HZS-LL Series

Silicon Epitaxial Planar Zener Diode for Hard Knee Low Noise

REJ03G0167-0200Z
(Previous: ADE-208-122A)
Rev.2.00
Jan.06.2004

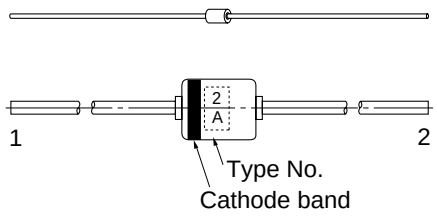
Features

- Vz-Iz characteristics are semilogarithmic linear from I_Z = 1nA to 1mA and have sharper breakdown knees in a low current region, and also lower V_Z temperature coefficients .
- Low dynamic impedance and low noise in the low current region (approximately 1/10 lower than the current zeners).
- Suitable for 5mm-pitch high speed automatic insertion.

Ordering Information

Type No.	Mark	Package Code
HZS-LL Series	Type No.	MHD

Pin Arrangement



1. Cathode
2. Anode

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Power dissipation	Pd	250	mW
Junction temperature	Tj	175	°C
Storage temperature	Tstg	–55 to +175	°C

Electrical Characteristics

(Ta = 25°C)

		V_Z(V) *1			I_R(nA)		Z_{ZT}(Ω)		Z_{ZK}(kΩ)*2		ΔV_{Z1}(V) *3	ΔV_{Z2}(V) *3
Type	Grade	Min	Max	I_Z(mA)	Max	V_R(V)	Max	I_{ZT}(mA)	Typ	I_{ZK}(μA)	Max	Max
HZS2LL	A	1.6	2.0	0.5	100	0.5	350	0.5	(1.2)	50	0.5	0.6
	B	1.9	2.3									
	C	2.2	2.6									
HZS3LL	A	2.5	2.9	0.5	100	1.0	360	0.5	(1.2)	50	0.5	0.6
	B	2.8	3.2									
	C	3.1	3.5									
HZS4LL	A	3.4	3.8	0.5	100	2.0	370	0.5	(1.5)	50	0.5	0.6
	B	3.7	4.1									
	C	4.0	4.4									
HZS5LL	A	4.3	4.7	0.5	100	3.0	380	0.5	(1.5)	50	0.5	0.6
	B	4.6	5.0									
	C	4.9	5.3									

Notes: 1. Tested with DC.
2. Reference only.
3. $\Delta V_{Z1} = V_Z$ (I_Z = 0.5 mA) – V_{Z1} (I_z = 0.05 mA) $\Delta V_{Z2} = V_{Z1}$ (IZ = 0.05 mA) – V_{Z2} (I_z = 0.001 mA)
4. Type No. is as follows; HZS2ALL, HZS2BLL, HZS5CLL.

