



**THE DATASHEET OF  
SDM05U20S3-7**



**Product Summary** (@ $T_A = +25^{\circ}\text{C}$ )

| $V_{RRM}$ (V) | $I_O$ (A) | $V_F$ Max (V) | $I_R$ Max ( $\mu\text{A}$ ) |
|---------------|-----------|---------------|-----------------------------|
| 20            | 0.5       | 0.39          | 160                         |

**Description**

This is a 0.5A, 20V Schottky rectifier packaged in a small SOD323 package.

**Applications**

Providing low  $V_F$  and low reverse leakage, this device is ideal for use in general rectification applications such as:

- Low Voltage Rectification
- High-Efficiency DC-DC Conversion
- Switch Mode Power Supply
- Inverse Polarity Protection

**Features and Benefits**

- Low Forward Voltage Drop ( $V_F$ )
- Better Efficiency and Cooler Operation
- Reduced High-Temperature Reverse Leakage
- **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: SOD323
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Weight: 0.006 grams (Approximate)

SOD323



Top View

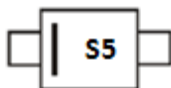
**Ordering Information** (Note 4)

| Part Number  | Case   | Packaging         |
|--------------|--------|-------------------|
| SDM05U20S3-7 | SOD323 | 3,000/Tape & Reel |

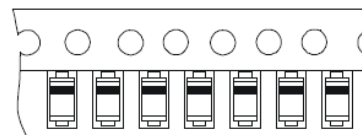
- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "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. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

**Marking Information**

SOD323



S5 = Product Type Marking Code  
Cathode Band Denotes Polarity



**Maximum Ratings** (@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           | Value | Unit |
|---|------------------|-------|------|
| Peak Repetitive Reverse Voltage   | V <sub>RRM</sub> | 20    | V    |
| Working Peak Reverse Voltage  | V <sub>RWM</sub> |       |      |
| DC Blocking Voltage   | V <sub>RM</sub>  |       |      |
| Average Rectified Output Current  | I <sub>O</sub>   | 0.5   | A    |
| Repetitive Peak Forward Current, t <sub>p</sub> = 1ms Square Wave with 25% Duty Cycle             | I <sub>FRM</sub> | 4.5   | A    |
| Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub> | 18    | A    |

**Thermal Characteristics**

| Characteristic  | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance Junction to Ambient (Note 5) | R <sub>θJA</sub>                  | 400         | °C/W |
| Typical Thermal Resistance Junction to Ambient (Note 6) | R <sub>θJA</sub>                  | 240         | °C/W |
| Typical Thermal Resistance Junction to Case (Note 5)    | R <sub>θJC</sub>                  | 130         | °C/W |
| Typical Thermal Resistance Junction to Case (Note 6)    | R <sub>θJC</sub>                  | 70          | °C/W |
| Operating and Storage Temperature Range                 | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C   |

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

| Characteristic           | Symbol         | Min | Typ          | Max       | Unit     | Test Condition   |
|--------------------------|----------------|-----|--------------|-----------|----------|--|
| Forward Voltage Drop     | V <sub>F</sub> | —   | 0.28<br>0.35 | —<br>0.39 | V        | I <sub>F</sub> = 0.1A, T <sub>J</sub> = +25°C<br>I <sub>F</sub> = 0.5A, T <sub>J</sub> = +25°C |
| Leakage Current (Note 7) | I <sub>R</sub> | —   | 16<br>35     | —<br>160  | μA<br>μA | V <sub>R</sub> = 10V, T <sub>J</sub> = +25°C<br>V <sub>R</sub> = 20V, T <sub>J</sub> = +25°C   |
| Total Capacitance        | C <sub>T</sub> | —   | 60           | —         | pF       | V <sub>R</sub> = 5V, f = 1MHz  |

Notes: 5. Device mounted on FR-4 substrate, 2oz. Copper; minimum recommended pad layout per [http://www.diodes.com/product\\_compliance\\_definitions.html](http://www.diodes.com/product_compliance_definitions.html).  
6. Device mounted on FR-4 substrate, 2oz. Copper, 1-inch square Cu pad.  
7. Short duration pulse test used to minimize self-heating effect.

