

NSR15SDW1T1 NSR15SDW1T2

Dual RF Schottky Diode

These diodes are designed for analog and digital applications, including DC based signal detection and mixing applications.

Features

- Low Capacitance (<1 pF)
- Low V_F (390 mV typical @ 1 mA)
- Low $V_{F\Delta}$ (1 mV typical @ 1 mA)
- Pins 2 and 5 Shorted
- Pb-Free Packages are Available

Benefits

- Reduced Parasitic Losses
- Accurate Signal Measurement
- Reduced Cross Talk

MAXIMUM RATINGS

| Rating | Symbol | Max | Unit |
|-----------------------------------------------------------------------|----------------|-------------|------|
| Peak Reverse Voltage | V_R | 15 | V |
| Forward Current | I_F | 30 | mA |
| Operating and Storage Temperature Range | T_J, T_{stg} | -65 to +150 | °C |
| ESD Rating: Class 1 per Human Body Model Class A per Machine Model | | | |

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Value | Unit |
|------------------------------------------------|-----------------|-------|------|
| Maximum Thermal Resistance Junction-to-Ambient | $R_{\theta JA}$ | 500 | °C/W |

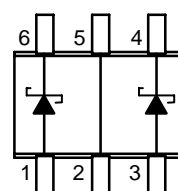
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



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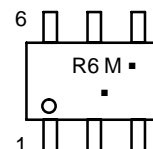
<http://onsemi.com>

RF SCHOTTKY BARRIER DIODES 15 VOLTS, 30 mA



SC-88
CASE 419B
STYLE 21

MARKING DIAGRAM



R6 = Specific Device Code
M = Date Code
▪ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

| Device | Package | Shipping† |
|--------------|--------------------|--------------------|
| NSR15SDW1T1 | SC-88 | 3000/Tape & Reel |
| NSR15SDW1T1G | SC-88 (Pb-Free) | 3000/Tape & Reel |
| NSR15SDW1T2 | SC-88 | 3000/Tape & Reel |
| NSR15SDW1T2G | SC-88 (Pb-Free) | 3000/Tape & Reel |
| NSR15SDW1T4 | SC-88 | 10,000/Tape & Reel |
| NSR15SDW1T4G | SC-88 (Pb-Free) | 10,000/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.

NSR15SDW1T1 NSR15SDW1T2

ELECTRICAL CHARACTERISTICS

| Characteristic | Symbol | Min | Typ | Max | Unit |
|-----------------------------------------------------------|--------------|-----|-----|-----|------|
| Breakdown Voltage ($I_R = 10 \mu\text{A}$) | V_{BR} | 15 | 20 | – | V |
| Reverse Leakage ($V_R = 1 \text{ V}$) | I_R | – | 2 | 50 | nA |
| Forward Voltage ($I_F = 1 \text{ mA}$) | V_{F1} | – | 390 | 415 | mV |
| Forward Voltage ($I_F = 10 \text{ mA}$) | V_{F2} | – | 530 | 680 | mV |
| Delta V_F ($I_F = 1 \text{ mA}$, All Diodes) | ΔV_F | – | 1 | 15 | mV |
| Capacitance ($V_F = 0 \text{ V}$, $f = 1 \text{ MHz}$) | C_T | – | 0.8 | 1 | pF |

