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April 1st, 2010
Renesas Electronics Corporation

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HZS-L Series

Silicon Planar Zener Diode for Low Noise Application

REJ03G0166-0300
 Rev.3.00
 Nov 06, 2007

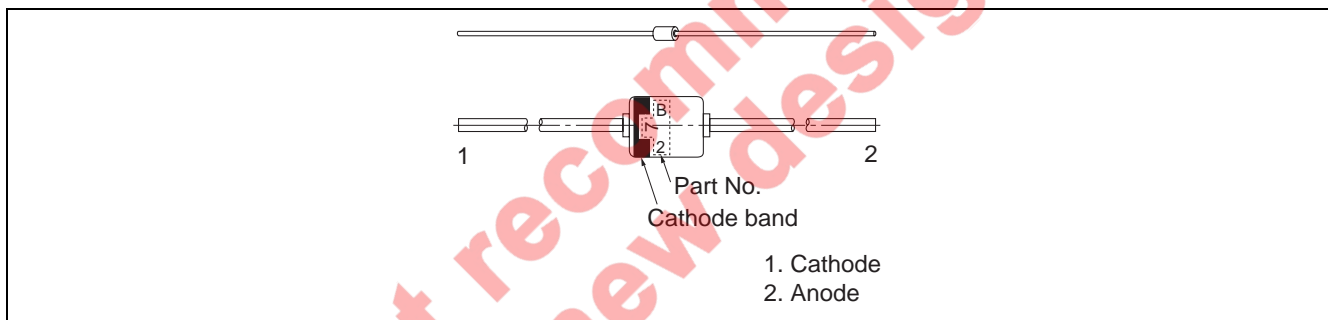
Features

- Diode noise level of this series is approximately 1/3-1/10 lower than the HZ series.
- Low leakage, low zener impedance and maximum power dissipation of 400 mW are ideally suited for stabilized power supply, etc.
- Wide voltage range from 5.2 V through 38 V of zener voltage provide flexible application.
- Suitable for 5mm-pitch high speed automatic insertion.

Ordering Information

| Part No. | Cathode Band | Package Name | Package Code |
|--------------|--------------|--------------|--------------|
| HZS-L Series | Black | MHD | GRZZ0002ZC-A |

Pin Arrangement



Absolute Maximum Ratings

(Ta = 25°C)

| Item | Symbol | Value | Unit |
|----------------------|--------|-------------|------|
| Power dissipation | Pd | 400 | mW |
| Junction temperature | Tj | 200 | °C |
| Storage temperature | Tstg | -55 to +175 | °C |

Electrical Characteristics

(Ta = 25°C)

