

NEC

ZENER DIODES

RD2.0FM to RD120FM

ZENER DIODES

1 W 2 PIN POWER MINI MOLD

DESCRIPTION

Type RD2.0FM to RD120FM series are 2 pin power mini mold package zener diodes possessing an allowable power dissipation of 1 W.

QUALITY GRADE

Standard.

Please refer to "Quality Grades On NEC Semiconductor Devices" (Document number C11531E) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

FEATURES

- Sharp breakdown characteristics
- Vz: Applied E24 standard

APPLICATIONS

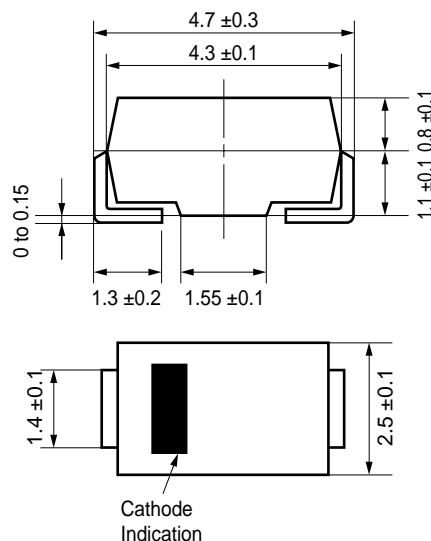
Circuits for, constant voltage, constant current, waveform clipper, surge absorber, etc.

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

| | | | |
|----------------------|-----------|-------------|------------------|
| Power Dissipation | P | 1 | W |
| Forward Current | I_F | 200 | mA |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

PACKAGE DIMENSIONS

(Unit: mm)



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Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.

ELECTRICAL CHARACTERISTICS ($T_A = 25 \pm 2^\circ\text{C}$)

(1/2)

