



DO-214AA(SMB)

Primary Characteristics		
V_{BR}	5.0~440	V
P_{PPM}	600	W
P_D	5	W
$T_J \text{ max}$	150	°C

Features

- Glass passivated chip
- 600 W peak pulse power capability with a 10/1000 us waveform, repetitive rate (duty cycle):0.01 %
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant

Mechanical Data

- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any
- Weight: 0.092 grams (approximate)

Ordering Information

Part No.	Remark	Package	Packing
SMBJ SERIES	General	SMB	3000 / Tape & Reel
SMBJ SERIES-H	Halogen Free		
SMBJ SERIES-Q	AEC-Q101 qualified		

Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Limits	Units
Peak power dissipation with a 10/1000 μ s waveform(Note 1)	P_{PP}	600	W
Peak pulse current with a 10/1000us waveform (Note 1)	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at $T_L=75^{\circ}\text{C}$	P_D	5	W
Peak forward surge current, 8.3ms single half sine-wave unidirectional only (Note 2)	I_{FSM}	100	A
Maximum instantaneous forward voltage at 50 A for unidirectional only (Note 3)	V_F	3.5 / 5.0	V
Operating junction and storage temperature range	T_J, T_{STG}	-55 ~ +150	°C

Note:

(1)Non-repetitive current pulse per Fig.5 and derated above $T_A= 25^{\circ}\text{C}$ per Fig.1

(2)Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

(3) $V_F<3.5\text{V}$ for devices of $V_{BR}<200\text{V}$ and $V_F<5.0\text{V}$ for devices of $V_{BR}>201\text{V}$

Transient Voltage Suppressors(600W)

