

## HZ-LL Series

### Silicon Epitaxial Planar Zener Diode for Hard Knee Low Noise

REJ03G0183-0200Z  
(Previous: ADE-208-119A)  
Rev.2.00  
Mar.11.2004

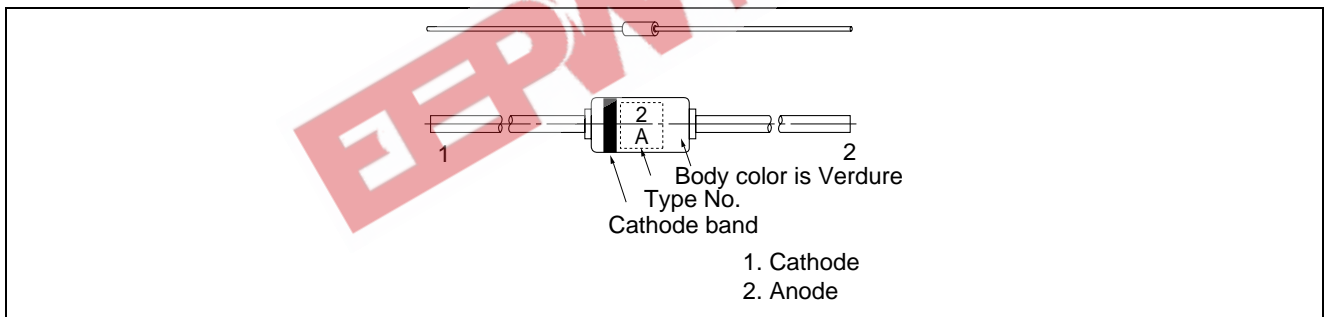
#### Features

- $V_Z$ - $I_Z$  characteristics are semi logarithmic linear from  $I_Z = 1\text{nA}$  to  $1\text{mA}$  and have sharper breakdown knees in a low current region, and also lower  $V_Z$  temperature coefficients.
- Low dynamic impedance and low noise in the low current region (approximately 1/10 lower than the current zeners).

#### Ordering Information

| Type No.     | Mark     | Package Code |
|--------------|----------|--------------|
| HZ-LL Series | Type No. | DO-35        |

#### Pin Arrangement



## HZ-LL Series

### Absolute Maximum Ratings

(Ta = 25°C)

| Item                 | Symbol | Value       | Unit |
|----------------------|--------|-------------|------|
| Power dissipation    | Pd     | 250         | mW   |
| Junction temperature | Tj     | 175         | °C   |
| Storage temperature  | Tstg   | -55 to +175 | °C   |

### Electrical Characteristics

(Ta = 25°C)

| Type  | Grade | V <sub>Z</sub> (V) * <sup>1</sup> |     | I <sub>Z</sub> (mA) | I <sub>R</sub> (nA) |                    | Z <sub>ZT</sub> (Ω) |                      | Z <sub>ZK</sub> (kΩ) * <sup>2</sup> |                      | ΔV <sub>Z1</sub> (V) * <sup>3</sup> |     | ΔV <sub>Z2</sub> (V) * <sup>3</sup> |  |
|-------|-------|-----------------------------------|-----|---------------------|---------------------|--------------------|---------------------|----------------------|-------------------------------------|----------------------|-------------------------------------|-----|-------------------------------------|--|
|       |       | Min                               | Max |                     | Max                 | V <sub>R</sub> (V) | Max                 | I <sub>ZT</sub> (mA) | Typ                                 | I <sub>ZK</sub> (μA) | Max                                 | Max |                                     |  |
| HZ2LL | A     | 1.6                               | 2.0 | 0.5                 | 100                 | 0.5                | 350                 | 0.5                  | (1.2)                               | 50                   | 0.5                                 | 0.6 |                                     |  |
|       | B     | 1.9                               | 2.3 |                     |                     |                    |                     |                      |                                     |                      |                                     |     |                                     |  |
|       | C     | 2.2                               | 2.6 |                     |                     |                    |                     |                      |                                     |                      |                                     |     |                                     |  |
| HZ3LL | A     | 2.5                               | 2.9 | 0.5                 | 100                 | 1.0                | 360                 | 0.5                  | (1.2)                               | 50                   | 0.5                                 | 0.6 |                                     |  |
|       | B     | 2.8                               | 3.2 |                     |                     |                    |                     |                      |                                     |                      |                                     |     |                                     |  |
|       | C     | 3.1                               | 3.5 |                     |                     |                    |                     |                      |                                     |                      |                                     |     |                                     |  |
| HZ4LL | A     | 3.4                               | 3.8 | 0.5                 | 100                 | 2.0                | 370                 | 0.5                  | (1.5)                               | 50                   | 0.5                                 | 0.6 |                                     |  |
|       | B     | 3.7                               | 4.1 |                     |                     |                    |                     |                      |                                     |                      |                                     |     |                                     |  |
|       | C     | 4.0                               | 4.4 |                     |                     |                    |                     |                      |                                     |                      |                                     |     |                                     |  |
| HZ5LL | A     | 4.3                               | 4.7 | 0.5                 | 100                 | 3.0                | 380                 | 0.5                  | (1.5)                               | 50                   | 0.5                                 | 0.6 |                                     |  |
|       | B     | 4.6                               | 5.0 |                     |                     |                    |                     |                      |                                     |                      |                                     |     |                                     |  |
|       | C     | 4.9                               | 5.3 |                     |                     |                    |                     |                      |                                     |                      |                                     |     |                                     |  |

Notes: 1. Tested with DC.