| Type Number | Class | Zener Voltage V_Z (V) ^{Note1} | | | Dynamic Impedance Z_Z (Ω) ^{Note2} | | Reverse Current I_R (μA) | |
|-------------|-------|---|------|------------|--|------------|--|-----------|
| | | MIN. | MAX. | I_Z (mA) | MAX. | I_Z (mA) | MAX. | V_R (V) |
| RD2.0FM | B | 1.9 | 2.2 | 5 | 140 | 5 | 200 | 0.5 |
| RD2.2FM | B | 2.1 | 2.4 | 5 | 140 | 5 | 200 | 0.7 |
| RD2.4FM | B | 2.3 | 2.6 | 5 | 140 | 5 | 200 | 1.0 |
| RD2.7FM | B | 2.5 | 2.9 | 5 | 140 | 5 | 150 | 1.0 |
| RD3.0FM | B | 2.8 | 3.2 | 5 | 140 | 5 | 100 | 1.0 |
| RD3.3FM | B | 3.1 | 3.5 | 5 | 140 | 5 | 80 | 1.0 |
| RD3.6FM | B | 3.4 | 3.8 | 5 | 140 | 5 | 60 | 1.0 |
| RD3.9FM | B | 3.7 | 4.1 | 5 | 140 | 5 | 40 | 1.0 |
| RD4.3FM | B | 4.0 | 4.5 | 5 | 140 | 5 | 20 | 1.0 |
| RD4.7FM | B | 4.4 | 4.9 | 5 | 100 | 5 | 20 | 1.0 |
| RD5.1FM | B | 4.8 | 5.4 | 5 | 100 | 5 | 20 | 1.0 |
| RD5.6FM | B | 5.3 | 6.0 | 5 | 70 | 5 | 20 | 1.5 |
| RD6.2FM | B | 5.8 | 6.6 | 5 | 40 | 5 | 20 | 3.0 |
| RD6.8FM | B | 6.4 | 7.2 | 5 | 25 | 5 | 20 | 3.5 |
| RD7.5FM | B | 7.0 | 7.9 | 5 | 25 | 5 | 20 | 4.0 |
| RD8.2FM | B | 7.7 | 8.7 | 5 | 25 | 5 | 20 | 5.0 |
| RD9.1FM | B | 8.5 | 9.6 | 5 | 25 | 5 | 20 | 6.0 |
| RD10FM | B | 9.4 | 10.6 | 5 | 20 | 5 | 10 | 7.0 |
| RD11FM | B | 10.4 | 11.6 | 5 | 20 | 5 | 10 | 8.0 |
| RD12FM | B | 11.4 | 12.6 | 5 | 25 | 5 | 10 | 9.0 |
| RD13FM | B | 12.4 | 14.1 | 5 | 30 | 5 | 10 | 10 |
| RD15FM | B | 13.8 | 15.6 | 5 | 30 | 5 | 10 | 11 |
| RD16FM | B | 15.3 | 17.1 | 5 | 40 | 5 | 10 | 12 |
| RD18FM | B | 16.8 | 19.1 | 5 | 45 | 5 | 10 | 13 |
| RD20FM | B | 18.8 | 21.2 | 5 | 55 | 5 | 10 | 15 |
| RD22FM | B | 20.8 | 23.3 | 2 | 55 | 2 | 10 | 17 |
| RD24FM | B | 22.8 | 25.6 | 2 | 70 | 2 | 10 | 19 |
| RD27FM | B | 25.1 | 28.9 | 2 | 80 | 2 | 10 | 21 |
| RD30FM | B | 28.0 | 32.0 | 2 | 80 | 2 | 10 | 23 |
| RD33FM | B | 31.0 | 35.0 | 2 | 80 | 2 | 10 | 25 |
| RD36FM | B | 34.0 | 38.0 | 2 | 90 | 2 | 10 | 27 |
| RD39FM | B | 37.0 | 41.0 | 2 | 130 | 2 | 10 | 30 |
| RD43FM | B | 40.0 | 45.0 | 2 | 150 | 2 | 5 | 33 |
| RD47FM | B | 44.0 | 49.0 | 2 | 170 | 2 | 5 | 36 |
| RD51FM | B | 48.0 | 54.0 | 2 | 220 | 2 | 5 | 39 |
| RD56FM | B | 53.0 | 60.0 | 2 | 220 | 2 | 5 | 43 |
| RD62FM | B | 58.0 | 66.0 | 2 | 220 | 2 | 5 | 47 |
| RD68FM | B | 64.0 | 72.0 | 2 | 230 | 2 | 5 | 52 |

Note 1. V_Z is tested with pulsed (40 ms).

2. Z_Z is measured at I_Z by given a very small A.C. signal.

ELECTRICAL CHARACTERISTICS (T_A = 25 ±2°C)

(2/2)

| Type Number | Class | Zener Voltage V _Z (V) ^{Note1} | | | Dynamic Impedance Z _Z (Ω) ^{Note2} | | Reverse Current I _R (μA) | |
|-------------|-------|--|-------|---------------------|--|---------------------|--|--------------------|
| | | MIN. | MAX. | I _Z (mA) | MAX. | I _Z (mA) | MAX. | V _R (V) |
| RD75FM | B | 70.0 | 79.0 | 2 | 250 | 2 | 5 | 57 |
| RD82FM | B | 77.0 | 87.0 | 2 | 270 | 2 | 5 | 63 |
| RD91FM | B | 85.0 | 96.0 | 2 | 340 | 2 | 5 | 69 |
| RD100FM | B | 94.0 | 106.0 | 2 | 430 | 2 | 5 | 76 |
| RD110FM | B | 104.0 | 116.0 | 2 | 530 | 2 | 5 | 84 |
| RD120FM | B | 114.0 | 126.0 | 2 | 620 | 2 | 5 | 91 |

Note 1. V_Z is tested with pulsed (40 ms).

