

# NSR15TW1

## Triple 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  $V_{FA}$  (1 mV typical @ 1 mA)

### Benefits:

- Reduced Parasitic Losses
- Accurate Signal Measurement

### 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

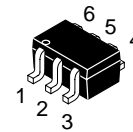
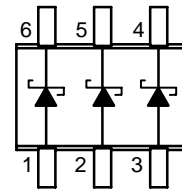
Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance – Junction to Ambient	$R_{\theta JA}$	500	°C/W



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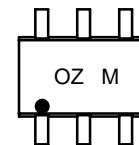
<http://onsemi.com>

RF SCHOTTKY  
BARRIER DIODES  
15 VOLTS, 30 mA



SC-88  
CASE 419B  
STYLE 15

### MARKING DIAGRAM



OZ = Specific Device Code  
M = Date Code

### ORDERING INFORMATION

Device	Package	Shipping
NSR15TW1T2	SC-88	3000/Tape & Reel

# NSR15TW1

## 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)	$\Delta V_F$	–	1	15	mV
Capacitance ( $V_F = 0 \text{ V}$ , $f = 1 \text{ MHz}$ )	$C_T$	–	0.8	1	pF

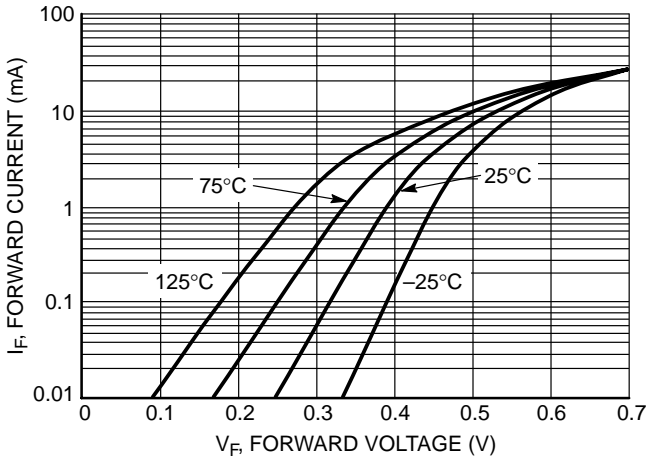


Figure 1. Forward Current versus Forward Voltage at Temperatures

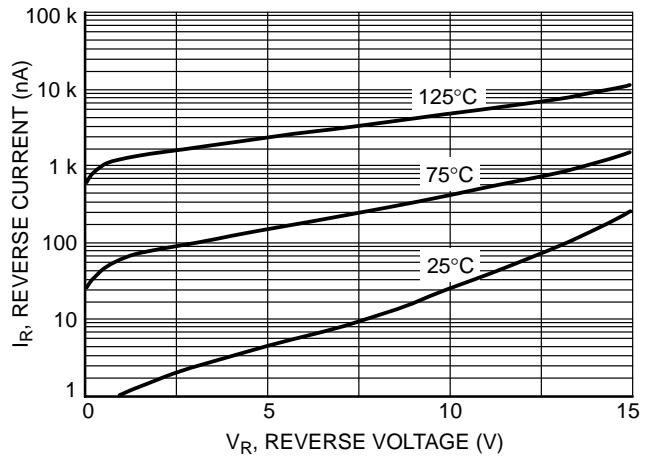


Figure 2. Reverse Current versus Reverse Voltage

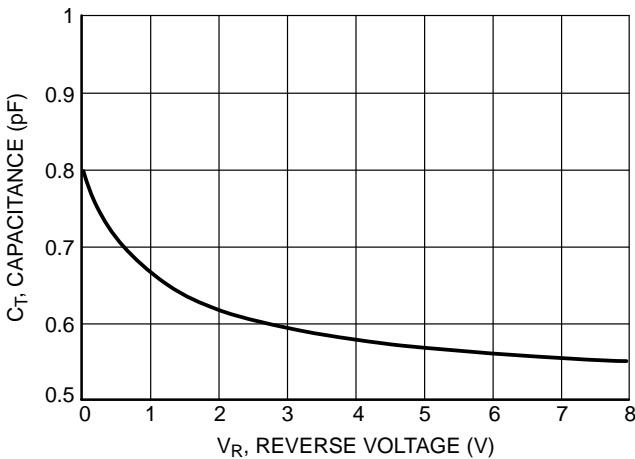


Figure 3. Total Capacitance versus Reverse Voltage

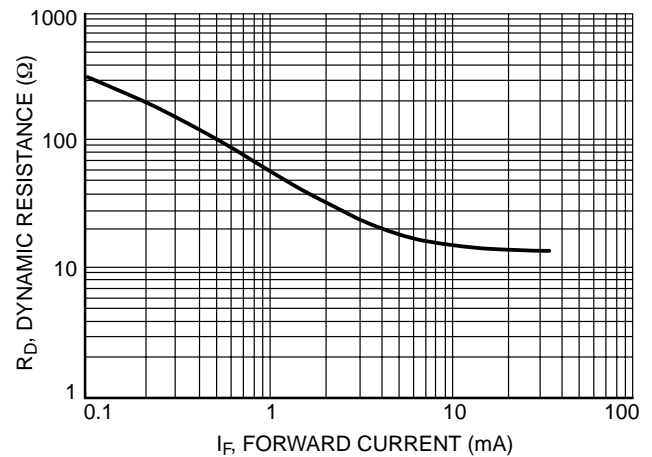


Figure 4. Dynamic Resistance versus Forward Current

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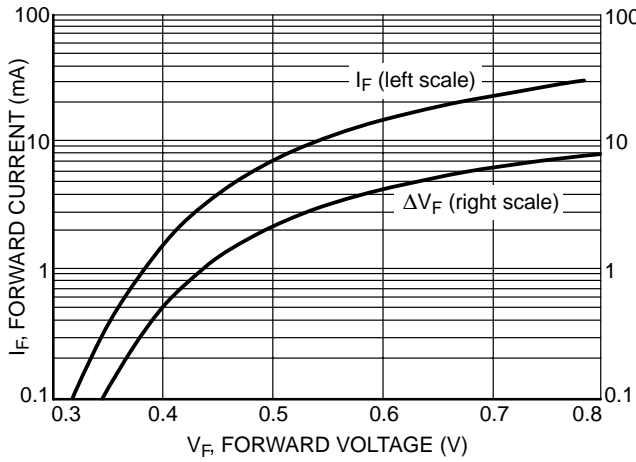


Figure 5. Typical  $V_F$  Match at Mixer Bias Levels

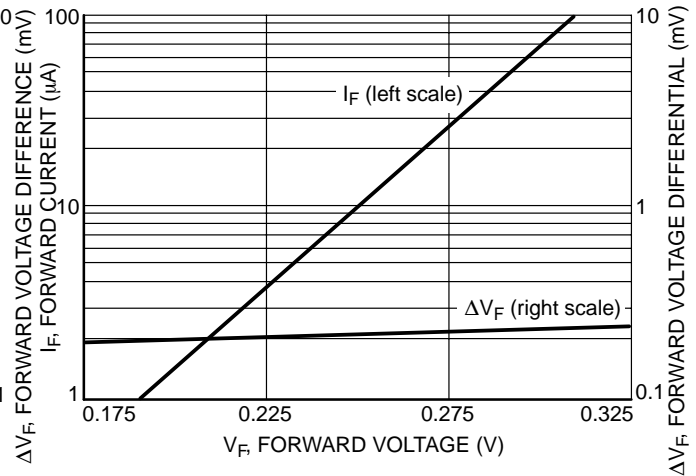


Figure 6. Typical  $V_F$  Match at Detector Bias Levels

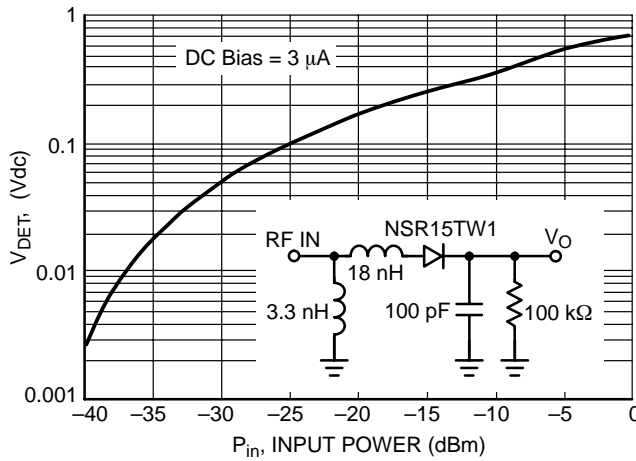


Figure 7. Typical Output Voltage versus Input Power, Small Signal Detector Operating at 850 MHz

