

## Features

- Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- Negligible Reverse Recovery Time
- Low Capacitance
- Ultra-small Surface Mount Package
- **Lead Free/RoHS Compliant Version (Note 1)**
- **“Green” Device (Note 2)**

## Mechanical Data

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



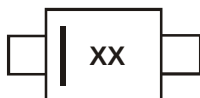
Top View

## Ordering Information (Note 3)

| Part Number  | Case   | Packaging        |
|--------------|--------|------------------|
| SD101AWS-7-F | SOD323 | 3000/Tape & Reel |
| SD101BWS-7-F | SOD323 | 3000/Tape & Reel |
| SD101CWS-7-F | SOD323 | 3000/Tape & Reel |

- Notes:
1. No purposefully added lead.
  2. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com/>
  3. For packaging details, go to our website at <http://www.diodes.com>.

## Marking Information



xx = Product Type Marking Code  
 S1 or SK = SD101AWS  
 S2 or SK = SD101BWS  
 S3 or SC or SK = SD101CWS

## Maximum Ratings @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                            | Symbol              | SD101AWS | SD101BWS | SD101CWS | Unit |
|-------------------------------------------|---------------------|----------|----------|----------|------|
| Peak Repetitive Reverse Voltage           | V <sub>RRM</sub>    | 60       | 50       | 40       | V    |
| Working Peak Reverse Voltage              | V <sub>RWM</sub>    |          |          |          |      |
| DC Blocking Voltage                       | V <sub>R</sub>      |          |          |          |      |
| RMS Reverse Voltage                       | V <sub>R(RMS)</sub> | 42       | 35       | 28       | V    |
| Forward Continuous Current (Note 4)       | I <sub>FM</sub>     | 15       |          |          | mA   |
| Non-Repetitive Peak Forward Surge Current | I <sub>FSM</sub>    | 50       |          |          | mA   |
| @ t ≤ 1.0s<br>@ t = 10μs                  |                     | 2.0      |          |          |      |

## Thermal Characteristics

| Characteristic                                       | Symbol                            | Value       | Unit |
|------------------------------------------------------|-----------------------------------|-------------|------|
| Power Dissipation (Note 4)                           | P <sub>D</sub>                    | 200         | mW   |
| Thermal Resistance, Junction to Ambient Air (Note 4) | R <sub>θJA</sub>                  | 625         | °C/W |
| 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 5) | SD101AWS | V <sub>(BR)R</sub> | 60  | —   | —    | V    | I <sub>R</sub> = 10μA                                                                                      |
|                                    | SD101BWS |                    | 50  | —   | —    |      | I <sub>R</sub> = 10μA                                                                                      |
|                                    | SD101CWS |                    | 40  | —   | —    |      | I <sub>R</sub> = 10μA                                                                                      |
| Forward Voltage Drop               | SD101AWS | V <sub>FM</sub>    | —   | —   | 0.41 | V    | I <sub>F</sub> = 1.0mA                                                                                     |
|                                    | SD101BWS |                    | —   | —   | 0.40 |      | I <sub>F</sub> = 1.0mA                                                                                     |
|                                    | SD101CWS |                    | —   | —   | 0.39 |      | I <sub>F</sub> = 1.0mA                                                                                     |
|                                    | SD101AWS |                    | —   | —   | 1.00 |      | I <sub>F</sub> = 15mA                                                                                      |
|                                    | SD101BWS |                    | —   | —   | 0.95 |      | I <sub>F</sub> = 15mA                                                                                      |
|                                    | SD101CWS |                    | —   | —   | 0.90 |      | I <sub>F</sub> = 15mA                                                                                      |
| Peak Reverse Current (Note 5)      | SD101AWS | I <sub>RM</sub>    | —   | —   | 200  | nA   | V <sub>R</sub> = 50V                                                                                       |
|                                    | SD101BWS |                    | —   | —   | 200  |      | V <sub>R</sub> = 40V                                                                                       |
|                                    | SD101CWS |                    | —   | —   | 200  |      | V <sub>R</sub> = 30V                                                                                       |
| Total Capacitance                  | SD101AWS | C <sub>T</sub>     | —   | —   | 2.0  | pF   | V <sub>R</sub> = 0V, f = 1.0MHz                                                                            |
|                                    | SD101BWS |                    | —   | —   | 2.1  |      | V <sub>R</sub> = 0V, f = 1.0MHz                                                                            |
|                                    | SD101CWS |                    | —   | —   | 2.2  |      | V <sub>R</sub> = 0V, f = 1.0MHz                                                                            |
| Reverse Recovery Time              |          | t <sub>rr</sub>    | —   | —   | 1.0  | ns   | I <sub>F</sub> = I <sub>R</sub> = 5.0mA,<br>I <sub>rr</sub> = 0.1 x I <sub>R</sub> , R <sub>L</sub> = 100Ω |

