3.0A SURFACE-MOUNT SCHOTTKY BARRIER RECTIFIER

Product Summary (@ T_A = +25°C)

V_{RRM} (V)	I_O (A)	$V_{F(Max)}$ (V)	$I_{R(Max)}$ (µA)
80	3	0.79	100

Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Low-Forward Voltage Drop
- Surge Overload Rating to 100A Peak
- For Use in Low-Voltage, High-Frequency Inverters, Free Wheeling, and Polarity Protection Application
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The B380BQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.**
  https://www.diodes.com/quality/product-definitions/

Description and Applications

This Schottky Barrier Rectifier has been designed to meet the general requirements of commercial applications. It is ideally suited for use as:

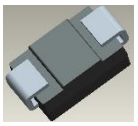
- Polarity protection diodes
- Re-circulating diodes
- Switching diodes

Mechanical Data

- Package: SMB
- Package 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: 0.093 grams (Approximate)

SMB

Top View



Bottom View

Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
B380BQ-13	SMB	3000	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

B380B = Product Type Marking Code
= Manufacturer's Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 4 for 2024)
WW = Week Code (01 to 53)

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 Working Peak Reverse Voltage DC Blocking Voltage (Note 5)	V_{RRM} V_{RWM} V_R	80	V
Average Rectified Output Current	I_O	3.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load	I_{FSM}	100	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	25	°C/W
Operating and Storage Temperature Range (Note 7)	T_J, T_{STG}	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	— —	0.72 0.62	0.79 0.69	V	I_F = 3.0A, T_A = +25°C I_F = 3.0A, T_A = +100°C
Peak Reverse Current (Note 5)	I_R	— —	1 0.2	100 10	µA mA	V_R = 80V, T_A = +25°C V_R = 80V, T_A = +100°C
Typical Total Capacitance	C_T	—	120	—	pF	V_R = 4.0V, f = 1MHz

Notes: 5. Short duration pulse test used to minimize self-heating effect.
6. Device mounted on FR-4 substrate, 0.4" x 0.5", 2oz, single-sided, PC boards with 0.2" x 0.25" copper pad.
7. The heat generated must be less than the thermal conductivity from junction to case: $dP_D/dT_J < 1/R_{\theta JC}$ or junction to ambient: $dP_D/dT_J < 1/R_{\theta JA}$.