2. Z_Z is measured at I_Z by given a very small A.C. signal.

TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

Fig.1 P - T_A RATING

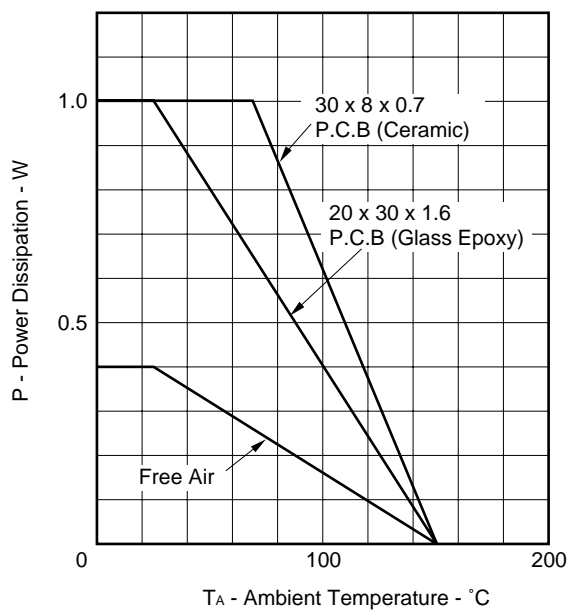
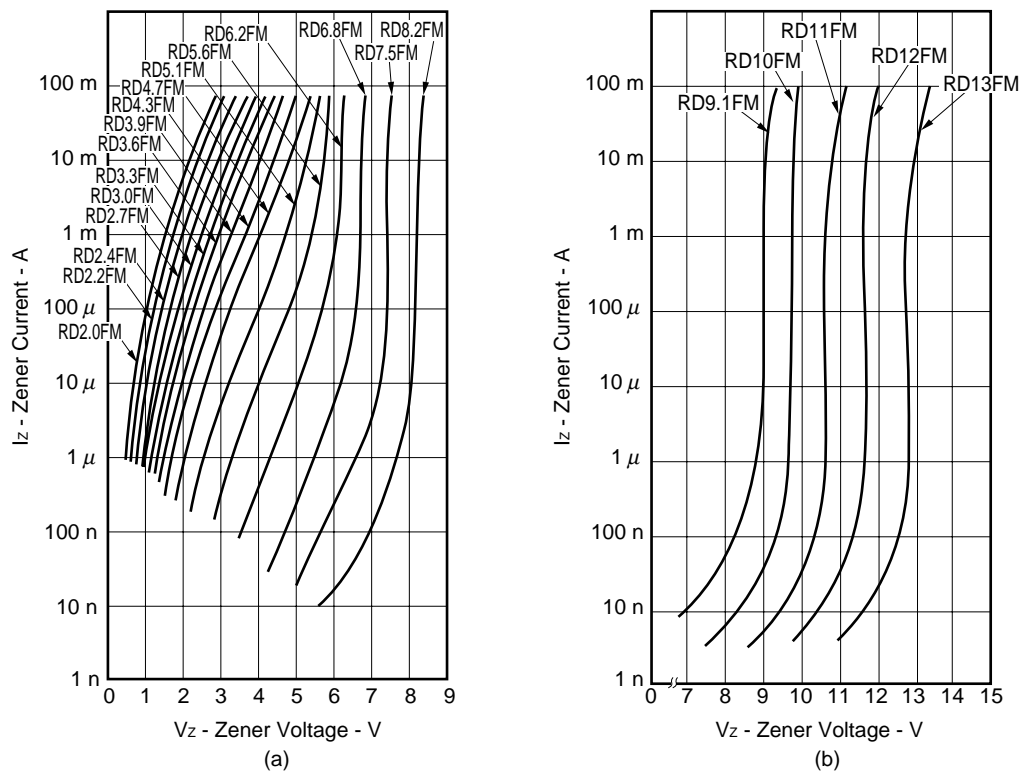
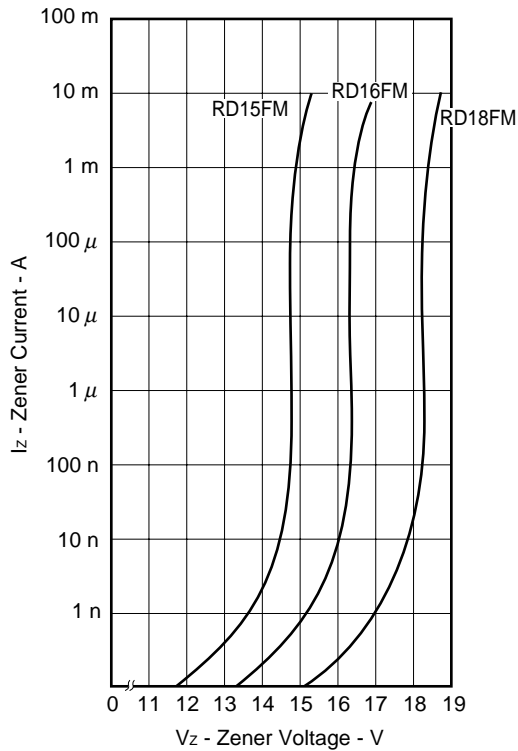
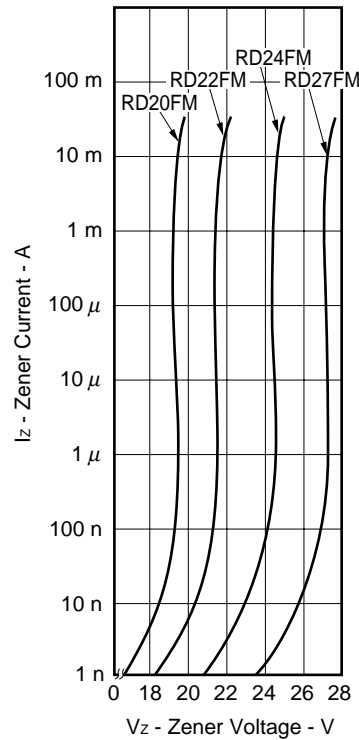


