

Product Summary

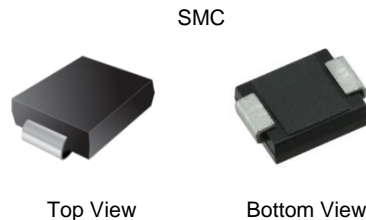
PPK	VRWM	PM(AV)
3000W	5V to 170V	5W

Features and Benefits

- 3000W Peak Pulse Power Dissipation
- 5V to 170V Standoff Voltages
- Uni-Directional and Bi-Directional
- IEC-61000-4-2 ESD 30kV (Air), 30kV (Contact)
- Human Body Model (HBM) 8kV; Charged Device Model (CDM) 1kV; Machine Model (MM) 800V
- 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-Q100/101/104/200, 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 ③
- Uni-Directional Devices Have A Cathode Band. Bi-Directional Devices Have No Polarity Indicator
- Weight: 0.21 grams (Approximate)



Ordering Information (Note 4)

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

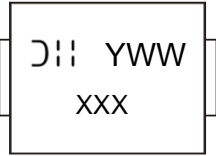
*X = Device Voltage, e.g., 3.0SMCJ14CA-13.

- 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:: = Manufacturer's Marking
 YWW = Date Code Marking
 Y = Last Digit of Year (ex: 4 for 2024)
 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 & 8)	I _{FSM}	300	A

- Notes:
5. Non-repetitive current pulse per Fig. 4 and derated above T_A = +25°C per Fig. 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. Uni-directional units only.

Thermal Characteristics

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

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

Part Number	Reverse Standoff Voltage	Breakdown Voltage V _{BR} @ I _T (Note 9)		Test Current	Max. Reverse Leakage @ V _{RWM} (Note 10)	Max. Clamping Voltage @ I _{PP} (Note 11)	Max. Peak Pulse Current	Marking Code	
	V _{RWM} (V)	Min (V)	Max (V)	I _T (mA)	I _R (µA)	V _C (V)	I _{PP} (A)	Uni-	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	HEK	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. V_{BR} measured with I_T current pulse = 10ms to 15ms.
10. The I_R limit is double for bi-directional device for V_B ≤ 10V.
11. Per 10 x 1000µs waveform. See Fig. 2.