Part Number		Marking Code		Reverse Stand-off Voltage	Break-down Voltage Min@I _T	Break-down Voltage Max@I _T	Test Current	Max Clamping Voltage V _C @I _{PP}	Peak Pulse Current	Reverse Leakage I _R @V _{RRM}
Directional		Directional		V _{RRM}	V _{BR}	V _{BR}	I _T	V _C	I _{PP}	I _R
Uni	Bi	Uni	Bi	V	V	V	mA	V	A	uA
SMBJ5.0A	SMBJ5.0CA	BJ5.0A	BJ5.0CA	5.0	6.40	7.00	10.0	9.2	65.22	800.0
SMBJ6.0A	SMBJ6.0CA	BJ6.0A	BJ6.0CA	6.0	6.67	7.37	10.0	10.3	58.25	800.0
SMBJ6.5A	SMBJ6.5CA	BJ6.5A	BJ6.5CA	6.5	7.22	7.98	10.0	11.2	53.57	500.0
SMBJ7.0A	SMBJ7.0CA	BJ7.0A	BJ7.0CA	7.0	7.78	8.60	10.0	12.0	50.00	200.0
SMBJ7.5A	SMBJ7.5CA	BJ7.5A	BJ7.5CA	7.5	8.33	9.21	1.0	12.9	46.51	100.0
SMBJ8.0A	SMBJ8.0CA	BJ8.0A	BJ8.0CA	8.0	8.89	9.83	1.0	13.6	44.12	50.0
SMBJ8.5A	SMBJ8.5CA	BJ8.5A	BJ8.5CA	8.5	9.44	10.40	1.0	14.4	41.67	10.0
SMBJ9.0A	SMBJ9.0CA	BJ9.0A	BJ9.0CA	9.0	10.00	11.10	1.0	15.4	38.96	5.0
SMBJ10A	SMBJ10CA	BJ10A	BJ10CA	10.0	11.10	12.30	1.0	17.0	35.29	5.0
SMBJ11A	SMBJ11CA	BJ11A	BJ11CA	11.0	12.20	13.50	1.0	18.2	32.97	5.0
SMBJ12A	SMBJ12CA	BJ12A	BJ12CA	12.0	13.30	14.70	1.0	19.9	30.15	5.0
SMBJ13A	SMBJ13CA	BJ13A	BJ13CA	13.0	14.40	15.90	1.0	21.5	27.91	5.0
SMBJ14A	SMBJ14CA	BJ14A	BJ14CA	14.0	15.60	17.20	1.0	23.2	25.86	5.0
SMBJ15A	SMBJ15CA	BJ15A	BJ15CA	15.0	16.70	18.50	1.0	24.4	24.59	5.0
SMBJ16A	SMBJ16CA	BJ16A	BJ16CA	16.0	17.80	19.70	1.0	26.0	23.08	5.0
SMBJ17A	SMBJ17CA	BJ17A	BJ17CA	17.0	18.90	20.90	1.0	27.6	21.74	5.0
SMBJ18A	SMBJ18CA	BJ18A	BJ18CA	18.0	20.00	22.10	1.0	29.2	20.55	5.0
SMBJ19A	SMBJ19CA	BJ19A	BJ19CA	19.0	21.10	23.30	1.0	30.8	19.49	5.0
SMBJ20A	SMBJ20CA	BJ20A	BJ20CA	20.0	22.20	24.50	1.0	32.4	18.52	5.0
SMBJ22A	SMBJ22CA	BJ22A	BJ22CA	22.0	24.40	26.90	1.0	35.5	16.90	5.0
SMBJ24A	SMBJ24CA	BJ24A	BJ24CA	24.0	26.70	29.50	1.0	38.9	15.42	5.0
SMBJ26A	SMBJ26CA	BJ26A	BJ26CA	26.0	28.90	31.90	1.0	42.1	14.25	5.0
SMBJ28A	SMBJ28CA	BJ28A	BJ28CA	28.0	31.10	34.40	1.0	45.4	13.22	5.0
SMBJ30A	SMBJ30CA	BJ30A	BJ30CA	30.0	33.30	36.80	1.0	48.4	12.40	5.0
SMBJ33A	SMBJ33CA	BJ33A	BJ33CA	33.0	36.70	40.60	1.0	53.3	11.26	5.0
SMBJ36A	SMBJ36CA	BJ36A	BJ36CA	36.0	40.00	44.20	1.0	58.1	10.33	5.0
SMBJ40A	SMBJ40CA	BJ40A	BJ40CA	40.0	44.40	49.10	1.0	64.5	9.30	5.0
SMBJ43A	SMBJ43CA	BJ43A	BJ43CA	43.0	47.80	52.80	1.0	69.4	8.65	5.0
SMBJ45A	SMBJ45CA	BJ45A	BJ45CA	45.0	50.00	55.30	1.0	72.7	8.25	5.0
SMBJ48A	SMBJ48CA	BJ48A	BJ48CA	48.0	53.30	58.90	1.0	77.4	7.75	5.0
SMBJ51A	SMBJ51CA	BJ51A	BJ51CA	51.0	56.70	62.70	1.0	82.4	7.28	5.0
SMBJ54A	SMBJ54CA	BJ54A	BJ54CA	54.0	60.00	66.30	1.0	87.1	6.89	5.0
SMBJ58A	SMBJ58CA	BJ58A	BJ58CA	58.0	64.40	71.20	1.0	93.6	6.41	5.0
SMBJ60A	SMBJ60CA	BJ60A	BJ60CA	60.0	66.70	73.70	1.0	96.8	6.20	5.0
SMBJ64A	SMBJ64CA	BJ64A	BJ64CA	64.0	71.10	78.60	1.0	103.0	5.83	5.0
SMBJ70A	SMBJ70CA	BJ70A	BJ70CA	70.0	77.80	86.00	1.0	113.0	5.31	5.0
SMBJ75A	SMBJ75CA	BJ75A	BJ75CA	75.0	83.30	92.10	1.0	121.0	4.96	5.0
SMBJ78A	SMBJ78CA	BJ78A	BJ78CA	78.0	86.70	95.80	1.0	126.0	4.76	5.0

