

To all our customers

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

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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

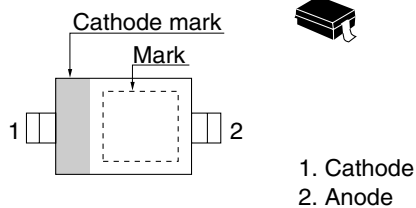
## Features

- 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  $1\text{mA}$ .
- 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

## Pin Arrangement



# HZU-LL Series

## Absolute Maximum Ratings

(Ta = 25°C)

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

Note: 1. See Fig.3.

## Electrical Characteristics

(Ta = 25°C)

		Zener Voltage		Reverse Current		Dynamic Resistance				Linearity	
		V <sub>Z</sub> (V) * <sup>1</sup>		I <sub>R</sub> (nA)		Z <sub>ZT</sub> (Ω)		Z <sub>ZK</sub> (kΩ) * <sup>2</sup>		ΔV <sub>Z</sub> (V) * <sup>3</sup>	
Type	Grade	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> = 0.5 mA) - V<sub>z</sub> (I<sub>z</sub> = 0.05 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

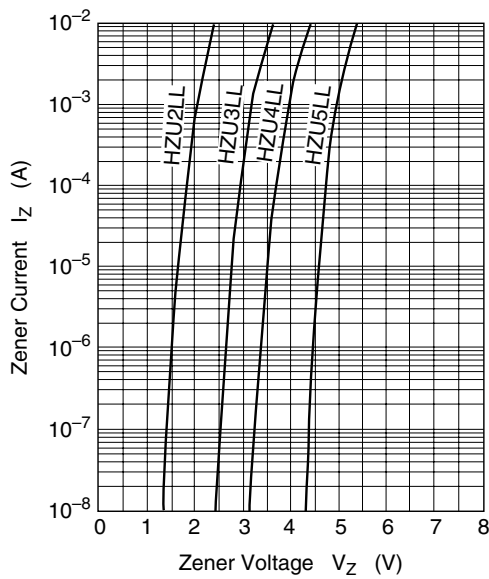


Fig.1 Zener current vs. Zener voltage

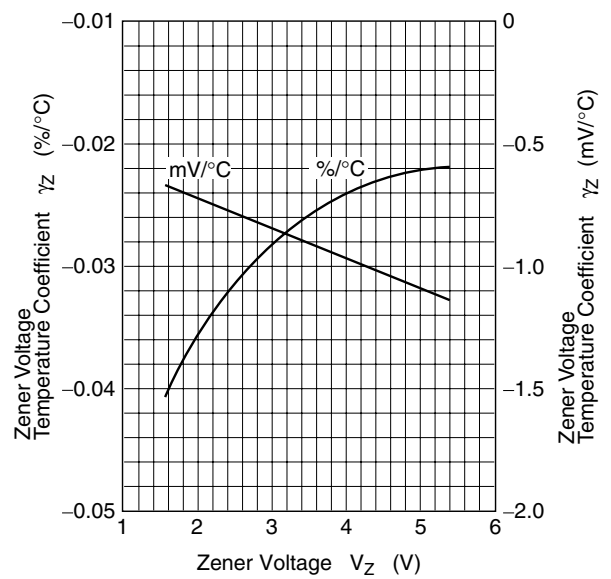


Fig.2 Temperature Coefficient vs. Zener voltage

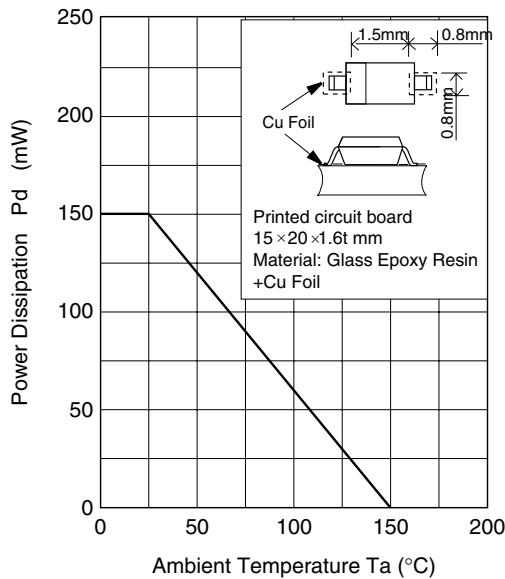
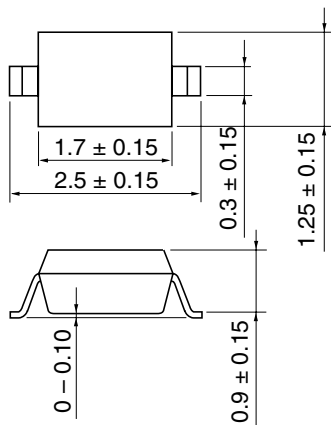


Fig.3 Power Dissipation vs. Ambient Temperature

**Package Dimensions**

As of July, 2002  
Unit: mm



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

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