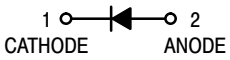
# PIN Diode
# Single PIN Diode for Attenuator and RF Switch

# NSDP301MX2W, NSVDP301MX2W

**80 V, 100 mA**
**rs = 1.3 Ω typ.**
**PIN Diode**




**X2DFNW2**
**CASE 711BG**

Low rs characteristics is enable to use high frequency applications. This PIN diode is designed to realize compact and efficient designs. NSDP301MX2W in a X2DFNW2 miniature package enables designers to meet the challenging task of achieving higher efficiency and meeting reduced space requirements. In addition, wettable flank package improves the quality at mounted to PCB.

### Features

- Low Series Resistance ($r_s$ = 1.3 Ω typ.)
- Small Interterminal Capacitance (C = 0.33 pF typ.)
- Less Parasitic Components
- Small−sized Package
- Wettable Flank Package
- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- These Devices are Pb−Free, Halogen Free and are RoHS Compliant

### Typical Applications

- RF Attenuator
- RF Switch

### MARKING DIAGRAM


RG = Specific Device Code
M = Date Code

### ORDERING INFORMATION

| Device | Package | Shipping† |
|---|---|---|
| NSDP301MX2WT5G | X2DFNW2 (Pb−Free) | 8000 / Tape & Reel |
| NSVDP301MX2WT5G | X2DFNW2 (Pb−Free) | 8000 / 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.

### MAXIMUM RATINGS ($T_A$ = 25°C)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Reverse Voltage | $V_R$ | 80 | V |
| Forward Current | $I_F$ | 100 | mA |
| Operating Junction and Storage Temperature Range | $T_J$, $T_{stg}$ | −55 to +150 | °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.

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

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Reverse Voltage | $V_R$ | $I_R$ = 1 μA | 80 | | | V |
| Reverse Current | $I_R$ | $V_R$ = 80 V | | | 50 | nA |
| Forward Voltage | $V_F$ | $I_F$ = 1 mA | | 0.78 | 0.81 | V |
| Series Resistance | $r_s$ | $I_F$ = 10 mA, f = 100 MHz | | 1.3 | | Ω |
| Interterminal Capacitance | C | $V_R$ = 0 V, f = 1 MHz | | 0.33 | | pF |

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.

