

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Breakdown voltage: 5.0-170 Volts Peak pulse power: 600 Watts

FEATURE

- Optimized for LAN protection applications
- Ideal for ESD protection of data lines in accordance with IEC 1000-4-2(IEC801-2)
- Ideal for EFT protection of data lines in accordance with IEC1000-4-4(IEC801-2)
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated junction
- 600w peak pulse power capability
- Excellent clamping capability
- Low incremental surge resistance
- Fast response time: typically less than 1.0ps from 0v to $V_{(BR)}$ min
- High temperature soldering guaranteed: 265°C/10S at terminals

MECHANICAL DATA

Case: JEDEC DO-214AA molded plastic body over passivated junction

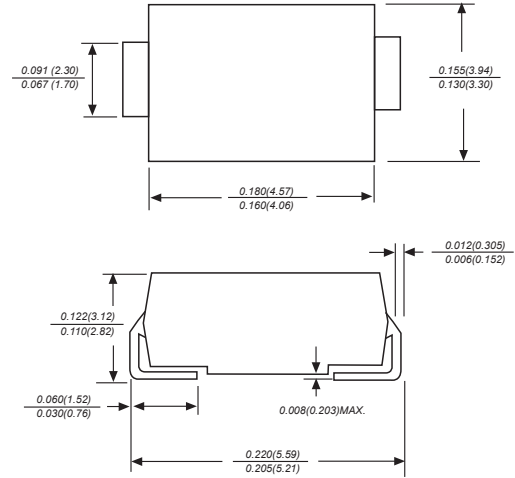
Terminals: Solder plated, solderable per MIL-STD 750, method 2026

Polarity: Color band denotes cathode except for bidirectional types

Mounting Position: Any

Weight: 0.005 ounce, 0.138 grams

DO-214AA



Dimensions in inches and (millimeters)

DEVICES FOR BIDIRECTIONAL APPLICATIONS

For bidirectional use suffix C or CA for types SMBJ5.0 thru SMBJ170 (e.g. SMBJ5.0C, SMBJ170CA)
Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.

	SYMBOLS	VALUE	UNITS
Peak pulse power dissipation with a 10/1000μs wavetorm(NOTE 1,2,FIG.1)	P _{PPM}	Minimum 600	Watts
Peak forward surge current (Note 1,2,3)	I _{FSM}	100.0	Amps
Peak pulse current with a 10/1000μs waveform(NOTE 1)	I _{PPM}	See Table 1	Amps
Steady state power dissipation (Note 3)	P _{M(AV)}	5.0	Watts
Maximum instantaneous forward voltage at 50A(Note 3,4) unidirectional only	V _F	3.5/5.0	Volts
Operating junction and storage temperature range	T _{STG} , T _J	-55 to + 150	°C

- Notes:**
- 1.Non-repetitive current pulse,per Fig.3 and derated above T_A=25°C per Fig.2
 - 2.Mounted on 5.0mm² copper pads to each terminal
 - 3.Measured on 8.3ms single half sine-wave.For uni-directional devices only.
 - 4.V_F=3.5V on SMB-5.0 thru SMB-90 devices and V_F=5.0V on SMB-100 thru SMB-170 devices

