

# NSVR201MX

## Schottky Barrier Diode for Mixer and Detector

Automotive Schottky Barrier Diode designed for compact and efficient designs. AEC-Q101 qualified Schottky Barrier Diode and PPAP capable suitable for automotive applications.

### Features

- Small Interterminal Capacitance
- Less Parasitic Components
- Small Forward Voltage
- Small-sized Package
- Pb-Free, Halogen Free and RoHS Compliant
- AEC-Q101 Qualified and PPAP Capable

### Typical Applications

- Microwave and Submilliwave Mixer
- Microwave and Submilliwave Detector

### Specifications

**Table 1. ABSOLUTE MAXIMUM RATINGS** at  $T_A = 25^\circ\text{C}$

| Parameter                                  | Symbol         | Value       | Unit             |
|--------------------------------------------|----------------|-------------|------------------|
| Reverse Voltage                            | $V_R$          | 2           | V                |
| Forward Current                            | $I_F$          | 50          | mA               |
| Operating Junction and Storage Temperature | $T_J, T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

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.



**ON Semiconductor®**

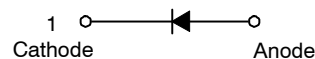
[www.onsemi.com](http://www.onsemi.com)

2 V, 50 mA  
 $C = 0.15 \text{ pF typ.}$   
Schottky Barrier Diode

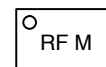


X2DFN2 1.0 x 0.6, 0.65P  
CASE 714AB

### ELECTRICAL CONNECTION



### MARKING DIAGRAM



RF = Specific Device Code  
M = Date Code

### ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

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**Table 2. ORDERING INFORMATION**

| Device       | Marking | Package                                         | Shipping†           |
|--------------|---------|-------------------------------------------------|---------------------|
| NSVR201MXT5G | RF      | X2DFN2 1.0 x 0.65 P<br>(Pb-Free / Halogen Free) | 8,000 / Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

**Table 3. ELECTRICAL CHARACTERISTICS** at  $T_A = 25^\circ\text{C}$  (Notes 1, 2)

| Parameter                 | Symbol | Conditions                                | Value |      |      | Units    |
|---------------------------|--------|-------------------------------------------|-------|------|------|----------|
|                           |        |                                           | Min   | Typ  | Max  |          |
| Reverse Voltage           | $V_R$  | $I_R = 10\ \mu\text{A}$                   | 2     |      |      | V        |
| Forward Voltage           | $V_F$  | $I_F = 1\ \text{mA}$                      |       |      | 320  | mV       |
| Series Resistance         | $R_S$  | $I_F = 10\ \text{mA}$                     |       | 14   | 18   | $\Omega$ |
| Interterminal Capacitance | C      | $V_R = 0\ \text{V}$ , $f = 1\ \text{MHz}$ |       | 0.15 | 0.20 | pF       |

1. 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.
2. Pay attention to handling since it is liable to be affected by static electricity due to the high-frequency process adopted.

