

# Small Signal Diodes

## 1N4148WS, 1N4448WS, 1N914BWS

### Features

- General Purpose Diodes
- Fast Switching Device ( $T_{RR} < 4.0$  ns)
- Very Small and Thin SMD Package
- Moisture Level Sensitivity 1
- Matte Tin (Sn) Lead Finish
- Green Mold Compound
- These Devices are Pb-Free and are RoHS Compliant

### ABSOLUTE MAXIMUM RATINGS

| Parameter                                                                                     | Symbol    | Value       | Unit         |
|-----------------------------------------------------------------------------------------------|-----------|-------------|--------------|
| Non-Repetitive Peak Reverse Voltage                                                           | $V_{RSM}$ | 100         | V            |
| Repetitive Peak Reverse Voltage                                                               | $V_{RRM}$ | 75          | V            |
| Repetitive Peak Forward Current                                                               | $I_{FRM}$ | 300         | mA           |
| Continuous Forward Current                                                                    | $I_O$     | 150         | mA           |
| Non-repetitive Peak Forward Surge Current<br>Pulse Width = 1.0 s<br>Pulse Width = 1.0 $\mu$ s | $I_{FSM}$ | 1.0<br>4.0  | A            |
| Operating Junction Temperature                                                                | $T_J$     | +150        | $^{\circ}$ C |
| Storage Temperature Range                                                                     | $T_{STG}$ | -55 to +150 | $^{\circ}$ C |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### THERMAL CHARACTERISTICS (Values are at $T_A = 25^{\circ}$ C unless otherwise noted.)

| Symbol          | Parameter                                        | Value | Unit           |
|-----------------|--------------------------------------------------|-------|----------------|
| $P_D$           | Power Dissipation ( $T_C = 25^{\circ}$ C)        | 200   | mW             |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient (Note 1) | 500   | $^{\circ}$ C/W |

1. Device mounted on FR-4 PCB minimum land pad.

### ELECTRICAL CHARACTERISTICS (Values are at $T_A = 25^{\circ}$ C unless otherwise noted.)

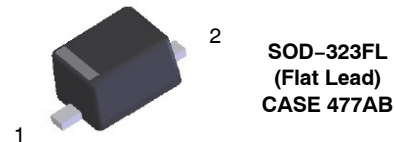
| Symbol   | Parameter             | Conditions                                                           | Min  | Max  | Unit    |
|----------|-----------------------|----------------------------------------------------------------------|------|------|---------|
| $BV_R$   | Breakdown Voltage     | $I_R = 100 \mu A$                                                    | 100  | –    | V       |
|          |                       | $I_R = 5 \mu A$                                                      | 75   | –    |         |
| $I_R$    | Reverse Current       | $V_R = 20$ V                                                         | –    | 25   | nA      |
|          |                       | $V_R = 75$ V                                                         | –    | 5    | $\mu A$ |
| $V_F$    | Forward Voltage       | 1N4448WS / 1N914BWS<br>$I_F = 5$ mA                                  | 0.62 | 0.72 | V       |
|          |                       | 1N4148WS<br>$I_F = 10$ mA                                            | –    | 1    |         |
|          |                       | 1N4448WS / 1N914BWS<br>$I_F = 100$ mA                                | –    | 1    |         |
| $C_O$    | Diode Capacitance     | $V_R = 0$ , $f = 1.0$ MHz                                            | –    | 4    | pF      |
| $T_{RR}$ | Reverse Recovery Time | $I_F = 10$ mA, $I_R = 60$ mA,<br>$I_{RR} = 1$ mA, $R_L = 100 \Omega$ | –    | 4    | ns      |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



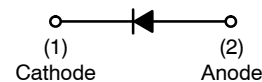
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Band Indicates Cathode

### ELECTRICAL SYMBOL



### DEVICE MARKING INFORMATION

See general marking information in the device marking section on page 3 of this data sheet.

### ORDERING INFORMATION

See detailed ordering and shipping information on page 3 of this data sheet.