Fig.2 I_z - V_z CHARACTERISTICS (a to f)

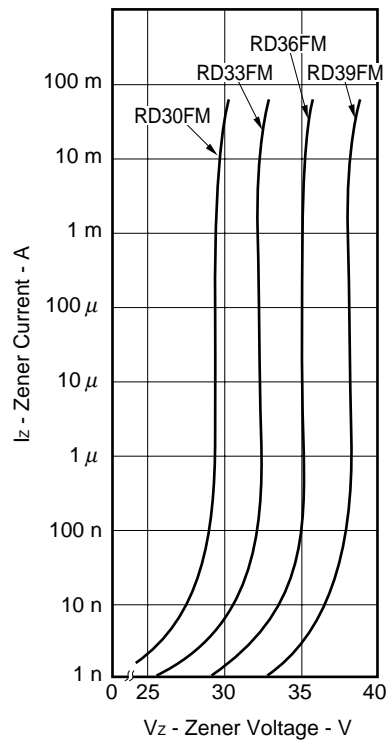




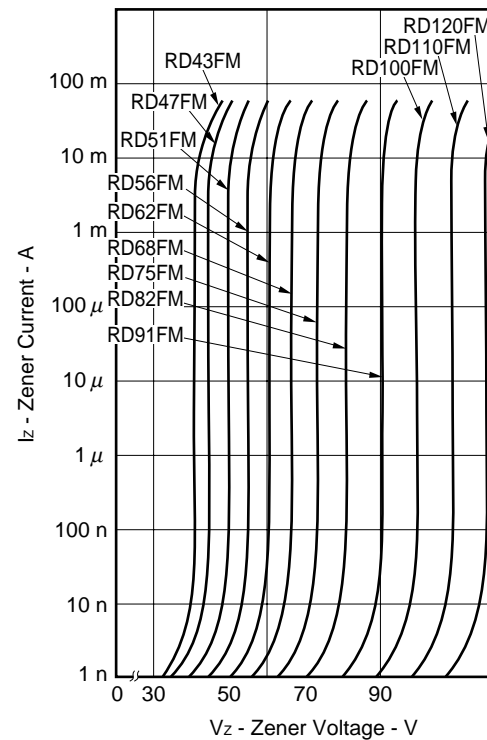
(c)



(d)



(e)



(f)