# NSVR201MX

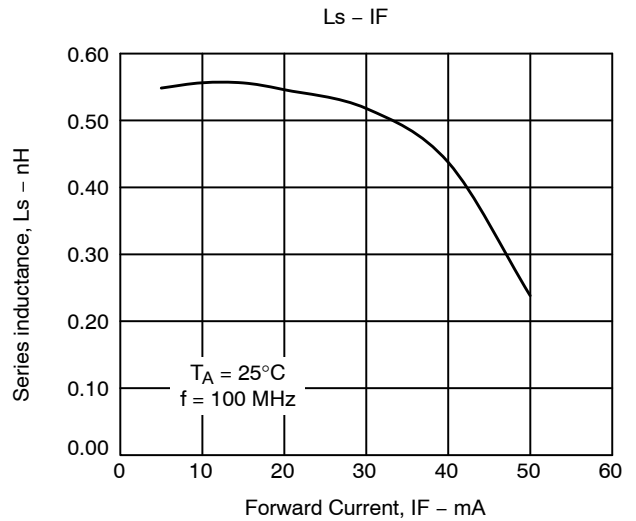
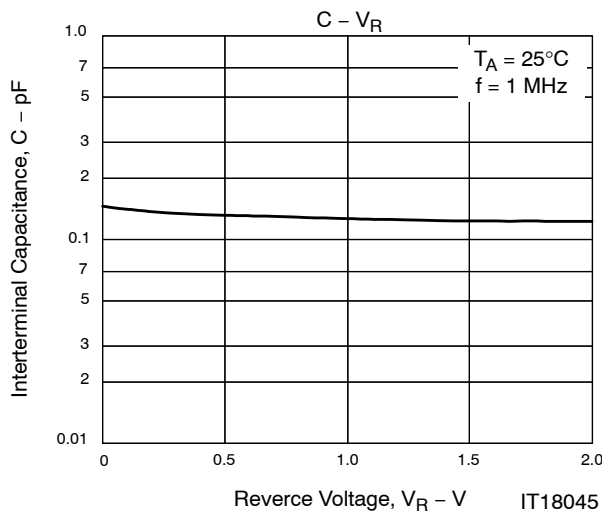
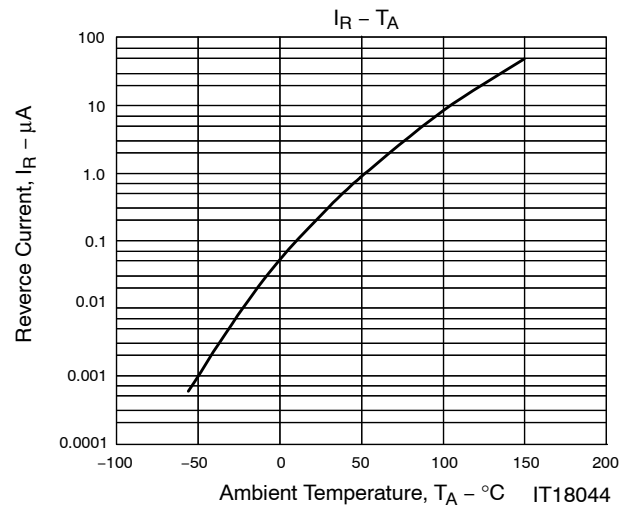
