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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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RD4.7SL to RD39SL

ZENER DIODES 200 mW 2 PIN SUPER MINI MOLD

DESCRIPTION

Type RD4.7SL to RD39SL Series are 2 PIN Super Mini Mold Package zener diodes possessing an allowable power dissipation of 200 mW featuring low noise and sharp breakdown characteristic. They are intended for use in audio equipment, instrument equipment.

FEATURES

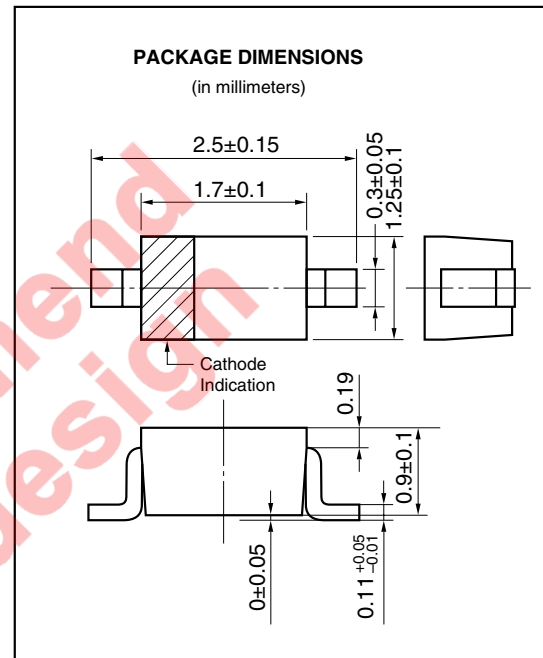
- Low Noise
- Sharp Breakdown characteristic.
- Vz: Applied E24 standard.

APPLICATIONS

Circuits for Constant Voltage, Constant Current, Waveform Clipper, Surge absorber, etc.

ABSOLUTE MAXIMUM RATINGS (TA = 25°C)

| | | |
|----------------------|------|---------------------------------------|
| Power Dissipation | P | 200 mW |
| Forward Current | IF | 100 mA |
| Reverse Surge Power | PRSM | 2.2W (at t=10 μs/1 pulse) Show fig. 8 |
| Junction Temperature | Tj | 150°C |
| Storage Temperature | Tstg | -55 to +150°C |



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ELECTRICAL CHARACTERISTICS (T_A = 25 ± 2°C)

| Type Number | Class | Zener Voltage V _Z (V) ^{Note 1} | | | Dynamic Impedance Z _Z (Ω) ^{Note 2} | | Reverse Current I _R (μA) | |
|-------------|-------|---|-------|---------------------|---|---------------------|--|--------------------|
| | | MIN. | MAX. | I _Z (mA) | MAX. | I _Z (mA) | MAX. | V _R (V) |
| RD4.7SL | N | 4.39 | 4.91 | 0.5 | 800 | 0.5 | 2 | 1.0 |
| | N1 | 4.39 | 4.62 | | | | | |
| | N2 | 4.52 | 4.76 | | | | | |
| | N3 | 4.66 | 4.91 | | | | | |
| RD5.1SL | N | 4.81 | 5.36 | 0.5 | 500 | 0.5 | 2 | 1.5 |
| | N1 | 4.81 | 5.05 | | | | | |
| | N2 | 4.95 | 5.20 | | | | | |
| | N3 | 5.10 | 5.36 | | | | | |
| RD5.6SL | N | 5.26 | 5.91 | 0.5 | 200 | 0.5 | 1 | 2.5 |
| | N1 | 5.26 | 5.54 | | | | | |
| | N2 | 5.44 | 5.73 | | | | | |
| | N3 | 5.63 | 5.91 | | | | | |
| RD6.2SL | N | 5.81 | 6.53 | 0.5 | 100 | 0.5 | 1 | 3.0 |
| | N1 | 5.81 | 6.11 | | | | | |
| | N2 | 6.01 | 6.32 | | | | | |
| | N3 | 6.21 | 6.53 | | | | | |
| RD6.8SL | N | 6.41 | 7.14 | 0.5 | 60 | 0.5 | 0.5 | 3.5 |
| | N1 | 6.41 | 6.74 | | | | | |
| | N2 | 6.60 | 6.94 | | | | | |
| | N3 | 6.80 | 7.14 | | | | | |
| RD7.5SL | N | 7.00 | 7.83 | 0.5 | 60 | 0.5 | 0.5 | 4.0 |
| | N1 | 7.00 | 7.35 | | | | | |
| | N2 | 7.21 | 7.60 | | | | | |
| | N3 | 7.46 | 7.83 | | | | | |
| RD8.2SL | N | 7.69 | 8.61 | 0.5 | 60 | 0.5 | 0.5 | 5.0 |
| | N1 | 7.69 | 8.08 | | | | | |
| | N2 | 7.94 | 8.34 | | | | | |
| | N3 | 8.20 | 8.61 | | | | | |
| RD9.1SL | N | 8.47 | 9.51 | 0.5 | 60 | 0.5 | 0.5 | 6.0 |
| | N1 | 8.47 | 8.91 | | | | | |
| | N2 | 8.76 | 9.21 | | | | | |
| | N3 | 9.06 | 9.51 | | | | | |
| RD10SL | N | 9.35 | 10.51 | 0.5 | 60 | 0.5 | 0.1 | 7.0 |
| | N1 | 9.35 | 9.82 | | | | | |
| | N2 | 9.66 | 10.16 | | | | | |
| | N3 | 10.00 | 10.51 | | | | | |
| RD11SL | N | 10.32 | 11.50 | 0.5 | 60 | 0.5 | 0.1 | 8.0 |
| | N1 | 10.32 | 10.84 | | | | | |
| | N2 | 10.64 | 11.17 | | | | | |
| | N3 | 10.97 | 11.50 | | | | | |

