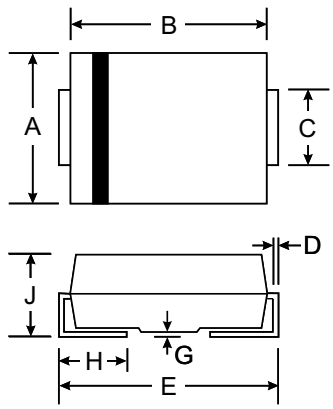
SMBJ SERIES

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR DIODE

VOLTAGE RANGE: 5.0 - 440 V
POWER: 600Watts

Features

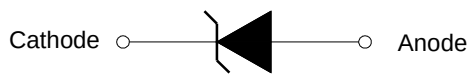
- Glass Passivated Die Construction
- Peak power dissipation 600W @10 x 1000 us Pulse
- Excellent Clamping Capability
- Fast response time:
  typically less than 1 ns for Uni-direction.
  Less than 5 ns for Bi-direction, from 0 Volts to BV min
- Typical IR less than 1uA above 10V.
- Low profile package.
- Plastic Material: UL Flammability Classification Rating 94V-0
- RoHS compliant in lead-free versions



SMB(DO-214AA)		
Dim	**Min**	**Max**
A	3.30	3.94
B	4.06	4.70
C	1.91	2.21
D	0.15	0.31
E	5.00	5.59
G	0.10	0.20
H	0.76	1.52
J	2.00	2.62
All Dimensions in mm		

Mechanical Data

- Case: SMB/DO-214AA, Molded Plastic
- Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
- Polarity: Cathode Band or Cathode Notch
- Marking: Type Number
- Weight: 0.093 grams (approx.)



Uni-direction


Bi-directional

RoHS COMPLIANT

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation (Non repetitive current pulse derated above T_A = 25°C) (Note 1)	P_{PK}	600	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Notes 1, 2, & 3)	I_{FSM}	100	A
Instantaneous Forward Voltage @ I_{PP} = 35A (Notes 1, 2, & 3) V_{BR}<100V V_{BR} ≥100V	V_F	3.5 5.0	V V
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +150	°C

Notes: 1. Valid provided that terminals are kept at ambient temperature.
2. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
3. Unidirectional units only.

Electrical Specification @ Tamb 25°C

Type Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I_T	Breakdown Voltage Max. @ I_T	Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RMW}
(Uni)	(Bi)	(Uni)	(Bi)	V_{RMW}(V)	$V_{BR\ MIN}$(V)	$V_{BR\ MAX}$(V)	I_T (mA)	V_C(V)	I_{PP}(A)	I_R(uA)
SMBJ3.3A	SMBJ3.3CA	KC	AA	3.3	4.10	4.60	1.0	7.3	50.0	200.0
SMBJ5.0A	SMBJ5.0CA	KE	AE	5.0	6.40	7.25	10	9.2	65.2	800.0
SMBJ6.0A	SMBJ6.0CA	KG	AG	6.0	6.67	7.67	10	10.3	58.3	800.0
SMBJ6.5A	SMBJ6.5CA	KK	AK	6.5	7.22	8.30	10	11.2	53.6	500.0
SMBJ7.0A	SMBJ7.0CA	KM	AM	7.0	7.78	8.95	10	12.0	50.0	200.0
SMBJ7.5A	SMBJ7.5CA	KP	AP	7.5	8.33	9.58	1.0	12.9	46.5	100.0
SMBJ8.0A	SMBJ8.0CA	KR	AR	8.0	8.89	10.23	1.0	13.6	44.1	50.0
SMBJ8.5A	SMBJ8.5CA	KT	AT	8.5	9.44	10.82	1.0	14.4	41.7	20.0
SMBJ9.0A	SMBJ9.0CA	KV	AV	9.0	10.0	11.5	1.0	15.4	39.0	10.0
SMBJ10A	SMBJ10CA	KX	AX	10	11.1	12.8	1.0	17.0	35.3	5.0
SMBJ11A	SMBJ11CA	KZ	AZ	11	12.2	14.0	1.0	18.2	33.0	5.0
SMBJ12A	SMBJ12CA	LE	BE	12	13.3	15.3	1.0	19.9	30.2	5.0
SMBJ13A	SMBJ13CA	LG	BG	13	14.4	16.5	1.0	21.5	27.9	5.0
SMBJ14A	SMBJ14CA	LK	BK	14	15.6	17.9	1.0	23.2	25.9	5.0
SMBJ15A	SMBJ15CA	LM	BM	15	16.7	19.2	1.0	24.4	24.6	5.0
SMBJ16A	SMBJ16CA	LP	BP	16	17.8	20.5	1.0	26.0	23.1	5.0
SMBJ17A	SMBJ17CA	LR	BR	17	18.9	21.7	1.0	27.6	21.7	5.0
SMBJ18A	SMBJ18CA	LT	BT	18	20.0	23.3	1.0	29.2	20.5	5.0
SMBJ20A	SMBJ20CA	LV	BV	20	22.2	25.5	1.0	32.4	18.5	5.0
SMBJ22A	SMBJ22CA	LX	BX	22	24.4	28.0	1.0	35.5	16.9	5.0
SMBJ24A	SMBJ24CA	LZ	BZ	24	26.7	30.7	1.0	38.9	15.4	5.0
SMBJ26A	SMBJ26CA	ME	CE	26	28.9	33.2	1.0	42.1	14.3	5.0
SMBJ28A	SMBJ28CA	MG	CG	28	31.1	35.8	1.0	45.4	13.2	5.0
SMBJ30A	SMBJ30CA	MK	CK	30	33.3	38.3	1.0	48.4	12.4	5.0
SMBJ33A	SMBJ33CA	MM	CM	33	36.7	42.2	1.0	53.3	11.3	5.0
SMBJ36A	SMBJ36CA	MP	CP	36	40.0	44.2	1.0	58.1	10.3	5.0
SMBJ40A	SMBJ40CA	MR	CR	40	44.4	51.1	1.0	64.5	9.3	5.0
SMBJ43A	SMBJ43CA	MT	CT	43	47.8	54.9	1.0	69.4	8.6	5.0
SMBJ45A	SMBJ45CA	MV	CV	45	50.0	57.5	1.0	72.7	8.3	5.0
SMBJ48A	SMBJ48CA	MX	CX	48	53.3	61.3	1.0	77.4	7.8	5.0
SMBJ51A	SMBJ51CA	MZ	CZ	51	56.7	65.2	1.0	82.4	7.3	5.0
SMBJ54A	SMBJ54CA	NE	DE	54	60.0	69.0	1.0	87.1	6.9	5.0
SMBJ58A	SMBJ58CA	NG	DG	58	64.4	74.1	1.0	93.6	6.4	5.0
SMBJ60A	SMBJ60CA	NK	DK	60	66.7	76.7	1.0	96.8	6.2	5.0
SMBJ64A	SMBJ64CA	NM	DM	64	71.1	81.8	1.0	103	5.8	5.0
SMBJ70A	SMBJ70CA	NP	DP	70	77.8	89.5	1.0	113	5.3	5.0

