## Description

The B0520WS is a Schottky Barrier Diode (SBD) in the SOD-323 package, engineered for applications requiring low forward voltage drop and high conductance. With guard ring construction for transient protection, this diode ensures reliable performance in diverse electronic circuits. It is also offered in a lead-free version, meeting environmental compliance standards.

## Features

- Ultra-low forward voltage drop for efficient power transfer.
- Guard ring construction to protect against transient voltage spikes.
- High conductance for low resistance and improved current flow.
- Lead-free version available for eco-friendly applications.
- Compact SOD-323 package suitable for space-constrained designs.

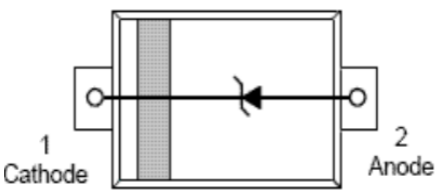
## Application

- Power supplies and voltage regulators.
- Rectification in low-voltage, high-frequency circuits.
- Transient protection in signal and power lines.
- DC-DC converters and battery management systems.
- Consumer electronics and portable devices.

### Marking Diagram




### Circuit Diagram




### Ordering information

| DEVICE | PACKAGE |
|---|---|
| B0520WS | 3000/Tape & Reel |

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## Maximum Ratings ($T_A$=25℃ )

| Parameter | Symbo | Value | Unit |
|---|---|---|---|
| **Peak repetitive peak reverse voltage**<br>**Working peak reverse voltage**<br>**DC blocking voltage** | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 20 | V |
| **RMS reverse voltage reverse voltage (DC)** | $V_{R(RMS)}$ | 14 | V |
| **Average rectified output current** | $I_o$ | 0.5 | A |
| **Non-repetitive Peak Forward Surge Current @t=8.3ms** | $I_{FSM}$ | 5.5 | A |
| **Power dissipation** | $P_D$ | 200 | mW |
| **Thermal resistance junction to ambient** | $R_{\theta JA}$ | 500 | ℃/W |
| **Operating Junction Temperature Range** | $T_j$ | -40 ~ +125 | ℃ |
| **Storage Temperature Range** | $T_{STG}$ | -55 ~ +150 | ℃ |
| **Voltage rate of change** | dv/dt | 1000 | V/μs |

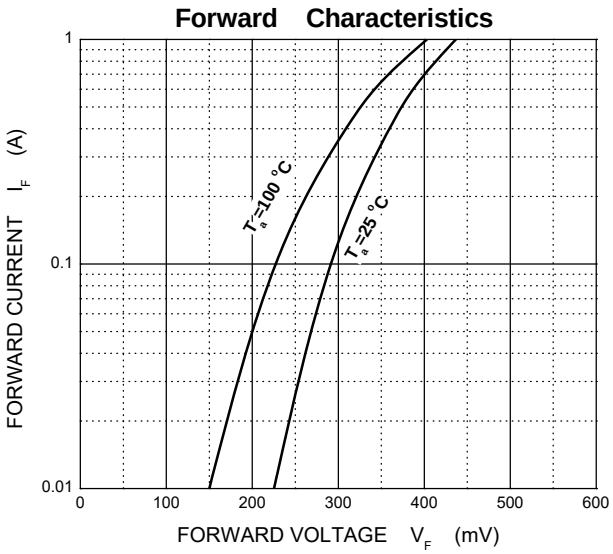
## Electronic Characteristics ($T_A$=25℃ unless otherwise specified)