ELECTRICAL CHARACTERISTICS (Ta = 25 ± 2°C)

| Type Number | Class | Zener Voltage Vz (V) ^{Note 1} | | | Dynamic Impedance Zz (Ω) ^{Note 2} | | Reverse Current I _R (μA) | |
|-------------|-------|---|-------|---------|---|---------|--|--------------------|
| | | MIN. | MAX. | Iz (mA) | MAX. | Iz (mA) | MAX. | V _R (V) |
| RD12SL | N | 11.28 | 12.52 | 0.5 | 80 | 0.5 | 0.1 | 9.0 |
| | N1 | 11.28 | 11.83 | | | | | |
| | N2 | 11.59 | 12.17 | | | | | |
| | N3 | 11.93 | 12.52 | | | | | |
| RD13SL | N | 12.29 | 13.86 | 0.5 | 80 | 0.5 | 0.1 | 10 |
| RD15SL | N | 13.63 | 15.38 | 0.5 | 80 | 0.5 | 0.1 | 11 |
| RD16SL | N | 15.13 | 16.91 | 0.5 | 80 | 0.5 | 0.1 | 12 |
| RD18SL | N | 16.63 | 18.81 | 0.5 | 80 | 0.5 | 0.1 | 13 |
| RD20SL | N | 18.51 | 20.79 | 0.5 | 100 | 0.5 | 0.1 | 15 |
| RD22SL | N | 20.46 | 22.82 | 0.5 | 100 | 0.5 | 0.1 | 17 |
| RD24SL | N | 22.42 | 25.17 | 0.5 | 120 | 0.5 | 0.1 | 19 |
| RD27SL | N | 24.75 | 27.95 | 0.5 | 150 | 0.5 | 0.1 | 21 |
| RD30SL | N | 27.38 | 31.04 | 0.5 | 200 | 0.5 | 0.1 | 23 |
| RD33SL | N | 30.30 | 33.97 | 0.5 | 250 | 0.5 | 0.1 | 25 |
| RD36SL | N | 33.08 | 36.83 | 0.5 | 300 | 0.5 | 0.1 | 27 |
| RD39SL | N | 35.78 | 39.67 | 0.5 | 360 | 0.5 | 0.1 | 30 |

- Note** 1. Vz is tested with puls (40 ms).
 2. Zz is measured at Iz by given a very small A.C. current signal.