TYPICAL CHARACTERISTICS

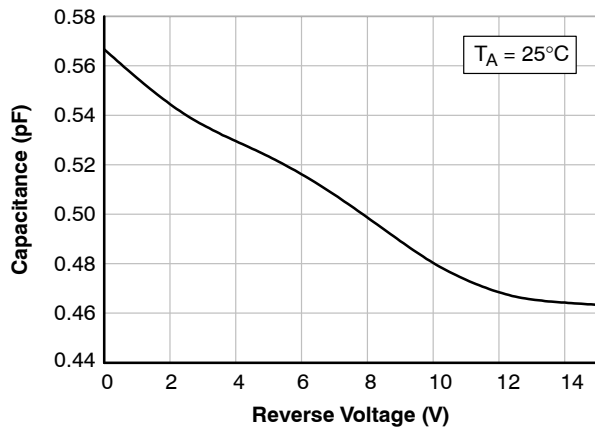


Figure 1. Total Capacitance

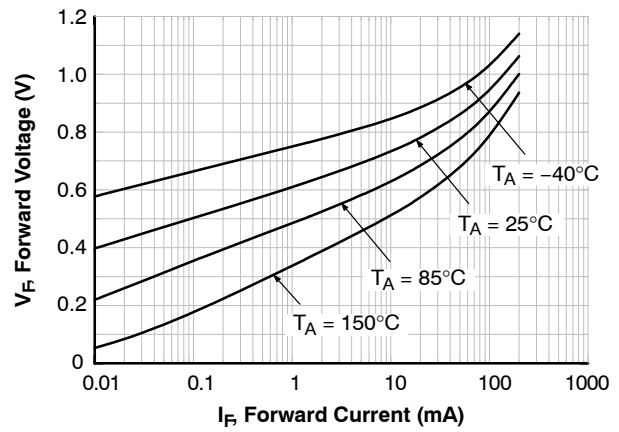


Figure 2. Forward Voltage vs. Ambient Temperature

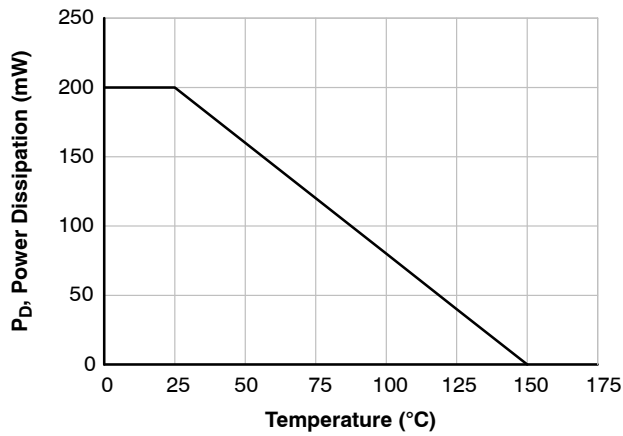


Figure 3. Power Derating Curve

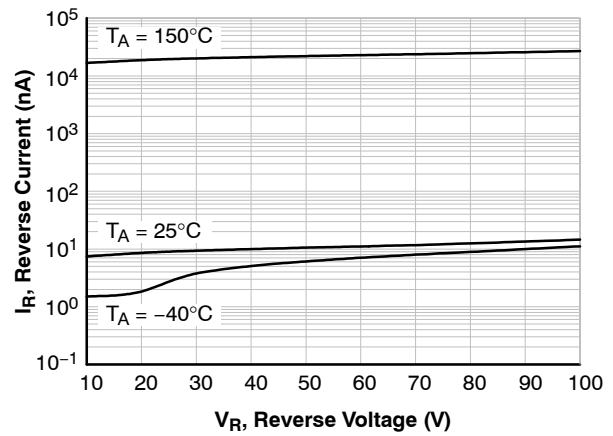


Figure 4. Reverse Current vs. Reverse Voltage

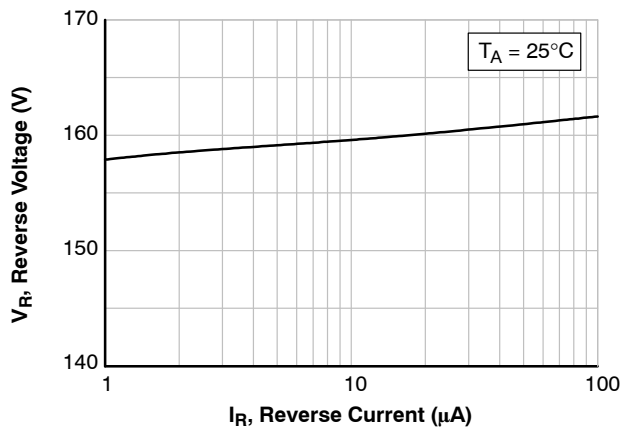
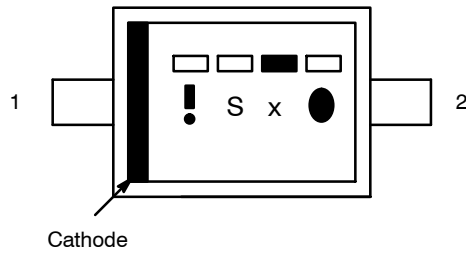