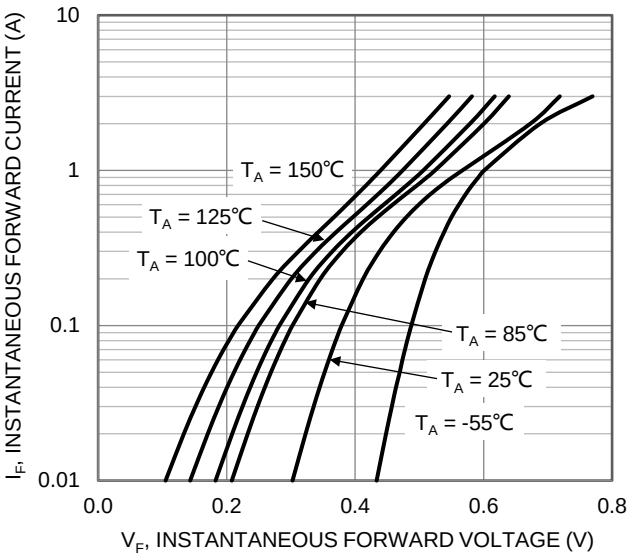


Figure 1. Typical Forward Characteristics

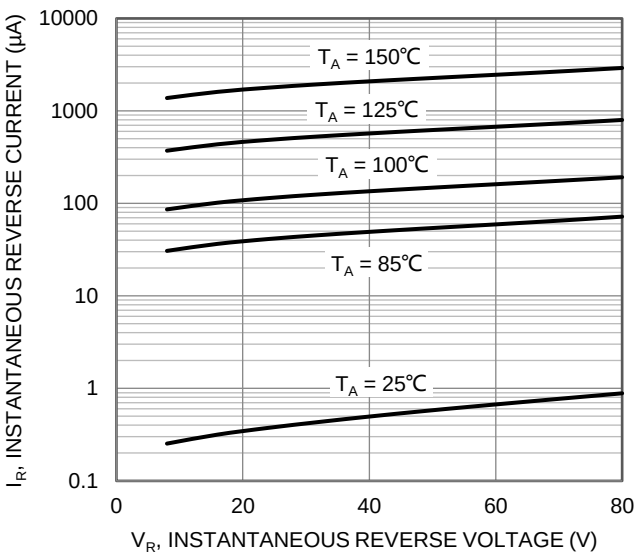


Figure 2. Typical Reverse Characteristics

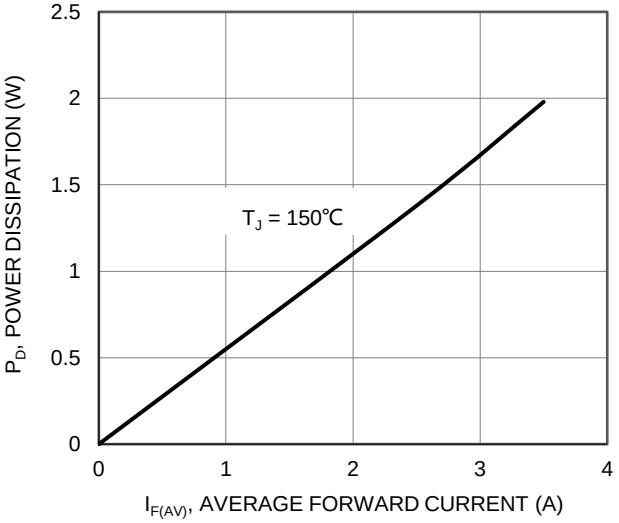


Figure 3. Forward Power Dissipation

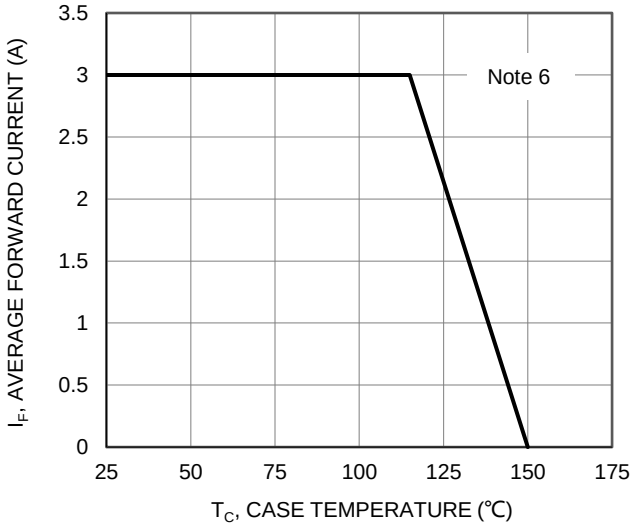


Figure 4. DC Forward Current Derating

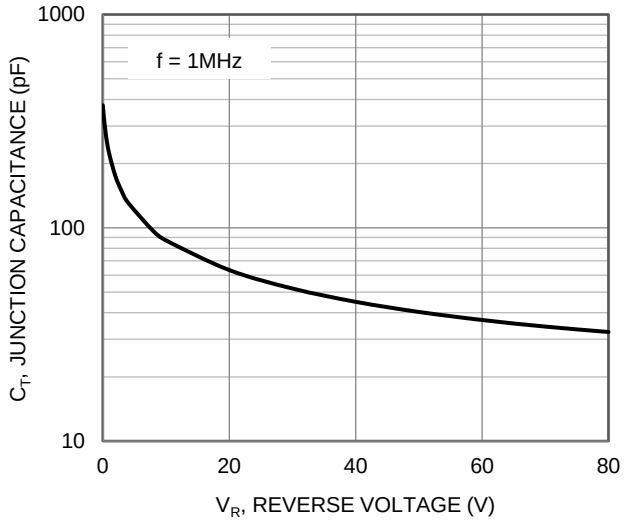


Figure 5. Typical Junction Capacitance

Note: 6. Device mounted on FR-4 substrate, 0.4" x 0.5", 2oz, single-sided, PC boards with 0.2" x 0.25" copper pad.

Package Outline Dimensions

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

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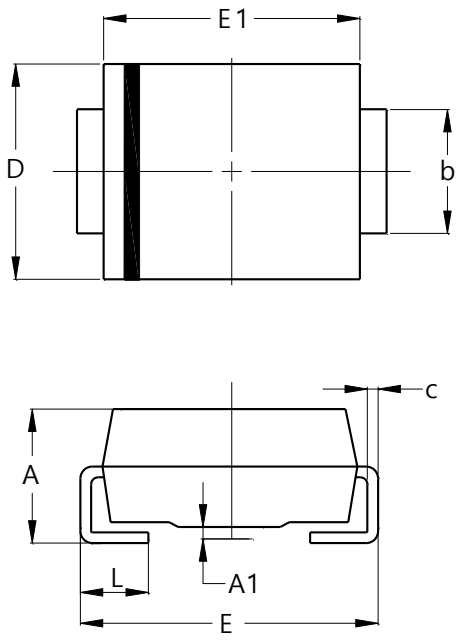

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Dim	**Min**	**Max**
A	2.00	2.50
A1	0.05	0.20
b	1.96	2.21
c	0.15	0.31
D	3.30	3.94
E	5.00	5.59
E1	4.06	4.57
L	0.76	1.52
All Dimensions in mm		

Suggested Pad Layout

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

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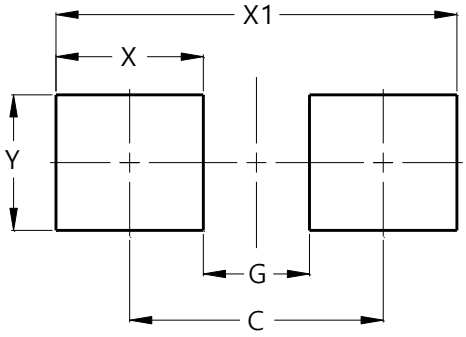

Dimensions	Value (in mm)
C	4.30
G	1.80
X	2.50
X1	6.80
Y	2.30

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