To all our customers

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

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HZU Series

Silicon Epitaxial Planar Zener Diodes for Stabilizer

ADE-208-024G (Z)

Rev.7
Dec. 2002

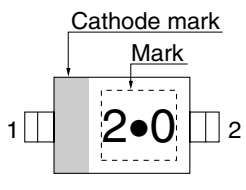
Features

- Ultra small Resin Package (URP) is suitable for surface mount design.
- These diodes are delivered taped.

Ordering Information

Type No.	Mark	Package Code
HZU Series	Let to Mark Code	URP

Pin Arrangement



1. Cathode
2. Anode

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Power dissipation	Pd *[1]	200	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	°C

Note: 1. With P.C. Board.

Electrical Characteristics

(Ta = 25°C)

		Zener Voltage			Reverse Current		Dynamic Resistance	
		V_Z (V) *[1]		Test Condition	I_R (µA)	Test Condition	r_d (Ω)	Test Condition
Type	Grade	Min	Max	I_Z (mA)	Max	V_R (V)	Max	I_Z (mA)
HZU2.0	B	1.90	2.20	5	120	0.5	100	5
HZU2.2	B	2.10	2.40	5	120	0.7	100	5
HZU2.4	B	2.30	2.60	5	120	1.0	100	5
HZU2.7	B	2.50	2.90	5	120	1.0	110	5
	B1	2.50	2.75					
	B2	2.65	2.90					
HZU3.0	B	2.80	3.20	5	50	1.0	120	5
	B1	2.80	3.05					
	B2	2.95	3.20					
HZU3.3	B	3.10	3.50	5	20	1.0	130	5
	B1	3.10	3.35					
	B2	3.25	3.50					
HZU3.6	B	3.40	3.80	5	10	1.0	130	5
	B1	3.40	3.65					
	B2	3.55	3.80					
HZU3.9	B	3.70	4.10	5	10	1.0	130	5
	B1	3.70	3.97					
	B2	3.87	4.10					

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

		Zener Voltage			Reverse Current		Dynamic Resistance	
		V_Z (V) *[1]		Test Condition	I_R (µA)	Test Condition	r_d (Ω)	Test Condition
Type	Grade	Min	Max	I_Z (mA)	Max	V_R (V)	Max	I_Z (mA)
HZU4.3	B	4.01	4.48	5	10	1.0	130	5
	B1	4.01	4.21					
	B2	4.15	4.34					
	B3	4.28	4.48					
HZU4.7	B	4.42	4.90	5	10	1.0	130	5
	B1	4.42	4.61					
	B2	4.55	4.75					
	B3	4.69	4.90					
HZU5.1	B	4.84	5.37	5	5	1.5	130	5
	B1	4.84	5.04					
	B2	4.98	5.20					
	B3	5.14	5.37					
HZU5.6	B	5.31	5.92	5	5	2.5	80	5
	B1	5.31	5.55					
	B2	5.49	5.73					
	B3	5.67	5.92					
HZU6.2	B	5.86	6.53	5	2	3.0	50	5
	B1	5.86	6.12					
	B2	6.06	6.33					
	B3	6.26	6.53					
HZU6.8	B	6.47	7.14	5	2	3.5	30	5
	B1	6.47	6.73					
	B2	6.65	6.93					
	B3	6.86	7.14					
HZU7.5	B	7.06	7.84	5	2	4.0	30	5
	B1	7.06	7.36					
	B2	7.28	7.60					
	B3	7.52	7.84					
HZU8.2	B	7.76	8.64	5	2	5.0	30	5
	B1	7.76	8.10					
	B2	8.02	8.36					
	B3	8.28	8.64					

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

		Zener Voltage			Reverse Current		Dynamic Resistance	
		V_Z (V) *[1]		Test Condition	I_R (µA)	Test Condition	r_d (Ω)	Test Condition
Type	Grade	Min	Max	I_Z (mA)	Max	V_R (V)	Max	I_Z (mA)
HZU9.1	B	8.56	9.55	5	2	6.0	30	5
	B1	8.56	8.93					
	B2	8.85	9.23					
	B3	9.15	9.55					
HZU10	B	9.45	10.55	5	2	7.0	30	5
	B1	9.45	9.87					
	B2	9.77	10.21					
	B3	10.11	10.55					
HZU11	B	10.44	11.56	5	2	8.0	30	5
	B1	10.44	10.88					
	B2	10.76	11.22					
	B3	11.10	11.56					
HZU12	B	11.42	12.60	5	2	9.0	35	5
	B1	11.42	11.90					
	B2	11.74	12.24					
	B3	12.08	12.60					
HZU13	B	12.47	13.96	5	2	10.0	35	5
	B1	12.47	13.03					
	B2	12.91	13.49					
	B3	13.37	13.96					
HZU15	B	13.84	15.52	5	2	11.0	40	5
	B1	13.84	14.46					
	B2	14.34	14.98					
	B3	14.85	15.52					
HZU16	B	15.37	17.09	5	2	12.0	40	5
	B1	15.37	16.01					
	B2	15.58	16.51					
	B3	16.35	17.09					
HZU18	B	16.94	19.03	5	2	13.0	45	5
	B1	16.94	17.70					
	B2	17.56	18.35					
	B3	18.21	19.03					

