

**SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER**
**Product Summary**

| $V_R(V)$ | $I_F(A)$ | $V_F \text{ Max}(V)$<br>@ +25°C | $I_R \text{ Max}(\mu A)$<br>@ +25°C |
|----------|----------|---------------------------------|-------------------------------------|
| 30       | 0.5      | 0.45                            | 500                                 |

**Applications**

- DC-DC Converters
- Mobile Telecommunications
- Blocking Diodes
- Reverse Polarity Protection

**Features and Benefits**

- Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- High Conductance
- **Totally Lead-Free Finish & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

**Mechanical Data**

- Case: SOD323
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Lead-Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe). Solderable per MIL-STD-202, Method 208 
- Polarity: Cathode Band
- Weight: 0.004 grams (Approximate)

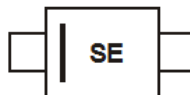
**SOD323**


Top View

**Ordering Information** (Note 5)

| Part Number   | Compliance | Case   | Packaging          |
|---------------|------------|--------|--------------------|
| B0530WSQ-13-F | Automotive | SOD323 | 10,000/Tape & Reel |
| B0530WSQ-7-F  | Automotive | SOD323 | 3,000/Tape & Reel  |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to [http://www.diodes.com/quality/product\\_compliance\\_definitions/](http://www.diodes.com/quality/product_compliance_definitions/).
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

**Marking Information**
**SOD323**


SE = Product Type Marking Code

## Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

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

| Characteristic                                                                                      | Symbol                                                 | Value | Unit |
|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage              | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | 30    | V    |
| RMS Reverse Voltage                                                                                 | V <sub>R(RMS)</sub>                                    | 21    | V    |
| Average Rectified Output Current (See Figure 1)                                                     | I <sub>O</sub>                                         | 0.5   | A    |
| Peak Repetitive Forward Current t <sub>P</sub> = 8.3ms, Half Sine-Wave                              | I <sub>FRM</sub>                                       | 3.5   | A    |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>                                       | 2     | A    |

## Thermal Characteristics

| Characteristic                                          | Symbol                            | Value       | Unit |
|---------------------------------------------------------|-----------------------------------|-------------|------|
| Power Dissipation (Note 6)                              | P <sub>D</sub>                    | 235         | mW   |
| Typical Thermal Resistance Junction to Ambient (Note 6) | R <sub>θJA</sub>                  | 426         | °C/W |
| Operating and Storage Temperature Range                 | T <sub>J</sub> , T <sub>STG</sub> | -40 to +125 | °C   |

## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                     | Symbol             | Min | Typ       | Max              | Unit | Test Conditions                                                      |
|------------------------------------|--------------------|-----|-----------|------------------|------|----------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 7) | V <sub>(BR)R</sub> | 30  | —         | —                | V    | I <sub>R</sub> = 500μA                                               |
| Forward Voltage Drop               | V <sub>F</sub>     | —   | —<br>0.40 | 0.36<br>0.45     | V    | I <sub>F</sub> = 0.1A<br>I <sub>F</sub> = 0.5A                       |
| Leakage Current (Note 7)           | I <sub>R</sub>     | —   | —         | 80<br>100<br>500 | μA   | V <sub>R</sub> = 15V<br>V <sub>R</sub> = 20V<br>V <sub>R</sub> = 30V |
| Total Capacitance                  | C <sub>T</sub>     | —   | 58        | —                | pF   | f = 1MHz, V <sub>R</sub> = 0V DC                                     |

Notes: 6. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.  
7. Short duration pulse test used to minimize self-heating effect.