| Part No. | 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) |
| HZS6A1L | 5.2 | 5.5 | 0.5 | 1 | 2.0 | 150 | 0.5 |
| HZS6A2L | 5.3 | 5.6 | | | | | |
| HZS6A3L | 5.4 | 5.7 | | | | | |
| HZS6B1L | 5.5 | 5.8 | 0.5 | 1 | 2.0 | 80 | 0.5 |
| HZS6B2L | 5.6 | 5.9 | | | | | |
| HZS6B3L | 5.7 | 6.0 | | | | | |
| HZS6C1L | 5.8 | 6.1 | 0.5 | 1 | 2.0 | 60 | 0.5 |
| HZS6C2L | 6.0 | 6.3 | | | | | |
| HZS6C3L | 6.1 | 6.4 | | | | | |
| HZS7A1L | 6.3 | 6.6 | 0.5 | 1 | 3.5 | 60 | 0.5 |
| HZS7A2L | 6.4 | 6.7 | | | | | |
| HZS7A3L | 6.6 | 6.9 | | | | | |
| HZS7B1L | 6.7 | 7.0 | 0.5 | 1 | 3.5 | 60 | 0.5 |
| HZS7B2L | 6.9 | 7.2 | | | | | |
| HZS7B3L | 7.0 | 7.3 | | | | | |
| HZS7C1L | 7.2 | 7.6 | 0.5 | 1 | 3.5 | 60 | 0.5 |
| HZS7C2L | 7.3 | 7.7 | | | | | |
| HZS7C3L | 7.5 | 7.9 | | | | | |
| HZS9A1L | 7.7 | 8.1 | 0.5 | 1 | 6.0 | 60 | 0.5 |
| HZS9A2L | 7.9 | 8.3 | | | | | |
| HZS9A3L | 8.1 | 8.5 | | | | | |
| HZS9B1L | 8.3 | 8.7 | 0.5 | 1 | 6.0 | 60 | 0.5 |
| HZS9B2L | 8.5 | 8.9 | | | | | |
| HZS9B3L | 8.7 | 9.1 | | | | | |
| HZS9C1L | 8.9 | 9.3 | 0.5 | 1 | 6.0 | 60 | 0.5 |
| HZS9C2L | 9.1 | 9.5 | | | | | |
| HZS9C3L | 9.3 | 9.7 | | | | | |
| HZS11A1L | 9.5 | 9.9 | 0.5 | 1 | 8.0 | 80 | 0.5 |
| HZS11A2L | 9.7 | 10.1 | | | | | |
| HZS11A3L | 9.9 | 10.3 | | | | | |
| HZS11B1L | 10.2 | 10.6 | 0.5 | 1 | 8.0 | 80 | 0.5 |
| HZS11B2L | 10.4 | 10.8 | | | | | |
| HZS11B3L | 10.7 | 11.1 | | | | | |
| HZS11C1L | 10.9 | 11.3 | 0.5 | 1 | 8.0 | 80 | 0.5 |
| HZS11C2L | 11.1 | 11.6 | | | | | |
| HZS11C3L | 11.4 | 11.9 | | | | | |

Note: 1. Tested with DC.

| Part No. | 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) |
| HZS12A1L | 11.6 | 12.1 | 0.5 | 1 | 10.5 | 80 | 0.5 |
| HZS12A2L | 11.9 | 12.4 | | | | | |
| HZS12A3L | 12.2 | 12.7 | | | | | |
| HZS12B1L | 12.4 | 12.9 | | | | | |
| HZS12B2L | 12.6 | 13.1 | | | | | |
| HZS12B3L | 12.9 | 13.4 | | | | | |
| HZS12C1L | 13.2 | 13.7 | | | | | |
| HZS12C2L | 13.5 | 14.0 | | | | | |
| HZS12C3L | 13.8 | 14.3 | | | | | |
| HZS15-1L | 14.1 | 14.7 | 0.5 | 1 | 13.0 | 80 | 0.5 |
| HZS15-2L | 14.5 | 15.1 | | | | | |
| HZS15-3L | 14.9 | 15.5 | | | | | |
| HZS16-1L | 15.3 | 15.9 | 0.5 | 1 | 14.0 | 80 | 0.5 |
| HZS16-2L | 15.7 | 16.5 | | | | | |
| HZS16-3L | 16.3 | 17.1 | | | | | |
| HZS18-1L | 16.9 | 17.7 | 0.5 | 1 | 15.0 | 80 | 0.5 |
| HZS18-2L | 17.5 | 18.3 | | | | | |
| HZS18-3L | 18.1 | 19.0 | | | | | |
| HZS20-1L | 18.8 | 19.7 | 0.5 | 1 | 18.0 | 100 | 0.5 |
| HZS20-2L | 19.5 | 20.4 | | | | | |
| HZS20-3L | 20.2 | 21.1 | | | | | |
| HZS22-1L | 20.9 | 21.9 | 0.5 | 1 | 20.0 | 100 | 0.5 |
| HZS22-2L | 21.6 | 22.6 | | | | | |
| HZS22-3L | 22.3 | 23.3 | | | | | |
| HZS24-1L | 22.9 | 24.0 | 0.5 | 1 | 22.0 | 120 | 0.5 |
| HZS24-2L | 23.6 | 24.7 | | | | | |
| HZS24-3L | 24.3 | 25.5 | | | | | |
| HZS27-1L | 25.2 | 26.6 | 0.5 | 1 | 24.0 | 150 | 0.5 |
| HZS27-2L | 26.2 | 27.6 | | | | | |
| HZS27-3L | 27.2 | 28.6 | | | | | |
| HZS30-1L | 28.2 | 29.6 | 0.5 | 1 | 27.0 | 200 | 0.5 |
| HZS30-2L | 29.2 | 30.6 | | | | | |
| HZS30-3L | 30.2 | 31.6 | | | | | |
| HZS33-1L | 31.2 | 32.6 | 0.5 | 1 | 30.0 | 250 | 0.5 |
| HZS33-2L | 32.2 | 33.6 | | | | | |
| HZS33-3L | 33.2 | 34.6 | | | | | |
| HZS36-1L | 34.2 | 35.7 | 0.5 | 1 | 33.0 | 300 | 0.5 |
| HZS36-2L | 35.3 | 36.8 | | | | | |
| HZS36-3L | 36.4 | 38.0 | | | | | |

