

NZD5V1MUT5G Series

Zener Voltage Regulators

200 mW Micro Packaged

This Zener diode is designed to provide voltage regulation protection and is especially attractive in situations where space is at a premium. Because of its small size, it is suited for use in mobile applications.

Specification Features:

- Standard Zener Breakdown Voltages:
2.4 V, 2.7 V, 4.7 V, 5.1 V, 5.6 V, 6.2 V
- Steady State Power Rating of 200 mW
- Small Body Outline Dimensions:
0.60 mm x 0.30 mm
- Low Body Height: 0.30 mm
- ESD Rating of Class 3 (>16 kV) per Human Body Model
- These are Pb-Free Devices

Mechanical Characteristics:

MOUNTING POSITION: Any

QUALIFIED MAX REFLOW TEMPERATURE: 260°C

Device Meets MSL 1 Requirements

MAXIMUM RATINGS

Rating	Symbol	Max	Unit
IEC 61000-4-2 (ESD) Contact Air		±20 ±20	kV
Total Device Dissipation FR-5 Board, (Note 1) @ T _A = 25°C	P _D	300	mW
Thermal Resistance from 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

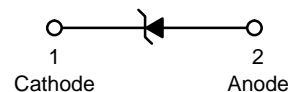
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. FR-5 = 1.0 x 0.75 x 0.62 in.



ON Semiconductor®

<http://onsemi.com>



**X3DFN2
CASE 152AF**

MARKING DIAGRAM



X = Specific Device Code
M = Month Code

ORDERING INFORMATION

Device	Package	Shipping†
NZDxxxMUT5G	X3DFN (Pb-Free)	15000 / 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.

DEVICE MARKING INFORMATION

See specific marking information in the device marking column of the Electrical Characteristics tables starting on page 2 of this data sheet.

NZD5V1MUT5G Series

ELECTRICAL CHARACTERISTICS

($T_A = 25^\circ\text{C}$ unless otherwise noted,
 $V_F = 1.1\text{ V Max. @ } I_F = 10\text{ mA}$ for all types)

Symbol	Parameter
V_Z	Reverse Zener Voltage @ I_{ZT}
I_{ZT}	Reverse Current
Z_{ZT}	Maximum Zener Impedance @ I_{ZT}
I_{ZK}	Reverse Current
Z_{ZK}	Maximum Zener Impedance @ I_{ZK}
I_R	Reverse Leakage Current @ V_R
V_R	Reverse Voltage
I_F	Forward Current
V_F	Forward Voltage @ I_F
θV_Z	Maximum Temperature Coefficient of V_Z
C	Max. Capacitance @ $V_R = 0$ and $f = 1\text{ MHz}$

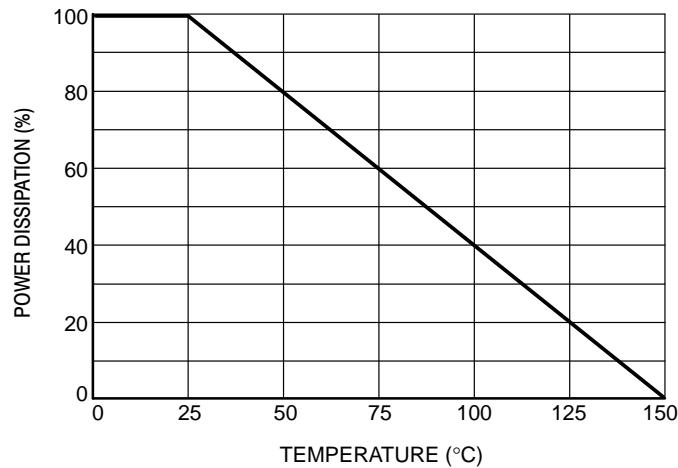
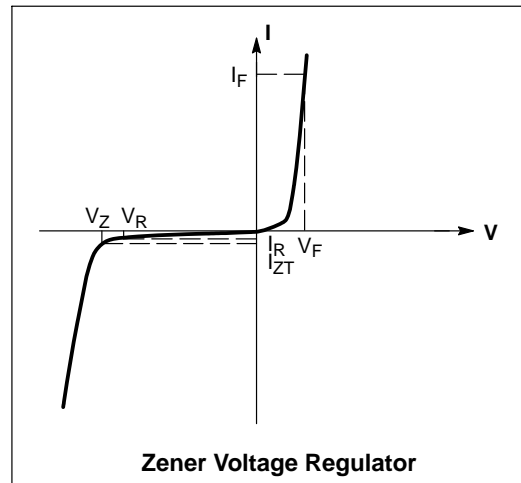


