

# Zener Protection Diode

## NZ8D16V4MX2WT5G

The NZ8D16V4 is designed for applications requiring transient overvoltage ESD protection. They are intended for use to protect voltage sensitive components from ESD and other harmful transient voltage events. This device provides a single channel of bidirectional protection in an, ultra-compact X2DFNW2 1.0 x 0.6 mm package. This device is ideal to replace SOT23 or other dual diode 3 pin devices used as single line bi-directional protection.

### Features

- Very Low Leakage 1 nA
- Precise Clamping Voltage
- High ESD Ratings
- Wettable Flank Package for optimal Automated Optical Inspection (AOI)
- SZ 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/BFR Free and are RoHS Compliant

### Typical Applications

- Automotive ECU's
- IVN – In Vehicle Networking
- Voltage Sensitive Circuits

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

Rating	Symbol	Value	Unit
IEC 61000-4-2 Contact (Note 1)	ESD	±30	kV
IEC 61000-4-2 Air		±30	kV
ISO 10605 Contact (330 pF / 330 Ω)		±30	kV
ISO 10605 Contact (330 pF / 2 kΩ)		±30	kV
ISO 10605 Contact (150 pF / 2 kΩ)		±30	kV
Total Power Dissipation (Note 2) @ T <sub>A</sub> = 25°C	P <sub>D</sub>	300	mW
Thermal Resistance, Junction-to-Ambient	R <sub>θJA</sub>	400	°C/W
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C
Lead Solder Temperature – Maximum (10 Second Duration)	T <sub>L</sub>	260	°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.

1. Non-repetitive current pulse at T<sub>A</sub> = 25°C, per IEC61000-4-2 waveform.
2. Mounted with recommended minimum pad size, DC board FR-4



X2DFNW2  
CASE 711BG

### DEVICE MARKING INFORMATION



DC = Specific Device Code  
M = Date Code

### ORDERING INFORMATION

Device	Package	Shipping <sup>†</sup>
NZ8D16V4MX2WT5G	X2DFNW2 (Pb-Free)	8000 / Tape & Reel
SZNZ8D16V4MX2WT5G		

<sup>†</sup>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.

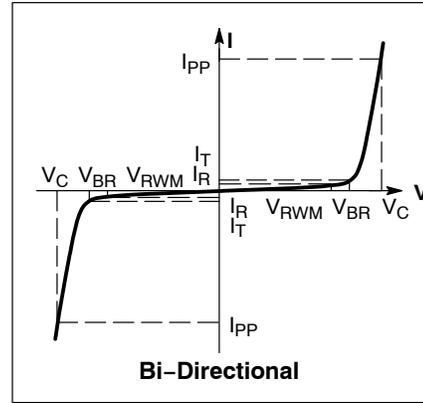
# NZ8D16V4MX2WT5G

## ELECTRICAL CHARACTERISTICS

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

Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current

\*See Application Note AND8308/D for detailed explanations of datasheet parameters.



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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Reverse Working Voltage	$V_{RWM}$				13.0	V
Breakdown Voltage	$V_{BR}$	$I_T = 1 \text{ mA}$ (Note 3) $I_T = 1 \text{ mA}$ (Note 3) @ $150^\circ\text{C}$	15.9	16.8	17.5 18.7	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 13 \text{ V}$		1.0	10.0	nA
Reverse Peak Pulse Current	$I_{PP}$	IEC 61000-4-2 (8/20 $\mu\text{s}$ )	4.5			A
Clamping Voltage (8/20 $\mu\text{s}$ )	$V_C$	$I_{PP} = 1.0 \text{ A}$		18.0		V

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.

3. Breakdown voltage is tested from pin 1 to 2 and pin 2 to 1.

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

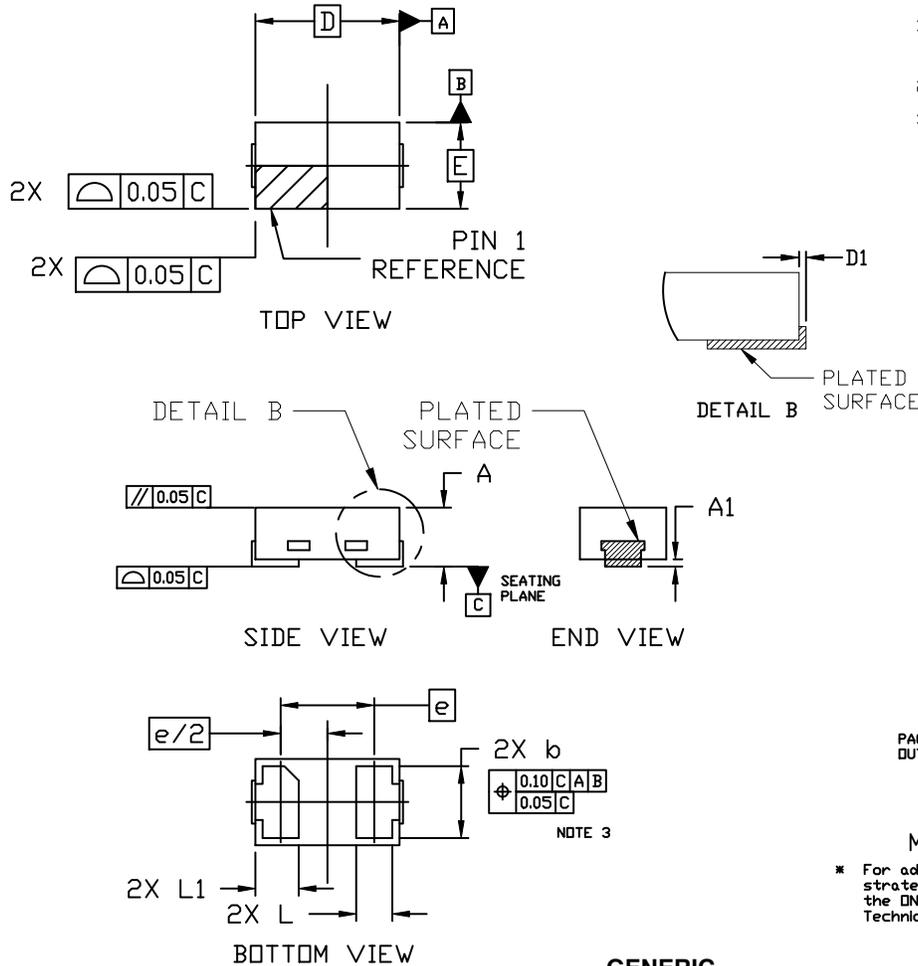
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SCALE 8:1

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

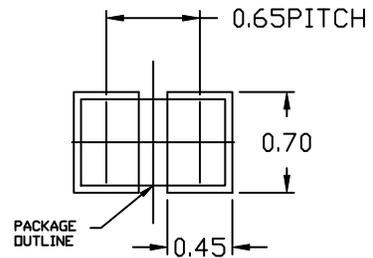
DATE 13 SEP 2019



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.

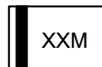
DIM	MILLIMETERS		
	MIN.	NDM.	MAX.
A	0.34	0.37	0.40
A1	---	---	0.05
<i>b</i>	0.45	0.50	0.55
D	0.90	1.00	1.10
D1	---	---	0.05
E	0.50	0.60	0.70
<i>e</i>	0.65 BSC		
L	0.22 REF		
L1	0.24	0.285	0.34



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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<b>DESCRIPTION:</b>	<b>X2DFNW2 1.0X0.6, 0.65P</b>	<b>PAGE 1 OF 1</b>

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