

600W Surface Mount Transient Voltage Suppressors

Features

- ◆ 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 IEC 1000-4-4(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: 260°C/10S at terminals

Mechanical Data

Case : Molded plastic body

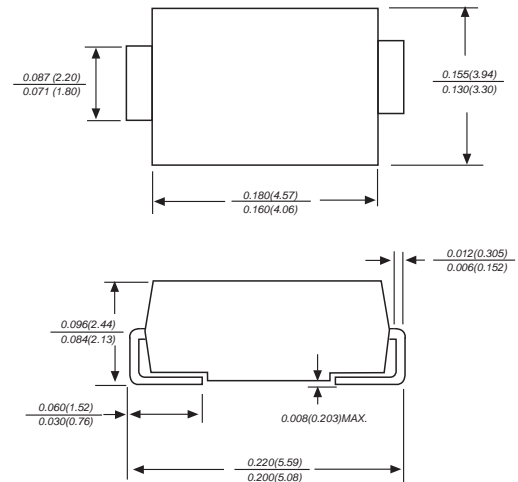
Terminals : Solder plated, solderable per MIL-STD-750, Method 2026

Polarity : Polarity symbol marking on body

Mounting Position : Any

Weight : 0.0035 ounce, 0.098 grams

DO-214AA/SMB

ROHS
COMPLIANT

Dimensions in inches and (millimeters)

Maximum Ratings And Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	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 5.0mm copper pads to each terminal

3.Measured on 8.3ms single half sine-wine.For uni-directional devices only.

4.V_F=3.5V on SMB-5.0 thru SMB-90 devibes and V_F=5.0V on SMB-100 thru SMB-170 devices

Device	Working Peak Reverse Voltage V_{WM} (Volts)	Breakdown Voltage $V_{(BR)}$ (Volts) at I_T		Test Current I_T (mA)	Maximum Clamping Voltage at I_{PPM} V_C (Volts)(NOTE5)	Maximum Peak Pulse Reverse Current I_{PPM} (NOTE5) (Amps)	Maximum Reverse Leakage $a V_{WM}$ I_D (μ A)
		MIN	MAX				
SMBJ5.0(C)	5.0	6.40	7.55	10	9.6	62.5	800
SMBJ5.0(C)A	5.0	6.40	7.25	10	9.2	65.2	800
SMBJ6.0(C)	6.0	6.67	8.45	10	11.4	52.6	800
SMBJ6.0(C)A	6.0	6.67	7.67	10	10.3	58.3	800
SMBJ6.5(C)	6.5	7.22	9.14	10	12.3	48.7	500
SMBJ6.5(C)A	6.5	7.22	8.3	10	11.2	53.6	500
SMBJ7.0(C)	7.0	7.78	9.86	10	13.3	45.1	200
SMBJ7.0(C)A	7.0	7.78	8.95	10	12.0	50.0	200
SMBJ7.5(C)	7.5	8.33	10.67	1.0	14.3	42.0	100
SMBJ7.5(C)A	7.5	8.33	9.58	1.0	12.9	46.5	100
SMBJ8.0(C)	8.0	8.89	11.3	1.0	15.0	40.0	50.0
SMBJ8.0(C)A	8.0	8.89	10.23	1.0	13.6	44.1	50.0
SMBJ8.5(C)	8.5	9.44	11.92	1.0	15.9	37.7	10.0
SMBJ8.5(C)A	8.5	9.44	10.82	1.0	14.4	41.7	10.0
SMBJ9.0(C)	9.0	10.0	12.6	1.0	16.9	35.5	5.0
SMBJ9.0(C)A	9.0	10.0	11.5	1.0	15.4	39.0	5.0
SMBJ10(C)	10.00	11.1	14.1	1.0	18.8	31.9	5.0
SMBJ10(C)A	10.00	11.1	12.8	1.0	17.0	35.3	5.0
SMBJ11(C)	11.00	12.2	15.4	1.0	20.1	29.9	5.0
SMBJ11(C)A	11.00	12.2	14	1.0	18.2	33.0	5.0
SMBJ12(C)	12.00	13.3	16.9	1.0	22.0	27.3	5.0
SMBJ12(C)A	12.00	13.3	15.3	1.0	19.9	30.2	5.0
SMBJ13(C)	13.00	14.4	18.2	1.0	23.8	25.2	5.0
SMBJ13(C)A	13.00	14.4	16.5	1.0	21.5	27.9	5.0
SMBJ14(C)	14.00	15.6	19.8	1.0	25.8	23.3	5.0
SMBJ14(C)A	14.00	15.6	17.9	1.0	23.2	25.8	5.0
SMBJ15(C)	15.00	16.7	21.1	1.0	26.9	22.3	5.0
SMBJ15(C)A	15.00	16.7	19.2	1.0	24.4	24.0	5.0
SMBJ16(C)	16.00	17.8	22.6	1.0	28.8	20.8	5.0
SMBJ16(C)A	16.00	17.8	20.5	1.0	26.0	23.1	5.0
SMBJ17(C)	17.00	18.9	23.9	1.0	30.5	19.7	5.0
SMBJ17(C)A	17.00	18.9	21.7	1.0	27.6	21.7	5.0
SMBJ18(C)	18.00	20.0	25.3	1.0	32.2	18.6	5.0
SMBJ18(C)A	18.00	20.0	23.3	1.0	29.2	20.5	5.0
SMBJ20(C)	20.00	22.2	28.1	1.0	35.8	16.7	5.0
SMBJ20(C)A	20.00	22.2	25.5	1.0	32.4	18.5	5.0
SMBJ22(C)	22.00	24.4	30.9	1.0	39.4	15.2	5.0
SMBJ22(C)A	22.00	24.4	28	1.0	35.5	16.9	5.0
SMBJ24(C)	24.00	26.7	33.8	1.0	43.0	14.0	5.0
SMBJ24(C)A	24.00	26.7	30.7	1.0	38.9	15.4	5.0
SMBJ26(C)	26.00	28.9	36.6	1.0	46.6	12.4	5.0
SMBJ26(C)A	26.00	28.9	33.2	1.0	42.1	14.2	5.0
SMBJ28(C)	28.00	31.1	39.4	1.0	50.0	12.0	5.0
SMBJ28(C)A	28.00	31.1	35.8	1.0	45.4	13.2	5.0
SMBJ30(C)	30.00	33.3	42.2	1.0	53.5	11.2	5.0
SMBJ30(C)A	30.00	33.3	38.3	1.0	48.4	12.4	5.0
SMBJ33(C)	33.00	36.7	46.5	1.0	59.0	10.2	5.0
SMBJ33(C)A	33.00	36.7	42.2	1.0	53.3	11.3	5.0
SMBJ36(C)	36.00	40.0	50.7	1.0	64.3	9.3	5.0
SMBJ36(C)A	36.00	40.0	46.0	1.0	58.1	10.3	5.0
SMBJ40(C)	40.00	44.4	56.3	1.0	71.4	8.4	5.0
SMBJ40(C)A	40.00	44.4	51.1	1.0	64.5	9.3	5.0