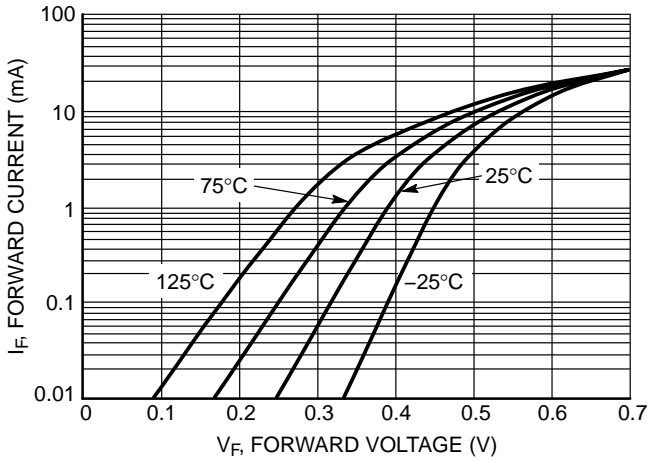


Figure 1. Forward Current versus Forward Voltage at Temperatures

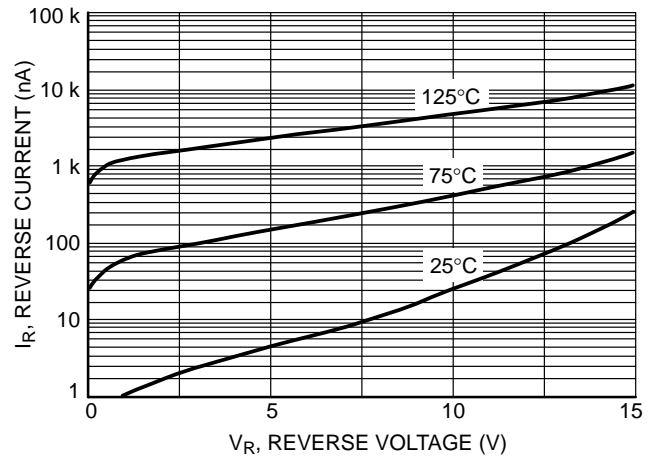


Figure 2. Reverse Current versus Reverse Voltage

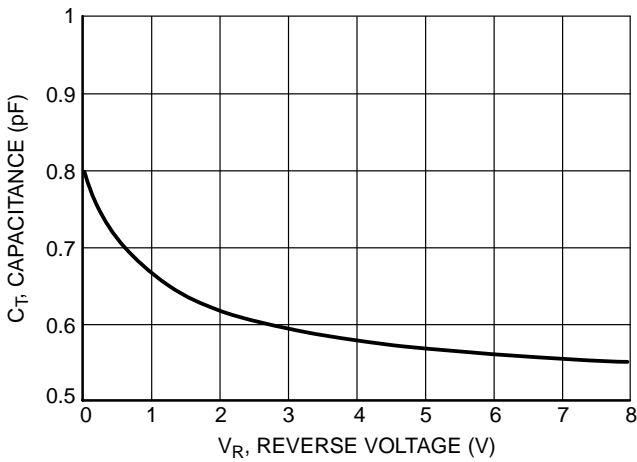


Figure 3. Total Capacitance versus Reverse Voltage

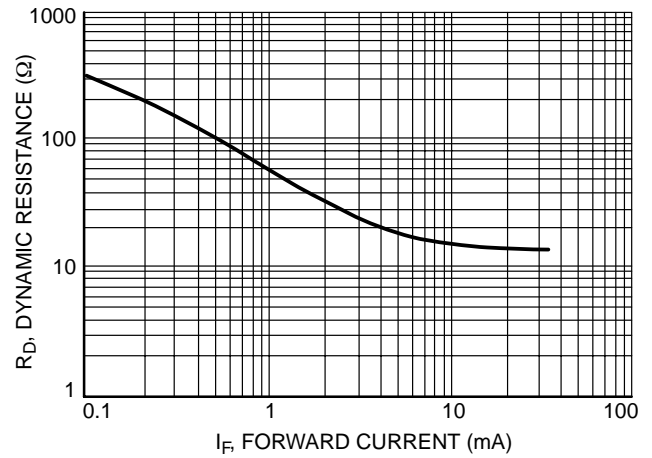


Figure 4. Dynamic Resistance versus Forward Current

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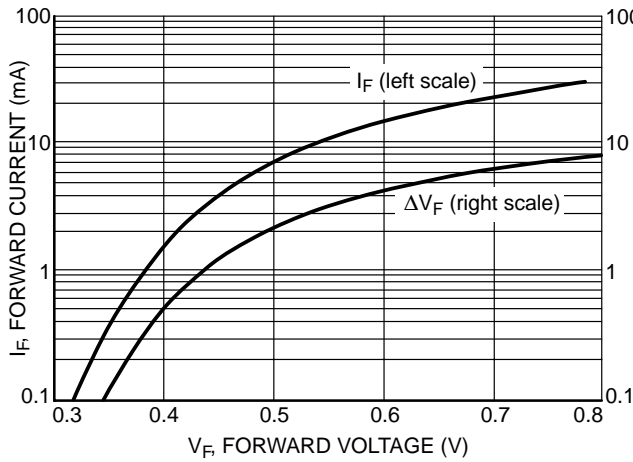