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

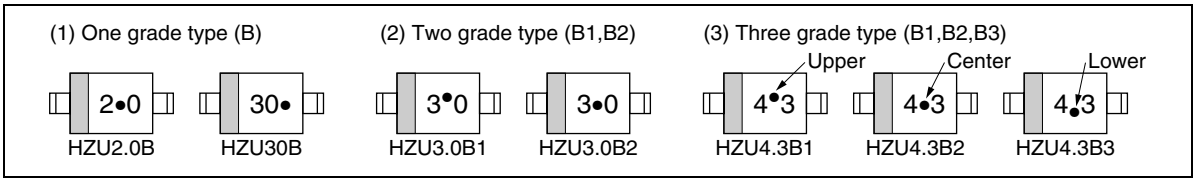
		Zener Voltage			Reverse Current		Dynamic Resistance	
		V_Z (V) *[1]		Test Condition	I_R (µA)	Test Condition	r_d (Ω)	Test Condition
Type	Grade	Min	Max	I_Z (mA)	Max	V_R (V)	Max	I_Z (mA)
HZU20	B	18.86	21.08	5	2	15.0	50	5
	B1	18.86	19.70					
	B2	19.52	20.39					
	B3	20.21	21.08					
HZU22	B	20.88	23.17	5	2	17.0	55	5
	B1	20.88	21.77					
	B2	21.54	22.47					
	B3	22.23	23.17					
HZU24	B	22.93	25.57	5	2	19.0	60	5
	B1	22.93	23.96					
	B2	23.72	24.78					
	B3	24.54	25.57					
HZU27	B	25.10	28.90	2	2	21.0	70	2
HZU30	B	28.00	32.00	2	2	23.0	80	2
HZU33	B	31.00	35.00	2	2	25.0	80	2
HZU36	B	34.00	38.00	2	2	27.0	90	2

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

Mark Code

Type	Grade	MarK No.	Type	Grade	Mark No.	Type	Grade	Mark No.
HZU2.0	B	2 • 0	HZU6.2	B1	6 • 2	HZU13	B1	1 3 •
HZU2.2	B	2 • 2		B2	6 • 2		B2	1 3 •
HZU2.4	B	2 • 4		B3	6 • 2		B3	1 3 •
HZU2.7	B1	2 • 7	HZU6.8	B1	6 • 8	HZU15	B1	1 5 •
	B2	2 • 7		B2	6 • 8		B2	1 5 •
HZU3.0	B1	3 • 0		B3	6 • 8		B3	1 5 •
	B2	3 • 0	HZU7.5	B1	7 • 5	HZU16	B1	1 6 •
HZU3.3	B1	3 • 3		B2	7 • 5		B2	1 6 •
	B2	3 • 3		B3	7 • 5		B3	1 6 •
HZU3.6	B1	3 • 6	HZU8.2	B1	8 • 2	HZU18	B1	1 8 •
	B2	3 • 6		B2	8 • 2		B2	1 8 •
HZU3.9	B1	3 • 9		B3	8 • 2		B3	1 8 •
	B2	3 • 9	HZU9.1	B1	9 • 1	HZU20	B1	2 0 •
HZU4.3	B1	4 • 3		B2	9 • 1		B2	2 0 •
	B2	4 • 3		B3	9 • 1		B3	2 0 •
	B3	4 • 3	HZU10	B1	1 0 •	HZU22	B1	2 2 •
HZU4.7	B1	4 • 7		B2	1 0 •		B2	2 2 •
	B2	4 • 7		B3	1 0 •		B3	2 2 •
	B3	4 • 7	HZU11	B1	1 1 •	HZU24	B1	2 4 •
HZU5.1	B1	5 • 1		B2	1 1 •		B2	2 4 •
	B2	5 • 1		B3	1 1 •		B3	2 4 •
	B3	5 • 1	HZU12	B1	1 2 •	HZU27	B	2 7 •
HZU5.6	B1	5 • 6		B2	1 2 •	HZU30	B	3 0 •
	B2	5 • 6		B3	1 2 •	HZU33	B	3 3 •
	B3	5 • 6				HZU36	B	3 6 •

