

Product Summary (@T_A = +25°C)

PPK	I _{FSM} (A)	V _{RWM} (V)	PM(AV)
3000W	300	13-36	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 the following standards:

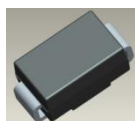
- ISO10605, C = 150pF, R = 330Ω:
30kV (Air Discharge)
30kV (Contact Discharge)
- ISO7637-2:
Pulse 1: V_s = -150V
Pulse 2a: V_s = +112V
Pulse 3a: V_s = -220V
Pulse 3b: V_s = +150V

Features and Benefits

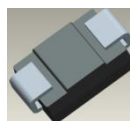
- 3000W Peak Pulse Power Dissipation
- 13V to 36V Standoff Voltages
- Glass Passivated Die Construction
- Excellent Clamping Capability
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Notes 3)**
- The DIODES™ 3.0SMCJ13(C)AQ - 3.0SMCJ36(C)AQ are suitable for automotive applications requiring specific change control; these parts are AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.**
<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

- Package: SMC
- Package 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[Ⓒ]
- Lead-Free Plating (Matte Tin Finish)
Weight: 0.21 grams (Approximate)



Top View



Bottom View

Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
3.0SMCJXX(C)AQ-13*	SMC	3000	Tape & Reel

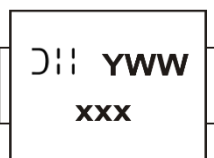
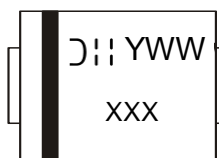
*x = Device Voltage, e.g., 3.0SMCJ14AQ-13-F.

- 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.
 - For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information

Cathode Band for Uni-Directional Device

Bi-Directional Device



XXX = Product Type Marking Code
J; = Electrical Characteristics Table
= Manufacturers' Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 2 for 2022)
WW = Week Code (01 to 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 5)	P _{PK}	3000	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (Notes 6, 7)	I _{FSM}	300	A

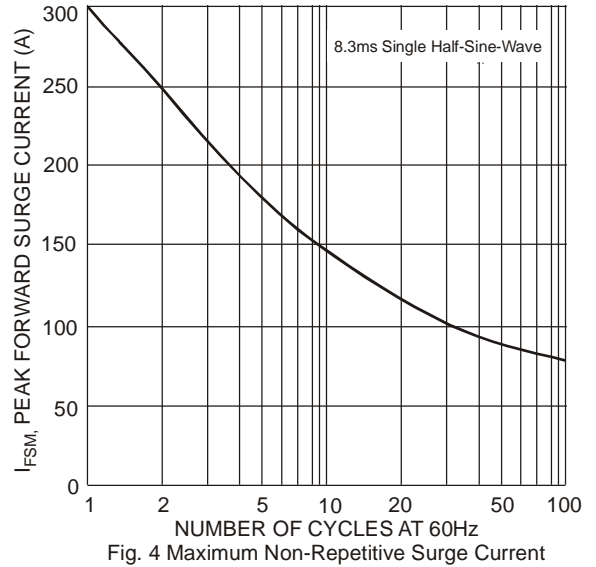
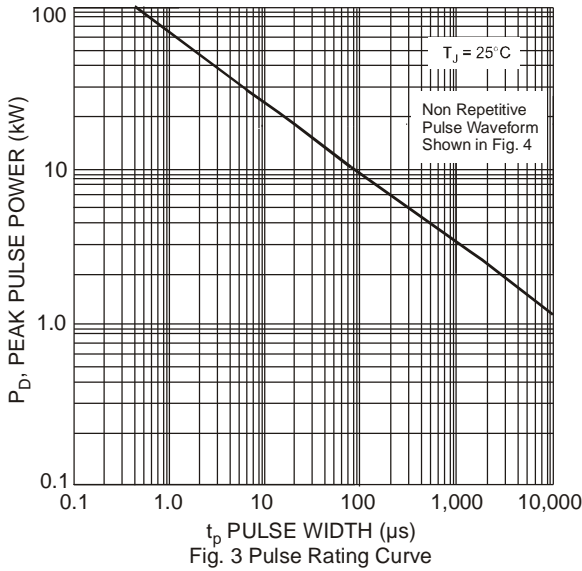
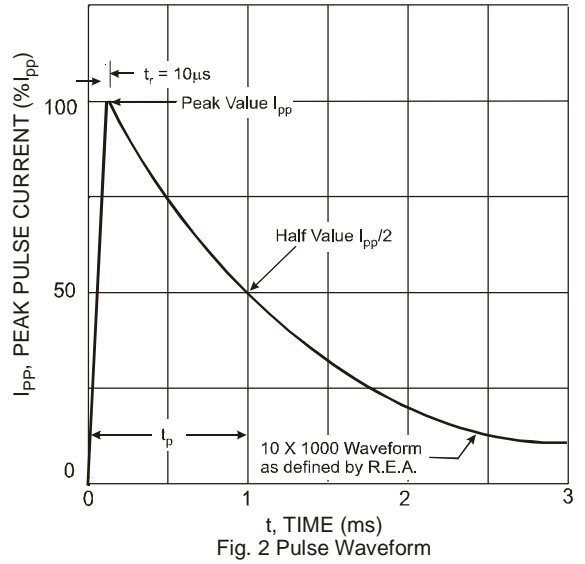
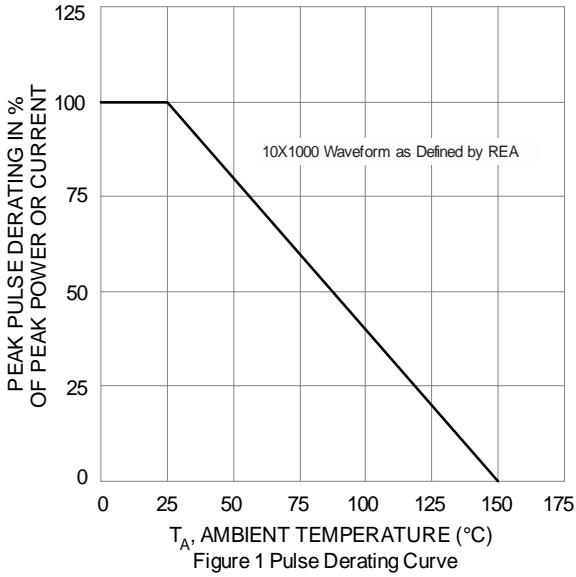
Thermal Characteristics

