10.0A SURFACE MOUNT GLASS PASSIVATED RECTIFIER

Product Summary @T_A = +25°C

V_{RRM} (V)	I_O (A)	V_F (V)	I_R (µA)
600 to 1000	10	1.1	10

Features and Benefits

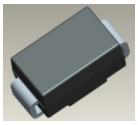
- Glass Passivated Die Construction
- Low Forward Voltage Drop and High Current Capability
- Surge Overload Rating to 250A Peak
- Ideally Suited for Automated Assembly
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen- and Antimony-Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Description and Applications

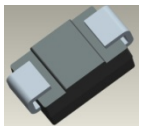
10.0A Surface Mount Glass Passivated Rectifier in SMC package, offers high current capability and low forward voltage drop.

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 or Cathode Notch
- Weight: 0.21 grams (Approximate)



Top View



Bottom View

Ordering Information (Note 4)

Part Number	Qualification	Case	Packaging
S10xC-13	Commercial	SMC	3,000/Tape & Reel

*x = Device type, e.g. S10MC-13.

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

xxxx = Product Type Marking Code (ex: S10M for S10MC; S10K for S10KC; S10J for S10JC)
= Manufacturers' Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 0 for 2020)
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	S10JC	S10KC	S10MC	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		V_{RRM} V_{RWM} V_R	600	800	1,000	V
RMS Reverse Voltage		$V_{R(RMS)}$	426	560	700	V
Average Rectified Output Current	@ T_T = +75°C	I_O	10.0			A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	@ T_J = +25°C @ T_J = +125°C	I_{FSM}	250 200			A
Non-Repetitive Peak Forward Surge Current, 1.0ms Single Half Sine-Wave Superimposed on Rated Load	@ T_J = +25°C @ T_J = +125°C	I_{FSM}	500 400			A
I^2t Rating for Fusing (t < 8.3ms)		I^2t	518.75			A^2S

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 6)	$R_{\theta JC}$	3	°C/W
Typical Thermal Resistance, Junction to Terminal (Note 6)	$R_{\theta JT}$	7	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	12	°C/W
Typical Thermal Resistance, Junction to Case (Note 7)	$R_{\theta JC}$	8	°C/W
Typical Thermal Resistance, Junction to Terminal (Note 7)	$R_{\theta JT}$	13	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 7)	$R_{\theta JA}$	41	°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 = 1μA	$V_{(BR)R}$	S10MC S10KC S10JC	1,000 800 600	V
Maximum Forward Voltage	@ I_F = 10.0A	V_{FM}	1.1		V
Peak Reverse Current	@ T_A = +25°C @ T_A = +125°C	I_{RM}	10 250		μA
Typical Total Capacitance (Note 5)		C_T	45		pF

Notes: 5. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
6. Thermal resistance measured with device mounted on aluminum pad with 100mm x 100mm x 2mm heatsink.
7. Thermal resistance measured without heat sink attached.