Figure 5. Reverse Voltage vs. Reverse Current

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## MARKING DIAGRAM



□□□□ = Calendar Year  
 ! = China Subcon  
 Sx = Specific Device Code  
     x = 1, 2, 3  
 ● = Payweek

## ORDERING INFORMATION

| Part Number | Top Mark | Package                | Shipping <sup>†</sup> |
|-------------|----------|------------------------|-----------------------|
| 1N4148WS    | S1       | SOD-323FL<br>(Pb-Free) | 3000 / Tape & Reel    |
| 1N4448WS    | S2       |                        |                       |
| 1N914BWS    | S3       |                        |                       |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

# MECHANICAL CASE OUTLINE

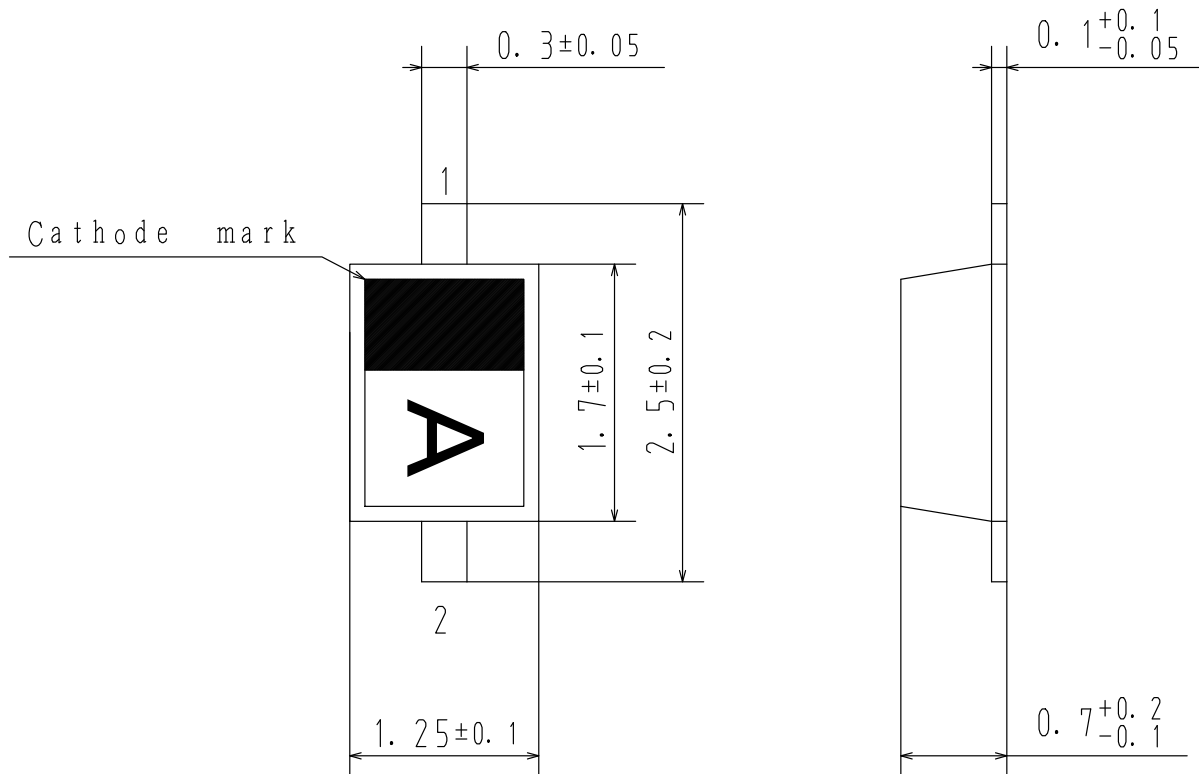
## PACKAGE DIMENSIONS

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SOD-323FL  
CASE 477AB  
ISSUE O

DATE 30 APR 2012



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| DESCRIPTION:     | SOD-323FL   | PAGE 1 OF 1                                                                                                                                                                         |

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