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 V _{BR} @ I _T (Note 8)		Test Current	Max. Reverse Leakage @ V _{RWM}	Max Clamping Voltage @ I _{PP} (Note 11)	Max Peak Pulse Current I _{PP}	Typical Total Capacitance (Note 10)	Marking Code	
		Min (V)	Max (V)						Un-	Bi-
(Note 9)	V _{RWM} (V)	Min (V)	Max (V)	I _T (mA)	I _R (μA)	V _C (V)	(A)	C _T (pF)	Un-	Bi-
3.0SMCJ13(C)AQ	13.0	14.40	15.9	1.0	5.0	21.5	139.5	8000	HEG	DED
3.0SMCJ14AQ	14.0	15.60	17.2	1.0	5.0	23.2	129.3	7000	HEK	--
3.0SMCJ20AQ	20.0	22.20	24.5	1.0	5.0	32.4	92.6	6500	HEV	--
3.0SMCJ22AQ	22.0	24.40	27.0	1.0	5.0	35.5	84.5	6000	HEX	--
3.0SMCJ24AQ	24.0	26.70	29.5	1.0	5.0	38.9	77.1	6000	HEZ	--
3.0SMCJ26AQ	26.0	28.90	31.9	1.0	5.0	42.1	71.3	6000	HFE	--
3.0SMCJ28AQ	28.0	31.10	34.4	1.0	5.0	45.4	66.1	6000	HFG	--
3.0SMCJ30AQ	30.0	33.30	36.8	1.0	5.0	48.4	62.0	6000	HFK	--
3.0SMCJ33(C)AQ	33.0	36.70	40.6	1.0	5.0	53.3	56.3	6000	HFM	DFM
3.0SMCJ36(C)AQ	36.0	40.00	44.2	1.0	5.0	58.1	51.6	6000	HFP	DFP

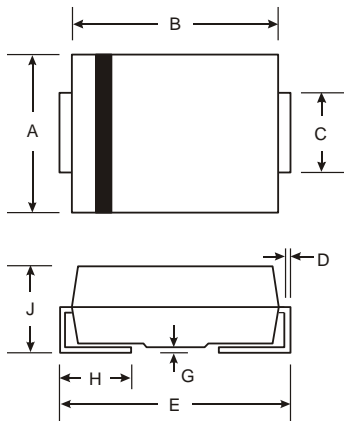
- Notes:
5. Non-repetitive current pulse per Figure 4 and derated above T_A = +25°C per Figure 1.
 6. Mounted on 8.00mm² (0.013mm thick) land areas.
 7. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
 8. V_{BR} measured with I_T current pulse = 10ms ~ 15 ms.
 9.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



Package Outline Dimensions

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

SMC

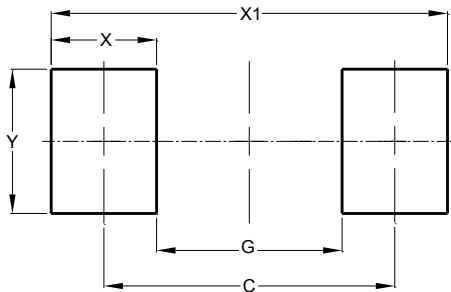


SMC		
Dim	Min	Max
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

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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