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

Device	Working Peak Reverse Voltage V _{WM} (Volts)	Breakdown Voltage V(BR)(NOTE 1) (Volts) at I _T		Test Current I _T (mA)	Maximum Clamping Voltage at I _{PPM} V _C (Volts)	Maximum Peak Pulse Reverse Current I _{PPM} (NOTE 2) (Amps)	Maximum Reverse Leakage I _R at V _{WM} (NOTE 3) (μA)
		MIN	MAX				
SMBJ5.0(C)	5.0	6.40	7.81	10	9.6	62.5	800
SMBJ5.0A(CA)	5.0	6.40	7.08	10	9.2	65.2	800
SMBJ6.0(C)	6.0	6.67	8.15	10	11.4	52.6	800
SMBJ6.0A(CA)	6.0	6.67	7.37	10	10.3	58.3	800
SMBJ6.5(C)	6.5	7.22	8.82	10	12.3	48.8	500
SMBJ6.5A(CA)	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ6.8(C)	6.8	7.56	8.35	10	11.7	51.3	400
SMBJ6.8A(CA)	6.8	7.56	8.35	10	11.7	51.3	400
SMBJ7.0(C)	7.0	7.78	9.51	10	13.3	45.1	200
SMBJ7.0A(CA)	7.0	7.78	8.60	10	12.0	50.0	200
SMBJ7.5(C)	7.5	8.33	10.3	1.0	14.3	42.0	100
SMBJ7.5A(CA)	7.5	8.33	9.21	1.0	12.9	46.5	100
SMBJ8.0(C)	8.0	8.89	10.9	1.0	15.0	40.0	50.0
SMBJ8.0A(CA)	8.0	8.89	9.83	1.0	13.6	44.1	50.0
SMBJ8.5(C)	8.5	9.44	11.5	1.0	15.9	37.7	10.0
SMBJ8.5A(CA)	8.5	9.44	10.4	1.0	14.4	41.7	10.0
SMBJ9.0(C)	9.0	10.0	12.2	1.0	16.9	35.5	5.0
SMBJ9.0A(CA)	9.0	10.0	11.1	1.0	15.4	39.0	5.0
SMBJ10(C)	10.00	11.1	13.6	1.0	18.8	31.9	5.0
SMBJ10A(CA)	10.00	11.1	12.3	1.0	17.0	35.3	5.0
SMBJ11(C)	11.00	12.2	14.9	1.0	20.1	29.9	5.0
SMBJ11A(CA)	11.00	12.2	13.5	1.0	18.2	33.0	5.0
SMBJ12(C)	12.00	13.3	16.3	1.0	22.0	27.3	5.0
SMBJ12A(CA)	12.00	13.3	14.7	1.0	19.9	30.2	5.0
SMBJ13(C)	13.00	14.4	17.6	1.0	23.8	25.2	5.0
SMBJ13A(CA)	13.00	14.4	15.9	1.0	21.5	27.9	5.0
SMBJ14(C)	14.00	15.6	19.1	1.0	25.8	23.3	5.0
SMBJ14A(CA)	14.00	15.6	17.2	1.0	23.2	25.9	5.0
SMBJ15(C)	15.00	16.7	20.4	1.0	26.9	22.3	5.0
SMBJ15A(CA)	15.00	16.7	18.5	1.0	24.4	24.6	5.0
SMBJ16(C)	16.00	17.8	21.8	1.0	28.8	20.8	5.0
SMBJ16A(CA)	16.00	17.8	19.7	1.0	26.0	23.1	5.0
SMBJ17(C)	17.00	18.9	23.1	1.0	30.5	19.7	5.0
SMBJ17A(CA)	17.00	18.9	20.9	1.0	27.6	21.7	5.0
SMBJ18(C)	18.00	20.0	24.4	1.0	32.2	18.6	5.0
SMBJ18A(CA)	18.00	20.0	22.1	1.0	29.2	20.5	5.0
SMBJ20(C)	20.00	22.2	27.1	1.0	35.8	16.8	5.0
SMBJ20A(CA)	20.00	22.2	24.5	1.0	32.4	18.5	5.0
SMBJ22(C)	22.00	24.4	29.8	1.0	39.4	15.2	5.0
SMBJ22A(CA)	22.00	24.4	26.9	1.0	35.5	16.9	5.0
SMBJ24(C)	24.00	26.7	32.6	1.0	43.0	14.0	5.0
SMBJ24A(CA)	24.00	26.7	29.5	1.0	38.9	15.4	5.0
SMBJ26(C)	26.00	28.9	35.3	1.0	46.6	12.9	5.0
SMBJ26A(CA)	26.00	28.9	31.9	1.0	42.1	14.3	5.0
SMBJ28(C)	28.00	31.1	38.0	1.0	50.0	12.0	5.0
SMBJ28A(CA)	28.00	31.1	34.4	1.0	45.4	13.2	5.0
SMBJ30(C)	30.00	33.3	40.7	1.0	53.5	11.2	5.0
SMBJ30A(CA)	30.00	33.3	36.8	1.0	48.4	12.4	5.0

NOTES: 1. V(BR) measured after I_T applied for 300μs, I_T=square wave pulse or equivalent
 2. Surge current waveform per Fig.3 and derated per Fig.2
 3. For bidirectional types having V_{WM} of 10 volts and less, the I_R limit is doubled
 4. All items and symbols are consistent with ANSI/IEEE C62.35

