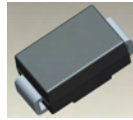


Features

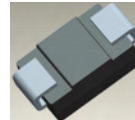
- 1500W Peak Pulse Power Dissipation
- 5.0V - 170V Standoff Voltages
- Glass Passivated Die Construction
- Unidirectional and Bidirectional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- **Lead Free Finish/RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 2)**

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
- Polarity Indicator: Cathode Band (Note: Bidirectional devices have no polarity indicator.)
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.21 grams (approximate)



Top View



Bottom View

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 3)	P _{PK}	1500	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (Notes 3, 4, & 5)	I _{FSM}	200	A
Steady State Power Dissipation @ T _L = 75°C	PM(AV)	5.0	W
Instantaneous Forward Voltage @ I _{PP} = 100A (Notes 3 & 5)	V _F	See Note 6	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:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at http://www.diodes.com/quality/lead_free.html.
 2. No purposefully added lead. Halogen and Antimony free.
 3. Valid provided that terminals are kept at ambient temperature.
 4. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
 5. Unidirectional units only.
 6. V_F = 3.5V for SMCJ5.0A through SMCJ90A, and V_F = 5.0V for SMCJ100A through SMCJ170A.

Electrical Characteristics @T_A = 25°C unless otherwise specified

Part Number Add C For Bidirectional (Note 7)	Reverse Standoff Voltage	Breakdown Voltage V _{BR} @ I _T (Note 8)		Test Current I _T (mA)	Max. Reverse Leakage @ V _{RWM} (Note 9)	Max. Clamping Voltage @ I _{pp}	Max. Peak Pulse Current I _{pp}	Marking Code	
		V _{RWM} (V)	Min (V)	Max (V)				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 GKK
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:
- Suffix C denotes Bidirectional device.
 - V_{BR} measured with I_T current pulse = 300μs.
 - For Bidirectional devices having V_{RWM} of 10V and under, the I_R is doubled.

