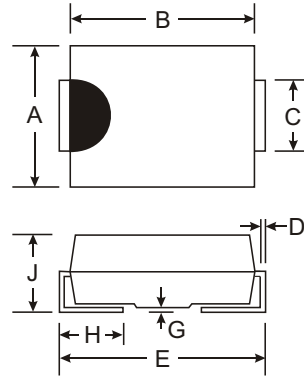


### Features

- Ultra-low Leakage Current
- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automatic Assembly
- Low Power Loss, High Efficiency
- Surge Overload Rating to 45A Peak

### Mechanical Data

- Case: Molded Plastic
- Plastic Material: UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solder Plated Terminal - Solderable per MIL-STD-202, Method 208
- Also Available in Lead Free Plating (Matte Tin Finish). Please See Ordering Information, Note 4, on Page 2
- Marking: Type Number
- Polarity: Cathode Band or Cathode Notch
- Weight: 0.093 grams (approx.)
- Mounting Position: Any



| 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                    | 0.10 | 0.20 |
| H                    | 0.76 | 1.52 |
| J                    | 2.00 | 2.62 |
| All Dimensions in mm |      |      |

### Maximum Ratings and Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

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

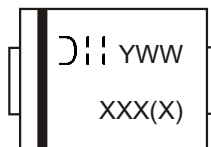
| Characteristic                                                                                                                                                                                                                         | Symbol                          | B140HB                       | Unit               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------------------|--------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage @ $I_R = 0.1\text{mA}$                                                                                                                          | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 40                           | V                  |
| RMS Reverse Voltage                                                                                                                                                                                                                    | $V_{R(RMS)}$                    | 28                           | V                  |
| Average Rectified Output Current @ $T_J = 115^\circ\text{C}$                                                                                                                                                                           | $I_O$                           | 1.0                          | A                  |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single half sine-wave superimposed on rated load                                                                                                                                    | $I_{FSM}$                       | 45                           | A                  |
| Non-Repetitive Peak Forward Surge Current<br>5 $\mu\text{s}$ Single half sine-wave                                                                                                                                                     | $I_{FSM}$                       | 430                          | A                  |
| Forward Voltage @ $I_F = 1.0\text{A}$ , @ $T_J = 25^\circ\text{C}$<br>@ $I_F = 2.0\text{A}$ , @ $T_J = 25^\circ\text{C}$<br>@ $I_F = 1.0\text{A}$ , @ $T_J = 125^\circ\text{C}$<br>@ $I_F = 2.0\text{A}$ , @ $T_J = 125^\circ\text{C}$ | $V_{FM}$                        | 0.53<br>0.70<br>0.49<br>0.64 | V                  |
| Peak Reverse Current @ $T_A = 25^\circ\text{C}$<br>at Rated DC Blocking Voltage @ $T_A = 125^\circ\text{C}$                                                                                                                            | $I_{RM}$                        | 0.1<br>4.0                   | mA                 |
| Typical Total Capacitance (Note 2)                                                                                                                                                                                                     | $C_T$                           | 80                           | pF                 |
| Max. Voltage Rate of Change @ Rated $V_R$                                                                                                                                                                                              | $dv/dt$                         | 5300                         | V/ $\mu\text{s}$   |
| Typical Thermal Resistance Junction to Terminal (Note 1)                                                                                                                                                                               | $R_{\theta JT}$                 | 36                           | $^\circ\text{C/W}$ |

Notes: 1. Thermal Resistance: Junction to terminal, unit mounted on PC board with 5.0 mm<sup>2</sup> (0.013 mm thick) copper pads as heat sink.  
 2. Measured at 1.0MHz and applied reverse voltage of 5.0V DC.

**Ordering Information** (Note 3 & 4)

| Device*   | Packaging | Shipping         |
|-----------|-----------|------------------|
| B140HB-13 | SMB       | 3000/Tape & Reel |

- Notes:
3. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
  4. For lead free terminal plating part number, please add "-F" suffix to part number above. Example: B140HB-13-F.



XXXX = Product type marking code, ex: B140HB (SMB package)  
 Di = Manufacturers' code marking  
 YWW = Date code marking  
 Y = Last digit of year ex: 2 for 2002  
 WW = Week code 01 to 52

