

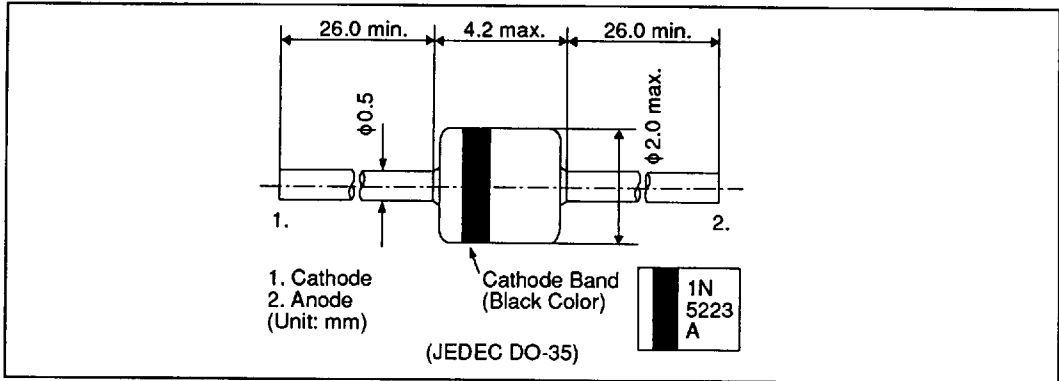
HITACHI/(OPTOELECTRONICS)

Appendix D 500-mW Zener Regulator Diodes
 1N5223 through 1N5258
 1N5223A through 1N5258A
 1N5223B through 1N5258B

Table D-1 Absolute Maximum Ratings

| Item | Symbol | Rating | Unit | Notes |
|----------------------|---------------|-------------|------|-------|
| Forward Voltage | V_F | 1.1 | V | 1 |
| Junction Temperature | T_j | -65 to +200 | °C | |
| Storage Temperature | T_{stg} | -65 to +200 | °C | |
| Lead Temperature | T_1 | 230 | °C | 2 |
| DC Power Dissipation | P_d | 500 | mW | 3 |
| Surge Power | P_d (surge) | 10 | W | 4 |

- Notes: 1. $I_F = 200$ mA.
 2. Less than 1/16" from the case for 10 seconds.
 3. $T_1 = 75$ °C, Lead length = 3/8" (Derate 4 mW/°C above 75°C).
 4. Non-recurrent square wave, pw = 8.3 ms, $T_j = 55$ °C, T_j is prior to surge.



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Table D-2 Electrical Characteristics ($T_a = 25^\circ\text{C}$ unless otherwise noted)