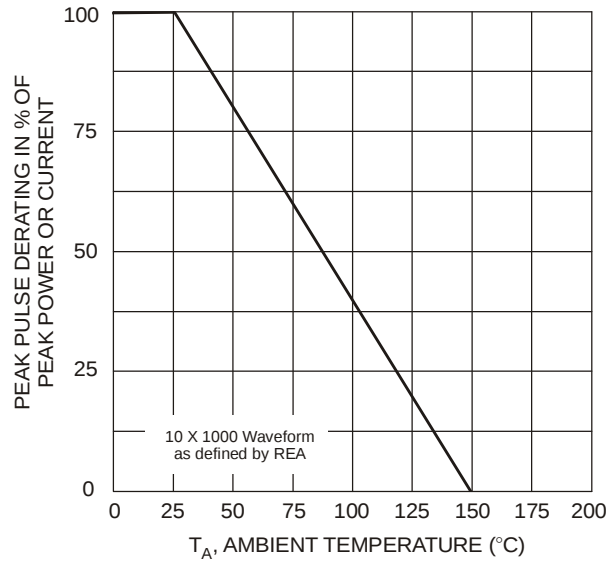


Fig. 1 Pulse Derating Curve

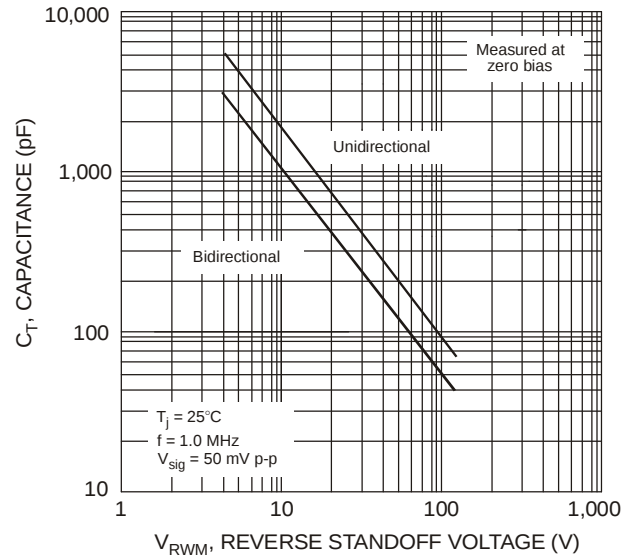


Fig. 2 Typical Total Capacitance

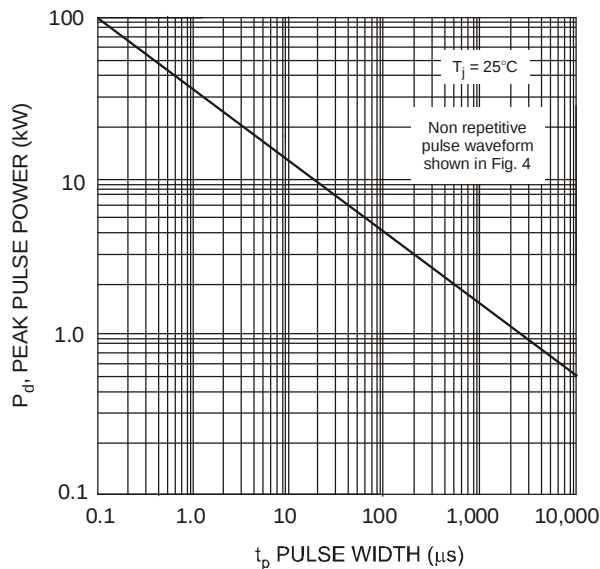


Fig. 3 Pulse Rating Curve

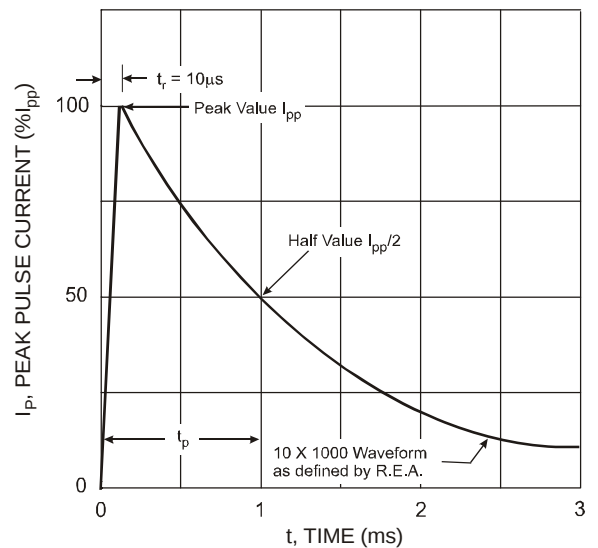


Fig. 4 Pulse Waveform

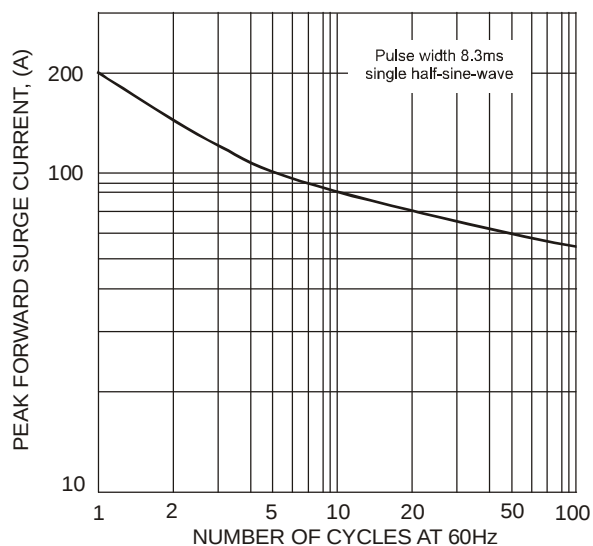


Fig. 5, Maximum Non-Repetitive Surge Current

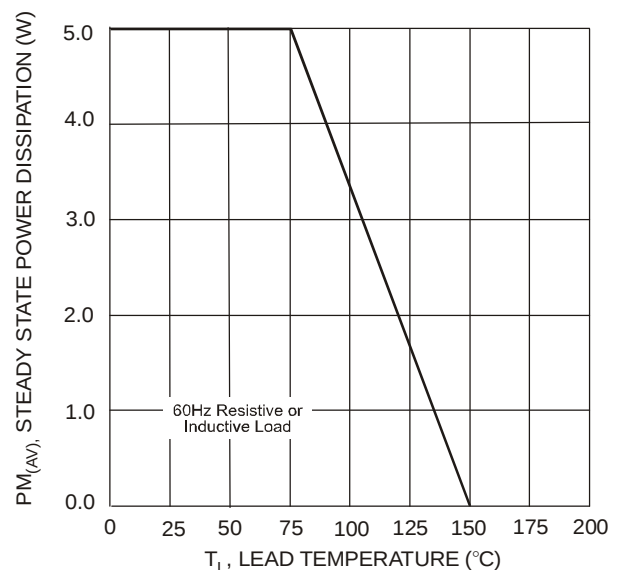


Fig. 6 Steady State Power Derating Curve

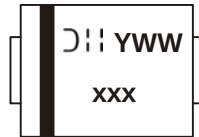
Ordering Information (Note 10)

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

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

Notes: 10. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



xxx = Product type marking code (See Page 2)

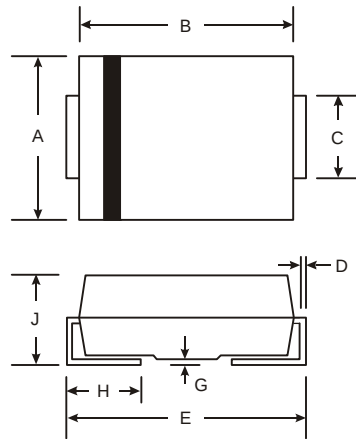
DII = Manufacturers' code marking

YWW = Date code marking

Y = Last digit of year (ex: 2 for 2002)

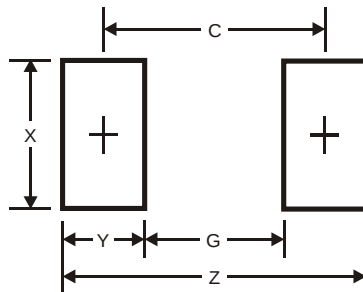
WW = Week code 01 to 52

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	2.62
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

IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or
2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

Copyright © 2009, Diodes Incorporated

www.diodes.com