1500W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

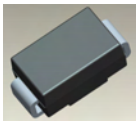
Features

- 1500W Peak Pulse Power Dissipation
- 5.0V - 170V Standoff Voltages
- Glass Passivated Die Construction
- Unidirectional and Bidirectional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Notes 3 & 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

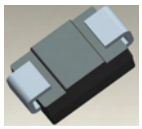
Mechanical Data

- Case: SMC
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 e3
- Polarity Indicator: Cathode Band (Note: Bidirectional devices have no polarity indicator.)
- Weight: 0.21 grams (approximate)

SMC



Top View



Bottom View

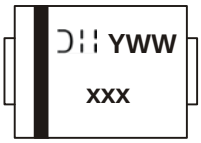
Ordering Information (Note 5)

Part Number	Case	Packaging
SMCJXXX(C)A-13-F	SMC	3000/Tape & Reel

*x = Device Voltage, e.g., SMCJ170A-13-F.

Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
2. See http://www.diodes.com for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. Product manufactured with Date Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.
5. For packaging details, go to our website at http://www.diodes.com.

Marking Information



xxx = Product type marking code (See Page 2)
= Manufacturers' code marking
YWW = Date code marking
Y = Last digit of year (ex: 2 for 2002)
WW = Week code (01 to 53)

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Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation (Non repetitive current pulse derated above T_A = 25° C) (Note 6)	P_{PK}	1500	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (Notes 6, 7, & 8)	I_{FSM}	200	A
Steady State Power Dissipation @ T_L = 75°C	$PM_{(AV)}$	5.0	W
Instantaneous Forward Voltage @ I_{PP} = 100A (Notes 6 & 8)	V_F	See Note 9	V

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C

Notes:
6. Valid provided that terminals are kept at ambient temperature.
7. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
8. Unidirectional units only.
9. V_F = 3.5V for SMCJ5.0A through SMCJ90A, and V_F = 5.0V for SMCJ100A through SMCJ170A.

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Electrical Characteristics @T_A = 25°C unless otherwise specified