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

Device	Working Peak Reverse Voltage V _{WM} (Volts)	Breakdown Voltage V _(BR) (NOTE 1) (Volts) at I _T		Test Current I _T (mA)	Maximum Clamping Voltage at I _{PPM} V _C (Volts)	Maximum Peak Pulse Reverse Current I _{PPM} (NOTE 2) (Amps)	Maximum Reverse Leakage a V _{WM} (NOTE3) I _D (μA)
		MIN	MAX				
SMBJ33(C)	33.00	36.7	44.9	1.0	59.0	10.2	5.0
SMBJ33A(CA)	33.00	36.7	40.6	1.0	53.3	11.3	5.0
SMBJ36(C)	36.00	40.0	48.9	1.0	64.3	9.3	5.0
SMBJ36A(CA)	36.00	40.0	44.2	1.0	58.1	10.3	5.0
SMBJ40(C)	40.00	44.4	54.3	1.0	71.4	8.4	5.0
SMBJ40A(CA)	40.00	44.4	49.1	1.0	64.5	9.3	5.0
SMBJ43(C)	43.00	47.8	58.4	1.0	76.7	7.8	5.0
SMBJ43A(CA)	43.00	47.8	52.8	1.0	69.4	8.6	5.0
SMBJ45(C)	45.00	50.0	61.1	1.0	80.3	7.5	5.0
SMBJ45A(CA)	45.00	50.0	55.3	1.0	72.7	8.3	5.0
SMBJ48(C)	48.00	53.3	65.1	1.0	85.5	7.0	5.0
SMBJ48A(CA)	48.00	53.3	58.9	1.0	77.4	7.8	5.0
SMBJ51(C)	51.00	56.7	69.3	1.0	91.1	6.6	5.0
SMBJ51A(CA)	51.00	56.7	62.7	1.0	82.4	7.3	5.0
SMBJ54(C)	54.00	60.0	73.3	1.0	96.3	6.2	5.0
SMBJ54A(CA)	54.00	60.0	66.3	1.0	87.1	6.9	5.0
SMBJ58(C)	58.00	64.4	78.7	1.0	103.0	5.8	5.0
SMBJ58A(CA)	58.00	64.4	71.2	1.0	93.6	6.4	5.0
SMBJ60(C)	60.00	66.7	81.5	1.0	107.0	5.6	5.0
SMBJ60A(CA)	60.00	66.7	73.7	1.0	96.8	6.2	5.0
SMBJ64(C)	64.00	71.1	86.4	1.0	114.0	5.3	5.0
SMBJ64A(CA)	64.00	71.1	78.6	1.0	103.0	5.8	5.0
SMBJ70(C)	70.00	77.8	95.1	1.0	125	4.8	5.0
SMBJ70A(CA)	70.00	77.8	86.0	1.0	113	5.3	5.0
SMBJ75(C)	75.00	83.3	102	1.0	134	4.5	5.0
SMBJ75A(CA)	75.00	83.3	92.1	1.0	121	5.0	5.0
SMBJ78(C)	78.00	86.7	106	1.0	139	4.3	5.0
SMBJ78A(CA)	78.00	86.7	95.8	1.0	126	4.8	5.0
SMBJ85(C)	85.00	94.4	115	1.0	151	4.0	5.0
SMBJ85A(CA)	85.00	94.4	104	1.0	137	4.4	5.0
SMBJ90(C)	90.00	100	122	1.0	160	3.8	5.0
SMBJ90A(CA)	90.00	100	111	1.0	146	4.1	5.0
SMBJ100(C)	100.00	111	136	1.0	179	3.4	5.0
SMBJ100A(CA)	100.00	111	123	1.0	162	3.7	5.0
SMBJ110(C)	110.00	122	149	1.0	196	3.1	5.0
SMBJ110A(CA)	110.00	122	135	1.0	177	3.4	5.0
SMBJ120(C)	120.00	133	163	1.0	214	2.8	5.0
SMBJ120A(CA)	120.00	133	147	1.0	193	3.1	5.0
SMBJ130(C)	130.00	144	176	1.0	231	2.6	5.0
SMBJ130A(CA)	130.00	144	159	1.0	209	2.9	5.0
SMBJ150(C)	150.00	167	204	1.0	268	2.2	5.0
SMBJ150A(CA)	150.00	167	185	1.0	243	2.5	5.0
SMBJ160(C)	160.00	178	218	1.0	287	2.1	5.0
SMBJ160A(CA)	160.00	178	197	1.0	259	2.3	5.0
SMBJ170(C)	170.00	189	231	1.0	304	2.0	5.0
SMBJ170A(CA)	170.00	189	209	1.0	275	2.2	5.0
SMBJ180A(CA)	180.00	201	222	1.0	292	2.1	5.0
SMBJ200A(CA)	200.00	224	247	1.0	324	1.9	5.0
SMBJ220A(CA)	220.00	246	272	1.0	356	1.7	5.0
SMBJ250A(CA)	250.00	279	309	1.0	405	1.5	5.0
SMBJ300A(CA)	300.00	335	371	1.0	486	1.3	5.0
SMBJ350A(CA)	350.00	391	432	1.0	567	1.1	5.0
SMBJ400A(CA)	400.00	447	494	1.0	648	0.9	5.0
SMBJ440A(CA)	440.00	492	543	1.0	713	0.9	5.0