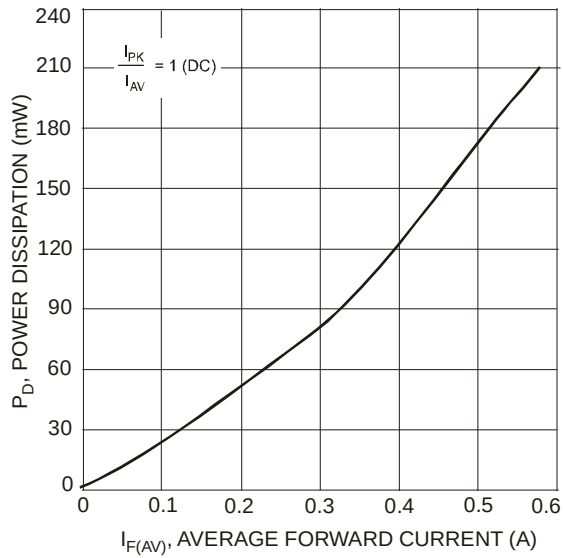


Fig. 1 Forward Power Dissipation

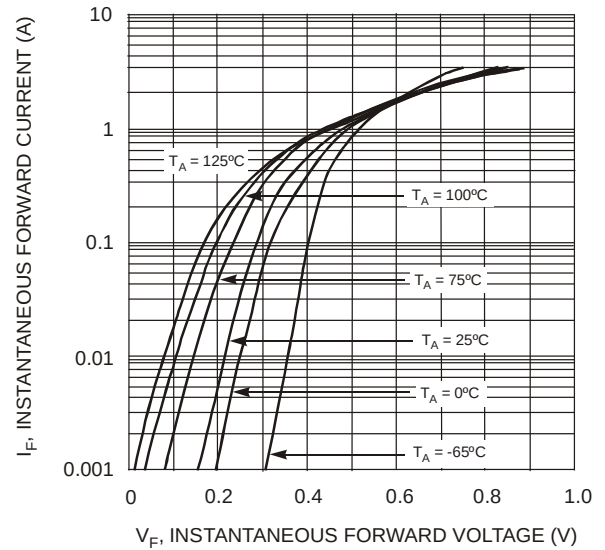


Fig. 2 Typical Forward Characteristics

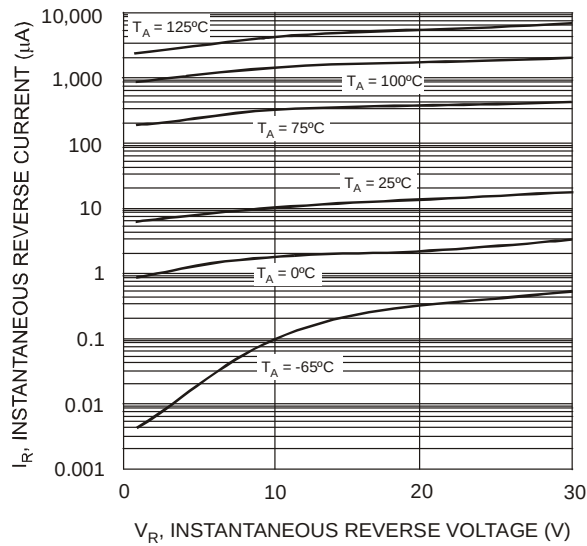


Fig. 3 Typical Reverse Characteristics

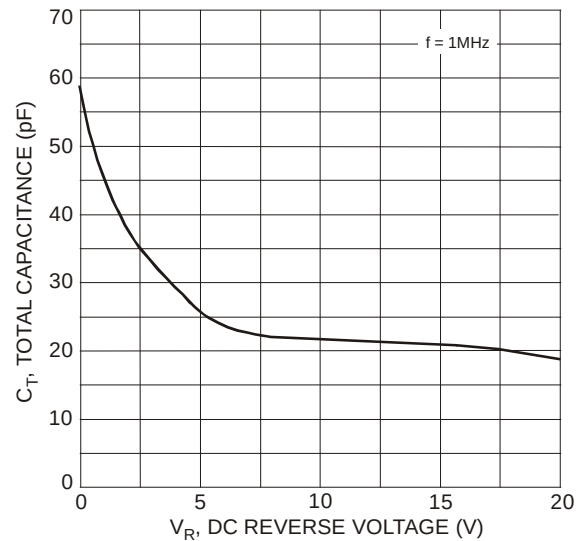


Fig. 4 Total Capacitance vs. Reverse Voltage

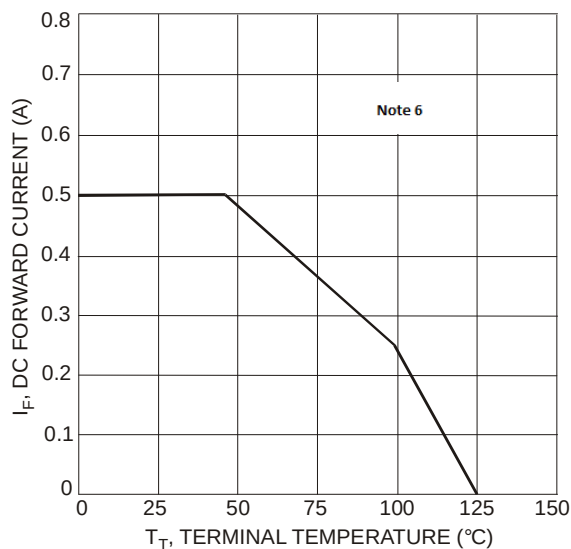
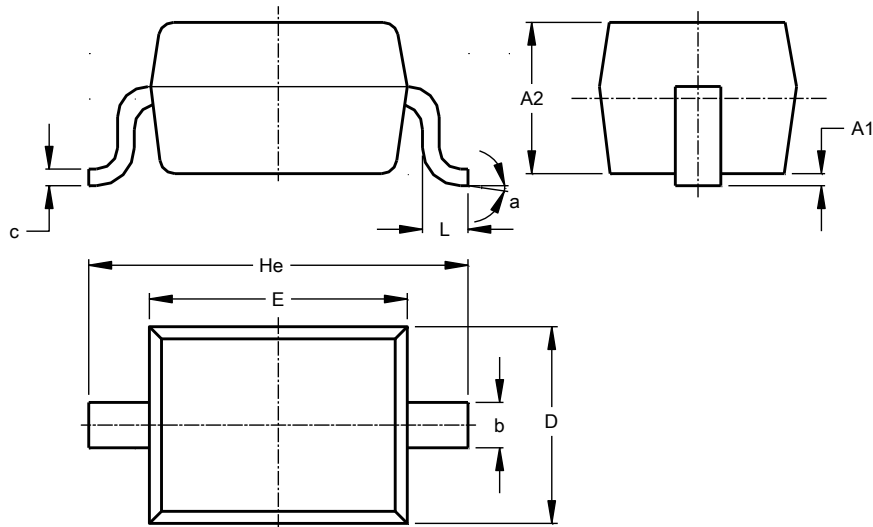


Fig. 5 Forward Current Derating Curve

## Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.

### SOD323

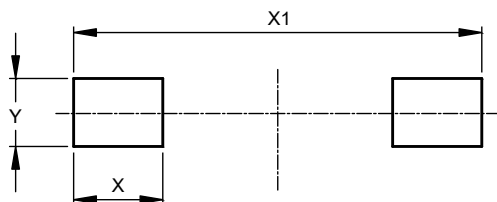


| SOD323               |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A1                   | —    | 0.10 | 0.05 |
| A2                   | 1.00 | 1.10 | 1.05 |
| b                    | 0.25 | 0.35 | 0.30 |
| c                    | 0.10 | 0.15 | 0.11 |
| D                    | 1.20 | 1.40 | 1.30 |
| E                    | 1.60 | 1.80 | 1.70 |
| He                   | 2.30 | 2.70 | 2.50 |
| L                    | 0.20 | 0.40 | 0.30 |
| a                    | 0°   | 8°   | —    |
| All Dimensions in mm |      |      |      |

## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.

### SOD323



| Dimensions | Value (in mm) |
|------------|---------------|
| X          | 0.590         |
| X1         | 2.700         |
| Y          | 0.450         |

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