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TYPICAL CHATACTERISTICS (T_A = 25°C)

Fig. 1 POWER DISSIPATION vs. AMBIENT TEMPERATURE

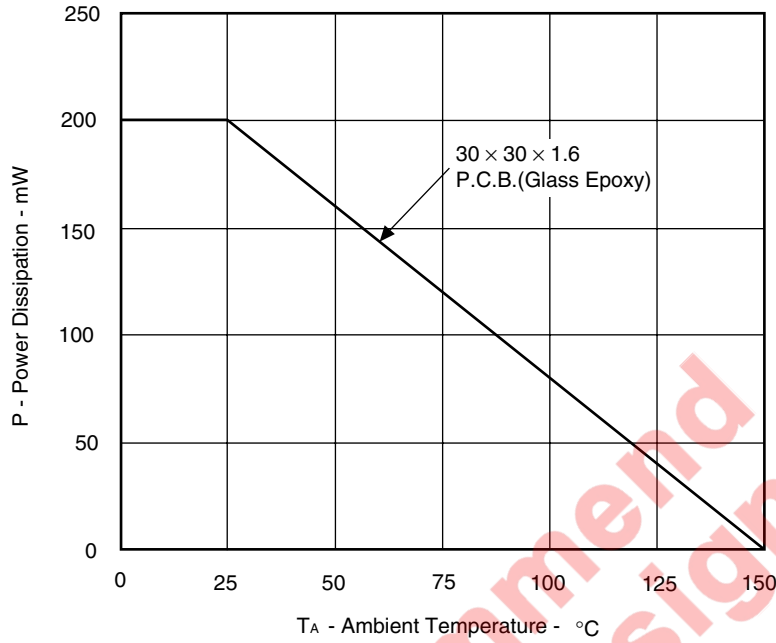


Fig.2 ZENER CURRENT vs. ZENER VOLTAGE

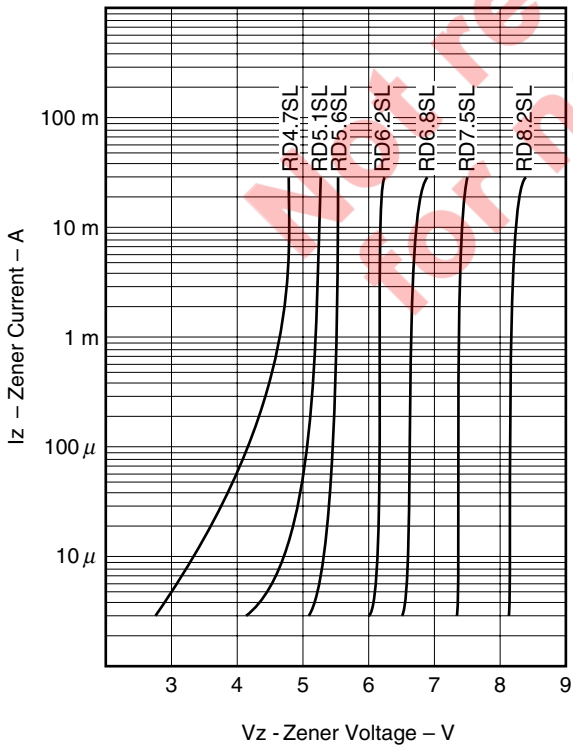


