

HZS-N Series

Silicon Epitaxial Planar Zener Diode for Stabilized Power Supply

REJ03G0185-0100Z
(Previous: ADE-208-124)
Rev.1.00
Mar.11.2004

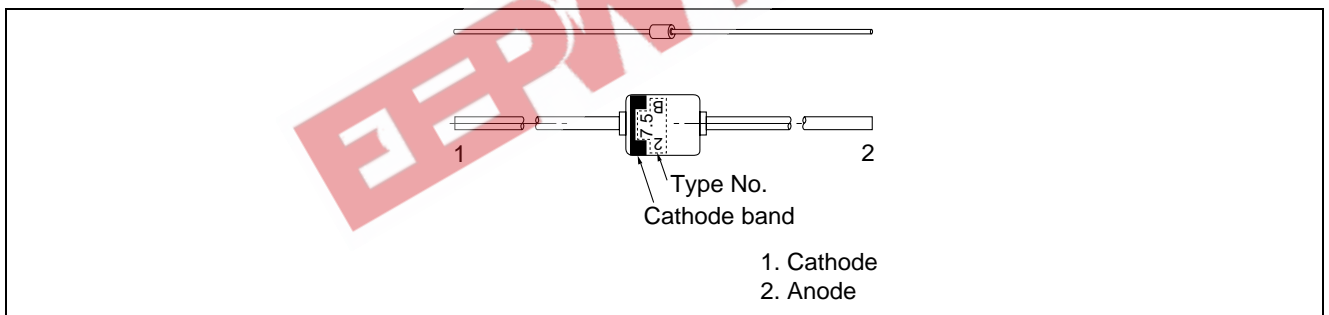
Features

- Low leakage, low zener impedance and maximum power dissipation of 400 mW are ideally suited for stabilized power supply, etc.
- Wide spectrum from 1.88 V through 38.52 V of zener voltage provide flexible application.
- Suitable for 5mm-pitch high speed automatic insertion.

Ordering Information

| Type No. | Mark | Package Code |
|--------------|----------|--------------|
| HZS-N Series | Type No. | MHD |

Pin Arrangement



HZS-N Series

Absolute Maximum Ratings

(Ta = 25°C)

| Item | Symbol | Value | Unit |
|----------------------|--------|-------------|------|
| Power dissipation | Pd | 400 | mW |
| Junction temperature | Tj | 200 | °C |
| Storage temperature | Tstg | -55 to +175 | °C |

Electrical Characteristics

(Ta = 25°C)

| Type | Grade | Zener Voltage | | Test Condition Iz (mA) | Reverse Current | | Dynamic Resistance | |
|---------|-------|---------------|------|---------------------------|-----------------|--------------------------|--------------------|---------------------------|
| | | Vz (V)*1 | | | IR (μA) Max | Test Condition VR (V) | rd (Ω) Max | Test Condition Iz (mA) |
| | | Min | Max | | | | | |
| HZS2.0N | B1 | 1.88 | 2.10 | 5 | 120 | 0.5 | 100 | 5 |
| | B2 | 2.02 | 2.20 | | | | | |
| HZS2.2N | B1 | 2.12 | 2.30 | 5 | 120 | 0.7 | 100 | 5 |
| | B2 | 2.22 | 2.41 | | | | | |
| HZS2.4N | B1 | 2.33 | 2.52 | 5 | 120 | 1.0 | 100 | 5 |
| | B2 | 2.43 | 2.63 | | | | | |
| HZS2.7N | B1 | 2.54 | 2.75 | 5 | 100 | 1.0 | 110 | 5 |
| | B2 | 2.69 | 2.91 | | | | | |
| HZS3.0N | B1 | 2.85 | 3.07 | 5 | 50 | 1.0 | 120 | 5 |
| | B2 | 3.01 | 3.22 | | | | | |
| HZS3.3N | B1 | 3.16 | 3.38 | 5 | 20 | 1.0 | 120 | 5 |
| | B2 | 3.32 | 3.53 | | | | | |
| HZS3.6N | B1 | 3.47 | 3.68 | 5 | 10 | 1.0 | 120 | 5 |
| | B2 | 3.62 | 3.83 | | | | | |
| HZS3.9N | B1 | 3.77 | 3.98 | 5 | 5 | 1.0 | 120 | 5 |
| | B2 | 3.92 | 4.14 | | | | | |
| HZS4.3N | B1 | 4.05 | 42.6 | 5 | 5 | 1.0 | 120 | 5 |
| | B2 | 4.20 | 4.40 | | | | | |
| | B3 | 4.34 | 4.53 | | | | | |
| HZS4.7N | B1 | 4.47 | 4.65 | 5 | 5 | 1.0 | 100 | 5 |
| | B2 | 4.59 | 4.77 | | | | | |
| | B3 | 4.71 | 4.91 | | | | | |
| HZS5.1N | B1 | 4.85 | 5.03 | 5 | 5 | 1.5 | 70 | 5 |
| | B2 | 4.97 | 5.18 | | | | | |
| | B3 | 5.12 | 5.35 | | | | | |
| HZS5.6N | B1 | 5.29 | 5.52 | 5 | 5 | 2.5 | 40 | 5 |
| | B2 | 5.46 | 5.70 | | | | | |
| | B3 | 5.64 | 5.88 | | | | | |
| HZS6.2N | B1 | 5.81 | 6.06 | 5 | 5 | 3.0 | 30 | 5 |
| | B2 | 5.99 | 6.24 | | | | | |
| | B3 | 6.16 | 6.40 | | | | | |
| HZS6.8N | B1 | 6.32 | 6.59 | 5 | 2 | 3.5 | 25 | 5 |
| | B2 | 6.52 | 6.79 | | | | | |
| | B3 | 6.70 | 6.97 | | | | | |