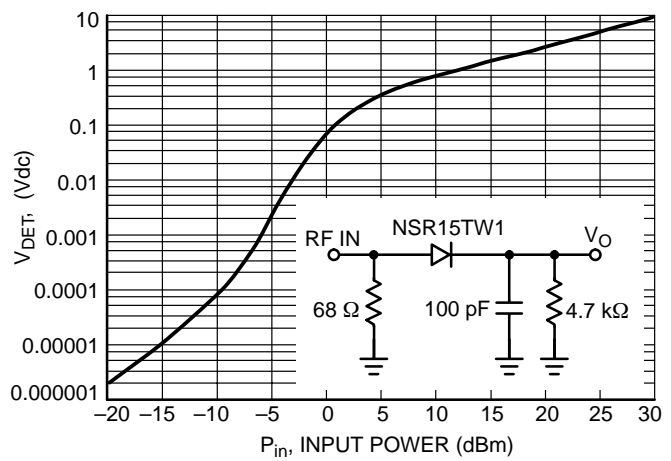


Figure 8. Typical Output Voltage versus Input Power, Large Signal Detector Operating at 915 MHz

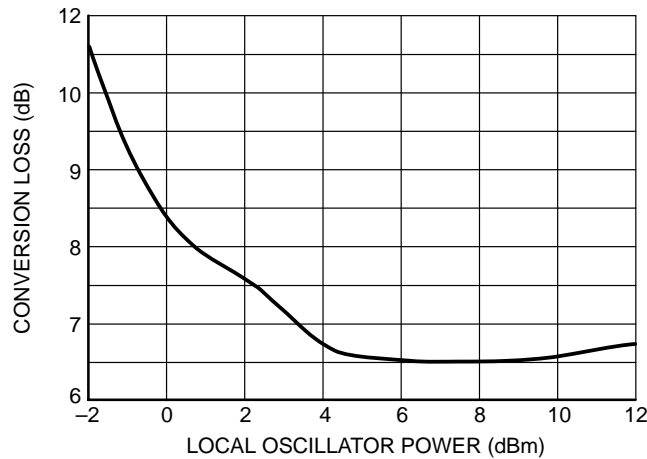
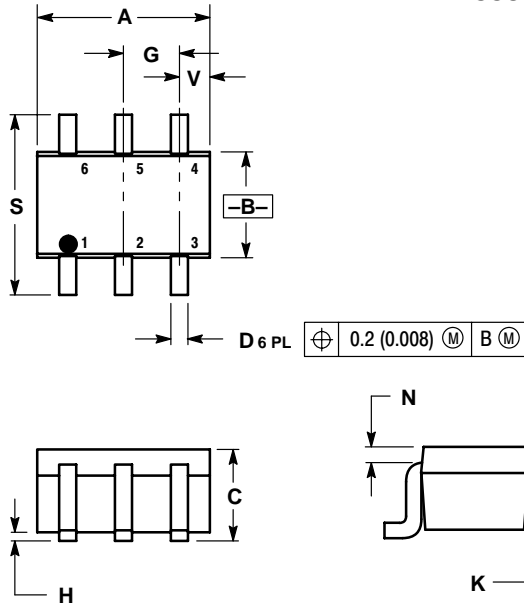


Figure 9. Typical Conversion Loss versus L.O. Drive, 2.0 GHz

# NSR15TW1

## PACKAGE DIMENSIONS

SC-88 (SOT-363)  
CASE 419B-01  
ISSUE G



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.031	0.043	0.80	1.10
D	0.004	0.012	0.10	0.30
G	0.026 BSC		0.65 BSC	
H	---	0.004	---	0.10
J	0.004	0.010	0.10	0.25
K	0.004	0.012	0.10	0.30
N	0.008 REF		0.20 REF	
S	0.079	0.087	2.00	2.20
V	0.012	0.016	0.30	0.40

- STYLE 15:  
PIN 1. ANODE  
2. ANODE  
3. ANODE  
4. CATHODE  
5. CATHODE  
6. CATHODE

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