

To our customers,

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## Old Company Name in Catalogs and Other Documents

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April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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# ZENER DIODES

## RD2.0FM to RD120FM

### ZENER DIODES

#### 1 W PLANAR TYPE 2 PIN POWER MINI MOLD

#### DESCRIPTION

These products are zener diodes with an allowable power dissipation of 1 W and a planar type 2 pin power mini mold package.

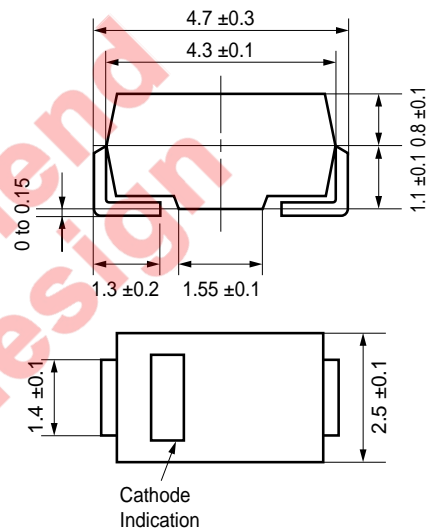
#### <R> FEATURES

- Suitable for high-density mounting because the mounting area is reduced to about 65% compared with that of the 3-pin power mini mold RD\*\*P, which has been conventionally used until now.
- Achieves flat-surface mounting with a two-pin structure, while having the same Zener voltage classification as that for RD\*\*Ps.

#### APPLICATIONS

- Zener voltage and constant-current circuit
- Waveform clipper circuit and limiter circuit
- Surge absorption circuit

#### PACKAGE DIMENSION (Unit: mm)



#### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C)

Parameter	Symbol	Ratings	Unit	Remarks
Power dissipation	P	1.0	W	Refer to Figure 1.
Forward current	I <sub>F</sub>	200	mA	
Surge reverse power	P <sub>RSM</sub>	400	W	t = 10 μs
Junction temperature	T <sub>j</sub>	150	°C	
Storage temperature	T <sub>stg</sub>	-55 to +150	°C	

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**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25 ±2°C)**

(1/2)

Type Number	Class	Zener Voltage V <sub>Z</sub> (V) <sup>Note1</sup>			Dynamic Impedance Z <sub>Z</sub> (Ω) <sup>Note2</sup>		Reverse Current I <sub>R</sub> (μA)	
		MIN.	MAX.	I <sub>Z</sub> (mA)	MAX.	I <sub>Z</sub> (mA)	MAX.	V <sub>R</sub> (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	5	55	5	10	17
RD24FM	B	22.8	25.6	5	70	5	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<sub>Z</sub> is tested with pulsed (40 ms).

**2.** Z<sub>Z</sub> is measured at I<sub>Z</sub> by given a very small A.C. signal.

<R>  
<R>

**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25 ±2°C)**

(2/2)

Type Number	Class	Zener Voltage V <sub>Z</sub> (V) <sup>Note1</sup>			Dynamic Impedance Z <sub>Z</sub> (Ω) <sup>Note2</sup>		Reverse Current I <sub>R</sub> (μA)	
		MIN.	MAX.	I <sub>Z</sub> (mA)	MAX.	I <sub>Z</sub> (mA)	MAX.	V <sub>R</sub> (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<sub>Z</sub> is tested with pulsed (40 ms).

**2.** Z<sub>Z</sub> is measured at I<sub>Z</sub> by given a very small A.C. signal.

Not recommend  
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TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)

