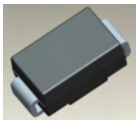
# 1.0A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER

## Features

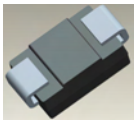
- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automated Assembly
- Low Power Loss, High Efficiency
- Surge Overload Rating to 30A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- High Temperature Soldering: 260°C/10 Second at Terminal
- **Lead Free Finish/RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 2)**

## Mechanical Data

- Case: SMA / SMB
- 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: SMA 0.064 grams (approximate)
  SMB 0.093 grams (approximate)



Top View



Bottom View

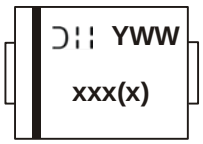
## Ordering Information (Note 3)

| Part Number | Case | Packaging |
|---|---|---|
| B1x-13-F | SMA | 5000/Tape & Reel |
| B1xB-13-F | SMB | 3000/Tape & Reel |

*x = Device type, e.g. B180-13-F (SMA package); B1100B-13-F (SMB package).

Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes.
2. Product manufactured with Data Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.
3. For packaging details, go to our website at http://www.diodes.com.

## Marking Information




XXX = Product type marking code, ex: B170 (SMA package)
XXXX = Product type marking code, ex: B190B (SMB package)
= Manufacturers' code marking
YWW = Date code marking
Y = Last digit of year (ex: 2 for 2002)
WW = Week code 01 to 52


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## Maximum Ratings @$T_A$ = 25°C unless otherwise specified

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

| Characteristic | Symbol | B170/B | B180/B | B190/B | B1100/B | Unit |
|---|---|---|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 70 | 80 | 90 | 100 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 49 | 56 | 63 | 70 | V |
| Average Rectified Output Current @ $T_T$ = 125°C | $I_O$ | 1.0 | | | | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$ | 30 | | | | A |
| Repetitive Peak Reverse Current | $I_{RRM}$ | 1.0 | | | | A |

## Thermal Characteristics

| Characteristic | Symbol | B170/B | B180/B | B190/B | B1100/B | Unit |
|---|---|---|---|---|---|---|
| Typical Thermal Resistance Junction to Terminal (Note 4) | $R_{\theta JT}$ | 25 | | | | °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 | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Forward Voltage Drop | $V_F$ | - | - | 0.79<br>0.69 | V | $I_F$ = 1.0A, $T_A$ = 25°C<br>$I_F$ = 1.0A, $T_A$ = 100°C |
| Leakage Current (Note 5) | $I_R$ | -<br>- | -<br>- | 0.5<br>5.0 | mA | @ Rated $V_R$, $T_A$ = 25°C<br>@ Rated $V_R$, $T_A$ = 100°C |
| Total Capacitance | $C_T$ | - | - | 80 | pF | $V_R$ = 4V, f = 1MHz |

Notes: 4. Valid provided that terminals are kept at ambient temperature.
5. Short duration pulse test used to minimize self-heating effect.

