

SMBJ5.0(C)A THRU SMBJ440(C)A

600W Surface Mount Transient Voltage Suppressors

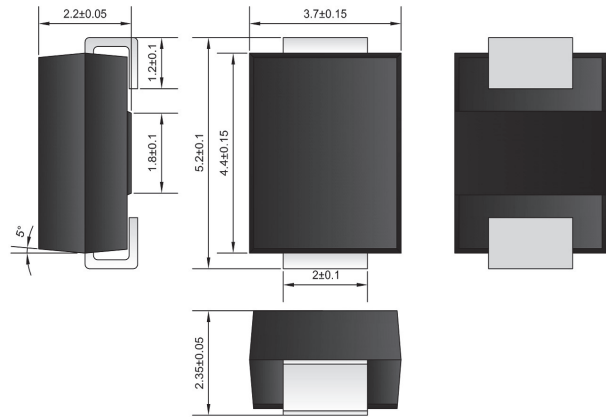
■ Features

- 600W peak pulse power capability with a 10/1000us waveform, repetition rate (duty cycle): 0.01%.
- Excellent clamping capability.
- Low incremental surge resistance.
- Glass passivated chip junction.
- Ultra high-speed switching.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228

■ Mechanical data

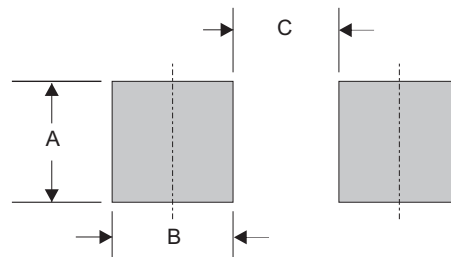
- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, DO-214AA / SMB
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Weight : 0.003 ounce, 0.091 gram

■ Outline SMB(DO-214AA)



Dimensions in millimeters

■ SMB foot print



A	B	C
0.091 (2.30)	0.098 (2.50)	0.071 (1.80)

Dimensions in inches and (millimeters)

■ Maximum ratings and electrical characteristics

Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Parameter	Conditions	Symbol	SMBJ series	UNIT
Peak power dissipation	with a 10/1000us waveform, note 1	P_{PPM}	600	W
Peak forward surge current	8.3ms single half sine-wave superimposed on rate load (JEDEC method), note 2	I_{FSM}	100	A
Steady state power dissipation	on infinite heatsink at $T_L = 75^\circ\text{C}$	P_D	5.0	W
Peak pulse current	with a 10/1000us waveform, note 1	I_{PPM}	See Table 1	A
Maximum instantaneous forward voltage	at 50A for unidirectional only, note 3	V_F	3.5 / 5.0	V
Operating temperature		T_J	-55 ~ +150	°C
Storage temperature		T_{STG}	-55 ~ +150	°C

Notes : 1. Non-repetitive current pulse, per Fig. 3 and derated above $T_a=25^\circ\text{C}$ per Fig. 2.
 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 $V_{BR} > 201\text{V}$.

