

# SMBJ SERIES



SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS



## FEATURES

- \* For surface mount application
- \* Built-in strain relief
- \* Excellent clamping capability
- \* Low profile package
- \* Fast response time: Typically less than 1.0ps from 0 volt to BV min.
- \* Typical  $I_R$  less than  $1\mu A$  above 10V
- \* High temperature soldering guaranteed:  $260^\circ C / 10$  seconds at terminals

## MECHANICAL DATA

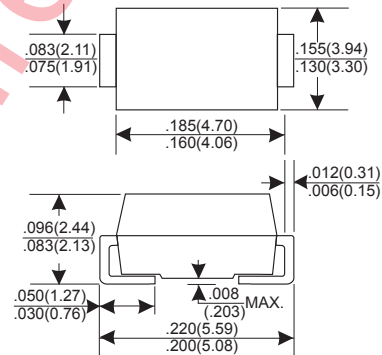
- \* Case: Molded plastic
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Lead: Solderable per MIL-STD-202, method 208 guaranteed
- \* Polarity: Color band denotes cathode end except Bidirectional
- \* Mounting position: Any
- \* Weight: 0.093 grams

## VOLTAGE RANGE

5.0 to 170 Volts

600 Watts Peak Power

### DO-214AA(SMB)



Dimensions in inches and (millimeters)

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

RATINGS	SYMBOL	VALUE	UNITS
Peak Power Dissipation at $T_A=25^\circ C$ , $T_P=1ms$ (NOTE 1)	$P_{PK}$	Minimum 600	Watts
Peak Forward Surge Current at 8.3ms Single Half Sine-Wave superimposed on rated load (JEDEC method) (NOTE 3)	$I_{FSM}$	100	Amps
Maximum Instantaneous Forward Voltage at 35.0A for Unidirectional only	$V_F$	3.5	Volts
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ C$

### NOTES:

1. Non-repetitive current pulse per Fig. 3 and derated above  $T_A=25^\circ C$  per Fig. 2.
2. Mounted on Copper Pad area of  $5.0mm^2$  (.013mm Thick) to each terminal.
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum.

## DEVICES FOR BIPOLAR APPLICATIONS

1. For Bidirectional use C or CA Suffix for types SMBJ5.0 thru SMBJ170.
2. Electrical characteristics apply in both directions.

