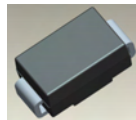


Features

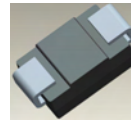
- 3000W Peak Pulse Power Dissipation
- Glass Passivated Die Construction
- Excellent Clamping Capability
- Fast Response Time
- **Lead Free Finish, RoHS Compliant (Note 4)**
- **Green Molding Compound (No Halogen and Antimony) (Note 8)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SMC
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish).
- Polarity Indicator: Cathode Band
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.21 grams (approximate)



Top View



Bottom View

Maximum Ratings @ $T_A = 25^\circ\text{C}$ 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 1) | PPK | 3000 | W |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (Notes 2 & 3) | I_{FSM} | 300 | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|----------------|-------------|------------------|
| Operating and Storage Temperature Range | T_J, T_{STG} | -55 to +175 | $^\circ\text{C}$ |

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Part Number | Reverse Standoff Voltage | Breakdown Voltage V_{BR} @ I_T (Note 5) | | Test Current | Max. Reverse Leakage @ V_{RWM} | Max. Clamping Voltage @ I_{PP} | Max. Peak Pulse Current I_{PP} | Typical Total Capacitance (Note 7) | Marking Code |
|----------------|--------------------------|---|---------|--------------|----------------------------------|----------------------------------|----------------------------------|------------------------------------|--------------|
| | | Min (V) | Max (V) | | | | | | |
| See Notes 4, 6 | V_{RWM} (V) | Min (V) | Max (V) | I_T (mA) | I_R (μA) | V_C (V) | (A) | C_T (pF) | |
| 3.0SMCJ5.0A | 5.0 | 6.40 | 7.07 | 10 | 1000 | 9.2 | 326.1 | 8,000 | HDE |
| 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 | HFK |
| 3.0SMCJ58A | 58.0 | 64.40 | 71.2 | 1.0 | 5.0 | 93.6 | 32.1 | 1,500 | HGG |

- Notes:
1. Non-repetitive current pulse, per Fig. 4 and derated above $T_A = 25^\circ\text{C}$ per Fig. 1.
 2. Mounted on 8.00mm² (0.013mm thick) land areas.
 3. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
 4. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at http://www.diodes.com/quality/lead_free.html.
 5. V_{BR} measured with I_T current pulse = 300 μs .
 6. Additional voltages may be available upon request. Please contact the Diodes Incorporated sales department for assistance.
 7. $V_R = 0\text{V}$, $f = 1\text{MHz}$
 8. Product manufactured with Data Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.