Fig.1 P - T<sub>A</sub> RATING

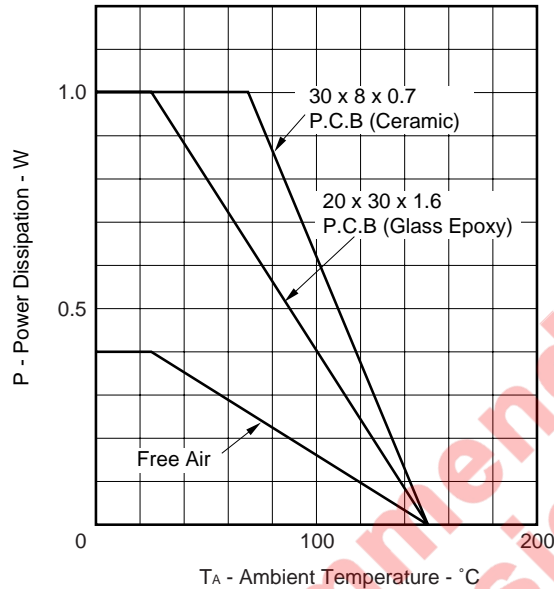
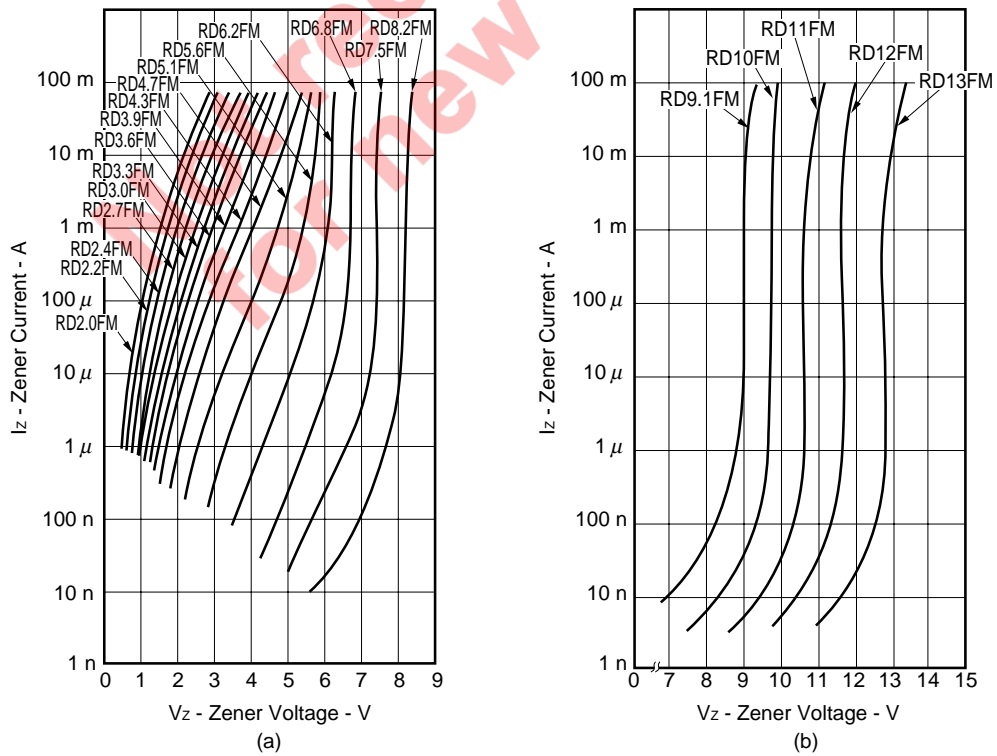
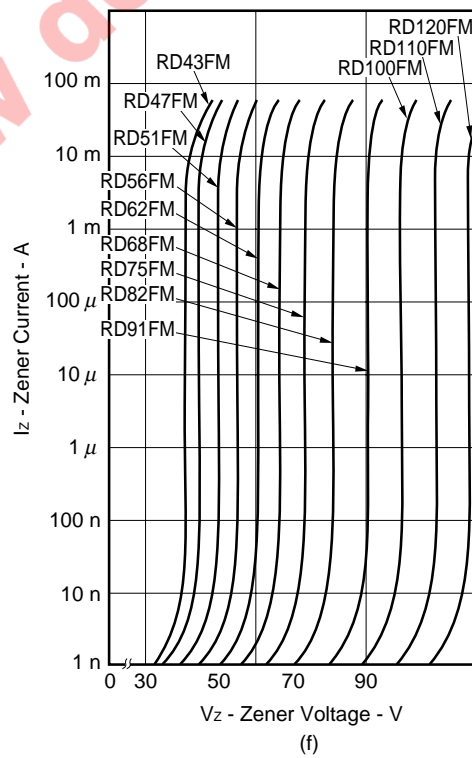