Note: 1. Tested with DC.

Main Characteristic

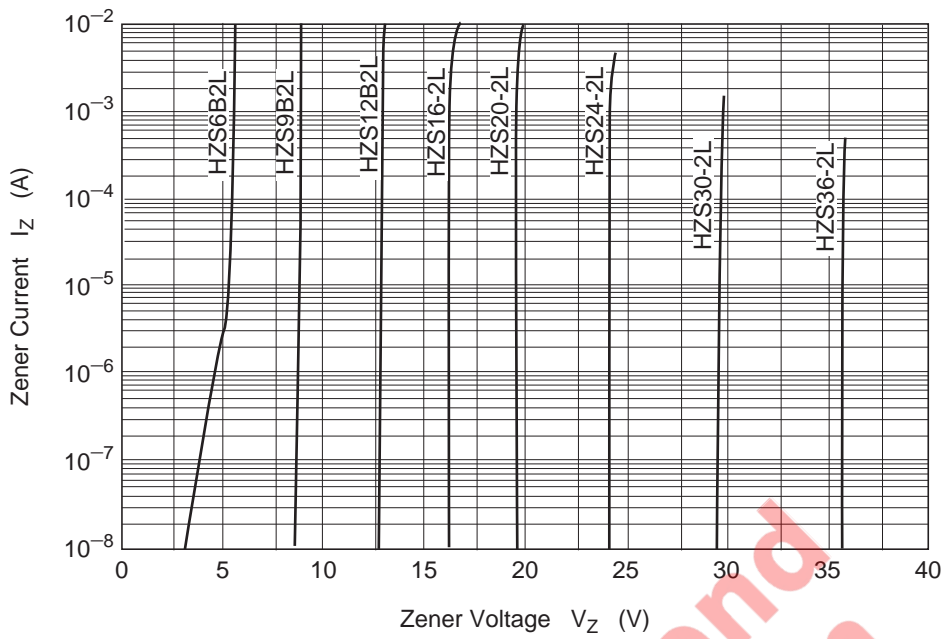


Fig.1 Zener current vs. Zener voltage

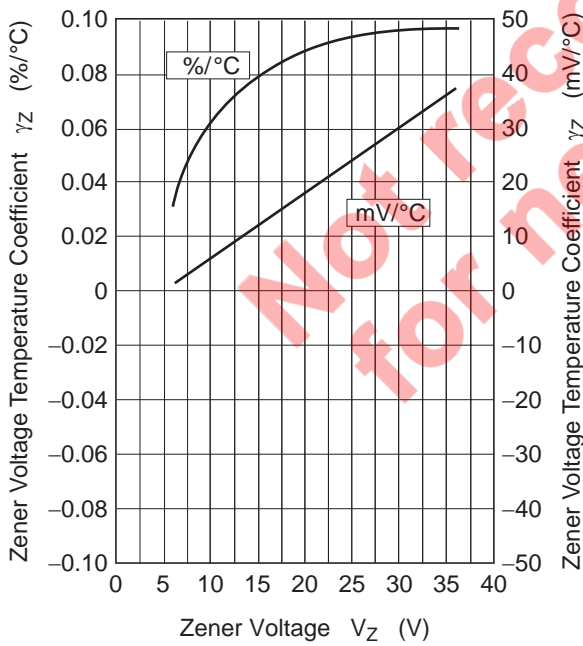


Fig.2 Temperature Coefficient vs. Zener voltage

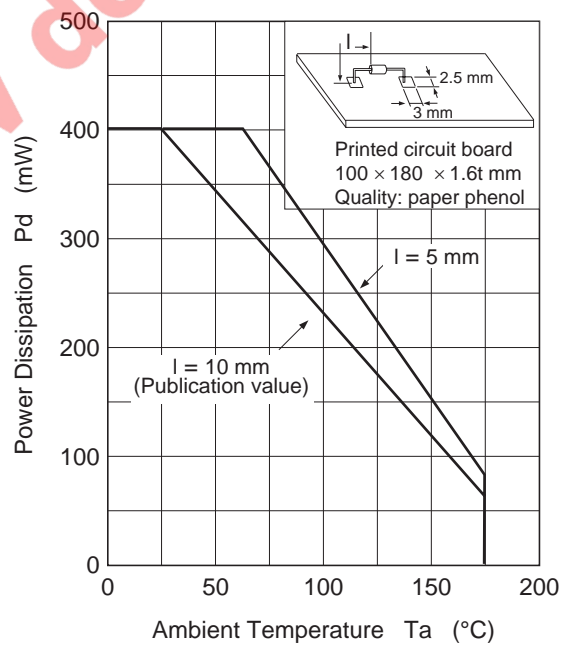
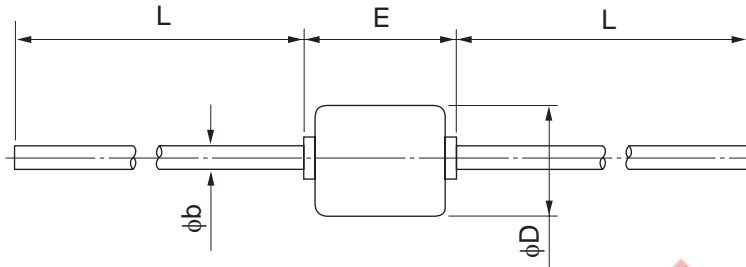


Fig.3 Power Dissipation vs. Ambient Temperature

Package Dimensions

| | | | | |
|--------------|--------------------|--------------|---------------|------------|
| Package Name | JEITA Package Code | RENESAS Code | Previous Code | MASS[Typ.] |
| MHD | — | GRZZ0002ZC-A | MHD / MHDV | 0.084g |



| Reference Symbol | Dimension in Millimeters | | |
|------------------|--------------------------|-----|-----|
| | Min | Nom | Max |
| φb | - | 0.4 | - |
| φD | - | 2.0 | - |
| E | - | - | 2.4 |
| L | 26.0 | - | - |

Not recommend for new design

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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, AZIA Center, No.1233 Lujiazui Ring Rd, Pudong District, Shanghai, China 200120
Tel: <86> (21) 5877-1818, Fax: <86> (21) 6887-7858/7898

Renesas Technology Hong Kong Ltd.
7th Floor, North Tower, World Finance Centre, Harbour City, Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2377-3473

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10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 3518-3399

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Tel: <65> 6213-0200, Fax: <65> 6278-8001

Renesas Technology Korea Co., Ltd.
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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, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510