

## Features

- Ultra-Small Surface Mount Package
- Fast Switching Speed, Fast Reverse Recovery Time
- Ultra-Low Reverse Leakage Current ( $\sim 5\text{nA}$  @  $V_R = 5\text{V}$ )
- Very Low Capacitance ( $<1\text{pF}$  @  $V_R=0\text{V}$ )
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## 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 @3
- Weight: 0.0014 grams (Approximate)

SOD523



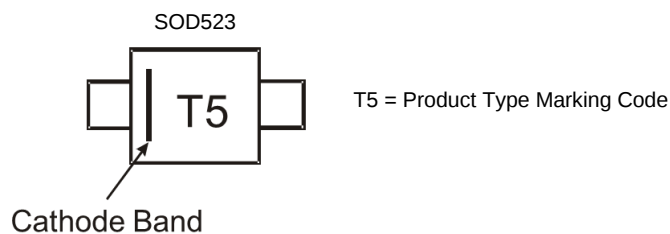
Top View

## Ordering Information (Note 4)

| Part Number | Compliance | Case   | Packaging         |
|-------------|------------|--------|-------------------|
| DLLFSD01T-7 | Standard   | 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  $<900\text{ppm}$  bromine,  $<900\text{ppm}$  chlorine ( $<1500\text{ppm}$  total Br + Cl) and  $<1000\text{ppm}$  antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



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

| Characteristic                                        | Symbol              | Value | Unit |
|-------------------------------------------------------|---------------------|-------|------|
| Non-Repetitive Peak Reverse Voltage                   | V <sub>RM</sub>     | 85    | V    |
| Peak Repetitive Reverse Voltage                       | V <sub>RRM</sub>    | 80    | V    |
| Working Peak Reverse Voltage                          | V <sub>RWM</sub>    |       |      |
| DC Blocking Voltage                                   | V <sub>R</sub>      |       |      |
| RMS Reverse Voltage                                   | V <sub>R(RMS)</sub> | 57    | V    |
| Forward Continuous Current                            | I <sub>FM</sub>     | 300   | mA   |
| Average Rectified Output Current                      | I <sub>O</sub>      | 100   | mA   |
| Non-Repetitive Peak Forward Surge Current @ t = 1.0μs | I <sub>FSM</sub>    | 2.0   | A    |

**Thermal Characteristics**

| Characteristic                                      | Symbol                            | Value       | Unit |
|-----------------------------------------------------|-----------------------------------|-------------|------|
| Power Dissipation (Note 5)                          | P <sub>D</sub>                    | 150         | mW   |
| Thermal Resistance Junction to Ambient Air (Note 5) | R <sub>θJA</sub>                  | 833         | °C/W |
| Operating and Storage Temperature Range             | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

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

| Characteristic                     | Symbol             | Min    | Typ                        | Max                                     | Unit                             | Test Condition                                                                                                                                                                                                     |
|------------------------------------|--------------------|--------|----------------------------|-----------------------------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 6) | V <sub>(BR)R</sub> | 80     | —                          | —                                       | V                                | I <sub>R</sub> = 100μA                                                                                                                                                                                             |
| Forward Voltage                    | V <sub>F</sub>     | —      | 0.62<br>0.74<br>0.94       | 0.7<br>0.82<br>1.20                     | V                                | I <sub>F</sub> = 1.0mA<br>I <sub>F</sub> = 10mA<br>I <sub>F</sub> = 100mA                                                                                                                                          |
| Leakage Current (Note 6)           | I <sub>R</sub>     | —      | 5<br>—<br>—<br>—<br>—<br>— | 10.0<br>0.4<br>0.1<br>0.6<br>0.2<br>0.8 | nA<br>μA<br>μA<br>μA<br>μA<br>μA | V <sub>R</sub> = 5V<br>V <sub>R</sub> = 5V, T <sub>J</sub> = +85°C<br>V <sub>R</sub> = 30V<br>V <sub>R</sub> = 30V, T <sub>J</sub> = +85°C<br>V <sub>R</sub> = 80V<br>V <sub>R</sub> = 80V, T <sub>J</sub> = +85°C |
| Total Capacitance                  | C <sub>T</sub>     | —      | 0.5                        | 2.5                                     | pF                               | V <sub>R</sub> = 0, f = 1.0MHz                                                                                                                                                                                     |
| Reverse Recovery Time              | t <sub>rr</sub>    | —<br>— | —<br>—                     | 4.0<br>4.0                              | ns<br>ns                         | I <sub>F</sub> = 10mA, V <sub>R</sub> = 6V<br>I <sub>F</sub> = I <sub>R</sub> = 10mA,<br>I <sub>rr</sub> = 0.1 x I <sub>R</sub> , R <sub>L</sub> = 100Ω                                                            |