RATINGS AND CHARACTERISTIC CURV SMBJ5.0(C)A THRU SMBJ440(C)A

■ Electrical characteristics

table 1

Part No.	Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Peak Forward Surge Current	Maximum Clamping Voltage @I _{PP}		Maximum Leakage Current	Marking Code	
	V _{RWM}	V _{BR Min}	V _{BR Max}	I _T	I _{FSM}	V _C	I _{PP}	I _R @V _{RWM}		
	Volts	Volts	Volts	mA	A	Volts	A	uA	UNI	BI
SMBJ5.0(C)A	5.0	6.40	7.00	10	100	9.2	65.22	500	KE	AE
SMBJ6.0(C)A	6.0	6.67	7.37	10	100	10.3	58.25	500	KG	AG
SMBJ6.5(C)A	6.5	7.22	7.98	10	100	11.2	53.57	500	KK	AK
SMBJ7.0(C)A	7.0	7.78	8.60	10	100	12.0	50.00	200	KM	AM
SMBJ7.5(C)A	7.5	8.33	9.21	1.0	100	12.9	46.51	100	KP	AP
SMBJ8.0(C)A	8.0	8.89	9.83	1.0	100	13.6	44.12	50	KR	AR
SMBJ8.5(C)A	8.5	9.44	10.40	1.0	100	14.4	41.67	10	KT	AT
SMBJ9.0(C)A	9.0	10.00	11.10	1.0	100	15.4	38.96	5	KV	AV
SMBJ10(C)A	10.0	11.10	12.30	1.0	100	17.0	35.29	5	KX	AX
SMBJ11(C)A	11.0	12.20	13.50	1.0	100	18.2	32.97	5	KZ	AZ
SMBJ12(C)A	12.0	13.30	14.70	1.0	100	19.9	30.15	5	LE	BE
SMBJ13(C)A	13.0	14.40	15.90	1.0	100	21.5	27.91	5	LG	BG
SMBJ14(C)A	14.0	15.60	17.20	1.0	100	23.2	25.86	5	LK	BK
SMBJ15(C)A	15.0	16.70	18.50	1.0	100	24.4	24.59	5	LM	BM
SMBJ16(C)A	16.0	17.80	19.70	1.0	100	26.0	23.08	5	LP	BP
SMBJ17(C)A	17.0	18.90	20.90	1.0	100	27.6	21.74	5	LR	BR
SMBJ18(C)A	18.0	20.00	22.10	1.0	100	29.2	20.55	5	LT	BT
SMBJ19(C)A	19.0	21.10	23.30	1.0	100	30.8	19.49	5	LB	BB
SMBJ20(C)A	20.0	22.20	24.50	1.0	100	32.4	18.52	5	LV	BV
SMBJ22(C)A	22.0	24.40	26.90	1.0	100	35.5	16.90	5	LX	BX
SMBJ24(C)A	24.0	26.70	29.50	1.0	100	38.9	15.42	5	LZ	BZ
SMBJ26(C)A	26.0	28.90	31.90	1.0	100	42.1	14.25	5	ME	CE
SMBJ28(C)A	28.0	31.10	34.40	1.0	100	45.4	13.22	5	MG	CG
SMBJ30(C)A	30.0	33.30	36.80	1.0	100	48.4	12.40	5	MK	CK
SMBJ33(C)A	33.0	36.70	40.60	1.0	100	53.3	11.26	5	MM	CM
SMBJ36(C)A	36.0	40.00	44.20	1.0	100	58.1	10.33	5	MP	CP
SMBJ40(C)A	40.0	44.40	49.10	1.0	100	64.5	9.30	5	MR	CR
SMBJ43(C)A	43.0	47.80	52.80	1.0	100	69.4	8.65	5	MT	CT
SMBJ45(C)A	45.0	50.00	55.30	1.0	100	72.7	8.25	5	MV	CV
SMBJ48(C)A	48.0	53.30	58.90	1.0	100	77.4	7.75	5	MX	CX
SMBJ51(C)A	51.0	56.70	62.70	1.0	100	82.4	7.28	5	MZ	CZ
SMBJ54(C)A	54.0	60.00	66.30	1.0	100	87.1	6.89	5	NE	DE
SMBJ58(C)A	58.0	64.40	71.20	1.0	100	93.6	6.41	5	NG	DG
SMBJ60(C)A	60.0	66.70	73.70	1.0	100	96.8	6.20	5	NK	DK
SMBJ64(C)A	64.0	71.10	78.60	1.0	100	103.0	5.83	5	NM	DM
SMBJ70(C)A	70.0	77.80	86.00	1.0	100	113.0	5.31	5	NP	DP

RATINGS AND CHARACTERISTIC CURV SMBJ5.0(C)A THRU SMBJ440(C)A

■ Electrical characteristics

Part No.	Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Peak Forward Surge Current	Maximum Clamping Voltage @ I_{PP}		Maximum Leakage Current	Marking Code	
	V_{RWM}	$V_{BR Min}$	$V_{BR Max}$	I_T	I_{FSM}	V_C	I_{PP}	$I_R @ V_{RWM}$		
	Volts	Volts	Volts	mA	A	Volts	A	uA	UNI	BI
SMBJ75(C)A	75.0	83.00	92.10	1.0	100	121.0	4.96	5	NR	DR
SMBJ78(C)A	78.0	86.70	95.80	1.0	100	126.0	4.76	5	NT	DT
SMBJ80(C)A	80.0	88.80	97.60	1.0	100	129.6	4.63	5	NB	DB
SMBJ85(C)A	85.0	94.40	104.00	1.0	100	137.0	4.38	5	NV	DV
SMBJ90(C)A	90.0	100.00	111.00	1.0	100	146.0	4.11	5	NX	DX
SMBJ100(C)A	100.0	111.00	123.00	1.0	100	162.0	3.70	5	NZ	DZ
SMBJ110(C)A	110.0	122.00	135.00	1.0	100	177.0	3.39	5	PE	EE
SMBJ120(C)A	120.0	133.00	147.00	1.0	100	193.0	3.11	5	PG	EG
SMBJ130(C)A	130.0	144.00	159.00	1.0	100	209.0	2.87	5	PK	EK
SMBJ140(C)A	140.0	155.00	171.00	1.0	100	226.8	2.65	5	PB	EB
SMBJ150(C)A	150.0	167.00	185.00	1.0	100	243.0	2.47	5	PM	EM
SMBJ160(C)A	160.0	178.00	197.00	1.0	100	259.0	2.32	5	PP	EP
SMBJ170(C)A	170.0	189.00	209.00	1.0	100	275.0	2.18	5	PR	ER
SMBJ180(C)A	180.0	200.00	220.00	1.0	100	291.6	2.06	5	PT	ET
SMBJ190(C)A	190.0	211.00	232.00	1.0	100	307.8	1.95	5	PV	EV
SMBJ200(C)A	200.0	224.00	247.00	1.0	100	324.0	1.85	5	PW	EW
SMBJ220(C)A	220.0	246.00	272.00	1.0	100	356.0	1.69	5	PX	EX
SMBJ250(C)A	250.0	279.00	309.00	1.0	100	405.0	1.48	5	PZ	EZ
SMBJ300(C)A	300.0	335.00	371.00	1.0	100	486.0	1.23	5	QE	FE
SMBJ350(C)A	350.0	391.00	432.00	1.0	100	567.0	1.06	5	QG	FG
SMBJ400(C)A	400.0	447.00	494.00	1.0	100	648.0	0.93	5	QK	FK
SMBJ440(C)A	440.0	492.00	543.00	1.0	100	713.0	0.84	5	QM	FM

Note 1. Suffix 'C' denotes bi-directional devices. Suffix 'A' denotes 5% tolerance devices, no suffix denotes 10% tolerance devices.
 2. For bi-directional types having V_{RWM} of 10 volts and less, the I_R limit is doubled.

