



SEMICONDUCTOR

1N5221 THRU 1N5281

0.5W SILICON PLANAR ZENER DIODES

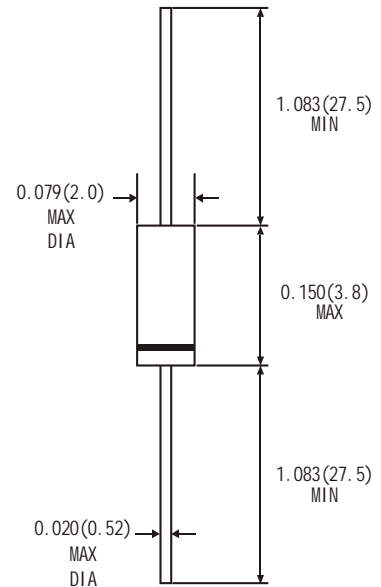
FEATURES

- Standards zener voltage tolerance is $\pm 20\%$. Add suffix "A" for $\pm 10\%$ tolerance and suffix "B" for $\pm 5\%$ tolerance other tolerance, non standards and higher zener voltage upon request

MECHANICAL DATA

- Case: DO-35 glass case
- Polarity: Color band denotes cathode end
- Weight: Approx. 0.13 gram

DO-35



Dimensions in inches and (millimeters)

ABSOLUTE MAXIMUM RATINGS(LIMITING VALUES) ($T_A = 25\text{ C}^\circ$)

| | Symbols | Value | Units |
|------------------------------------------------|-----------|-------------------|------------------|
| Zener current see table "Characteristics" | | | |
| Power dissipation at $T_A = 75\text{ C}^\circ$ | P_{tot} | 500 ¹⁾ | mW |
| Junction temperature | T_J | 175 | $^\circ\text{C}$ |
| Storage temperature range | T_{STG} | -65 to +200 | $^\circ\text{C}$ |

1) Valid provided that a distance of 8mm from case are kept at ambient temperature

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

| | Symbols | Min | Typ | Max | Units |
|--------------------------------------------|-----------|-----|-----|-------------------|-------|
| Thermal resistance junction to ambient air | R_{THA} | | | 0.3 ¹⁾ | K/mW |
| Forward voltage at $I_F = 200\text{mA}$ | V_F | | | 1.1 | V |

1) Valid provided that a distance of 8mm from case are kept at ambient temperature

1N5221 THRU 1N5249 SILICON PLANAR ZENER DIODES

| Type | Zener Voltage range ¹⁾ | | Maximum zener impedance ¹⁾ | | | Maximum Reverse Leakage Current | | Temp. Coefficient of zener voltage | |
|--------|-----------------------------------|-----------------|--------------------------------------------------------|-------|------|------------------------------------------------|---------|------------------------------------|---------|
| | V _{Z(NOM)} ³⁾ | I _{ZT} | I _{ZP} and I _{ZK} at I _{ZK} | | | I _R ²⁾ at V _R | | TK _{Vz} | |
| | V | mA | Ω | Ω | mA | μA | V | %/K | |
| 1N5221 | 2.4 | 20 | <30 | <1200 | 0.25 | <100 | 1.0 | <-0.085 | |
| 1N5222 | 2.5 | | | <1250 | | <100 | | <-0.085 | |
| 1N5223 | 2.7 | | | <1300 | | <75 | | <-0.080 | |
| 1N5224 | 2.8 | | | <1400 | | <75 | | <-0.080 | |
| 1N5225 | 3.0 | | <29 | <1600 | | <50 | | <-0.075 | |
| 1N5226 | 3.3 | | <28 | <1600 | | <25 | | <-0.070 | |
| 1N5227 | 3.6 | | <24 | <1700 | | <15 | | <-0.065 | |
| 1N5228 | 3.9 | | <23 | <1900 | | <10 | | <-0.060 | |
| 1N5229 | 4.3 | | <22 | <2000 | | | | <+0.055 | |
| 1N5230 | 4.7 | | <19 | <1900 | | | | 2.0 | <+0.030 |
| 1N5231 | 5.1 | | <17 | <1600 | | | 5 | 2.0 | <+0.030 |
| 1N5232 | 5.6 | | <11 | <1600 | | | | 3.0 | <+0.038 |
| 1N5233 | 6.0 | | <7 | <1600 | | | | 3.5 | <+0.038 |
| 1N5234 | 6.2 | | <7 | <1000 | | | | 4.0 | <+0.045 |
| 1N5235 | 6.8 | | <5 | <750 | | | | 5.0 | <+0.050 |
| 1N5236 | 7.5 | | <6 | <500 | | | | 6.0 | <+0.058 |
| 1N5237 | 8.2 | | <8 | <500 | | | | 6.5 | <+0.062 |
| 1N5238 | 8.7 | | <8 | | | | | 6.5 | <+0.065 |
| 1N5239 | 9.1 | | <10 | | | | | 7.0 | <+0.068 |
| 1N5240 | 10 | | <17 | | | | | 8.0 | <+0.075 |
| 1N5241 | 11 | <22 | | | | 8.4 | <+0.076 | | |
| 1N5242 | 12 | <30 | | | | <2 | 9.1 | <+0.077 | |
| 1N5243 | 13 | 9.5 | <13 | | | <1 | 9.9 | <+0.079 | |
| 1N5244 | 14 | 9.0 | <15 | <600 | | <0.5 | 10 | <+0.082 | |
| 1N5245 | 15 | 8.5 | <16 | | | | 11 | <+0.082 | |
| 1N5246 | 16 | 7.8 | <17 | | | | 12 | <+0.083 | |
| 1N5247 | 17 | 7.4 | <19 | | | | 13 | <+0.084 | |
| 1N5248 | 18 | 7.0 | <21 | | | | 14 | <+0.085 | |
| 1N5249 | 19 | 6.6 | <23 | | | | 14 | <+0.086 | |

