

### 600W Transient Voltage Suppressors

#### Features

- Glass passivated chip.
- 600W peak pulse power capability with a 10/1000  $\mu$ s waveform, repetitive rate (duty cycle):0.01%.
- IEC 61000-4-2 (ESD)  $\pm$ 30kV (air),  $\pm$ 30kV (contact)
- Low leakage.
- Uni and Bidirectional unit.
- Excellent clamping capability.
- Very fast response time.
- RoHS Compliant.

#### Mechanical Data

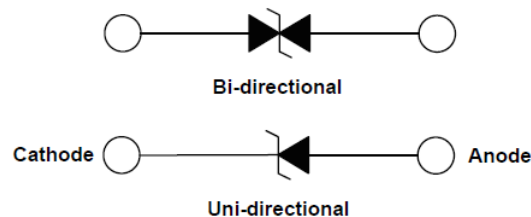
- Case: Epoxy, Molded
- Epoxy: UL 94V-0 rate flame retardant.
- Lead: Solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes cathode end.
- Moisture Sensitivity: Level 1 per J-STD-020.

#### SMB/DO-214AA



Bi-directional

UNI-directional



#### Applications

- Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, telecommunication.

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

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000 $\mu$ s waveform <sup>(1)</sup>	$P_{PP}$	600	W
Peak pulse current with a 10/1000 $\mu$ s waveform <sup>(1)</sup>	$I_{PP}$	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	$P_D$	5.0	W
ESD per IEC 61000-4-2 (Air)	$V_{ESD}$	$\pm$ 30	KV
ESD per IEC 61000-4-2 (Contact)		$\pm$ 30	KV
Peak forward surge current, 8.3 ms single half sinewave unidirectional only <sup>(2)</sup>	$I_{FSM}$	100	A
Maximum instantaneous forward voltage at 25 A for unidirectional only <sup>(3)</sup>	$V_F$	3.5/5.0	V
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 ~150	$^\circ\text{C}$

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  $V_{BR} > 201\text{V}$

Electrical Characteristics (T <sub>A</sub> = 25°C Unless otherwise noted)										
Part Number (UNI)	Part Number (Bi)	Marking Code		Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub>			Maximum Reverse Leakage I <sub>R</sub> @V <sub>RWM</sub> (μA)	Working Reverse Voltage V <sub>RWM</sub> (V)	Maximum Clamping Voltage V <sub>C</sub> @I <sub>PP</sub> (V)	Maximum Reverse Current I <sub>PP</sub> (A)
		UNI	Bi	Min (V)	Max (V)	I <sub>T</sub> (mA)				
SMBJ5.0A-T	SMBJ5.0CA-T	KE	AE	6.4	7	10	800/1600	5	9.2	65.22
SMBJ6.0A-T	SMBJ6.0CA-T	KG	AG	6.67	7.37	10	800/1600	6	10.3	58.25
SMBJ6.5A-T	SMBJ6.5CA-T	KK	AK	7.22	7.98	10	500/1000	6.5	11.2	53.57
SMBJ7.0A-T	SMBJ7.0CA-T	KM	AM	7.78	8.6	10	200/400	7	12	50
SMBJ7.5A-T	SMBJ7.5CA-T	KP	AP	8.33	9.21	1	100/200	7.5	12.9	46.51
SMBJ8.0A-T	SMBJ8.0CA-T	KR	AR	8.89	9.83	1	50/100	8	13.6	44.12
SMBJ8.5A-T	SMBJ8.5CA-T	KT	AT	9.44	10.4	1	10/20	8.5	14.4	41.67
SMBJ9.0A-T	SMBJ9.0CA-T	KV	AV	10	11.1	1	5	9	15.4	38.96
SMBJ10A-T	SMBJ10CA-T	KX	AX	11.1	12.3	1	5	10	17	35.29
SMBJ11A-T	SMBJ11CA-T	KZ	AZ	12.2	13.5	1	1	11	18.2	32.97
SMBJ12A-T	SMBJ12CA-T	LE	BE	13.3	14.7	1	1	12	19.9	30.15
SMBJ13A-T	SMBJ13CA-T	LG	BG	14.4	15.9	1	1	13	21.5	27.91
SMBJ14A-T	SMBJ14CA-T	LK	BK	15.6	17.2	1	1	14	23.2	25.86
SMBJ15A-T	SMBJ15CA-T	LM	BM	16.7	18.5	1	1	15	24.4	24.59
SMBJ16A-T	SMBJ16CA-T	LP	BP	17.8	19.7	1	1	16	26	23.08
SMBJ17A-T	SMBJ17CA-T	LR	BR	18.9	20.9	1	1	17	27.6	21.74
SMBJ18A-T	SMBJ18CA-T	LT	BT	20	22.1	1	1	18	29.2	20.55
SMBJ19A-T	SMBJ19CA-T	LB	BB	21.1	23.3	1	1	19	30.8	19.49
SMBJ20A-T	SMBJ20CA-T	LV	BV	22.2	24.5	1	1	20	32.4	18.52
SMBJ22A-T	SMBJ22CA-T	LX	BX	24.4	26.9	1	1	22	35.5	16.9
SMBJ24A-T	SMBJ24CA-T	LZ	BZ	26.7	29.5	1	1	24	38.9	15.42
SMBJ26A-T	SMBJ26CA-T	ME	CE	28.9	31.9	1	1	26	42.1	14.25
SMBJ28A-T	SMBJ28CA-T	MG	CG	31.1	34.4	1	1	28	45.4	13.22
SMBJ30A-T	SMBJ30CA-T	MK	CK	33.3	36.8	1	1	30	48.4	12.4
SMBJ33A-T	SMBJ33CA-T	MM	CM	36.7	40.6	1	1	33	53.3	11.26
SMBJ36A-T	SMBJ36CA-T	MP	CP	40	44.2	1	1	36	58.1	10.33
SMBJ40A-T	SMBJ40CA-T	MR	CR	44.4	49.1	1	1	40	64.5	9.3
SMBJ43A-T	SMBJ43CA-T	MT	CT	47.8	52.8	1	1	43	69.4	8.65
SMBJ45A-T	SMBJ45CA-T	MV	CV	50	55.3	1	1	45	72.7	8.25
SMBJ48A-T	SMBJ48CA-T	MX	CX	53.3	58.9	1	1	48	77.4	7.75