Note: 1. Tested with pulse (Pw = 40 ms)

HZS-N Series

(Ta = 25°C)

| Type | Grade | Zener Voltage | | Test Condition | Reverse Current | | Dynamic Resistance | |
|---------|-------|----------------------|-------|---------------------|---------------------|--------------------|--------------------|---------------------|
| | | V _Z (V)*1 | | | I _R (μA) | Test Condition | r _d (Ω) | Test Condition |
| | | Min | Max | I _Z (mA) | Max | V _R (V) | Max | I _Z (mA) |
| HZS7.5N | B1 | 6.88 | 7.19 | 5 | 0.5 | 4.0 | 25 | 5 |
| | B2 | 7.11 | 7.41 | | | | | |
| | B3 | 7.33 | 7.64 | | | | | |
| HZS8.2N | B1 | 7.56 | 7.90 | 5 | 0.5 | 5.0 | 20 | 5 |
| | B2 | 7.82 | 8.15 | | | | | |
| | B3 | 8.07 | 8.41 | | | | | |
| HZS9.1N | B1 | 8.33 | 8.70 | 5 | 0.5 | 6.0 | 20 | 5 |
| | B2 | 8.61 | 8.99 | | | | | |
| | B3 | 8.89 | 9.29 | | | | | |
| HZS10N | B1 | 9.19 | 9.59 | 5 | 0.2 | 7.0 | 20 | 5 |
| | B2 | 9.48 | 9.90 | | | | | |
| | B3 | 9.82 | 10.30 | | | | | |
| HZS11N | B1 | 10.18 | 10.63 | 5 | 0.2 | 8.0 | 20 | 5 |
| | B2 | 10.50 | 10.95 | | | | | |
| | B3 | 10.82 | 11.26 | | | | | |
| HZS12N | B1 | 11.13 | 11.63 | 5 | 0.2 | 9.0 | 25 | 5 |
| | B2 | 11.50 | 11.92 | | | | | |
| | B3 | 11.80 | 12.30 | | | | | |
| HZS13N | B1 | 12.18 | 12.71 | 5 | 0.2 | 10 | 25 | 5 |
| | B2 | 12.59 | 13.16 | | | | | |
| | B3 | 13.03 | 13.62 | | | | | |
| HZS15N | B1 | 13.48 | 14.09 | 5 | 0.2 | 11 | 25 | 5 |
| | B2 | 13.95 | 14.56 | | | | | |
| | B3 | 14.42 | 15.02 | | | | | |
| HZS16N | B1 | 14.87 | 15.50 | 5 | 0.2 | 12 | 25 | 5 |
| | B2 | 15.33 | 15.96 | | | | | |
| | B3 | 15.79 | 16.50 | | | | | |
| HZS18N | B1 | 16.34 | 17.06 | 5 | 0.2 | 13 | 30 | 5 |
| | B2 | 16.90 | 17.67 | | | | | |
| | B3 | 17.51 | 18.30 | | | | | |
| HZS20N | B1 | 18.14 | 18.96 | 5 | 0.2 | 15 | 30 | 5 |
| | B2 | 18.80 | 19.68 | | | | | |
| | B3 | 19.52 | 20.45 | | | | | |
| HZS22N | B1 | 20.23 | 21.08 | 5 | 0.2 | 17 | 30 | 5 |
| | B2 | 20.76 | 21.65 | | | | | |
| | B3 | 21.22 | 22.09 | | | | | |
| | B4 | 21.68 | 22.61 | | | | | |
| HZS24N | B1 | 22.26 | 23.12 | 5 | 0.2 | 19 | 35 | 5 |
| | B2 | 22.75 | 23.73 | | | | | |
| | B3 | 23.29 | 24.27 | | | | | |
| | B4 | 23.81 | 24.81 | | | | | |
| HZS27N | B1 | 24.26 | 25.52 | 5 | 0.2 | 21 | 45 | 5 |
| | B2 | 24.97 | 26.26 | | | | | |
| | B3 | 25.63 | 26.95 | | | | | |
| | B4 | 26.29 | 27.64 | | | | | |