2. Reference only.

3.  $\Delta V_{Z1} = V_Z (I_Z = 0.5 \text{ mA}) - V_{Z1} (I_Z = 0.05 \text{ mA})$        $\Delta V_{Z2} = V_{Z1} (I_Z = 0.05 \text{ mA}) - V_{Z2} (I_Z = 0.001 \text{ mA})$

4. Type No. is as follows; HZ2ALL, HZ2BLL, HZ5CLL.

Main Characteristic

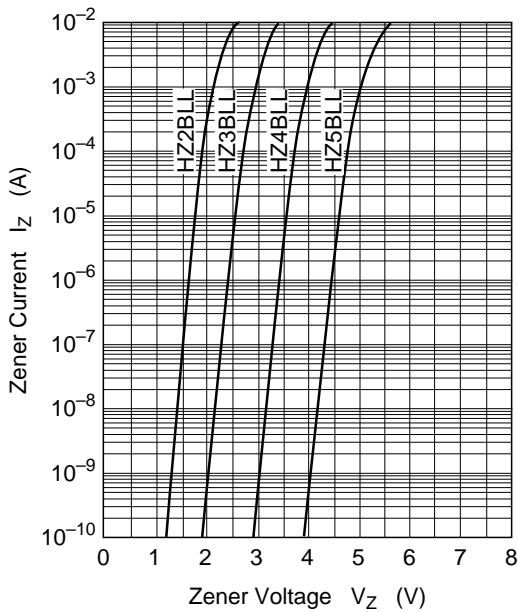


Fig.1 Zener current vs. Zener voltage

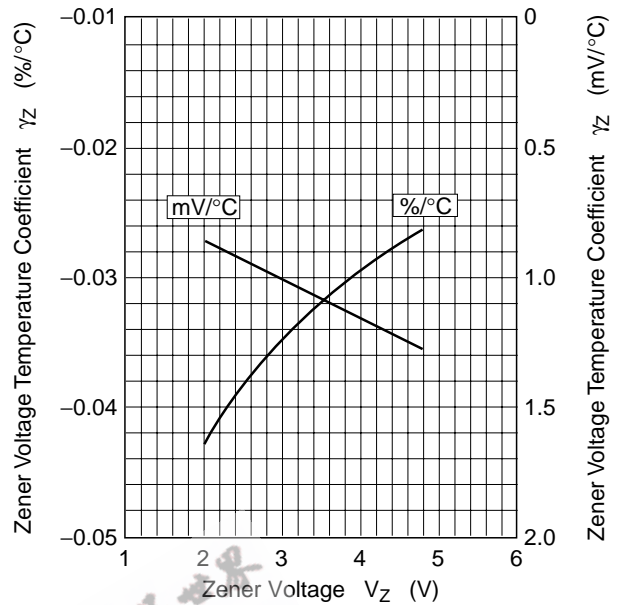


Fig.2 Temperature Coefficient vs. Zener voltage

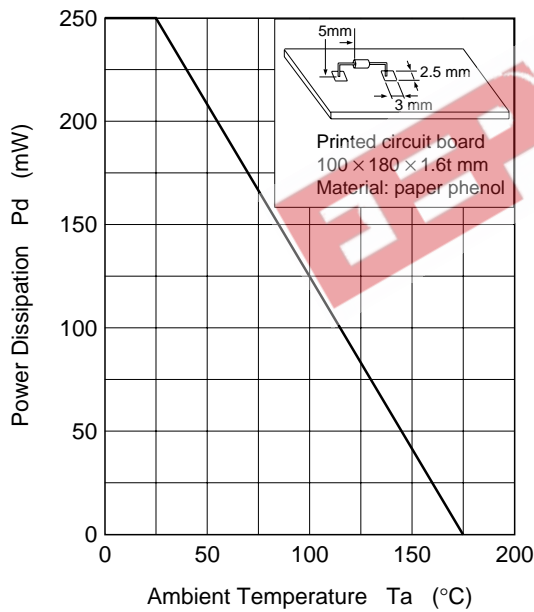
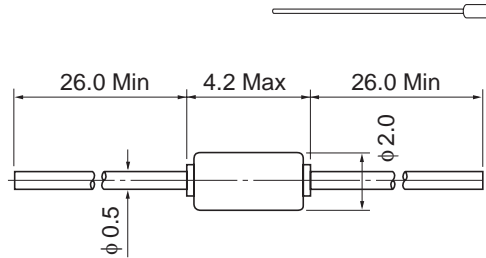


Fig.3 Power Dissipation vs. Ambient Temperature

Package Dimensions

As of January, 2003  
Unit: mm



|                        |          |
|------------------------|----------|
| Package Code           | DO-35    |
| JEDEC                  | Conforms |
| JEITA                  | Conforms |
| Mass (reference value) | 0.13 g   |

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