Note:

(1) V_{BR} measured after I_T applied for 300 µs., I_T = square wave pulse or equivalent.

(2) Surge Current Waveform per Figure 5 and Derate per Figure 1

(3) A Transient suppressor is normally selected according to the reverse " Stand-off Voltage " (V_{WM}) which should be equal to or greater then the D.C. or continuous peak operating voltage level.

Electrical Specification @ Tamb 25°C

Type Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I_T	Breakdown Voltage Max. @ I_T	Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RMW}
(Uni)	(Bi)	(Uni)	(Bi)	V_{RMW}(V)	$V_{BR\ MIN}$(V)	$V_{BR\ MAX}$(V)	I_T (mA)	V_C(V)	I_{PP}(A)	I_R(uA)
SMBJ75A	SMBJ75CA	NR	DR	75	83.0	95.8	1.0	121	5.0	5.0
SMBJ78A	SMBJ78CA	NT	DT	78	86.0	99.7	1.0	126	4.8	5.0
SMBJ85A	SMBJ85CA	NV	DV	85	94.0	108.2	1.0	137	4.4	5.0
SMBJ90A	SMBJ90CA	NX	DX	90	100	115.5	1.0	146	4.1	5.0
SMBJ100A	SMBJ100CA	NZ	DZ	100	111	128.0	1.0	162	3.7	5.0
SMBJ110A	SMBJ110CA	PE	EE	110	122	140.5	1.0	177	3.4	5.0
SMBJ120A	SMBJ120CA	PG	EG	120	133	153.0	1.0	193	3.1	5.0
SMBJ130A	SMBJ130CA	PK	EK	130	144	165.5	1.0	209	2.9	5.0
SMBJ150A	SMBJ150CA	PM	EM	150	167	192.5	1.0	243	2.5	5.0
SMBJ160A	SMBJ160CA	PP	EP	160	178	205.0	1.0	259	2.3	5.0
SMBJ170A	SMBJ170CA	PR	ER	170	189	217.5	1.0	275	2.2	5.0
SMBJ180A	SMBJ180CA	PT	ET	180	200	230.4	1.0	290	2.1	5.0
SMBJ190A	SMBJ190CA	PV	EV	190	211	243.2	1.0	306	2.0	5.0
SMBJ200A	SMBJ200CA	PX	EX	200	222	256.0	1.0	322	1.9	5.0
SMBJ210A	SMBJ210CA	PZ	EZ	210	233	268.8	1.0	339	1.8	5.0
SMBJ220A	SMBJ220CA	QE	FE	220	244	281.6	1.0	355	1.7	5.0
SMBJ250A	SMBJ250CA	QG	FG	250	278	309.0	1.0	403	1.5	5.0
SMBJ300A	SMBJ300CA	QK	FK	300	333	371.0	1.0	484	1.2	5.0
SMBJ350A	SMBJ350CA	QM	FM	350	389	432.0	1.0	565	1.1	5.0
SMBJ400A	SMBJ400CA	QP	FP	400	444	494.0	1.0	645	0.9	5.0
SMBJ440A	SMBJ440CA	QR	FR	440	489	543.0	1.0	710	0.8	5.0

Note:

(1) V_{BR} measured after I_T applied for 300 µs., I =square wave pulse or equivalent.