Electrical Characteristics (T <sub>A</sub> = 25°C Unless otherwise noted)										
Part Number (UNI)	Part Number (Bi)	Marking Code		Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub>			Maximum Reverse Leakage I <sub>R</sub> @V <sub>RWM</sub> (μA)	Working Reverse Voltage V <sub>RWM</sub> (V)	Maximum Clamping Voltage V <sub>C</sub> @I <sub>PP</sub> (V)	Maximum Reverse Current I <sub>PP</sub> (A)
		UNI	Bi	Min (V)	Max (V)	I <sub>T</sub> (mA)				
SMBJ51A-T	SMBJ51CA-T	MZ	CZ	56.7	62.7	1	1	51	82.4	7.28
SMBJ54A-T	SMBJ54CA-T	NE	DE	60	66.3	1	1	54	87.1	6.89
SMBJ58A-T	SMBJ58CA-T	NG	DG	64.4	71.2	1	1	58	93.6	6.41
SMBJ60A-T	SMBJ60CA-T	NK	DK	66.7	73.7	1	1	60	96.8	6.2
SMBJ64A-T	SMBJ64CA-T	NM	DM	71.1	78.6	1	1	64	103	5.83
SMBJ70A-T	SMBJ70CA-T	NP	DP	77.8	86	1	1	70	113	5.31
SMBJ75A-T	SMBJ75CA-T	NR	DR	83.3	92.1	1	1	75	121	4.96
SMBJ78A-T	SMBJ78CA-T	NT	DT	86.7	95.8	1	1	78	126	4.76
SMBJ80A-T	SMBJ80CA-T	NB	DB	88.8	97.6	1	1	80	129.6	4.63
SMBJ85A-T	SMBJ85CA-T	NV	DV	94.4	104	1	1	85	137	4.38
SMBJ90A-T	SMBJ90CA-T	NX	DX	100	111	1	1	90	146	4.11
SMBJ100A-T	SMBJ100CA-T	NZ	DZ	111	123	1	1	100	162	3.7
SMBJ110A-T	SMBJ110CA-T	PE	EE	122	135	1	1	110	177	3.39
SMBJ120A-T	SMBJ120CA-T	PG	EG	133	147	1	1	120	193	3.11
SMBJ130A-T	SMBJ130CA-T	PK	EK	144	159	1	1	130	209	2.87
SMBJ140A-T	SMBJ140CA-T	PB	EB	155	171	1	1	140	226.8	2.65
SMBJ150A-T	SMBJ150CA-T	PM	EM	167	185	1	1	150	243	2.47
SMBJ160A-T	SMBJ160CA-T	PP	EP	178	197	1	1	160	259	2.32
SMBJ170A-T	SMBJ170CA-T	PR	ER	189	209	1	1	170	275	2.18
SMBJ180A-T	SMBJ180CA-T	PT	ET	200	220	1	1	180	291.6	2.06
SMBJ190A-T	SMBJ190CA-T	PV	EV	211	232	1	1	190	307.8	1.95
SMBJ200A-T	SMBJ200CA-T	PW	EW	224	247	1	5	200	324	1.85
SMBJ220A-T	SMBJ220CA-T	PX	EX	246	272	1	5	220	356	1.69
SMBJ250A-T	SMBJ250CA-T	PZ	EZ	279	309	1	5	250	405	1.48
SMBJ300A-T	SMBJ300CA-T	QE	FE	335	371	1	5	300	486	1.23
SMBJ350A-T	SMBJ350CA-T	QG	FG	391	432	1	5	350	567	1.06
SMBJ400A-T	SMBJ400CA-T	QK	FK	447	494	1	5	400	648	0.93
SMBJ440A-T	SMBJ440CA-T	QM	FM	492	543	1	5	440	713	0.84