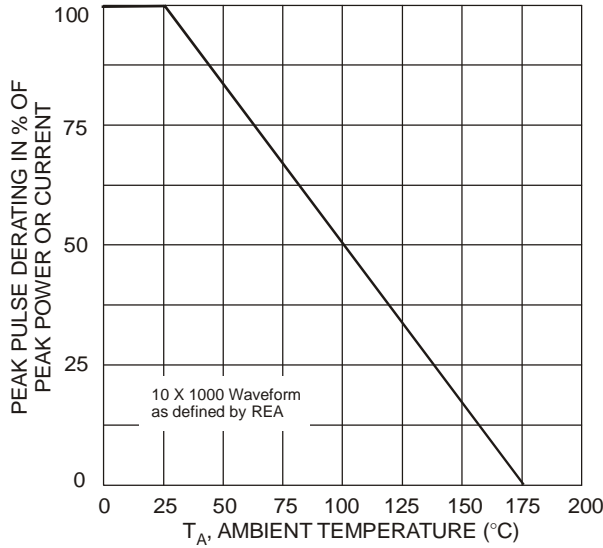


Fig. 1 Pulse Derating Curve

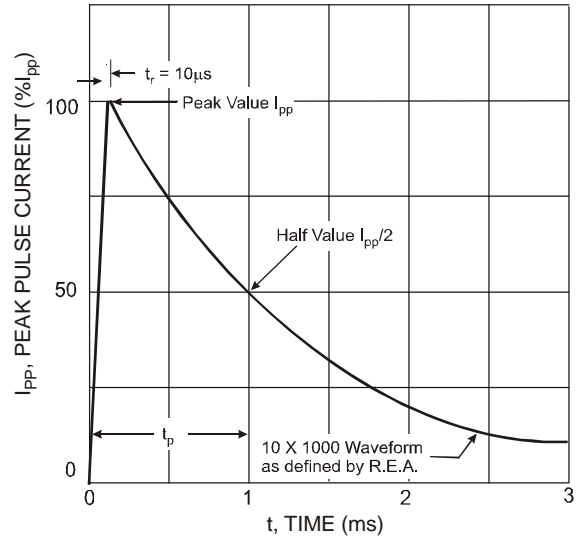


Fig. 2 Pulse Waveform

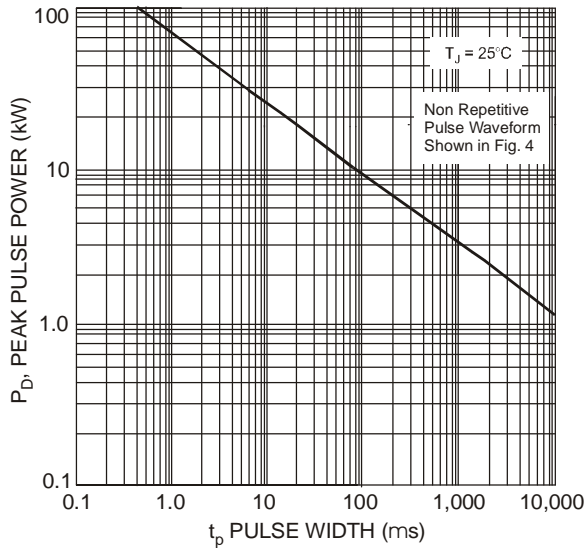


Fig. 3 Pulse Rating Curve

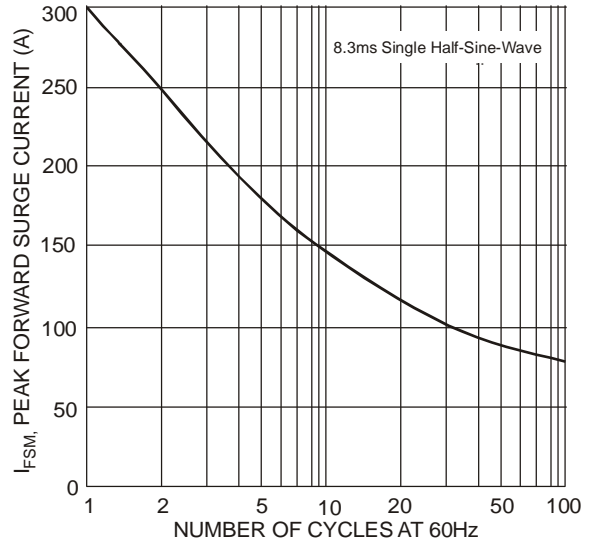


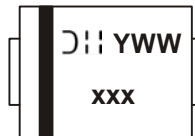
Fig. 4 Maximum Non-Repetitive Surge Current

Ordering Information (Note 9)

| Part Number | Case | Packaging |
|----------------|------|------------------|
| 3.0SMCJ5.0A-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 |

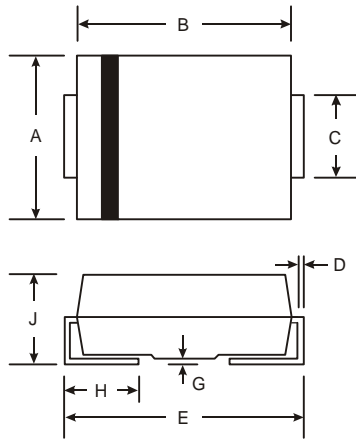
Notes: 9. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



xxx = Product type marking code,
See Electrical Characteristics Table
DYY = Manufacturers' code marking
YYWW = Date code marking
Y = Last digit of year ex: 7 for 2007
WW = Week code 01 to 52

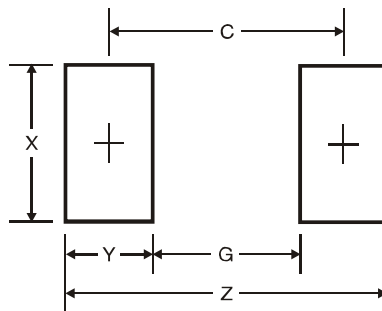
Package Outline Dimensions



| 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 | 2.62 |

All Dimensions in mm

Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 9.3 |
| G | 4.4 |
| X | 3.3 |
| Y | 2.5 |
| C | 6.8 |

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