Part Number Add C For Bidirectional (Note 10)	Reverse Standoff Voltage	Breakdown Voltage V_{BR} @ I_T (Note 11)		Test Current	Max. Reverse Leakage @ V_{RWM} (Note 12)	Max. Clamping Voltage @ I_{pp}	Max. Peak Pulse Current I_{pp}	Marking Code	
	V_{RWM} (V)	Min (V)	Max (V)	I_T(mA)	I_R (µA)	V_C (V)	(A)	BI	UNI
SMCJ5.0(C)A	5.0	6.40	7.07	10	1000	9.2	163.0	BDE	GDE
SMCJ6.0(C)A	6.0	6.67	7.37	10	1000	10.3	145.6	BDG	GDG
SMCJ6.5(C)A	6.5	7.22	7.98	10	500	11.2	133.9	BDK	GDK
SMCJ7.0(C)A	7.0	7.78	8.60	10	200	12.0	125.0	BDM	GDM
SMCJ7.5(C)A	7.5	8.33	9.21	1.0	100	12.9	116.3	BDP	GDP
SMCJ8.0(C)A	8.0	8.89	9.83	1.0	50	13.6	110.3	BDR	GDR
SMCJ8.5(C)A	8.5	9.44	10.4	1.0	20	14.4	104.2	BDT	GDT
SMCJ9.0(C)A	9.0	10.00	11.1	1.0	10	15.4	97.4	BDV	GDV
SMCJ10(C)A	10.0	11.10	12.3	1.0	5.0	17.0	88.2	BDX	GDX
SMCJ11(C)A	11.0	12.20	13.5	1.0	5.0	18.2	82.4	BDZ	GDZ
SMCJ12(C)A	12.0	13.30	14.7	1.0	5.0	19.9	75.3	BEE	GEE
SMCJ13(C)A	13.0	14.40	15.9	1.0	5.0	21.5	69.7	BEG	GEG
SMCJ14(C)A	14.0	15.60	17.2	1.0	5.0	23.2	64.7	BEK	GEK
SMCJ15(C)A	15.0	16.70	18.5	1.0	5.0	24.4	61.5	BEM	GEM
SMCJ16(C)A	16.0	17.80	19.7	1.0	5.0	26.0	57.7	BEP	GEP
SMCJ17(C)A	17.0	18.90	20.9	1.0	5.0	27.6	53.3	BER	GER
SMCJ18(C)A	18.0	20.00	22.1	1.0	5.0	29.2	51.4	BET	GET
SMCJ20(C)A	20.0	22.20	24.5	1.0	5.0	32.4	46.3	BEV	GEV
SMCJ22(C)A	22.0	24.40	27.0	1.0	5.0	35.5	42.2	BEX	GEX
SMCJ24(C)A	24.0	26.70	29.5	1.0	5.0	38.9	38.6	BEZ	GEZ
SMCJ26(C)A	26.0	28.90	31.9	1.0	5.0	42.1	35.6	BFE	GFE
SMCJ28(C)A	28.0	31.10	34.4	1.0	5.0	45.4	33.0	BFG	GFG
SMCJ30(C)A	30.0	33.30	36.8	1.0	5.0	48.4	31.0	BFK	GFK
SMCJ33(C)A	33.0	36.70	40.6	1.0	5.0	53.3	28.1	BFM	GFM
SMCJ36(C)A	36.0	40.00	44.2	1.0	5.0	58.1	25.8	BFP	GFP
SMCJ40(C)A	40.0	44.40	49.1	1.0	5.0	64.5	23.2	BFR	GFR
SMCJ43(C)A	43.0	47.80	52.8	1.0	5.0	69.4	21.6	BFT	GFT
SMCJ45(C)A	45.0	50.00	55.3	1.0	5.0	72.7	20.6	BFV	GFV
SMCJ48(C)A	48.0	53.30	58.9	1.0	5.0	77.4	19.4	BFX	GFX
SMCJ51(C)A	51.0	56.70	62.7	1.0	5.0	82.4	18.2	BFZ	GFZ
SMCJ54(C)A	54.0	60.00	66.3	1.0	5.0	87.1	17.2	BGE	GGE
SMCJ58(C)A	58.0	64.40	71.2	1.0	5.0	93.6	16.0	BGG	GGG
SMCJ60(C)A	60.0	66.70	73.7	1.0	5.0	96.8	15.5	BGK	GGK
SMCJ64(C)A	64.0	71.10	78.6	1.0	5.0	103.0	14.6	BGM	GGM
SMCJ70(C)A	70.0	77.80	86.0	1.0	5.0	113.0	13.3	BGP	GGP
SMCJ75(C)A	75.0	83.30	92.1	1.0	5.0	121.0	12.4	BGR	GGR
SMCJ78(C)A	78.0	86.70	95.8	1.0	5.0	126.0	11.4	BGT	GGT
SMCJ85(C)A	85.0	94.40	104	1.0	5.0	137.0	10.4	BGV	GGV
SMCJ90(C)A	90.0	100.00	111	1.0	5.0	146.0	10.3	BGX	GGX
SMCJ100(C)A	100.0	111.00	123	1.0	5.0	162.0	9.3	BGZ	GGZ
SMCJ110(C)A	110.0	122.00	135	1.0	5.0	177.0	8.4	BHE	GHE
SMCJ120(C)A	120.0	133.00	147	1.0	5.0	193.0	7.9	BHG	GHG
SMCJ130(C)A	130.0	144.00	159	1.0	5.0	209.0	7.2	BHK	GHK
SMCJ150(C)A	150.0	167.00	185	1.0	5.0	243. 0	6.2	BHM	GHM
SMCJ160(C)A	160.0	178.00	197	1.0	5.0	259. 0	5.8	BHP	GHP
SMCJ170(C)A	170.0	189.00	209	1.0	5.0	275.0	5.5	BHR	GHR

Notes: 10. Suffix C denotes Bidirectional device.
11. V_{BR} measured with I_T current pulse = 300µs.
12. For Bidirectional devices having V_{RWM} of 10V and under, the I_R is doubled.

