



1N5221 thru 1N5281

Zener Diodes

Zener Voltage Range: 2.4 to 200 Volts Power Dissipation: 500mW

Features

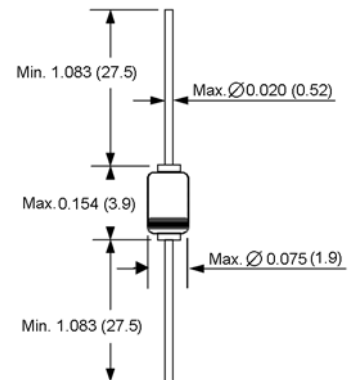
- ◆ Silicon Planar Power Zener Diodes.
- ◆ Standard Zener voltage tolerance is $\pm 5\%$ with a "B" suffix, and $\pm 10\%$ with a "A" suffix . Other tolerances are available upon request.
- ◆ These diodes are also available in Mini-MELF case with the type designation ZMM5225...ZMM5267.



DO-204AH (DO-35 Glass)

Mechanical Data

- ◆ Case: DO-35 Glass Case
- ◆ Weight: approx. 0.13 gram



Dimensions in inches and (millimeters)

Maximum Ratings and Thermal Characteristics

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

| Parameter | Symbol | Value | Unit |
|--|-----------------------|--------------------|--------------------|
| Zener current (see Table "Characteristics") | | | |
| Power dissipation at $T_{\text{amb}} = 75^\circ\text{C}$ | P_{tot} | 500 ⁽¹⁾ | mW |
| Thermal resistance junction to ambient air | $R_{\theta\text{JA}}$ | 300 ⁽¹⁾ | $^\circ\text{C/W}$ |
| Maximum junction temperature | T_j | 175 | $^\circ\text{C}$ |
| Storage temperature range | T_s | -65 to +175 | $^\circ\text{C}$ |

Notes: 1. Valid provided that leads at a distance of 10mm from case are kept at ambient temperature.

