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# HZU-LL Series

Silicon Epitaxial Planar Zener Diodes for Hard Knee Low Noise

# HITACHI

ADE-208-236A (Z)  
Rev. 1

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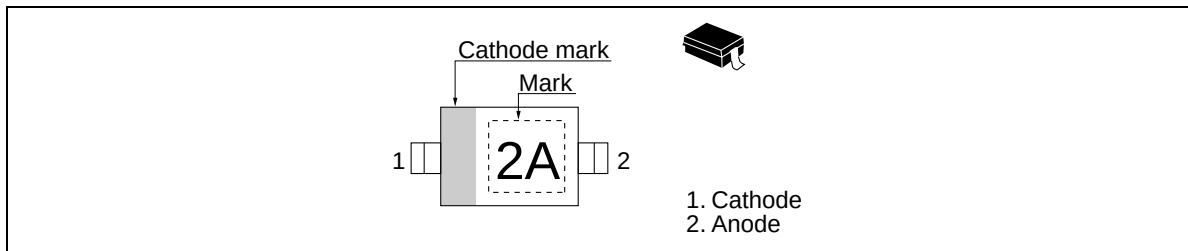
## Features

- Low noise voltage (approximately 1/3 to 1/10 lower than the HZU series).
- Temperature coefficient is approximately 1/2 lower than the HZU series.
- $V_z$ - $I_z$  characteristics are semi-logarithmic linear from  $I_z = 1\text{nA}$  to  $1\text{mA}$ .
- Ultra small Resin Package (URP) is suitable for surface mount design.

## Ordering Information

| Type No.      | Mark             | Package Code |
|---------------|------------------|--------------|
| HZU-LL Series | Let to Mark Code | URP          |

## Outline



## HZU-LL Series

### Absolute Maximum Ratings (Ta = 25°C)

| Item                 | Symbol | Value       | Unit |
|----------------------|--------|-------------|------|
| Power dissipation    | Pd     | 150         | mW   |
| Junction temperature | Tj     | 150         | °C   |
| Storage temperature  | Tstg   | -55 to +150 | °C   |

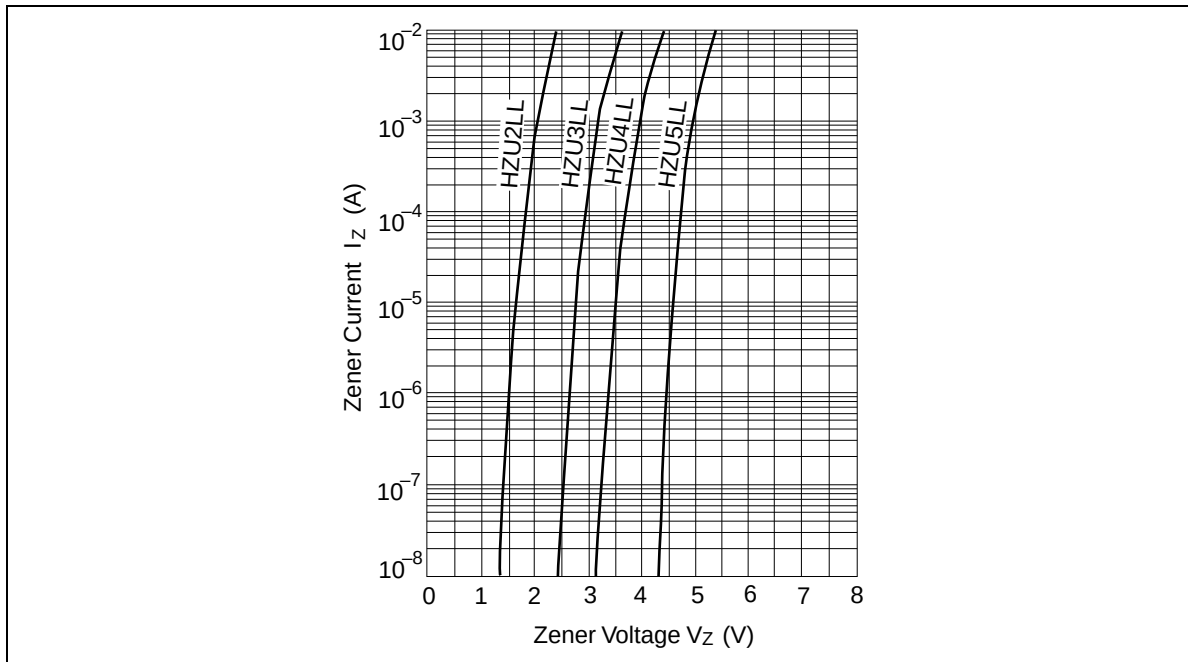
### Electrical Characteristics (Ta = 25°C)