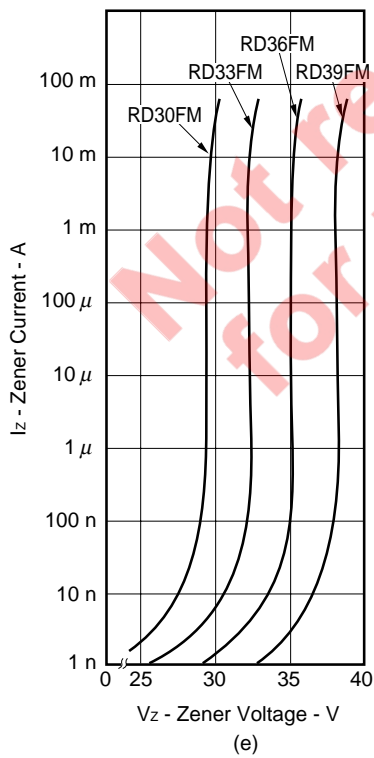
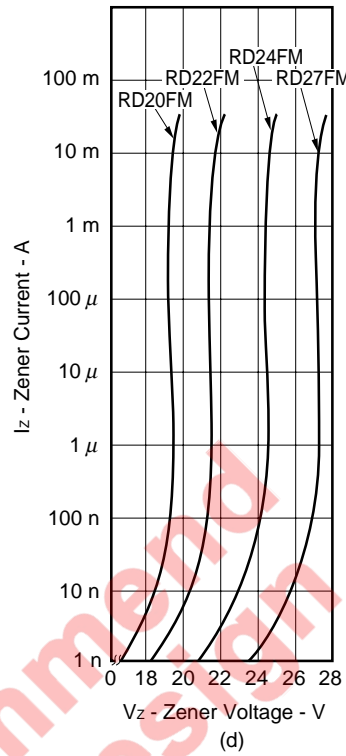
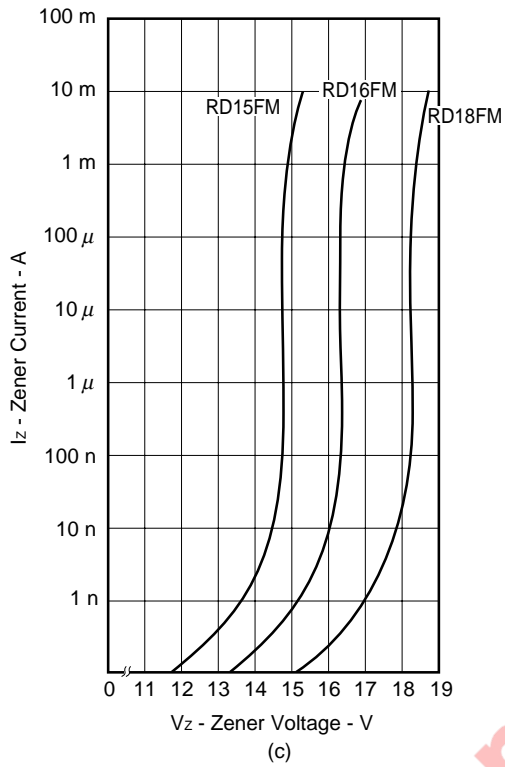