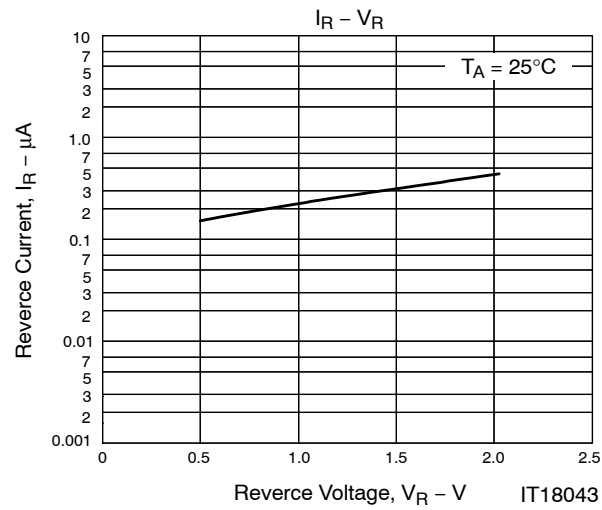
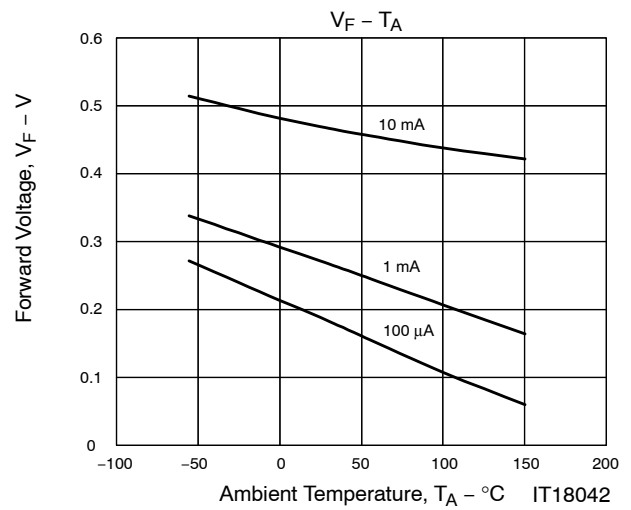
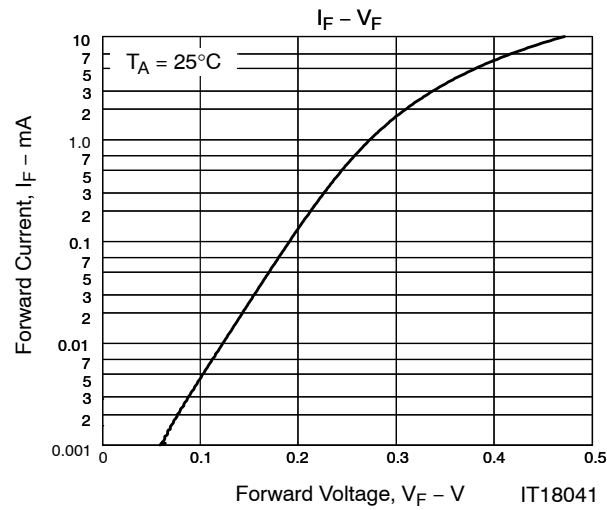
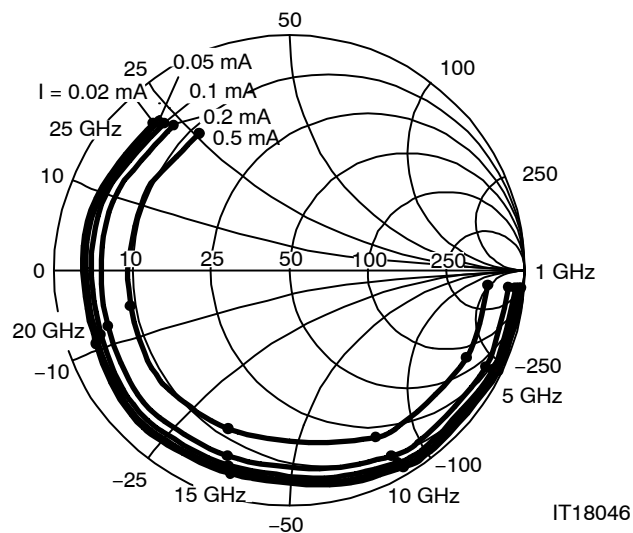


