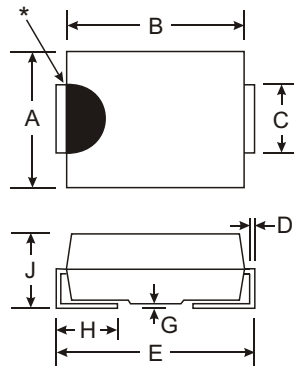


### Features

- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automatic Assembly
- Low Power Loss, High Efficiency
- Surge Overload Rating to 100A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Application

### Mechanical Data

- Case: Molded Plastic
- Plastic Material - UL Flammability Classification 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 5, on Page 3
- Polarity: Cathode Band
- Approx. Weight: SMA 0.064 grams  
SMB 0.093 grams  
SMC 0.21 grams
- Marking: Type Number (See Page 3)



|                      | SMA  |      | SMB  |      | SMC  |      |
|----------------------|------|------|------|------|------|------|
| Dim                  | Min  | Max  | Min  | Max  | Min  | Max  |
| A                    | 2.29 | 2.92 | 3.30 | 3.94 | 5.59 | 6.22 |
| B                    | 4.00 | 4.60 | 4.06 | 4.57 | 6.60 | 7.11 |
| C                    | 1.27 | 1.63 | 1.96 | 2.21 | 2.75 | 3.18 |
| D                    | 0.15 | 0.31 | 0.15 | 0.31 | 0.15 | 0.31 |
| E                    | 4.80 | 5.59 | 5.00 | 5.59 | 7.75 | 8.13 |
| G                    | 0.10 | 0.20 | 0.10 | 0.20 | 0.10 | 0.20 |
| H                    | 0.76 | 1.52 | 0.76 | 1.52 | 0.76 | 1.52 |
| J                    | 2.01 | 2.62 | 2.00 | 2.62 | 2.00 | 2.62 |
| All Dimensions in mm |      |      |      |      |      |      |

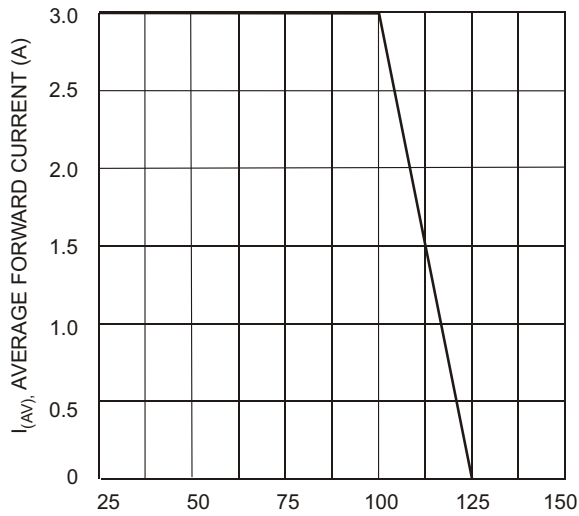
"A" Suffix Designates SMA Package  
 "B" Suffix Designates SMB Package  
 No Suffix Designates SMC Package  
 \*: Note: Device may have a semicircular indentation/notch on one side of the device (as shown).

### Maximum Ratings and Electrical Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified

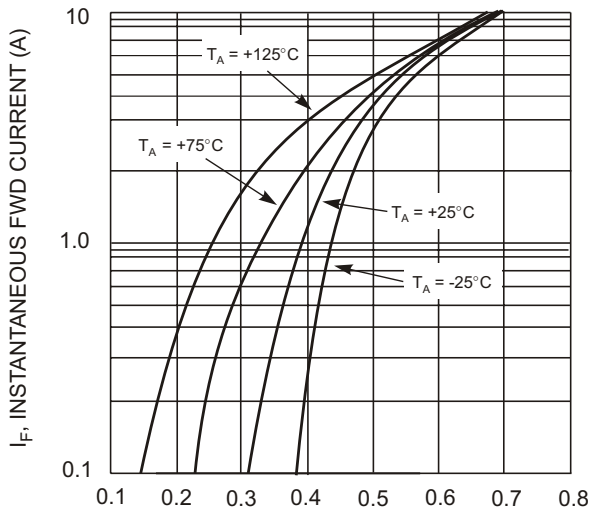
Single phase, half wave, 60Hz, resistive or inductive load.  
 For capacitive load, derate current by 20%.

