

Product Summary (@T_A = +25°C)

P _{PK}	I _{FSM} (A)	V _{RWM} (V)	PM _(AV)
3000W	300	14-30	5W

Description and Applications

This device is suitable to protect sensitive automotive circuits against surges defined in ISO7637-2 and against electrostatic discharges according to ISO10605.

Compliance with following standards

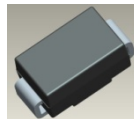
- ISO10605, C = 150pF, R = 330Ω:
30kV (Air Discharge)
30kV (Contact Discharge)
- ISO7637-2
Pulse 1: V_s = -150V
Pulse 2a: V_s = +112V
Pulse 3a: V_S = -220V
Pulse 3b: V_S = +150V

Features and Benefits

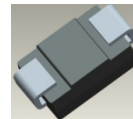
- 3000W Peak Pulse Power Dissipation
- 14V to 30V Standoff Voltages
- Glass Passivated Die Construction
- Excellent Clamping Capability
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Notes 3)**
- Qualified to AEC-Q101 Standards for High Reliability**
- PPAP Capable (Note 4)**

Mechanical Data

- Case: SMC
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Solderable per MIL-STD-202, Method 208⁽⁶⁾
- Lead-Free Plating (Matte Tin Finish)
- Polarity Indicator: Cathode Band
- Weight: 0.21 grams (Approximate)



Top View



Bottom View

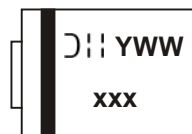
Ordering Information (Note 5)

Part Number	Qualification	Case	Packaging
3.0SMCJXXAQ-13*	Automotive	SMC	3000/Tape & Reel

*x = Device Voltage, e.g., 3.0SMCJ14A-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 Electrical Characteristics Table
D11 = Manufacturers' Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 8 for 2018)
WW = Week Code (01 - 53)

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation (Note 6)	P _{PK}	3000	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (Notes 7 & 8)	I _{FSM}	300	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Operating Temperature Range	T _J	-55 to +150	°C
Storage Temperature Range	T _{STG}	-55 to +175	°C

Electrical Characteristics (@T_A = +25°C unless otherwise specified.)

Part Number	Reverse Standoff Voltage	Breakdown Voltage		Test Current	Max. Reverse Leakage @ V _{RWM}	Max Clamping Voltage @ I _{PP} (Note 12)	Max Peak Pulse Current I _{PP}	Typical Total Capacitance (Note 11)	Marking Code
		V _{BR} @ I _T (Note 9)							
See Note 10	V _{RWM} (V)	Min (V)	Max (V)	I _T (mA)	I _R (μA)	V _C (V)	(A)	C _T (pF)	
3.0SMCJ14AQ	14.0	15.60	17.2	1.0	5.0	23.2	129.3	3500	HEK
3.0SMCJ20AQ	20.0	22.20	24.5	1.0	5.0	32.4	92.6	3300	HEV
3.0SMCJ22AQ	22.0	24.40	27.0	1.0	5.0	35.5	84.5	3000	HEX
3.0SMCJ24AQ	24.0	26.70	29.5	1.0	5.0	38.9	77.1	3000	HEZ
3.0SMCJ28AQ	28.0	31.10	34.4	1.0	5.0	45.4	66.1	1800	HFG
3.0SMCJ30AQ	30.0	33.30	36.8	1.0	5.0	48.4	62.0	1700	HFK

- Notes:
6. Non-repetitive current pulse per Figure 4 and derated above T_A = +25°C per Figure 1.
 7. Mounted on 8.00mm² (0.013mm thick) land areas.
 8. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
 9. V_{BR} measured with I_T current pulse = 10ms ~ 15 ms.
 10. Additional voltages may be available upon request. Please contact the Diodes Incorporated sales department for assistance.
 11. V_R = 0V, f = 1MHz
 12. Per 10 × 1000μs waveform. See Figure 2.