Figure 1.

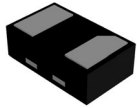
# NSVR201MX

**Table 4. S PARAMETER** ( $Z_0 = 50 \Omega$ )

| Freq<br>[GHz] | I = 0 mA |       | I = 0.02 mA |       | I = 0.05 mA |       | I = 0.1 mA |       | I = 0.2 mA |       | I = 0.5 mA |       |
|---------------|----------|-------|-------------|-------|-------------|-------|------------|-------|------------|-------|------------|-------|
|               | MAG      | ANG   | MAG         | ANG   | MAG         | ANG   | MAG        | ANG   | MAG        | ANG   | MAG        | ANG   |
| 1             | 0.964    | -4.4  | 0.988       | -4.3  | 0.978       | -4.3  | 0.963      | -4.3  | 0.933      | -4.4  | 0.845      | -4.3  |
| 2             | 0.967    | -9.7  | 0.990       | -9.6  | 0.981       | -9.6  | 0.966      | -9.7  | 0.937      | -9.7  | 0.852      | -9.5  |
| 3             | 0.957    | -15.2 | 0.981       | -15.1 | 0.971       | -15.2 | 0.956      | -15.2 | 0.925      | -15.4 | 0.838      | -15.7 |
| 4             | 0.956    | -20.5 | 0.980       | -20.3 | 0.970       | -20.5 | 0.956      | -20.5 | 0.925      | -20.6 | 0.840      | -20.4 |
| 5             | 0.961    | -26.0 | 0.986       | -25.7 | 0.977       | -25.9 | 0.960      | -26.0 | 0.929      | -26.2 | 0.838      | -26.3 |
| 6             | 0.954    | -32.3 | 0.981       | -31.9 | 0.970       | -32.1 | 0.953      | -32.3 | 0.919      | -32.5 | 0.822      | -32.5 |
| 7             | 0.943    | -39.2 | 0.969       | -38.7 | 0.959       | -39.0 | 0.942      | -39.2 | 0.909      | -39.6 | 0.814      | -40.4 |
| 8             | 0.943    | -45.7 | 0.967       | -45.2 | 0.958       | -45.4 | 0.942      | -45.7 | 0.911      | -46.2 | 0.823      | -47.4 |
| 9             | 0.947    | -52.8 | 0.975       | -52.2 | 0.963       | -52.5 | 0.946      | -52.8 | 0.910      | -53.3 | 0.809      | -54.2 |
| 10            | 0.940    | -60.6 | 0.968       | -59.9 | 0.957       | -60.2 | 0.938      | -60.6 | 0.902      | -61.2 | 0.799      | -62.6 |
| 11            | 0.921    | -69.7 | 0.950       | -68.9 | 0.939       | -69.3 | 0.919      | -69.7 | 0.883      | -70.4 | 0.777      | -72.0 |
| 12            | 0.895    | -80.4 | 0.928       | -79.4 | 0.914       | -79.9 | 0.893      | -80.4 | 0.852      | -81.2 | 0.738      | -83.5 |
| 13            | 0.882    | -88.8 | 0.912       | -87.7 | 0.900       | -88.2 | 0.881      | -88.8 | 0.843      | -89.6 | 0.735      | 267.9 |
| 14            | 0.872    | 261.9 | 0.906       | 263.1 | 0.893       | 262.4 | 0.871      | 261.9 | 0.831      | 261.0 | 0.715      | 258.8 |
| 15            | 0.870    | 252.7 | 0.900       | 253.9 | 0.887       | 253.2 | 0.868      | 252.6 | 0.830      | 251.6 | 0.723      | 249.0 |
| 16            | 0.874    | 242.8 | 0.903       | 244.1 | 0.891       | 243.4 | 0.873      | 242.7 | 0.838      | 241.6 | 0.733      | 238.1 |
| 17            | 0.874    | 231.6 | 0.907       | 233.1 | 0.894       | 232.3 | 0.873      | 231.6 | 0.833      | 230.4 | 0.720      | 227.0 |
| 18            | 0.877    | 220.8 | 0.911       | 222.5 | 0.898       | 221.6 | 0.875      | 220.7 | 0.833      | 219.3 | 0.715      | 215.4 |
| 19            | 0.860    | 210.3 | 0.895       | 212.1 | 0.881       | 211.1 | 0.859      | 210.2 | 0.817      | 208.7 | 0.700      | 204.2 |
| 20            | 0.847    | 198.7 | 0.880       | 200.7 | 0.866       | 199.6 | 0.845      | 198.7 | 0.806      | 197.2 | 0.692      | 192.7 |
| 21            | 0.841    | 185.5 | 0.875       | 187.4 | 0.860       | 186.4 | 0.840      | 185.4 | 0.800      | 184.0 | 0.687      | 179.7 |
| 22            | 0.847    | 171.1 | 0.883       | 173.3 | 0.868       | 172.2 | 0.846      | 171.1 | 0.803      | 169.3 | 0.683      | 164.0 |
| 23            | 0.845    | 157.2 | 0.877       | 159.6 | 0.864       | 158.3 | 0.843      | 157.1 | 0.804      | 155.1 | 0.696      | 149.5 |
| 24            | 0.822    | 142.0 | 0.854       | 144.5 | 0.840       | 143.2 | 0.821      | 142.1 | 0.782      | 140.1 | 0.680      | 134.7 |
| 25            | 0.823    | 130.3 | 0.852       | 132.6 | 0.840       | 131.4 | 0.822      | 130.3 | 0.788      | 128.6 | 0.695      | 123.3 |
| 26            | 0.833    | 118.3 | 0.863       | 120.7 | 0.850       | 119.5 | 0.832      | 118.2 | 0.797      | 116.5 | 0.703      | 111.1 |

