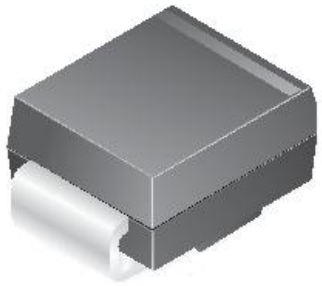
600W Transient Voltage Suppressor

FEATURES

- Glass passivated junction
- 600W peak pulse power capability on 10/1000μs waveform
- Excellent clamping capability
- Low-Incremental surge resistance
- Fast response time: Typically less than 1.0ps from 0V to BV minimum for unidirectional and 5.0ns for bidirectional
- Typical I_R less than 1μA above 10V
- UL certificate #E258596



SMB/DO-214AA

Band denotes cathode on unidirectional devices only. No band on bi-directional devices. Bi-directional types have CA suffix where electrical chatacteristics apply in both directions suitable for bi-directional applications.

ABSOLUTE MAXIMUM RATINGS

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation t_p=1ms	P_{PPM}	600	W
Peak pulse current on 10/1000μs waveform	I_{PPM}	see table	A
Non-Repetitive Peak Forward Surge Current Superimposed on Rated Load (JEDEC Method)(1)	I_{FSM}	100	A
Junction temperature	T_J	-55 to +150	°C
Storage temperature	T_{STG}	-55 to +150	°C

Note:

1. Measured on 8.3ms single half-sine wave; duty cycle = 4 pulses per minute maximum.

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

Uni-directional Bi-directional (C) Device	Part Marking[2]	Reverse Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V)		Test Current I_T (mA)	Clamping Voltage at I_{PPM} V_C(V)	Peak Pulse Current I_{PPM} (A)	Reverse Leakage Current at V_{RWM} I_R (μA) [3]
			Min.	Max.				
SMBJ5V0(C)A	KE	5.0	6.4	7	10	9.2	65.2	800
SMBJ6V0(C)A	KG	6.0	6.67	7.37	10	10.3	58.3	800
SMBJ6V5(C)A	KK	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ7V0(C)A	KM	7.0	7.78	8.6	10	12.0	50	200
SMBJ7V5(C)A	KP	7.5	8.33	9.21	1	12.9	46.5	100
SMBJ8V0(C)A	KR	8.0	8.89	9.83	1	13.6	44.1	50
SMBJ8V5(C)A	KT	8.5	9.44	10.4	1	14.4	41.7	20
SMBJ9V0(C)A	KV	9.0	10	11.1	1	15.4	39	10
SMBJ10(C)A	KX	10	11.1	12.8	1	17.0	35.3	5
SMBJ11(C)A	KZ	11	12.2	13.5	1	18.2	33	5
SMBJ12(C)A	LE	12	13.3	14.7	1	19.9	30.2	5
SMBJ13(C)A	LG	13	14.4	15.9	1	21.5	27.9	5
SMBJ14(C)A	LK	14	15.6	17.2	1	23.2	25.9	5
SMBJ15(C)A	LM	15	16.7	18.5	1	24.4	24.6	5
SMBJ16(C)A	LP	16	17.8	19.7	1	26.0	23.1	5
SMBJ17(C)A	LR	17	18.9	20.9	1	27.6	21.7	5
SMBJ18(C)A	LT	18	20	22.1	1	29.2	20.5	5
SMBJ20(C)A	LV	20	22.2	24.5	1	32.4	18.5	5
SMBJ22(C)A	LX	22	24.4	26.9	1	35.5	16.9	5
SMBJ24(C)A	LZ	24	26.7	29.5	1	38.9	15.4	5
SMBJ26(C)A	ME	26	28.9	31.9	1	42.1	14.3	5
SMBJ28(C)A	MG	28	31.1	34.4	1	45.4	13.2	5
SMBJ30(C)A	MK	30	33.3	36.8	1	48.4	12.4	5
SMBJ33(C)A	MM	33	36.7	40.6	1	53.3	11.3	5
SMBJ36(C)A	MP	36	40	44.2	1	58.1	10.3	5
SMBJ40(C)A	MR	40	44.4	49.1	1	64.5	9.3	5
SMBJ43(C)A	MT	43	47.8	52.8	1	69.4	8.6	5
SMBJ45(C)A	MV	45	50	55.3	1	72.7	8.3	5
SMBJ48(C)A	MX	48	53.3	58.9	1	77.4	7.8	5
SMBJ51(C)A	MZ	51	56.7	62.7	1	82.4	7.3	5
SMBJ54(C)A	NE	54	60	66.3	1	87.1	6.9	5
SMBJ58(C)A	NG	58	64.4	71.2	1	93.6	6.4	5
SMBJ60(C)A	NK	60	66.7	73.7	1	96.8	6.2	5
SMBJ64(C)A	NM	64	71.1	78.6	1	103	5.8	5
SMBJ70(C)A	NP	70	77.8	86	1	113	5.3	5
SMBJ75(C)A	NR	75	83.3	92.1	1	121	5	5
SMBJ78(C)A	NT	78	86.7	95.8	1	126	4.8	5

