

PIN Diode

Single PIN Diode for Attenuator and RF Switch

80 V, 100 mA
 $r_s = 1.3 \Omega$ typ.
 PIN Diode

NSDP301MX2W, NSVDP301MX2W

Low r_s 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 ($r_s = 1.3 \Omega$ 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

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

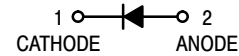
| Parameter | Symbol | Value | Unit |
|--|----------------|-------------|------------------|
| Reverse Voltage | V_R | 80 | V |
| Forward Current | I_F | 100 | mA |
| Operating Junction and Storage Temperature Range | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |

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.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---------------------------|--------|------------------------------|-----|------|------|----------|
| Reverse Voltage | V_R | $I_R = 1 \mu\text{A}$ | 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.



X2DFNW2
 CASE 711BG

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](#).

NSDP301MX2W, NSVDP301MX2W

TYPICAL CHARACTERISTICS

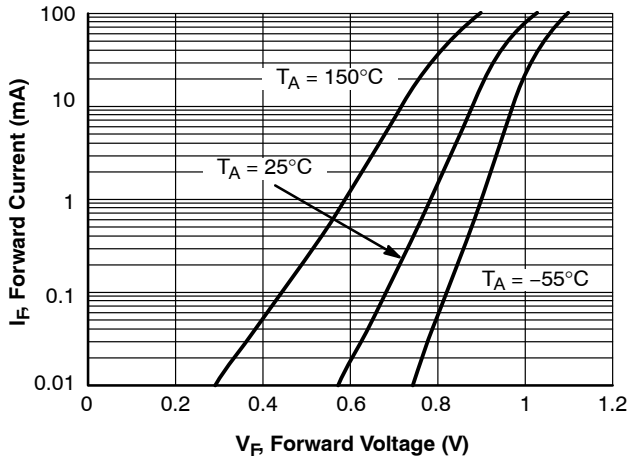


Figure 1. $I_F - V_F$

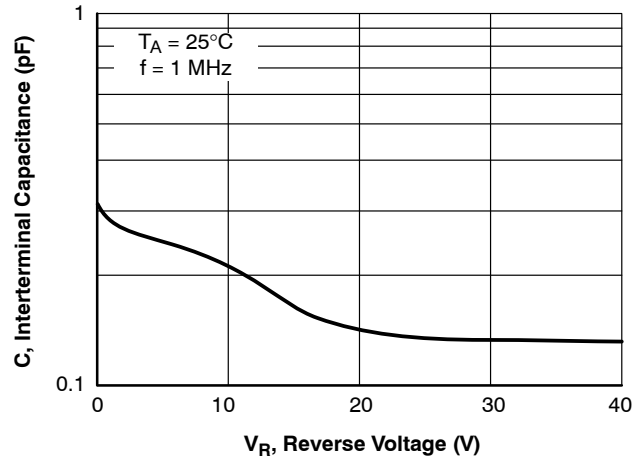


Figure 2. $C - V_R$

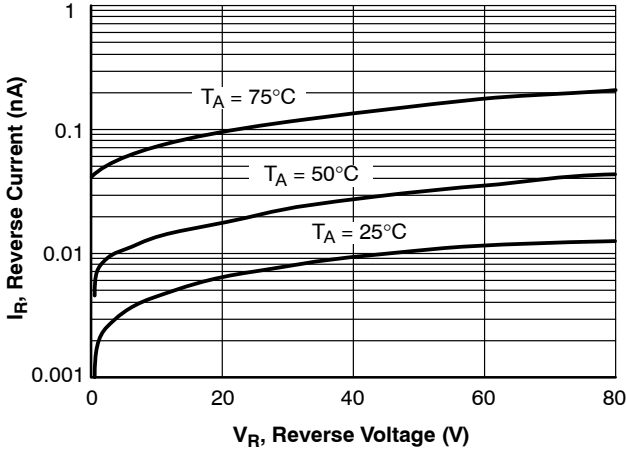


Figure 3. $I_R - V_R$

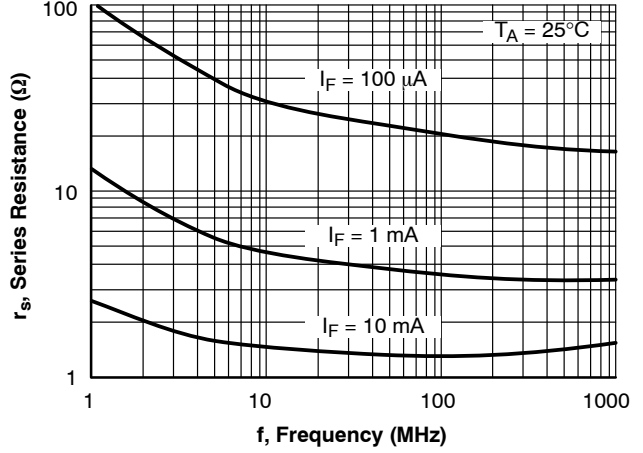


Figure 4. $r_s - f$

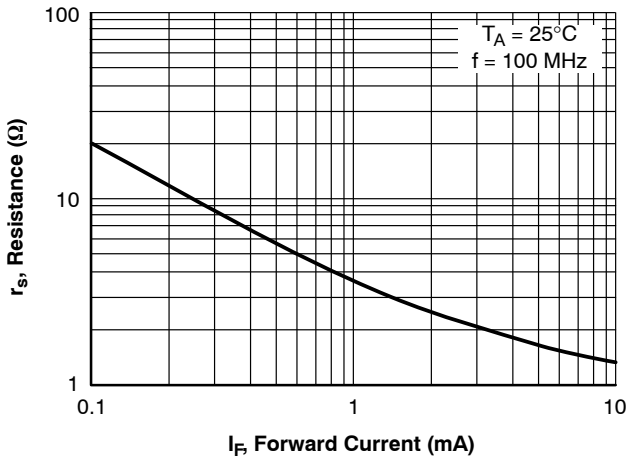


Figure 5. $r_s - I_F$

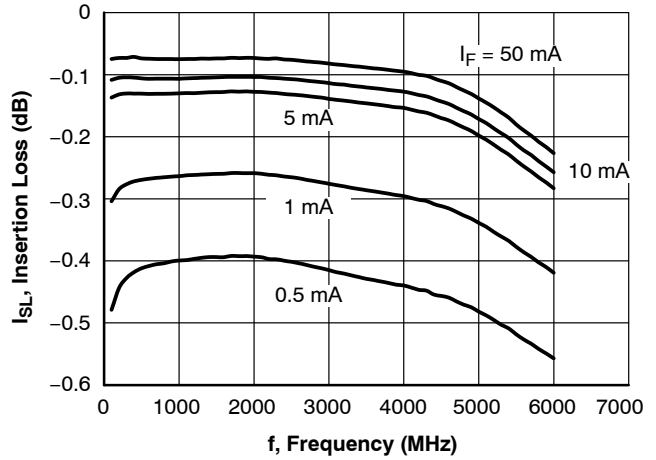


Figure 6. Insertion Loss

NSDP301MX2W, NSVDP301MX2W

TYPICAL CHARACTERISTICS (Continued)