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Rating and characteristic curves

Fig.1 - Peak Pulse Power Rating Curve

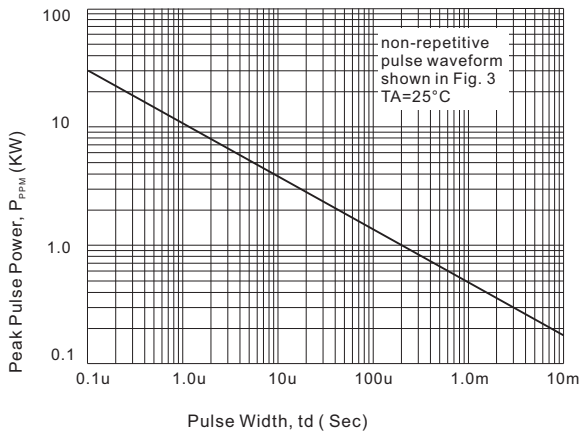


Fig.2 - Pulse Derating Curve

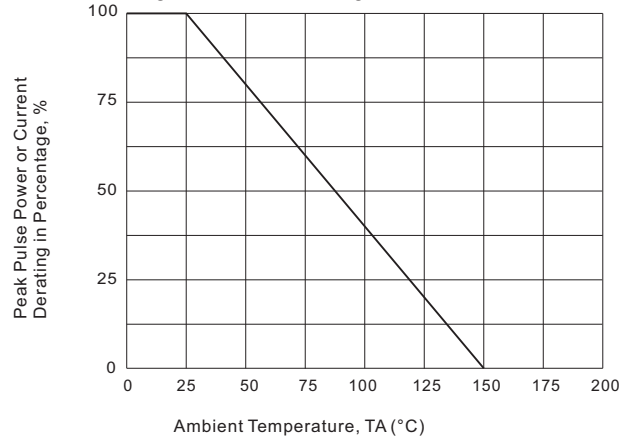


Fig.3 - Pulse Waveform

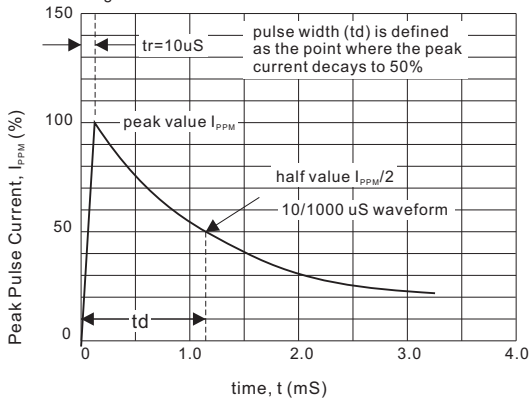


Fig.4 - Typical Junction Capacitance

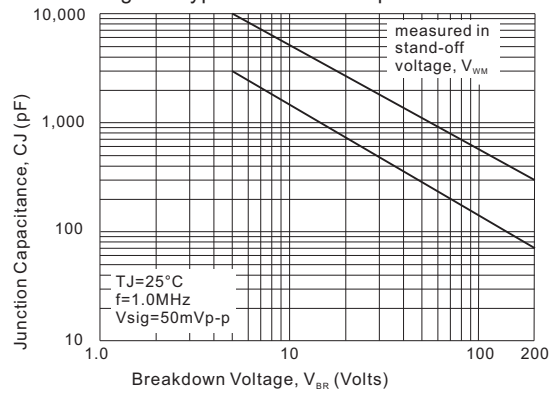


Fig.5 - Steady State Power Derating Curve

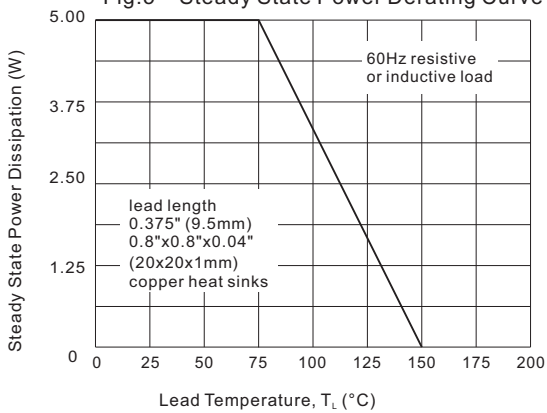


Fig.6 - Maximum Non-Repetitive Forward Surge Current