Fig.3 γ_z - V_z CHARACTERISTICS

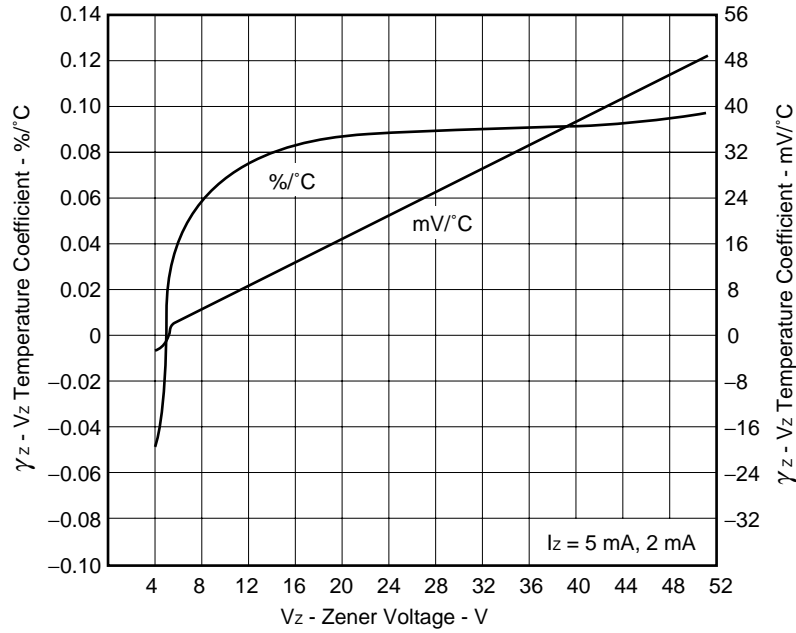
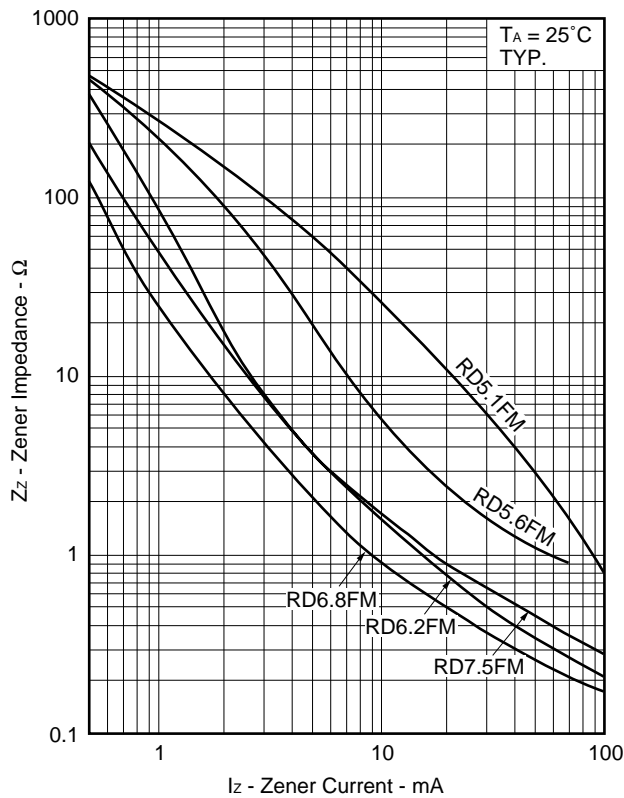
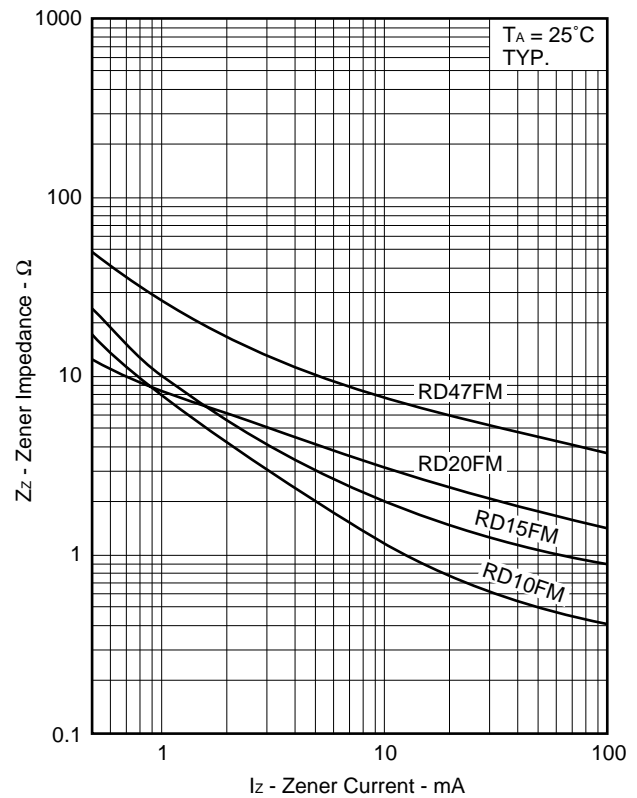


