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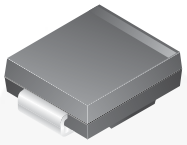
September 2015

SMCJ5V0(C)A - SMCJ170(C)A
1500 Watt Transient Voltage Suppressors

Features

- Glass-Passivated Junction
- 1500 W Peak Pulse Power Capability on 10/1000 µs Waveform.
- Excellent Clamping Capability
- Low-Incremental Surge Resistance
- Fast Response Time: Typically Less than 1.0 ps from 0 V to BV Minimum for Unidirectional and 5.0 ns for Bidirectional
- Typical I_R Less than 1.0 µA Above 10 V
- UL Certificate #E258596
- UL94V-0 Flammability Classification



SMC/DO-214AB

Band denotes cathode on unidirectional devices only. No band on bi-directional devices. Bi-directional types have CA suffix where electrical characteristics 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.

Symbol	Parameter	Value	Unit
P_{PPM}	Peak Pulse Power Dissipation on 10/1000 µs Waveform	1500	W
I_{PPM}	Peak Pulse Current on 10/1000 µs Waveform	See table	A
I_{FSM}	Non-Repetitive Peak Forward Surge Current Superimposed on Rated Load (JEDEC Method)(1)	200	A
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature	150	°C

Note:

1. Measured on 8.3 ms single half-sine wave or equivalent square wave: duty cycle = 4 pulses per minute maximum.

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Electrical Characteristics

Values are at 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 at V_{RWM} I_R (µA)[3]
			Min.	Max.				
SMCJ5V0(C)A	GDE	5.0	6.40	7.00	10	9.2	163.0	1000
SMCJ6V0(C)A	GDG	6.0	6.67	7.37	10	10.3	145.6	1000
SMCJ6V5(C)A	GDK	6.5	7.22	7.98	10	11.2	133.9	500
SMCJ7V0(C)A	GDM	7.0	7.78	8.60	10	12.0	125.0	200
SMCJ7V5(C)A	GDP	7.5	8.33	9.21	1	12.9	116.3	100
SMCJ8V0(C)A	GDR	8.0	8.89	9.83	1	13.6	110.3	50
SMCJ8V5(C)A	GDT	8.5	9.44	10.4	1	14.4	104.2	20
SMCJ9V0(C)A	GDV	9.0	10.0	11.1	1	15.4	97.4	10
SMCJ10(C)A	GDX	10	11.1	12.3	1	17.0	88.2	5
SMCJ11(C)A	GDZ	11	12.2	13.5	1	18.2	82.4	5
SMCJ12(C)A	GEE	12	13.3	14.7	1	19.9	75.3	5
SMCJ13(C)A	GEG	13	14.4	15.9	1	21.5	69.8	5
SMCJ14(C)A	GEK	14	15.6	17.2	1	23.2	64.7	5
SMCJ15(C)A	GEM	15	16.7	18.5	1	24.4	61.5	5
SMCJ16(C)A	GEP	16	17.8	19.7	1	26.0	57.7	5
SMCJ17(C)A	GER	17	18.9	20.9	1	27.6	54.3	5
SMCJ18(C)A	GET	18	20.0	22.1	1	29.2	51.4	5
SMCJ20(C)A	GEV	20	22.2	24.5	1	32.4	46.3	5
SMCJ22(C)A	GEX	22	24.4	26.9	1	35.5	42.3	5
SMCJ24(C)A	GEZ	24	26.7	29.5	1	38.9	38.6	5
SMCJ26(C)A	GFE	26	28.9	31.9	1	42.1	35.6	5
SMCJ28(C)A	GFG	28	31.1	34.4	1	45.4	33.0	5
SMCJ30(C)A	GFK	30	33.3	36.8	1	48.4	31.0	5
SMCJ33(C)A	GFM	33	36.7	40.6	1	53.3	28.1	5
SMCJ36(C)A	GFP	36	40.0	44.2	1	58.1	25.8	5
SMCJ40(C)A	GFR	40	44.4	49.1	1	64.5	23.3	5
SMCJ43(C)A	GFT	43	47.8	52.8	1	69.4	21.6	5
SMCJ45(C)A	GFV	45	50.0	55.3	1	72.7	20.6	5
SMCJ48(C)A	GFX	48	53.3	58.9	1	77.4	19.4	5
SMCJ51(C)A	GFZ	51	56.7	62.7	1	82.4	18.2	5
SMCJ54(C)A	GGE	54	60.0	66.3	1	87.1	17.2	5
SMCJ58(C)A	GGG	58	64.4	71.2	1	93.6	16.0	5
SMCJ60(C)A	GGK	60	66.7	73.7	1	96.8	15.5	5
SMCJ64(C)A	GGM	64	71.1	78.6	1	103.0	14.6	5
SMCJ70(C)A	GGP	70	77.8	86.0	1	113.0	13.3	5
SMCJ75(C)A	GGR	75	83.3	92.1	1	121.0	12.4	5
SMCJ78(C)A	GGT	78	86.7	95.8	1	126.0	11.9	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.

