

Zener Diodes

1N5221B - 1N5252B

ABSOLUTE MAXIMUM RATINGS (Note 1)

Values are at $T_A = 25^{\circ}C$ unless otherwise noted.

| Symbol | Parameter | Value | Unit |
|------------------|---|-------------|-------|
| P _D | Power Dissipation | 500 | mW |
| | Derate above 50°C | 4.0 | mW/°C |
| T _{STG} | Storage Temperature Range | -65 to +200 | °C |
| TJ | Operating Junction Temperature Range | -65 to +200 | °C |
| | Lead Temperature (1/16 inch from case for 10s | +230 | °C |

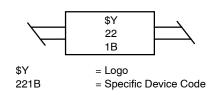
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

 These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Non-recurrent square wave Pulse Width = 8.3 ms, T_A = 50°C.



MARKING DIAGRAM



ORDERING INFORMATION

See detailed ordering and shipping information on page 3 of this data sheet.

1N5221B - 1N5252B

ELECTRICAL CHARACTERISTICS Values are at $T_A = 25^{\circ}C$ unless otherwise noted.

| | V _Z (| V) @ I _Z (Not | te 2) | | | | | | | |
|---|------------------|---------------------------------|--------|-----------------------------|-----------------------|------------------------------|----------------------|-----------------------|----------------------|-----------------------|
| Device | Min. | Тур. | Max. | Z _Z (Ω) @ |) I _Z (mA) | Z _{ZK} (Ω) @ | I _{ZK} (mA) | I _R (μΑ) (| @ V _R (V) | T _C (%/°C) |
| 1N5221B | 2.280 | 2.4 | 2.52 | 30 | 20 | 1,200 | 0.25 | 100 | 1.0 | -0.085 |
| 1N5222B | 2.375 | 2.5 | 2.625 | 30 | 20 | 1,250 | 0.25 | 100 | 1.0 | -0.085 |
| 1N5223B | 2.565 | 2.7 | 2.835 | 30 | 20 | 1,300 | 0.25 | 75 | 1.0 | -0.080 |
| 1N5225B | 2.850 | 3.0 | 3.150 | 29 | 20 | 1,600 | 0.25 | 50 | 1.0 | -0.075 |
| 1N5226B | 3.135 | 3.3 | 3.465 | 28 | 20 | 1,600 | 0.25 | 25 | 1.0 | -0.070 |
| 1N5227B | 3.420 | 3.6 | 3.780 | 24 | 20 | 1,700 | 0.25 | 15 | 1.0 | -0.065 |
| 1N5228B | 3.705 | 3.9 | 4.095 | 23 | 20 | 1,900 | 0.25 | 10 | 1.0 | -0.060 |
| 1N5229B | 4.085 | 4.3 | 4.515 | 22 | 20 | 2,000 | 0.25 | 5.0 | 1.0 | ±0.055 |
| 1N5230B | 4.465 | 4.7 | 4.935 | 19 | 20 | 1,900 | 0.25 | 5.0 | 2.0 | ±0.030 |
| 1N5231B | 4.845 | 5.1 | 5.355 | 17 | 20 | 1,600 | 0.25 | 5.0 | 2.0 | ±0.030 |
| 1N5232B | 5.320 | 5.6 | 5.880 | 11 | 20 | 1,600 | 0.25 | 5.0 | 3.0 | 0.038 |
| 1N5233B | 5.700 | 6.0 | 6.300 | 7 | 20 | 1,600 | 0.25 | 5.0 | 3.5 | 0.038 |
| 1N5234B | 5.890 | 6.2 | 6.510 | 7 | 20 | 1,000 | 0.25 | 5.0 | 4.0 | 0.045 |
| 1N5235B | 6.460 | 6.8 | 7.140 | 5 | 20 | 750 | 0.25 | 3.0 | 5.0 | 0.050 |
| 1N5236B | 7.125 | 7.5 | 7.875 | 6 | 20 | 500 | 0.25 | 3.0 | 6.0 | 0.058 |
| 1N5237B | 7.790 | 8.2 | 8.610 | 8 | 20 | 500 | 0.25 | 3.0 | 6.5 | 0.062 |
| 1N5238B | 8.265 | 8.7 | 9.135 | 8 | 20 | 600 | 0.25 | 3.0 | 6.5 | 0.065 |
| 1N5239B | 8.645 | 9.1 | 9.555 | 10 | 20 | 600 | 0.25 | 3.0 | 7.0 | 0.068 |
| 1N5240B | 9.500 | 10.0 | 10.500 | 17 | 20 | 600 | 0.25 | 3.0 | 8.0 | 0.075 |
| 1N5241B | 10.450 | 11.0 | 11.550 | 22 | 20 | 600 | 0.25 | 2.0 | 8.4 | 0.076 |
| 1N5242B | 11.400 | 12.0 | 12.600 | 30 | 20 | 600 | 0.25 | 1.0 | 9.1 | 0.077 |
| 1N5243B | 12.350 | 13.0 | 13.650 | 13 | 9.5 | 600 | 0.25 | 0.5 | 9.9 | 0.079 |
| 1N5244B | 13.300 | 14.0 | 14.700 | 15 | 9.0 | 600 | 0.25 | 0.1 | 10.0 | 0.080 |
| 1N5245B | 14.250 | 15.0 | 15.750 | 16 | 8.5 | 600 | 0.25 | 0.1 | 11.0 | 0.082 |
| 1N5246B | 15.200 | 16.0 | 16.800 | 17 | 7.8 | 600 | 0.25 | 0.1 | 12.0 | 0.083 |
| 1N5247B | 16.150 | 17.0 | 17.850 | 19 | 7.4 | 600 | 0.25 | 0.1 | 13.0 | 0.084 |
| 1N5248B | 17.100 | 18.0 | 18.900 | 21 | 7.0 | 600 | 0.25 | 0.1 | 14.0 | 0.085 |
| 1N5249B | 18.050 | 19.0 | 19.950 | 23 | 6.6 | 600 | 0.25 | 0.1 | 14.0 | 0.085 |
| 1N5250B | 19.000 | 20.0 | 21.000 | 25 | 6.2 | 600 | 0.25 | 0.1 | 15.0 | 0.086 |
| 1N5251B | 20.900 | 22.0 | 23.100 | 29 | 5.6 | 600 | 0.25 | 0.1 | 17.0 | 0.087 |
| 1N5252B | 22.800 | 24.0 | 25.200 | 33 | 5.2 | 600 | 0.25 | 0.1 | 18.0 | 0.088 |
| V _F Forward Voltage = 1.2 V Max. @ I _F = 200 mA | | | | | | | | | | |