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

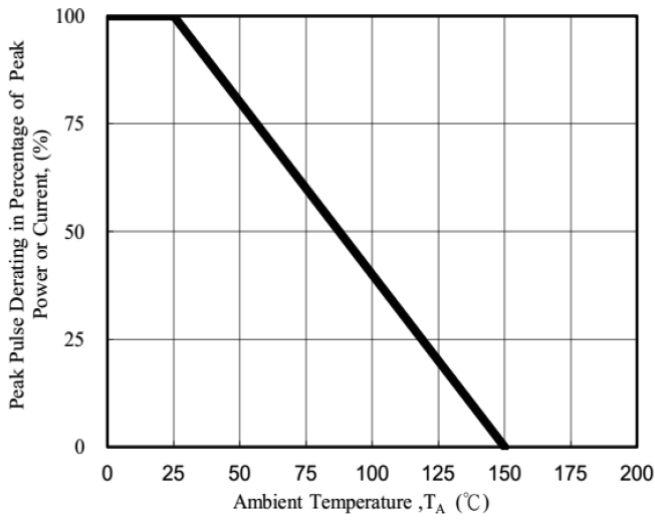


Fig 1. Pulse Derating Curve

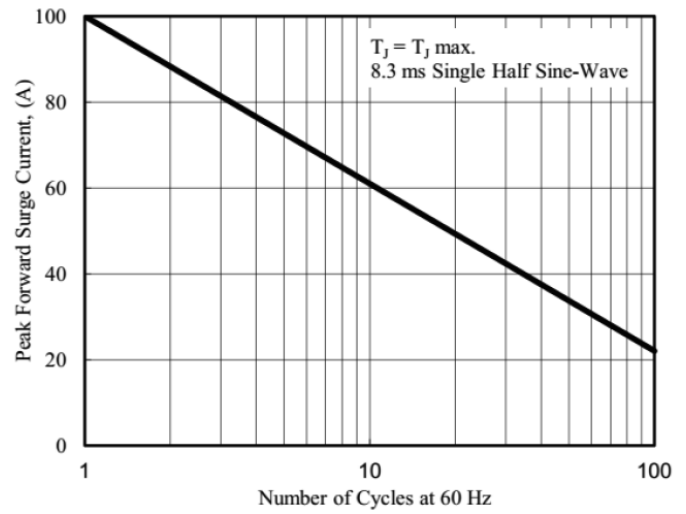


Fig 2. Maximum Non-Repetitive Surge Current

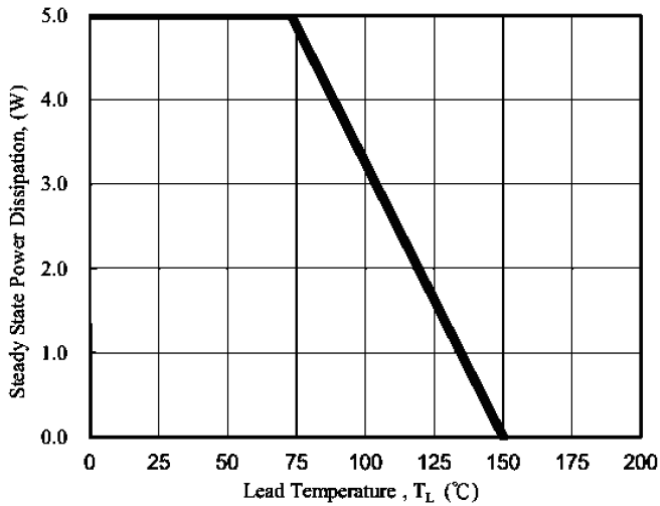


Fig 3. Steady State Power Derating Curve

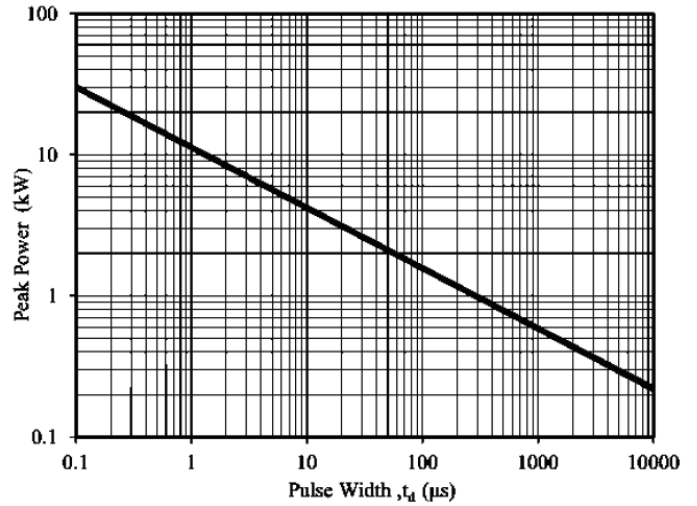


Fig 4. Peak Pulse Power Rating Curve

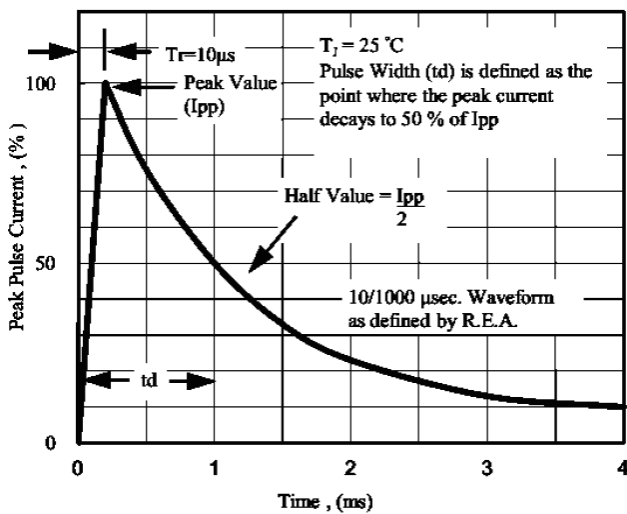


Fig 5. Pulse Waveform

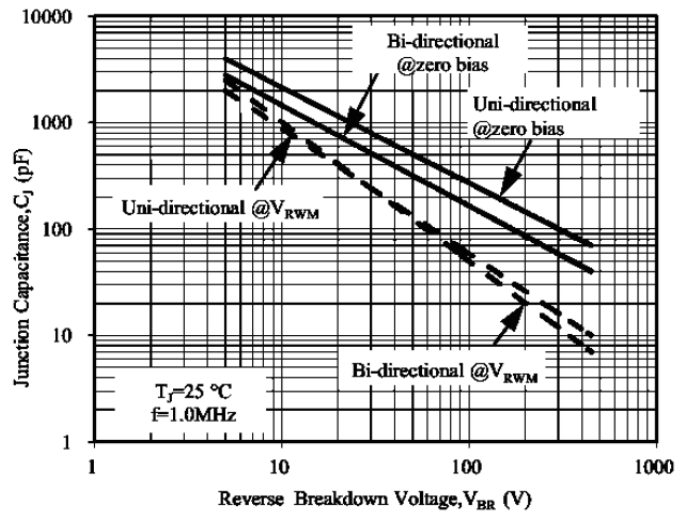
