

Product Summary

B150AE/B160AE
B150BE/B160BE

| V _{RRM} (V) | I _O (A) | V _{F(MAX)} (V) @ +25°C | I _{R(MAX)} (mA) @ +25°C |
|----------------------|--------------------|------------------------------------|-------------------------------------|
| 50 | 1 | 0.65 | 0.1 |
| 60 | 1 | 0.65 | 0.2 |

Features and Benefits

- Reduced Low Forward Voltage Drop (V_F); Better Efficiency and Cooler Operation
- Reduced High-Temperature Reverse Leakage; Increased Reliability against Thermal Runaway Failure in High Temperature Operation
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **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/>**

Description and Applications

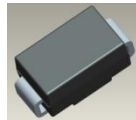
The Schottky rectifier providing low V_F and excellent reverse leakage stability at high temperatures, this device is ideal for use in general rectification applications such as:

- Boost Diode
- Blocking Diode
- Recirculating Diode

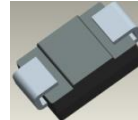
Mechanical Data

- Case: SMA, SMB
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208E3
- Polarity: Cathode Band
- Weight: SMA-0.063 grams (Approximate)
SMB-0.093 grams (Approximate)

SMA/SMB



Top View



Bottom View

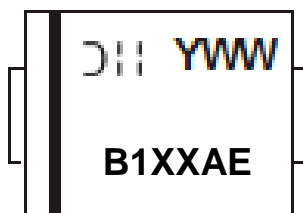
Ordering Information (Notes 4, 5)

| Part Number | Case | Packaging | Status | Replacement |
|-------------|------|-------------------|--------|----------------------------|
| B150AE-13 | SMA | 5,000/Tape & Reel | NRND | B150-13-F |
| B160AE-13 | SMA | 5,000/Tape & Reel | Active | — |
| B150BE-13 | SMB | 3,000/Tape & Reel | NRND | B150B-13-F |
| B160BE-13 | SMB | 3,000/Tape & Reel | NRND | B150B-13-F |

- 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/>.
 5. NRND: Not recommended for new design.

Marking Information

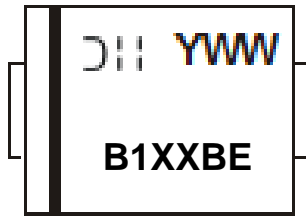
SMA



B1XXAE = Product Type Marking Code, ex: B150AE
 ☺☺☺ = Manufacturers' Marking
 YWW = Date Code Marking
 Y = Last Digit of Year (ex: 0 for 2020)
 WW = Week Code (01 to 53)

Marking Information (continued)

SMB



B1XXBE = Product Type Marking Code, ex: B150BE

☐|| = Manufacturers' Marking

YWW = Date Code Marking

Y = Last Digit of Year (ex: 0 for 2020)

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 | B150AE B150BE | B160AE B160BE | Unit |
|---|------------------|------------------|------------------|------|
| Peak Repetitive Reverse Voltage | V _{RRM} | 50 | 60 | V |
| Working Peak Reverse Voltage | V _{RWM} | | | |
| DC Blocking Voltage | V _{RM} | | | |
| Average Rectified Output Current | I _O | 1 | | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 30 | | A |