Figure 5. Typical V_F Match at Mixer Bias Levels

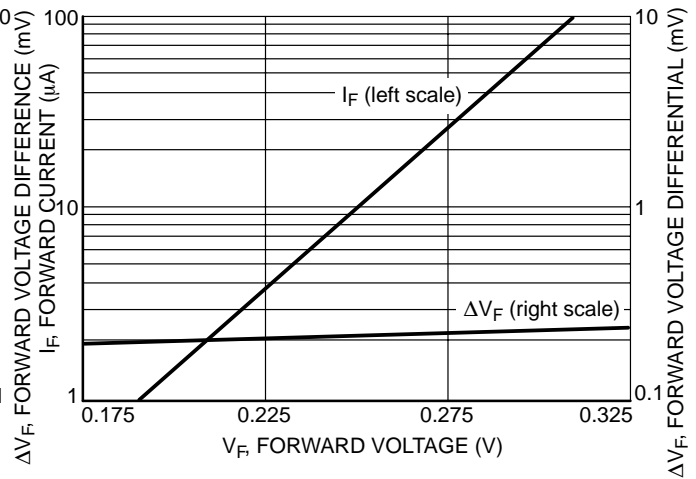


Figure 6. Typical V_F Match at Detector Bias Levels

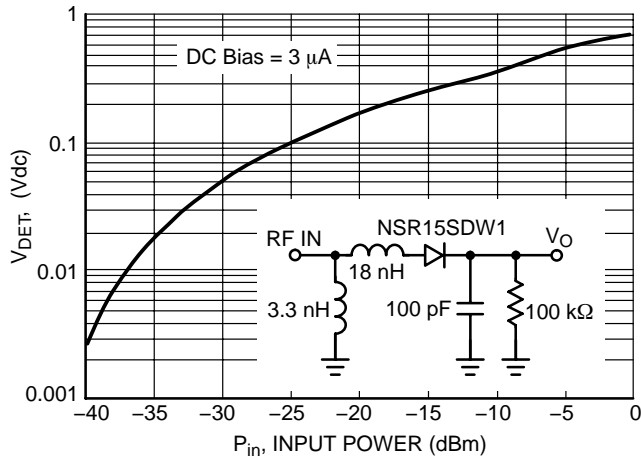


Figure 7. Typical Output Voltage versus Input Power, Small Signal Detector Operating at 850 MHz

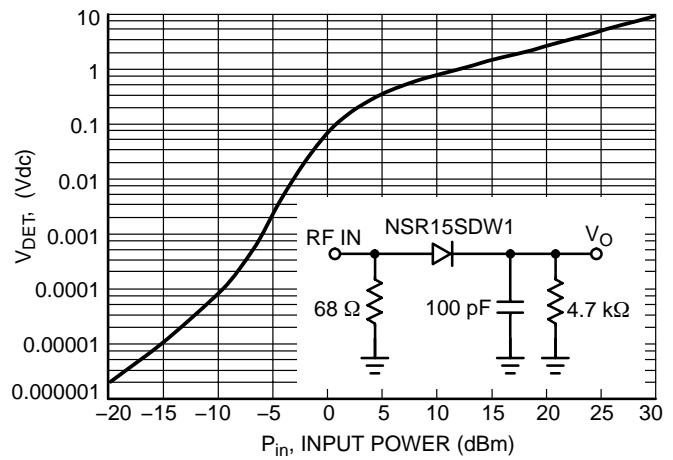


Figure 8. Typical Output Voltage versus Input Power, Large Signal Detector Operating at 915 MHz