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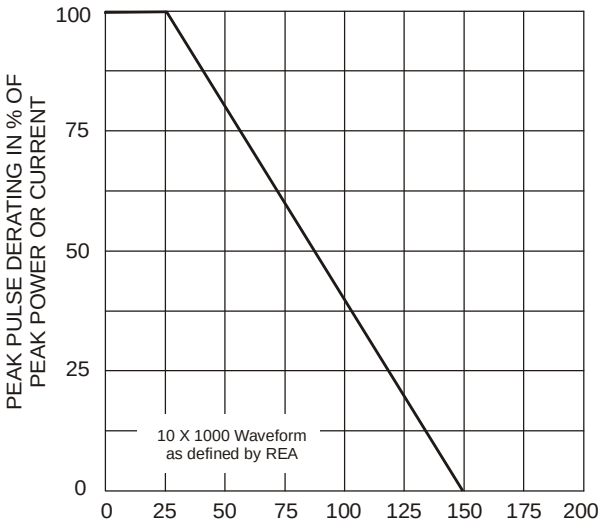

Fig. 1 Pulse Derating Curve

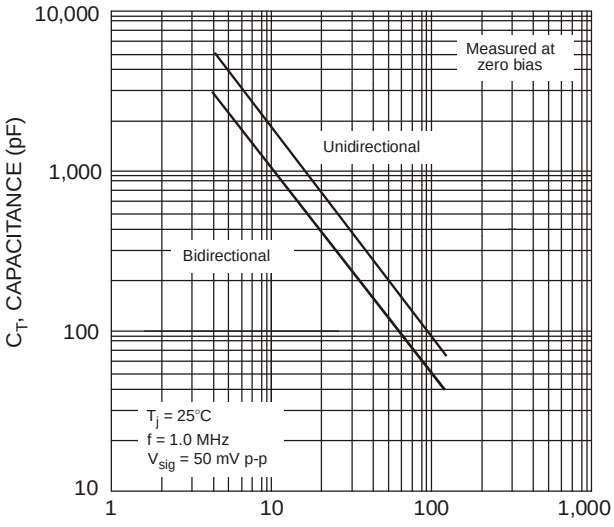

Fig. 2 Typical Total Capacitance

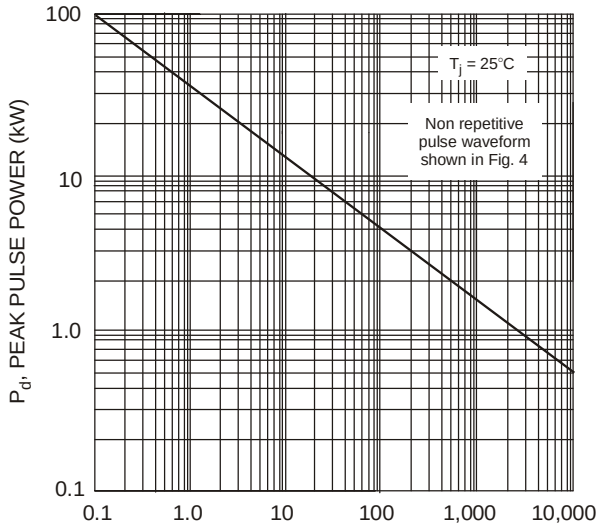

Fig. 3 Pulse Rating Curve

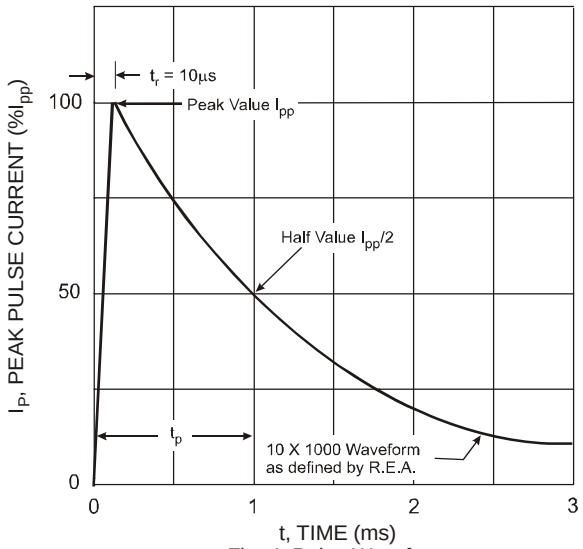

Fig. 4 Pulse Waveform

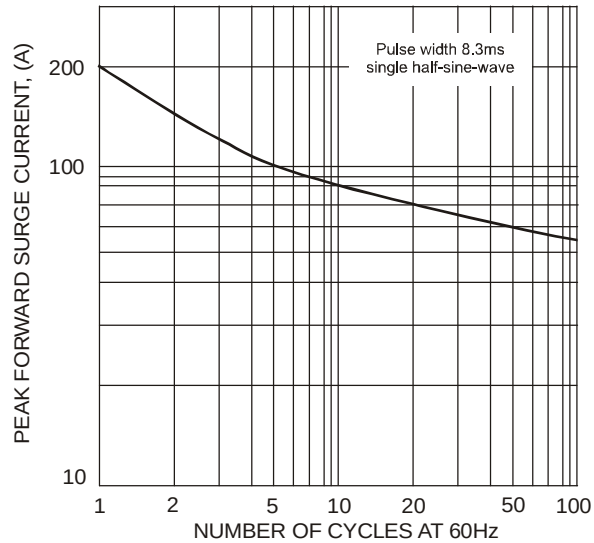

Fig. 5, Maximum Non-Repetitive Surge Current