Fig.2 I<sub>Z</sub> - V<sub>Z</sub> CHARACTERISTICS (a to f)





<R> Fig.3  $\gamma_z - V_z$  CHARACTERISTICS

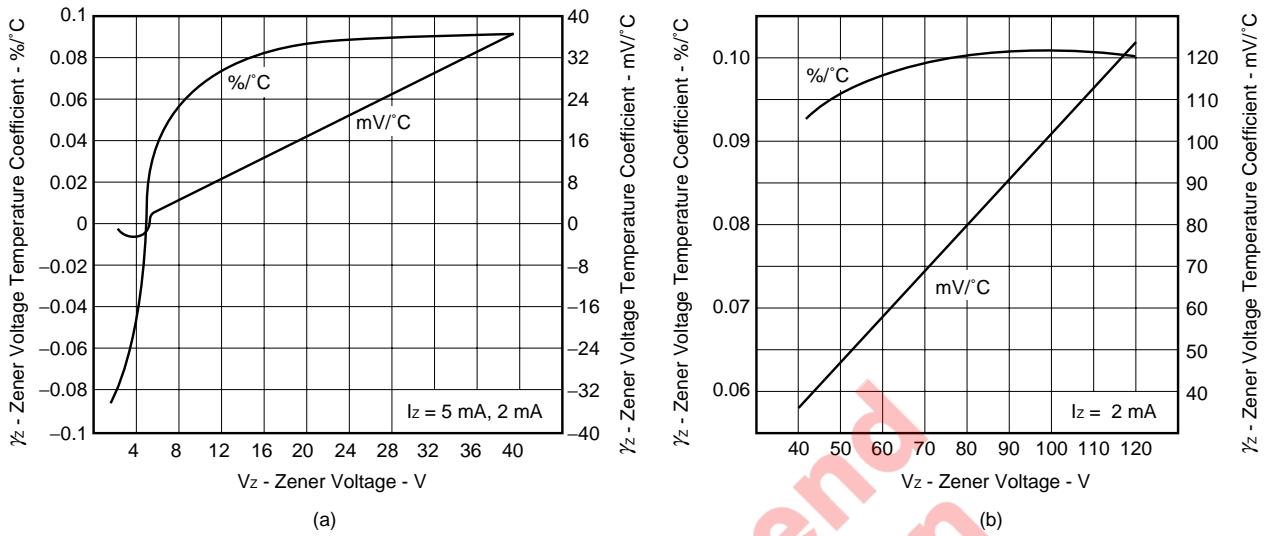


Fig.4  $Z_z - I_z$  CHARACTERISTICS

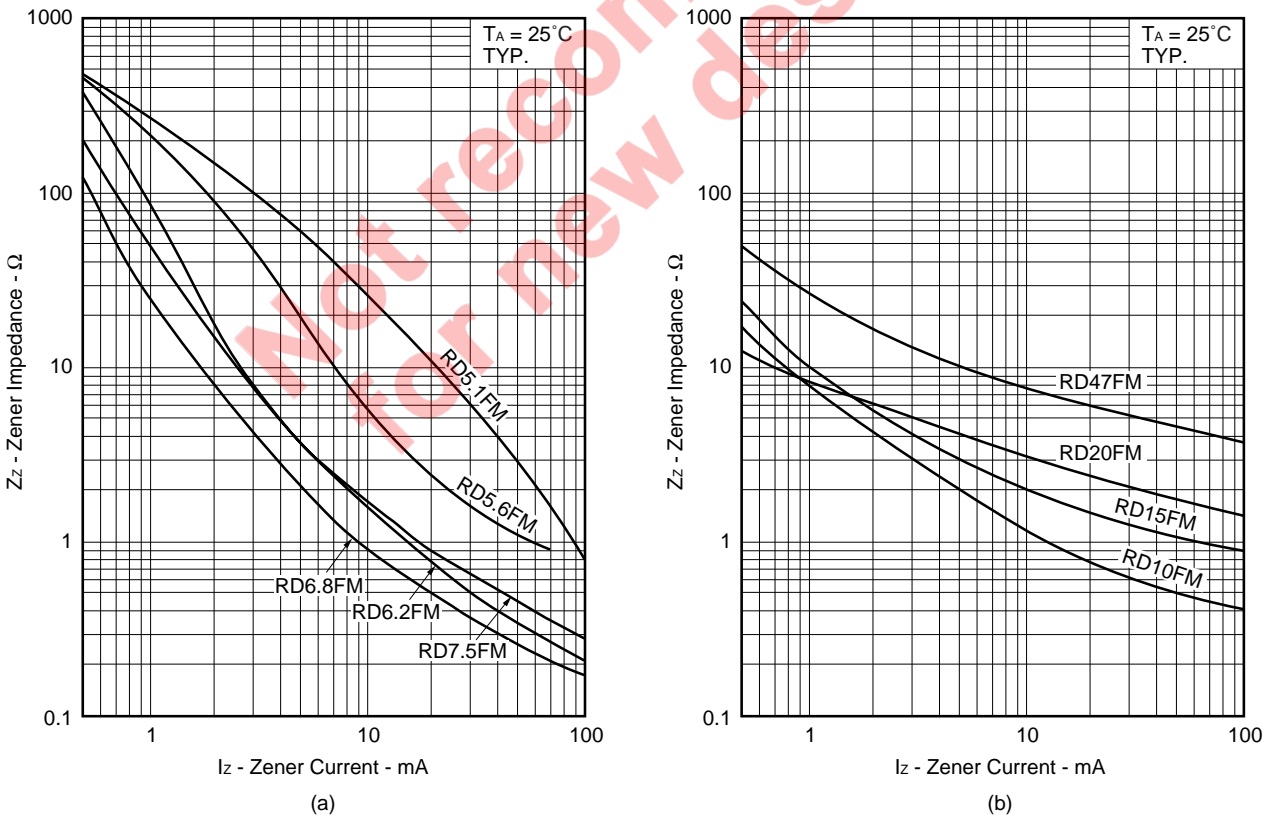




