

**SURFACE MOUNT SCHOTTKY BARRIER DIODE**
**Features**

- Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- Negligible Reverse Recovery Time
- Low Capacitance
- Ultra-Small Surface Mount Package
- **Totally Lead Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

**Mechanical Data**

- Case: SOD523
- Case Material: Molded Plastic, "Green" Molding Compound.  
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish - Matte Tin Annealed over Alloy 42 Leadframe.  
Solderable per MIL-STD-202, Method 208<sup>Ⓔ</sup>
- Weight: 0.002 grams (Approximate)

**SOD523**


Top View

**Ordering Information** (Note 4)

| Part Number | Case   | Packaging         |
|-------------|--------|-------------------|
| SDM20U30-7  | SOD523 | 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. For packaging details, go to our website at <http://www.diodes.com>.

**Marking Information**
**SOD523**


LM = Product Type Marking Code

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

| Characteristic                                                                                   | Symbol              | Value | Unit |
|--------------------------------------------------------------------------------------------------|---------------------|-------|------|
| Peak Repetitive Reverse Voltage                                                                  | V <sub>RRM</sub>    | 30    | V    |
| Working Peak Reverse Voltage                                                                     | V <sub>RWM</sub>    |       |      |
| DC Blocking Voltage                                                                              | V <sub>R</sub>      |       |      |
| RMS Reverse Voltage                                                                              | V <sub>R(RMS)</sub> | 21    | V    |
| Average Rectified Output Current (Note 5)                                                        | I <sub>O</sub>      | 200   | mA   |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>    | 1.0   | A    |

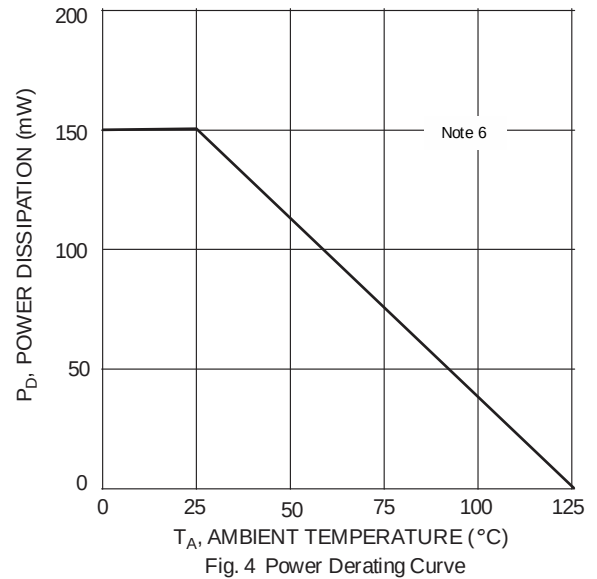
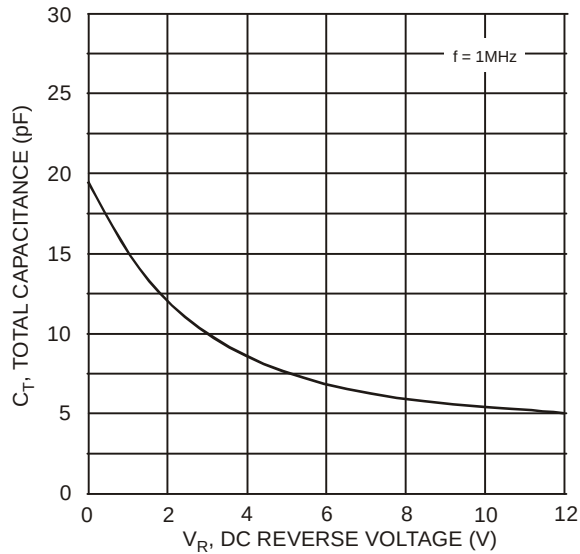
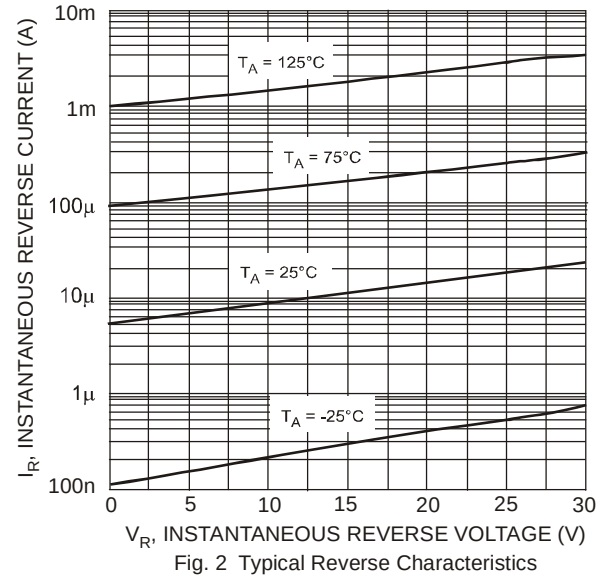
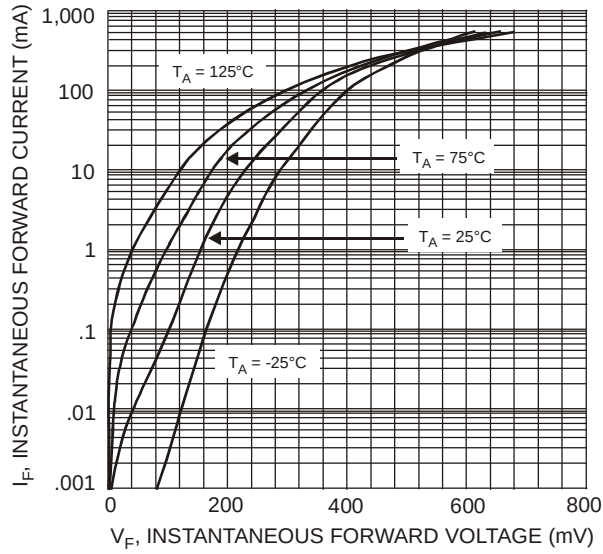
## Thermal Characteristics

| Characteristic                                               | Symbol                            | Value       | Unit |
|--------------------------------------------------------------|-----------------------------------|-------------|------|
| Power Dissipation (Note 6)                                   | P <sub>D</sub>                    | 150         | mW   |
| Typical Thermal Resistance, Junction to Ambient Air (Note 5) | R <sub>θJA</sub>                  | 450         | °C/W |
| Typical Thermal Resistance, Junction to Ambient Air (Note 6) |                                   | 240         |      |
| Operating and Storage Temperature Range                      | T <sub>J</sub> , T <sub>STG</sub> | -65 to +125 | °C   |

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

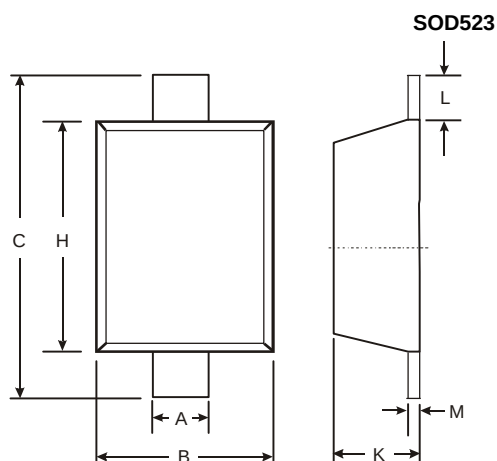
| Characteristic                     | Symbol             | Min | Typ | Max                          | Unit     | Test Conditions                                                                                   |
|------------------------------------|--------------------|-----|-----|------------------------------|----------|---------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 7) | V <sub>(BR)R</sub> | 30  | —   | —                            | V        | I <sub>R</sub> = 150μA                                                                            |
| Forward Voltage Drop               | V <sub>F</sub>     | —   | —   | 0.15<br>0.20<br>0.35<br>0.50 | V        | I <sub>F</sub> = 100μA<br>I <sub>F</sub> = 1mA<br>I <sub>F</sub> = 20mA<br>I <sub>F</sub> = 200mA |
| Leakage Current (Note 7)           | I <sub>R</sub>     | —   | —   | 150<br>30                    | μA<br>μA | V <sub>R</sub> = 30V<br>V <sub>R</sub> = 10V                                                      |
| Total Capacitance                  | C <sub>T</sub>     | —   | 20  | —                            | pF       | V <sub>R</sub> = 0V, f = 1.0MHz                                                                   |

Notes: 5. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>  
6. Part mounted on 1-inch sq. 2oz copper pad.  
7. Short duration pulse test used to minimize self-heating effect.



## Package Outline Dimensions

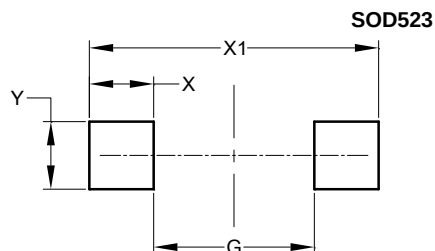
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



| SOD523               |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 0.25 | 0.35 |
| B                    | 0.70 | 0.90 |
| C                    | 1.50 | 1.70 |
| H                    | 1.10 | 1.30 |
| K                    | 0.55 | 0.65 |
| L                    | 0.10 | 0.30 |
| M                    | 0.10 | 0.12 |
| All Dimensions in mm |      |      |

## Suggested Pad Layout

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



| Dimensions | Value (in mm) |
|------------|---------------|
| G          | 0.80          |
| X          | 0.60          |
| X1         | 2.00          |
| Y          | 0.70          |

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