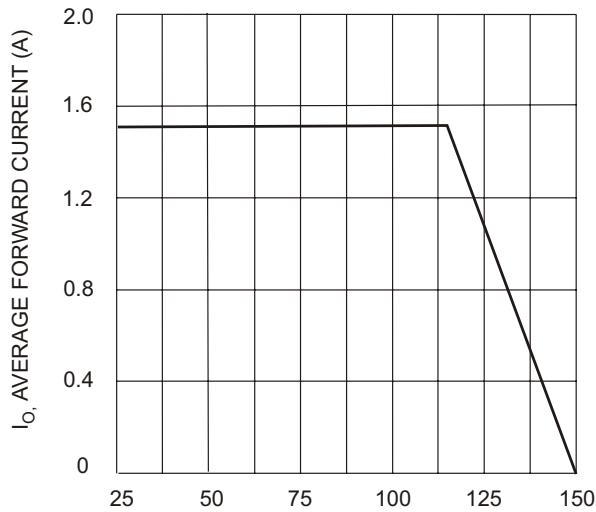


Fig. 1 Forward Current Derating Curve

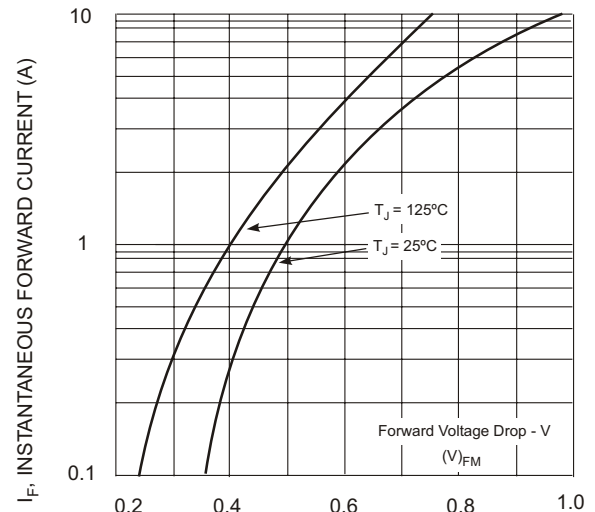


Fig. 2 Typ. Forward Characteristics

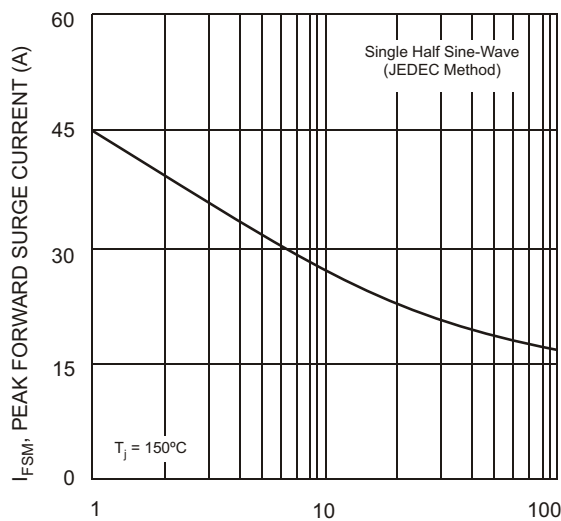


Fig. 3 Max Non-Repetitive Peak Forward Surge Current

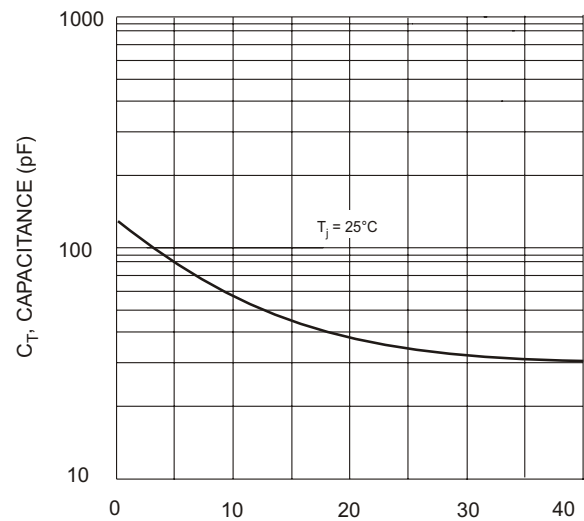


Fig. 4 Typical Total Capacitance

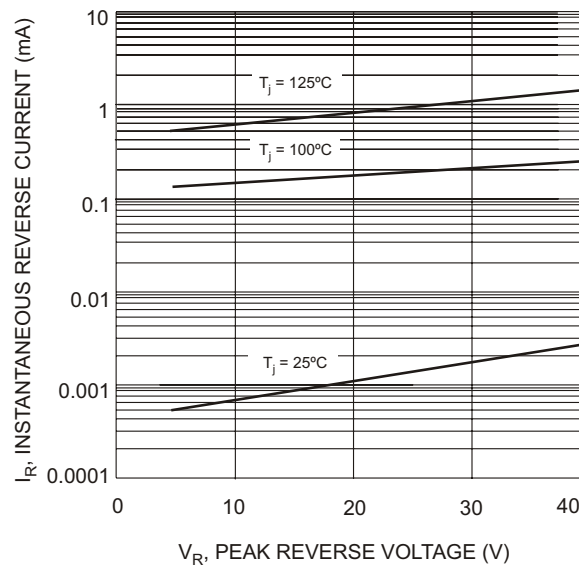


Fig. 5 Typical Reverse Characteristics