## RATING AND CHARACTERISTIC CURVES (SMBJ SERIES)

FIG.1-PEAK PULSE POWER DERATING CURVE

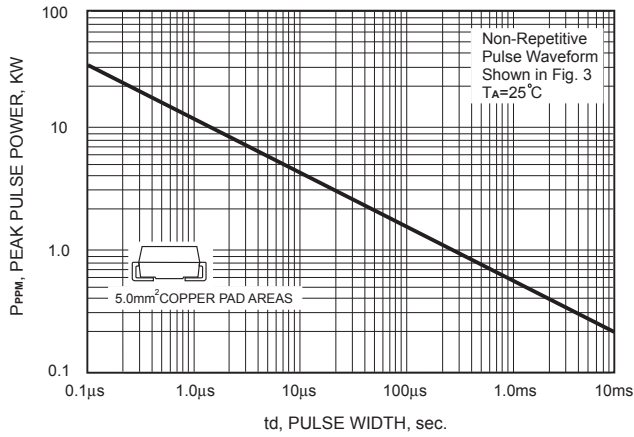


FIG.2-PULSE DERATING CURVE

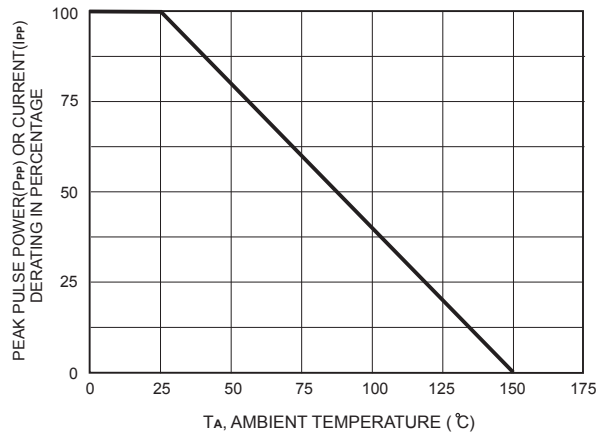


FIG.3-PULSE WAVE FORM



FIG.4-TYPICAL JUNCTION CAPACITANCE

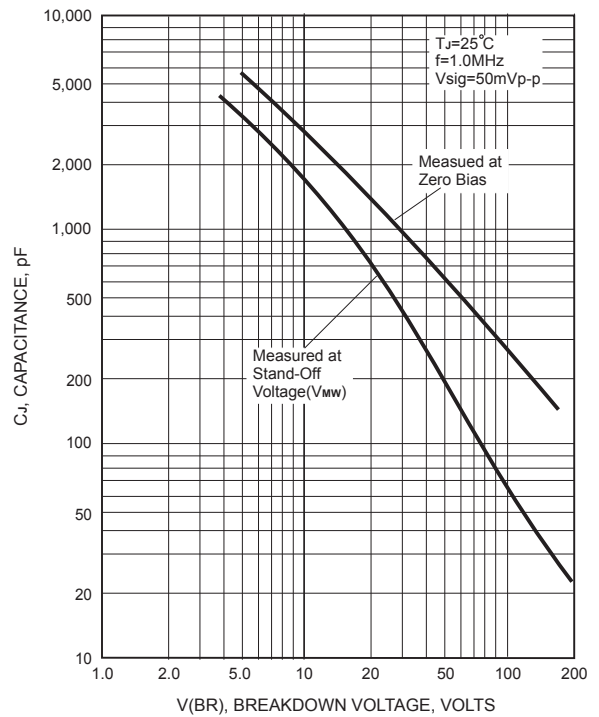
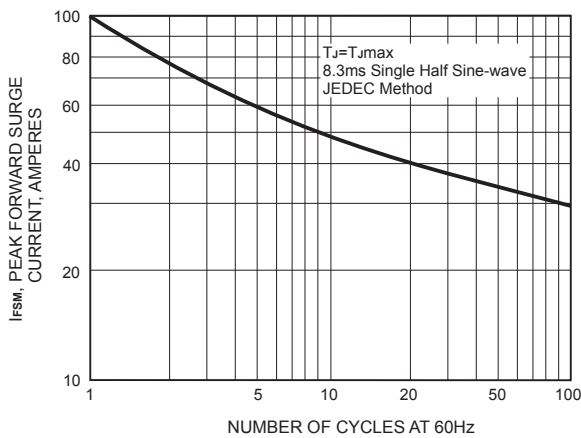