^{2.} Zener Voltage (V_Z). The zener voltage is measured with the device junction in the thermal equilibrium at the lead temperature (T_L) at 30°C ±1°C and 3/8″ lead length.

1N5221B - 1N5252B

TOP MARKING AND ORDERING INFORMATION

| | | Top Marking | | | |
|-----------|--------|-------------|--------|---------------------------|-----------------------|
| Device | Line 1 | Line 2 | Line 3 | Package | Shipping [†] |
| 1N5221B | LOGO | 22 | 1B | Axial Lead | 5000 / Bulk Bag |
| 1N5222B | | | 2B | (Pb – Free / Halide Free) | 5000 / Bulk Bag |
| 1N5223B | | | 3B | | 5000 / Bulk Bag |
| 1N5225B | | | 5B | | 5000 / Bulk Bag |
| 1N5226B | | | 6B | | 5000 / Bulk Bag |
| 1N5226BTR | | | | | 5000 / Tape and Reel |
| 1N5227B | | | 7B | | 5000 / Bulk Bag |
| 1N5227BTR | | | | | 5000 / Tape and Reel |
| 1N5228B | | | 8B | 1 | 5000 / Bulk Bag |
| 1N5228BTR | | | | | 5000 / Tape and Reel |
| 1N5229B | | | 9B | 1 | 5000 / Bulk Bag |
| 1N5229BTR | | | | | 5000 / Tape and Reel |
| 1N5230B | | 23 | 0B | 1 | 5000 / Bulk Bag |
| 1N5230BTR | | | | | 5000 / Tape and Reel |
| 1N5231B | | | 1B | 1 | 5000 / Bulk Bag |
| 1N5231BTR | | | | | 5000 / Tape and Reel |
| 1N5232B | | | 2B | 1 | 5000 / Bulk Bag |
| 1N5232BTR | | | | | 5000 / Tape and Reel |
| 1N5233B | | | 3B | | 5000 / Bulk Bag |
| 1N5233BTR | | | | | 5000 / Tape and Reel |
| 1N5234B | | | 4B | | 5000 / Bulk Bag |
| 1N5234BTR | | | | | 5000 / Tape and Reel |
| 1N5235B | | | 5B | | 5000 / Bulk Bag |
| 1N5235BTR | | | | | 5000 / Tape and Reel |
| 1N5236B | | | 6B | | 5000 / Bulk Bag |
| 1N5236BTR | | | | | 5000 / Tape and Reel |
| 1N5237B | | | 7B | | 5000 / Bulk Bag |
| 1N5237BTR | | | | | 5000 / Tape and Reel |
| 1N5238B | | | 8B | 1 | 5000 / Bulk Bag |
| 1N5239B | | | 9B | | 5000 / Bulk Bag |
| 1N5239BTR | | | | | 5000 / Tape and Reel |
| 1N5240B | | 24 | 0B | | 5000 / Bulk Bag |
| 1N5240BTR | | | | | 5000 / Tape and Reel |
| 1N5241B | | | 1B | | 5000 / Bulk Bag |
| 1N5241BTR | | | | | 5000 / Tape and Reel |
| 1N5242B | | | 2B | | 5000 / Bulk Bag |
| 1N5242BTR | | | | | 5000 / Tape and Reel |
| 1N5243B | | | 3B | 1 | 5000 / Bulk Bag |
| 1N5243BTR | | | | | 5000 / Tape and Reel |