Note: 1. Tested with pulse (P_w = 40 ms)

HZS-N Series

(Ta = 25°C)

| Type | Grade | Zener Voltage | | Test Condition | Reverse Current | | Dynamic Resistance | |
|--------|-------|---------------|-------|----------------|------------------|----------------|--------------------|----------------|
| | | V_Z (V)*1 | | | I_R (μ A) | Test Condition | r_d (Ω) | Test Condition |
| | | Min | Max | I_Z (mA) | Max | V_R (V) | Max | I_Z (mA) |
| HZS30N | B1 | 26.99 | 28.39 | 5 | 0.2 | 23 | 55 | 5 |
| | B2 | 27.70 | 29.13 | | | | | |
| | B3 | 28.36 | 29.82 | | | | | |
| | B4 | 29.02 | 30.51 | | | | | |
| HZS33N | B1 | 29.68 | 31.22 | 5 | 0.2 | 25 | 65 | 5 |
| | B2 | 30.32 | 31.88 | | | | | |
| | B3 | 30.90 | 32.50 | | | | | |
| | B4 | 31.49 | 33.11 | | | | | |
| HZS36N | B1 | 32.14 | 33.79 | 5 | 0.2 | 27 | 75 | 5 |
| | B2 | 32.79 | 34.49 | | | | | |
| | B3 | 33.40 | 35.13 | | | | | |
| | B4 | 34.01 | 35.77 | | | | | |
| HZS39N | B1 | 34.68 | 36.47 | 5 | 0.2 | 30 | 85 | 5 |
| | B2 | 35.36 | 37.19 | | | | | |
| | B3 | 36.00 | 37.85 | | | | | |
| | B4 | 36.63 | 38.52 | | | | | |

Notes: 1. Tested with pulse ($P_W = 40$ ms).