Figure 1. Steady State Power Derating

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 1.1\text{ V Max. @ } I_F = 10\text{ mA}$ for all types)

Device	Device Marking	Zener Voltage (Note 1)		Zener Impedance			Leakage Current		θV_Z (mV/k) @ I_{ZT}		C @ $V_R = 0$ f = 1 MHz	
		V_Z (Volts)		Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_R @ V_R		Min	Max	pF		
		Min	Max	mA	Ω	Ω	mA	μA	Volts	Min	Max	pF
NZD2V4MUT5G	A*	2.28	2.52	5	100	1000	1	50	1	-3.5	0	210
NZD2V7MUT5G	D*	2.57	2.84	5	100	1000	1	20	1	-3.5	0	210
NZD4V7MUT5G	P	4.47	4.94	5	100	800	0.5	2	1	-3.5	0.2	150
NZD5V1MUT5G	Q	4.85	5.36	5	80	500	0.5	2	1.5	-2.7	1.2	130
NZD5V6MUT5G	R	5.32	5.88	5	60	200	0.5	1	2.5	-2.0	2.5	115
NZD6V2MUT5G	T	5.89	6.51	5	60	100	0.5	1	3.0	0.4	3.7	110

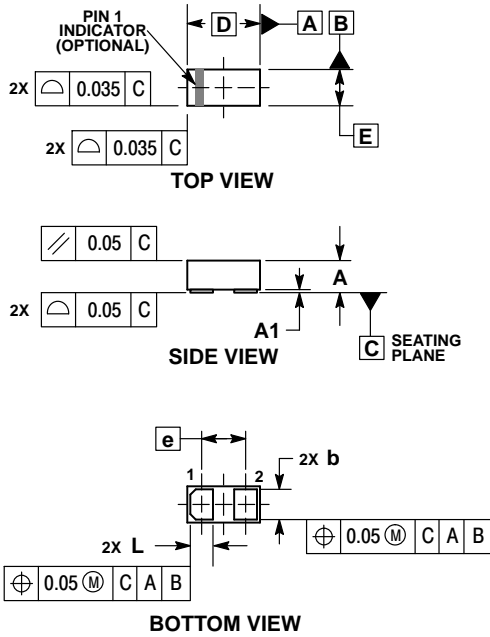
*Rotated 90°.

1. Zener voltage is measured with a pulse test current I_Z at an ambient temperature of 25°C .

NZD5V1MUT5G Series

PACKAGE DIMENSIONS

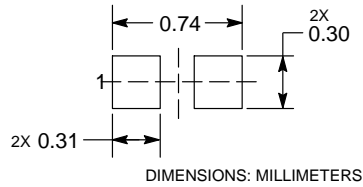
X3DFN2, 0.62x0.32, 0.355P, (0201)
CASE 152AF
ISSUE O



- 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	0.62 BSC	
E	0.32 BSC	
e	0.355 BSC	
L	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.

ON Semiconductor and are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of SCILLC's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC 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. "Typical" parameters which may be provided in SCILLC 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. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC 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 SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5817-1050

ON Semiconductor Website: www.onsemi.com
Order Literature: <http://www.onsemi.com/orderlit>
For additional information, please contact your local Sales Representative