

TRANSIENT VOLTAGE SUPPRESSOR

SMB Series

Features

- 600Watts peak pulse power (tp=10/1000μS)
- Low leakage.
- Quick response to surge voltage
- Excellent clamping capability.
- Uni and Bidirectional unit.
- Polarity: Color band denotes cathode end except bipolar



SMB/DO-214AA

Mechanical Data

- Epoxy: UL 94V-0 rate flame retardant.
- Case: SMB/DO-214AA, molded plastic.
- Terminals: solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes cathode end except bipolar.
- Weight: 0.092 gram (approx.)
- RoHS Compliant



BI-directional



UNI-directional

Maximum Ratings (@TA = 25°C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Operating junction and storage temperature range	T_J/T_{STG}	-55 to +150	°C
Steady state power dissipation at $T_L=75^\circ\text{C}$	$P_{M(AV)}$	5.0	W
Peak pulse power dissipation on 10/1000μs waveform	P_{PP}	600	W
Maximum instantaneous forward voltage at 50A for unidirectional	V_F	5.0	V
Peak forward surge current, 8.3ms single half sine wave (1)	I_{FSM}	100	A
Typical thermal resistance junction to lead	$R_{\theta_{JL}}$	20	°C/W
Typical thermal resistance	$R_{\theta_{JA}}$	100	°C/W

Notes: 1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

Electrical Characteristic (@TA = 25°C, unless otherwise specified)

Part Number		V _R	I _R @V _R	V _{BR} @I _T (2)		I _T	V _C @I _{PP}	I _{PP} (3)
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
SMBJ5.0A	SMBJ5.0CA	5	120	6.4	7	10	9.2	65.2
SMBJ6.0A	SMBJ6.0CA	6	120	6.67	7.37	10	10.3	58.3
SMBJ6.5A	SMBJ6.5CA	6.5	120	7.22	7.98	10	11.2	53.6
SMBJ7.0A	SMBJ7.0CA	7	50	7.78	8.6	10	12	50
SMBJ7.5A	SMBJ7.5CA	7.5	50	8.33	9.21	1	12.9	46.5
SMBJ8.0A	SMBJ8.0CA	8	20	8.89	9.83	1	13.6	44.1
SMBJ8.5A	SMBJ8.5CA	8.5	10	9.44	10.4	1	14.4	41.7
SMBJ9.0A	SMBJ9.0CA	9	5	10	11.1	1	15.4	39
SMBJ10A	SMBJ10CA	10	2	11.1	12.3	1	17	35.3
SMBJ11A	SMBJ11CA	11	1	12.2	13.5	1	18.2	33
SMBJ12A	SMBJ12CA	12	1	13.3	14.7	1	19.9	30.2
SMBJ13A	SMBJ13CA	13	1	14.4	15.9	1	21.5	27.9
SMBJ14A	SMBJ14CA	14	1	15.6	17.2	1	23.2	25.9
SMBJ15A	SMBJ15CA	15	1	16.7	18.5	1	24.4	24.6
SMBJ16A	SMBJ16CA	16	1	17.8	19.7	1	26	23.1
SMBJ17A	SMBJ17CA	17	1	18.9	20.9	1	27.6	21.8
SMBJ18A	SMBJ18CA	18	1	20	22.1	1	29.2	20.6
SMBJ20A	SMBJ20CA	20	1	22.2	24.5	1	32.4	18.6
SMBJ22A	SMBJ22CA	22	1	24.4	26.9	1	35.5	16.9
SMBJ24A	SMBJ24CA	24	1	26.7	29.5	1	38.9	15.4
SMBJ26A	SMBJ26CA	26	1	28.9	31.9	1	42.1	14.3
SMBJ28A	SMBJ28CA	28	1	31.1	34.4	1	45.4	13.2
SMBJ30A	SMBJ30CA	30	1	33.3	36.8	1	48.4	12.4
SMBJ33A	SMBJ33CA	33	1	36.7	40.6	1	53.3	11.3
SMBJ36A	SMBJ36CA	36	1	40	44.2	1	58.1	10.4
SMBJ40A	SMBJ40CA	40	1	44.4	49.1	1	64.5	9.3
SMBJ43A	SMBJ43CA	43	1	47.8	52.8	1	69.4	8.7
SMBJ45A	SMBJ45CA	45	1	50	55.3	1	72.7	8.3
SMBJ48A	SMBJ48CA	48	1	53.3	58.9	1	77.4	7.8
SMBJ51A	SMBJ51CA	51	1	56.7	62.7	1	82.4	7.3
SMBJ54A	SMBJ54CA	54	1	60	66.3	1	87.1	6.9
SMBJ58A	SMBJ58CA	58	1	64.4	71.2	1	93.6	6.4
SMBJ60A	SMBJ60CA	60	1	66.7	73.7	1	96.8	6.2

