

## Product Summary

PPK	V <sub>RWM</sub>	PM(AV)
3000W	5V to 170V	5W

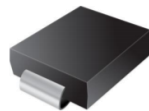
## Features and Benefits

- 3000W Peak Pulse Power Dissipation
- 5V to 170V Standoff Voltages
- Unidirectional and Bidirectional
- Glass Passivated Die Construction
- Excellent Clamping Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <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: Finish - Matte Tin Plated Leads.  
Solderable per MIL-STD-202, Method 208 <sup>(3)</sup>
- Unidirectional Devices Have A Cathode Band. Bidirectional Devices Have No Polarity Indicator
- Weight: 0.21 grams (Approximate)

SMC



Top View



Bottom View

## Ordering Information (Note 4)

Part Number	Qualification	Package	Packing	
			Qty.	Carrier
3.0SMCJX.X(C)A-13*	Commercial	SMC	3000pcs	Tape & Reel
3.0SMCJXX(C)A-13*	Commercial	SMC	3000pcs	Tape & Reel
3.0SMCJXXX(C)A-13*	Commercial	SMC	3000pcs	Tape & Reel

\*X = Device Voltage, e.g., 3.0SMCJ14CA-13.

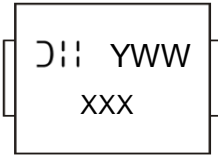
- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  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. 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  
(See Electrical Characteristics Table)  
D;: = Manufacturers' Marking  
YWW = Date Code Marking  
Y = Last Digit of Year (ex: 1 for 2021)  
WW = Week Code (01 to 53)

## Maximum Ratings (@ T<sub>A</sub> = +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 <sub>PK</sub>	3000	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (Notes 6 & 7 & 8)	I <sub>FSM</sub>	300	A

- Notes:
5. Non-repetitive current pulse per Figure 4 and derated above T<sub>A</sub> = +25°C per Figure 1.
  6. Mounted on 8.00mm<sup>2</sup> (0.013mm thick) land areas.
  7. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
  8. Unidirectional units only.