Fig. 3 ZENER CURRENT vs. ZENER VOLTAGE

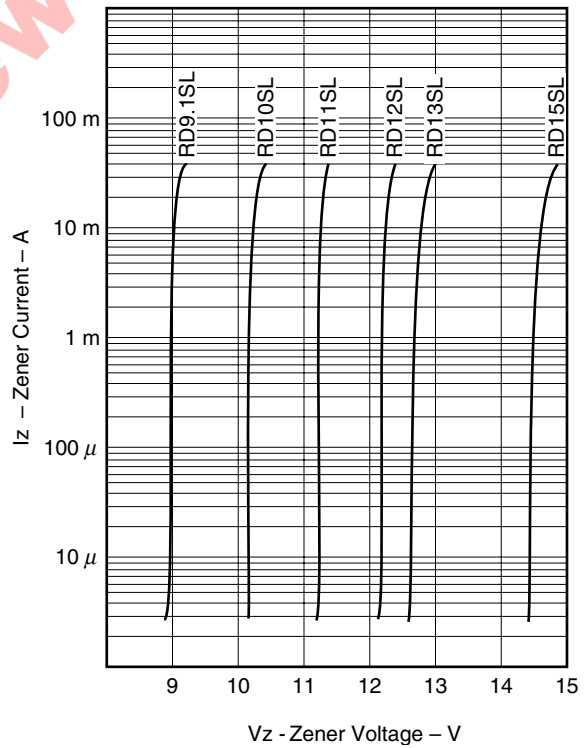


Fig. 4 ZENER CURRENT vs. ZENER VOLTAGE

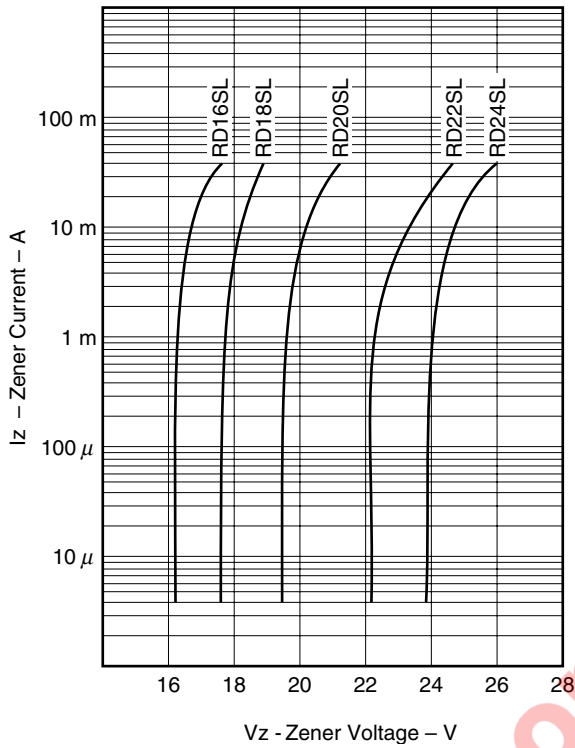


Fig.5 ZENER CURRENT vs. ZENER VOLTAGE

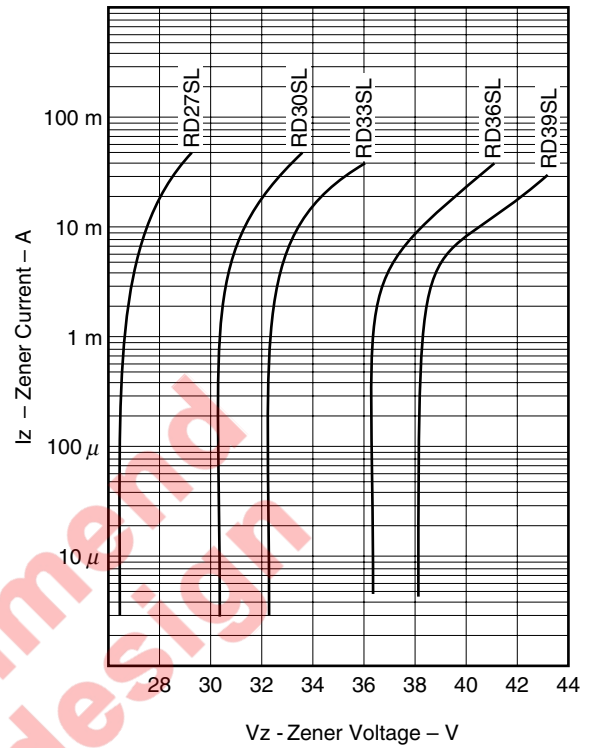


Fig. 6 ZENER VOLTAGE TEMPERATURE COEFFICIENT vs. ZENER VOLTAGE

