


Features

- Schottky Barrier Chip
- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- Surge Overload Rating to 40A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **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/>**

Mechanical Data

- Case: DO-41
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish – Bright Tin. Plated Leads Solderable per MIL-STD-202, Method 208 
- Polarity: Cathode Band
- Mounting Position: Any
- Marking: Type Number
- Weight: 0.3 grams (Approximate)

Ordering Information (Note 3)

| Device | Packaging | Shipping |
|------------------|-----------------|-------------------------|
| SB120-A | DO-41 (Plastic) | 5K/Ammo Pack |
| SB120-B | DO-41 (Plastic) | 1K/Bulk |
| SB120-T (Note 4) | DO-41 (Plastic) | 5K/Tape & Reel, 13-inch |
| SB130-A | DO-41 (Plastic) | 5K/Ammo Pack |
| SB130-B (Note 4) | DO-41 (Plastic) | 1K/Bulk |
| SB130-T | DO-41 (Plastic) | 5K/Tape & Reel, 13-inch |
| SB140-A | DO-41 (Plastic) | 5K/Ammo Pack |
| SB140-B | DO-41 (Plastic) | 1K/Bulk |
| SB140-T | DO-41 (Plastic) | 5K/Tape & Reel, 13-inch |
| SB150-A | DO-41 (Plastic) | 5K/Ammo Pack |
| SB150-B | DO-41 (Plastic) | 1K/Bulk |
| SB150-T | DO-41 (Plastic) | 5K/Tape & Reel, 13-inch |
| SB160-A | DO-41 (Plastic) | 5K/Ammo Pack |
| SB160-B | DO-41 (Plastic) | 1K/Bulk |
| SB160-T | DO-41 (Plastic) | 5K/Tape & Reel, 13-inch |

- 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. For packaging details, visit our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
 4. Not recommended for new design.

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 | SB120 | SB130 | SB140 | SB150 | SB160 | Unit |
|---|---------------------|-------------|-------|-------|-------------|-------|------|
| Peak Repetitive Reverse Voltage | V _{RRM} | 20 | 30 | 40 | 50 | 60 | V |
| Working Peak Reverse Voltage | V _{RWM} | | | | | | |
| DC Blocking Voltage | V _R | | | | | | |
| RMS Reverse Voltage | V _{R(RMS)} | 14 | 21 | 28 | 35 | 42 | V |
| Average Rectified Output Current (Note 5) (See Figure 1) | I _O | 1.0 | | | | | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) | I _{FSM} | 40 | | | | | A |
| Forward Voltage (Note 6) @ I _F = 1.0A | V _{FM} | 0.50 | | 0.70 | | | V |
| Peak Reverse Current @ T _A = +25°C at Rated DC Blocking Voltage (Note 6) @ T _A = +100°C | I _{RM} | 0.5 | | | 5.0 | | mA |
| Typical Thermal Resistance Junction to Lead (Note 5) | R _{θJL} | 15 | | | | | °C/W |
| Typical Thermal Resistance Junction to Ambient | R _{θJA} | 50 | | | | | °C/W |
| Operating Temperature Range | T _J | -65 to +125 | | | -65 to +150 | | °C |
| Storage Temperature Range | T _{STG} | -65 to +150 | | | | | |

Notes: 5. Measured at ambient temperature at a distance of 9.5mm from the case.
6. Short duration pulse test used to minimize self-heating effect.