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Operating Temperature Range	T <sub>J</sub>	-55 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (@  $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Part Number	Reverse Standoff Voltage	Breakdown Voltage $V_{BR} @ I_T$ (Note 10)		Test Current $I_T$ (mA)	Max. Reverse Leakage @ $V_{RWM}$ (Note 11) $I_R$ ( $\mu\text{A}$ )	Max. Clamping Voltage @ $I_{PP}$ (Note 9) $V_C$ (V)	Max. Peak Pulse Current $I_{PP}$ (A)	Marking Code	
		Min (V)	Max (V)					Un-	Bi-
3.0SMCJ5.0(C)A	5.0	6.40	7.07	10	1000	9.2	326.1	HDE	DHS
3.0SMCJ6.0(C)A	6.0	6.67	7.37	10	1000	10.3	291.3	HDG	DDG
3.0SMCJ6.5(C)A	6.5	7.22	7.98	10	500	11.2	267.9	HDK	DHV
3.0SMCJ7.0(C)A	7.0	7.78	8.60	10	200	12.0	250.0	HDM	DHW
3.0SMCJ7.5(C)A	7.5	8.33	9.21	1.0	100	12.9	232.6	HDP	DDP
3.0SMCJ8.0(C)A	8.0	8.89	9.83	1.0	50	13.6	220.6	HDR	DDR
3.0SMCJ8.5(C)A	8.5	9.44	10.43	1.0	25	14.4	208.3	HDT	DDT
3.0SMCJ9.0(C)A	9.0	10.00	11.05	1.0	10	15.4	194.8	HDV	DDV
3.0SMCJ10(C)A	10.0	11.10	12.27	1.0	5.0	17.0	176.5	HDX	DDX
3.0SMCJ11(C)A	11.0	12.20	13.5	1.0	5.0	18.2	164.8	HDZ	DDZ
3.0SMCJ12(C)A	12.0	13.30	14.7	1.0	5.0	19.9	150.8	HEE	DEE
3.0SMCJ13(C)A	13.0	14.40	15.9	1.0	5.0	21.5	139.5	HEG	DED
3.0SMCJ14(C)A	14.0	15.60	17.2	1.0	5.0	23.2	129.3	HDE	DEK
3.0SMCJ15(C)A	15.0	16.70	18.5	1.0	5.0	24.2	124.0	HEM	DEM
3.0SMCJ16(C)A	16.0	17.80	19.7	1.0	5.0	26.0	115.4	HEP	DEP
3.0SMCJ17(C)A	17.0	18.90	20.9	1.0	5.0	27.6	108.7	HER	DER
3.0SMCJ18(C)A	18.0	20.00	22.1	1.0	5.0	29.2	102.7	HET	DET
3.0SMCJ20(C)A	20.0	22.20	24.5	1.0	5.0	32.4	92.6	HEV	DEV
3.0SMCJ22(C)A	22.0	24.40	27.0	1.0	5.0	35.5	84.5	HEX	DEX
3.0SMCJ24(C)A	24.0	26.70	29.5	1.0	5.0	38.9	77.1	HEZ	DEZ
3.0SMCJ26(C)A	26.0	28.90	31.9	1.0	5.0	42.1	71.3	HFE	DFE
3.0SMCJ28(C)A	28.0	31.10	34.4	1.0	5.0	45.4	66.1	HFG	DFD
3.0SMCJ30(C)A	30.0	33.30	36.8	1.0	5.0	48.4	62.0	HFK	DFK
3.0SMCJ33(C)A	33.0	36.70	40.6	1.0	5.0	53.3	56.3	HFM	DFM
3.0SMCJ36(C)A	36.0	40.00	44.2	1.0	5.0	58.1	51.6	HFP	DFP
3.0SMCJ40(C)A	40.0	44.40	49.1	1.0	5.0	64.5	46.5	HFR	DFR
3.0SMCJ43(C)A	43.0	47.80	52.8	1.0	5.0	69.4	43.2	HFT	DFT
3.0SMCJ45(C)A	45.0	50.00	55.3	1.0	5.0	72.7	41.3	HFV	DFV
3.0SMCJ48(C)A	48.0	53.30	58.9	1.0	5.0	77.4	38.8	HFX	DFX
3.0SMCJ51(C)A	51.0	56.70	62.7	1.0	5.0	82.4	36.4	HFZ	DFZ
3.0SMCJ54(C)A	54.0	60.00	66.3	1.0	5.0	87.1	34.4	HGE	DDE
3.0SMCJ58(C)A	58.0	64.40	71.2	1.0	5.0	93.6	32.1	HGG	DDD
3.0SMCJ60(C)A	60.0	66.70	73.7	1.0	5.0	96.8	31.0	HGK	DDK
3.0SMCJ64(C)A	64.0	71.10	78.6	1.0	5.0	103.0	29.1	HGM	DDM
3.0SMCJ70(C)A	70.0	77.80	86.0	1.0	5.0	113.0	26.5	HGP	DGP
3.0SMCJ75(C)A	75.0	83.30	92.1	1.0	5.0	121.0	24.8	HGR	DGR
3.0SMCJ78(C)A	78.0	86.70	95.8	1.0	5.0	126.0	23.8	HGT	DGT
3.0SMCJ85(C)A	85.0	94.40	104.3	1.0	5.0	137.0	21.9	HGV	DGV
3.0SMCJ90(C)A	90.0	100.00	110.5	1.0	5.0	146.0	20.5	HGX	DGX
3.0SMCJ100(C)A	100.0	111.00	122.7	1.0	5.0	162.0	18.5	HGZ	DGZ
3.0SMCJ110(C)A	110.0	122.00	134.8	1.0	5.0	177.0	16.9	HHE	DHE
3.0SMCJ120(C)A	120.0	133.00	147.0	1.0	5.0	193.0	15.5	HHG	DHG
3.0SMCJ130(C)A	130.0	144.00	159.2	1.0	5.0	209.0	14.4	HHK	DHK
3.0SMCJ150(C)A	150.0	167.00	184.6	1.0	5.0	243.0	12.3	HHM	DGM
3.0SMCJ160(C)A	160.0	178.00	196.7	1.0	5.0	259.0	11.6	HHP	DHP
3.0SMCJ170(C)A	170.0	189.00	208.9	1.0	5.0	275.0	10.9	HHR	DHR

- Notes: 9. Per  $10 \times 1000\mu\text{s}$  waveform. See Figure 2.  
10.  $V_{BR}$  measured with  $I_T$  current pulse = 10ms to 15ms.  
11. The  $I_R$  limit is double for Bi-Directional device for  $V_B \leq 10V$ .