## TYPICAL CHARACTERISTICS

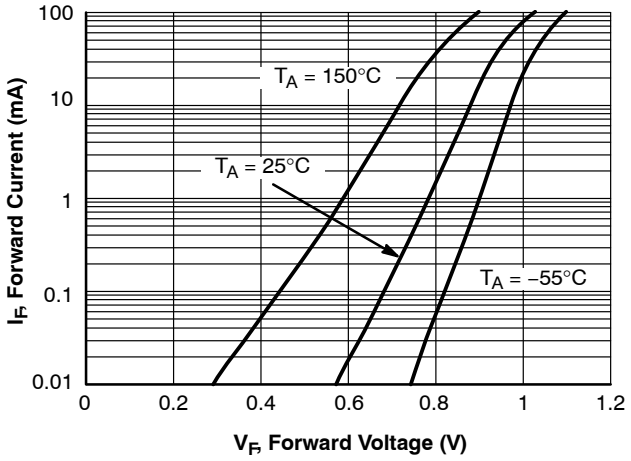



**Figure 1. $I_F$ – $V_F$**

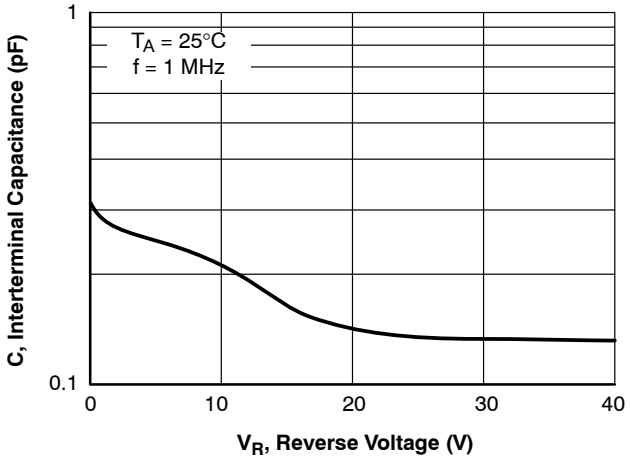



**Figure 2. C – $V_R$**

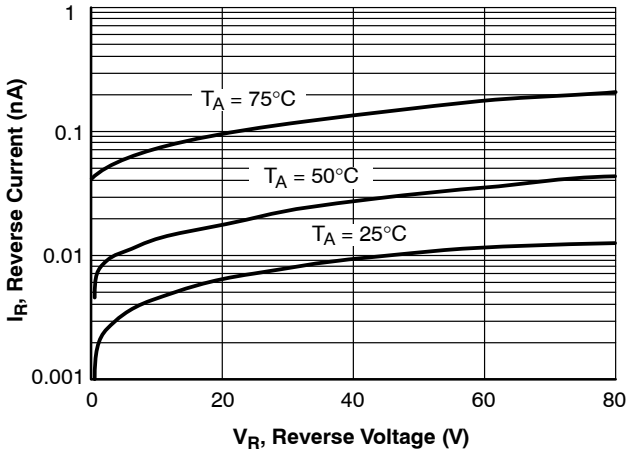



**Figure 3. $I_R$ – $V_R$**

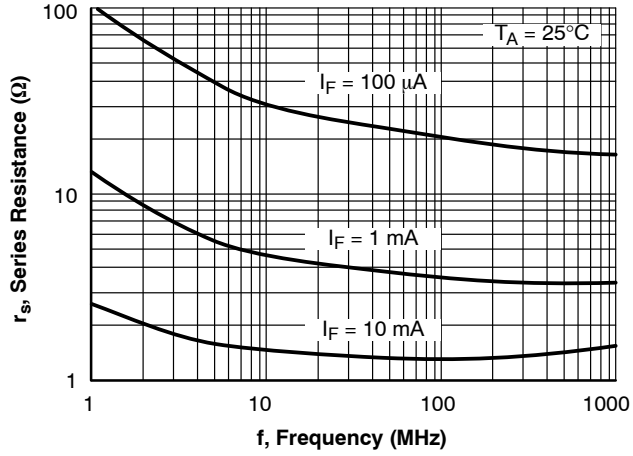



**Figure 4. $r_s$ – f**

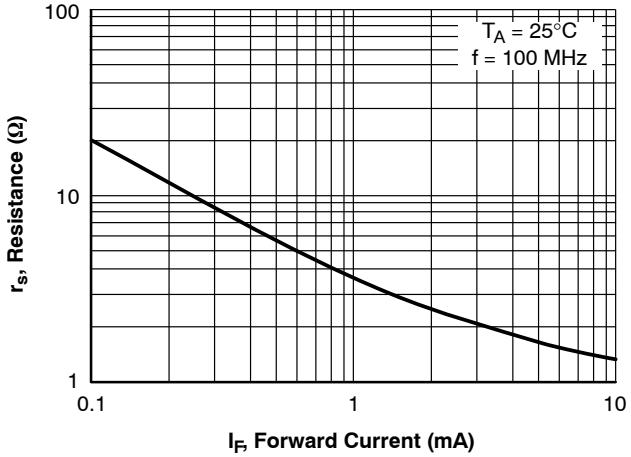



**Figure 5. $r_s$ – $I_F$**

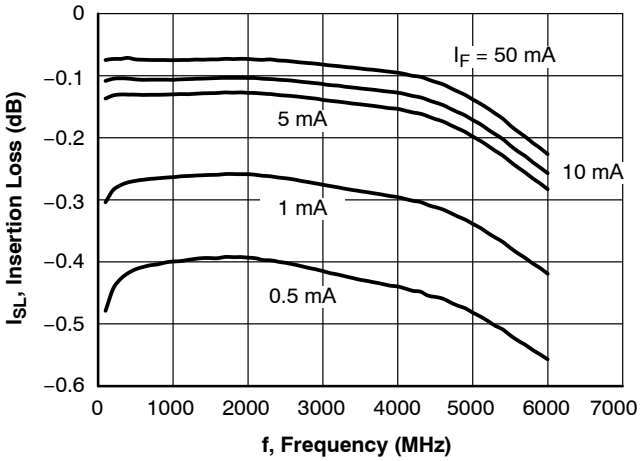



**Figure 6. Insertion Loss**

## TYPICAL CHARACTERISTICS (Continued)

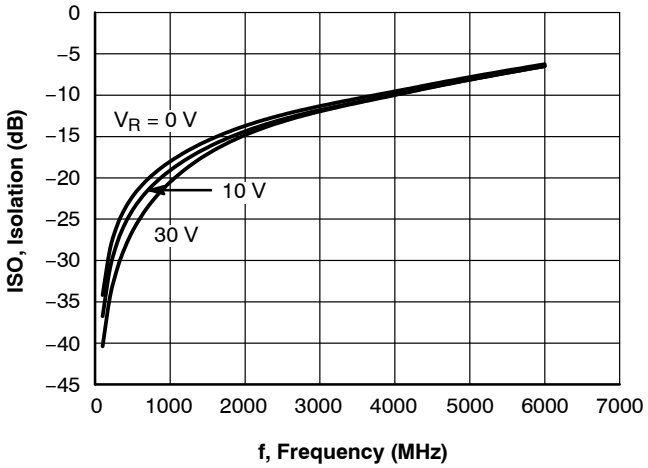



**Figure 7. Isolation**

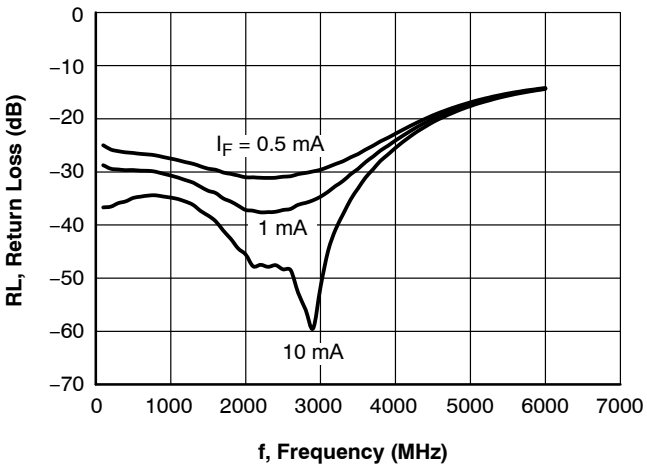
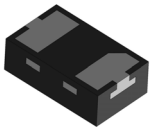
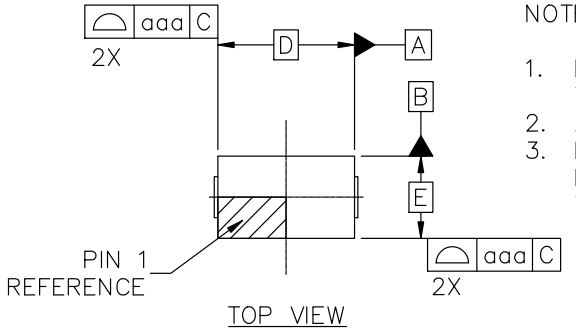



**Figure 8. Return Loss**

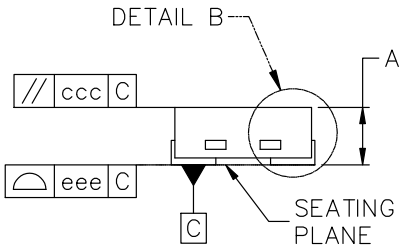


**X2DFNW-2 1.00x0.60x0.37, 0.65P**
CASE 711BG
ISSUE F

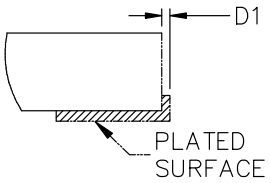
DATE 06 NOV 2025



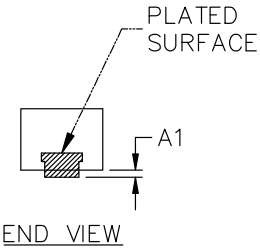

TOP VIEW



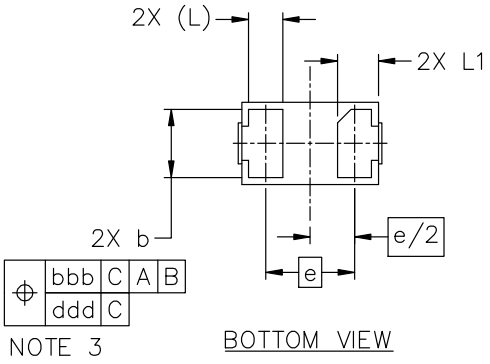

SIDE VIEW




DETAIL "B"
SCALE 2:1




END VIEW




BOTTOM VIEW

NOTES:

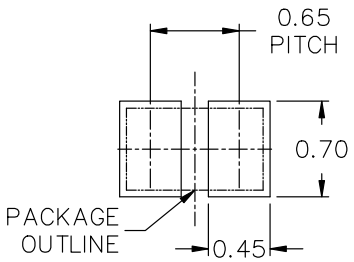
1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5−2018.
2. ALL DIMENSION ARE IN MILLIMETERS.
3. DIMENSION b APPLIES TO THE PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 FROM THE TERMINAL TIP.

