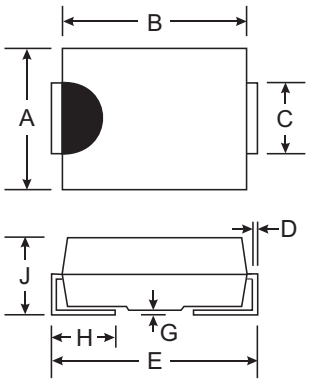
# B120/B - B160/B

## 1.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

## Features

- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automatic 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
- **Lead Free Finish/RoHS Compliant (Note 3)**




| Dim | SMA | | SMB | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 2.29 | 2.92 | 3.30 | 3.94 |
| B | 4.00 | 4.60 | 4.06 | 4.57 |
| C | 1.27 | 1.63 | 1.96 | 2.21 |
| D | 0.15 | 0.31 | 0.15 | 0.31 |
| E | 4.80 | 5.59 | 5.00 | 5.59 |
| G | 0.10 | 0.20 | 0.10 | 0.20 |
| H | 0.76 | 1.52 | 0.76 | 1.52 |
| J | 2.01 | 2.62 | 2.00 | 2.62 |
| All Dimensions in mm | | | | |

No Suffix Designates SMA Package
"B" Suffix Designates SMB Package

## Mechanical Data

- Case: SMA/SMB
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: Cathode Band or Cathode Notch
- Marking Information: See page 3
- Ordering Information: See page 3
- Approximate Weight: SMA 0.064 grams
  SMB 0.093 grams

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

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

| Characteristic | Symbol | B120/B | B130/B | B140/B | B150/B | B160/B | Unit |
|---|---|---|---|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 20 | 30 | 40 | 50 | 60 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 14 | 21 | 28 | 35 | 42 | V |
| Average Rectified Output Current @ $T_T$ = 130°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 |
| Forward Voltage @ $I_F$ = 1.0A | $V_{FM}$ | 0.50 | | | 0.70 | | V |
| Peak Reverse Current @ $T_A$ = 25°C<br>at Rated DC Blocking Voltage @ $T_A$ = 100°C | $I_{RM}$ | 0.5<br>10 | | | | | mA |
| Typical Total Capacitance (Note 2) | $C_T$ | 110 | | | | | pF |
| Typical Thermal Resistance Junction to Terminal (Note 1) | $R_{JT}$ | 20 | | | | | °C/W |
| Operating and Storage Temperature Range | $T_j$, $T_{STG}$ | -65 to +150 | | | | | °C |

Notes:
1. Thermal Resistance: Junction to terminal, unit mounted on PC board with 5.0 $mm^2$ (0.013 mm thick) copper pads as heat sink.
2. Measured at 1.0 MHz and applied reverse voltage of 4.0V DC.
3. RoHS revision 13.2.2003. High Temperature Solder Exemption Applied, see *EU Directive Annex Note 7.*