Electrical Characteristics

(T_j=25°C unless otherwise noted) Maximum V_r=1.1V at I_r=200mA

| Type number | Nominal zener voltage at I _{ZT} V _Z (Volts) | Test current I _{ZT} (mA) | Maximum zener impedance ⁽¹⁾ | | Typical temperature coefficient αvz (% / K) | Maximum regulator current I _{ZM} (mA) | Maximum reverse leakage current | |
|-------------|---|-----------------------------------|--|--|---|--|---------------------------------|-------------------------------------|
| | | | at I _{ZT} Z _{ZT} (Ω) | at I _{ZM} =0.25mA Z _{ZK} (Ω) | | | I _R (μA) | Test voltage V _R (Volts) |
| 1N5221 | 2.4 | 20 | 30 | 1200 | -0.085 | - | 100 | 1.0 |
| 1N5222 | 2.5 | 20 | 30 | 1250 | -0.085 | - | 100 | 1.0 |
| 1N5223 | 2.7 | 20 | 30 | 1300 | -0.080 | - | 75 | 1.0 |
| 1N5224 | 2.8 | 20 | 30 | 1400 | -0.080 | - | 75 | 1.0 |
| 1N5225 | 3.0 | 20 | 29 | 1600 | -0.075 | 152 | 50 | 1.0 |
| 1N5226 | 3.3 | 20 | 28 | 1600 | -0.070 | 138 | 25 | 1.0 |
| 1N5227 | 3.6 | 20 | 24 | 1700 | -0.065 | 126 | 15 | 1.0 |
| 1N5228 | 3.9 | 20 | 23 | 1900 | -0.060 | 115 | 10 | 1.0 |
| 1N5229 | 4.3 | 20 | 22 | 2000 | -0.055 | 106 | 5.0 | 1.0 |
| 1N5230 | 4.7 | 20 | 19 | 1900 | +0.030 | 97 | 5.0 | 2.0 |
| 1N5231 | 5.1 | 20 | 17 | 1600 | +0.030 | 89 | 5.0 | 2.0 |
| 1N5232 | 5.6 | 20 | 11 | 1600 | +0.038 | 81 | 5.0 | 3.0 |
| 1N5233 | 6.0 | 20 | 7 | 1600 | +0.038 | 76 | 5.0 | 3.5 |
| 1N5234 | 6.2 | 20 | 7 | 1000 | +0.045 | 73 | 5.0 | 4.0 |
| 1N5235 | 6.8 | 20 | 5 | 750 | +0.050 | 67 | 3.0 | 5.0 |
| 1N5236 | 7.5 | 20 | 6 | 500 | +0.058 | 61 | 3.0 | 6.0 |
| 1N5237 | 8.2 | 20 | 8 | 500 | +0.062 | 55 | 3.0 | 6.5 |
| 1N5238 | 8.7 | 20 | 8 | 600 | +0.065 | 52 | 3.0 | 6.5 |
| 1N5239 | 9.1 | 20 | 10 | 600 | +0.068 | 50 | 3.0 | 7.0 |
| 1N5240 | 10 | 20 | 17 | 600 | +0.075 | 45 | 3.0 | 8.0 |
| 1N5241 | 11 | 20 | 22 | 600 | +0.076 | 41 | 2.0 | 8.4 |
| 1N5242 | 12 | 20 | 30 | 600 | +0.077 | 38 | 1.0 | 9.1 |
| 1N5243 | 13 | 9.5 | 13 | 600 | +0.079 | 35 | 0.5 | 9.9 |
| 1N5244 | 14 | 9.0 | 15 | 600 | +0.082 | 32 | 0.1 | 10 |
| 1N5245 | 15 | 8.5 | 16 | 600 | +0.082 | 30 | 0.1 | 11 |
| 1N5246 | 16 | 7.8 | 17 | 600 | +0.083 | 28 | 0.1 | 12 |
| 1N5247 | 17 | 7.4 | 19 | 600 | +0.084 | 27 | 0.1 | 13 |
| 1N5248 | 18 | 7.0 | 21 | 600 | +0.085 | 25 | 0.1 | 14 |
| 1N5249 | 19 | 6.6 | 23 | 600 | +0.086 | 24 | 0.1 | 14 |
| 1N5250 | 20 | 6.2 | 25 | 600 | +0.086 | 23 | 0.1 | 15 |
| 1N5251 | 22 | 5.6 | 29 | 600 | +0.087 | 21 | 0.1 | 17 |
| 1N5252 | 24 | 5.2 | 33 | 600 | +0.087 | 19.1 | 0.1 | 18 |
| 1N5253 | 25 | 5.0 | 35 | 600 | +0.089 | 18.2 | 0.1 | 19 |
| 1N5254 | 27 | 4.6 | 41 | 600 | +0.090 | 16.8 | 0.1 | 21 |
| 1N5255 | 28 | 4.5 | 44 | 600 | +0.091 | 16.2 | 0.1 | 21 |
| 1N5256 | 30 | 4.2 | 49 | 600 | +0.091 | 15.1 | 0.1 | 23 |
| 1N5257 | 33 | 3.8 | 58 | 700 | +0.092 | 13.8 | 0.1 | 25 |
| 1N5258 | 36 | 3.4 | 70 | 700 | +0.093 | 12.6 | 0.1 | 27 |
| 1N5259 | 39 | 3.2 | 80 | 800 | +0.094 | 11.6 | 0.1 | 30 |
| 1N5260 | 43 | 3.0 | 93 | 900 | +0.095 | 10.6 | 0.1 | 33 |
| 1N5261 | 47 | 2.7 | 105 | 1000 | +0.095 | 9.7 | 0.1 | 36 |
| 1N5262 | 51 | 2.5 | 125 | 1100 | +0.096 | 8.9 | 0.1 | 39 |
| 1N5263 | 56 | 2.2 | 150 | 1300 | +0.096 | - | 0.1 | 43 |
| 1N5264 | 60 | 2.1 | 170 | 1400 | +0.097 | - | 0.1 | 46 |
| 1N5265 | 62 | 2.0 | 185 | 1400 | +0.097 | - | 0.1 | 47 |
| 1N5266 | 68 | 1.8 | 230 | 1600 | +0.097 | - | 0.1 | 52 |
| 1N5267 | 75 | 1.7 | 270 | 1700 | +0.098 | - | 0.1 | 56 |
| 1N5268 | 82 | 1.5 | 330 | 1700 | +0.098 | - | 0.1 | 62 |
| 1N5269 | 87 | 1.4 | 370 | 2000 | +0.099 | - | 0.1 | 68 |
| 1N5270 | 91 | 1.4 | 400 | 2200 | +0.099 | - | 0.1 | 69 |
| 1N5271 | 100 | 1.3 | 500 | 2300 | +0.100 | - | 0.1 | 75 |
| 1N5272 | 110 | 1.2 | 700 | - | +0.100 | - | 0.1 | 83 |
| 1N5273 | 120 | 1.0 | 950 | - | +0.100 | - | 0.1 | 90 |
| 1N5274 | 130 | 0.95 | 1100 | - | +0.110 | - | 0.1 | 98 |
| 1N5275 | 140 | 0.90 | 1300 | - | +0.110 | - | 0.1 | 105 |
| 1N5276 | 150 | 0.85 | 1500 | - | +0.110 | - | 0.1 | 113 |
| 1N5277 | 160 | 0.80 | 1700 | - | +0.115 | - | 0.1 | 120 |
| 1N5278 | 170 | 0.74 | 1900 | - | +0.115 | - | 0.1 | 127 |
| 1N5279 | 180 | 0.68 | 2200 | - | +0.120 | - | 0.1 | 135 |
| 1N5280 | 190 | 0.66 | 2400 | - | +0.120 | - | 0.1 | 142 |
| 1N5281 | 200 | 0.65 | 2500 | - | +0.120 | - | 0.1 | 150 |

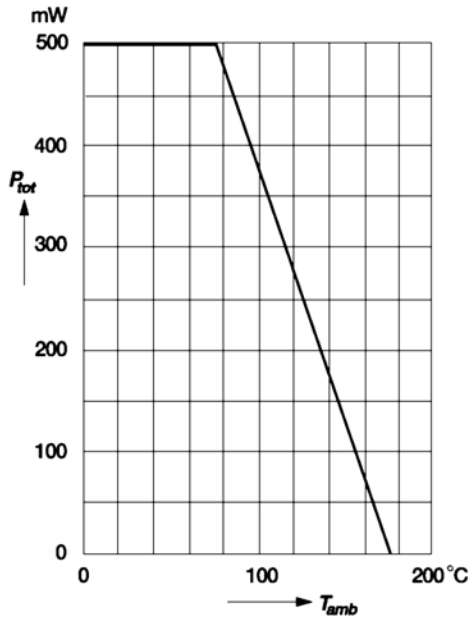
- Notes:**
1. The Zener Impedance is derived from the 1 KHZ AC voltage which results when an AC current having an RMS value equal to 10% of the Zener current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK}. Zener Impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units.
 2. Valid provided that leads at a distance of 10 mm from case are kept at ambient temperature.
 3. Measured with device junction in thermal equilibrium.

RATINGS AND CHARACTERISTIC CURVES

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

Admissible power dissipation versus ambient temperature

Valid provided that leads at a distance of 10 mm from case are kept at ambient temperature



Pulse thermal resistance versus pulse duration

Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature

