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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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HZU Series

Silicon Epitaxial Planar Zener Diodes for Stabilizer



ADE-208-024G (Z)

Rev.7
Dec. 2002

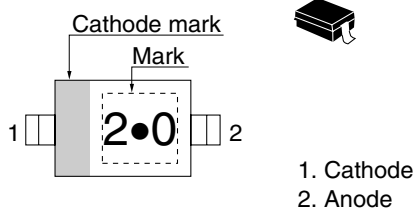
Features

- 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



HZU Series

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)

Type	Grade	Zener Voltage		Reverse Current		Dynamic Resistance		
		V _z (V) *1		Test Condition	I _R (μA)	Test Condition	r _d (Ω)	Test Condition
		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).

Type	Grade	Zener Voltage		Reverse Current		Dynamic Resistance		
		V_z (V) *1		Test Condition	I_R (μ A)	Test Condition	r_d (Ω)	Test Condition
		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).

HZU Series

Type	Grade	Zener Voltage		Reverse Current			Dynamic Resistance	
		V_z (V) * ¹		Test Condition	I_R (μ A)	Test Condition	r_d (Ω)	Test Condition
		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).

Type	Grade	Zener Voltage		Reverse Current		Dynamic Resistance		
		V_z (V) * ¹		Test Condition	I_R (μ A)	Test Condition	r_d (Ω)	Test Condition
		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

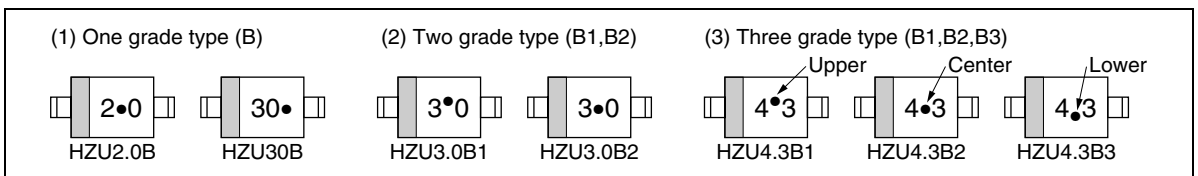
Note: 1. Tested with pulse ($P_w = 40$ ms).

HZU Series

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	13•
HZU2.2	B	2•2		B2	6•2		B2	13•
HZU2.4	B	2•4		B3	6•2		B3	13•
HZU2.7	B1	2•7	HZU6.8	B1	6•8	HZU15	B1	15•
	B2	2•7		B2	6•8		B2	15•
HZU3.0	B1	3•0		B3	6•8		B3	15•
	B2	3•0	HZU7.5	B1	7•5	HZU16	B1	16•
HZU3.3	B1	3•3		B2	7•5		B2	16•
	B2	3•3		B3	7•5		B3	16•
HZU3.6	B1	3•6	HZU8.2	B1	8•2	HZU18	B1	18•
	B2	3•6		B2	8•2		B2	18•
HZU3.9	B1	3•9		B3	8•2		B3	18•
	B2	3•9	HZU9.1	B1	9•1	HZU20	B1	20•
HZU4.3	B1	4•3		B2	9•1		B2	20•
	B2	4•3		B3	9•1		B3	20•
	B3	4•3	HZU10	B1	10•	HZU22	B1	22•
HZU4.7	B1	4•7		B2	10•		B2	22•
	B2	4•7		B3	10•		B3	22•
	B3	4•7	HZU11	B1	11•	HZU24	B1	24•
HZU5.1	B1	5•1		B2	11•		B2	24•
	B2	5•1		B3	11•		B3	24•
	B3	5•1	HZU12	B1	12•	HZU27	B	27•
HZU5.6	B1	5•6		B2	12•	HZU30	B	30•
	B2	5•6		B3	12•	HZU33	B	33•
	B3	5•6				HZU36	B	36•

