

**Product Summary @ $T_A = +25^\circ\text{C}$** 

| $V_{RRM}$ (V) | $I_o$ (A) | $V_F$ (V) | $I_R$ ( $\mu\text{A}$ ) |
|---------------|-----------|-----------|-------------------------|
| 800, 1000     | 8         | 0.985     | 10                      |

**Features and Benefits**

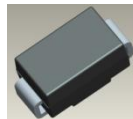
- Glass Passivated Die Construction
- Low Forward Voltage Drop and High Current Capability
- Surge Overload Rating to 200A Peak
- Ideally Suited for Automated Assembly
- **Lead Free Finish/RoHS Compliant (Note 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

**Description and Applications**

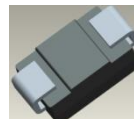
8.0A Surface Mount Glass Passivated Rectifier in SMC package, offers high current capability and low forward voltage drop, designed with Guard Ring for Transient Protection and high surge capacity.

**Mechanical Data**

- Case: SMC
- Case Material: Molded Plastic.  
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 **(e3)**
- Polarity: Cathode Band or Cathode Notch
- Weight: 0.21 grams (Approximate)



Top View



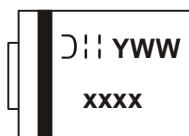
Bottom View

**Ordering Information (Note 4)**

| Part Number | Qualification | Case | Packaging         |
|-------------|---------------|------|-------------------|
| S8xC-13     | Commercial    | SMC  | 3,000/Tape & Reel |

\*x = Device type, e.g. S8MC-13.

- 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**


- xxxx = Product type marking code, ex: S8KC
- DIII = Manufacturers' code marking
- YWW = Date code marking
- Y = Last digit of year (ex: 7 for 2007)
- WW = Week code 01 to 52

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitance load, derate current by 20%.

| Characteristic                                                                                       | Symbol                                                 | S8KC | S8MC  | Unit             |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------|------|-------|------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage               | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | 800  | 1,000 | V                |
| RMS Reverse Voltage                                                                                  | V <sub>R(RMS)</sub>                                    | 560  | 700   | V                |
| Average Rectified Output Current @ T <sub>T</sub> = +75°C                                            | I <sub>O</sub>                                         | 8.0  |       | A                |
| Non-Repetitive Peak Forward Surge Current, 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>                                       | 200  |       | A                |
| Non-Repetitive Peak Forward Surge Current, 1.0ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>                                       | 450  |       | A                |
| I <sup>2</sup> t Rating for fusing (t < 8.3ms)                                                       | I <sup>2</sup> t                                       | 166  |       | A <sup>2</sup> S |

**Thermal Characteristics**

| Characteristic                                            | Symbol                            | Value       | Unit |
|-----------------------------------------------------------|-----------------------------------|-------------|------|
| Typical Thermal Resistance, Junction to Terminal (Note 6) | R <sub>θJT</sub>                  | 10          | °C/W |
| Operating and Storage Temperature Range                   | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

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

| Characteristic                                                             | Symbol             | Value                    | Unit |
|----------------------------------------------------------------------------|--------------------|--------------------------|------|
| Minimum Reverse Breakdown Voltage @ I <sub>R</sub> = 10μA                  | V <sub>(BR)R</sub> | S8MC: 1,000<br>S8KC: 800 | V    |
| Maximum Forward Voltage @ I <sub>F</sub> = 8.0A                            | V <sub>FM</sub>    | 0.985                    | V    |
| Peak Reverse Current @ T <sub>A</sub> = +25°C<br>@ T <sub>A</sub> = +125°C | I <sub>RM</sub>    | 10<br>250                | μA   |
| Typical Reverse Recovery Time (Note 7)                                     | T <sub>RR</sub>    | 2,700                    | ns   |
| Typical Total Capacitance (Note 5)                                         | C <sub>T</sub>     | 45                       | pF   |

Note:  
5. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.  
6. Thermal resistance junction to terminal, device mounted on 100.5mm x 102.5mm x 1.7mm Cu plate heatsink.  
7. Reverse Recovery Test Conditions: I<sub>F</sub>=0.5A, I<sub>R</sub>=1.0A, I<sub>RR</sub>=0.25A.

