

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 Pulse Width = 1.0 s Pulse Width = 1.0 μ s | I_{FSM} | 1.0 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 |

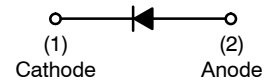
1. Device mounted on FR-4 PCB minimum land pad.

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 | μ A |
| V_F | Forward Voltage | 1N4448WS / 1N914BWS $I_F = 5$ mA | 0.62 | 0.72 | V |
| | | 1N4148WS $I_F = 10$ mA | - | 1 | |
| | | 1N4448WS / 1N914BWS $I_F = 100$ 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, $I_{RR} = 1$ 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.

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.

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TYPICAL CHARACTERISTICS

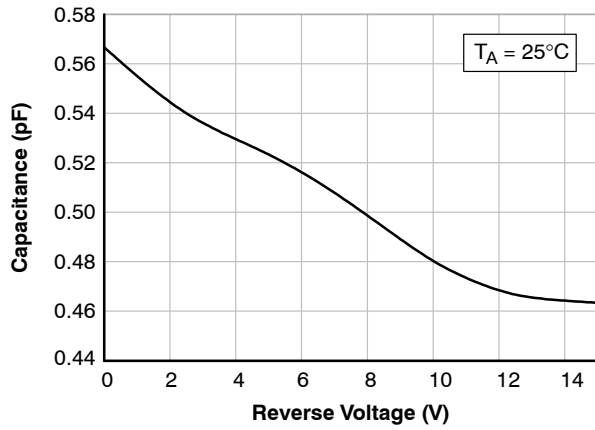


Figure 1. Total Capacitance

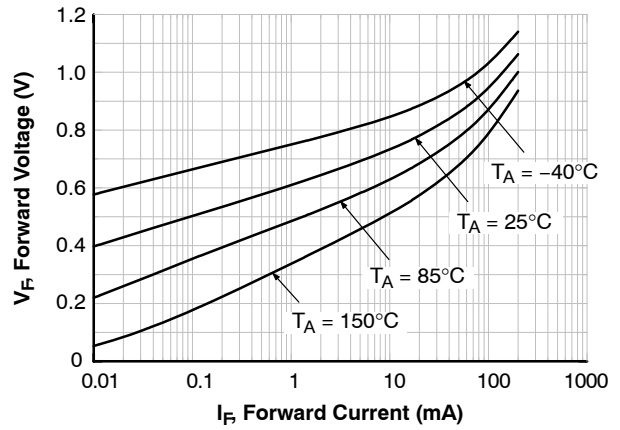


Figure 2. Forward Voltage vs. Ambient Temperature

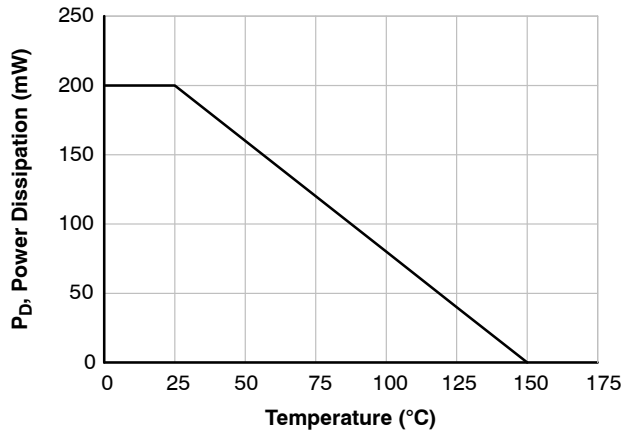


Figure 3. Power Derating Curve

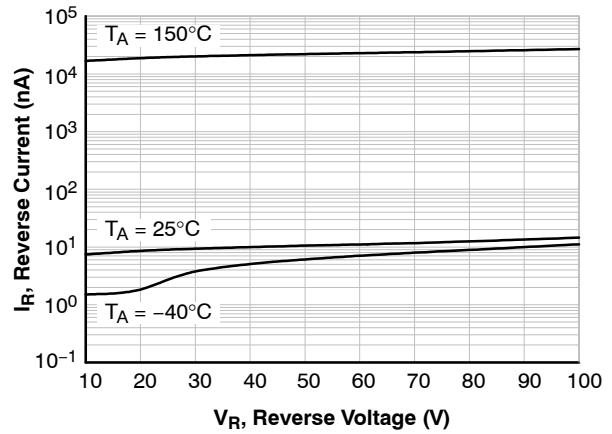


Figure 4. Reverse Current vs. Reverse Voltage

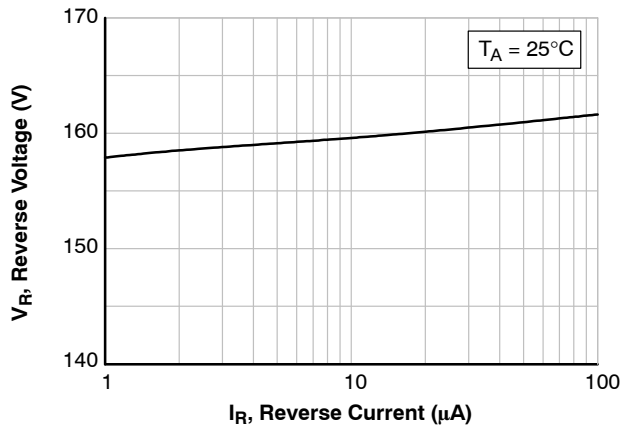
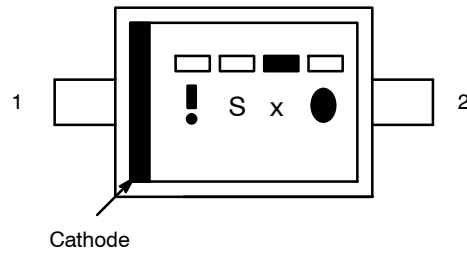


Figure 5. Reverse Voltage vs. Reverse Current

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MARKING DIAGRAM

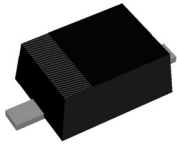