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

Uni-directional Bi-directional (C) Device	Part Marking[2]	Reverse Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V)		Test Current I_T (mA)	Clamping Voltage at I_{PPM} V_C(V)	Peak Pulse Current I_{PPM} (A)	Reverse Leakage Current at V_{RWM} I_R (μA) [3]
			Min.	Max.				
SMBJ85(C)A	NV	85	94.4	104.0	1	137.0	4.4	5
SMBJ90(C)A	NX	90	100.0	111.0	1	146.0	4.1	5
SMBJ100(C)A	NZ	100	111.0	123.0	1	162.0	3.7	5
SMBJ110(C)A	PE	110	122.0	135.0	1	177.0	3.4	5
SMBJ120(C)A	PG	120	133.0	147.0	1	193.0	3.1	5
SMBJ130(C)A	PK	130	144.0	159.0	1	209.0	2.9	5
SMBJ150(C)A	PM	150	167.0	185.0	1	243.0	2.5	5
SMBJ160(C)A	PP	160	178.0	197.0	1	259.0	2.3	5
SMBJ170(C)A	PR	170	189.0	209.0	1	275.0	2.2	5

Notes:

2. Color band denotes cathode on unidirectional devices only. No color band on bidirectional devices.
3. For bidirectional parts with V_{RWM} < 10 V, the I_R max limit is doubled.

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig1. Peak Pulse Power rating Curve

