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

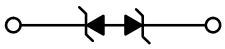
- Automotive ECU's
- IVN – In Vehicle Networking
- Voltage Sensitive Circuits

MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
IEC 61000−4−2 Contact (Note 1) IEC 61000−4−2 Air ISO 10605 Contact (330 pF / 330 Ω) ISO 10605 Contact (330 pF / 2 kΩ) ISO 10605 Contact (150 pF / 2 kΩ)	ESD	±30 ±30 ±30 ±30 ±30	kV kV kV kV kV
Total Power Dissipation (Note 2) @ T_A = 25°C Thermal Resistance, Junction−to−Ambient	P_D $R_{\theta JA}$	300 400	mW °C/W
Junction and Storage Temperature Range	T_J, T_{stg}	−55 to +150	°C
Lead Solder Temperature − Maximum (10 Second Duration)	T_L	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_A = 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†
NZ8D16V4MX2WT5G	X2DFNW2 (Pb−Free)	8000 / Tape & Reel
SZNZ8D16V4MX2WT5G		

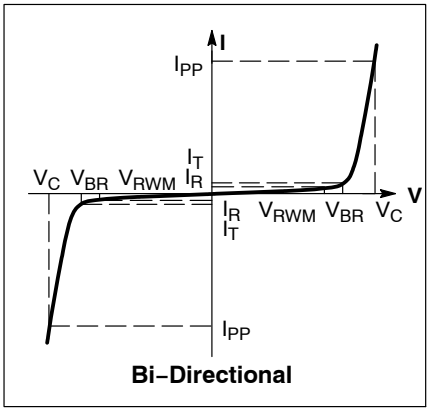
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

ELECTRICAL CHARACTERISTICS

(T_A = 25°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.



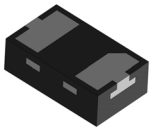
Bi−Directional

ELECTRICAL CHARACTERISTICS (T_A = 25°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 mA (Note 3) I_T = 1 mA (Note 3) @ 150°C	15.9	16.8	17.5 18.7	V
Reverse Leakage Current	I_R	V_{RWM} = 13 V		1.0	10.0	nA
Reverse Peak Pulse Current	I_{PP}	IEC 61000−4−2 (8/20 μs)	4.5			A
Clamping Voltage (8/20 μs)	V_C	I_{PP} = 1.0 A		18.0		V

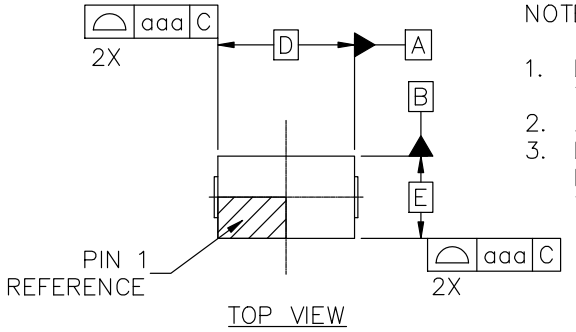
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

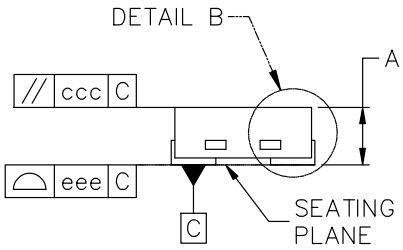


X2DFNW-2 1.00x0.60x0.37, 0.65P
CASE 711BG
ISSUE F

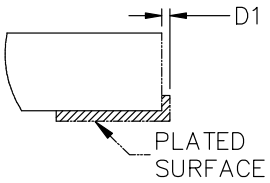
DATE 06 NOV 2025



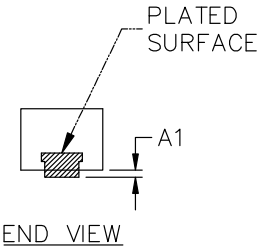
TOP VIEW



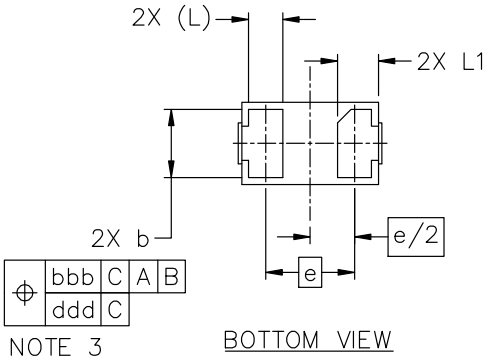
SIDE VIEW



DETAIL "B"
SCALE 2:1



END VIEW



BOTTOM VIEW

NOTES:

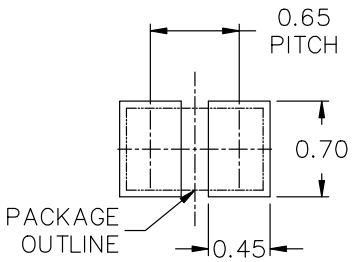
1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5−2018.
2. ALL DIMENSION ARE IN MILLIMETERS.
3. DIMENSION b APPLIES TO THE PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 FROM THE TERMINAL TIP.

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.

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DESCRIPTION:	**X2DFNW-2 1.00x0.60x0.37, 0.65P**		**PAGE 1 OF 1**

ADDITIONAL INFORMATION

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