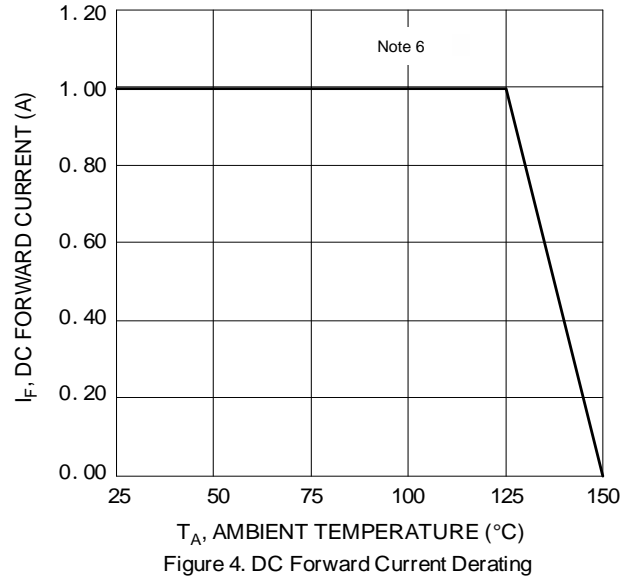
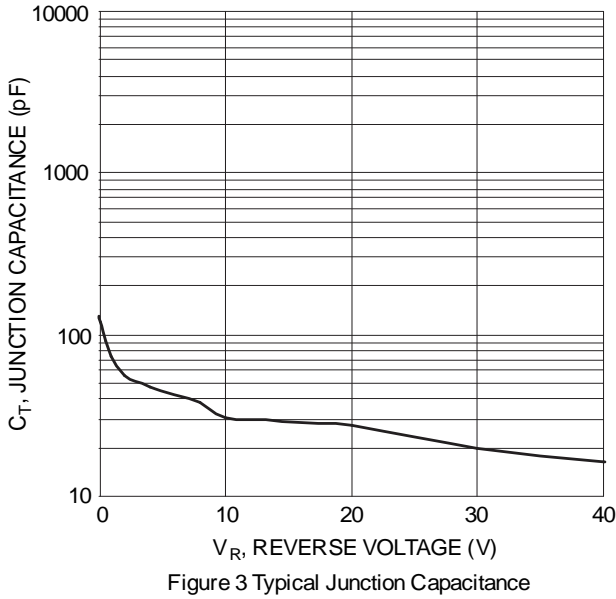
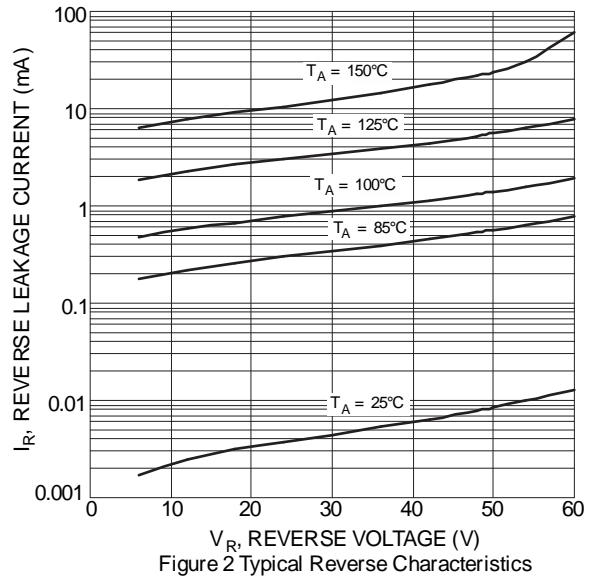
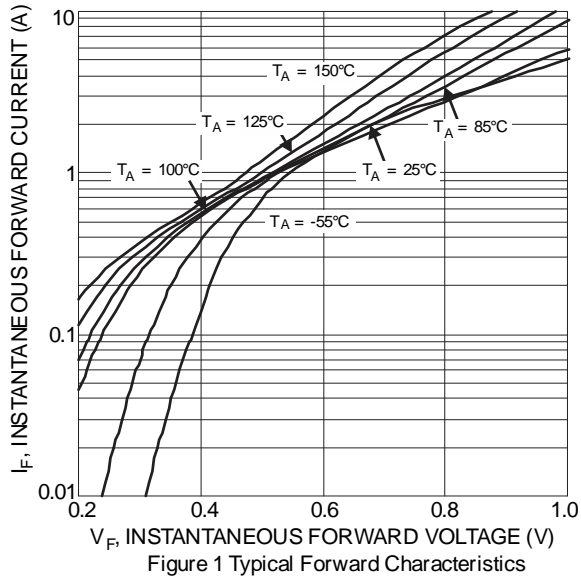
Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance Junction to Ambient (Note 6) | SMA | 95 | °C/W |
| | SMB | 90 | |
| Typical Thermal Resistance Junction to Case (Note 6) | SMA | 45 | °C/W |
| | SMB | 40 | |
| Operating and Storage Temperature Range | 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 | — | — | 0.65 | V | I _F = 1A, T _J = +25°C |
| | | — | — | — | | I _F = 1A, T _J = +125°C |
| Leakage Current (Note 7) | I _R | — | — | 0.1 | mA | V _R = 50V, T _J = +25°C |
| | | — | — | 0.2 | | V _R = 60V, T _J = +25°C |
| | | — | 8.0 | — | | V _R = 60V, T _J = +125°C |
| Typical Capacitance | C _T | — | 45 | — | pF | V _R = 4.0V, f = 1MHz |