Part Number		Marking Code		Reverse Stand-off Voltage	Break-down Voltage Min@I _T	Break-down Voltage Max@I _T	Test Current	Max Clamping Voltage V _C @I _{PP}	Peak Pulse Current	Reverse Leakage I _R @V _{RRM}
DIRECTIONAL		DIRECTIONAL		V _{RRM}	V _{BR}	V _{BR}	I _T	V _C	I _{PP}	I _R
UNI	BI	UNI	BI	V	V	V	mA	V	A	uA
SMBJ80A	SMBJ80CA	BJ80A	BJ80CA	80.0	88.80	97.60	1.0	129.6	4.63	5.0
SMBJ85A	SMBJ85CA	BJ85A	BJ85CA	85.0	94.40	104.00	1.0	137.0	4.38	5.0
SMBJ90A	SMBJ90CA	BJ90A	BJ90CA	90.0	100.00	111.00	1.0	146.0	4.11	5.0
SMBJ100A	SMBJ100CA	BJ100A	BJ100CA	100.0	111.00	123.00	1.0	162.0	3.70	5.0
SMBJ110A	SMBJ110CA	BJ110A	BJ110CA	110.0	122.00	135.00	1.0	177.0	3.39	5.0
SMBJ120A	SMBJ120CA	BJ120A	BJ120CA	120.0	133.00	147.00	1.0	193.0	3.11	5.0
SMBJ130A	SMBJ130CA	BJ130A	BJ130CA	130.0	144.00	159.00	1.0	209.0	2.87	5.0
SMBJ140A	SMBJ140CA	BJ140A	BJ140CA	140.0	155.00	171.00	1.0	226.8	2.65	5.0
SMBJ150A	SMBJ150CA	BJ150A	BJ150CA	150.0	167.00	185.00	1.0	243.0	2.47	5.0
SMBJ160A	SMBJ160CA	BJ160A	BJ160CA	160.0	178.00	197.00	1.0	259.0	2.32	5.0
SMBJ170A	SMBJ170CA	BJ170A	BJ170CA	170.0	189.00	209.00	1.0	275.0	2.18	5.0
SMBJ180A	SMBJ180CA	BJ180A	BJ180CA	180.0	200.00	220.00	1.0	291.6	2.06	5.0
SMBJ190A	SMBJ190CA	BJ190A	BJ190CA	190.0	211.00	232.00	1.0	307.8	1.95	5.0
SMBJ200A	SMBJ200CA	BJ200A	BJ200CA	200.0	224.00	247.00	1.0	324.0	1.90	5.0
SMBJ220A	SMBJ220CA	BJ220A	BJ220CA	220.0	246.00	272.00	1.0	356.0	1.69	5.0
SMBJ250A	SMBJ250CA	BJ250A	BJ250CA	250.0	279.00	309.00	1.0	405.0	1.50	5.0
SMBJ300A	SMBJ300CA	BJ300A	BJ300CA	300.0	335.00	371.00	1.0	486.0	1.23	5.0
SMBJ350A	SMBJ350CA	BJ350A	BJ350CA	350.0	391.00	432.00	1.0	567.0	1.06	5.0
SMBJ400A	SMBJ400CA	BJ400A	BJ400CA	400.0	447.00	494.00	1.0	648.0	0.90	5.0
SMBJ440A	SMBJ440CA	BJ440A	BJ440CA	440.0	492.00	543.00	1.0	713.0	0.84	5.0

Note:

1. Suffix 'A ' denotes 5% tolerance device.
2. Add suffix ' CA ' after part number to specify Bi-directional devices.
3. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double .