| Characteristic                                                                                                         | Symbol                          | B320/A/B    | B330/A/B | B340/A/B | B350/A/B | B360/A/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 @ $T_T = 100^{\circ}C$                                                                | $I_O$                           | 3.0         |          |          |          |          | A             |
| Non-Repetitive Peak Forward Surge Current, 8.3ms<br>single half sine-wave superimposed on rated load<br>(JEDEC Method) | $I_{FSM}$                       | 100         |          |          |          |          | A             |
| Forward Voltage (Note 3) @ $I_F = 3.0A$                                                                                | $V_{FM}$                        | 0.50        |          |          | 0.70     |          | V             |
| Peak Reverse Current @ $T_A = 25^{\circ}C$<br>at Rated DC Blocking Voltage (Note 3) @ $T_A = 100^{\circ}C$             | $I_{RM}$                        | 0.5<br>20   |          |          |          |          | mA            |
| Typical Capacitance (Note 2)                                                                                           | $C_T$                           | 250         |          |          |          |          | pF            |
| Typical Thermal Resistance, Junction to Terminal (Note 1)                                                              | $R_{\theta JT}$                 | 10          |          |          |          |          | $^{\circ}C/W$ |
| Typical Thermal Resistance, Junction to Ambient                                                                        | $R_{\theta JA}$                 | 50          |          |          |          |          | $^{\circ}C/W$ |
| Operating Temperature Range                                                                                            | $T_j$                           | -55 to +125 |          |          |          |          | $^{\circ}C$   |
| Storage Temperature Range                                                                                              | $T_{STG}$                       | -55 to +150 |          |          |          |          | $^{\circ}C$   |

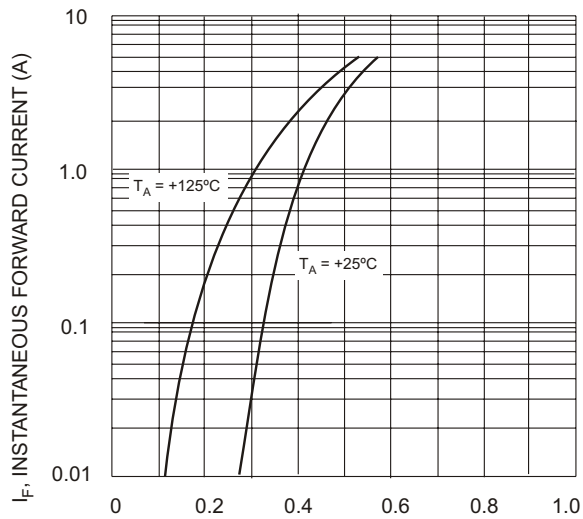
Notes: 1. Thermal Resistance: Junction to terminal, unit mounted on PC board with 5.0 mm<sup>2</sup> 0.013 mm thick) copper pad as heat sink.  
 2. Measured at 1.0 MHz and applied reverse voltage of 4.0V DC.  
 3. Short duration test pulse used to minimize self-heating effect.



$T_T$ , TERMINAL TEMPERATURE (°C)  
Fig. 1 Forward Current Derating Curve



$V_F$ , INSTANTANEOUS FORWARD VOLTAGE (V)  
Fig. 2 Typical Forward Characteristics - B320/A/B thru B340/A/B



$V_F$ , INSTANTANEOUS FORWARD VOLTAGE (V)  
Fig. 3 Typ. Forward Characteristics - B350/A/B thru B360/A/B