Fig.5 TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS

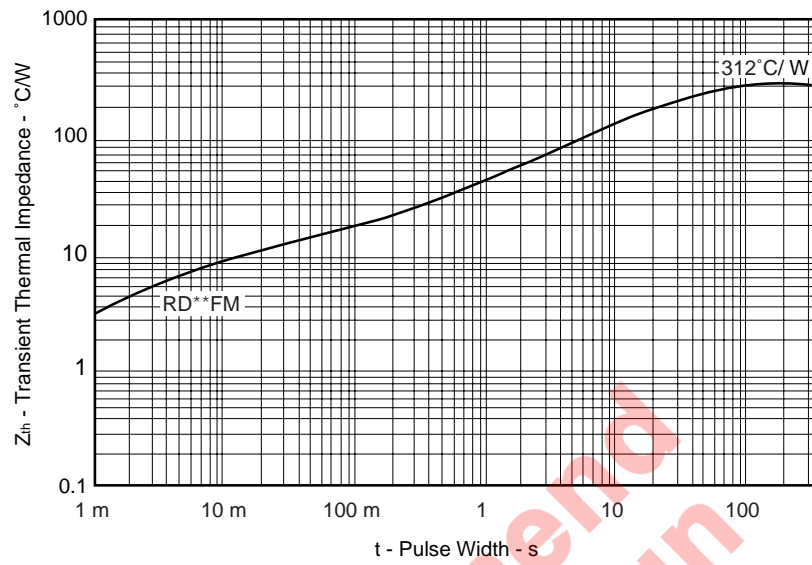
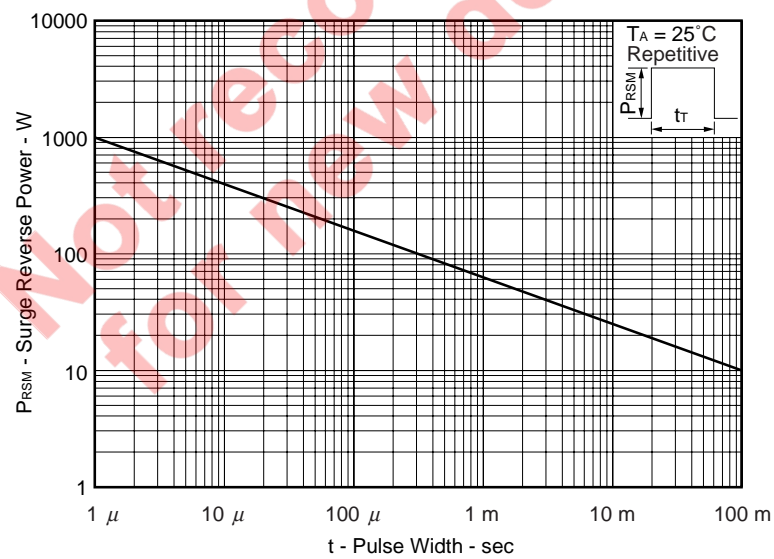


Fig.6 SURGE REVERSE POWER RATINGS



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