


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 
- Polarity: Cathode Band or Cathode Notch
- Weight: SMA 0.064 grams (approximate)
SMB 0.093 grams (approximate)

Top View

Bottom View

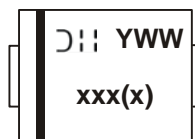
Ordering Information (Note 3)


| 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

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 | V _{RRM} | | | | | |
| Working Peak Reverse Voltage | V _{RWM} | 70 | 80 | 90 | 100 | V |
| DC Blocking Voltage | V _R | | | | | |
| 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 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 _{θJT} | 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 0.69 | V | I _F = 1.0A, T _A = 25°C I _F = 1.0A, T _A = 100°C |
| Leakage Current (Note 5) | I _R | - | - | 0.5 5.0 | mA | @ Rated V _R , T _A = 25°C @ 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.

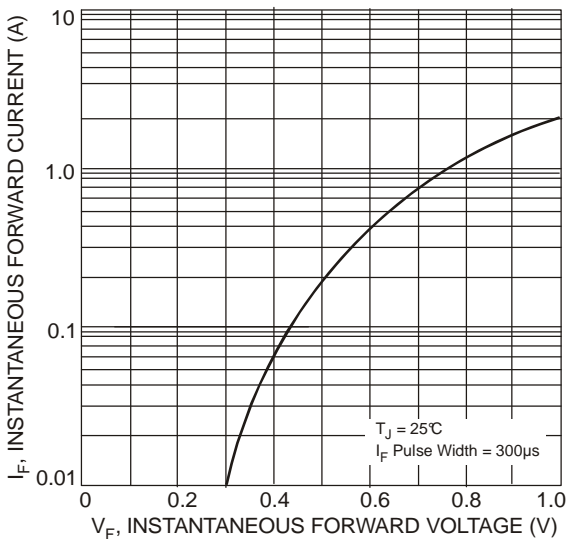


Fig. 1 Typical Forward Characteristics

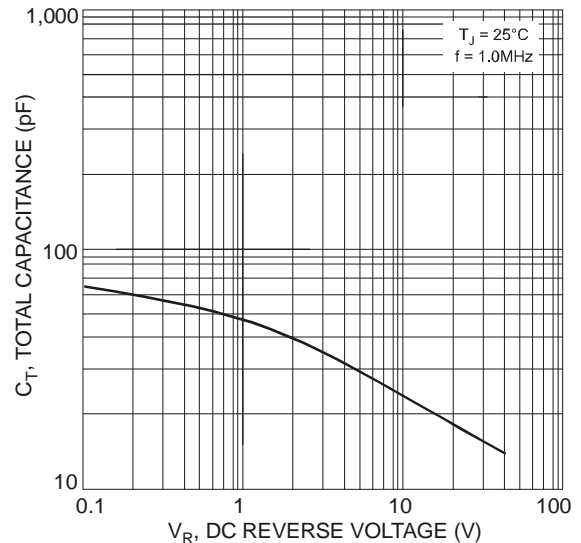


Fig. 2 Total Capacitance vs. Reverse Voltage

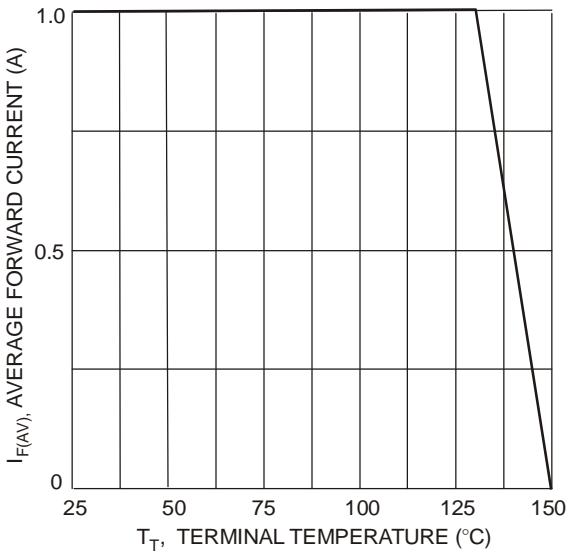


Fig. 3 Forward Current Derating Curve

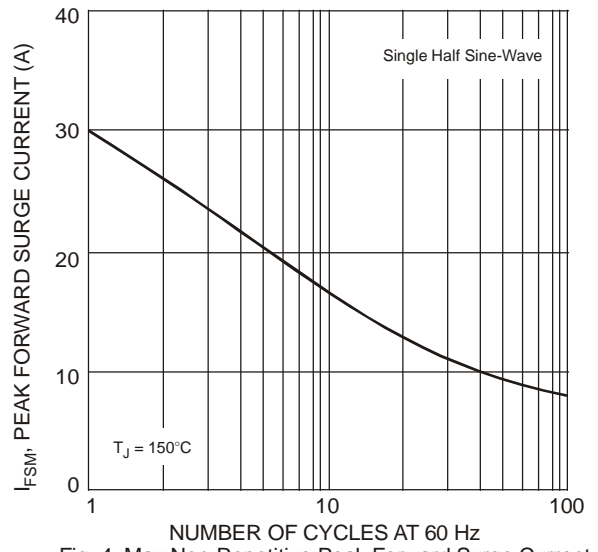
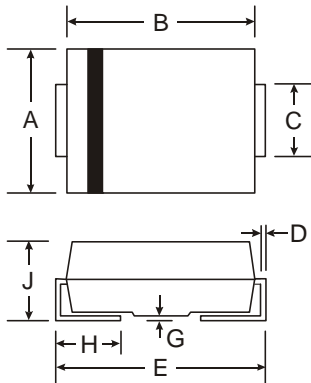


Fig. 4 Max Non-Repetitive Peak Forward Surge Current

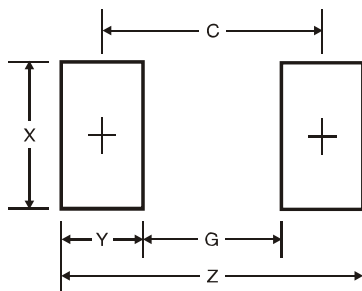
Package Outline Dimensions



| 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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