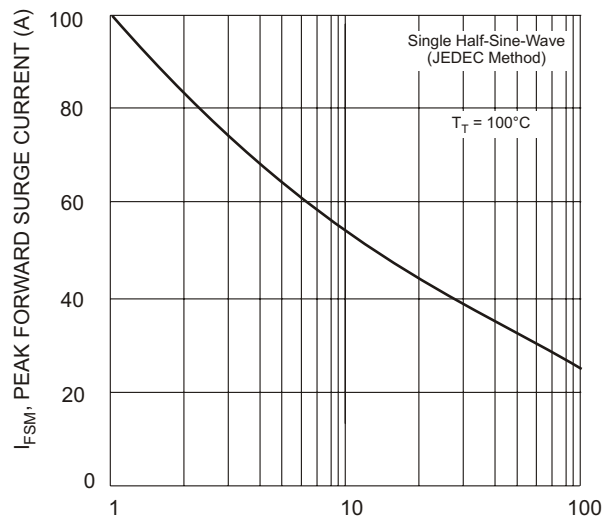
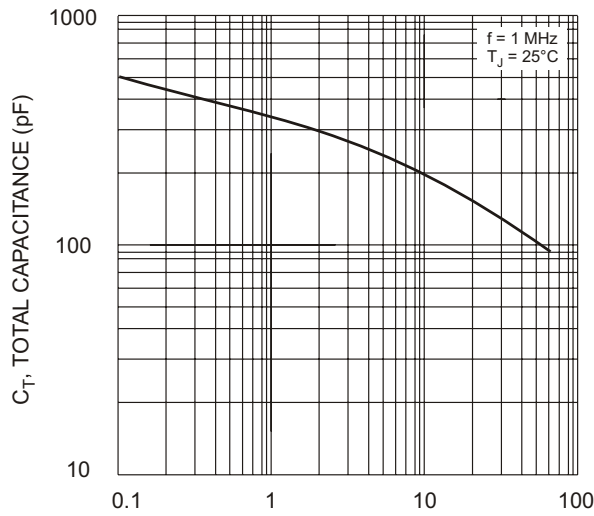
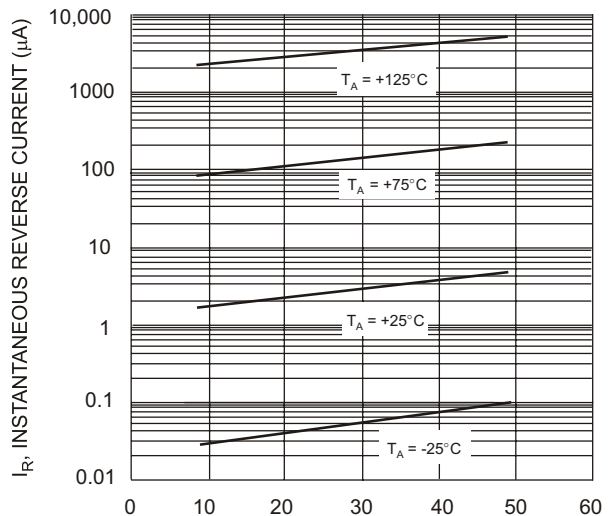


Fig. 4 Max Non-Repetitive Peak Fwd Surge Current



$V_R$ , REVERSE VOLTAGE (V)  
Fig. 5 Typical Capacitance



$V_R$ , INSTANTANEOUS REVERSE VOLTAGE (V)  
Fig. 6 Typical Reverse Characteristics, B320/A/B thru B340/A/B

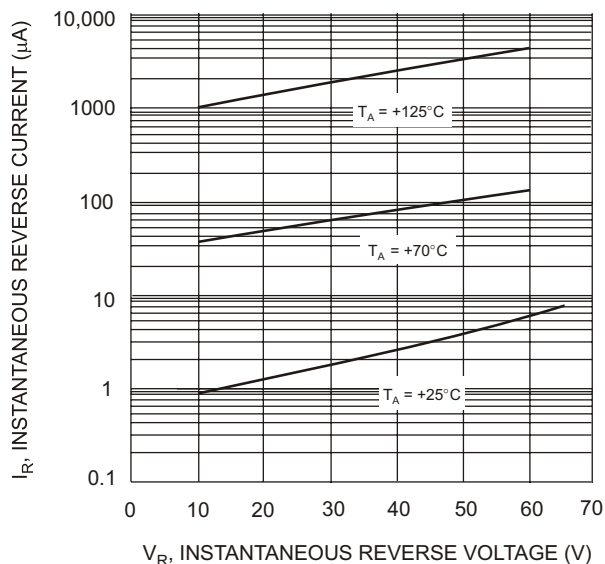
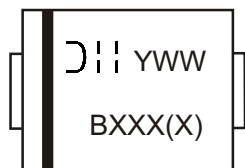


Fig. 7 Typical Reverse Characteristics, B350/A/B thru B360/A/B

## Ordering Information (Note 4 & 5)

| Device*  | Packaging | Shipping         |
|----------|-----------|------------------|
| B3XXA-13 | SMA       | 5000/Tape & Reel |
| B3XXB-13 | SMB       | 3000/Tape & Reel |
| B3XX-13  | SMC       | 3000/Tape & Reel |

- Notes:
- For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
  - \* xx = Device type, e.g. B320A-13 (SMA package); B320B-13 (SMB package); B320-13 (SMC Package).
  - For lead free terminal plating part number, please add "-F" suffix to part number above. Example: B320A-13-F.



BXXX = Product type marking code, ex: B320 (SMC package)  
 BXXXX = Product type marking code, ex: B320A (SMA package)  
 DII = 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).