

## 250mA, 100V SMD Switching Diode

### FEATURES

- Fast switching device ( $t_{rr} < 4\text{ns}$ )
- Ideal for automated placement
- Moisture sensitivity level: level 1, per J-STD-020
- Compliance to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

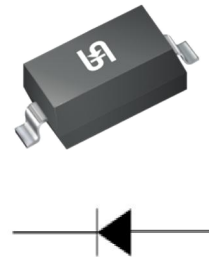
### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

### MECHANICAL DATA

- Case: SOD-323
- Molding compound meets UL 94 V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight:  $4.85 \pm 0.5\text{mg}$  (approximately)

| KEY PARAMETERS              |            |      |
|-----------------------------|------------|------|
| PARAMETER                   | VALUE      | UNIT |
| $I_F$                       | 250        | mA   |
| $V_R$                       | 100        | V    |
| $V_F$ at $I_F=150\text{mA}$ | 1.25       | V    |
| $T_J$ Max.                  | 150        | °C   |
| Package                     | SOD-323    |      |
| Configuration               | Single die |      |



| ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |           |                               |      |
|---|-----------|-------------------------------|------|
| PARAMETER   | SYMBOL    | BAS316                        | UNIT |
| Marking code on the device  |           | A6                            |      |
| Power dissipation   | $P_D$     | 200                           | mW   |
| Forward current   | $I_F$     | 250                           | mA   |
| Non-repetitive peak forward surge current                                   | $I_{FRM}$ | Pulse Width = 1 $\mu\text{s}$ | 4.0  |
|   |           | Pulse Width = 1 ms            | 1.0  |
| Junction temperature range  | $T_J$     | -65 to +150                   | °C   |
| Storage temperature range   | $T_{STG}$ | -65 to +150                   | °C   |

| <b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |   |               |            |            |               |
|---|---|---------------|------------|------------|---------------|
| <b>PARAMETER</b>  | <b>CONDITIONS</b>                                       | <b>SYMBOL</b> | <b>MIN</b> | <b>MAX</b> | <b>UNIT</b>   |
| Forward voltage per diode <sup>(1)</sup>  | $I_F = 1.0\text{mA}, T_J = 25^\circ\text{C}$            | $V_F$         | -          | 0.715      | V             |
|   | $I_F = 10\text{mA}, T_J = 25^\circ\text{C}$             |               | -          | 0.855      |               |
|   | $I_F = 50\text{mA}, T_J = 25^\circ\text{C}$             |               | -          | 1.000      |               |
|   | $I_F = 150\text{mA}, T_J = 25^\circ\text{C}$            |               | -          | 1.250      |               |
| Reverse voltage   | $I_R = 100\mu\text{A}, T_J = 25^\circ\text{C}$          | $V_R$         | 100        | -          | V             |
| Reverse current @ rated $V_R$ <sup>(2)</sup>  | $V_R = 25\text{V}, T_J = 25^\circ\text{C}$              | $I_R$         | -          | 0.03       | $\mu\text{A}$ |
|   | $V_R = 75\text{V}, T_J = 25^\circ\text{C}$              |               | -          | 1.00       |               |
| Junction capacitance  | $f = 1\text{MHz}, V_R = 0\text{V}$                      | $C_J$         | -          | 1.5        | pF            |
| Reverse recovery time   | $I_F = 10\text{mA}, I_R = 10\text{mA}, R_L = 100\Omega$ | $t_{rr}$      | -          | 4.0        | ns            |

**Notes:**

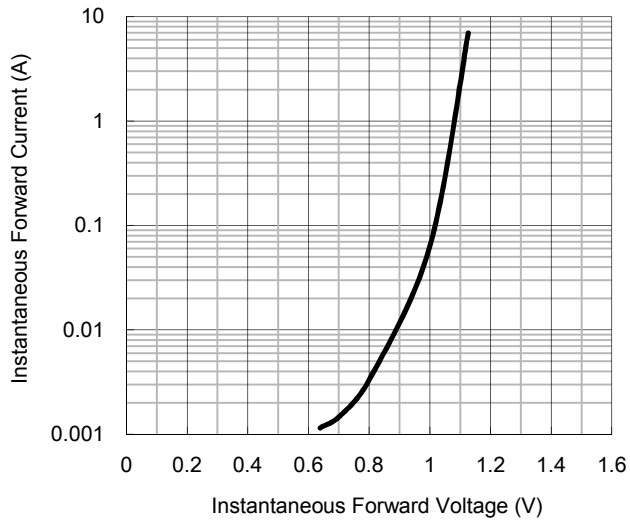
1. Pulse test with  $PW=0.3\text{ms}$
2. Pulse test with  $PW=30\text{ms}$

| <b>ORDERING INFORMATION</b> |                |                |
|-----------------------------|----------------|----------------|
| <b>ORDERING CODE</b>        | <b>PACKAGE</b> | <b>PACKING</b> |
| BAS316 RRG                  | SOD-323        | 3K / 7" Reel   |