2. Type No. is as follows: HZS2.0NB1, HZS2.0NB2, ... HZS39NB4.

Main Characteristic

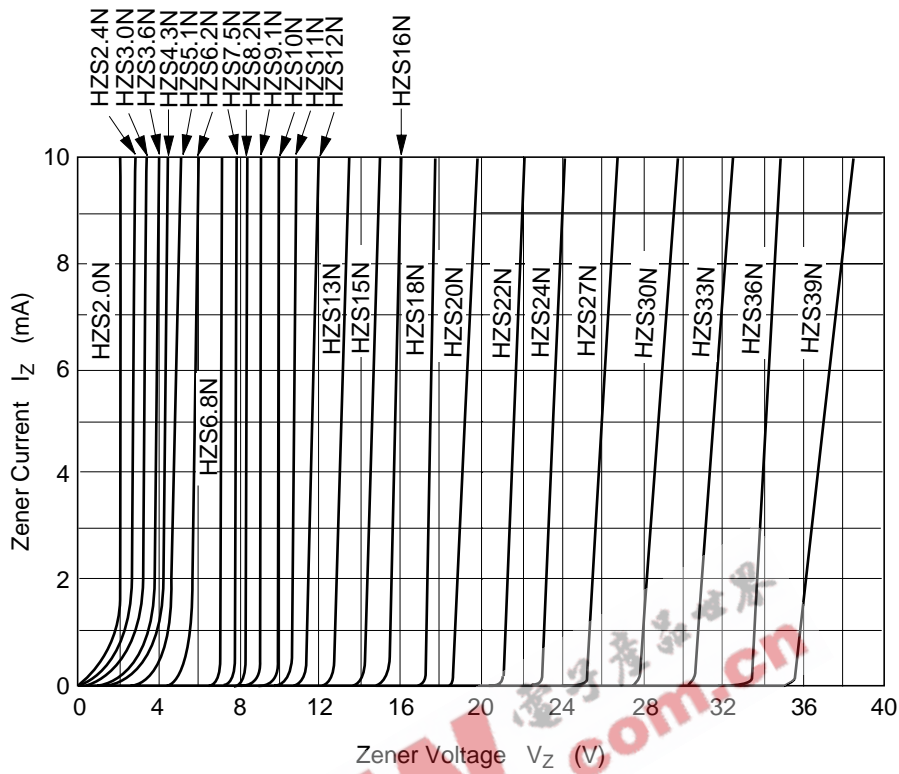


Fig.1 Zener current vs. Zener voltage

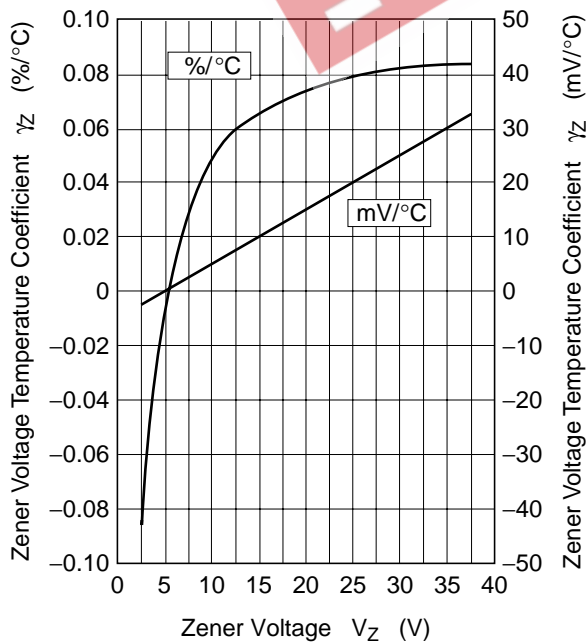


Fig.2 Temperature Coefficient vs. Zener voltage

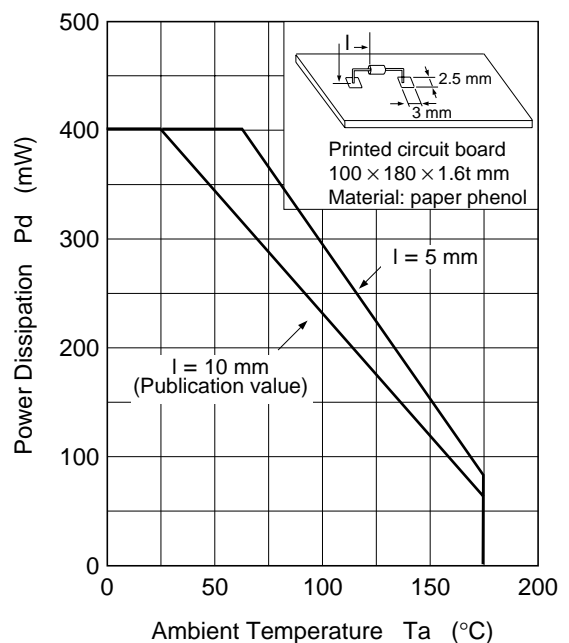
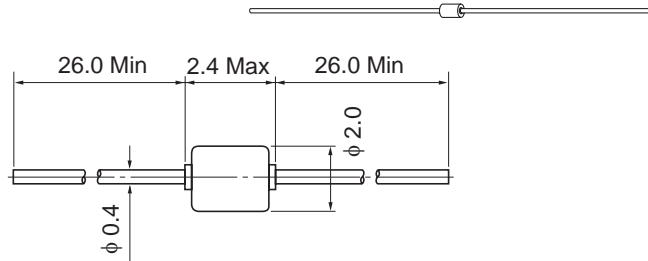


Fig.3 Power Dissipation vs. Ambient Temperature

Package Dimensions

As of January, 2003
Unit: mm



| | |
|------------------------|----------|
| Package Code | MHD |
| JEDEC | Conforms |
| JEITA | — |
| Mass (reference value) | 0.084 g |

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