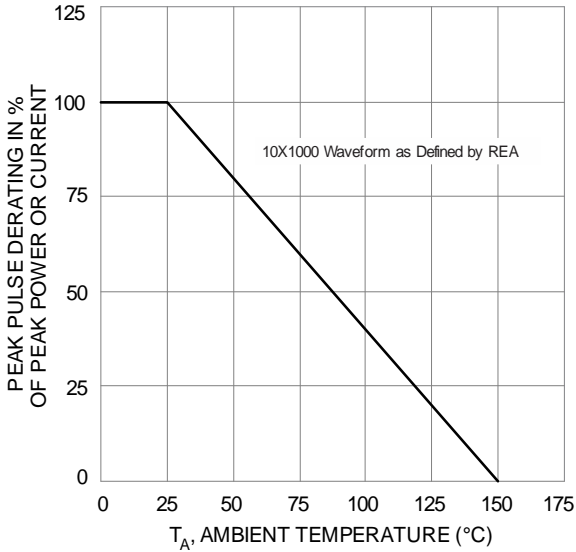


Fig. 1 Pulse Derating Curve

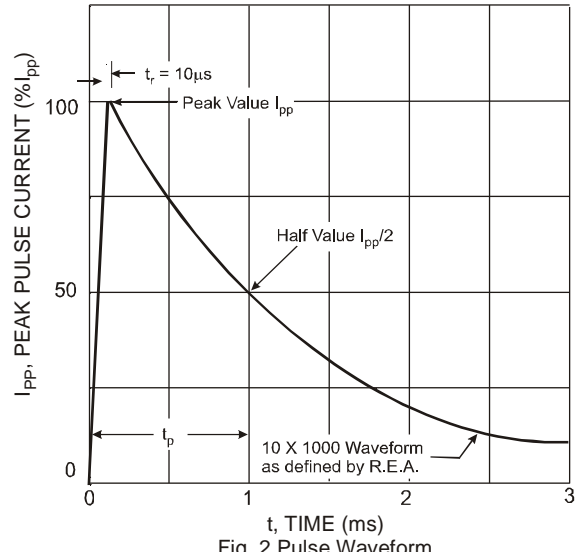


Fig. 2 Pulse Waveform

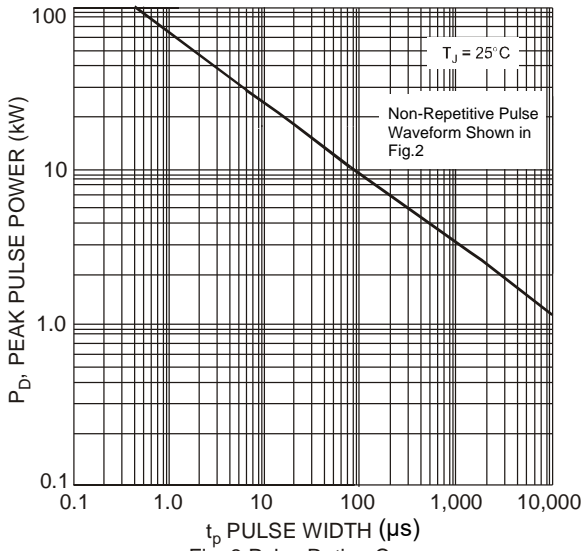


Fig. 3 Pulse Rating Curve

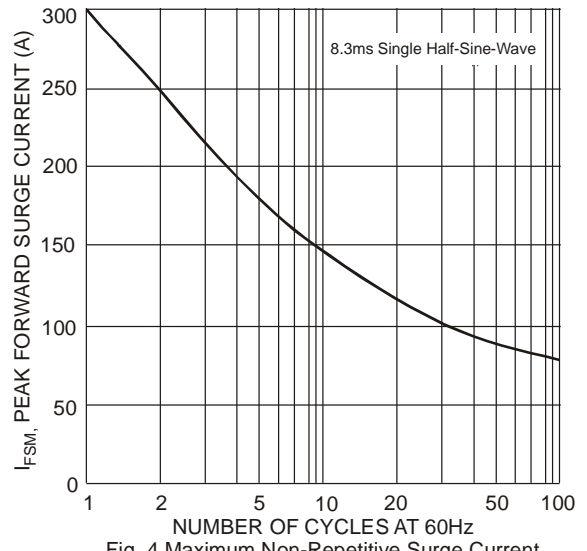
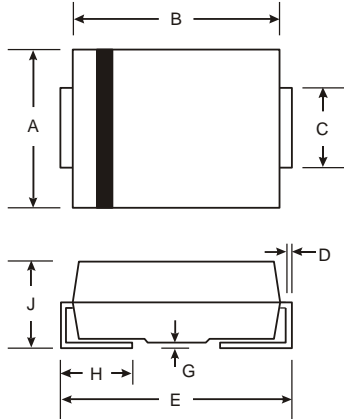


Fig. 4 Maximum Non-Repetitive Surge Current

Package Outline Dimensions

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

SMC

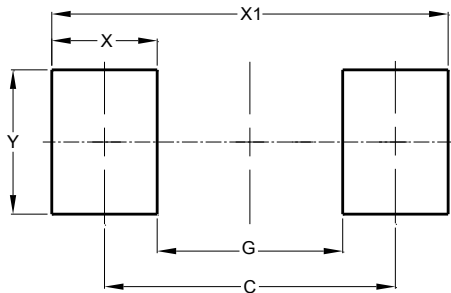


SMC		
Dim	Min	Max
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

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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