| Type | Nominal Zener Voltage V_Z (V) | Test Current I_{ZT} (mA) | Max Zener Impedance A&B Suffix Only | | | Max Reverse Leakage Current | | |
|--------|---------------------------------------|-------------------------------|--|-----------------------|-------------------------|--------------------------------|-----|------------------------------|
| | | | @ I_{ZT} | @ $I_{ZK} = 0.25$ mA | | @ V_R (V) | | @ V_R Used for Suffix A |
| | | | Z_{ZT} (Ω) | Z_{ZK} (Ω) | I_R (μA) | A | B | I_R (μA) |
| 1N5223 | 2.7 | 20 | 30 | 1300 | 75 | 0.95 | 1.0 | 150 |
| 1N5224 | 2.8 | 20 | 30 | 1400 | 75 | 0.95 | 1.0 | 150 |
| 1N5225 | 3.0 | 20 | 29 | 1600 | 50 | 0.95 | 1.0 | 100 |
| 1N5226 | 3.3 | 20 | 28 | 1600 | 25 | 0.95 | 1.0 | 100 |
| 1N5227 | 3.6 | 20 | 24 | 1700 | 15 | 0.95 | 1.0 | 100 |
| 1N5228 | 3.9 | 20 | 23 | 1900 | 10 | 0.95 | 1.0 | 75 |
| 1N5229 | 4.3 | 20 | 22 | 2000 | 5 | 0.95 | 1.0 | 50 |
| 1N5230 | 4.7 | 20 | 19 | 1900 | 5 | 1.9 | 2.0 | 50 |
| 1N5231 | 5.1 | 20 | 17 | 1600 | 5 | 1.9 | 2.0 | 50 |
| 1N5232 | 5.6 | 20 | 11 | 1600 | 5 | 2.9 | 3.0 | 50 |
| 1N5233 | 6.0 | 20 | 7 | 1600 | 5 | 3.3 | 3.5 | 50 |
| 1N5234 | 6.2 | 20 | 7 | 1000 | 5 | 3.8 | 4.0 | 50 |
| 1N5235 | 6.8 | 20 | 5 | 750 | 3 | 4.8 | 5.0 | 30 |
| 1N5236 | 7.5 | 20 | 6 | 500 | 3 | 5.7 | 6.0 | 30 |
| 1N5237 | 8.2 | 20 | 8 | 500 | 3 | 6.2 | 6.5 | 30 |
| 1N5238 | 8.7 | 20 | 8 | 600 | 3 | 6.2 | 6.5 | 30 |
| 1N5239 | 9.1 | 20 | 10 | 600 | 3 | 6.7 | 7.5 | 30 |
| 1N5240 | 10 | 20 | 17 | 600 | 3 | 7.6 | 8.0 | 30 |
| 1N5241 | 11 | 20 | 22 | 600 | 2 | 8.0 | 8.4 | 30 |
| 1N5242 | 12 | 20 | 30 | 600 | 1 | 8.7 | 9.1 | 10 |
| 1N5243 | 13 | 9.5 | 13 | 600 | 0.5 | 9.4 | 9.9 | 10 |
| 1N5244 | 14 | 9.0 | 15 | 600 | 0.1 | 9.5 | 10 | 10 |
| 1N5245 | 15 | 8.5 | 16 | 600 | 0.1 | 10.5 | 11 | 10 |
| 1N5246 | 16 | 7.8 | 17 | 600 | 0.1 | 11.4 | 12 | 10 |
| 1N5247 | 17 | 7.4 | 19 | 600 | 0.1 | 12.4 | 13 | 10 |
| 1N5248 | 18 | 7.0 | 21 | 600 | 0.1 | 13.3 | 14 | 10 |
| 1N5249 | 19 | 6.6 | 23 | 600 | 0.1 | 13.3 | 14 | 10 |
| 1N5250 | 20 | 6.2 | 25 | 600 | 0.1 | 14.3 | 15 | 10 |

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Table D-2 Electrical Characteristics ($T_a = 25^\circ\text{C}$ unless otherwise noted) (cont)

| Type | Nominal Zener Voltage V_Z (V) | Test Current I_{ZT} (mA) | Max Zener Impedance A&B Suffix Only | | | Max Reverse Leakage Current | | |
|--------|---------------------------------------|-------------------------------|--|-----------------------|-------------------------|--------------------------------|----|------------------------------|
| | | | @ I_{ZT} | @ $I_{ZK} = 0.25$ mA | I_R (μA) | @ V_R (V) | | @ V_R Used for Suffix A |
| | | | Z_{ZT} (Ω) | Z_{ZK} (Ω) | | A | B | I_R (μA) |
| 1N5251 | 22 | 5.6 | 29 | 600 | 0.1 | 16.2 | 17 | 10 |
| 1N5252 | 24 | 5.2 | 33 | 600 | 0.1 | 17.1 | 18 | 10 |
| 1N5253 | 25 | 5.0 | 35 | 600 | 0.1 | 18.1 | 19 | 10 |
| 1N5254 | 27 | 4.6 | 41 | 600 | 0.1 | 20 | 21 | 10 |
| 1N5255 | 28 | 4.5 | 44 | 600 | 0.1 | 20 | 21 | 10 |
| 1N5256 | 30 | 4.2 | 49 | 600 | 0.1 | 22 | 23 | 10 |
| 1N5257 | 33 | 3.8 | 58 | 700 | 0.1 | 24 | 25 | 10 |
| 1N5258 | 36 | 3.4 | 70 | 700 | 0.1 | 26 | 27 | 10 |

Notes: 1. Tolerance designation:

Units with guaranteed limits are indicated by no suffix for $\pm 20\%$ tolerance, suffix A for $\pm 10\%$ and suffix B for $\pm 5\%$.

2. Temperature coefficient:

Test conditions for temperature coefficient are as follows:

$I_{ZT} = 7.5$ mA, $T_1 = 25^\circ\text{C}$, $T_2 = 125^\circ\text{C}$