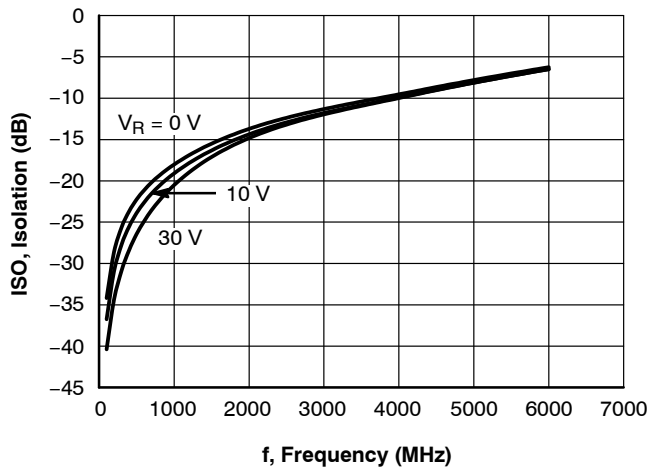


Figure 7. Isolation

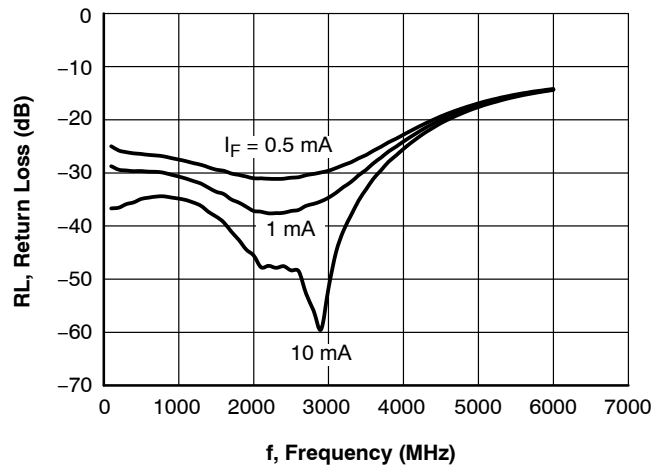


Figure 8. Return Loss

MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

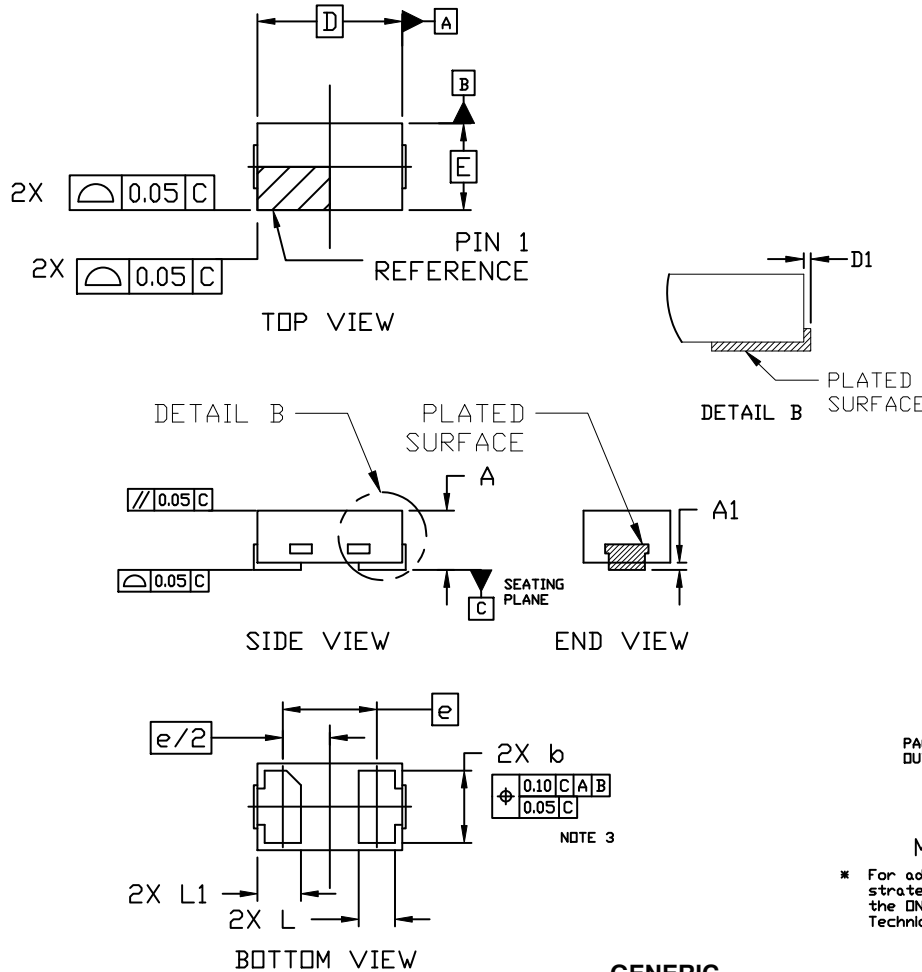
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SCALE 8:1

X2DFNW2 1.0x0.6, 0.65P
CASE 711BG
ISSUE C

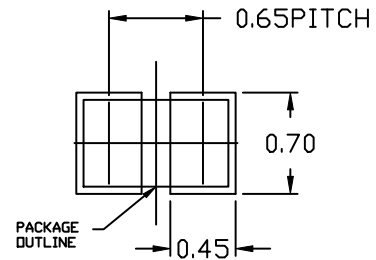
DATE 13 SEP 2019



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. CONTROLLING DIMENSION: MILLIMETERS
3. DIMENSION *b* APPLIES TO THE PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 FROM THE TERMINAL TIP.

| DIM | MILLIMETERS | | |
|----------|-------------|-------|------|
| | MIN. | NDM. | MAX. |
| A | 0.34 | 0.37 | 0.40 |
| A1 | --- | --- | 0.05 |
| <i>b</i> | 0.45 | 0.50 | 0.55 |
| D | 0.90 | 1.00 | 1.10 |
| D1 | --- | --- | 0.05 |
| E | 0.50 | 0.60 | 0.70 |
| <i>e</i> | 0.65 BSC | | |
| L | 0.22 REF | | |
| L1 | 0.24 | 0.285 | 0.34 |



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

| | | |
|-------------------------|-------------------------------|--|
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| DESCRIPTION: | X2DFNW2 1.0X0.6, 0.65P | PAGE 1 OF 1 |

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