Typical Characteristics

Fig. 1 - Pulse Derating Curve

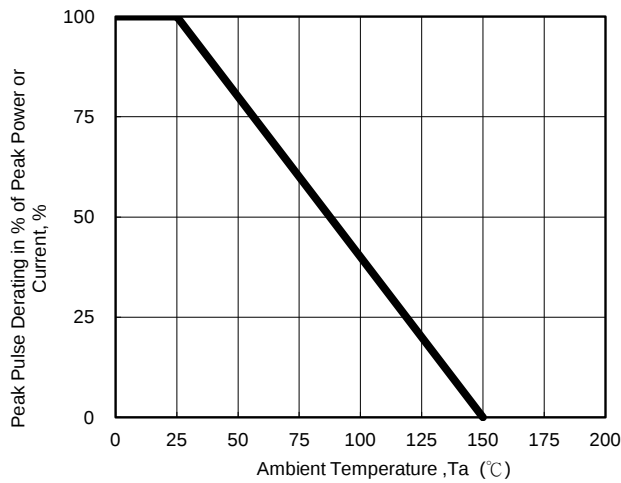


Fig. 2 - Maximum Non-Repetitive Surge Current

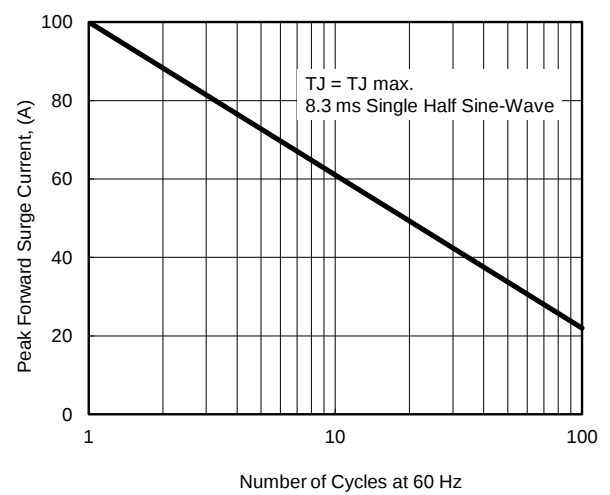


Fig. 3 - Steady State Power Derating Curve

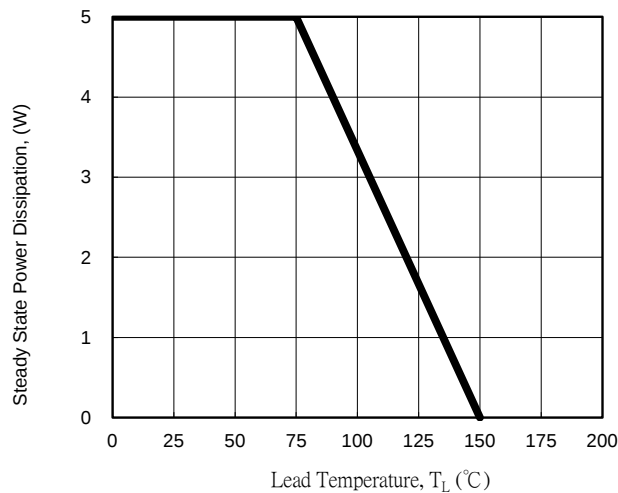


Fig. 4 - Peak Pulse Power Rating Curve

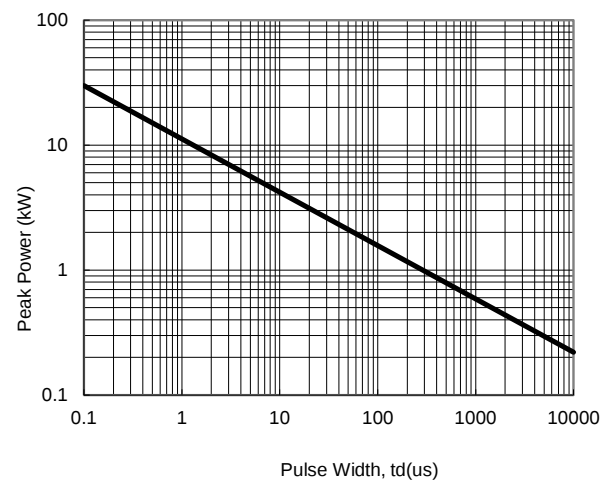


Fig. 5 - Pulse Waveform

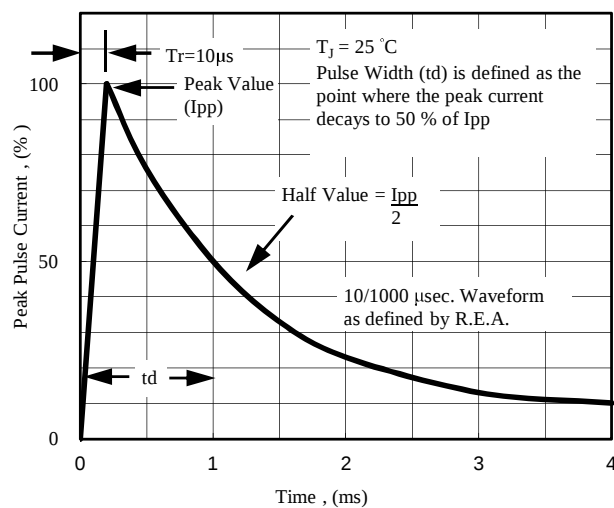
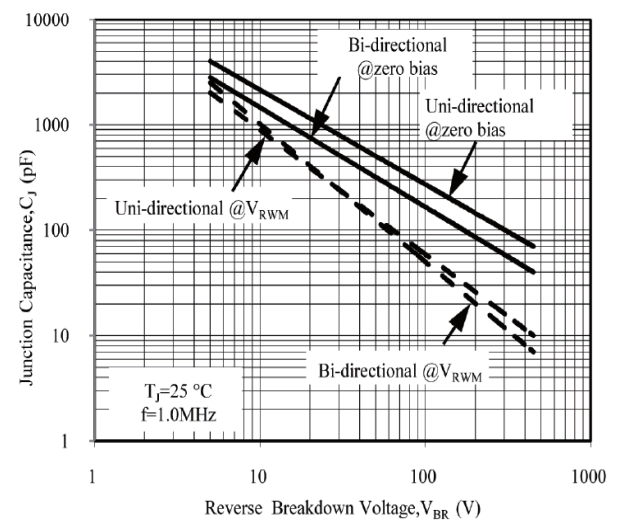
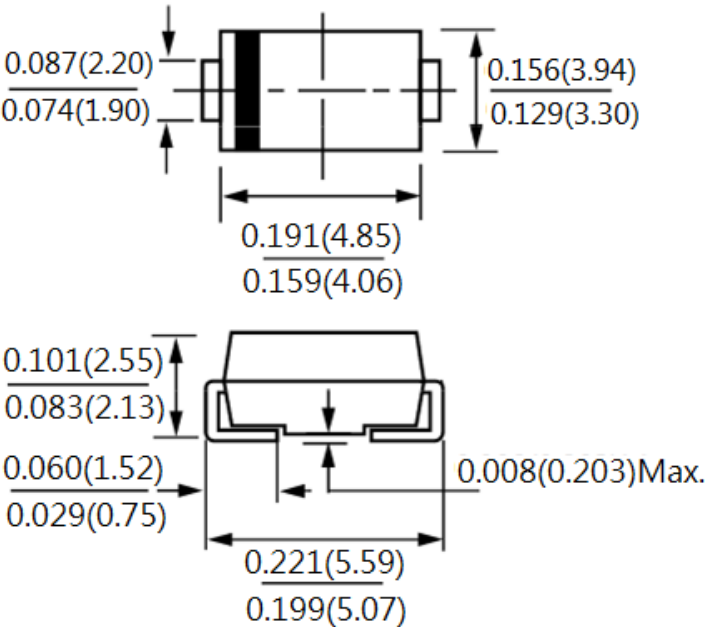


Fig. 6 - Typical Junction Capacitance



Package Outline Dimensions

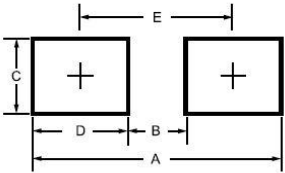


DO-214AA(SMB)

Dimensions in inches and (millimeters)

Suggested Pad Layout

Dimension	Outline	SMB millimeter
A		6.80
B		1.80
C		2.30
D		2.50
E		4.30



Tap & Reel Specification

ITEM	SYMBOL	SMB(mm) DO-214AA
Carrier width	A	4.0(max)
Carrier length	B	5.9(max)
Carrier depth	C	3.0(max)
Sprocket hole	d	1.50±0.1
Reel outside diameter	D	330±2.0
Feed hole diameter	D0	13.5±1
Reel inner diameter	D1	50 (min.)
Sprocket hole position	E	1.75±0.1
Punch hole position	F	5.5±0.05
Sprocket hole pitch	P	8.0±0.1
Sprocket hole pitch	P0	4.0±0.1
Embossment center	P1	2.0±0.05
Overall tape thickness	T	0.6 (max)
Tape width	W	12.0±0.3
Reel width	W2	18.4 (max)
Reel width	W1	14.4 (max)