| Type   | Grade | V <sub>z</sub> (V)* <sup>1</sup> |     |                     | I <sub>R</sub> (nA) |                    | Z <sub>zT</sub> (Ω) |                      | Z <sub>zK</sub> * <sup>2</sup> (kΩ) |                      | * <sup>3</sup> ΔV <sub>z</sub> (V) |
|--------|-------|----------------------------------|-----|---------------------|---------------------|--------------------|---------------------|----------------------|-------------------------------------|----------------------|------------------------------------|
|        |       | Min                              | Max | I <sub>z</sub> (mA) | Max                 | V <sub>R</sub> (V) | Max                 | I <sub>zT</sub> (mA) | Typ                                 | I <sub>zK</sub> (μA) | Max                                |
| HZU2LL | A     | 1.6                              | 2.0 | 0.5                 | 100                 | 0.5                | 350                 | 0.5                  | (1.2)                               | 50                   | 0.5                                |
|        | B     | 1.9                              | 2.3 |                     |                     |                    |                     |                      |                                     |                      |                                    |
|        | C     | 2.2                              | 2.6 |                     |                     |                    |                     |                      |                                     |                      |                                    |
| HZU3LL | A     | 2.5                              | 2.9 | 0.5                 | 100                 | 1.0                | 360                 | 0.5                  | (1.2)                               | 50                   | 0.5                                |
|        | B     | 2.8                              | 3.2 |                     |                     |                    |                     |                      |                                     |                      |                                    |
|        | C     | 3.1                              | 3.5 |                     |                     |                    |                     |                      |                                     |                      |                                    |
| HZU4LL | A     | 3.4                              | 3.8 | 0.5                 | 100                 | 2.0                | 370                 | 0.5                  | (1.5)                               | 50                   | 0.5                                |
|        | B     | 3.7                              | 4.1 |                     |                     |                    |                     |                      |                                     |                      |                                    |
|        | C     | 4.0                              | 4.4 |                     |                     |                    |                     |                      |                                     |                      |                                    |
| HZU5LL | A     | 4.3                              | 4.7 | 0.5                 | 100                 | 3.0                | 380                 | 0.5                  | (1.5)                               | 50                   | 0.5                                |
|        | B     | 4.6                              | 5.0 |                     |                     |                    |                     |                      |                                     |                      |                                    |
|        | C     | 4.9                              | 5.3 |                     |                     |                    |                     |                      |                                     |                      |                                    |

