

## Product Summary (@T<sub>A</sub> = +25°C)

P <sub>PK</sub>	I <sub>FSM</sub> (A)	V <sub>RWM</sub> (V)	PM <sub>(AV)</sub>
1500W	200	14-36	5W

## Description and Applications

Suitable to protect sensitive automotive circuits against surges defined in ISO7637-2 and against electrostatic discharges according to ISO10605.

Compliance with following standards:

- ISO10605, C = 150pF, R = 330Ω:  
30kV (Air Discharge)  
30kV (Contact Discharge)
- ISO7637-2  
Pulse 1: V<sub>s</sub> = -100 V  
Pulse 2a: V<sub>s</sub> = +50 V  
Pulse 3a: V<sub>s</sub> = -150 V  
Pulse 3b: V<sub>s</sub> = +100 V

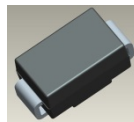
## Features and Benefits

- 1500W Peak Pulse Power Dissipation
- 14V - 36V 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)**
- Qualified to AEC-Q101 Standards for High Reliability**
- PPAP Capable (Note 4)**

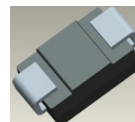
## Mechanical Data

- 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 208③
- Polarity Indicator: Cathode Band (Note: Bidirectional devices have no polarity indicator.)
- Weight: 0.21 grams (Approximate)

SMC



Top View



Bottom View

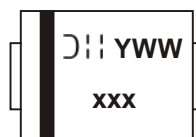
## Ordering Information (Note 5)

Part Number	Qualification	Case	Packaging
SMCJXX(C)AQ-13-F*	Automotive	SMC	3000/Tape & Reel

\*x = Device Voltage, e.g., SMCJ14A-13-F.

- Notes:
- EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  - See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  - Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to <https://www.diodes.com/quality/>.
  - For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



xxx = Product Type Marking Code (See Page 3)  
 DII = Manufacturers' Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 9 for 2019)  
 WW = Week Code (01 to 53)

### Maximum Ratings (@ $T_A = +25^\circ\text{C}$ unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation (Non-Repetitive Current Pulse Derated Above $T_A = +25^\circ\text{C}$ ) (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 @ $T_L = +75^\circ\text{C}$	$PM_{(AV)}$	5.0	W
Instantaneous Forward Voltage @ $I_{FP} = 100\text{A}$ (Notes 6 & 8)	$V_F$	3.5	V

### Thermal Characteristics

Characteristic	Symbol	Value	Unit
Operating Temperature Range	$T_J$	-55 to +150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +175	$^\circ\text{C}$

- 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.

**Electrical Characteristics** (@T<sub>A</sub> = +25°C unless otherwise specified.)

Part Number Add C For Bidirectional (Note 9)	Reverse Standoff Voltage V <sub>RWM</sub> (V)	Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub> (Note 10)		Test Current I <sub>T</sub> (mA)	Max. Reverse Leakage @ V <sub>RWM</sub> I <sub>R</sub> (μA)	Max. Clamping Voltage @ I <sub>pp</sub> (Note 11) V <sub>C</sub> (V)	Max. Peak Pulse Current I <sub>pp</sub> (A)	Marking Code	
		Min (V)	Max (V)					BI	UNI
SMCJ14(C)AQ	14.0	15.60	17.2	1.0	5.0	23.2	64.7	BEK	GEK
SMCJ15(C)AQ	15.0	16.70	18.5	1.0	5.0	24.4	61.5	BEM	GEM
SMCJ16(C)AQ	16.0	17.80	19.7	1.0	5.0	26.0	57.7	BEP	GEP
SMCJ17(C)AQ	17.0	18.90	20.9	1.0	5.0	27.6	53.3	BER	GER
SMCJ18(C)AQ	18.0	20.00	22.1	1.0	5.0	29.2	51.4	BET	GET
SMCJ20(C)AQ	20.0	22.20	24.5	1.0	5.0	32.4	46.3	BEV	GEV
SMCJ22(C)AQ	22.0	24.40	27.0	1.0	5.0	35.5	42.2	BEX	GEX
SMCJ24(C)AQ	24.0	26.70	29.5	1.0	5.0	38.9	38.6	BEZ	GEZ
SMCJ26(C)AQ	26.0	28.90	31.9	1.0	5.0	42.1	35.6	BFE	GFE
SMCJ28(C)AQ	28.0	31.10	34.4	1.0	5.0	45.4	33.0	BFG	GFG
SMCJ30(C)AQ	30.0	33.30	36.8	1.0	5.0	48.4	31.0	BFK	GFK
SMCJ33(C)AQ	33.0	36.70	40.6	1.0	5.0	53.3	28.1	BFM	GFM
SMCJ36(C)AQ	36.0	40.00	44.2	1.0	5.0	58.1	25.8	BFP	GFP

- Notes:
- 9. Suffix C denotes bidirectional device.
  - 10. V<sub>BR</sub> measured with I<sub>T</sub> current pulse = 10 ~ 15 ms.
  - 11. Per 10 x 1000μs waveform. See Figure 4.