1N5250 THRU 1N5281 SILICON PLANAR ZENER DIODES

| Type | Zener Voltage range ¹⁾ | | Maximum zener impedance ¹⁾ | | | Maximum Reverse Leakage Current | | Temp Coefficient of zener voltage | |
|--------|-----------------------------------|-----------------|--------------------------------------------------------|-------|------|------------------------------------------------|---------|-----------------------------------|---------|
| | V _{Z(NOM)} ³⁾ | I _{ZT} | I _{ZK} and I _{ZK} at I _{ZK} | | | I _R ²⁾ at V _R | | TK _{Vz} | |
| | V | mA | Ω | Ω | mA | μA | V | %/K | |
| 1N5250 | 20 | 6.2 | <25 | <600 | 0.25 | <0.1 | 15 | <+0.086 | |
| 1N5251 | 22 | 5.6 | <29 | | | | 17 | <+0.087 | |
| 1N5252 | 24 | 5.2 | <33 | | | | 18 | <+0.088 | |
| 1N5253 | 25 | 5.0 | <35 | | | | 19 | <+0.089 | |
| 1N5254 | 27 | 4.6 | <41 | | | | 21 | <+0.090 | |
| 1N5255 | 28 | 4.5 | <44 | | | | 21 | <+0.091 | |
| 1N5256 | 30 | 4.2 | <49 | | | | 23 | <+0.091 | |
| 1N5257 | 33 | 3.8 | <58 | | | | <700 | 25 | <+0.092 |
| 1N5258 | 36 | 3.4 | <70 | | | | <700 | 27 | <+0.093 |
| 1N5259 | 39 | 3.2 | <80 | | | | <800 | 30 | <+0.094 |
| 1N5260 | 43 | 3.0 | <93 | <900 | 33 | <+0.095 | | | |
| 1N5261 | 47 | 2.7 | <105 | <1000 | 36 | <+0.095 | | | |
| 1N5262 | 51 | 2.5 | <125 | <1100 | 39 | <+0.096 | | | |
| 1N5263 | 56 | 2.2 | <150 | <1300 | 43 | <+0.096 | | | |
| 1N5264 | 60 | 2.1 | <170 | <1400 | 46 | <+0.097 | | | |
| 1N5265 | 62 | 2.0 | <185 | <1400 | 47 | <+0.097 | | | |
| 1N5266 | 68 | 1.8 | <230 | <1600 | 52 | <+0.097 | | | |
| 1N5267 | 75 | 1.7 | <270 | <1700 | 56 | <+0.098 | | | |
| 1N5268 | 82 | 1.5 | <330 | <2000 | 62 | <+0.098 | | | |
| 1N5269 | 87 | 1.4 | <370 | <2200 | 68 | <+0.099 | | | |
| 1N5270 | 91 | 1.4 | <400 | <2300 | 69 | <+0.099 | | | |
| 1N5271 | 100 | 1.3 | <500 | -- | -- | 75 | <+0.100 | | |
| 1N5272 | 110 | 1.2 | <700 | -- | -- | 83 | <+0.100 | | |
| 1N5273 | 120 | 1.0 | <950 | -- | -- | 90 | <+0.100 | | |
| 1N5274 | 130 | 0.95 | <1100 | -- | -- | 98 | <+0.110 | | |
| 1N5275 | 140 | 0.90 | <1300 | -- | -- | 105 | <+0.110 | | |
| 1N5276 | 150 | 0.85 | <1500 | -- | -- | 113 | <+0.110 | | |
| 1N5277 | 160 | 0.80 | <1700 | -- | -- | 120 | <+0.115 | | |
| 1N5278 | 170 | 0.74 | <1900 | -- | -- | 127 | <+0.115 | | |
| 1N5279 | 180 | 0.68 | <2200 | -- | -- | 135 | <+0.120 | | |
| 1N5280 | 190 | 0.66 | <2400 | -- | -- | 142 | <+0.120 | | |
| 1N5281 | 200 | 0.65 | <2500 | -- | -- | 150 | <+0.120 | | |

- 1) The zener impedance is derived from the 60Hz 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 8mm from case are kept at ambient temperature.
- 3) Measured under thermal equilibrium and DC test conditions.

1N5221 THRU 1N5281 SILICON PLANAR ZENER DIODES

Admissible power dissipation versus ambient temperature
(Valid provided that leads at a distance of 10mm from case
are kept at ambient temperature)