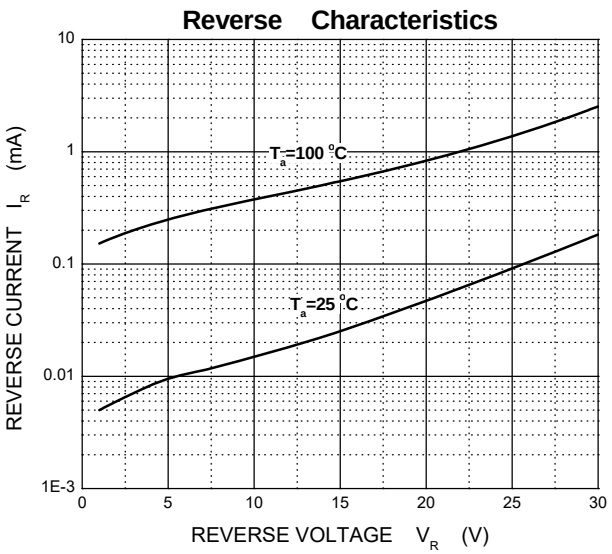
### Electrical Characteristics @Ta=25℃

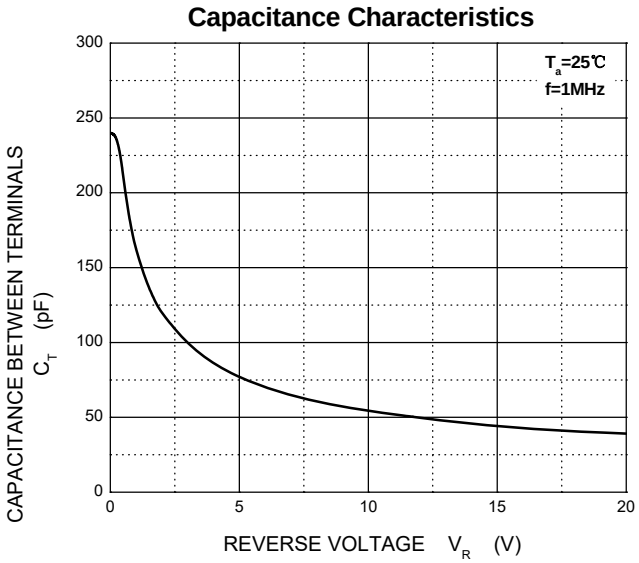
| | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Reverse breakdown voltage** | $V_{(BR)}$ | $I_R$=250uA | 20 | | | V |
| **Reverse current** | $I_R$ | $V_R$=10V | | | 15 | uA |
| | | $V_R$=20V | | | 30 | |
| **Forward voltage** | $V_F$ | $I_F$=0.1A | | 0.26 | 0.33 | V |
| | | $I_F$=0.5A | | 0.385 | 0.43 | |
| **Capacitance between terminals** | $C_T$ | $V_R$=1,f=1MHz | | 170 | | pF |

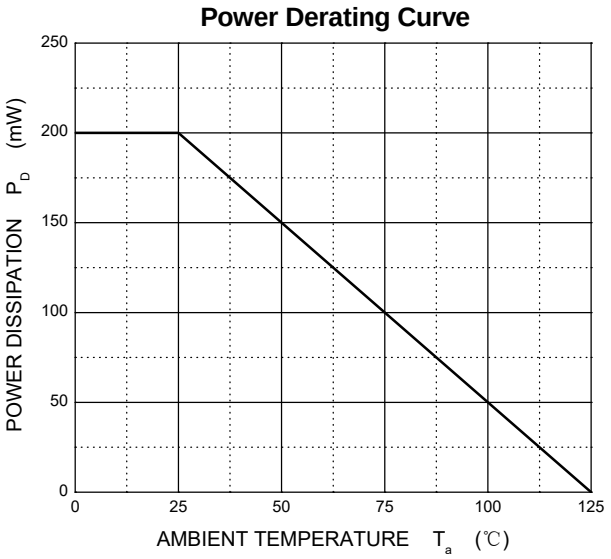
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## Typical Performance Curves



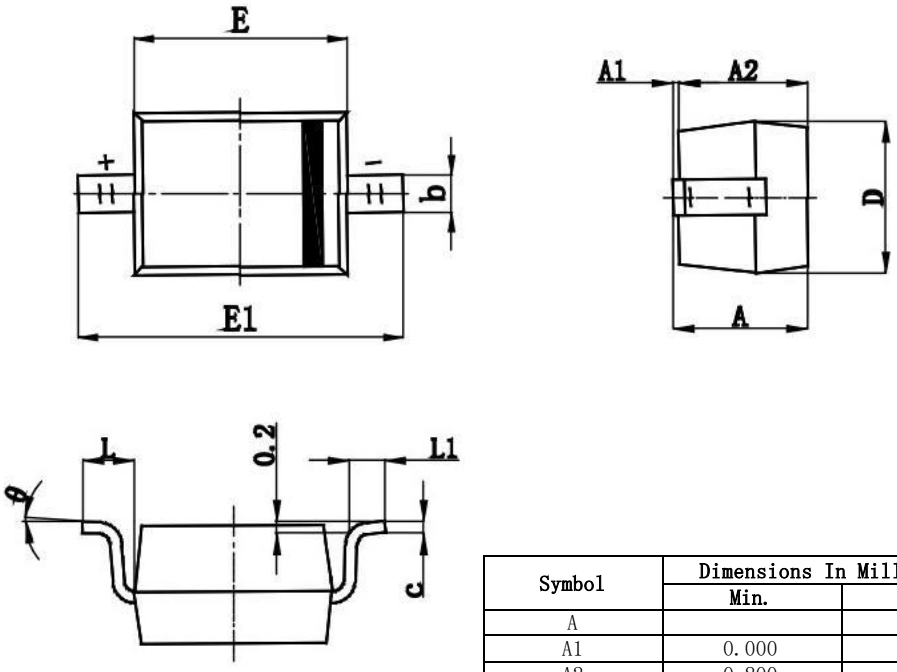



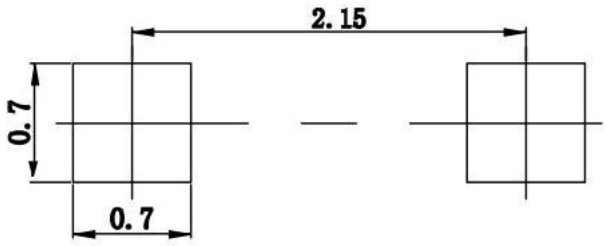

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## SOD-323 Package Outline Dimensions




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | | 1.000 | | 0.039 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.800 | 0.900 | 0.031 | 0.035 |
| b | 0.250 | 0.350 | 0.010 | 0.014 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 1.200 | 1.400 | 0.047 | 0.055 |
| E | 1.600 | 1.800 | 0.063 | 0.071 |
| E1 | 2.550 | 2.750 | 0.100 | 0.108 |
| L | 0.475 REF. | | 0.019 REF. | |
| L1 | 0.250 | 0.400 | 0.010 | 0.016 |
| θ | 0° | 8° | 0° | 8° |

## S0D-323 Suggested Pad Layout




**Note:**
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

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