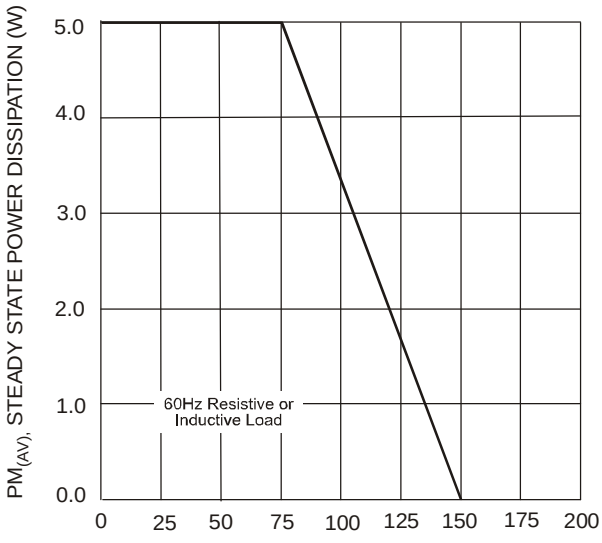

Fig. 6 Steady State Power Derating Curve

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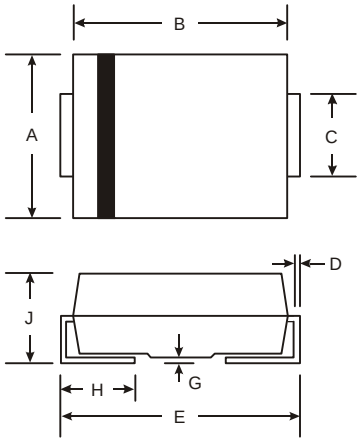
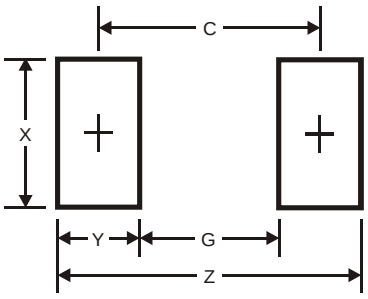
Package Outline Dimensions



SMC		
Dim	**Min**	**Max**
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
Z	9.3
G	4.4
X	3.3
Y	2.5
C	6.8

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