

## SMBJ SERIES

### SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR DIODES

#### FEATURE

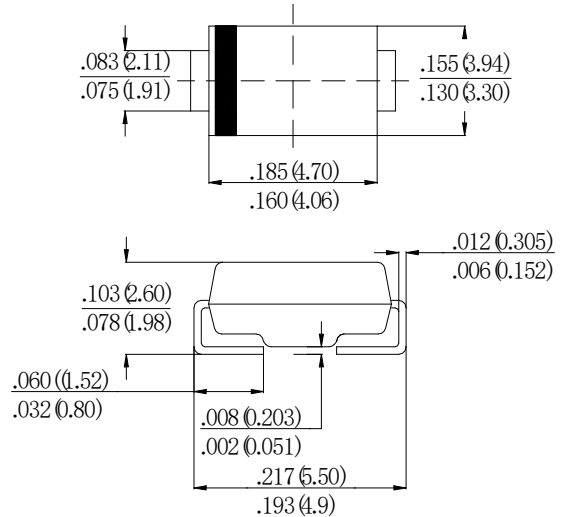
- . Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- . 600W surge capability at 10/100us waveform, Duty cycle: 0.01%
- . Excellent clamping capability
- . Low zener impedance
- . Fast response time: Typically less than 1.0ps from 0 volts to VBR for unidirectional and 5.0ns for bidirectional
- . Typical IR less than 1  $\mu$ A above 10V
- . High temperature soldering guaranteed: 260°C/10 seconds at terminals.

#### MECHANICAL DATA

- . Case: Molded plastic
- . Epoxy: UL94V-0 rate flame retardant
- . Lead: MIL-STD- 202E, Method 208 guaranteed
- . Polarity: Color band denotes cathode end
- . Packaging: 12mm tape per EIA STD RS-481
- . Mounting position: Any

Voltage Range  
5.0 to 300 Vots  
600 Watts Peak Power

#### SMB (DO-214AA)



Dimensions in inches and (millimeters)

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise stated.

Single-phase, half-wave, 60HZ, resistive or inductive load. For capacitive load, derate current by 20%

Type Number	SYM BOL	Value	units
Peak Power Dissipation at Ta=25°C, Tp=1ms (note 1)	$P_{PPM}$	600	Watts
Steady State Power Dissipation at T <sub>L</sub> =75°C (note 2)	$P_D$	5.0	Watts
Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (note 3)	$I_{FSM}$	60	Amps
Storage Temperature	$T_{STG}$	-55 to +150	°C
Operating Junction Temperature	$T_J$	-55 to +150	°C

#### Note:

1. Non-repetitive Current Pulse Per Fig.3 and Derated above Ta=25°C Per Fig.2 .
2. Mounted on Copper Pad Area of 2.0×2.0" (5×5cm) Per Fig.5 .
3. 8.3ms Single Half Sine-wave or Equivalent Square Wave, Duty Cycle=4 Pulses Per Minutes Maximum.

#### Devices for Bipolar Applications

1. For Bidirectional Use C Suffix for Types SMBJ5.0A thru Types SMBJ300A.
2. Electrical Characteristics Apply in Both Directions.