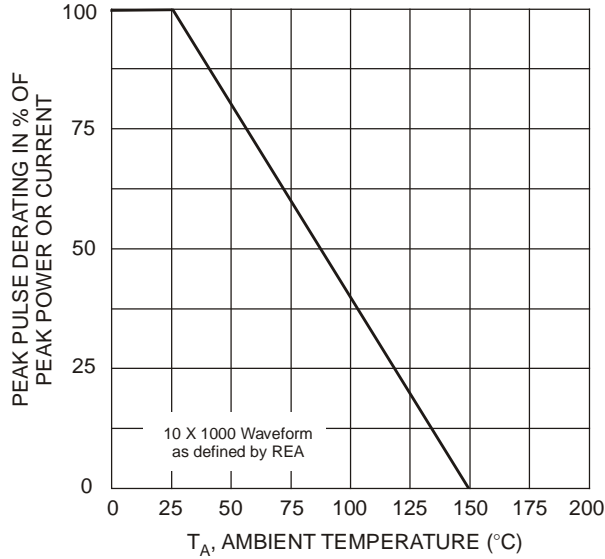


Fig. 1 Pulse Derating Curve

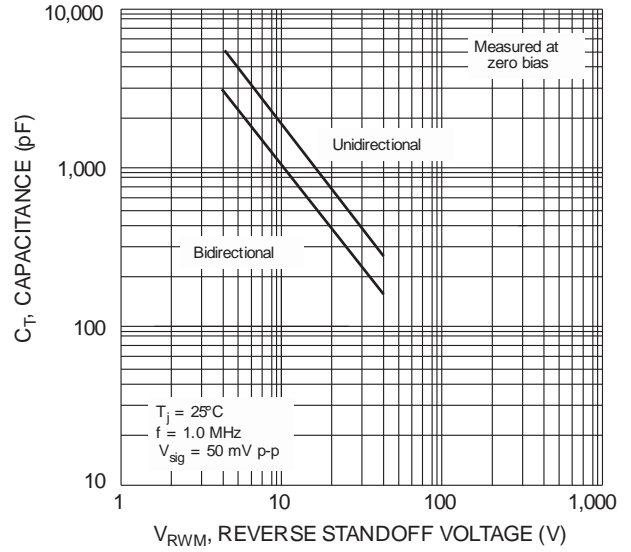


Fig. 2 Typical Total Capacitance

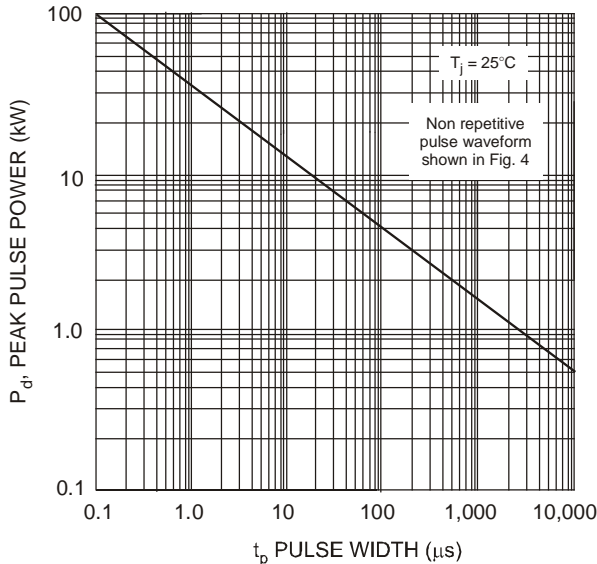


Fig. 3 Pulse Rating Curve

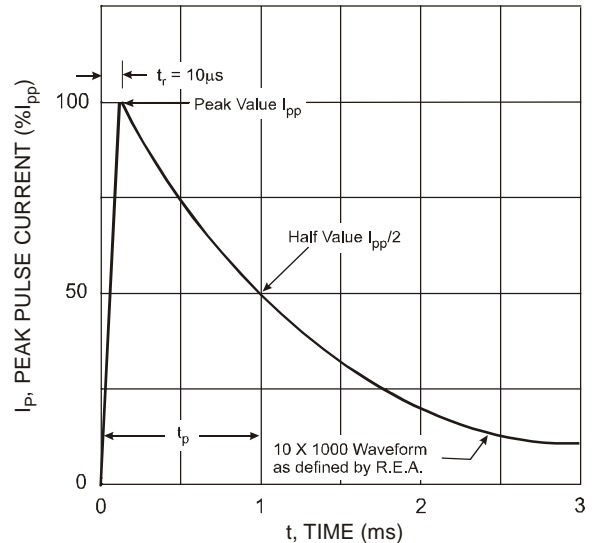


Fig. 4 Pulse Waveform

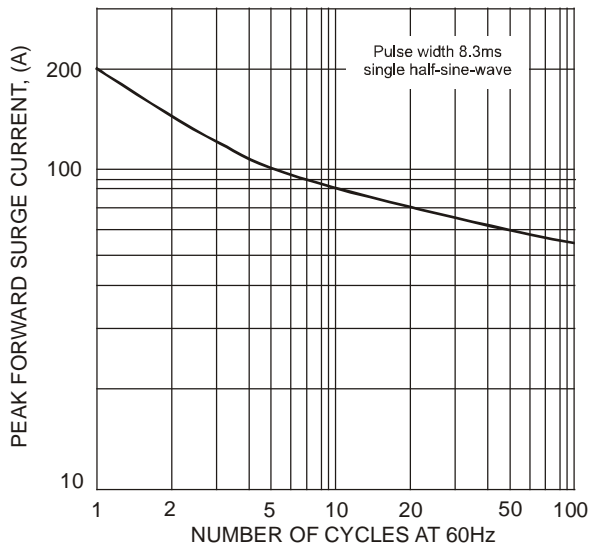


Fig. 5, Maximum Non-Repetitive Surge Current

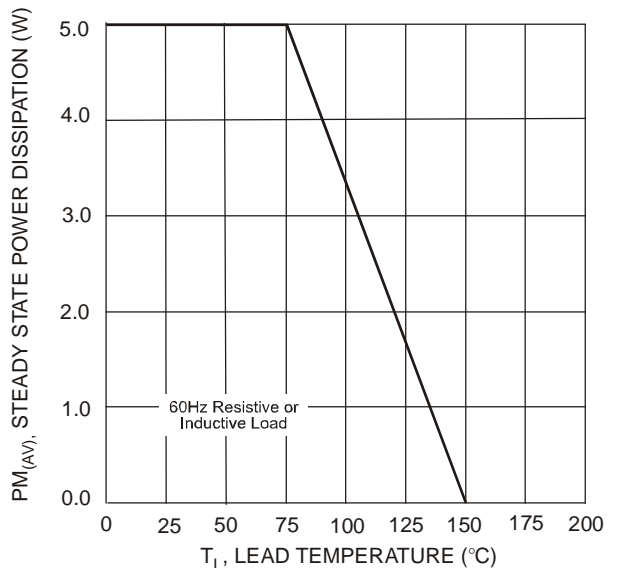
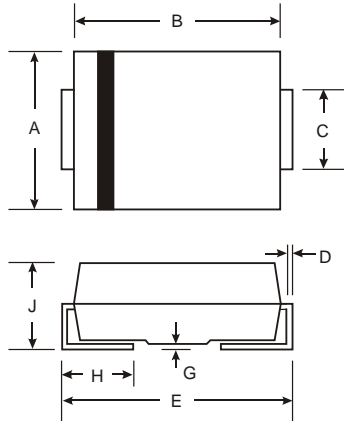


Fig. 6 Steady State Power Derating Curve

**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SMC**

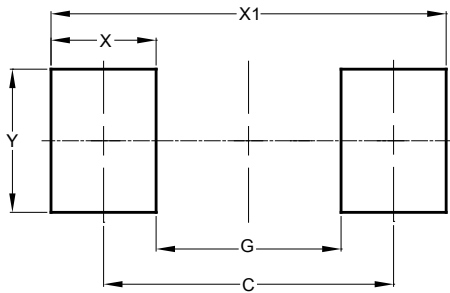


SMC		
Dim	Min	Max
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

**Suggested Pad Layout**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SMC**



Dimensions	Value (in mm)
C	6.90
G	4.40
X	2.50
X1	9.40
Y	3.30

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