# THE DATASHEET OF

# NSR02L30NXT5G

www.win-source.net 0086-755-83957316

# NSR02L30

# Schottky Barrier Diode

These Schottky barrier diodes are optimized for low forward voltage drop and low leakage current. The DSN2 (Dual Silicon No−lead) package is a chip level package using solderable metal contacts under the package similar to DFN style packages. The DSN style package enables 100% utilization of the package area for active silicon, offering a significant performance per board area advantage compared to products in plastic molded packages. The low thermal resistance enables designers to meet the challenging task of achieving higher efficiency and meeting reduced space requirements.

### Features

- Very Low Forward Voltage Drop − 400 mV @ 10 mA
- Low Reverse Current − 0.20 μA @ 10 V VR
- 200 mA of Continuous Forward Current
- Power Dissipation of 312 mW with Minimum Trace
- ESD Rating − Human Body Model: Class 3B
  − Machine Model: Class C
- Very High Switching Speed
- Low Capacitance − CT = 7 pF
- This is a Halide−Free Device
- This is a Pb−Free Device

### Typical Applications

- LCD and Keypad Backlighting
- Camera Photo Flash
- Buck and Boost dc−dc Converters
- Reverse Voltage and Current Protection
- Clamping & Protection

### Markets

- Mobile Handsets
- MP3 Players
- Digital Camera and Camcorders
- Notebook PCs & PDAs
- GPS

### MAXIMUM RATINGS

| Rating | | Symbol | Value | Unit |
|---|---|---|---|---|
| Reverse Voltage | | $V_R$ | 30 | V |
| Forward Current (DC) | | $I_F$ | 200 | mA |
| Forward Surge Current (60 Hz @ 1 cycle) | | $I_{FSM}$ | 4.0 | A |
| ESD Rating: | Human Body Model<br>Machine Model | ESD | >8.0<br>>400 | kV<br>V |

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.

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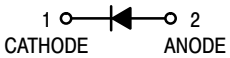
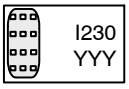
**30 V SCHOTTKY BARRIER DIODE**



**DSN2**
**(0201)**
**CASE 152AA**

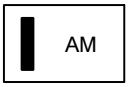
### MARKING DIAGRAMS

PIN 1




I230 = Specific Device Code
YYY = Year Code

PIN 1




A = Specific Device Code
M = Date Code

### ORDERING INFORMATION

| Device | Package | Shipping† |
|---|---|---|
| NSR02L30NXT5G | DSN2 (Pb−Free) | 5000 / Tape & Reel |

†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.

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## THERMAL CHARACTERISTICS

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Thermal Resistance<br>Junction−to−Ambient (Note 1)<br>Total Power Dissipation @ $T_A$ = 25°C | <br>$R_{\theta JA}$<br>$P_D$ | | | <br>400<br>312 | <br>°C/W<br>mW |
| Thermal Resistance<br>Junction−to−Ambient (Note 2)<br>Total Power Dissipation @ $T_A$ = 25°C | <br>$R_{\theta JA}$<br>$P_D$ | | | <br>170<br>735 | <br>°C/W<br>mW |
| Storage Temperature Range | $T_{stg}$ | | | −40 to +125 | °C |
| Junction Temperature | $T_J$ | | | +150 | °C |

1. Mounted onto a 4 in square FR−4 board 10 mm sq. 1 oz. Cu 0.06” thick single sided. Operating to steady state.
2. Mounted onto a 4 in square FR−4 board 1 in sq. 1 oz. Cu 0.06” thick single sided. Operating to steady state.

## ELECTRICAL CHARACTERISTICS ($T_A$ = 25°C unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| Reverse Leakage<br>($V_R$ = 10 V)<br>($V_R$ = 30 V) | $I_R$ | | | <br>0.2<br>3.0 | μA |
| Forward Voltage<br>($I_F$ = 10 mA)<br>($I_F$ = 200 mA) | $V_F$ | | | <br>0.40<br>0.58 | V |
| Total Capacitance<br>($V_R$ = 5.0 V, f = 1 MHz) | CT | | 7.0 | | pF |