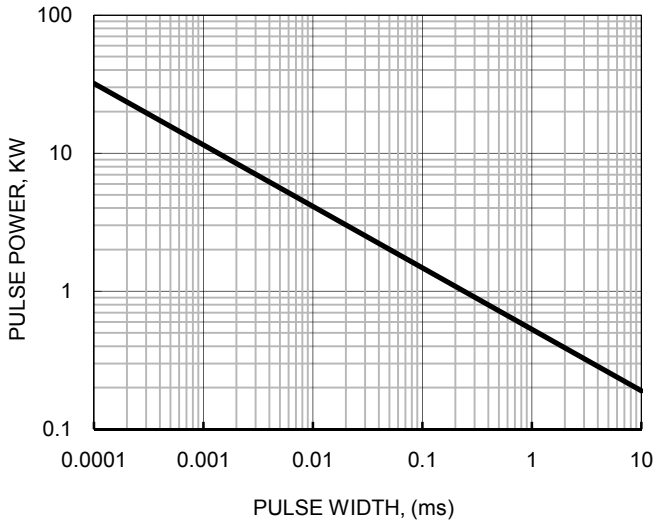


Fig2. Pulse Derating Curve

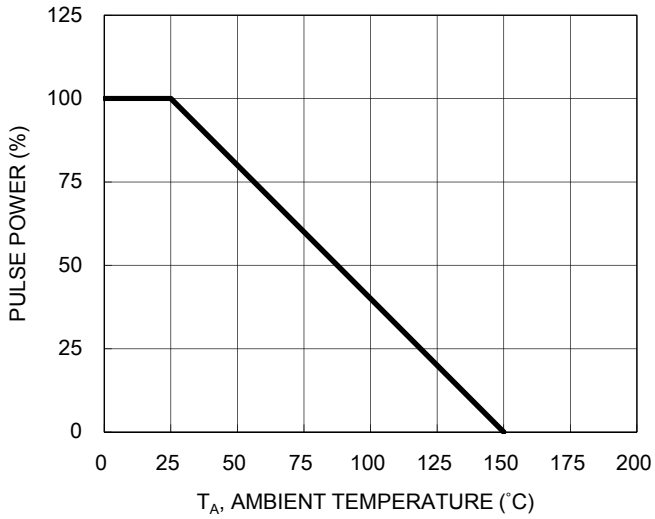


Fig3. Pulse Waveform

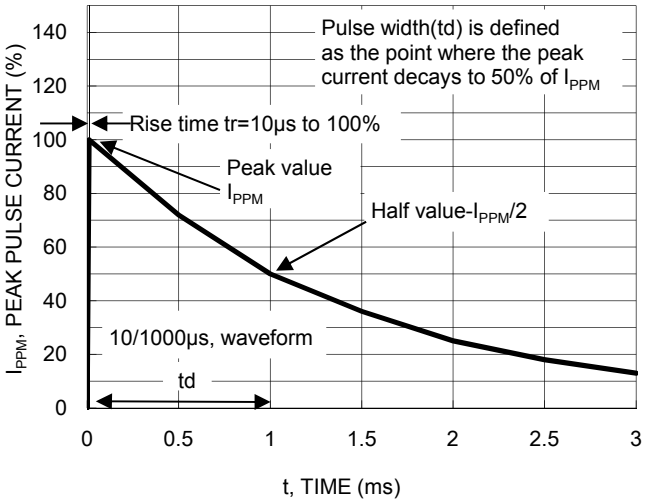


Fig4. Junction Capacitance

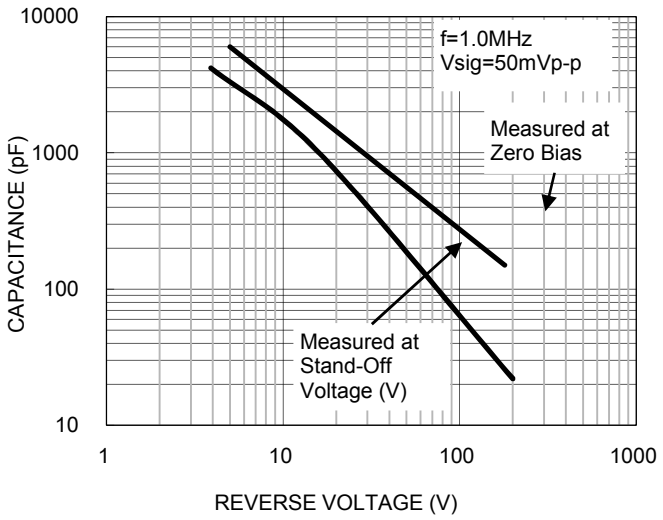
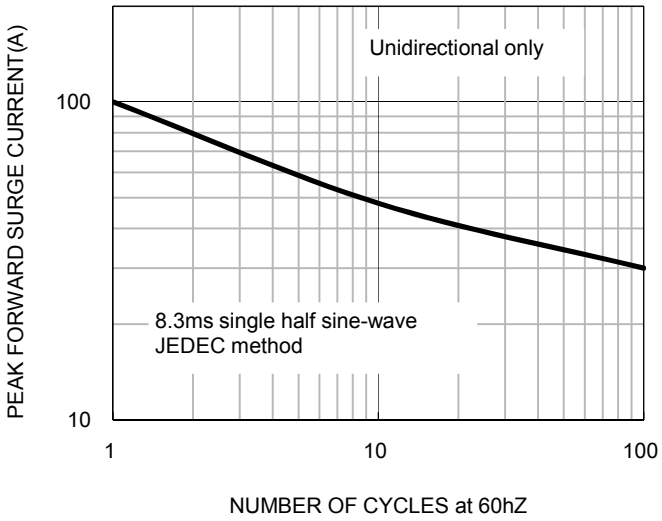
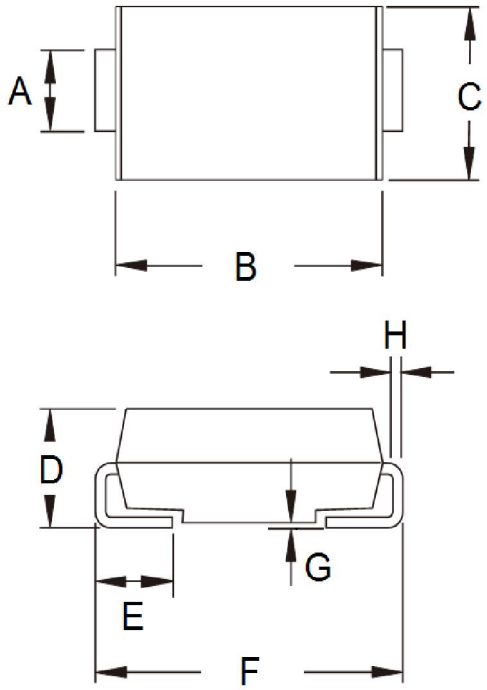


Fig5. Non-repetitive surge current



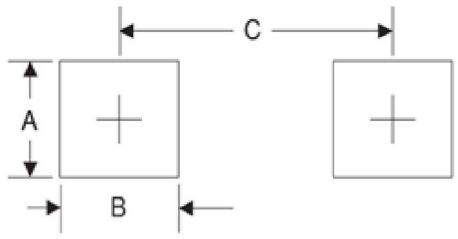
PACKAGE OUTLINE DIMENSIONS

DO-214AA (SMB)



DIM.	Unit (mm)	
	Min	Max
A	1.91	2.20
B	4.05	4.75
C	3.30	3.95
D	-	2.65
E	0.75	1.60
F	5.08	5.60
G	0.05	0.203
H	0.15	0.41

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)
A	2.2
B	2.5
C	4.7

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