

# PIN Diode

## Single PIN Diode for Attenuator and RF Switch

### Product Preview

## NSDP301MX3

Low  $r_s$  characteristics is enable to use high frequency applications. This PIN diode is designed to realize compact and efficient designs. NSDP301MX3 in a X3DFN2 miniature package enables designers to meet the challenging task of achieving higher efficiency and meeting reduced space requirements.

#### Features

- Low Series Resistance ( $r_s = 1.3 \Omega$  typ.)
- Small Interterminal Capacitance ( $C = 0.33$  pF typ.)
- Less Parasitic Components
- Small-sized Package X3DFN2
- Pb-Free, Halogen Free and RoHS Compliance

#### 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	$^\circ\text{C}$

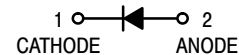
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.



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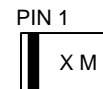
[www.onsemi.com](http://www.onsemi.com)

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



X3DFN2  
CASE 152AF

#### MARKING DIAGRAM



X = Specific Device Code  
(Rotated 180 $^\circ\text{C}$ )  
M = Date Code

#### ORDERING INFORMATION

Device	Package	Shipping†
NSDP301MX3T5G	X3DFN2 (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.

This document contains information on a product under development. ON Semiconductor reserves the right to change or discontinue this product without notice.

# NSDP301MX3

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Voltage	V <sub>R</sub>	I <sub>R</sub> = 1 μA	80			V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = 80 V			50	nA
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 1 mA		0.78	0.81	V
Series Resistance	r <sub>s</sub>	I <sub>F</sub> = 10 mA, f = 100 MHz		1.3		Ω
Interterminal Capacitance	C	V <sub>R</sub> = 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.

# NSDP301MX3

## TYPICAL CHARACTERISTICS

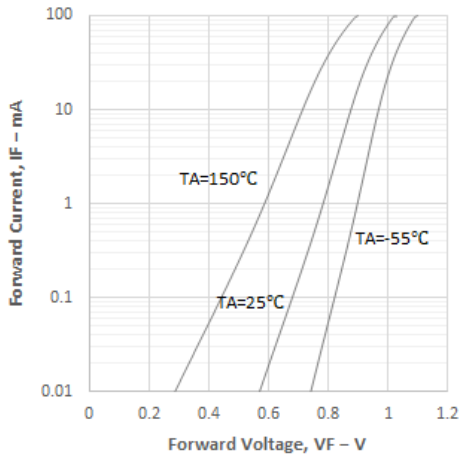


Figure 1.  $I_F - V_F$

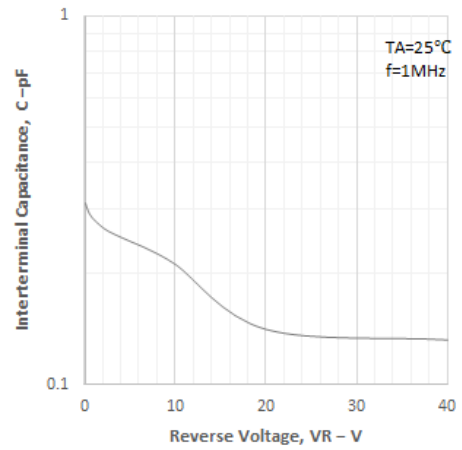


Figure 2.  $C - V_R$

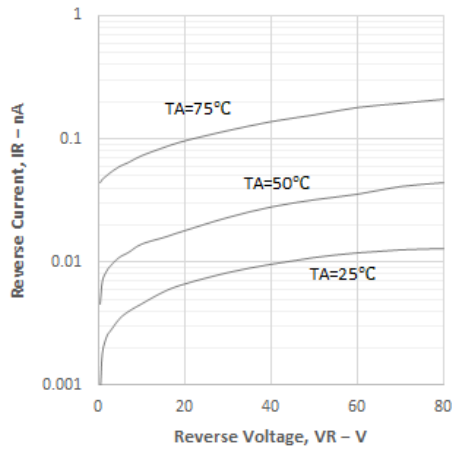


Figure 3.  $I_R - V_R$

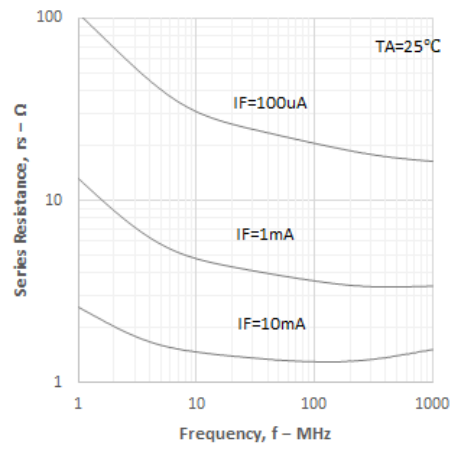


Figure 4.  $r_s - f$

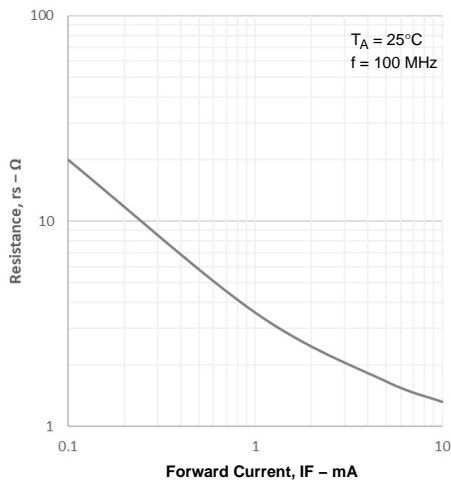
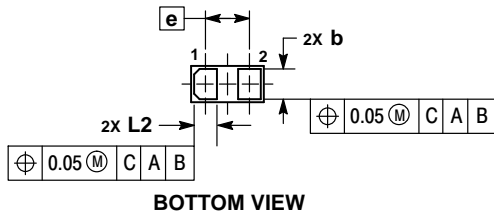
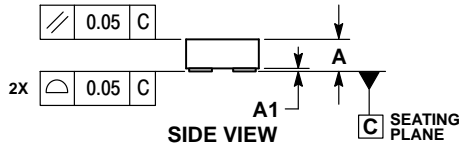
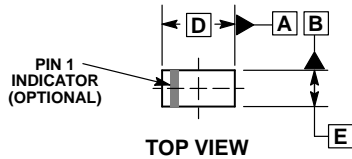


Figure 5.  $r_s - I_F$

# NSDP301MX3

## PACKAGE DIMENSIONS

**X3DFN2, 0.62x0.32, 0.355P, (0201)**  
**CASE 152AF**  
**ISSUE A**

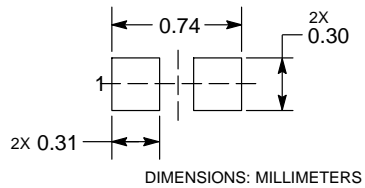


**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.

MILLIMETERS		
DIM	MIN	MAX
A	0.25	0.33
A1	---	0.05
b	0.22	0.28
D	0.58	0.66
E	0.28	0.36
e	0.355 BSC	
L2	0.17	0.23

**RECOMMENDED MOUNTING FOOTPRINT\***



See Application Note AND8398/D for more mounting details  
 \*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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