- = Calendar Year
- ! = China Subcon
- Sx = Specific Device Code
x = 1, 2, 3
- = Payweek

ORDERING INFORMATION

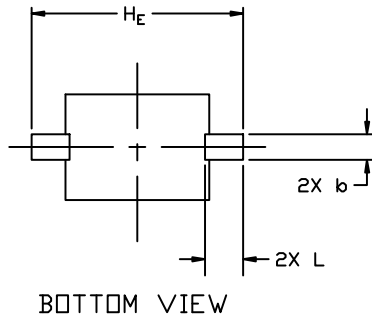
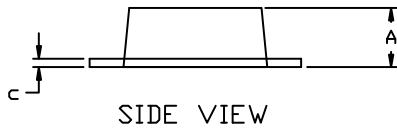
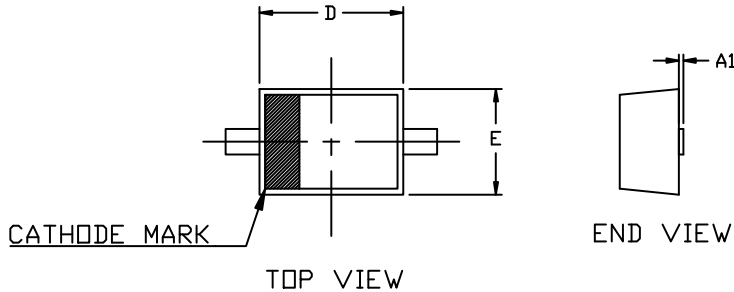
| Part Number | Top Mark | Package | Shipping [†] |
|-------------|----------|------------------------|-----------------------|
| 1N4148WS | S1 | SOD-323FL (Pb-Free) | 3000 / Tape & Reel |
| 1N4448WS | S2 | | |
| 1N914BWS | S3 | | |

[†]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](#).



SOD-323FL
CASE 477AB
ISSUE A

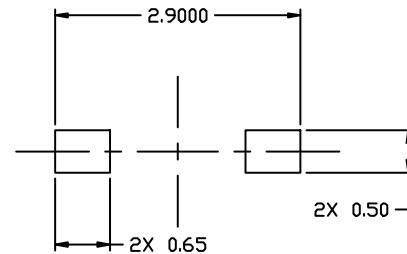
DATE 03 FEB 2023



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. LEAD THICKNESS INCLUDES LEAD FINISH.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

| DIM | MILLIMETERS | | |
|-----|-------------|------|------|
| | MIN. | NOM. | MAX. |
| A | 0.60 | 0.70 | 0.90 |
| A1 | 0.00 | 0.05 | 0.10 |
| b | 0.25 | 0.30 | 0.35 |
| c | 0.05 | 0.10 | 0.20 |
| D | 1.60 | 1.70 | 1.80 |
| E | 1.15 | 1.25 | 1.35 |
| HE | 2.30 | 2.50 | 2.70 |
| L | 0.35 | 0.45 | 0.55 |



RECOMMENDED MOUNTING FOOTPRINT

* For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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

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