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Electrical Characteristics (Continued)

Values are at 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 at V_{RWM} I_R (µA)[3]
			Min.	Max.				
SMCJ85(C)A	GGV	85	94.4	104.0	1	137.0	10.9	5
SMCJ90(C)A	GGX	90	100.0	111.0	1	146.0	10.3	5
SMCJ100(C)A	GGZ	100	111.0	123.0	1	162.0	9.3	5
SMCJ110(C)A	GHE	110	122.0	135.0	1	177.0	8.5	5
SMCJ120(C)A	GHG	120	133.0	147.0	1	193.0	7.8	5
SMCJ130(C)A	GHK	130	144.0	159.0	1	209.0	7.2	5
SMCJ150(C)A	GHM	150	167.0	185.0	1	243.0	6.2	5
SMCJ160(C)A	GHP	160	178.0	197.0	1	259.0	5.8	5
SMCJ170(C)A	GHR	170	189.0	209.0	1	275.0	5.5	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.

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Typical Performance Characteristics

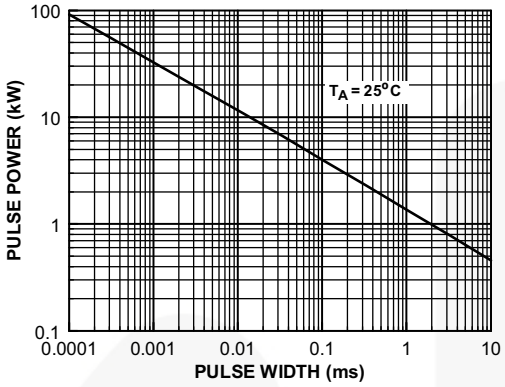