**ELECTRICAL CHARACTERISTICS**(TA=25°C unless otherwise noted)

Device		Working Peak Reverse Voltage (volts)	Breakdown Voltage		Test Current @IT (mA)	Maximum Reverse Leakage At VWM ID(μA)(2)	Maximum Peak Pulse Surge Current IPPM (Amps)(3)	Maximum Clamping Voltage at IPPM VC(Volts)
			VBR(volts)(1)					
UNI	BI		Min	Max				
SMBJ5.0A	SMBJ5.0CA	5	6.4	7	10	800	65.22	9.2
SMBJ6.0A	SMBJ6.0CA	6	6.67	7.37	10	800	58.25	10.3
SMBJ6.5A	SMBJ6.5CA	6.5	7.22	7.98	10	500	53.57	11.2
SMBJ7.0A	SMBJ7.0CA	7	7.78	8.6	10	200	50	12
SMBJ7.5A	SMBJ7.5CA	7.5	8.33	9.21	1.0	100	46.51	12.9
SMBJ8.0A	SMBJ8.0CA	8	8.89	9.83	1.0	50.0	44.12	13.6
SMBJ8.5A	SMBJ8.5CA	8.5	9.44	10.4	1.0	20.0	41.67	14.4
SMBJ9.0A	SMBJ9.0CA	9	10	11.1	1.0	10.0	38.96	15.4
SMBJ10A	SMBJ10CA	10	11.1	12.3	1.0	5.0	35.29	17
SMBJ11A	SMBJ11CA	11	12.2	13.5	1.0	1.0	32.97	18.2
SMBJ12A	SMBJ12CA	12	13.3	14.7	1.0	1.0	30.15	19.9
SMBJ13A	SMBJ13CA	13	14.4	15.9	1.0	1.0	27.91	21.5
SMBJ14A	SMBJ14CA	14	15.6	17.2	1.0	1.0	25.86	23.2
SMBJ15A	SMBJ15CA	15	16.7	18.5	1.0	1.0	24.59	24.4
SMBJ16A	SMBJ16CA	16	17.8	19.7	1.0	1.0	23.08	26
SMBJ17A	SMBJ17CA	17	18.9	20.9	1.0	1.0	21.74	27.6
SMBJ18A	SMBJ18CA	18	20	22.1	1.0	1.0	20.55	29.2
SMBJ20A	SMBJ20CA	20	22.2	24.5	1.0	1.0	18.52	32.4
SMBJ22A	SMBJ22CA	22	24.4	26.9	1.0	1.0	16.9	35.5
SMBJ24A	SMBJ24CA	24	26.7	29.5	1.0	1.0	15.42	38.9
SMBJ26A	SMBJ26CA	26	28.9	31.9	1.0	1.0	14.25	42.1
SMBJ28A	SMBJ28CA	28	31.1	34.4	1.0	1.0	13.22	45.4
SMBJ30A	SMBJ30CA	30	33.3	36.8	1.0	1.0	12.4	48.4
SMBJ33A	SMBJ33CA	33	36.7	40.6	1.0	1.0	11.26	53.3
SMBJ36A	SMBJ36CA	36	40	44.2	1.0	1.0	10.33	58.1
SMBJ40A	SMBJ40CA	40	44.4	49.1	1.0	1.0	9.3	64.5
SMBJ43A	SMBJ43CA	43	47.8	52.8	1.0	1.0	8.65	69.4
SMBJ45A	SMBJ45CA	45	50	55.3	1.0	1.0	8.25	72.7
SMBJ48A	SMBJ48CA	48	53.3	58.9	1.0	1.0	7.75	77.4
SMBJ51A	SMBJ51CA	51	56.7	62.7	1.0	1.0	7.28	82.4
SMBJ54A	SMBJ54CA	54	60	66.3	1.0	1.0	6.89	87.1
SMBJ58A	SMBJ58CA	58	64.4	71.2	1.0	1.0	6.41	93.6
SMBJ60A	SMBJ60CA	60	66.7	73.7	1.0	1.0	6.2	96.8
SMBJ64A	SMBJ64CA	64	71.1	78.6	1.0	1.0	5.83	103
SMBJ70A	SMBJ70CA	70	77.8	86	1.0	1.0	5.31	113
SMBJ75A	SMBJ75CA	75	83.3	92.1	1.0	1.0	4.96	121
SMBJ78A	SMBJ78CA	78	86.7	95.8	1.0	1.0	4.76	126
SMBJ85A	SMBJ85CA	85	94.4	104	1.0	1.0	4.38	137
SMBJ90A	SMBJ90CA	90	100	111	1.0	1.0	4.11	146
SMBJ100A	SMBJ100CA	100	111	123	1.0	1.0	3.7	162

SMBJ110A	SMBJ110CA	110	122	135	1.0	1.0	3.39	177
SMBJ120A	SMBJ120CA	120	133	147	1.0	1.0	3.11	193
SMBJ130A	SMBJ130CA	130	144	159	1.0	1.0	2.87	209
SMBJ150A	SMBJ150CA	150	167	185	1.0	1.0	2.47	243
SMBJ160A	SMBJ160CA	160	178	197	1.0	1.0	2.32	259
SMBJ170A	SMBJ170CA	170	189	209	1.0	1.0	2.18	275
SMBJ180A	SMBJ180CA	180	201	222	1.0	1.0	2.06	291.6
SMBJ190A	SMBJ190CA	190	209	243	1.0	1.0	1.95	307.8
SMBJ200A	SMBJ200CA	200	224	247	1.0	1.0	1.85	324
SMBJ220A	SMBJ220CA	220	246	272	1.0	1.0	1.69	356
SMBJ250A	SMBJ250CA	250	279	309	1.0	1.0	1.48	405
SMBJ300A	SMBJ300CA	300	335	371	1.0	1.0	1.23	486
SMBJ350A	SMBJ350CA	350	391	432	1.0	1.0	1.06	567
SMBJ400A	SMBJ400CA	400	447	494	1.0	1.0	0.93	648
SMBJ440A	SMBJ440CA	440	492	543	1.0	1.0	0.84	713

**Note:**

1. VBR measured after IT applied for 300us, IT=square wave pulse or equivalent.
2. Surge current waveform per Figure 3 and derate per Figure 2.
3. All terms and symbols are consistent with ANSI/IEEE C62.35.