Notes: 5. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.  
6. Short duration pulse test used to minimize self-heating effect.

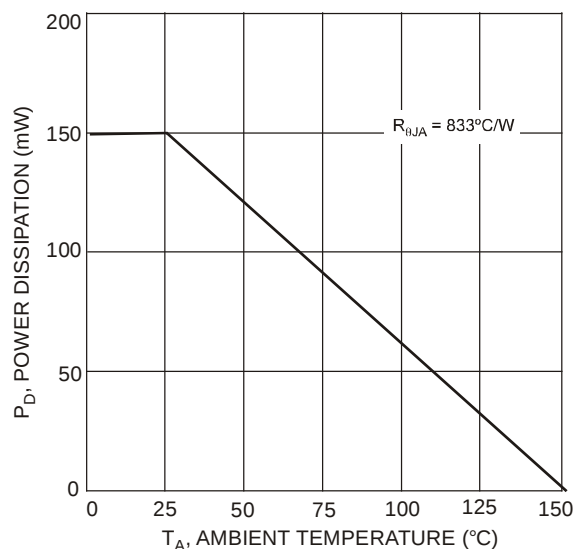


Fig. 1 Power Derating Curve

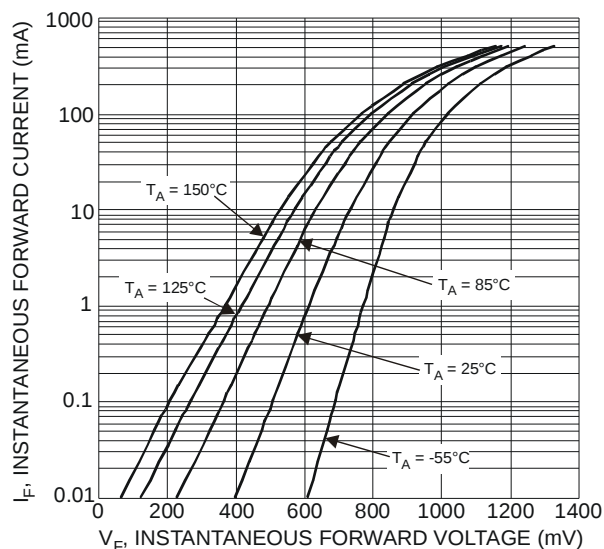


Figure 2 Typical Forward Characteristics

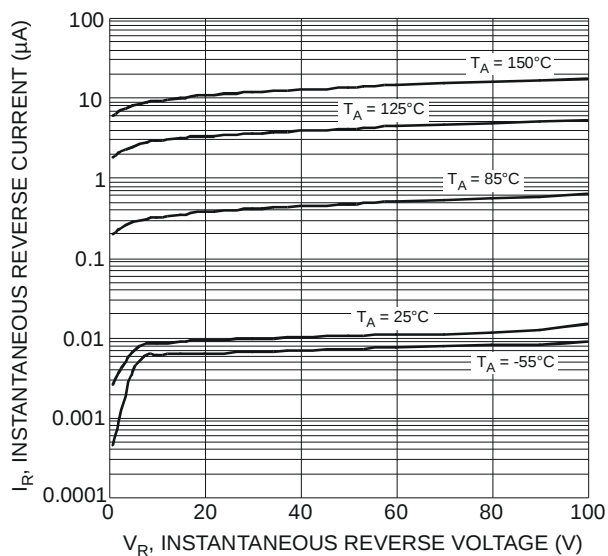


Figure 3 Typical Reverse Characteristics

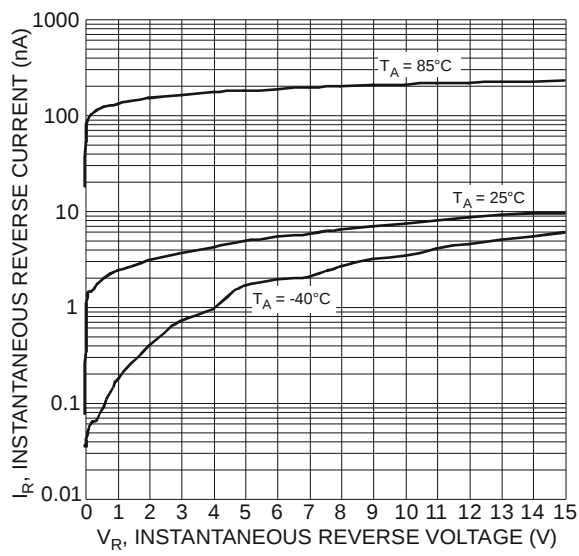