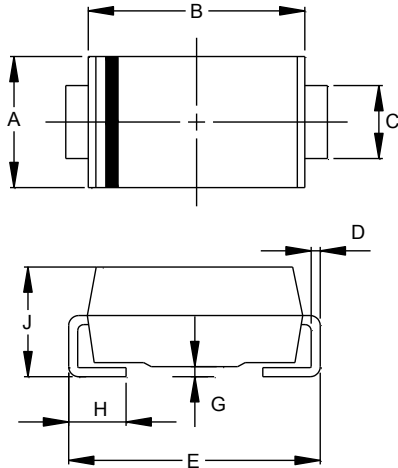
Notes: 6. Device mounted on FR-4 substrate, 0.4" × 0.5", 2oz, single-sided, PC boards with 0.2" × 0.25" copper pad.
7. Short duration pulse test used to minimize self-heating effect.



Package Outline Dimensions

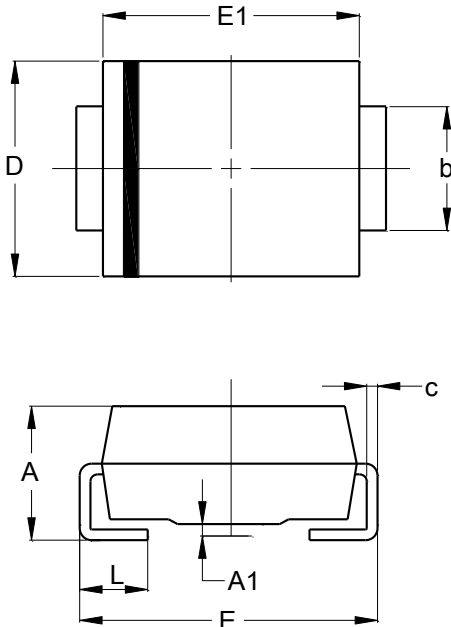
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(1) Package Type: SMA



| 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 | 1.96 | 2.40 |
| All Dimensions in mm | | |

(2) Package Type: SMB

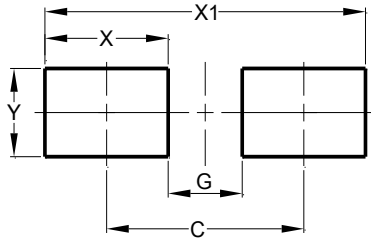


| SMB | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 2.00 | 2.50 |
| A1 | 0.05 | 0.20 |
| b | 1.96 | 2.21 |
| c | 0.15 | 0.31 |
| D | 3.30 | 3.94 |
| E | 5.00 | 5.59 |
| E1 | 4.06 | 4.57 |
| L | 0.76 | 1.52 |
| All Dimensions in mm | | |

Suggested Pad Layout

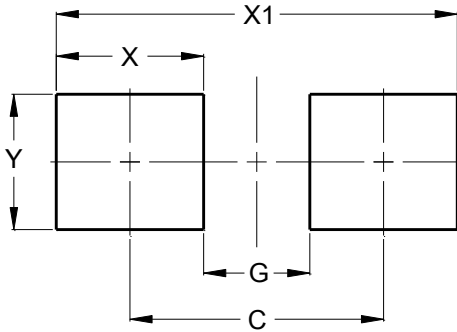
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(1) Package Type: SMA



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 4.00 |
| G | 1.50 |
| X | 2.50 |
| X1 | 6.50 |
| Y | 1.70 |

(2) Package Type: SMB



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

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