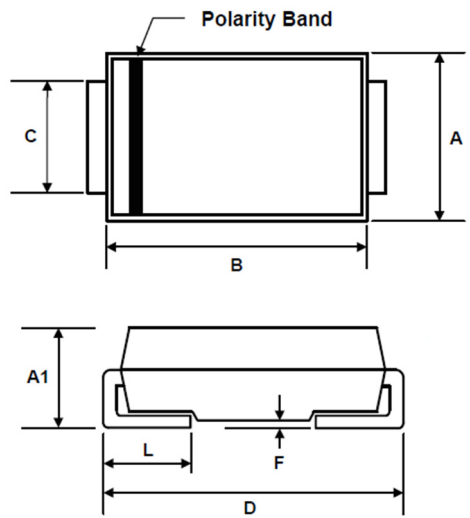
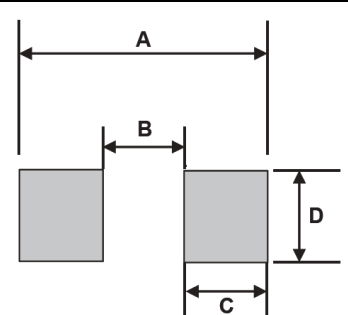


Fig 6. Typical Junction Capacitance

### Package Outline Drawing

Symbol	Dimensions		
	Millimeters		
	Min.	Max.	
A	3.30	3.94	
B	4.06	4.85	
C	1.78	2.20	
A1	1.95	2.65	
D	4.80	5.59	
L	0.76	1.52	
F	0.00	0.31	

### Suggested PAD Layout

Symbol	Dimensions	
	Millimeters	
A	7.06	
B	2.74	
C	2.16	
D	2.26	

### Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
SMBJxxx(A)CA-T	DO-214AA(SMB)	3,000	13	Tape and reel