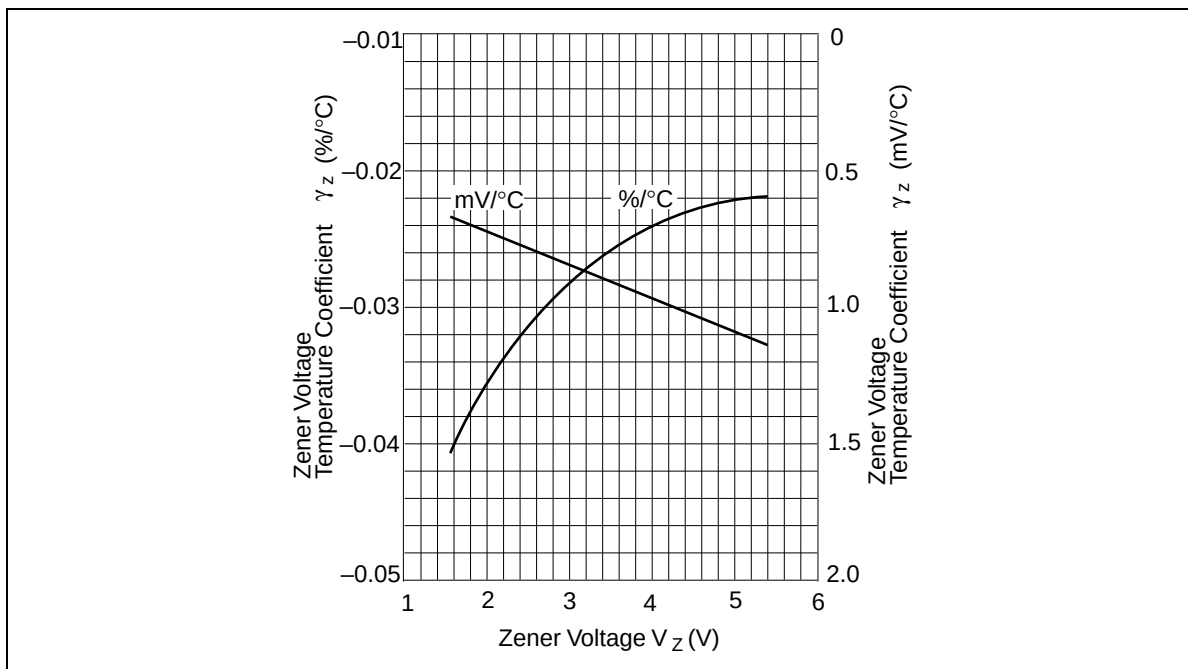
Notes: 1. Tested with DC.  
 2. Reference only  
 3. ΔV<sub>z</sub> = V<sub>z</sub> (I<sub>z</sub> = 0.5mA) - V<sub>z</sub> (I<sub>z</sub> = 0.05mA)  
 Type No. is as follows; HZU2ALL, HZU2BLL, ... HZU5CLL.

### Mark Code

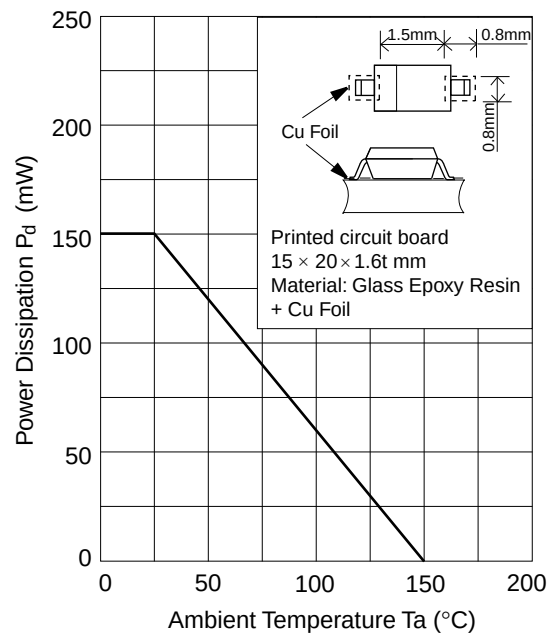
| Type   | Grade | Mark No. | Type   | Grade | Mark No. |
|--------|-------|----------|--------|-------|----------|
| HZU2LL | A     | 2A       | HZU4LL | A     | 4A       |
|        | B     | 2B       |        | B     | 4B       |
|        | C     | 2C       |        | C     | 4C       |
| HZU3LL | A     | 3A       | HZU5LL | A     | 5A       |
|        | B     | 3B       |        | B     | 5B       |
|        | C     | 3C       |        | C     | 5C       |



**Fig.1 Zener current Vs. Zener voltage**



**Fig.2 Temperature Coefficient Vs. Zener voltage**



**Fig.3 Power Dissipation Vs. Ambient Temperature**