FIG.5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



# 600 Watt Surface Mount TVS

PART NUMBER ADD C FOR BI- DIRECTIONAL	REVERSE STAND-OFF VOLTAGE VRWM (V)	BREAKDOWN VOLTAGE VBR (V)		TEST CURRENT IT (mA)	MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V)	PEAK PULSE CURRENT Ipp (A)	REVERSE LEAKAGE @ VRWM IR(μA)	MARKING CODE	
		MIN. @IT	MAX. @IT					UNI	BI
SMBJ5.0(C)	5.0	6.40	7.55	10	9.6	62.5	800	KD	AD
SMBJ5.0(C)A	5.0	6.40	7.25	10	9.2	65.2	800	KE	AE
SMBJ6.0(C)	6.0	6.67	8.45	10	11.4	52.6	800	KF	AF
SMBJ6.0(C)A	6.0	6.67	7.67	10	10.3	58.3	800	KG	AD
SMBJ6.5(C)	6.5	7.22	9.14	10	12.3	48.7	500	KH	AH
SMBJ6.5(C)A	6.5	7.22	8.30	10	11.2	53.6	500	KK	AK
SMBJ7.0(C)	7.0	7.78	9.86	10	13.3	45.1	200	KL	AL
SMBJ7.0(C)A	7.0	7.78	8.95	10	12.0	50.0	200	KM	AM
SMBJ7.5(C)	7.5	8.33	10.67	1	14.3	42.0	100	KN	AN
SMBJ5.0(C)A	7.5	8.33	9.58	1	12.9	46.5	100	KP	AP
SMBJ8.0(C)	8.0	8.89	11.30	1	15.0	40.0	50	KQ	AQ
SMBJ8.0(C)A	8.0	8.89	10.23	1	13.6	44.1	50	KR	AR
SMBJ8.5(C)	8.5	9.44	11.92	1	15.9	37.7	10	KS	AS
SMBJ8.5(C)A	8.5	9.44	10.82	1	14.4	41.7	10	KT	AT
SMBJ9.0(C)	9.0	10.0	12.60	1	16.9	35.5	5	KU	AU
SMBJ9.0(C)A	9.0	10.0	11.50	1	15.4	39.0	5	KV	AV
SMBJ10(C)	10	11.1	14.10	1	18.8	31.9	5	KW	AW
SMBJ10(C)A	10	11.1	12.80	1	17.0	35.3	5	KX	AX
SMBJ11(C)	11	12.2	15.40	1	20.1	29.9	5	KY	AY
SMBJ11(C)A	11	12.2	14.00	1	18.2	33.0	5	KZ	AZ
SMBJ12(C)	12	13.3	16.90	1	22.0	27.3	5	LD	BD
SMBJ12(C)A	12	13.3	15.30	1	19.9	30.2	5	LE	BE
SMBJ13(C)	13	14.4	18.20	1	23.8	25.2	5	LF	BF
SMBJ13(C)A	13	14.4	16.50	1	21.5	27.9	5	LG	BG
SMBJ14(C)	14	15.6	19.80	1	25.8	23.3	5	LH	BH
SMBJ14(C)A	14	15.6	17.90	1	23.2	25.8	5	LK	BK
SMBJ15(C)	15	16.7	21.10	1	26.9	22.3	5	LL	BL
SMBJ15(C)A	15	16.7	19.20	1	24.4	24.0	5	LM	BM
SMBJ16(C)	16	17.8	22.60	1	28.8	20.8	5	LN	BN
SMBJ16(C)A	16	17.8	20.50	1	26.0	23.1	5	LP	BP
SMBJ17(C)	17	18.9	23.90	1	30.5	19.7	5	LQ	BQ
SMBJ17(C)A	17	18.9	21.70	1	27.6	21.7	5	LR	BR
SMBJ18(C)	18	20.0	25.30	1	32.2	18.6	5	LS	BS
SMBJ18(C)A	18	20.0	23.30	1	29.2	20.5	5	LT	BT
SMBJ20(C)	20	22.2	28.10	1	35.8	16.7	5	LU	BU
SMBJ20(C)A	20	22.2	25.50	1	32.4	18.5	5	LV	BV
SMBJ22(C)	22	24.4	30.90	1	39.4	15.2	5	LW	BW
SMBJ22(C)A	22	24.4	28.00	1	35.5	16.9	5	LX	BX
SMBJ24(C)	24	26.7	33.80	1	43.0	14.0	5	LY	BY
SMBJ24(C)A	24	26.7	30.70	1	38.9	15.4	5	LZ	BZ
SMBJ26(C)	26	28.9	36.60	1	46.6	12.4	5	MD	CD
SMBJ26(C)A	26	28.9	33.20	1	42.1	14.2	5	ME	CE
SMBJ28(C)	28	31.1	39.40	1	50.0	12.0	5	MF	CF
SMBJ28(C)A	28	31.1	35.80	1	45.4	13.2	5	MG	CG
SMBJ30(C)	30	33.3	42.20	1	53.5	11.2	5	MH	CH
SMBJ30(C)A	30	33.3	38.30	1	48.4	12.4	5	MK	CK
SMBJ33(C)	33	36.7	46.50	1	59.0	10.2	5	ML	CL
SMBJ33(C)A	33	36.7	42.20	1	53.3	11.3	5	MM	CM
SMBJ36(C)	36	40.0	50.70	1	64.3	9.3	5	MN	CN
SMBJ36(C)A	36	40.0	46.00	1	58.1	10.3	5	MP	CP
SMBJ40(C)	40	44.4	56.30	1	71.4	8.4	5	MQ	CQ
SMBJ40(C)A	40	44.4	51.10	1	64.5	9.3	5	MR	CR
SMBJ43(C)	43	47.8	60.50	1	76.7	7.8	5	MS	CS
SMBJ43(C)A	43	47.8	54.90	1	69.4	8.6	5	MT	CT
SMBJ45(C)	45	50.0	63.30	1	80.3	7.5	5	MU	CU
SMBJ45(C)A	45	50.0	57.50	1	72.7	8.3	5	MV	CV
SMBJ48(C)	48	53.3	67.50	1	85.5	7.0	5	MW	CW
SMBJ48(C)A	48	53.3	61.30	1	77.4	7.7	5	MX	CX
SMBJ51(C)	51	56.7	71.80	1	91.1	6.6	5	MY	CY
SMBJ51(C)A	51	56.7	65.20	1	82.4	7.3	5	MZ	CZ
SMBJ54(C)	54	60.0	76.00	1	96.3	6.2	5	ND	DD
SMBJ54(C)A	54	60.0	69.00	1	87.1	6.9	5	NE	DE
SMBJ58(C)	58	64.4	81.60	1	103	5.8	5	NF	DF
SMBJ58(C)A	58	64.4	74.10	1	93.6	6.4	5	NG	DG

