

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)	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 _A = 25°C	P _D	300	mW
Thermal Resistance, Junction-to-Ambient	R _{θJA}	400	°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
SZ8D16V4MX2WT5G		

[†]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.

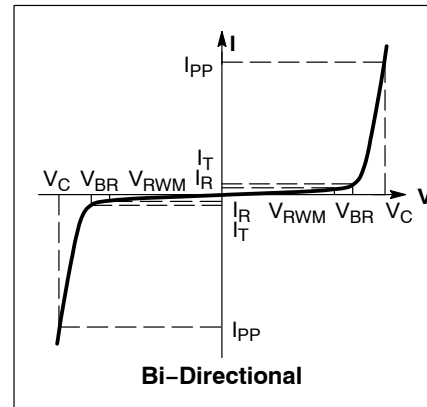
NZ8D16V4MX2WT5G

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.

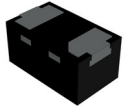


ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

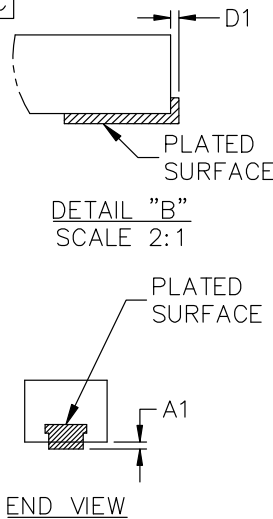
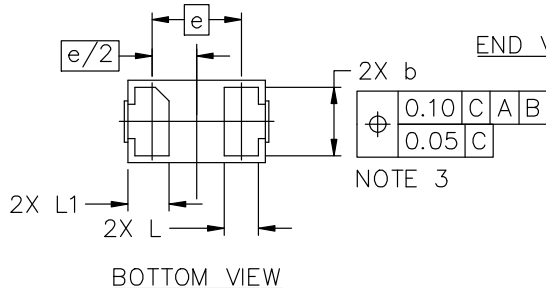
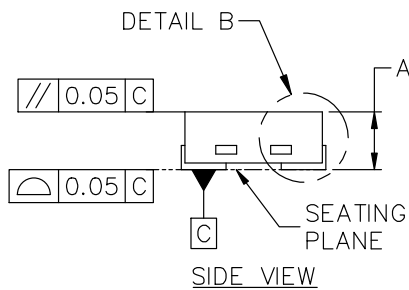
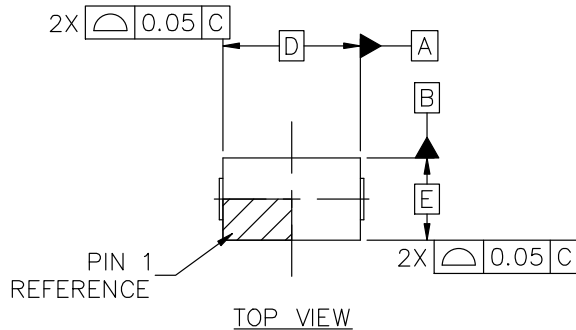
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				13.0	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{ mA}$ (Note 3) $I_T = 1\text{ mA}$ (Note 3) @ 150°C	15.9	16.8	17.5 18.7	V
Reverse Leakage Current	I_R	$V_{RWM} = 13\text{ V}$		1.0	10.0	nA
Reverse Peak Pulse Current	I_{PP}	IEC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

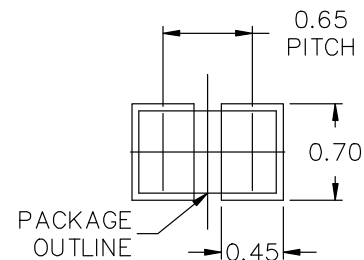
3. Breakdown voltage is tested from pin 1 to 2 and pin 2 to 1.


X2DFNW2 1.00x0.60x0.37, 0.65P
CASE 711BG
ISSUE D

DATE 29 FEB 2024

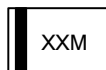


DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.34	0.37	0.40
A1	---	---	0.05
b	0.45	0.50	0.55
D	1.00 BSC		
D1	---	---	0.05
E	0.60 BSC		
e	0.65 BSC		
L	0.22 REF		
L1	0.24	0.28	0.34



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.

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:	X2DFNW2 1.00x0.60x0.37, 0.65P	PAGE 1 OF 1

onsemi and onsemi are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries. onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. onsemi does not convey any license under its patent rights nor the rights of others.

onsemi, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

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

