



**THE DATASHEET OF**  
**3.0SMCJ28A-13**



## 3.0SMCJ5.0A /14A /20A /22A /24A /28A /30A /58A

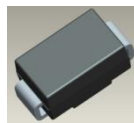
### 3000W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

### Features

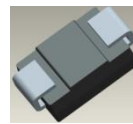
- 3000W Peak Pulse Power Dissipation
- Glass Passivated Die Construction
- Excellent Clamping Capability
- Fast Response Time
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

### 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 (B3)
- Lead-Free Plating (Matte Tin Finish)
- Polarity Indicator: Cathode Band
- Weight: 0.21 grams (Approximate)



Top View



Bottom View

### Ordering Information (Note 4)

Part Number	Case	Packaging
3.0SMCJ5.0A-13	SMC	3000/Tape & Reel
3.0SMCJ14A-13	SMC	3000/Tape & Reel
3.0SMCJ20A-13	SMC	3000/Tape & Reel
3.0SMCJ22A-13	SMC	3000/Tape & Reel
3.0SMCJ24A-13	SMC	3000/Tape & Reel
3.0SMCJ28A-13	SMC	3000/Tape & Reel
3.0SMCJ30A-13	SMC	3000/Tape & Reel
3.0SMCJ58A-13	SMC	3000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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 <http://www.diodes.com/products/packages.html>.

### Marking Information



xxx = Product Type Marking Code,  
See Electrical Characteristics Table  
DII = Manufacturers' Code Marking  
YWW = Date Code Marking  
Y = Last Digit of Year (ex: 4 for 2014)  
WW = Week Code (01 - 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)	PPK	3000	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (Notes 6 & 7)	I <sub>FSM</sub>	300	A

### Thermal Characteristics

Characteristic	Symbol	Value	Unit
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +175	°C

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

Part Number	Reverse Standoff Voltage	Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub> (Note 8)		Test Current	Max. Reverse Leakage @ V <sub>RWM</sub>	Max Clamping Voltage @ I <sub>PP</sub>	Max Peak Pulse Current I <sub>PP</sub>	Typical Total Capacitance (Note 10)	Marking Code
		Min (V)	Max (V)						
See Notes 1 & 9	V <sub>RWM</sub> (V)	Min (V)	Max (V)	I <sub>T</sub> (mA)	I <sub>R</sub> (μA)	V <sub>C</sub> (V)	(A)	C <sub>T</sub> (pF)	
3.0SMCJ5.0A	5.0	6.40	7.07	10	1000	9.2	326.1	8,000	HDE
3.0SMCJ14A	14.0	15.60	17.2	1.0	5.0	23.2	129.3	3,500	HEK
3.0SMCJ20A	20.0	22.20	24.5	1.0	5.0	32.4	92.6	3,300	HEV
3.0SMCJ22A	22.0	24.40	27.0	1.0	5.0	35.5	84.5	3,000	HEX
3.0SMCJ24A	24.0	26.70	29.5	1.0	5.0	38.9	77.1	3,000	HEZ
3.0SMCJ28A	28.0	31.10	34.4	1.0	5.0	45.4	66.1	1,800	HFG
3.0SMCJ30A	30.0	33.30	36.8	1.0	5.0	48.4	62.0	1,700	HFJ
3.0SMCJ58A	58.0	64.40	71.2	1.0	5.0	93.6	32.1	1,500	HGG

- Notes:
- Non-repetitive current pulse, per Figure 4 and derated above T<sub>A</sub> = +25°C per Figure 1.
  - Mounted on 8.00mm<sup>2</sup> (0.013mm thick) land areas.
  - Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
  - V<sub>BR</sub> measured with I<sub>T</sub> current pulse = 10 ~ 15 ms.
  - Additional voltages may be available upon request. Please contact the Diodes Incorporated sales department for assistance.
  - V<sub>R</sub> = 0V, f = 1MHz