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		MIN. @IT	MAX. @IT					UNI	BI
See Note 1									
SMBJ60(C)	60	66.7	84.5	1	107	5.6	5	NH	DH
SMBJ60(C)A	60	66.7	76.7	1	96.8	6.2	5	NK	DK
SMBJ64(C)	64	71.1	90.1	1	114	5.3	5	NL	DL
SMBJ64(C)A	64	71.1	81.8	1	103	5.8	5	NM	DM
SMBJ70(C)	70	77.8	98.6	1	125	4.8	5	NN	DN
SMBJ70(C)A	70	77.8	89.5	1	113	5.3	5	NP	DP
SMBJ75(C)	75	83.3	105.7	1	134	4.5	5	NQ	DQ
SMBJ75(C)A	75	83.3	95.8	1	121	4.9	5	NR	DR
SMBJ78(C)	78	86.7	109.8	1	139	4.3	5	NS	DS
SMBJ78(C)A	78	86.7	99.7	1	126	4.7	5	NT	DT
SMBJ85(C)	85	94.4	119.2	1	151	3.9	5	NU	DU
SMBJ85(C)A	85	94.4	108.2	1	137	4.4	5	NV	DV
SMBJ90(C)	90	100	126.5	1	160	3.8	5	NW	DW
SMBJ90(C)A	90	100	115.5	1	146	4.1	5	NX	DX
SMBJ100(C)	100	111	141.0	1	179	3.4	5	NY	DY
SMBJ100(C)A	100	111	128.0	1	162	3.7	5	NZ	DZ
SMBJ110(C)	110	122	154.5	1	196	3.0	5	PD	ED
SMBJ110(C)A	110	122	140.5	1	177	3.4	5	PE	EE
SMBJ120(C)	120	133	169.0	1	214	2.8	5	PF	EF
SMBJ120(C)A	120	133	153.0	1	193	3.1	5	PG	EG
SMBJ130(C)	130	144	182.5	1	231	2.6	5	PH	EH
SMBJ130(C)A	130	144	165.5	1	209	2.9	5	PK	EK
SMBJ150(C)	150	167	211.5	1	268	2.2	5	PL	EL
SMBJ150(C)A	150	167	192.5	1	243	2.5	5	PM	EM
SMBJ160(C)	160	178	226.0	1	287	2.1	5	PN	EN
SMBJ160(C)A	160	178	205.0	1	259	2.3	5	PP	EP
SMBJ170(C)	160	189	239.5	1	304	2.0	5	PQ	EQ
SMBJ170(C)A	170	189	217.5	1	275	2.2	5	PR	ER