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

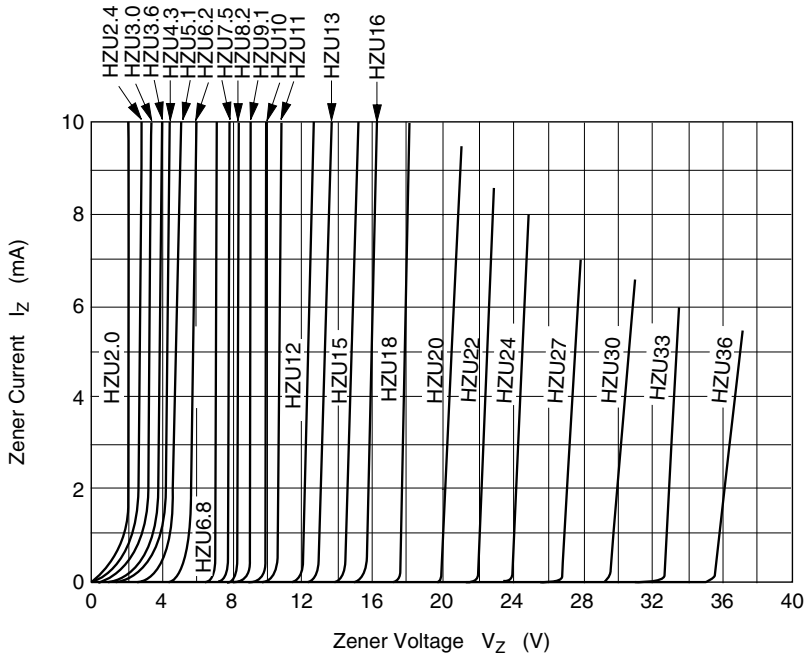


Fig.1 Zener current vs. Zener voltage

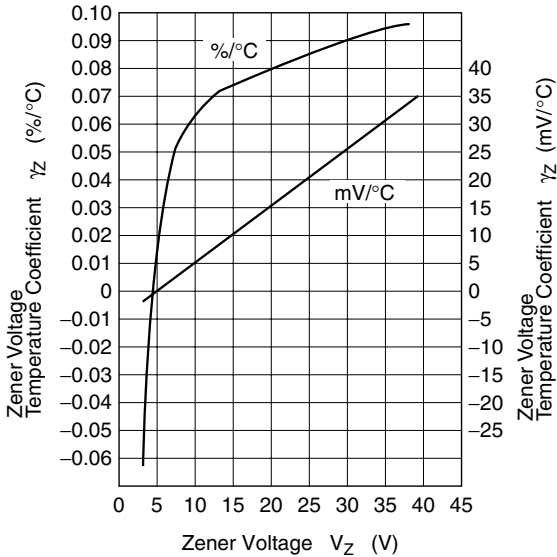


Fig.2 Temperature Coefficient vs. Zener voltage

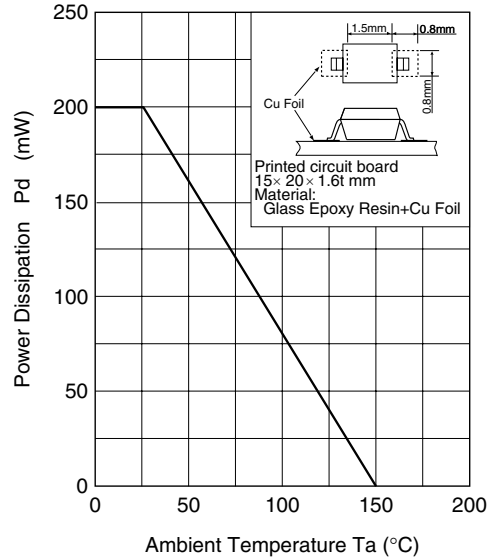
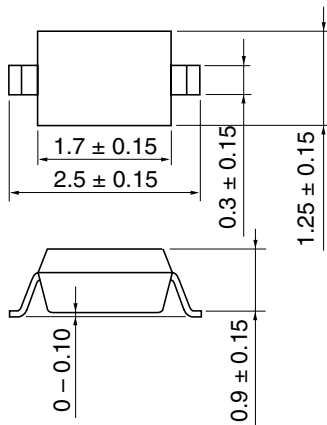


Fig.3 Power Dissipation vs. Ambient Temperature

Package Dimensions

As of July, 2002

Unit: mm



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

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Sales Offices

HITACHI

Hitachi, Ltd.

Semiconductor & Integrated Circuits
 Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan
 Tel: (03) 3270-2111 Fax: (03) 3270-5109

URL <http://www.hitachisemiconductor.com/>

For further information write to:

<p>Hitachi Semiconductor (America) Inc. 179 East Tasman Drive San Jose, CA 95134 Tel: <1> (408) 433-1990 Fax: <1> (408) 433-0223</p>	<p>Hitachi Europe Ltd. Electronic Components Group Whitebrook Park Lower Cookham Road Maidenhead Berkshire SL6 8YA, United Kingdom Tel: <44> (1628) 585000 Fax: <44> (1628) 778322</p>	<p>Hitachi Asia Ltd. Hitachi Tower 16 Collyer Quay #20-00 Singapore 049318 Tel : <65>-6538-6533/6538-8577 Fax : <65>-6538-6933/6538-3877 URL : http://semiconductor.hitachi.com.sg</p>	<p>Hitachi Asia (Hong Kong) Ltd. Group III (Electronic Components) 7/F., North Tower World Finance Centre, Harbour City, Canton Road Tsim Sha Tsui, Kowloon Hong Kong Tel : <852>-2735-9218 Fax : <852>-2730-0281 URL : http://semiconductor.hitachi.com.hk</p>
	<p>Hitachi Europe GmbH Electronic Components Group Dornacher Str 3 D-85622 Feldkirchen Postfach 201, D-85619 Feldkirchen Germany Tel: <49> (89) 9 9180-0 Fax: <49> (89) 9 29 30 00</p>	<p>Hitachi Asia Ltd. (Taipei Branch Office) 4/F, No. 167, Tun Hwa North Road Hung-Kuo Building Taipei (105), Taiwan Tel : <886>-(2)-2718-3666 Fax : <886>-(2)-2718-8180 Telex : 23222 HAS-TP URL : http://semiconductor.hitachi.com.tw</p>	

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