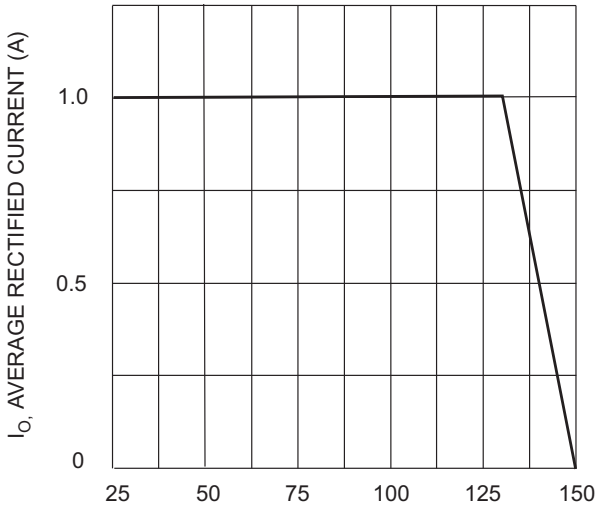



Fig. 1 Forward Current Derating Curve

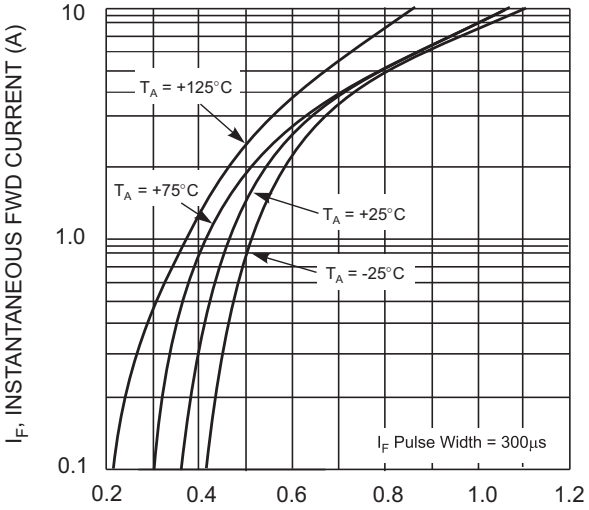



Fig. 2 Typical Forward Characteristics - B120/B thru B140/B

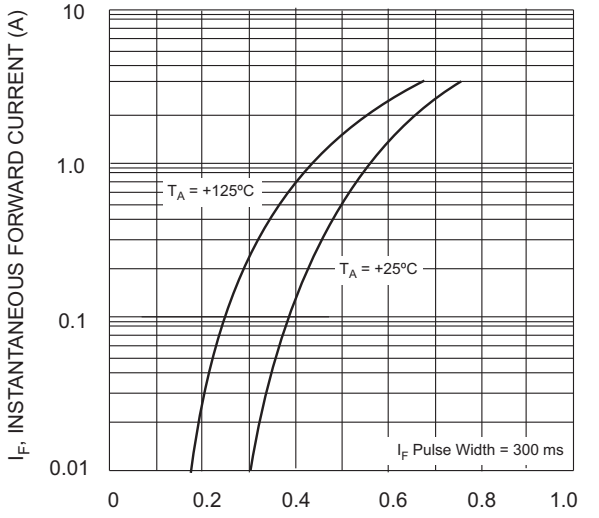



Fig. 3 Typ. Forward Characteristics - B150/B thru B160/B

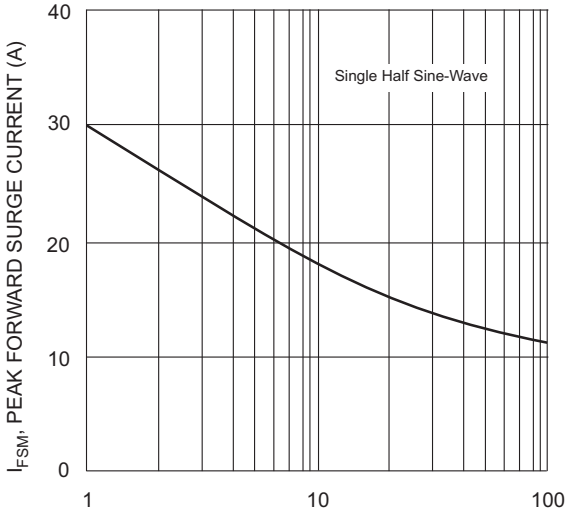



Fig. 4 Max Non-Repetitive Peak Fwd Surge Current

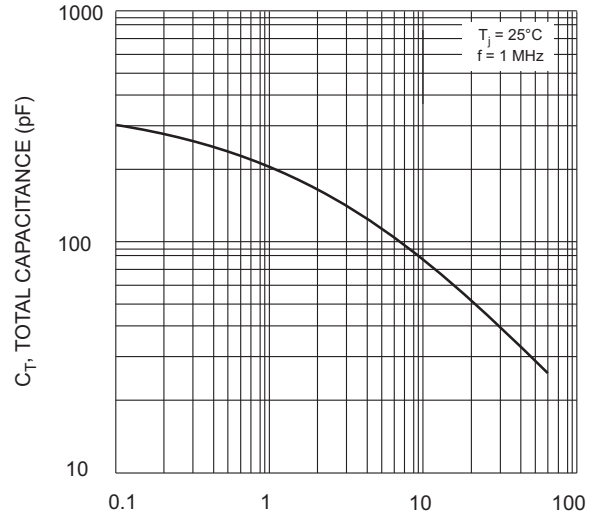



Fig. 5 Typical Total Capacitance

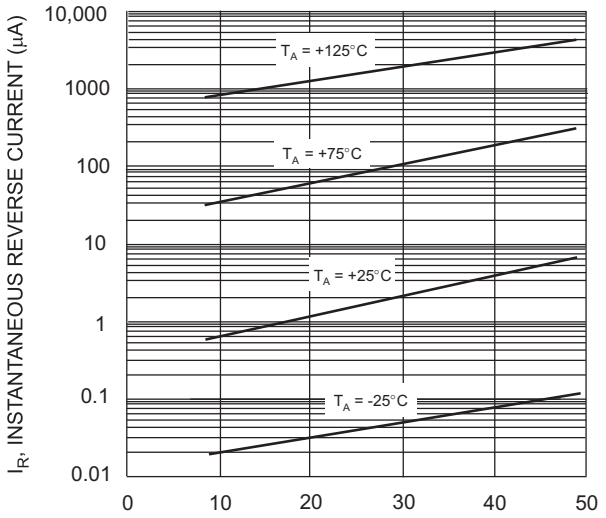



Fig. 6 Typical Reverse Characteristics, B120/B thru B140/B

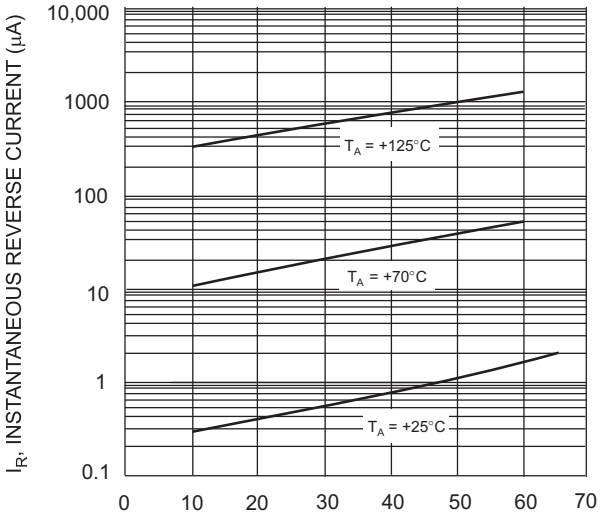



Fig. 7 Typical Reverse Characteristics, B150/B thru B160/B

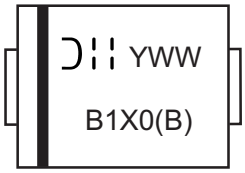
## Ordering Information (Note 4)

| Device* | Packaging | Shipping |
|---|---|---|
| B1XX-13-F | SMA | 5000/Tape & Reel |
| B1XXB-13-F | SMB | 3000/Tape & Reel |

Notes: 4. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

* xx = Device type, e.g. B120-13-F (SMA package); B120B-13-F (SMB package).

## Marking Information




B1X0 = Product type marking code, ex: B120 (SMA package)
B1X0B = Product type marking code, ex: B160B (SMB package)
= Manufacturers' code marking
YWW = Date code marking
Y = Last digit of year ex: 2 for 2002
WW = Week code 01 to 52

Note: Device has a cathode band (as shown above) and may also have a cathode notch (as shown on Page 1).