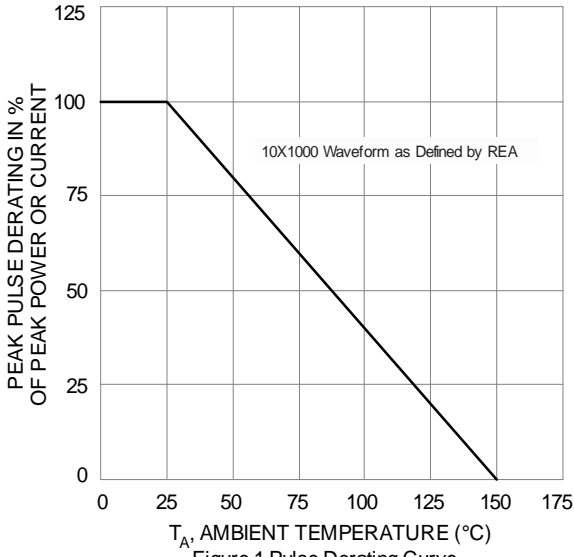


Figure 1 Pulse Derating Curve

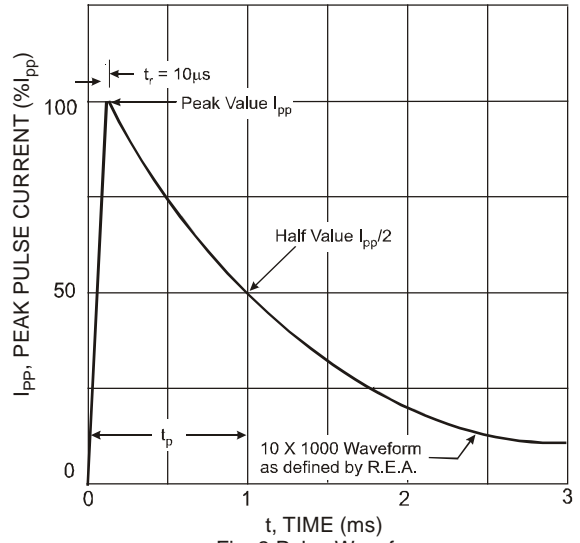


Figure 2 Pulse Waveform

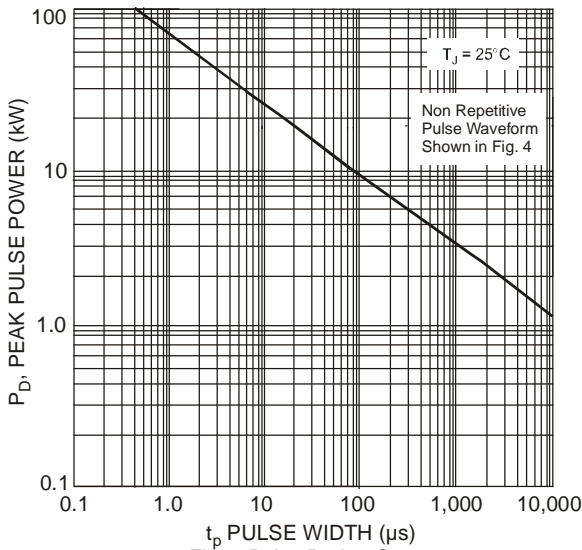


Figure 3 Pulse Rating Curve

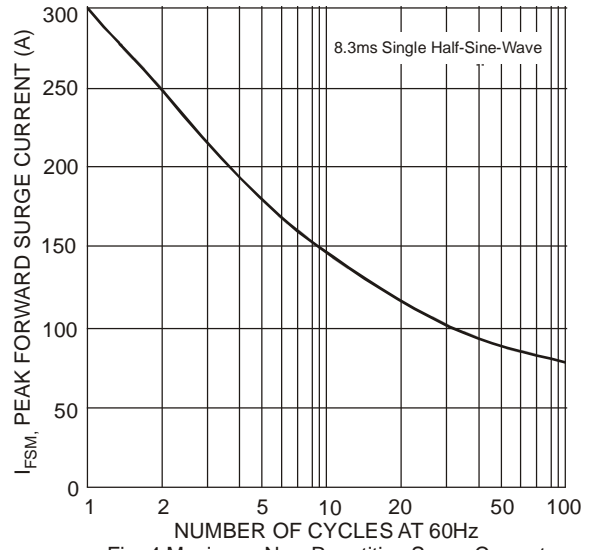
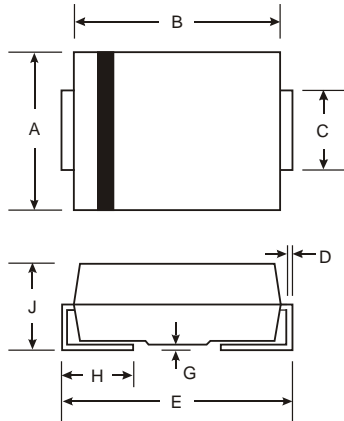


Figure 4 Maximum Non-Repetitive Surge Current

Package Outline Dimensions

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

SMC

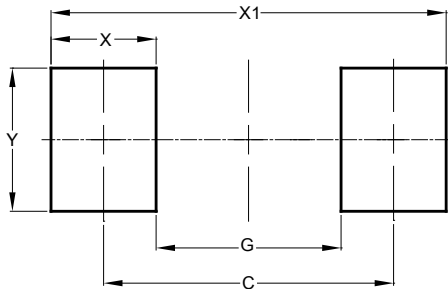


SMC		
Dim	Min	Max
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

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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