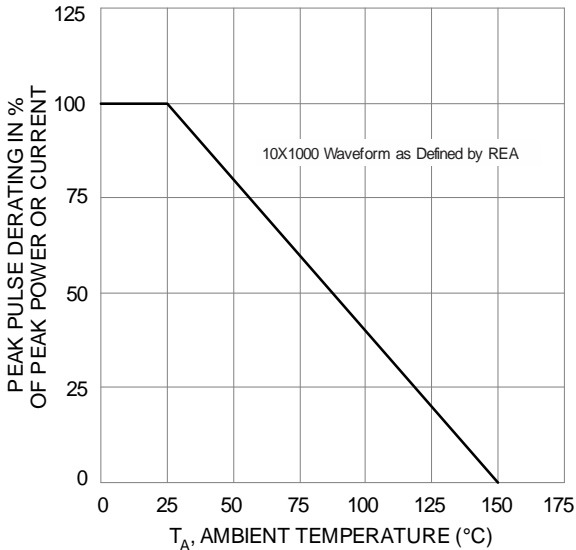


Fig. 1 Pulse Derating Curve

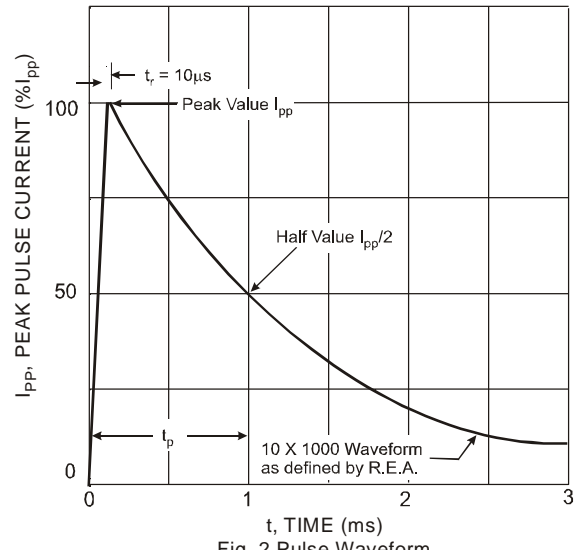


Fig. 2 Pulse Waveform

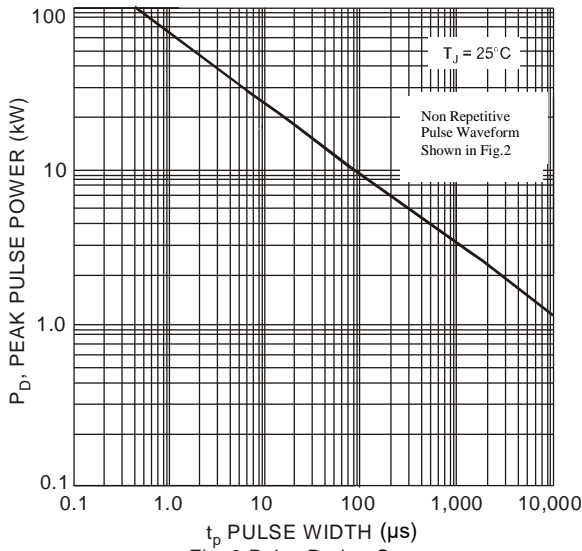


Fig. 3 Pulse Rating Curve

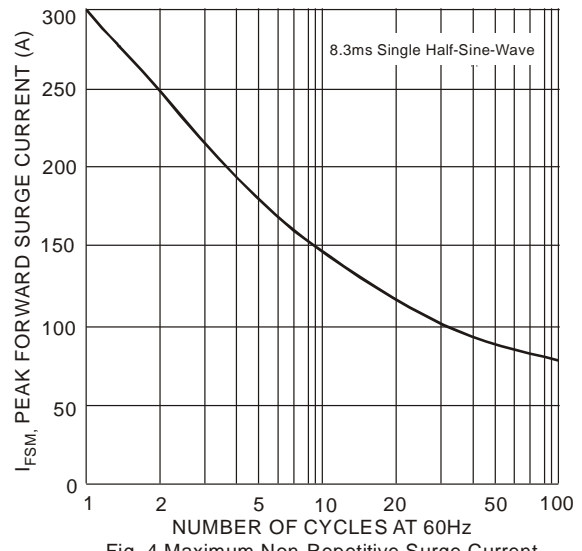
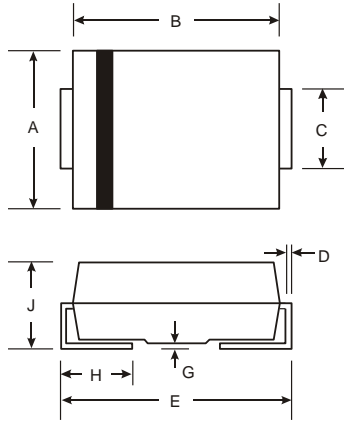


Fig. 4 Maximum Non-Repetitive Surge Current

## Package Outline Dimensions

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

### SMC

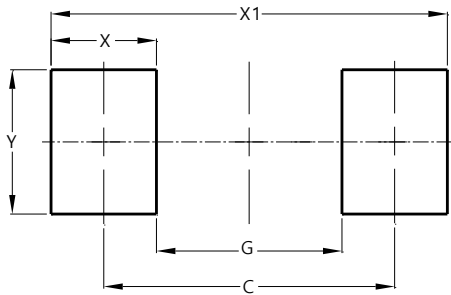


SMC		
Dim	Min	Max
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

## 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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