## TYPICAL CHARACTERISTICS

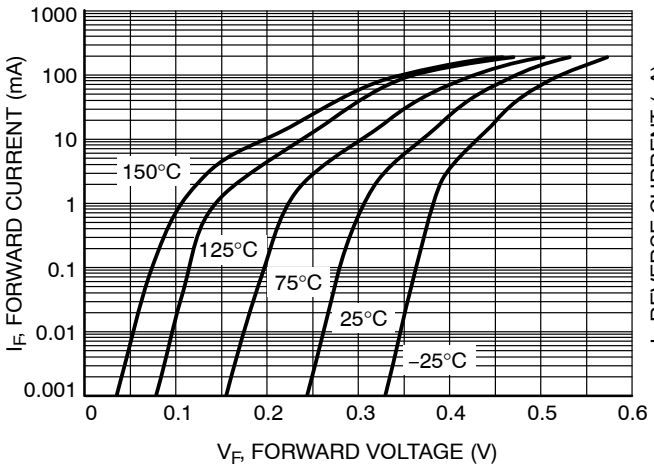



**Figure 1. Forward Voltage**

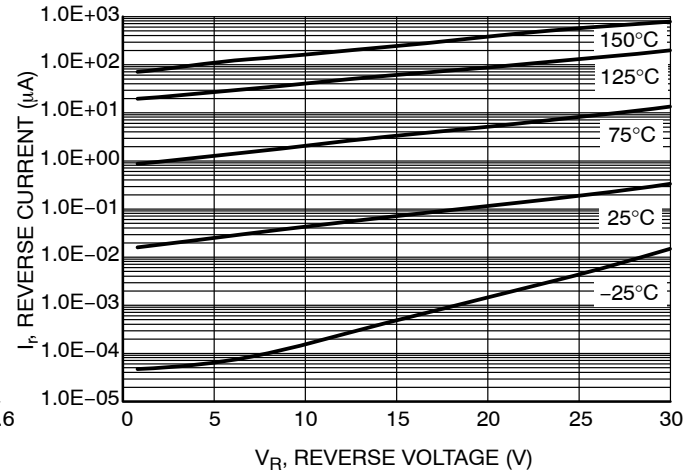



**Figure 2. Leakage Current**

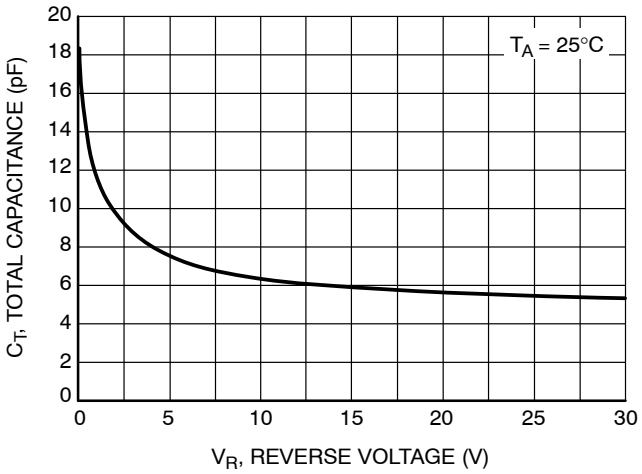
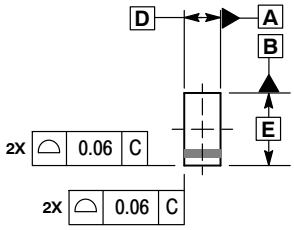


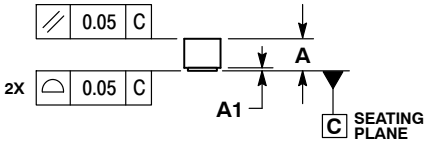

**Figure 3. Total Capacitance**

## PACKAGE DIMENSIONS

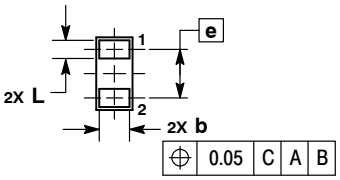
**DSN2, 0.6x0.3, 0.4P, (0201)**
CASE 152AA
ISSUE B




**TOP VIEW**




**SIDE VIEW**

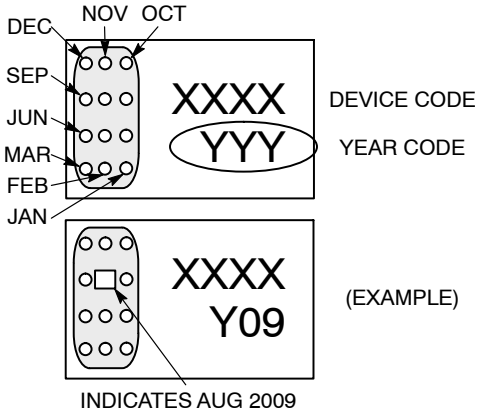



**BOTTOM VIEW**

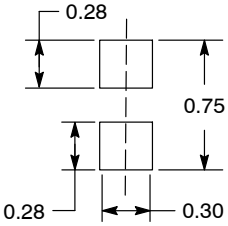
NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.

| | MILLIMETERS | |
|---|---|---|
| DIM | MIN | MAX |
| A | 0.24 | 0.30 |
| A1 | 0.00 | 0.01 |
| b | 0.20 | 0.22 |
| D | 0.30 BSC | |
| E | 0.60 BSC | |
| e | 0.40 BSC | |
| L | 0.10 | 0.12 |

**CATHODE BAND MONTH CODING**




**MOUNTING FOOTPRINT***




DIMENSIONS: MILLIMETERS

See Application Note AND8398/D for more mounting details

*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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