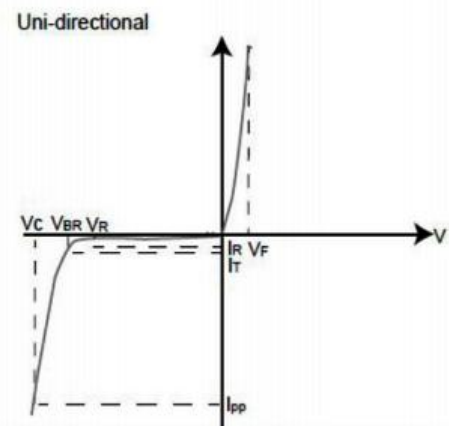
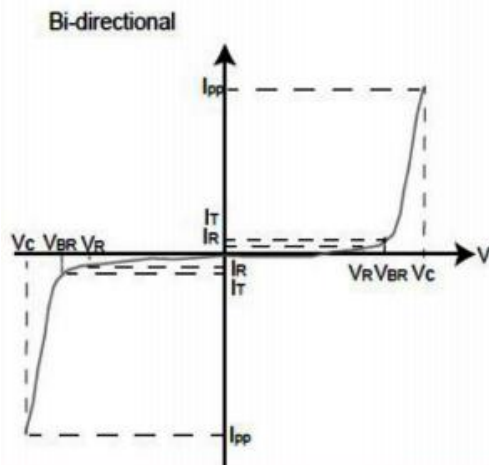
Part Number		V_R	$I_R@V_R$	$V_{BR}@I_T(2)$		I_T	$V_C@I_{PP}$	$I_{PP}(3)$
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
SMBJ64A	SMBJ64CA	64	1	71.1	78.6	1	103	5.8
SMBJ70A	SMBJ70CA	70	1	77.8	86	1	113	5.3
SMBJ75A	SMBJ75CA	75	1	83.3	92.1	1	121	5
SMBJ78A	SMBJ78CA	78	1	86.7	95.8	1	126	4.8
SMBJ85A	SMBJ85CA	85	1	94.4	104	1	137	4.4
SMBJ90A	SMBJ90CA	90	1	100	111	1	146	4.1
SMBJ100A	SMBJ100CA	100	1	111	123	1	162	3.7
SMBJ110A	SMBJ110CA	110	1	122	135	1	177	3.4
SMBJ120A	SMBJ120CA	120	1	133	147	1	193	3.1
SMBJ130A	SMBJ130CA	130	1	144	159	1	209	2.9
SMBJ150A	SMBJ150CA	150	1	167	185	1	243	2.5
SMBJ160A	SMBJ160CA	160	1	178	197	1	259	2.3
SMBJ170A	SMBJ170CA	170	1	189	209	1	275	2.2
SMBJ180A	SMBJ180CA	180	1	201	222	1	292	2.1
SMBJ190A	SMBJ190CA	190	1	211	234	1	307	2
SMBJ200A	SMBJ200CA	200	1	224	247	1	324	1.9
SMBJ210A	SMBJ210CA	210	1	233	258	1	337	1.8
SMBJ220A	SMBJ220CA	220	1	246	272	1	356	1.7
SMBJ250A	SMBJ250CA	250	1	279	309	1	405	1.5
SMBJ300A	SMBJ300CA	300	1	335	371	1	486	1.3
SMBJ350A	SMBJ350CA	350	1	391	432	1	567	1.1
SMBJ400A	SMBJ400CA	400	1	447	494	1	648	0.9
SMBJ440A	SMBJ440CA	440	1	492	543	1	713	0.8