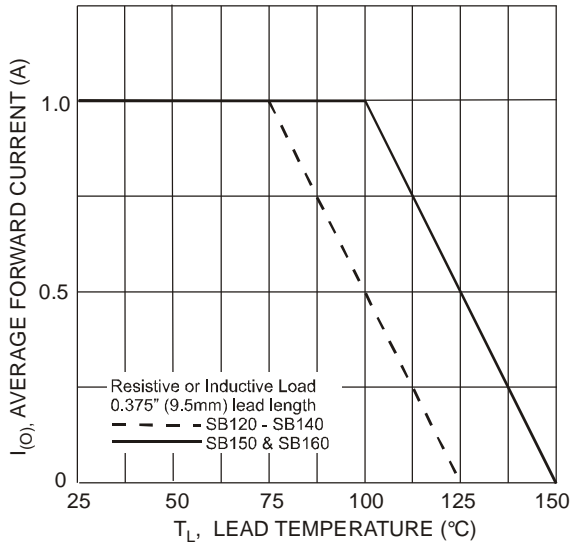


Fig. 1 Forward Current Derating Curve

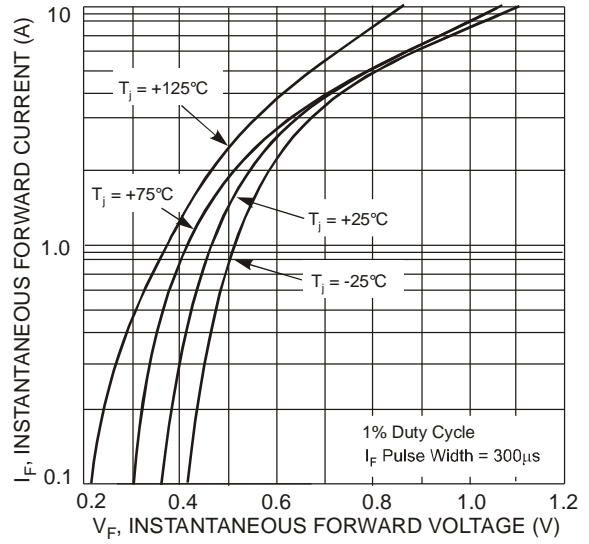


Fig. 2 Typical Forward Characteristics - SB120 thru SB140

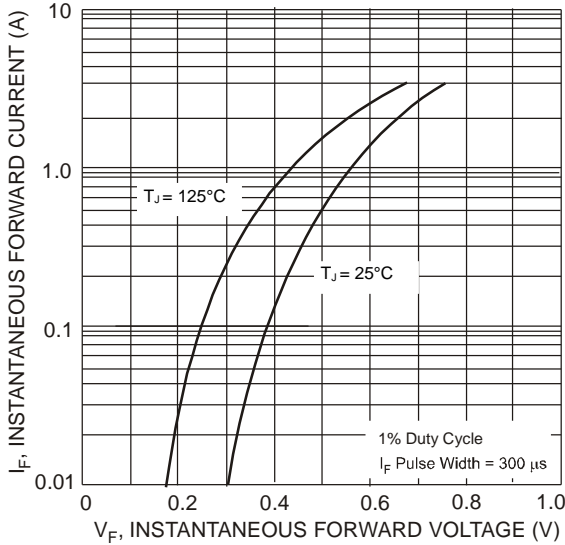


Fig. 3 Typical Forward Characteristics - SB150 thru SB160

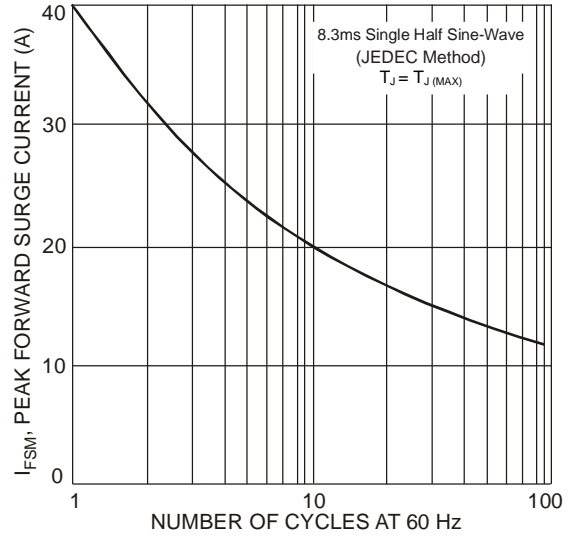


Fig. 4 Max Non-Repetitive Peak Fwd Surge Current

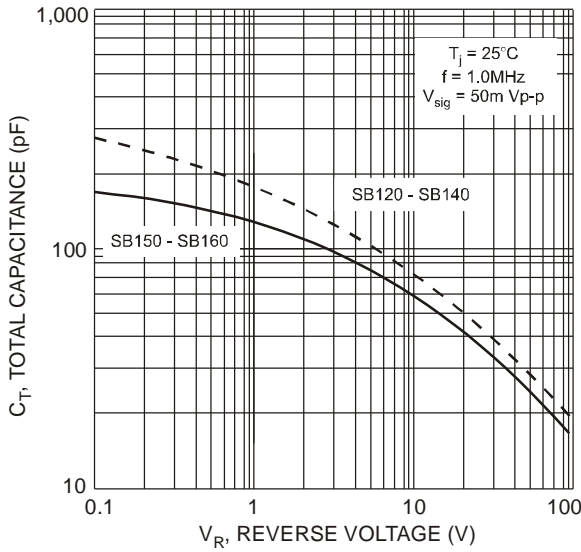


Fig. 5 Typical Total Capacitance

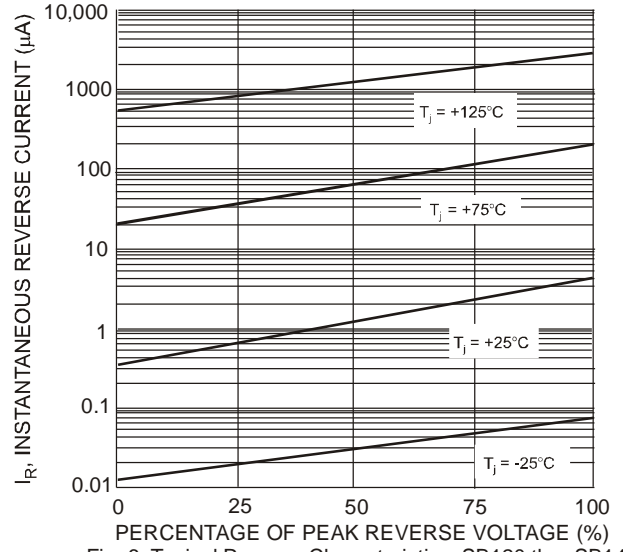


