



THE DATASHEET OF S8MCQ-13



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

V_{RRM} (V)	I_o (A)	V_F (V)	I_R (μA)
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.**

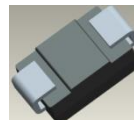
<https://www.diodes.com/quality/product-definitions/>

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 (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_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 Repetitive Reverse Voltage	V _{RRM}	1,000	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
RMS Reverse Voltage	V _{R(RMS)}	700	V
Average Rectified Output Current @ T _T = +75°C	I _O	8.0	A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	200	A
Non-Repetitive Peak Forward Surge Current, 1.0ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	450	A
I ² t Rating for Fusing (t < 8.3ms)	I ² t	166	A ² S

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Terminal (Note 5)	R _{θJT}	10	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

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

Characteristic	Symbol	Value	Unit
Minimum Reverse Breakdown Voltage @ I _R = 10μA	V _{(BR)R}	1,000	V
Maximum Forward Voltage @ I _F = 8.0A	V _{FM}	0.985	V
Peak Reverse Current @ T _A = +25°C	I _{RM}	10	μA
@ T _A = +125°C		250	
Typical Reverse Recovery Time (Note 6)	t _{RR}	2,700	ns
Typical Total Capacitance (Note 7)	C _T	45	pF

- Notes:
- Thermal resistance junction to terminal, device mounted on 100.5mm x 102.5mm x 1.7mm Cu plate heatsink.
 - Reverse Recovery Test Conditions: I_F=0.5A, I_R=1.0A, I_{RR}=0.25A.
 - Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

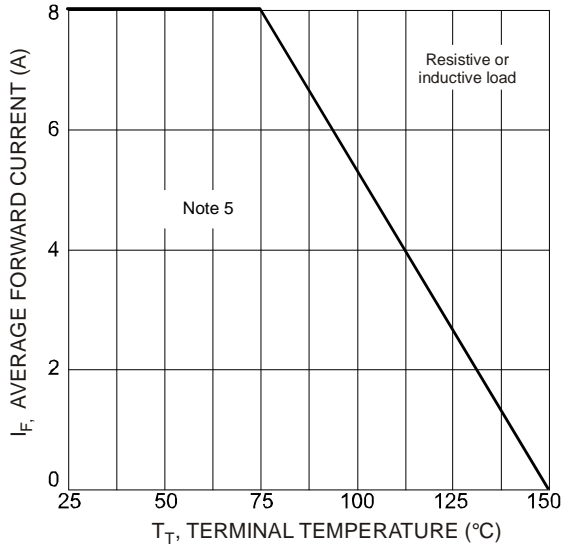


Fig. 1 Forward Current Derating Curve

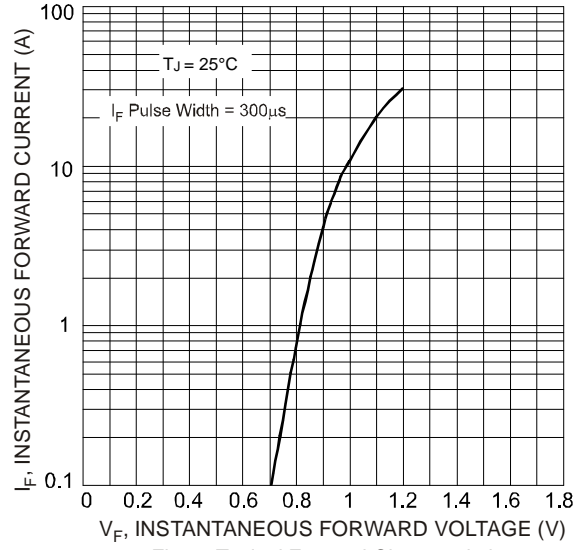


Fig. 2 Typical Forward Characteristics

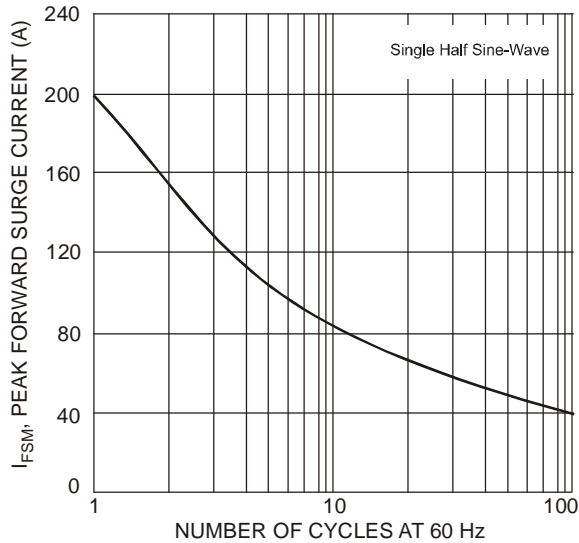


Fig. 3 Forward Surge Current Derating Curve

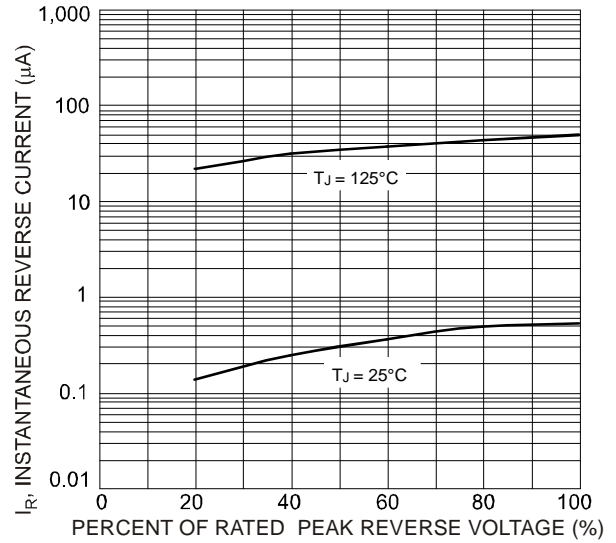
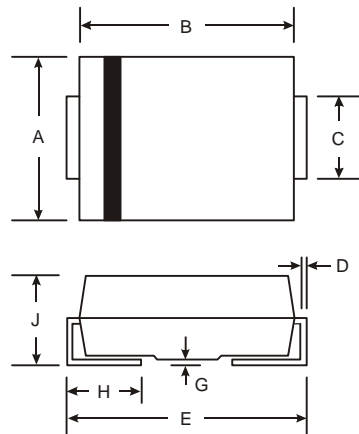


Fig. 4 Typical Reverse Characteristics

Package Outline Dimensions

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

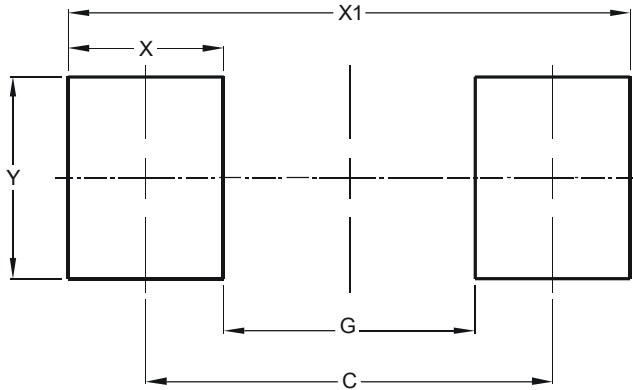


SMC		
Dim	Min	Max
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50

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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