Figure 1. Peak Pulse Power Rating Curve

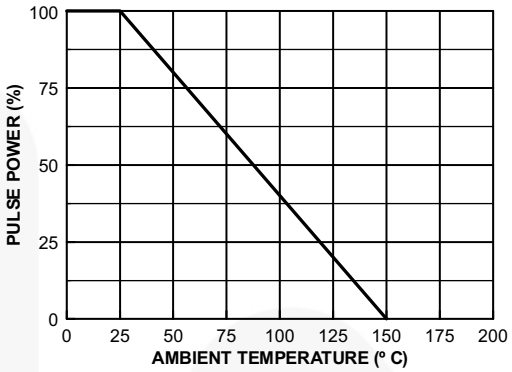

Figure 2. Pulse Derating Curve

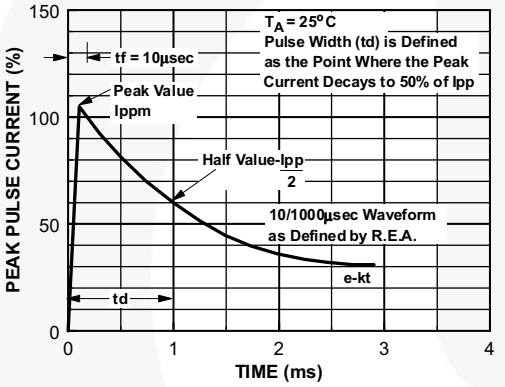

Figure 3. Pulse Waveform

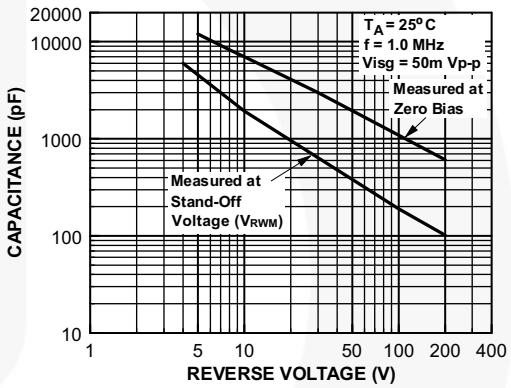

Figure 4. Junction Capacitance

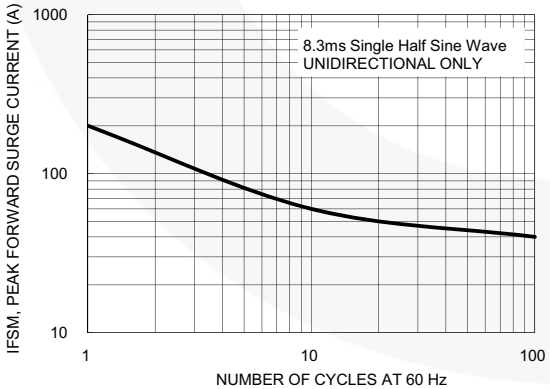

Figure 5. Non-Repetitive Surge Current

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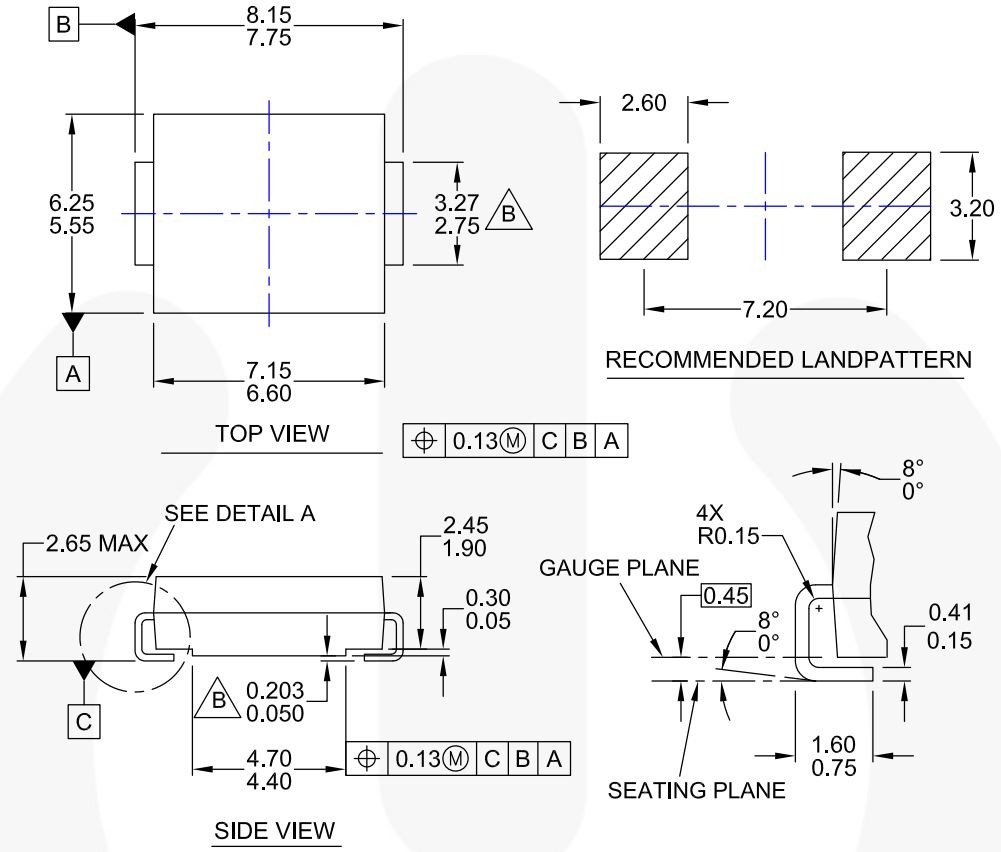
Physical Dimension



NOTES:

A. EXCEPT WHERE NOTED CONFORMS TO JEDEC DO-214, VARIATION AB.

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E. DIMENSIONS AND TOLERANCING AS PER ASME Y14.5M-1994

F. LAND PATTERN STANDARD: DIOM7957X241M

G. DRAWING FILE NAME: DO214ABREV1

Figure 6. 2-LEAD, SMC, JEDEC DO-214, VARIATION AB (ACTIVE)

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