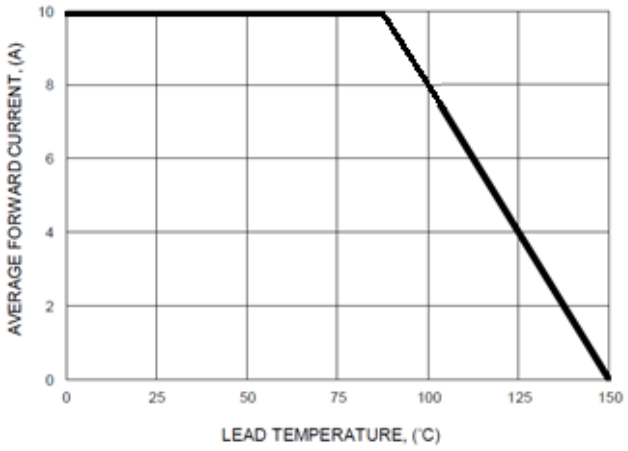


FIG.1- FORWARD CURRENT DERATING CURVE

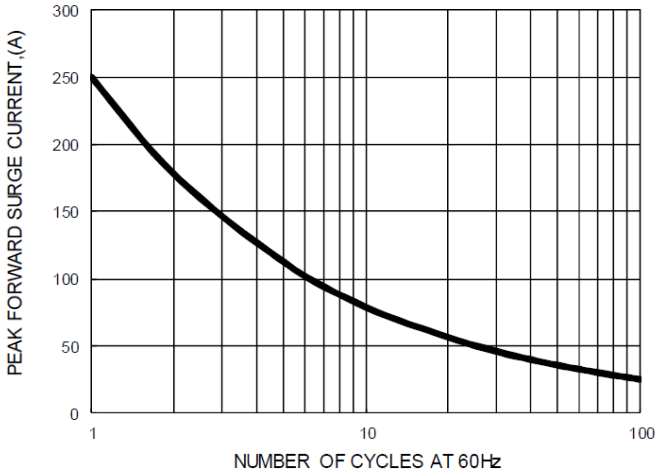


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

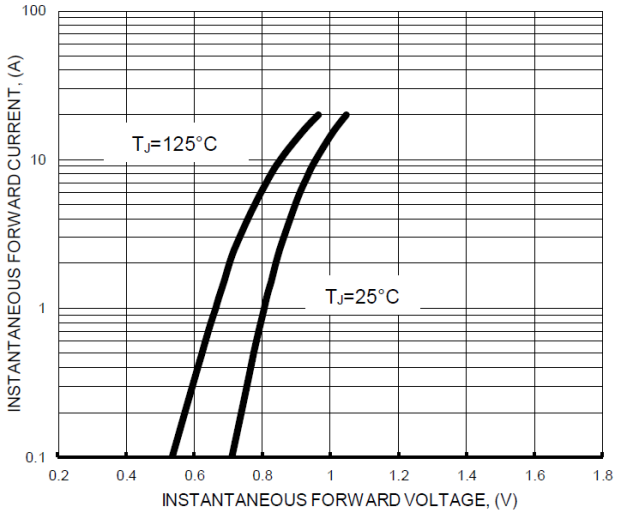


FIG.3- TYPICAL FORWARD CHARACTERISTICS

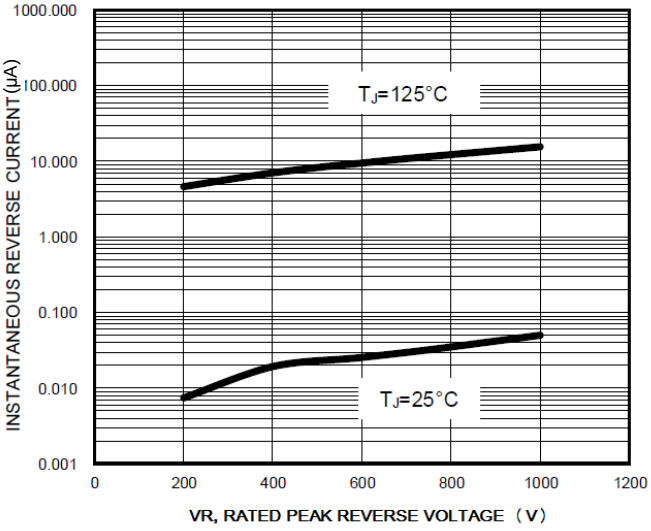
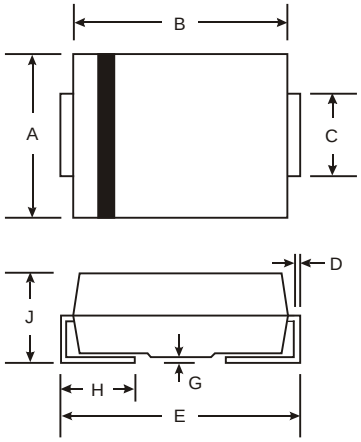


FIG.4- TYPICAL REVERSE CHARACTERISTICS

Package Outline Dimensions

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

SMC

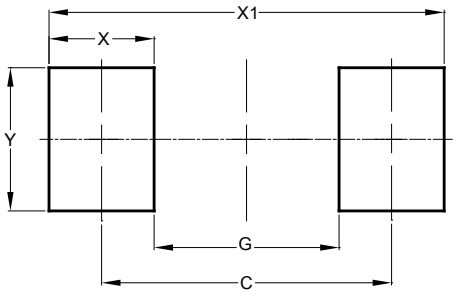


SMC		
Dim	**Min**	**Max**
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

Suggested Pad Layout

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

SMC



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

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