Figure 4 Typical Reverse Characteristics

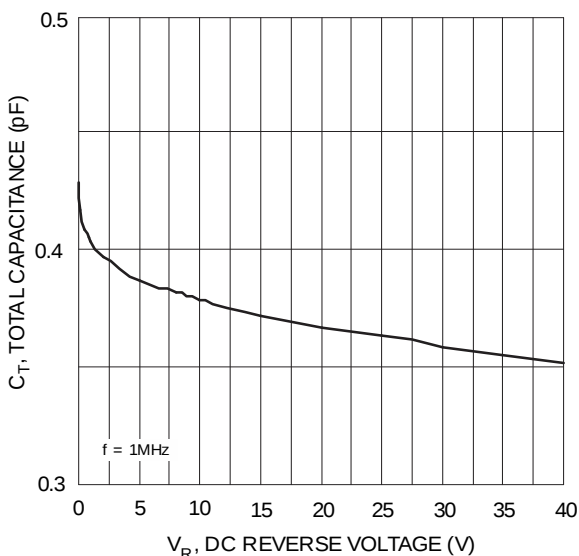
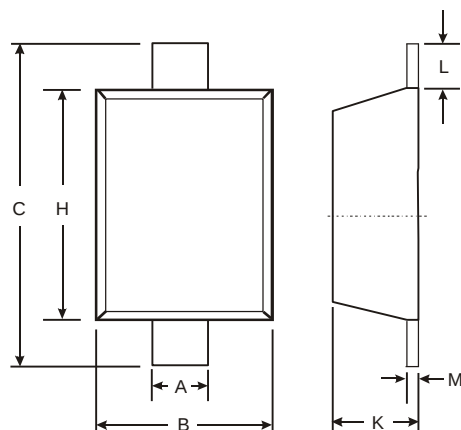


Figure 5 Total Capacitance vs. Reverse Voltage

## Package Outline Dimensions

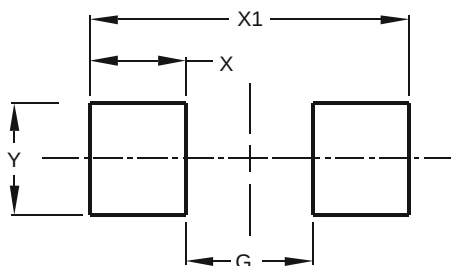
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



| 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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