

HZU-L Series

Silicon Planar Zener Diode for Low Noise Application

REJ03G0043-0400
Rev.4.00
Oct.29.2007

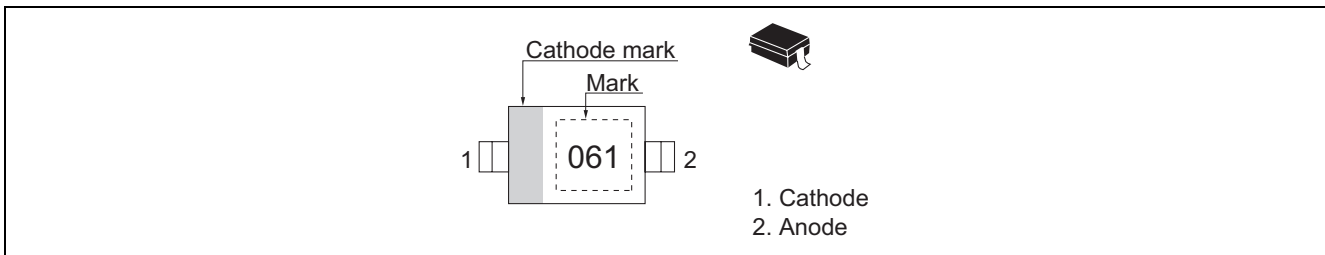
Features

- Diode noise level of this series is approximately 1/3-1/10 lower than the HZ series.
- Low leakage and low zener impedance.
- Wide spectrum from 5.2 V through 14.3 V of zener voltage provide flexible application.
- Ultra small Resin Package (URP) is suitable for surface mount design.

Ordering Information

Part No.	Laser Mark	Package Name	Package Code
HZU-L Series	Let to Mark Code	URP	PTSP0002ZA-A

Pin Arrangement



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	Zener Voltage		Test Condition	Reverse Current		Dynamic Resistance	
	V _Z (V) *1			I _R (μA)	Test Condition	r _d (Ω)	Test Condition
	Min	Max	I _Z (mA)	Max	V _R (V)	Max	I _Z (mA)
HZU6A1L	5.2	5.5	0.5	1	2.0	150	0.5
HZU6A2L	5.3	5.6					
HZU6A3L	5.4	5.7					
HZU6B1L	5.5	5.8	0.5	1	2.0	80	0.5
HZU6B2L	5.6	5.9					
HZU6B3L	5.7	6.0					
HZU6C1L	5.8	6.1	0.5	1	2.0	60	0.5
HZU6C2L	6.0	6.3					
HZU6C3L	6.1	6.4					
HZU7A1L	6.3	6.6	0.5	1	3.5	60	0.5
HZU7A2L	6.4	6.7					
HZU7A3L	6.6	6.9					
HZU7B1L	6.7	7.0					
HZU7B2L	6.9	7.2					
HZU7B3L	7.0	7.3					
HZU7C1L	7.2	7.6					
HZU7C2L	7.3	7.7					
HZU7C3L	7.5	7.9					
HZU9A1L	7.7	8.1	0.5	1	6.0	60	0.5
HZU9A2L	7.9	8.3					
HZU9A3L	8.1	8.5					
HZU9B1L	8.3	8.7					
HZU9B2L	8.5	8.9					
HZU9B3L	8.7	9.1					
HZU9C1L	8.9	9.3					
HZU9C2L	9.1	9.5					
HZU9C3L	9.3	9.7					
HZU11A1L	9.5	9.9	0.5	1	8.0	80	0.5
HZU11A2L	9.7	10.1					
HZU11A3L	9.9	10.3					
HZU11B1L	10.2	10.6					
HZU11B2L	10.4	10.8					
HZU11B3L	10.7	11.1					
HZU11C1L	10.9	11.3					
HZU11C2L	11.1	11.6					
HZU11C3L	11.4	11.9					

Note: 1. Tested with DC.

Type	Zener Voltage		Test Condition	Reverse Current		Dynamic Resistance	
	V _Z (V) *1			I _R (μA)	Test Condition	r _d (Ω)	Test Condition
	Min	12.1	I _Z (mA)	Max	V _R (V)	Max	I _Z (mA)
HZU12A1L	11.6	12.4	0.5	1	10.5	80	0.5
HZU12A2L	11.9	12.7					
HZU12A3L	12.2	12.9					
HZU12B1L	12.4	13.1					
HZU12B2L	12.6	13.4					
HZU12B3L	12.9	13.7					
HZU12C1L	13.2	14.0					
HZU12C2L	13.5	14.3					
HZU12C3L	13.8	12.1					

Note: 1. Tested with DC.