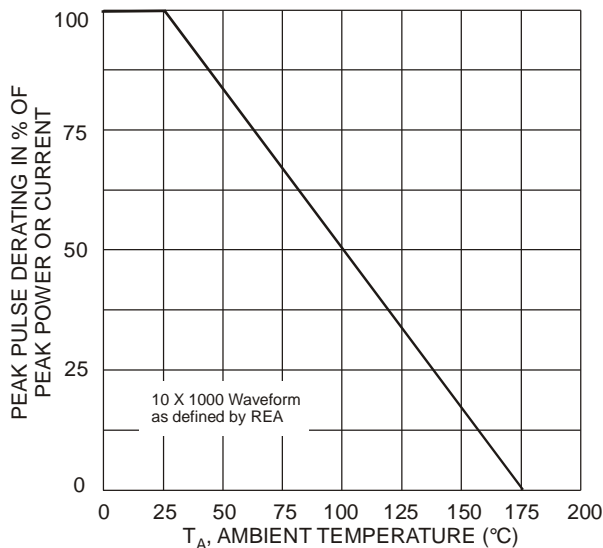


Fig. 1 Pulse Derating Curve

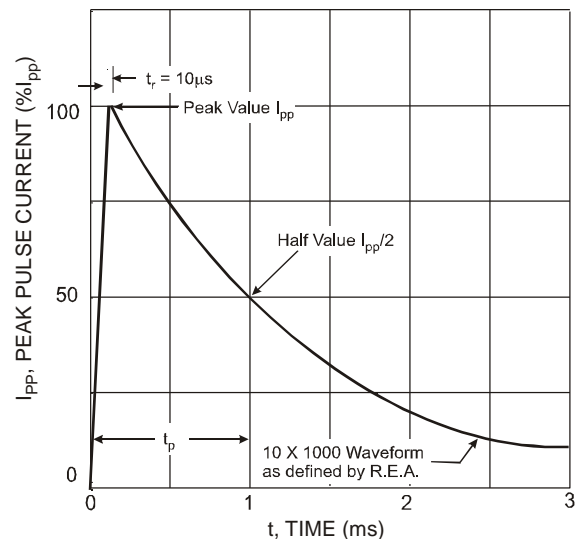
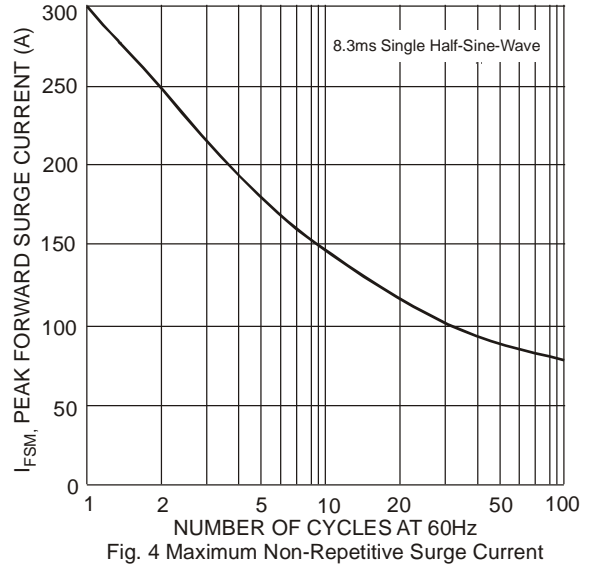
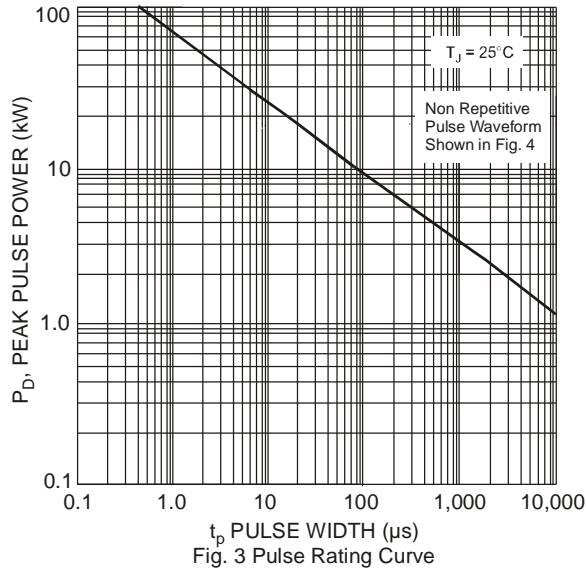
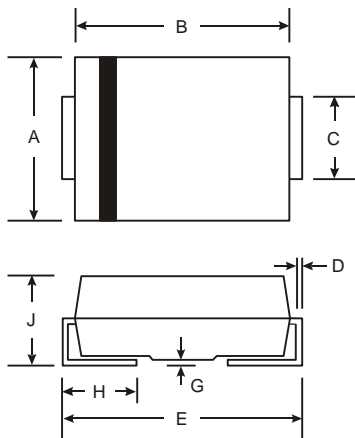


Fig. 2 Pulse Waveform



### Package Outline Dimensions

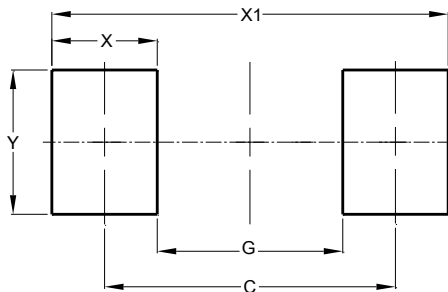
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



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 AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



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

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