1N5221B - 1N5252B

TOP MARKING AND ORDERING INFORMATION (continued)

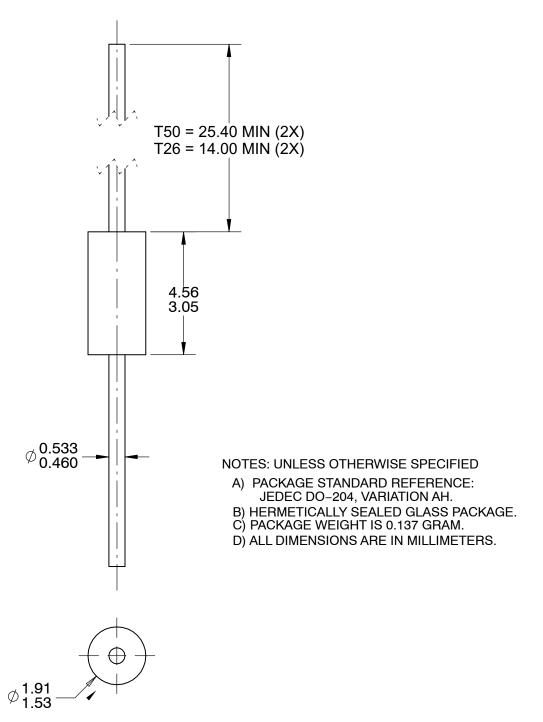
| | Top Marking | | | | | |
|-----------|-------------|--------|--------|---------------------------|-----------------------|--|
| Device | Line 1 | Line 2 | Line 3 | Package | Shipping [†] | |
| 1N5244B | LOGO | 24 | 4B | Axial Lead | 5000 / Bulk Bag | |
| 1N5244BTR | | | | (Pb – Free / Halide Free) | 5000 / Tape and Reel | |
| 1N5245B | | | 5B | | 5000 / Bulk Bag | |
| 1N5245BTR | | | | | 5000 / Tape and Reel | |
| 1N5246B | | | 6B | | 5000 / Bulk Bag | |
| 1N5246BTR | | | | | 5000 / Tape and Reel | |
| 1N5247B | | | 7B | | 5000 / Bulk Bag | |
| 1N5247BTR | | | | | 5000 / Tape and Reel | |
| 1N5248B | | | 8B | | 5000 / Bulk Bag | |
| 1N5248BTR | | | | | 5000 / Tape and Reel | |
| 1N5249BTR | | | 9B | | 5000 / Tape and Reel | |
| 1N5250B | | 25 | 0B | | 5000 / Bulk Bag | |
| 1N5250BTR | | | | | 5000 / Tape and Reel | |
| 1N5251B | | | 1B | | 5000 / Bulk Bag | |
| 1N5251BTR | | | | | 5000 / Tape and Reel | |
| 1N5252B | | | 2B | | 5000 / Bulk Bag | |
| 1N5252BTR | | | | | 5000 / Tape and 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.



AXIAL LEAD CASE 017AG ISSUE O

DATE 31 AUG 2016



| DOCUMENT NUMBER: | 98AON13443G | Electronic versions are uncontrolled except when accessed directly from the Document Repositor Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red. | | |
|------------------|-------------|---|-------------|--|
| DESCRIPTION: | AXIAL LEAD | | 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 with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:

 $\textbf{Technical Library:} \ \underline{www.onsemi.com/design/resources/technical-documentation}$

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