Fig. 6 Typical Reverse Characteristics, SB120 thru SB140

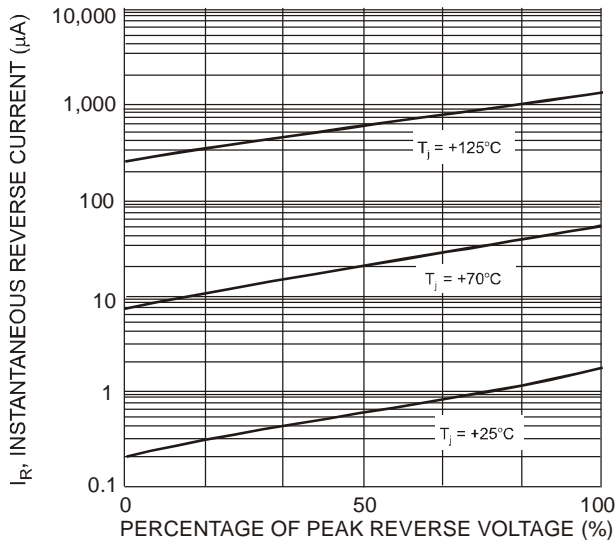
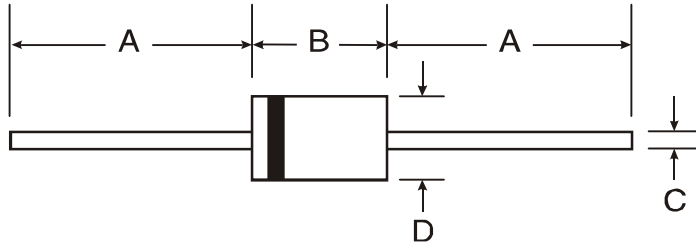


Fig. 7 Typical Reverse Characteristics, SB150 thru SB160

Package Outline Dimensions

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

DO-41 (Plastic)



| DO-41 (Plastic) | | |
|----------------------|-------|-------|
| Dim | Min | Max |
| A | 25.40 | - |
| B | 4.06 | 5.21 |
| C | 0.71 | 0.864 |
| D | 2.00 | 2.72 |
| All Dimensions in mm | | |

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