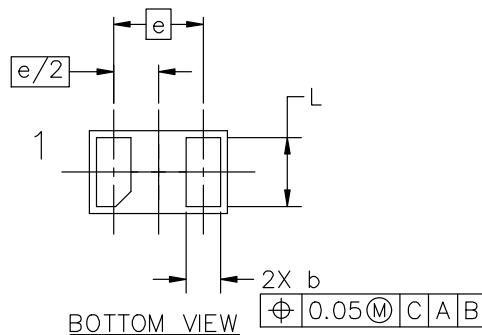
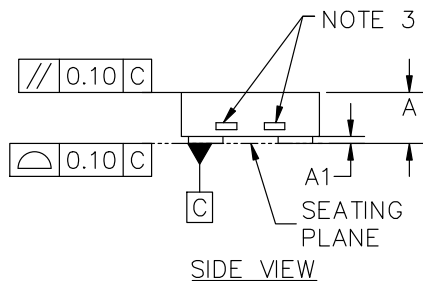
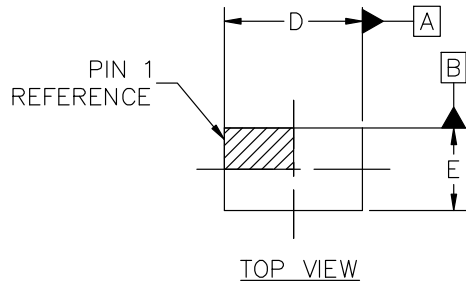


**Figure 2.**



**X2DFN2 1.00x0.60x0.37, 0.65P**  
CASE 714AB  
ISSUE C

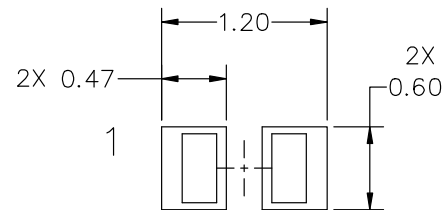
DATE 21 FEB 2024



## NOTES:

1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5-2018.
2. ALL DIMENSION ARE IN MILLIMETERS.
3. EXPOSED COPPER ALLOWED AS SHOW.

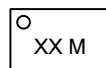
| DIM | MILLIMETERS |      |       |
|-----|-------------|------|-------|
|     | MIN.        | NOM. | MAX.  |
| A   | 0.34        | 0.37 | 0.40  |
| A1  | ---         | 0.03 | 0.050 |
| b   | 0.20        | 0.25 | 0.30  |
| D   | 0.95        | 1.00 | 1.05  |
| E   | 0.55        | 0.60 | 0.65  |
| e   | 0.65 BSC    |      |       |
| L   | 0.45        | 0.50 | 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.

**GENERIC  
MARKING DIAGRAM\***



XX = Specific Device Code  
M = Date Code

\*This information is generic. Please refer to device data sheet for actual part marking.  
Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

|                         |                                     |                                                                                                                                                                                  |
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