Fig.4 Z_z - I_z CHARACTERISTICS



(a)



(b)

Fig.5 TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS

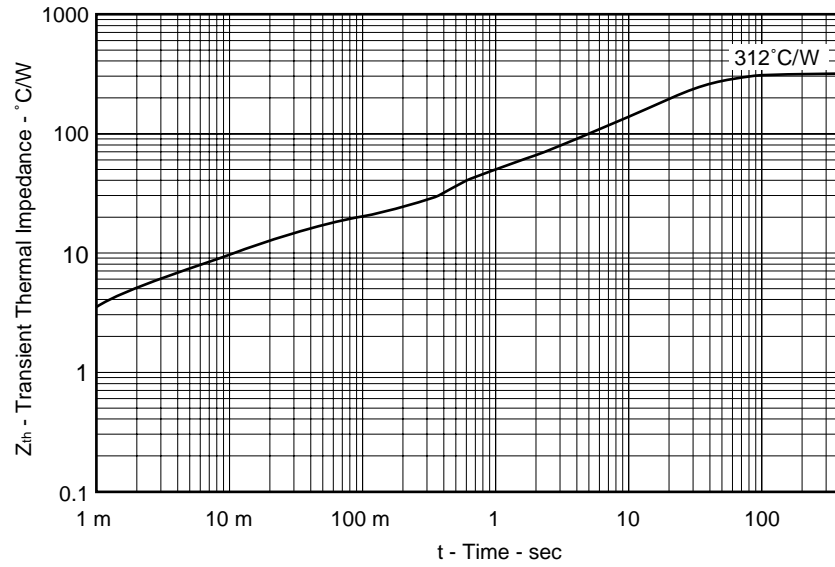
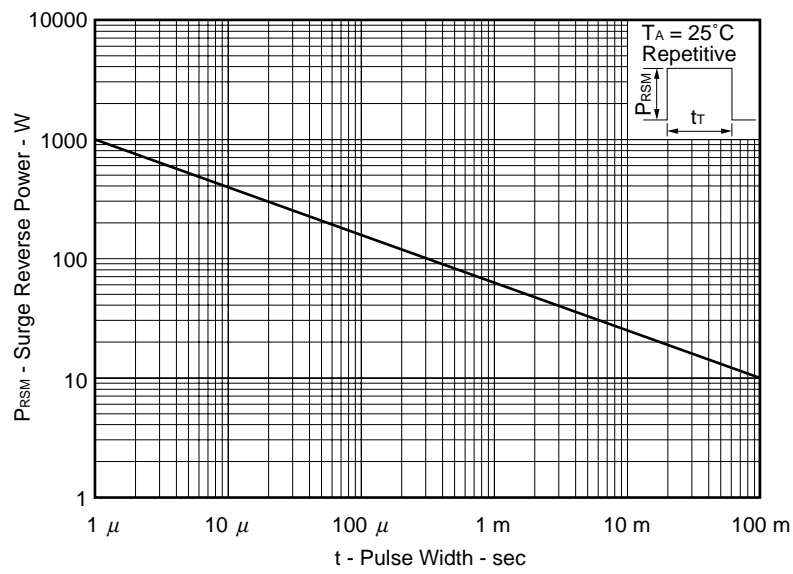


Fig.6 SURGE REVERSE POWER RATINGS



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