Notes: 2. V_{BR} measured with I_T current pulse = 10 ~ 15ms

3. Per 10 x 1000 μ s waveform

4. For bidirectional type having V_R of 10 volts and less, the I_R limit is double

V-I Curve



Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

Fig.1 - Pulse Derating Curve

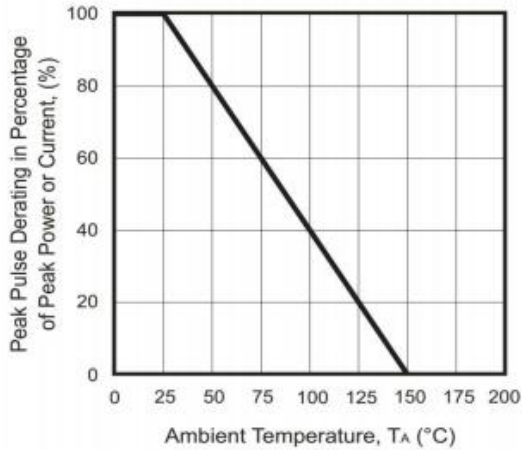


Fig.2 - Max. Non-Repetitive Surge Current

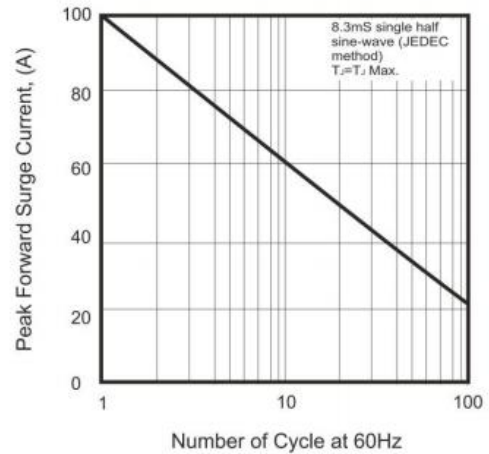


Fig.3 - Steady State Power Derating Curve

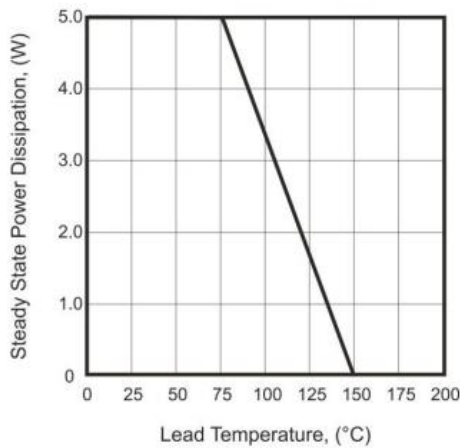


Fig.4 - Peak Pulse Power Rating Curve

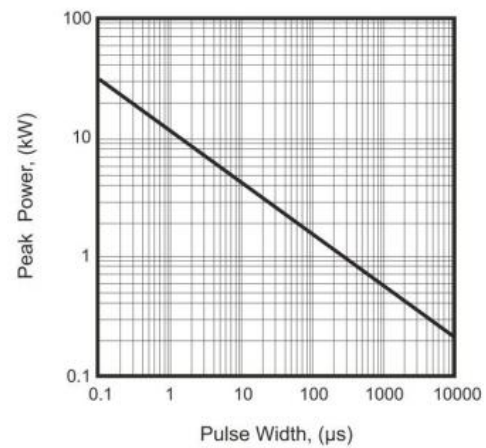


Fig.5 - Pulse Waveform

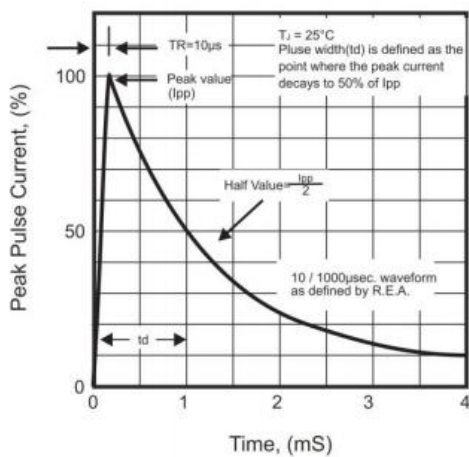
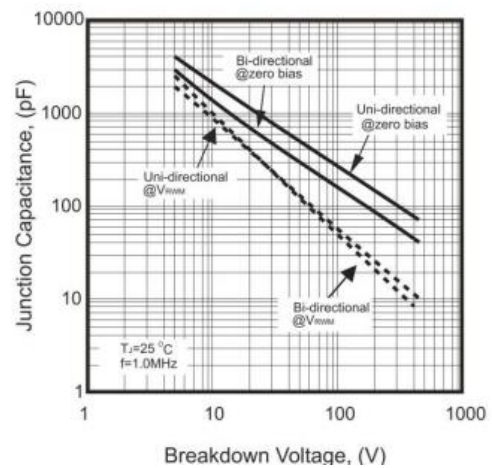
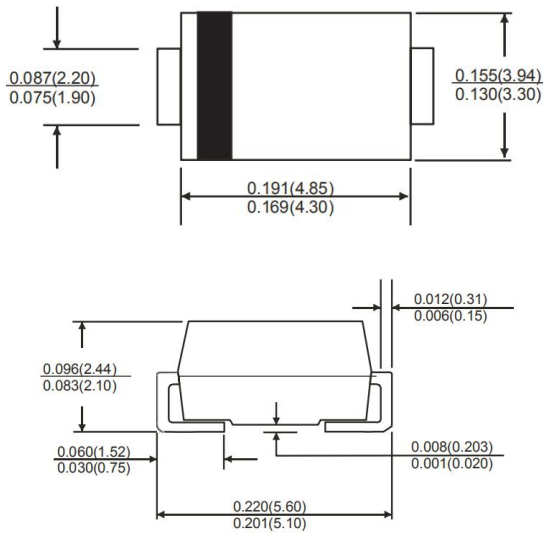