(2) Surge Current Waveform per Figure 5 and Derate per Figure 1

(3) A Transient suppressor is normally selected according to the reverse " Stand-off Voltage " (V_{WM}) which should be equal to or greater then the D.C. or continuous peak operating voltage level.

Ratings and Characteristic Curves T_A =25°C unless otherwise noted

Figure 1 - Peak Pulse Power Rating Curve

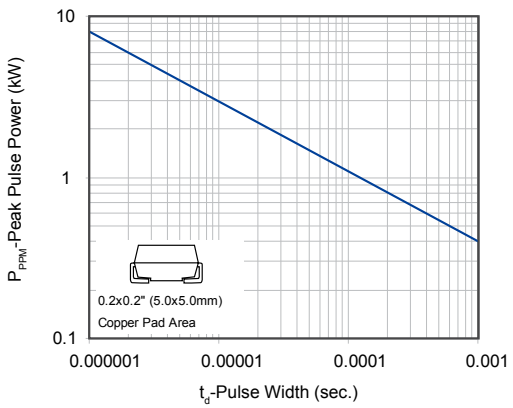


Figure 2 - Pulse Derating Curve

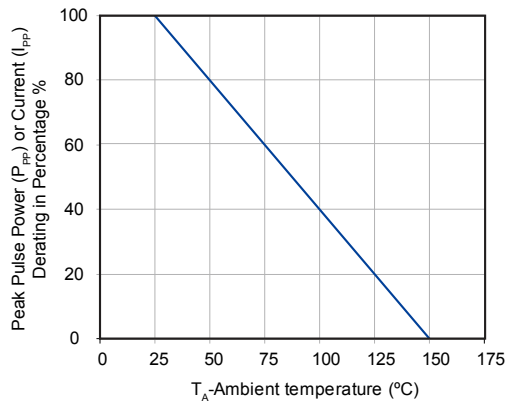


Figure 3 - Pulse Waveform

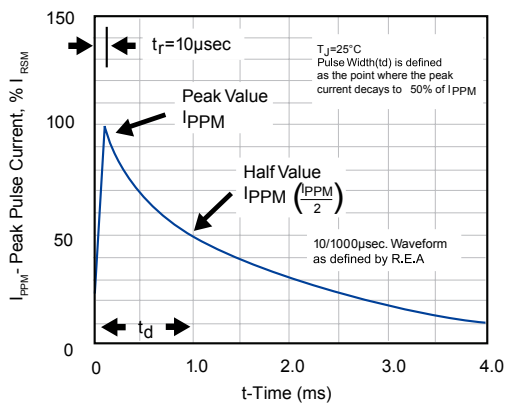


Figure 4 - Typical Junction Capacitance

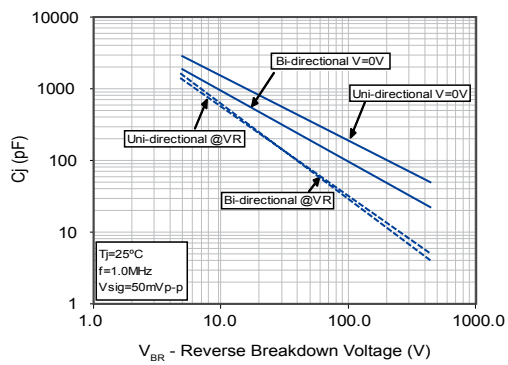


Figure 5 - Steady State Power Derating Curve

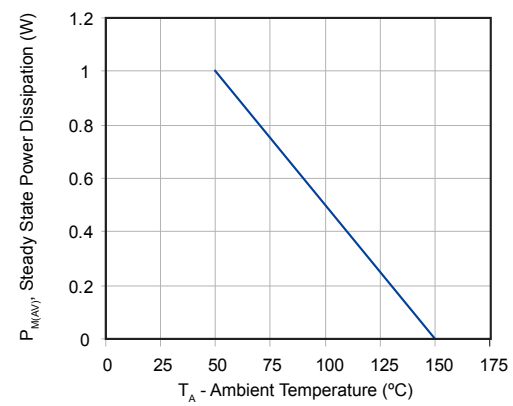
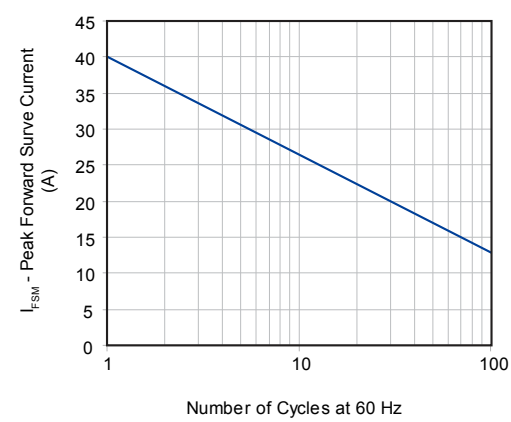


Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current



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