Notes: 1. Example of Marking



2. The grade B type includes from B1 min. to B3 (or B2) max.
3. B grade is standard and has better delivery, These are marked one of B1, B2, B3.
4. Type No. is as follows; HZU2.0B, HZU2.2B, ••• HZU36B. (B grade)
5. Type No. is as follows; HZU2.7B1, HZU2.7B2, ••• HZU24B3. (B 1, B2,B3 grade)

Main Characteristic

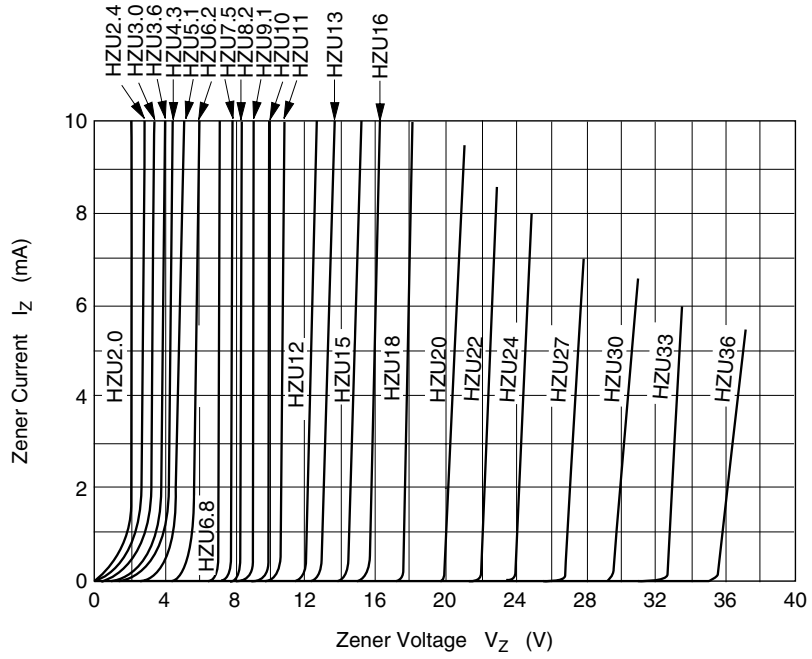


Fig.1 Zener current vs. Zener voltage

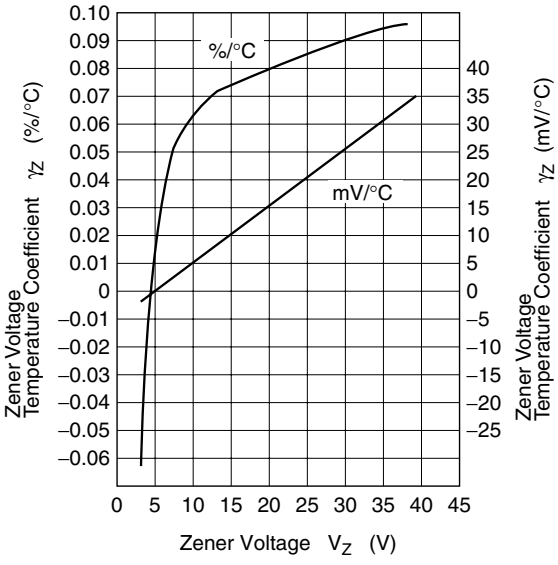


Fig.2 Temperature Coefficient vs. Zener voltage

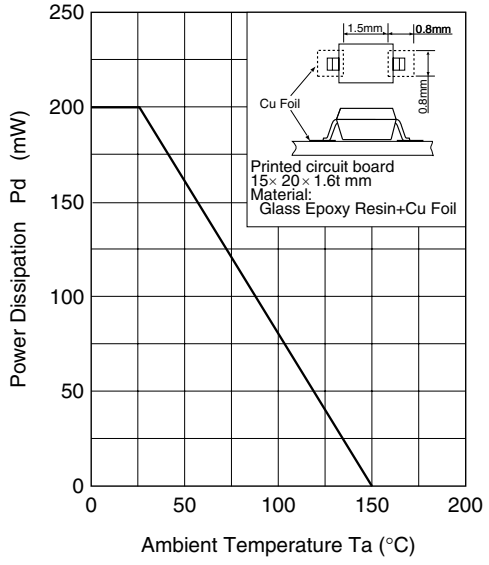
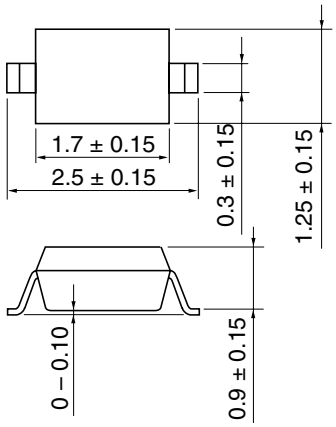


Fig.3 Power Dissipation vs. Ambient Temperature

Package Dimensions

As of July, 2002

Unit: mm



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

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