| MILLIMETERS | | | |
|---|---|---|---|
| DIM | MIN | NOM | MAX |
| A | 0.34 | 0.37 | 0.40 |
| A1 | ~ | ~ | 0.05 |
| b | 0.45 | 0.50 | 0.55 |
| D | | 1.00 BSC | |
| D1 | ~ | ~ | 0.05 |
| E | | 0.60 BSC | |
| e | | 0.65 BSC | |
| L | | 0.22 REF | |
| L1 | 0.24 | 0.28 | 0.34 |
| TOLERANCE FORM & POSITION | | | |
| aaa | | 0.05 | |
| bbb | | 0.10 | |
| ccc | | 0.05 | |
| ddd | | 0.05 | |
| eee | | 0.05 | |

**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", may or not be present. Some products may not follow the Generic Marking.




RECOMMENDED MOUNTING FOOTPRINT*

* FOR ADDITIONAL INFORMATION ON OUR Pb−FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE onsemi SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

| | | | |
|---|---|---|---|
| **DOCUMENT NUMBER:** | **98AON15241G** | Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red. | |
| **DESCRIPTION:** | **X2DFNW-2 1.00x0.60x0.37, 0.65P** | | **PAGE 1 OF 1** |

## ADDITIONAL INFORMATION

**TECHNICAL PUBLICATIONS**:
**Technical Library:** www.onsemi.com/design/resources/technical−documentation
**onsemi Website:** www.onsemi.com

**ONLINE SUPPORT**: www.onsemi.com/support
**For additional information, please contact your local Sales Representative at** www.onsemi.com/support/sales