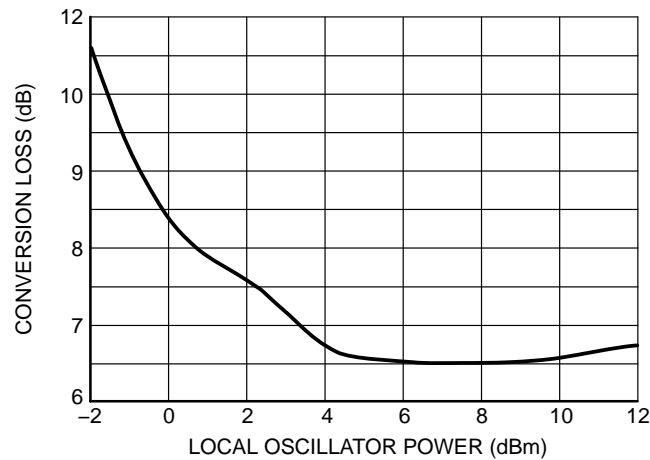
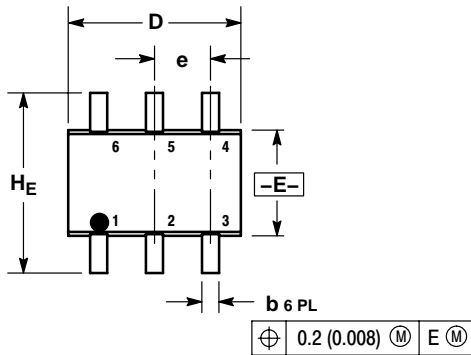


Figure 9. Typical Conversion Loss versus L.O. Drive, 2.0 GHz

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PACKAGE DIMENSIONS

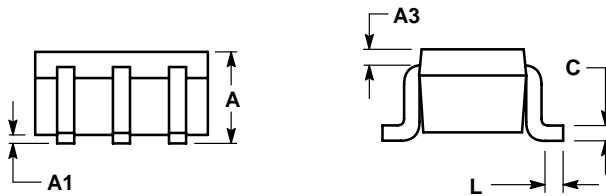
SC-88/SC70-6/SOT-363
CASE 419B-02
ISSUE W



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 419B-01 OBSOLETE, NEW STANDARD 419B-02.

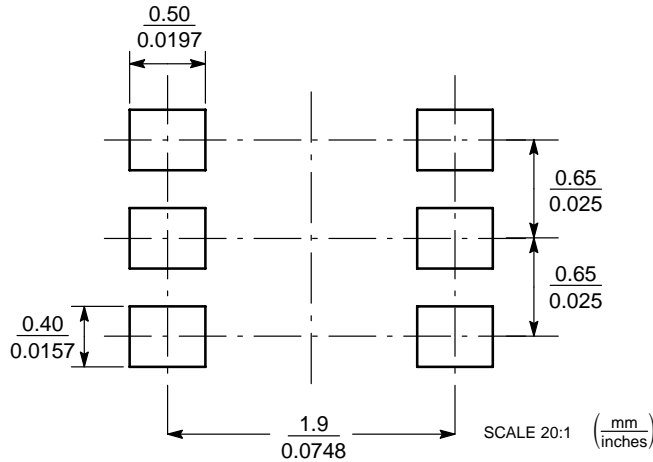
| DIM | MILLIMETERS | | | INCHES | | |
|-----|-------------|------|------|-----------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.80 | 0.95 | 1.10 | 0.031 | 0.037 | 0.043 |
| A1 | 0.00 | 0.05 | 0.10 | 0.000 | 0.002 | 0.004 |
| A3 | 0.20 REF | | | 0.008 REF | | |
| b | 0.10 | 0.21 | 0.30 | 0.004 | 0.008 | 0.012 |
| C | 0.10 | 0.14 | 0.25 | 0.004 | 0.005 | 0.010 |
| D | 1.80 | 2.00 | 2.20 | 0.070 | 0.078 | 0.086 |
| E | 1.15 | 1.25 | 1.35 | 0.045 | 0.049 | 0.053 |
| e | 0.65 BSC | | | 0.026 BSC | | |
| L | 0.10 | 0.20 | 0.30 | 0.004 | 0.008 | 0.012 |
| HE | 2.00 | 2.10 | 2.20 | 0.078 | 0.082 | 0.086 |



STYLE 21:

- PIN 1. ANODE 1
- 2. N/C
- 3. ANODE 2
- 4. CATHODE 2
- 5. N/C
- 6. CATHODE 1

SOLDERING 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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