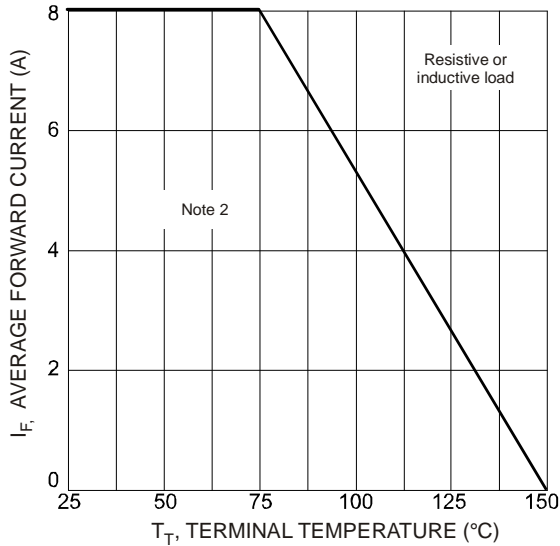


Fig. 1 Forward Current Derating Curve

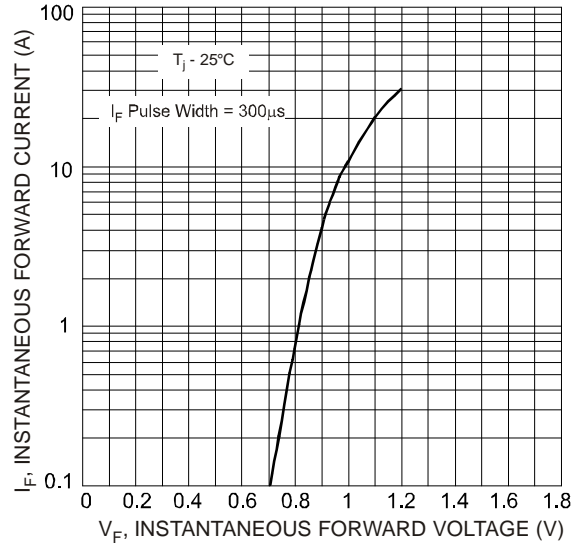


Fig. 2 Typical Forward Characteristics

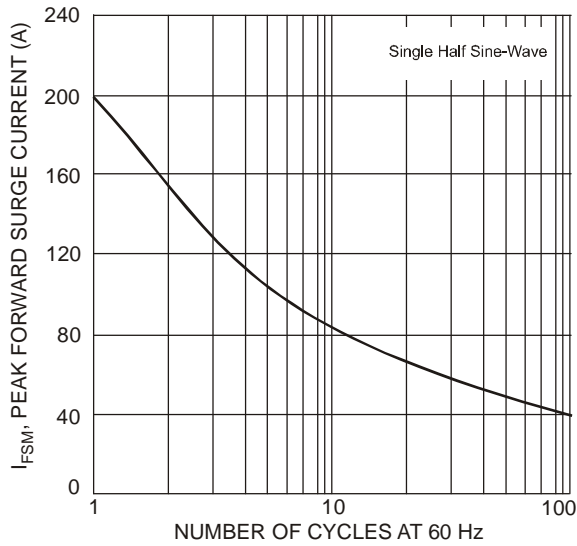


Fig. 3 Forward Surge Current Derating Curve

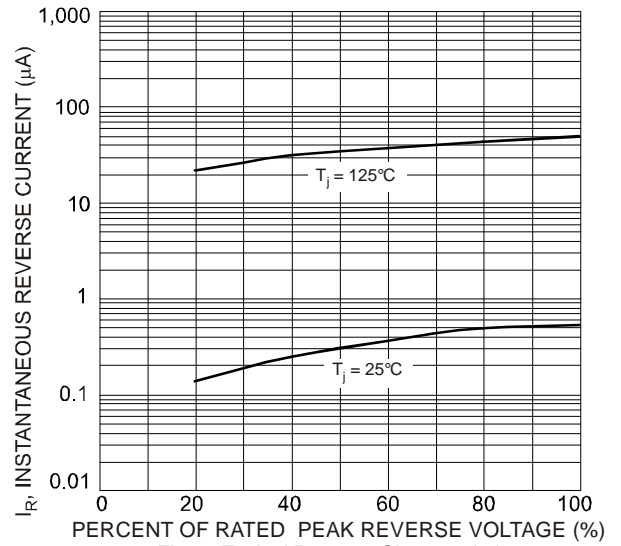
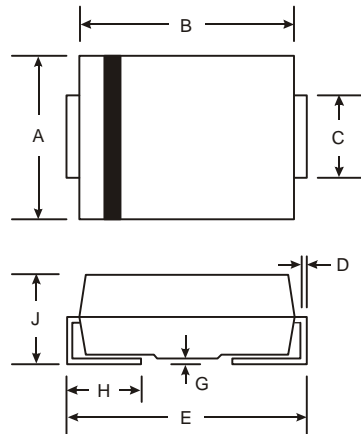


Fig. 4 Typical Reverse Characteristics

**Package Outline Dimensions**

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

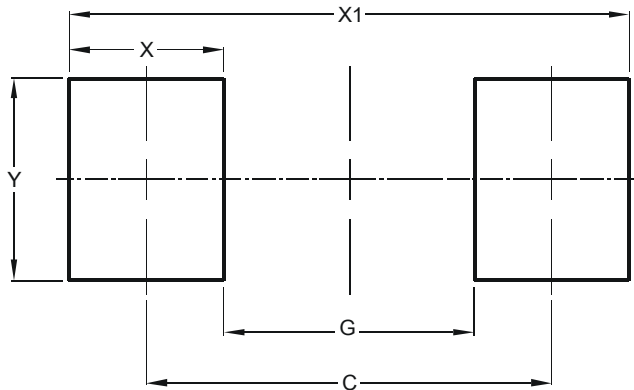


| SMC |      |      |
|-----|------|------|
| Dim | Min  | Max  |
| A   | 5.59 | 6.22 |
| B   | 6.60 | 7.11 |
| C   | 2.75 | 3.18 |
| D   | 0.15 | 0.31 |
| E   | 7.75 | 8.13 |
| G   | 0.10 | 0.20 |
| H   | 0.76 | 1.52 |
| J   | 2.00 | 2.50 |

All Dimensions in mm

## Suggested Pad Layout

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



| Dimensions | Value (in mm) |
|------------|---------------|
| <b>C</b>   | 6.80          |
| <b>G</b>   | 4.40          |
| <b>X</b>   | 2.50          |
| <b>X1</b>  | 9.40          |
| <b>Y</b>   | 3.30          |

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