Device	Working Peak Reverse Voltage V_{WM} (Volts)	Breakdown Voltage $V_{(BR)}$ (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} (NOTE5) (Amps)	Maximum Reverse Leakage I_{D} at V_{WM} (μ A)
		MIN	MAX				
SMBJ43(C)	43.00	47.8	60.5	1.0	76.7	7.8	5.0
SMBJ43(C)A	43.00	47.8	54.9	1.0	69.4	8.6	5.0
SMBJ45(C)	45.00	50.0	63.3	1.0	80.3	7.5	5.0
SMBJ45(C)A	45.00	50.0	57.5	1.0	72.7	8.3	5.0
SMBJ48(C)	48.00	53.3	67.5	1.0	85.5	7.0	5.0
SMBJ48(C)A	48.00	53.3	61.3	1.0	77.4	7.7	5.0
SMBJ51(C)	51.00	56.7	71.8	1.0	91.1	6.6	5.0
SMBJ51(C)A	51.00	56.7	65.2	1.0	82.4	7.3	5.0
SMBJ54(C)	54.00	60.0	76.0	1.0	96.3	6.2	5.0
SMBJ54(C)A	54.00	60.0	69.0	1.0	87.1	6.9	5.0
SMBJ58(C)	58.00	64.4	81.6	1.0	103.0	5.8	5.0
SMBJ58(C)A	58.00	64.4	74.1	1.0	93.6	6.4	5.0
SMBJ60(C)	60.00	66.7	84.5	1.0	107.0	5.6	5.0
SMBJ60(C)A	60.00	66.7	76.7	1.0	96.8	6.2	5.0
SMBJ64(C)	64.00	71.1	90.1	1.0	114.0	5.3	5.0
SMBJ64(C)A	64.00	71.1	81.8	1.0	103.0	5.8	5.0
SMBJ70(C)	70.00	77.8	98.6	1.0	125	4.8	5.0
SMBJ70(C)A	70.00	77.8	89.5	1.0	113	5.3	5.0
SMBJ75(C)	75.00	83.3	105.7	1.0	134	4.5	5.0
SMBJ75(C)A	75.00	83.3	95.8	1.0	121	4.9	5.0
SMBJ78(C)	78.00	86.7	109.8	1.0	139	4.3	5.0
SMBJ78(C)A	78.00	86.7	99.7	1.0	126	4.7	5.0
SMBJ85(C)	85.00	94.4	119.2	1.0	151	3.9	5.0
SMBJ85(C)A	85.00	94.4	108.2	1.0	137	4.4	5.0
SMBJ90(C)	90.00	100	126.5	1.0	160	3.8	5.0
SMBJ90(C)A	90.00	100	115.5	1.0	146	4.1	5.0
SMBJ100(C)	100.00	111	141	1.0	179	3.4	5.0
SMBJ100(C)A	100.00	111	128	1.0	162	3.7	5.0
SMBJ110(C)	110.00	122	154.4	1.0	196	3.0	5.0
SMBJ110(C)A	110.00	122	140.5	1.0	177	3.4	5.0
SMBJ120(C)	120.00	133	169	1.0	214	2.8	5.0
SMBJ120(C)A	120.00	133	153	1.0	193	3.1	5.0
SMBJ130(C)	130.00	144	182.5	1.0	231	2.6	5.0
SMBJ130(C)A	130.00	144	165.5	1.0	209	2.9	5.0
SMBJ150(C)	150.00	167	211.5	1.0	268	2.2	5.0
SMBJ150(C)A	150.00	167	192.5	1.0	243	2.5	5.0
SMBJ160(C)	160.00	178	226	1.0	287	2.1	5.0
SMBJ160(C)A	160.00	178	205	1.0	259	2.3	5.0
SMBJ170(C)	170.00	189	239.5	1.0	304	2.0	5.0
SMBJ170(C)A	170.00	189	217.5	1.0	275	2.2	5.0
SMBJ180(C)	180.00	198	253.8	1.0	322	1.9	5.0
SMBJ180(C)A	180.00	198	230.4	1.0	292	2.1	5.0
SMBJ190(C)	190.00	209	267.9	1.0	340	1.8	5.0
SMBJ190(C)A	190.00	209	243.2	1.0	308	2.0	5.0
SMBJ200(C)	200.00	220	282.0	1.0	358	1.7	5.0
SMBJ200(C)A	200.00	220	256.0	1.0	324	1.9	5.0
SMBJ210(C)	210.00	231	296.1	1.0	376	1.6	5.0
SMBJ210(C)A	210.00	231	268.8	1.0	340	1.8	5.0
SMBJ220(C)	220.00	242	310.2	1.0	394	1.5	5.0
SMBJ220(C)A	220.00	242	281.6	1.0	356	1.7	5.0

