

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

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

**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.

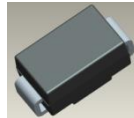
**Features and Benefits**

- 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 (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The S8MCQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

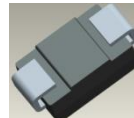
<https://www.diodes.com/quality/product-definitions/>

**Mechanical Data**

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



Top View



Bottom View

**Ordering Information (Note 4)**

Part Number	Qualification	Case	Packaging
S8MCQ-13	Automotive	SMC	3,000/Tape & Reel

- 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**


S8MC = Product Type Marking Code  
 ☺☺☺ = Manufacturers' Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 9 for 2019)  
 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 capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	1,000	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	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 Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	200	A
Non-Repetitive Peak Forward Surge Current, 1.0ms 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 5)	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>	1,000	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	I <sub>RM</sub>	10	μA
@ T <sub>A</sub> = +125°C		250	
Typical Reverse Recovery Time (Note 6)	t <sub>RR</sub>	2,700	ns
Typical Total Capacitance (Note 7)	C <sub>T</sub>	45	pF

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

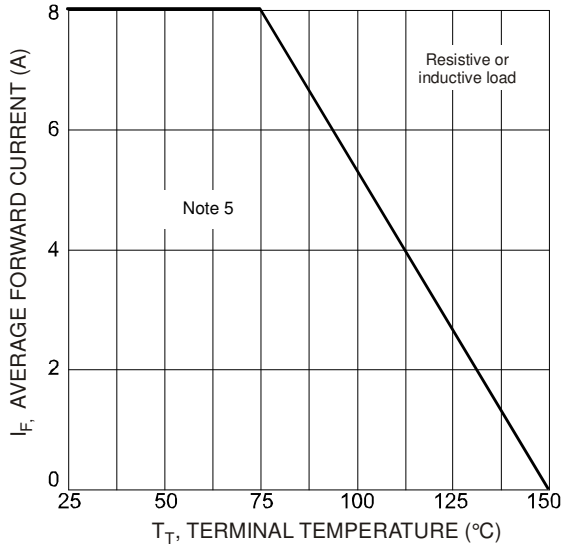


Fig. 1 Forward Current Derating Curve

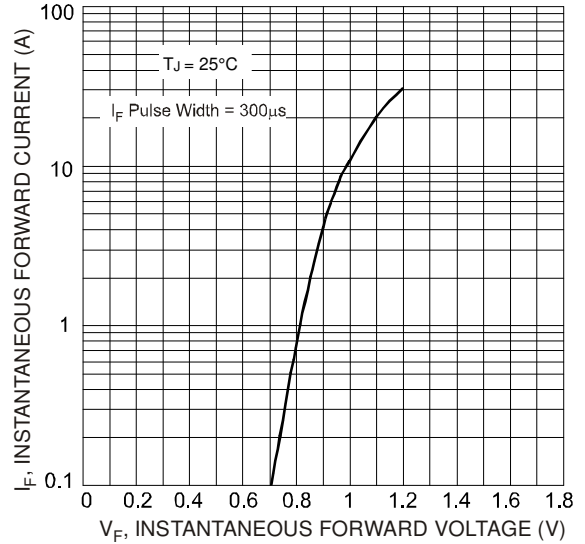


Fig. 2 Typical Forward Characteristics

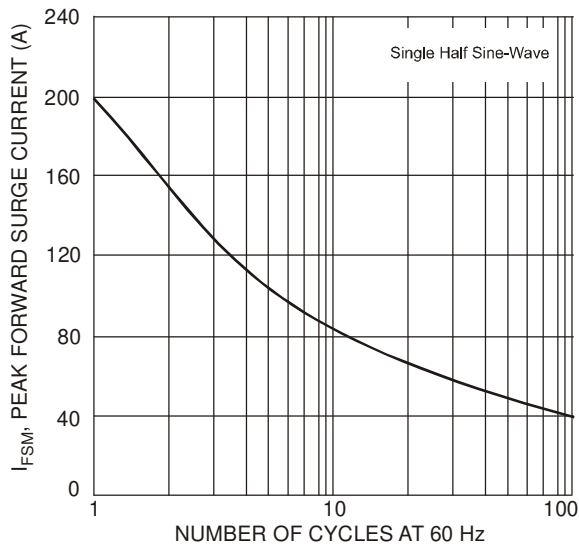


Fig. 3 Forward Surge Current Derating Curve

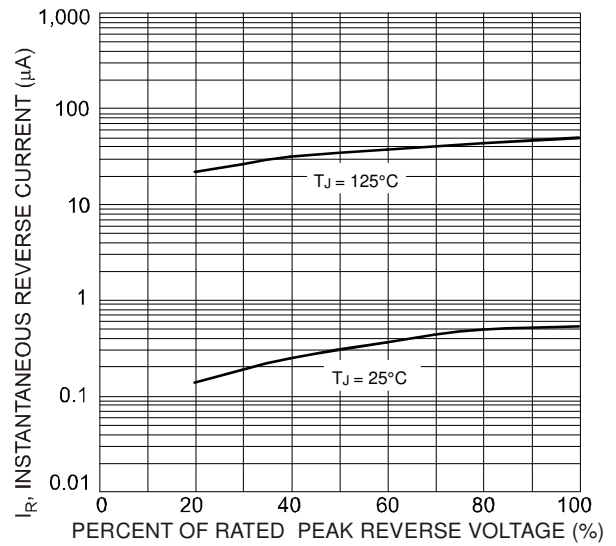
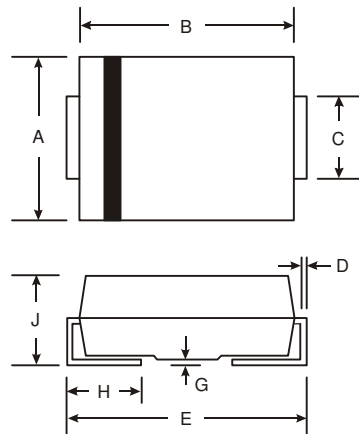


Fig. 4 Typical Reverse Characteristics

**Package Outline Dimensions**

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

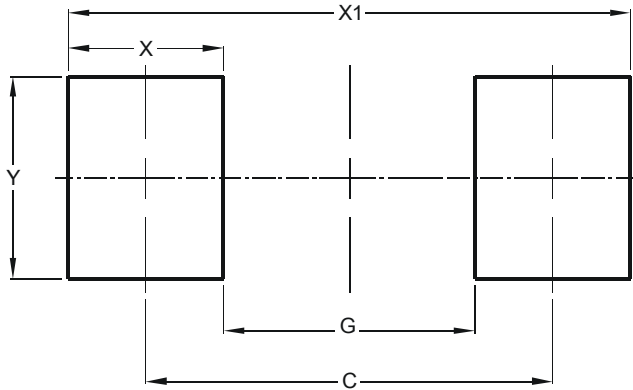


SMC		
Dim	Min	Max
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50

All Dimensions in mm

## Suggested Pad Layout

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



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

NEW PRODUCT

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