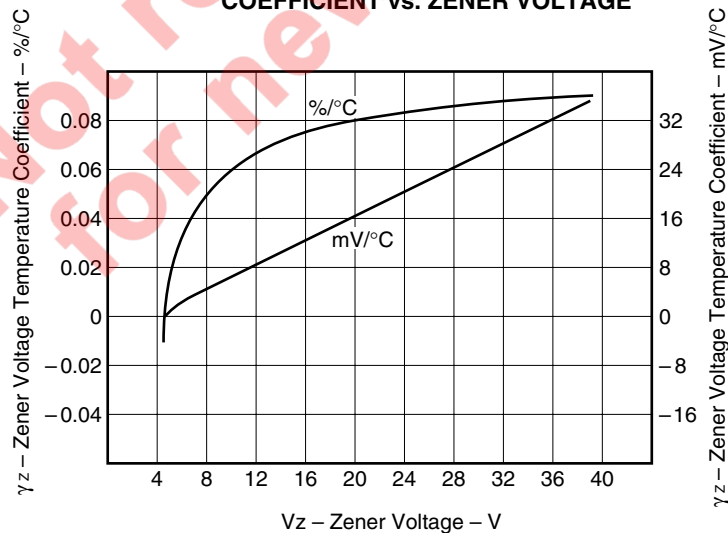


Fig.7 TRANSIENT THERMAL IMPEDANCE CHARACTERISTIC

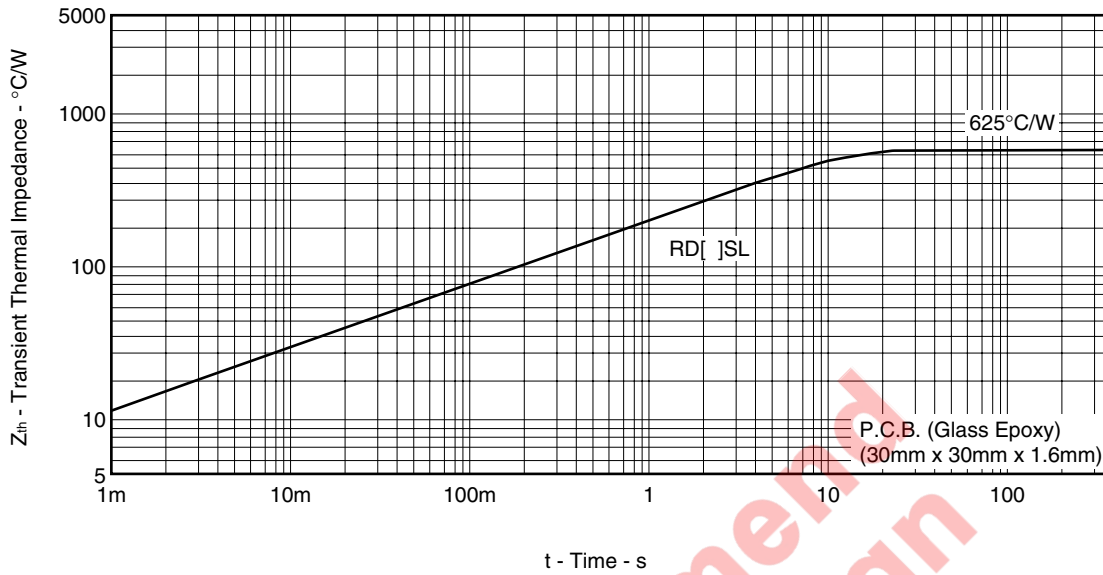
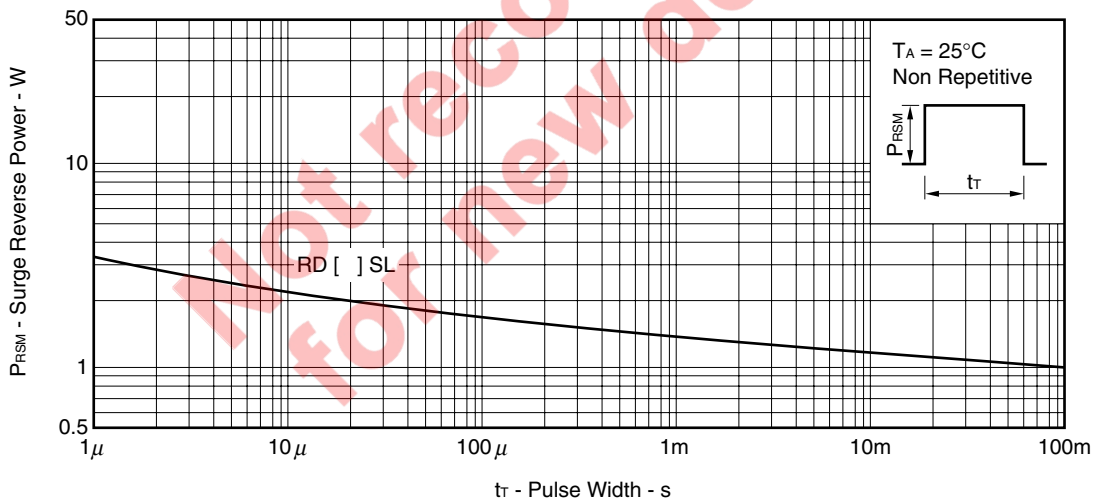


Fig.8 SURGE REVERSE POWER RATINGS



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