RATING AND CHARACTERISTIC CURVES

FIG.1-PEAK PULSE POWER RATING CURVE

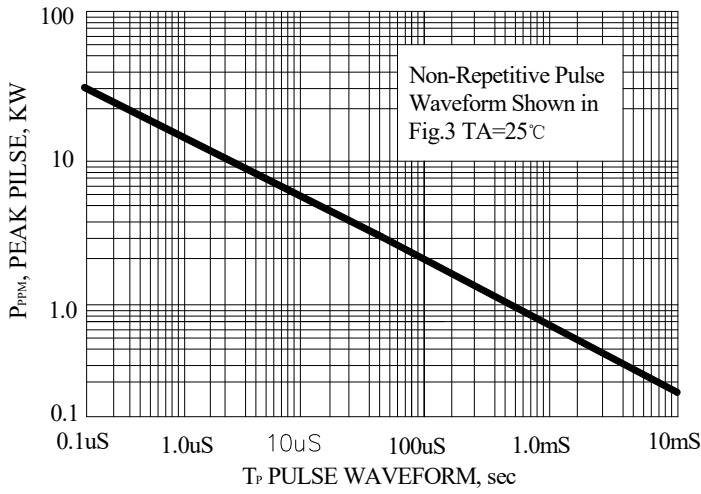


FIG.2-PULSE DERATING CURVE

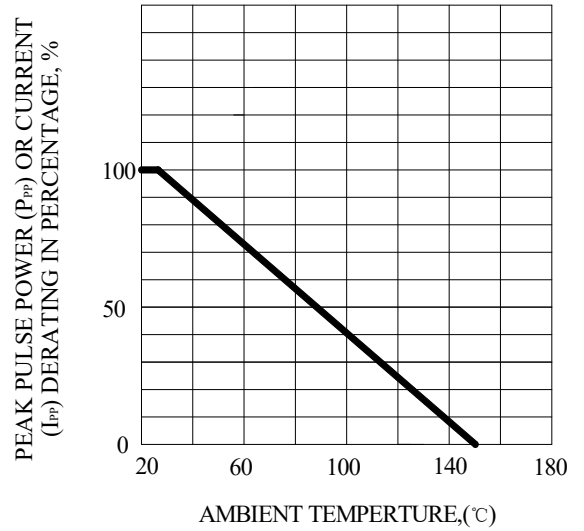


FIG.3-PULSE WAVEFORM

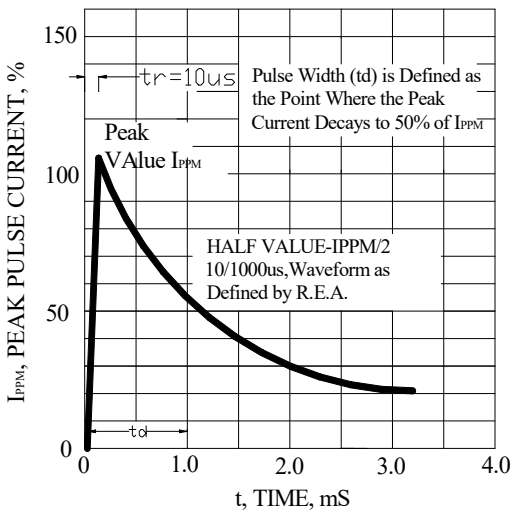


FIG.4- TYPICAL JUNCTION CAPACITANCE

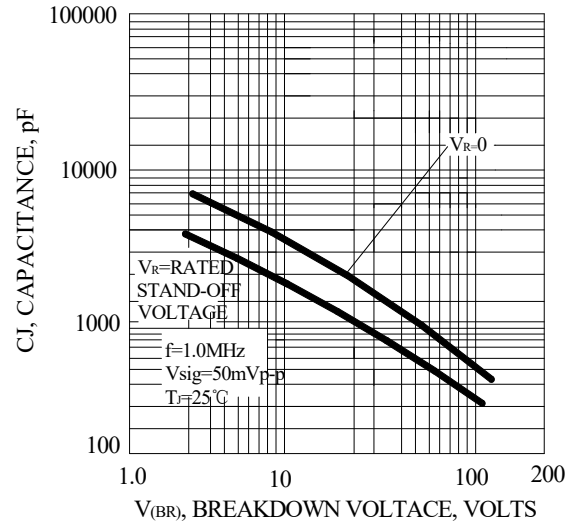


FIG.5- STEADY STATE POWER DERATING CURVE

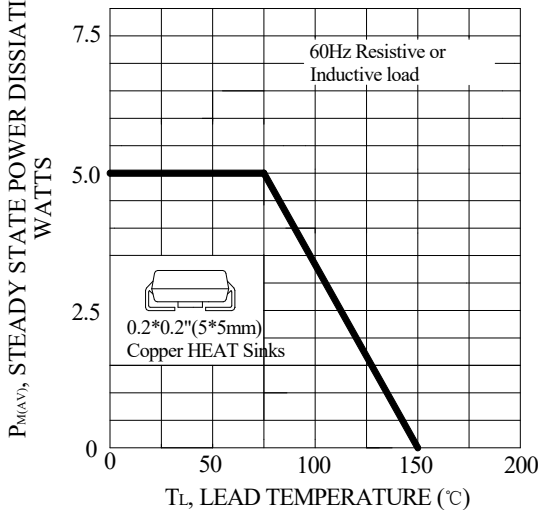
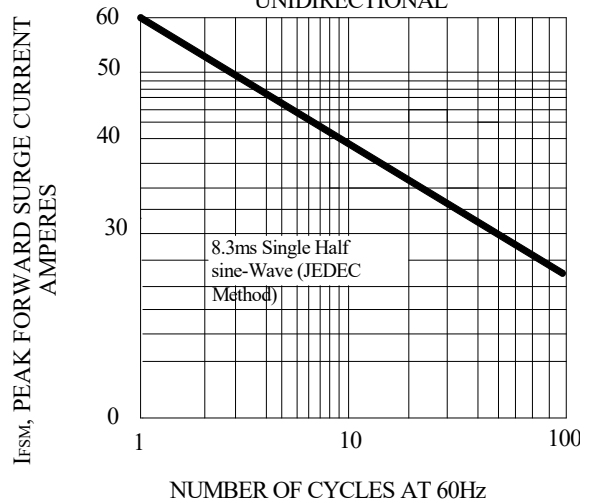
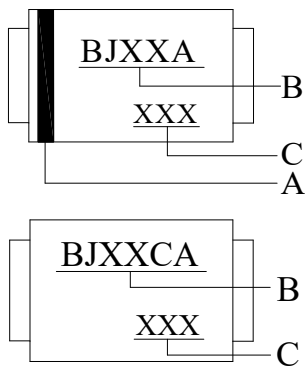


FIG.6- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL



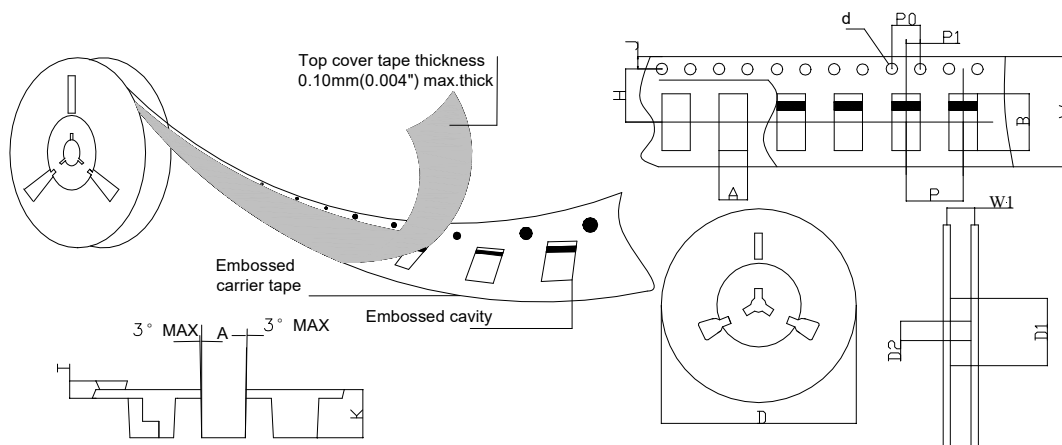
## Marking and packaging illustration

### 1、Marking



SYMBOL	Explanation
<b>A</b>	Color Band Denotes Cathode
<b>B</b>	Product name
<b>C</b>	Date Code

### 2、Packaging



SPECIFICATIONS mm(inch)		PACKAGE	SPECIFICATIONS mm(inch)		PACKAGE
ITEM	SYM BOL	SMB DO-214AA	ITEM	SYM BOL	SMB DO-214AA
Carrier width	A	3.81(0.150)Max	Carrier depth	K	2.45(0.965)Typ
Carrier length	B	5.41(0.213)Max	Punch hole pitch	P	8.00(0.315)Typ
Sprocket hole	d	ø1.55(0.061)Typ	Sprocket hole pitch	P0	4.00(0.157)Typ
Reel outer diameter	D	330.0(13.0)Typ	Embossment center	P1	2.00(0.079)Typ
Reel inner diameter	D1	50.0(1.969)Min	Overall tape thickness	T	0.30(0.012)Typ
Feed hole diameter	D2	13.0(0.512)Typ	Tape width	W	12.0(0.472)Typ
Sprocket hole position	J	1.75(0.069)Typ	Reel width	W1	12.4(0.488)Min
Punch hole position	H	5.55(0.219)Typ			