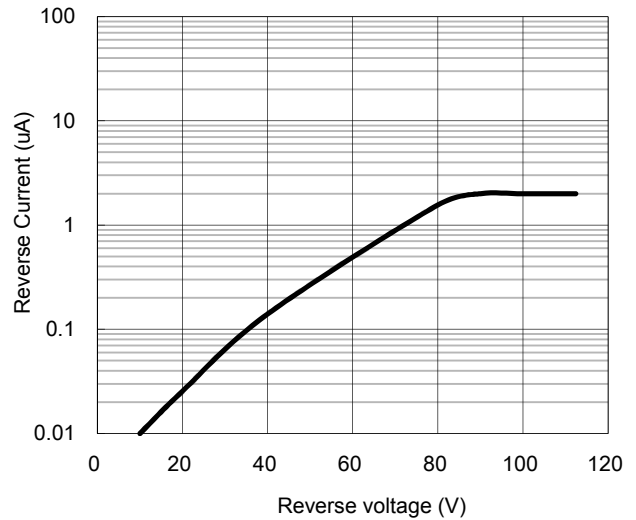
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

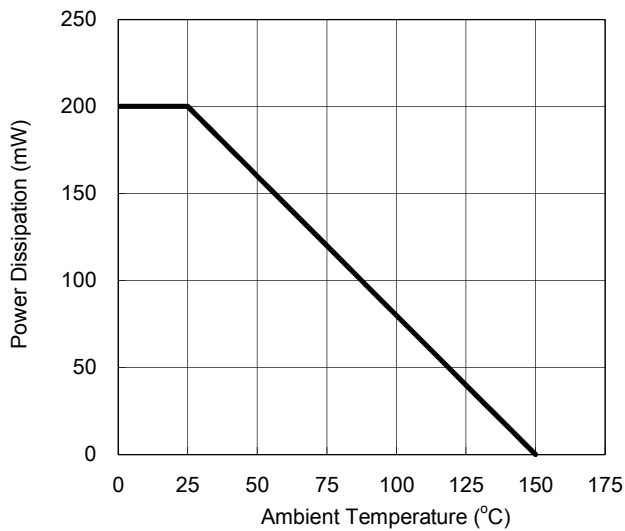
**Fig.1 Typical Forward Characteristics**



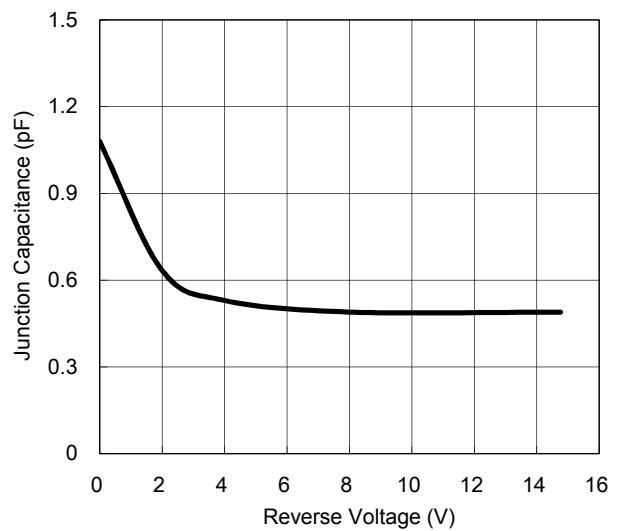
**Fig.2 Reverse Current**



**Fig.3 Admissible Power Dissipation Curve**

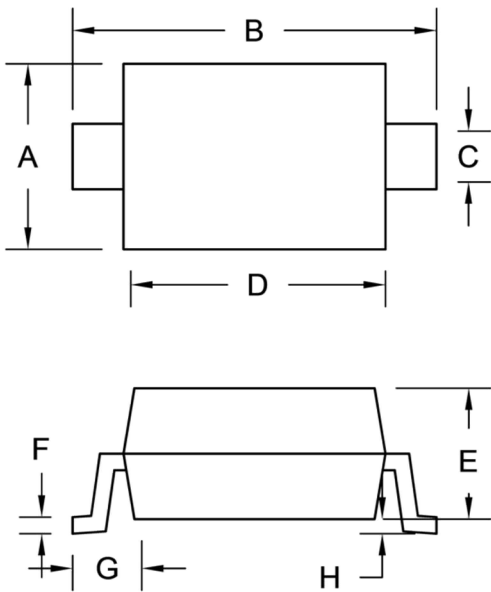


**Fig.4 Typical Junction Capacitance**



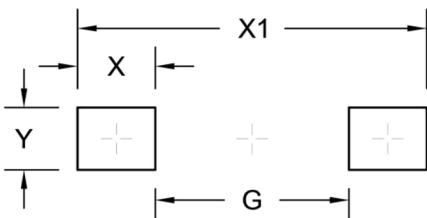
**PACKAGE OUTLINE DIMENSION**

SOD-323



| DIM. | Unit (mm)    |       | Unit (inch)  |       |
|------|--------------|-------|--------------|-------|
|      | Min.         | Max.  | Min.         | Max.  |
| A    | 1.150        | 1.400 | 0.045        | 0.055 |
| B    | 2.300        | 2.700 | 0.091        | 0.106 |
| C    | 0.250        | 0.450 | 0.010        | 0.018 |
| D    | 1.600        | 1.800 | 0.063        | 0.071 |
| E    | 0.800        | 1.000 | 0.031        | 0.039 |
| F    | 0.050        | 0.177 | 0.002        | 0.007 |
| G    | 0.475 (Ref.) |       | 0.019 (Ref.) |       |
| H    | -            | 0.100 | -            | 0.004 |

**SUGGEST PAD LAYOUT**



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| G      | 1.52      | 0.060       |
| X      | 0.61      | 0.024       |
| X1     | 2.74      | 0.108       |
| Y      | 0.49      | 0.019       |

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