Mark Code

Part No.	Mark No.
HZU6A1L	061
HZU6A2L	062
HZU6A3L	063
HZU6B1L	064
HZU6B2L	065
HZU6B3L	066
HZU6C1L	067
HZU6C2L	068
HZU6C3L	069
HZU7A1L	071
HZU7A2L	072
HZU7A3L	073
HZU7B1L	074
HZU7B2L	075
HZU7B3L	076
HZU7C1L	077
HZU7C2L	078
HZU7C3L	079

Part No.	Mark No.
HZU9 A1L	091
HZU9 A2L	092
HZU9 A3L	093
HZU9 B1L	094
HZU9 B2L	095
HZU9 B3L	096
HZU9 C1L	097
HZU9 C2L	098
HZU9 C3L	099
HZU11A1L	111
HZU11A2L	112
HZU11A3L	113
HZU11B1L	114
HZU11B2L	115
HZU11B3L	116
HZU11C1L	117
HZU11C2L	118
HZU11C3L	119

Part No.	Mark No.
HZU12A1L	121
HZU12A2L	122
HZU12A3L	123
HZU12B1L	124
HZU12B2L	125
HZU12B3L	126
HZU12C1L	127
HZU12C2L	128
HZU12C3L	129

Main Characteristic

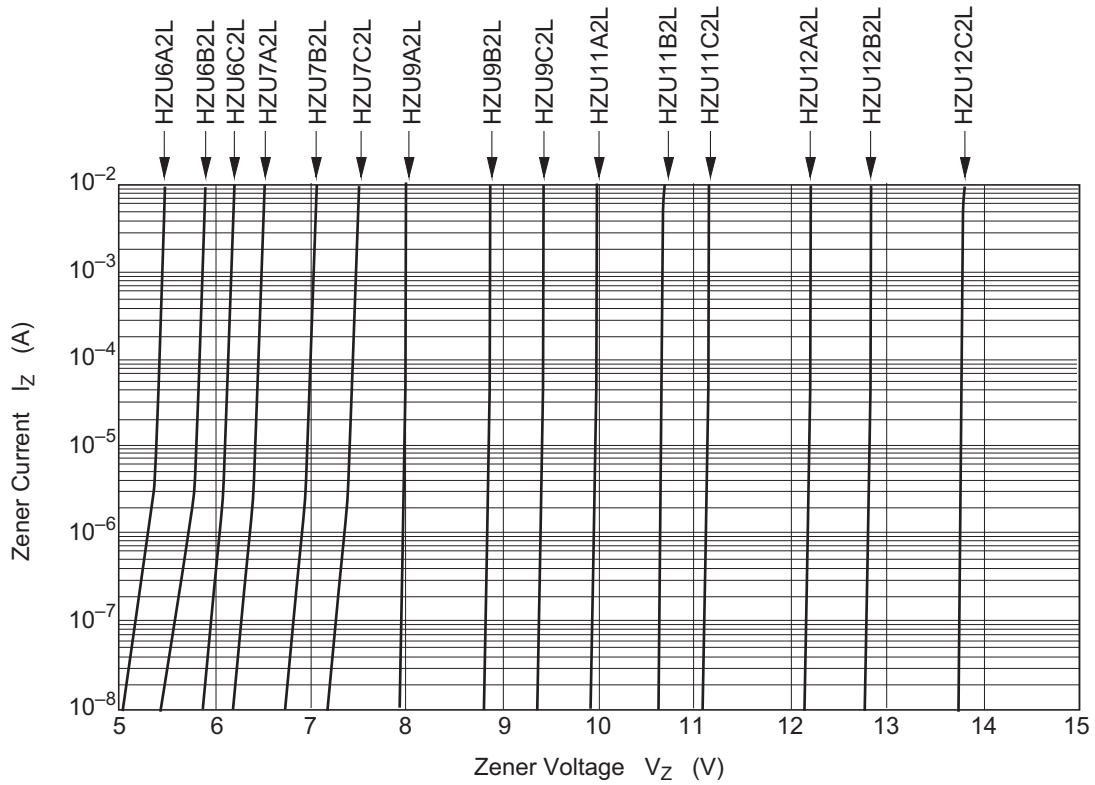


