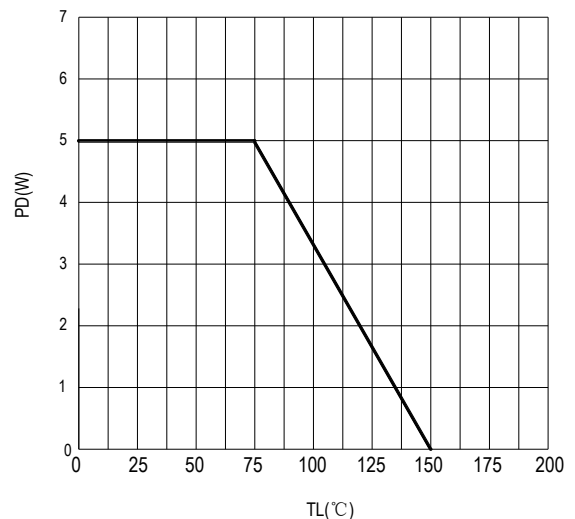


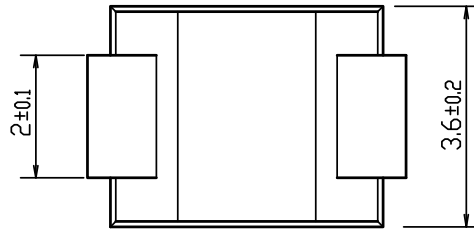
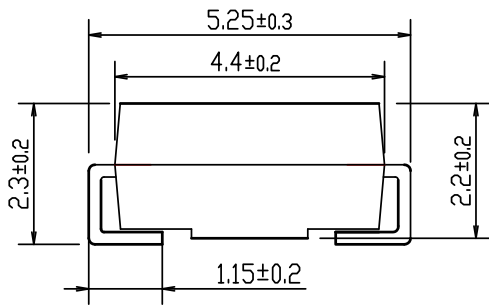
FIG6: Steady State Power Dissipation

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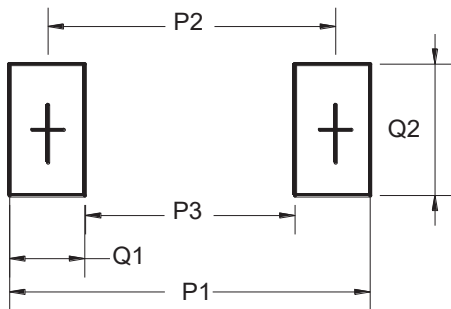
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Package Outline Dimensions(unit:mm)

DO-214AA (SMB)



Mounting Pad Layout(unit:mm)



Dim	Millimeters
P1	6.80
P2	4.30
P3	1.80
Q1	2.50
Q2	2.30