Ratings And Characteristic Curves

Fig1. Peak Pulse Power Rating Curve

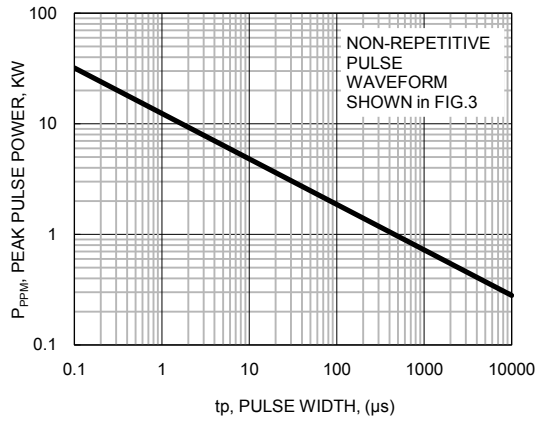


Fig2. Pulse Derating Curve

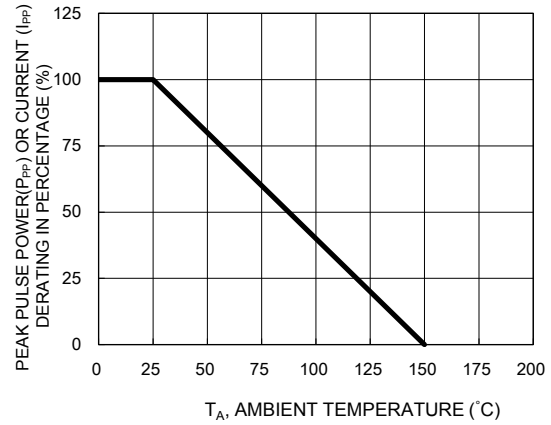


Fig3. Clamping Power Pulse Waveform

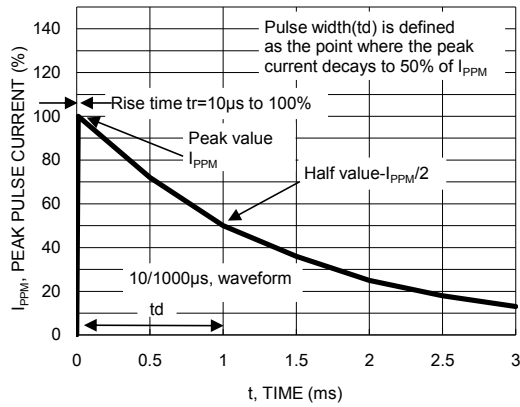


Fig4. Maximum Non-Repitative Forward Surge Current Unidirectional Only

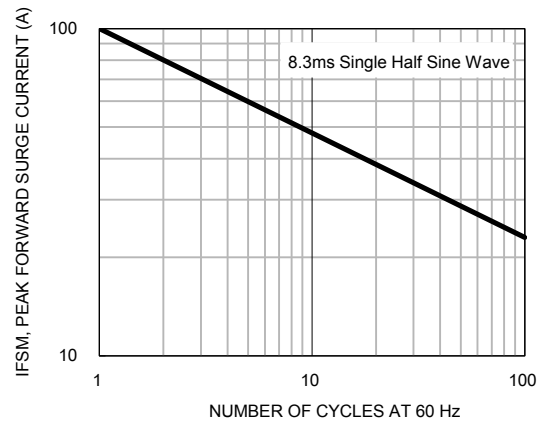
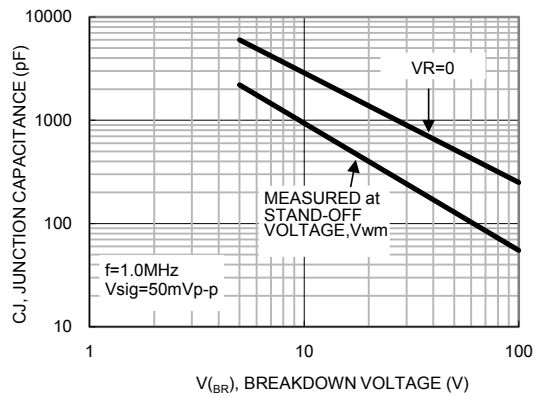
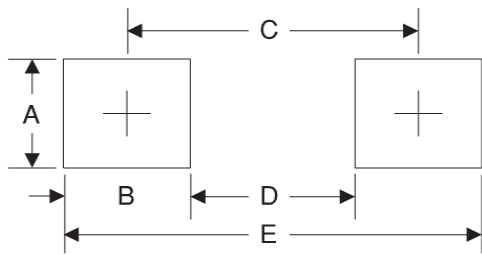


Fig5. Typical Junction Capacitance

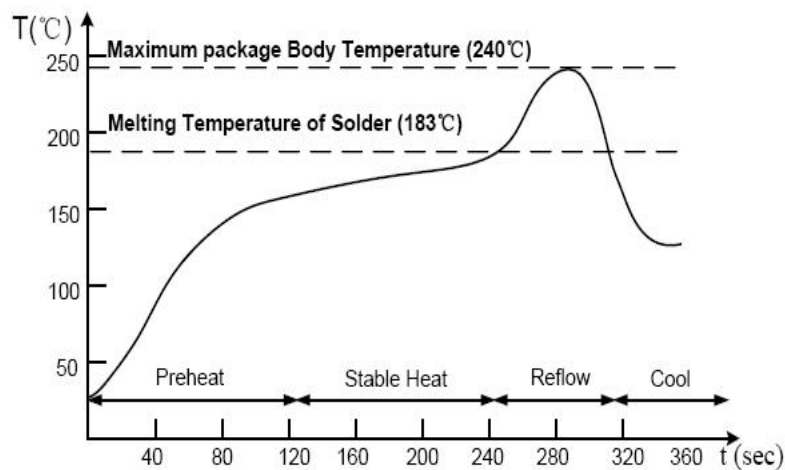


Suggested Pad Layout



Symbol	Unit (mm)	Unit (inch)
A	2.30	0.091
B	2.00	0.078
C	4.10	0.161
D	2.10	0.083
E	6.10	0.240

Suggested Soldering Temperature Profile

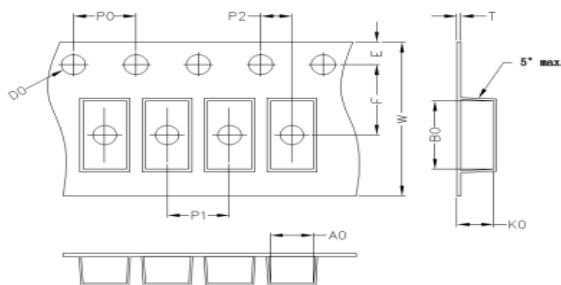


Note

- Recommended reflow methods: IR, vapor phase oven, hot air oven, wave solder.
- The device can be exposed to a maximum temperature of 265°C for 10 seconds.
- Devices can be cleaned using standard industry methods and solvents.
- If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

Package Information

Carrier Dimension(mm)



A0	B0	K0	D0	E	F
3.80	5.40	2.45	1.55	1.75	5.50
P0	P1	P2	T	W	Tolerance
4.0	8.0	2.0	0.25	12	0.1

Package Specifications

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SMB	13'	330	3.0	340	6.0	360*360*360	48