Fig.1 Zener current vs. Zener voltage

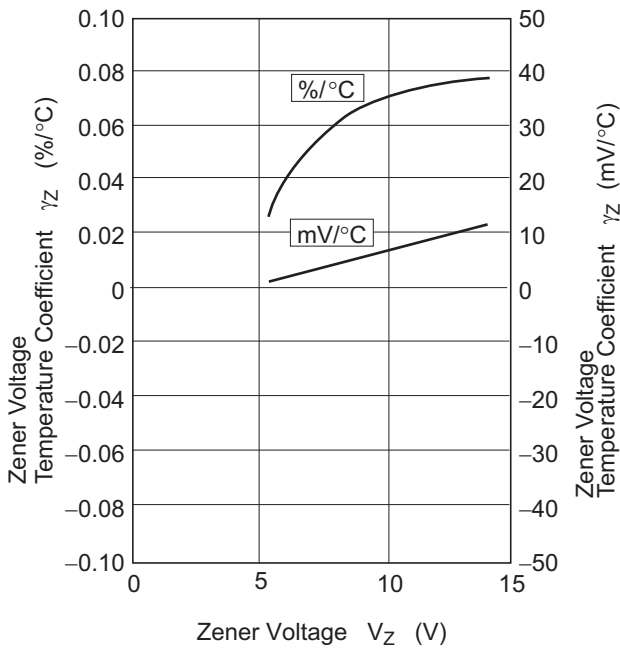


Fig.2 Temperature Coefficient vs. Zener voltage

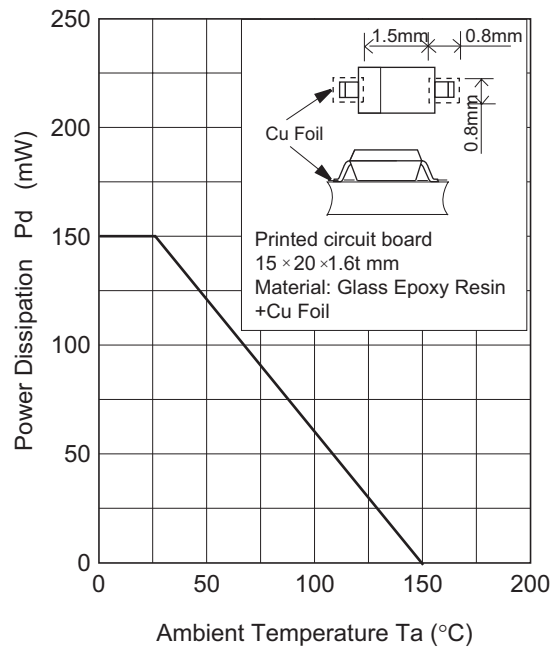
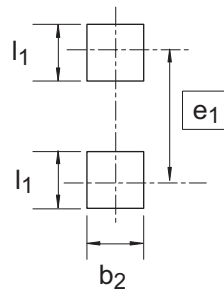
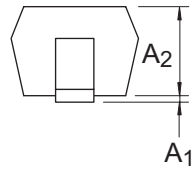
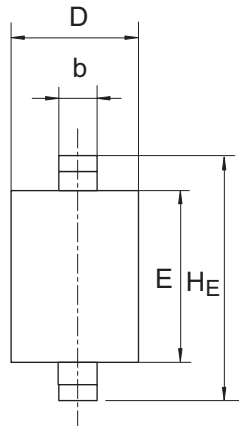


Fig.3 Power Dissipation vs. Ambient Temperature

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
URP	SC-76A	PTSP0002ZA-A	URP / URPV	0.004g



Pattern of terminal position areas

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
A ₁	0	-	0.1
A ₂	0.75	0.90	1.05
b	0.15	0.30	0.45
D	1.10	1.25	1.40
E	1.55	1.70	1.85
H _E	2.35	2.50	2.65
b ₂	-	0.80	-
e ₁	-	2.30	-
l ₁	-	0.80	-

Notes:

1. This document is provided for reference purposes only so that Renesas customers may select the appropriate Renesas products for their use. Renesas neither makes warranties or representations with respect to the accuracy or completeness of the information contained in this document nor grants any license to any intellectual property rights or any other rights of Renesas or any third party with respect to the information in this document.
2. Renesas shall have no liability for damages or infringement of any intellectual property or other rights arising out of the use of any information in this document, including, but not limited to, product data, diagrams, charts, programs, algorithms, and application circuit examples.
3. You should not use the products or the technology described in this document for the purpose of military applications such as the development of weapons of mass destruction or for the purpose of any other military use. When exporting the products or technology described herein, you should follow the applicable export control laws and regulations, and procedures required by such laws and regulations.
4. All information included in this document such as product data, diagrams, charts, programs, algorithms, and application circuit examples, is current as of the date this document is issued. Such information, however, is subject to change without any prior notice. Before purchasing or using any Renesas products listed in this document, please confirm the latest product information with a Renesas sales office. Also, please pay regular and careful attention to additional and different information to be disclosed by Renesas such as that disclosed through our website. (<http://www.renesas.com>)
5. Renesas has used reasonable care in compiling the information included in this document, but Renesas assumes no liability whatsoever for any damages incurred as a result of errors or omissions in the information included in this document.
6. When using or otherwise relying on the information in this document, you should evaluate the information in light of the total system before deciding about the applicability of such information to the intended application. Renesas makes no representations, warranties or guaranties regarding the suitability of its products for any particular application and specifically disclaims any liability arising out of the application and use of the information in this document or Renesas products.
7. With the exception of products specified by Renesas as suitable for automobile applications, Renesas products are not designed, manufactured or tested for applications or otherwise in systems the failure or malfunction of which may cause a direct threat to human life or create a risk of human injury or which require especially high quality and reliability such as safety systems, or equipment or systems for transportation and traffic, healthcare, combustion control, aerospace and aeronautics, nuclear power, or undersea communication transmission. If you are considering the use of our products for such purposes, please contact a Renesas sales office beforehand. Renesas shall have no liability for damages arising out of the uses set forth above.
8. Notwithstanding the preceding paragraph, you should not use Renesas products for the purposes listed below:
 - (1) artificial life support devices or systems
 - (2) surgical implantations
 - (3) healthcare intervention (e.g., excision, administration of medication, etc.)
 - (4) any other purposes that pose a direct threat to human lifeRenesas shall have no liability for damages arising out of the uses set forth in the above and purchasers who elect to use Renesas products in any of the foregoing applications shall indemnify and hold harmless Renesas Technology Corp., its affiliated companies and their officers, directors, and employees against any and all damages arising out of such applications.
9. You should use the products described herein within the range specified by Renesas, especially with respect to the maximum rating, operating supply voltage range, movement power voltage range, heat radiation characteristics, installation and other product characteristics. Renesas shall have no liability for malfunctions or damages arising out of the use of Renesas products beyond such specified ranges.
10. Although Renesas endeavors to improve the quality and reliability of its products, IC products have specific characteristics such as the occurrence of failure at a certain rate and malfunctions under certain use conditions. Please be sure to implement safety measures to guard against the possibility of physical injury, and injury or damage caused by fire in the event of the failure of a Renesas product, such as safety design for hardware and software including but not limited to redundancy, fire control and malfunction prevention, appropriate treatment for aging degradation or any other applicable measures. Among others, since the evaluation of microcomputer software alone is very difficult, please evaluate the safety of the final products or system manufactured by you.
11. In case Renesas products listed in this document are detached from the products to which the Renesas products are attached or affixed, the risk of accident such as swallowing by infants and small children is very high. You should implement safety measures so that Renesas products may not be easily detached from your products. Renesas shall have no liability for damages arising out of such detachment.
12. This document may not be reproduced or duplicated, in any form, in whole or in part, without prior written approval from Renesas.
13. Please contact a Renesas sales office if you have any questions regarding the information contained in this document, Renesas semiconductor products, or if you have any other inquiries.



RENESAS SALES OFFICES

<http://www.renesas.com>

Refer to "<http://www.renesas.com/en/network>" for the latest and detailed information.

Renesas Technology America, Inc.

450 Holger Way, San Jose, CA 95134-1368, U.S.A
Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

Renesas Technology Europe Limited

Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: <44> (1628) 585-100, Fax: <44> (1628) 585-900

Renesas Technology (Shanghai) Co., Ltd.

Unit 204, 205, AZIACenter, No.1233 Lujiazui Ring Rd, Pudong District, Shanghai, China 200120
Tel: <86> (21) 5877-1818, Fax: <86> (21) 6887-7898

Renesas Technology Hong Kong Ltd.

7th Floor, North Tower, World Finance Centre, Harbour City, 1 Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2730-6071

Renesas Technology Taiwan Co., Ltd.

10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

Renesas Technology Singapore Pte. Ltd.

1 Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: <65> 6213-0200, Fax: <65> 6278-8001

Renesas Technology Korea Co., Ltd.

Kukje Center Bldg. 18th Fl., 191, 2-ka, Hangang-ro, Yongsan-ku, Seoul 140-702, Korea
Tel: <82> (2) 796-3115, Fax: <82> (2) 796-2145

Renesas Technology Malaysia Sdn. Bhd

Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jalan Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510