Main Characteristic

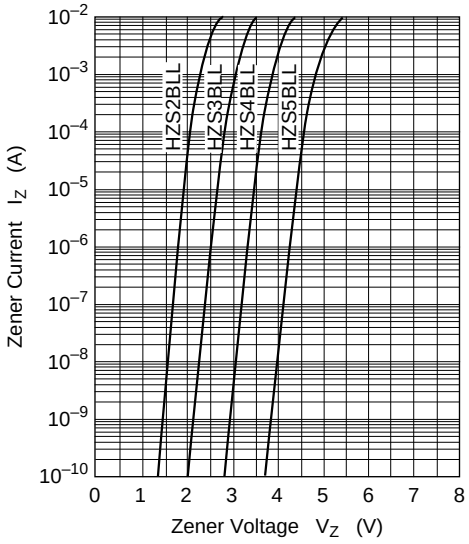


Fig.1 Zener current vs. Zener voltage

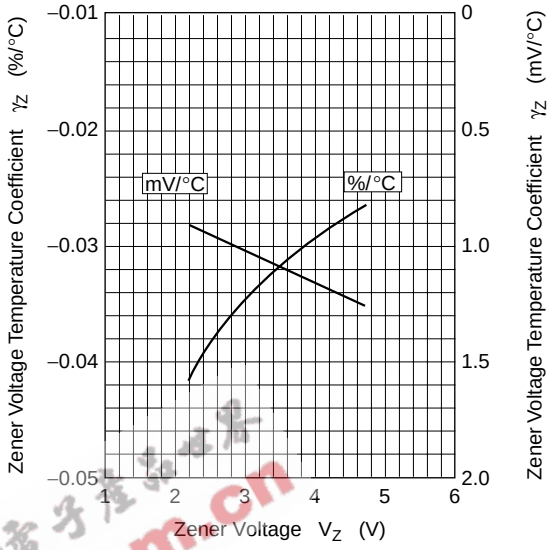


Fig.2 Temperature Coefficient vs. Zener voltage

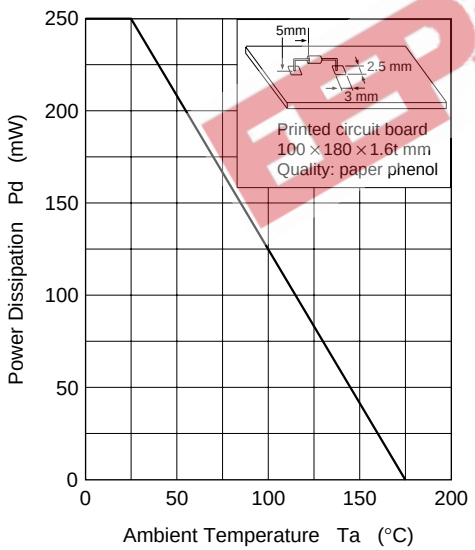
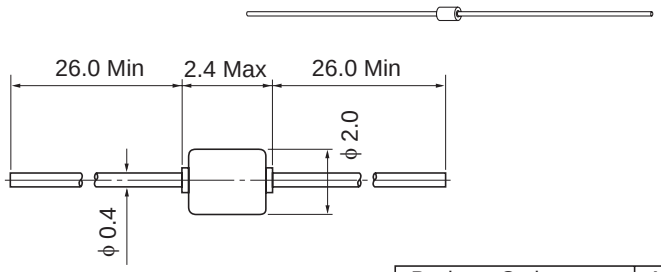


Fig.3 Power Dissipation vs. Ambient Temperature

Package Dimensions

As of January, 2003

Unit: mm



Package Code	MHD
JEDEC	Conforms
JEITA	—
Mass (reference value)	0.084 g

Renesas Technology Corp. Sales Strategic Planning Div. Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan

Keep safety first in your circuit designs!

1. Renesas Technology Corp. puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage.
   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.

Notes regarding these materials

1. These materials are intended as a reference to assist our customers in the selection of the Renesas Technology Corp. product best suited to the customer's application; they do not convey any license under any intellectual property rights, or any other rights, belonging to Renesas Technology Corp. or a third party.
2. Renesas Technology Corp. assumes no responsibility for any damage, or infringement of any third-party's rights, originating in the use of any product data, diagrams, charts, programs, algorithms, or circuit application examples contained in these materials.
3. All information contained in these materials, including product data, diagrams, charts, programs and algorithms represents information on products at the time of publication of these materials, and are subject to change by Renesas Technology Corp. without notice due to product improvements or other reasons. It is therefore recommended that customers contact Renesas Technology Corp. or an authorized Renesas Technology Corp. product distributor for the latest product information before purchasing a product listed herein.
   The information described here may contain technical inaccuracies or typographical errors.
   Renesas Technology Corp. assumes no responsibility for any damage, liability, or other loss rising from these inaccuracies or errors.
   Please also pay attention to information published by Renesas Technology Corp. by various means, including the Renesas Technology Corp. Semiconductor home page (http://www.renesas.com).
4. When using any or all of the information contained in these materials, including product data, diagrams, charts, programs, and algorithms, please be sure to evaluate all information as a total system before making a final decision on the applicability of the information and products. Renesas Technology Corp. assumes no responsibility for any damage, liability or other loss resulting from the information contained herein.
5. Renesas Technology Corp. semiconductors are not designed or manufactured for use in a device or system that is used under circumstances in which human life is potentially at stake. Please contact Renesas Technology Corp. or an authorized Renesas Technology Corp. product distributor when considering the use of a product contained herein for any specific purposes, such as apparatus or systems for transportation, vehicular, medical, aerospace, nuclear, or undersea repeater use.
6. The prior written approval of Renesas Technology Corp. is necessary to reprint or reproduce in whole or in part these materials.
7. If these products or technologies are subject to the Japanese export control restrictions, they must be exported under a license from the Japanese government and cannot be imported into a country other than the approved destination.
   Any diversion or reexport contrary to the export control laws and regulations of Japan and/or the country of destination is prohibited.
8. Please contact Renesas Technology Corp. for further details on these materials or the products contained therein.

RENESAS

RENESAS SALES OFFICES

http://www.renesas.com

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, United Kingdom
Tel: <44> (1628) 585 100, Fax: <44> (1628) 585 900

Renesas Technology Europe GmbH
Dornacher Str. 3, D-85622 Feldkirchen, Germany
Tel: <49> (89) 380 70 0, Fax: <49> (89) 929 30 11

Renesas Technology Hong Kong Ltd.
7/F., North Tower, World Finance Centre, Harbour City, Canton Road, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2375-6836

Renesas Technology Taiwan Co., Ltd.
FL 10, #99, Fu-Hsing N. Rd., Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

Renesas Technology (Shanghai) Co., Ltd.
26/F., Ruijin Building, No.205 Maoming Road (S), Shanghai 200020, China
Tel: <86> (21) 6472-1001, Fax: <86> (21) 6415-2952

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

Colophon 1.0