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

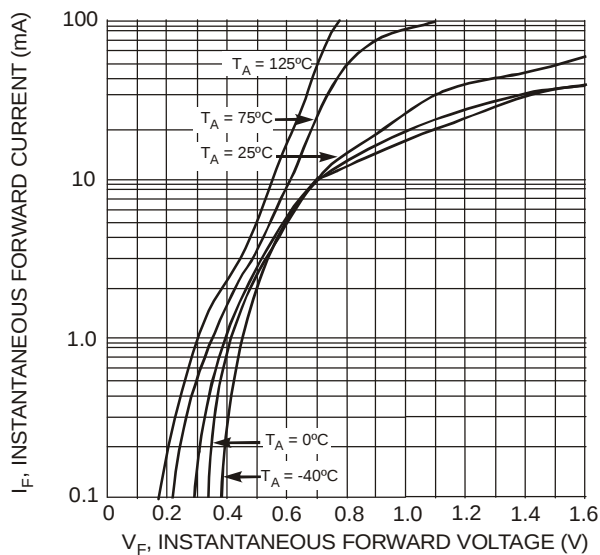


Fig. 1 Typical Forward Characteristics

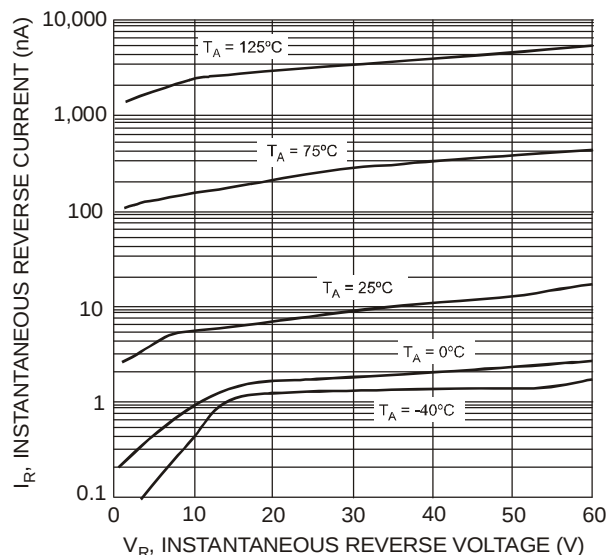


Fig. 2 Typical Reverse Characteristics

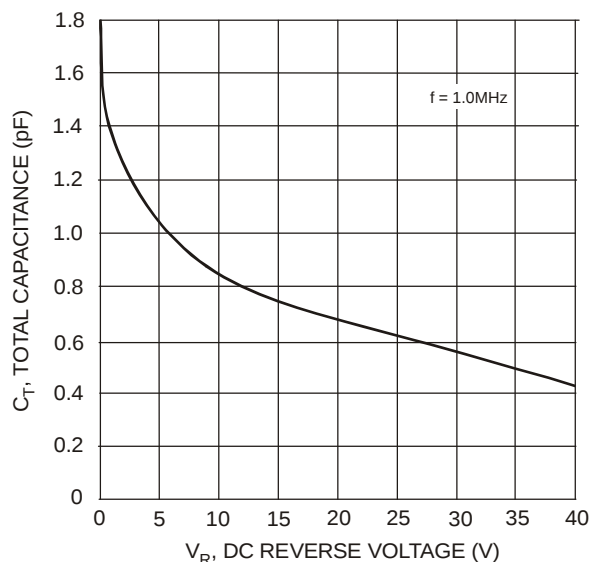


Fig. 3 Total Capacitance vs. Reverse Voltage

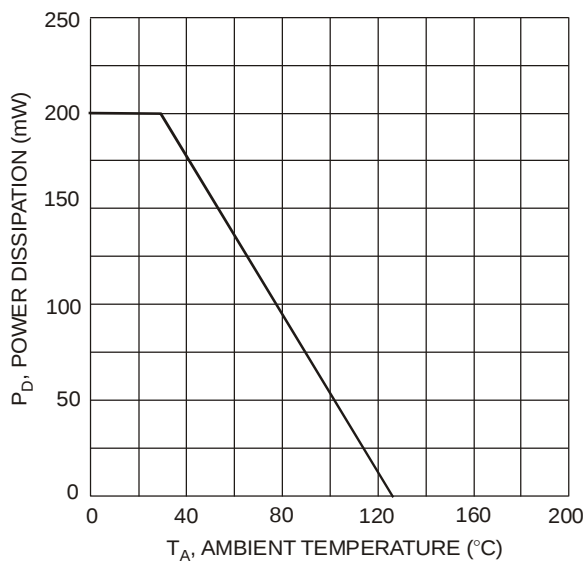
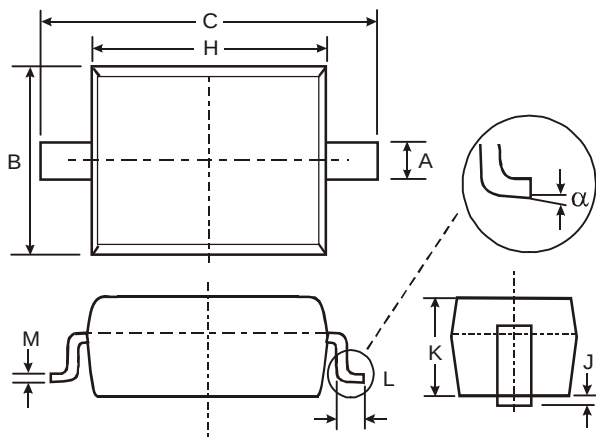


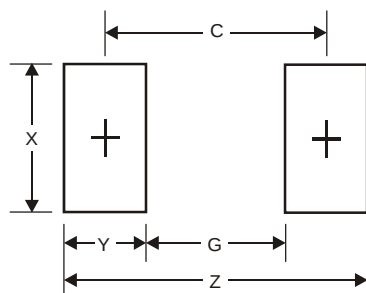
Fig. 4 Power Derating Curve

## Package Outline Dimensions



| SOD323               |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 0.25 | 0.35 |
| B                    | 1.20 | 1.40 |
| C                    | 2.30 | 2.70 |
| H                    | 1.60 | 1.80 |
| J                    | 0.00 | 0.10 |
| K                    | 1.0  | 1.1  |
| L                    | 0.20 | 0.40 |
| M                    | 0.10 | 0.15 |
| $\alpha$             | 0°   | 8°   |
| All Dimensions in mm |      |      |

## Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 3.75          |
| G          | 1.05          |
| X          | 0.65          |
| Y          | 1.35          |
| C          | 2.40          |

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