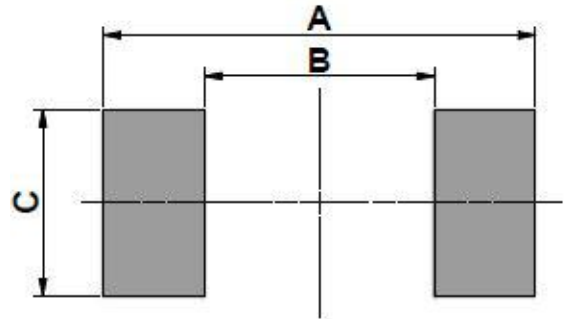
Fig.6 - Typical Junction Capacitance



Product Dimensions And Suggested PAD Layout



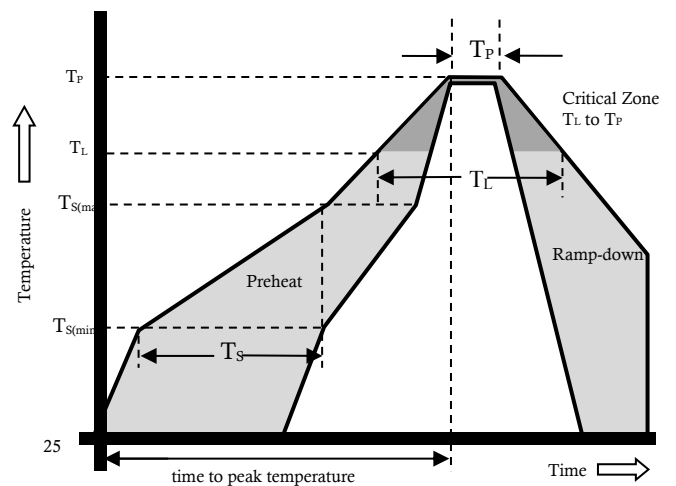
SMB/DO-214AA



REF	mm	inch
A	5.60	0.222
B	2.16max	0.085max
C	2.18min	0.086min

Reflow Profile

Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time(Min to Max)	60 – 180 seconds
Average ramp up rate (Liquidus Temp (T _L) to peak)		3°C/second max
T _S (max) to T _L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T _L) (Liquidus)	217°C
	- Temperature (T _L)	60 – 150 seconds
Peak Temp (T _P)		260+0/-5 °C
Time within 5°C of actual Peak Temp (T _P)		8-15 seconds
Ramp-down Rate		6°C/s max
Time 25°C to peak Temp (T _P)		8 min max.
Do not exceed		260°C



Part Number System

SMBJ XXX C A

(1) (2) (3) (4)

(1) Series Code

(2) Reverse Stand-Off Voltage

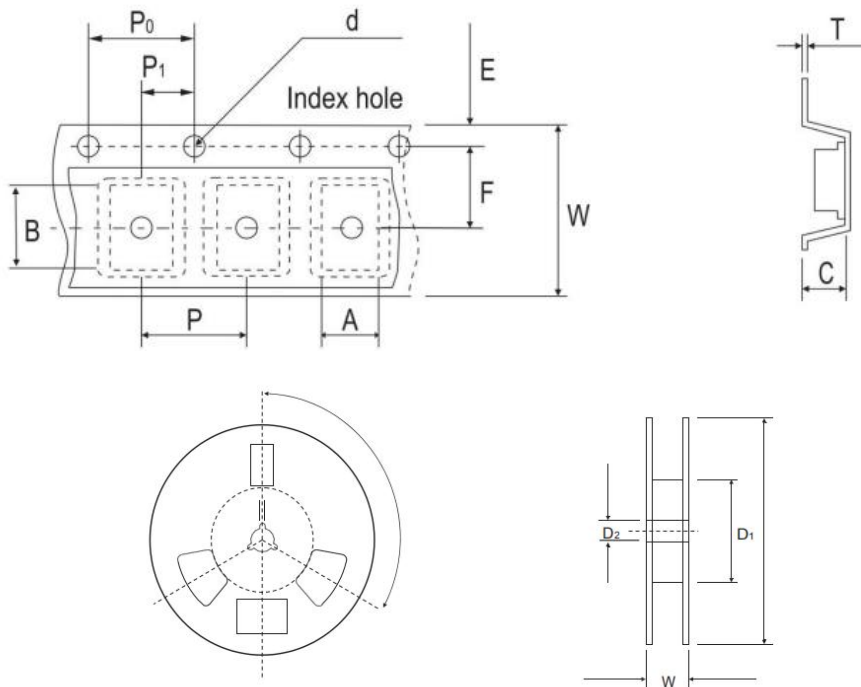
(3)BI-directional

(4)Suffix 'A' denotes 5% tolerance devices

Marking Codes

Part Number	SMBJXXXXA
	SMBJXXXXCA
Marking Code	SMBJXXXXA
	SMBJXXXXCA

Reel Taping Specification



DO-214AA (SMB)	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.67 ± 0.10	5.69 ± 0.10	4.50 (max)	1.55 ± 0.10	330	50.00 (min)	13.00 ± 0.20
	(inch)	0.144 ± 0.004	0.224 ± 0.004	0.177 (max)	0.061 ± 0.004	13	1.969 (min)	0.512 ± 0.008
	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	5.50 ± 0.05	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	12.00 ± 0.30	18.40 (max)
	(inch)	0.069 ± 0.004	0.217 ± 0.002	0.315 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.472 ± 0.012	0.724 (max)

Ordering information

Package	Base qty	Reel Size	Delivery mode
DO-214AA (SMB)	3000 PCS	13 inch	Tape and reel



NOTICE

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