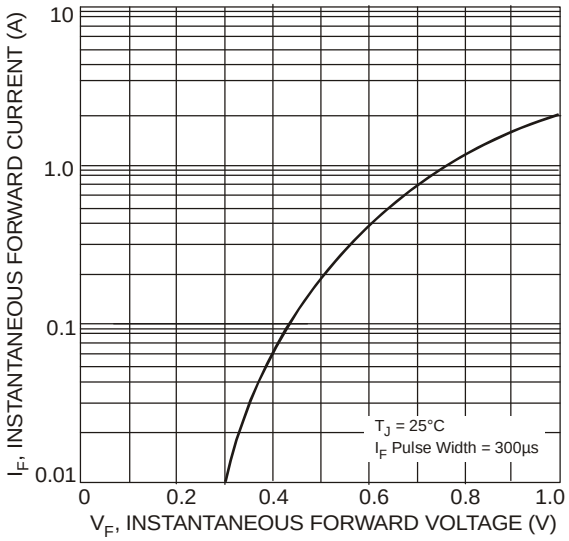


Fig. 1 Typical Forward Characteristics

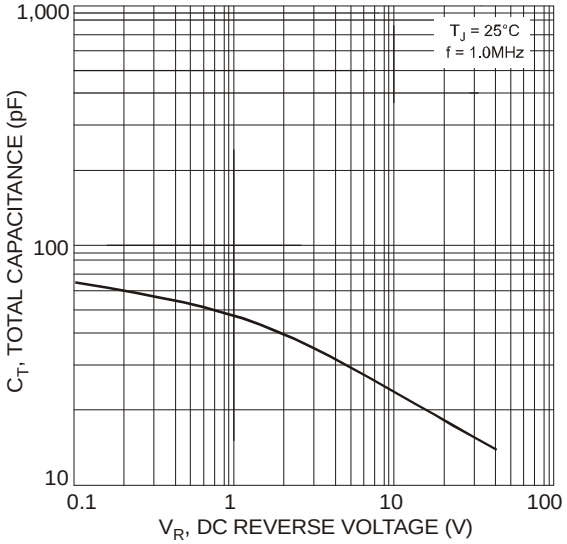


Fig. 2 Total Capacitance vs. Reverse Voltage


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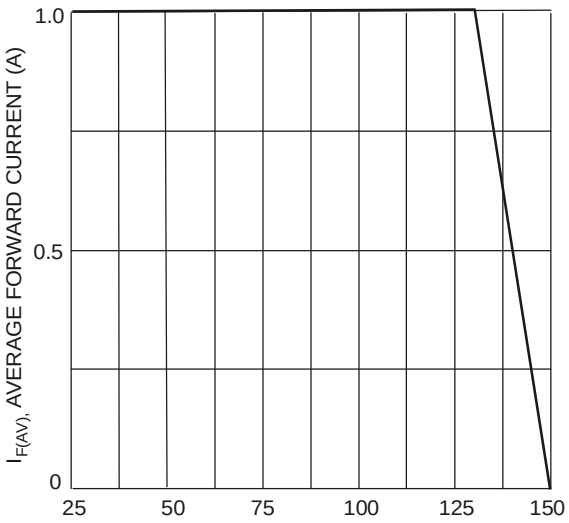


Fig. 3 Forward Current Derating Curve

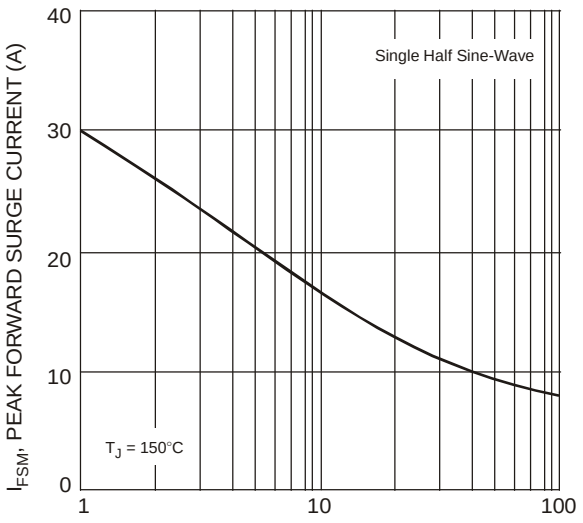
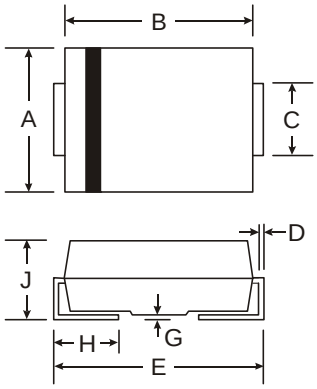


Fig. 4 Max Non-Repetitive Peak Forward Surge Current

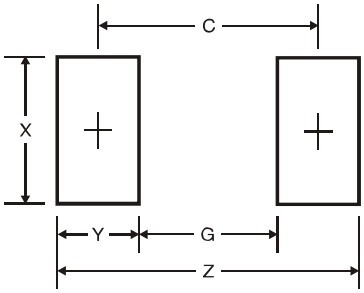
## Package Outline Dimensions




| SMA | | |
|---|---|---|
| **Dim** | **Min** | **Max** |
| **A** | 2.29 | 2.92 |
| **B** | 4.00 | 4.60 |
| **C** | 1.27 | 1.63 |
| **D** | 0.15 | 0.31 |
| **E** | 4.80 | 5.59 |
| **G** | 0.05 | 0.20 |
| **H** | 0.76 | 1.52 |
| **J** | 2.01 | 2.30 |
| **All Dimensions in mm** | | |

| SMB | | |
|---|---|---|
| **Dim** | **Min** | **Max** |
| **A** | 3.30 | 3.94 |
| **B** | 4.06 | 4.57 |
| **C** | 1.96 | 2.21 |
| **D** | 0.15 | 0.31 |
| **E** | 5.00 | 5.59 |
| **G** | 0.05 | 0.20 |
| **H** | 0.76 | 1.52 |
| **J** | 2.00 | 2.50 |
| **All Dimensions in mm** | | |

## Suggested Pad Layout




| SMA Dimensions | Value (in mm) |
|---|---|
| **Z** | 6.5 |
| **G** | 1.5 |
| **X** | 1.7 |
| **Y** | 2.5 |
| **C** | 4.0 |

| SMB Dimensions | Value (in mm) |
|---|---|
| **Z** | 6.7 |
| **G** | 1.8 |
| **X** | 2.3 |
| **Y** | 2.5 |
| **C** | 4.3 |


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