

To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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Keep safety first in your circuit designs!

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Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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HZU-LL Series

Silicon Epitaxial Planar Zener Diode for Hard Knee Low Noise



ADE-208-236C (Z)

Rev.3
Dec. 2002

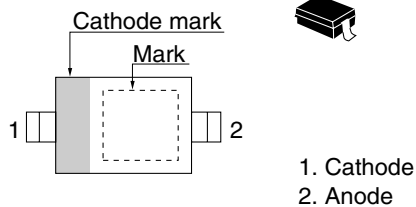
Features

- 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 1mA .
- 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 |

Pin Arrangement



HZU-LL Series

Absolute Maximum Ratings

(Ta = 25°C)

| Item | Symbol | Value | Unit |
|----------------------|------------------|-------------|------|
| Power dissipation | Pd* ¹ | 150 | mW |
| Junction temperature | Tj | 150 | °C |
| Storage temperature | Tstg | -55 to +150 | °C |

Note: 1. See Fig.3.

Electrical Characteristics

(Ta = 25°C)

| Type | Grade | Zener Voltage | | Reverse Current | | Dynamic Resistance | | | Linearity | | |
|--------|-------|-----------------------------------|-----|---------------------|-----|---------------------|-----|-------------------------------------|-----------|------------------------------------|-----|
| | | V _z (V) * ¹ | | I _R (nA) | | Z _{zT} (Ω) | | Z _{zK} (kΩ) * ² | | ΔV _z (V) * ³ | |
| | | Min | Max | I _z (mA) | Max | V _R (V) | Max | I _{zT} (mA) | Typ | I _{zK} (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. $\Delta V_z = V_z (I_z = 0.5 \text{ mA}) - V_z (I_z = 0.05 \text{ mA})$

4. 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 |

Main Characteristic

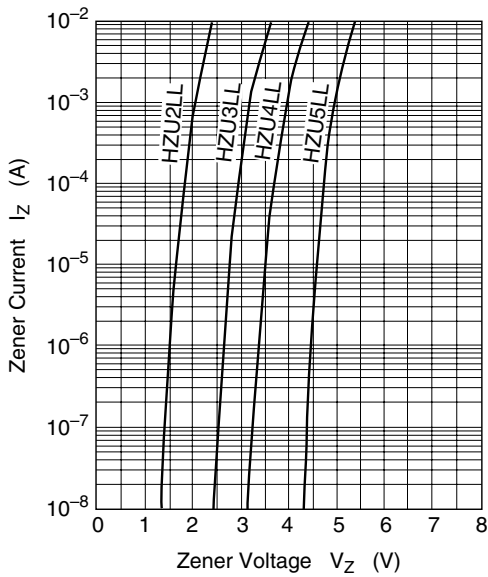


Fig.1 Zener current vs. Zener voltage

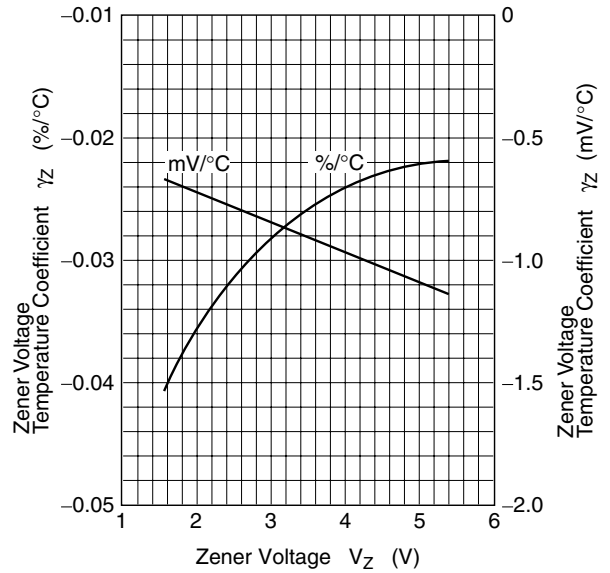


Fig.2 Temperature Coefficient vs. Zener voltage

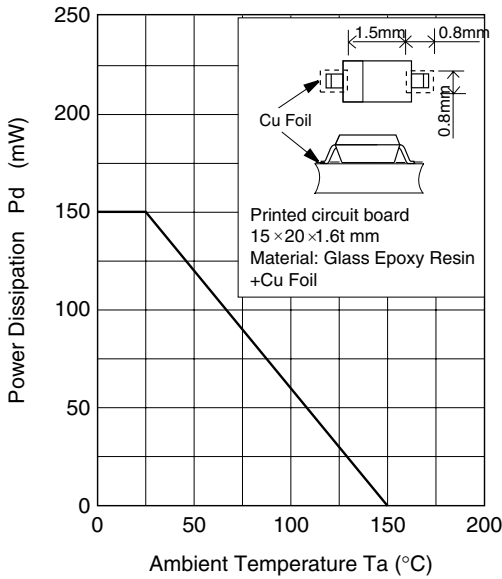
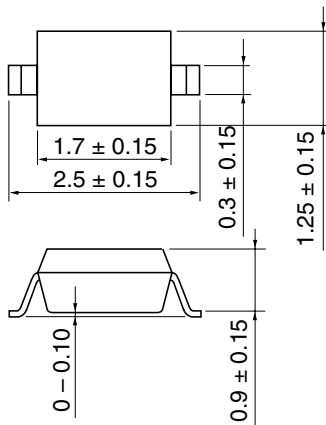


Fig.3 Power Dissipation vs. Ambient Temperature

Package Dimensions

As of July, 2002

Unit: mm



| | |
|------------------------|----------|
| Hitachi Code | URP |
| JEDEC | Conforms |
| JEITA | — |
| Mass (reference value) | 0.004 g |

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