PHOTOELECTRICITY

FIG. 1-PEAK PULSE POWER RATING CURVE

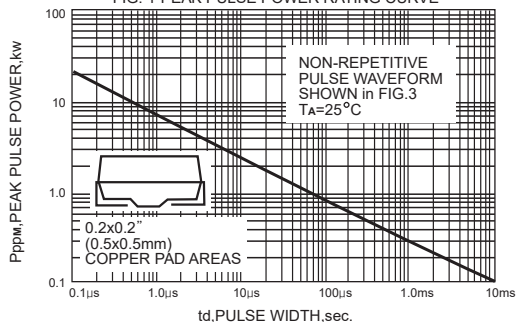


FIG. 2-PULSE DERATING CURVE

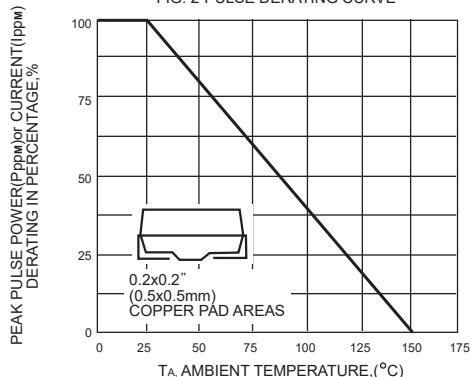


FIG.3-PULSE WAVEFORM

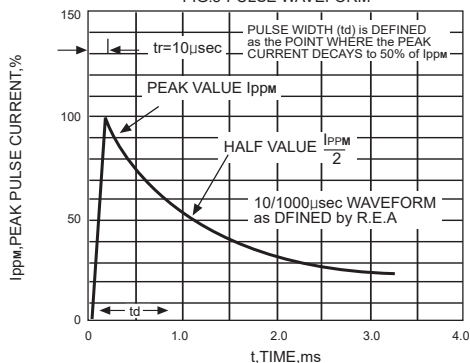


FIG. 4-TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

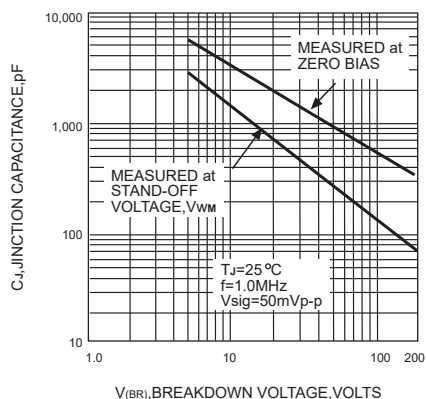


FIG.5-STEADY STATE POWER DERATING CURVE

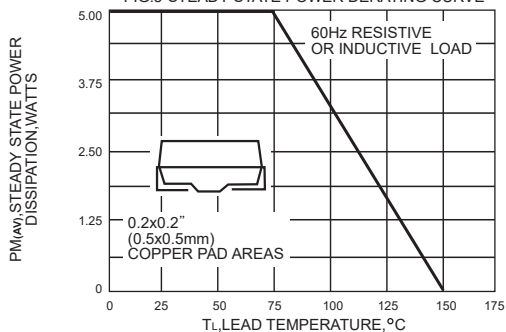


FIG.6-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY