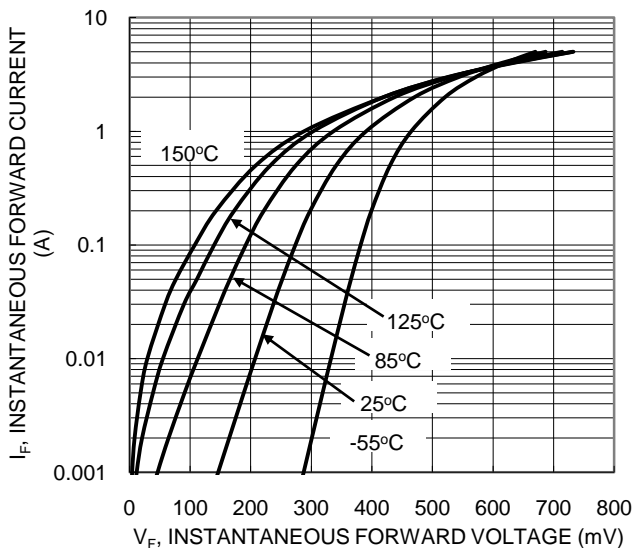


Figure 1. Typical Forward Characteristics

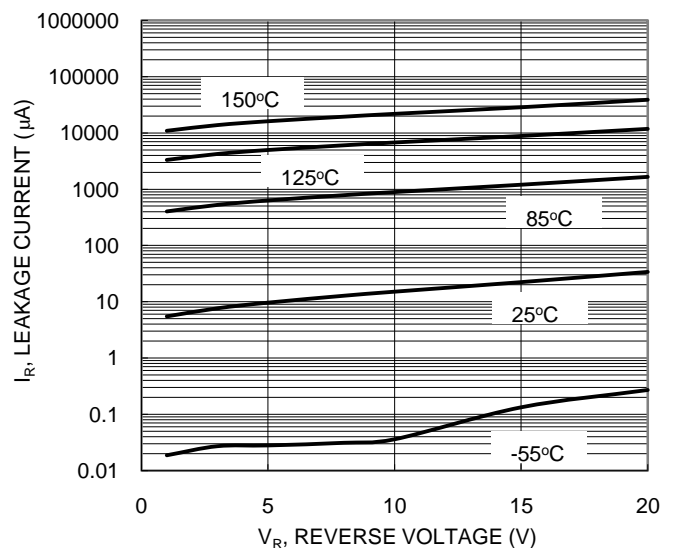


Figure 2. Typical Reverse Characteristics

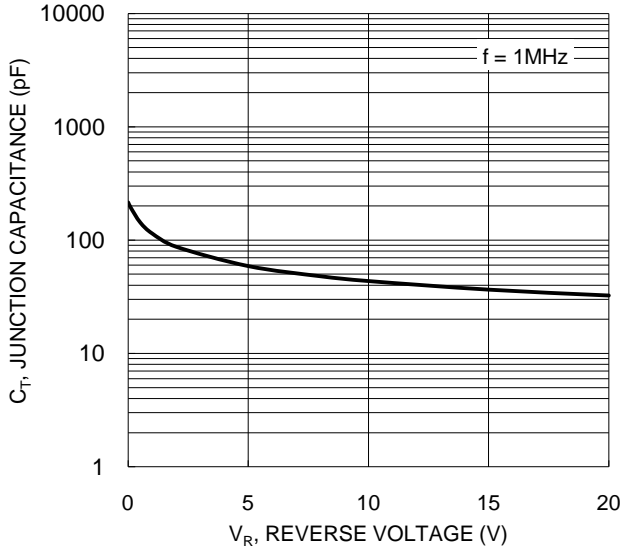


Figure 3. Typical Junction Capacitance

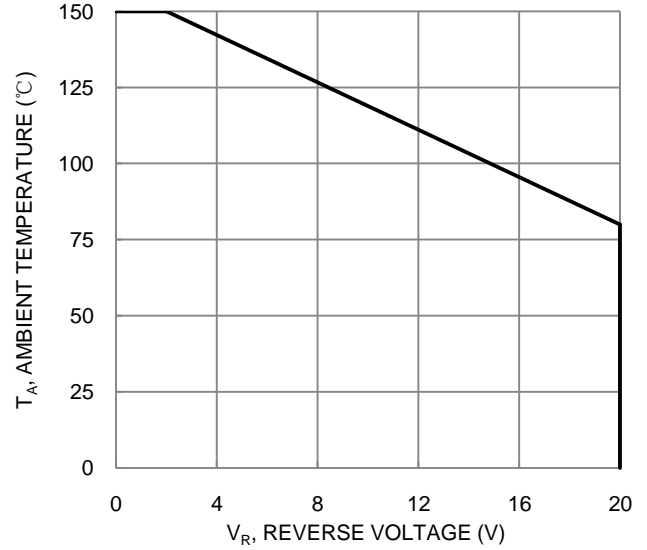


Figure 4. Operating Temperature Derating

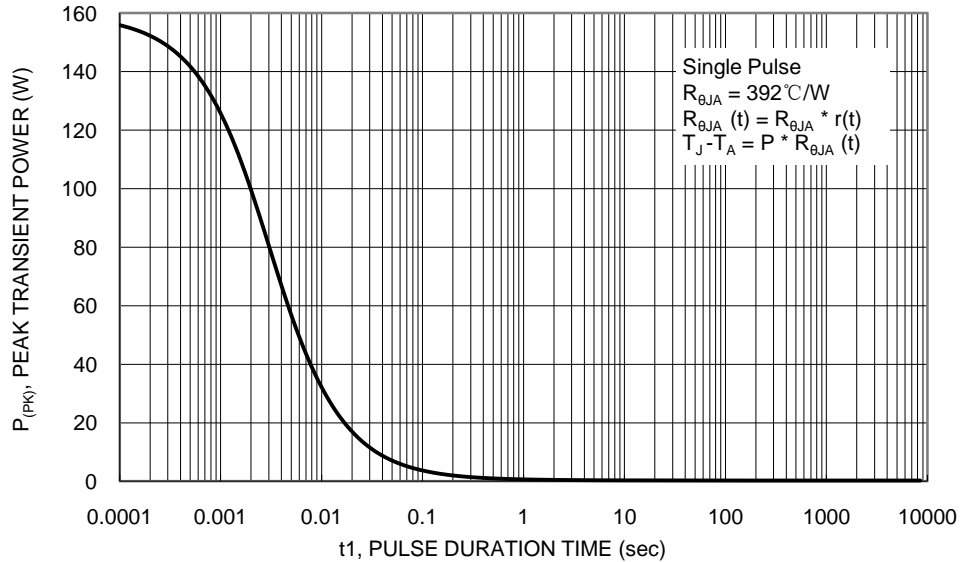


Figure 5. Single Pulse Maximum Power Dissipation

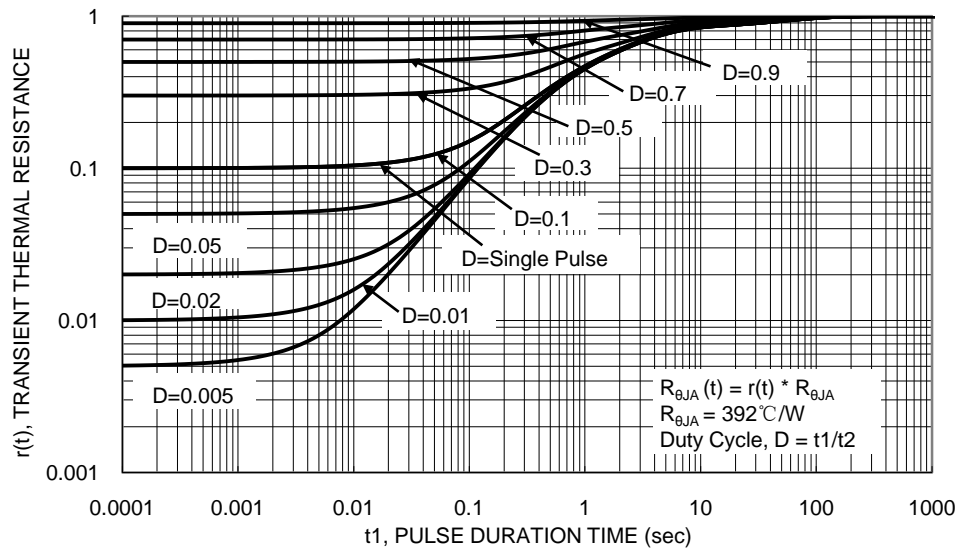
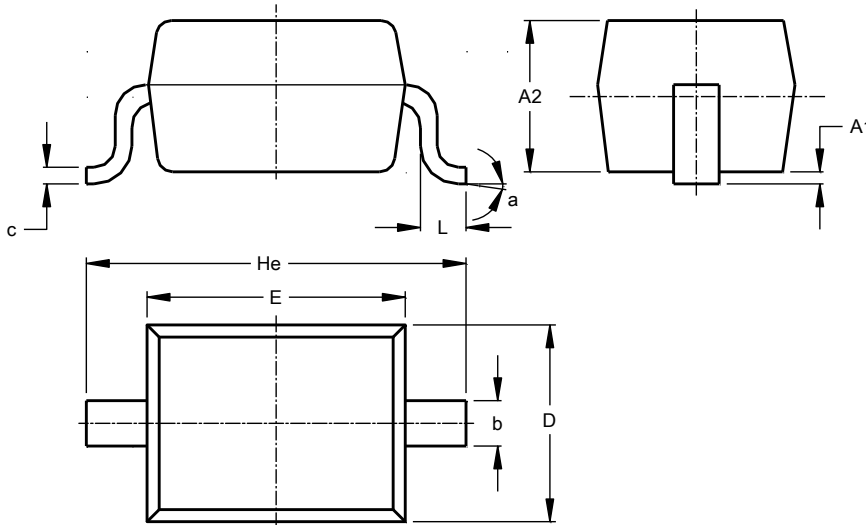


Figure 6. Transient Thermal Resistance

**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOD323**

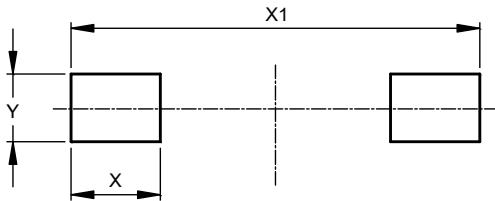


| SOD323               |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A1                   | --   | 0.10 | 0.05 |
| A2                   | 1.00 | 1.10 | 1.05 |
| b                    | 0.25 | 0.35 | 0.30 |
| c                    | 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 <http://www.diodes.com/package-outlines.html> for the latest version.

**SOD323**



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

NEW PRODUCT

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