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

April 1st, 2010
Renesas Electronics Corporation

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RENESAS

ZENER DIODES
RD2.0M to RD47M

ZENER DIODES
200 mW 3-PIN MINI MOLD

DESCRIPTION

Type RD2.0M to RD47M Series are planar type zener diodes processing an allowable power dissipation of 200 mW.

FEATURES

- Planar process
- V_Z; Applied E24 standard.

APPLICATIONS

Circuits for,

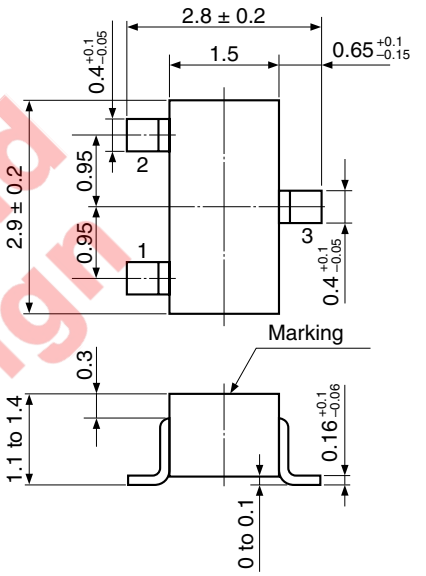
Constant Voltage, Constant Current,

Waveform clipper, Surge absorber, etc.

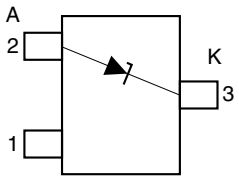
<R> MAXIMUM RATINGS (T_A = 25°C)

Power Dissipation	P	200	mW
Forward Current	I_F	100	mA
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	–55 to +150	°C
Peak Reverse Power	P_{RSM}	100	W (t_T = 10 μs)

<R> PACKAGE DIMENSIONS (Unit: mm)



1 . NC
2 . Anode : A SC-59 (JEITA)
3 . Cathode: K



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ELECTRICAL CHARACTERISTICS (T_A = 25 ± 2°C)

(1/3)

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)
RD2.0M	B	1.90	2.20	5	100	5	120	0.5
RD2.2M	B	2.10	2.40	5	100	5	120	0.7
RD2.4M	B	2.30	2.60	5	100	5	120	1.0
RD2.7M	B	2.50	2.90	5	110	5	120	1.0
	B1	2.50	2.75					
	B2	2.65	2.90					
RD3.0M	B	2.80	3.20	5	120	5	50	1.0
	B1	2.80	3.05					
	B2	2.95	3.20					
RD3.3M	B	3.10	3.50	5	130	5	20	1.0
	B1	3.10	3.35					
	B2	3.25	3.50					
RD3.6M	B	3.40	3.80	5	130	5	10	1.0
	B1	3.40	3.65					
	B2	3.55	3.80					
RD3.9M	B	3.70	4.10	5	130	5	10	1.0
	B1	3.70	3.97					
	B2	3.87	4.10					
RD4.3M	B	4.01	4.48	5	130	5	10	1.0
	B1	4.01	4.21					
	B2	4.15	4.34					
	B3	4.28	4.48					
RD4.7M	B	4.42	4.90	5	130	5	10	1.0
	B1	4.42	4.61					
	B2	4.55	4.75					
	B3	4.69	4.90					
RD5.1M	B	4.84	5.37	5	130	5	5	1.5
	B1	4.84	5.04					
	B2	4.98	5.20					
	B3	5.14	5.37					
RD5.6M	B	5.31	5.92	5	80	5	5	2.5
	B1	5.31	5.55					
	B2	5.49	5.73					
	B3	5.67	5.92					
RD6.2M	B	5.86	6.53	5	50	5	2	3.0
	B1	5.86	6.12					
	B2	6.06	6.33					
	B3	6.26	6.53					
RD6.8M	B	6.47	7.14	5	30	5	2	3.5
	B1	6.47	6.73					
	B2	6.65	6.93					
	B3	6.86	7.14					

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(2/3)

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)
RD7.5M	B	7.06	7.84	5	30	5	2	4.0
	B1	7.06	7.36					
	B2	7.28	7.60					
	B3	7.52	7.84					
RD8.2M	B	7.76	8.64	5	30	5	2	5.0
	B1	7.76	8.10					
	B2	8.02	8.36					
	B3	8.28	8.64					
RD9.1M	B	8.56	9.55	5	30	5	2	6.0
	B1	8.56	8.93					
	B2	8.85	9.23					
	B3	9.15	9.55					
RD10M	B	9.45	10.55	5	30	5	2	7.0
	B1	9.45	9.87					
	B2	9.77	10.21					
	B3	10.11	10.55					
RD11M	B	10.44	11.56	5	30	5	2	8.0
	B1	10.44	10.88					
	B2	10.76	11.22					
	B3	11.10	11.56					
RD12M	B	11.42	12.60	5	35	5	2	9.0
	B1	11.42	11.90					
	B2	11.74	12.24					
	B3	12.08	12.60					
RD13M	B	12.47	13.96	5	35	5	2	10
	B1	12.47	13.03					
	B2	12.91	13.49					
	B3	13.37	13.96					
RD15M	B	13.84	15.52	5	40	5	2	11
	B1	13.84	14.46					
	B2	14.34	14.98					
	B3	14.85	15.52					
RD16M	B	15.37	17.09	5	40	5	2	12
	B1	15.37	16.01					
	B2	15.85	16.51					
	B3	16.35	17.09					
RD18M	B	16.94	19.03	5	45	5	2	13
	B1	16.94	17.70					
	B2	17.56	18.35					
	B3	18.21	19.03					
RD20M	B	18.86	21.08	5	50	5	2	15
	B1	18.86	19.70					
	B2	19.52	20.39					
	B3	20.21	21.08					

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(3/3)

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)
RD22M	B	20.88	23.17	5	55	5	2	17
	B1	20.88	21.77					
	B2	21.54	22.47					
	B3	22.23	23.17					
RD24M	B	22.93	25.57	5	60	5	2	19
	B1	22.93	23.96					
	B2	23.72	24.78					
	B3	24.54	25.57					
RD27M	B	25.10	28.90	2	70	2	2	21
RD30M	B	28.00	32.00	2	80	2	2	23
RD33M	B	31.00	35.00	2	80	2	2	25
RD36M	B	34.00	38.00	2	90	2	2	27
RD39M	B	37.00	41.00	2	100	2	2	30
RD43M	B	40.0	45.0	2	130	2	2	33
RD47M	B	44.0	49.0	2	150	2	2	36

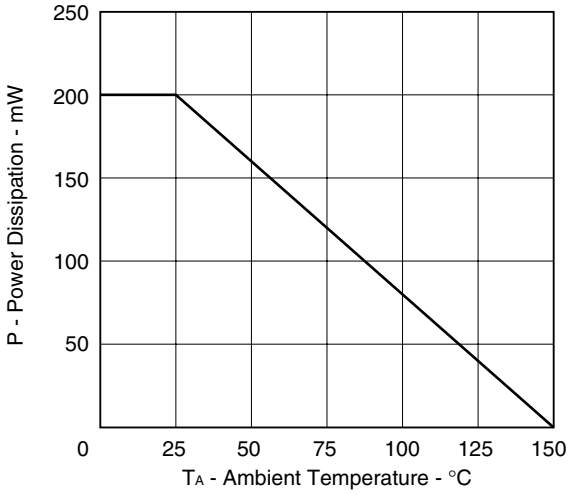
Notes 1. Tested with pulse (40 ms).

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

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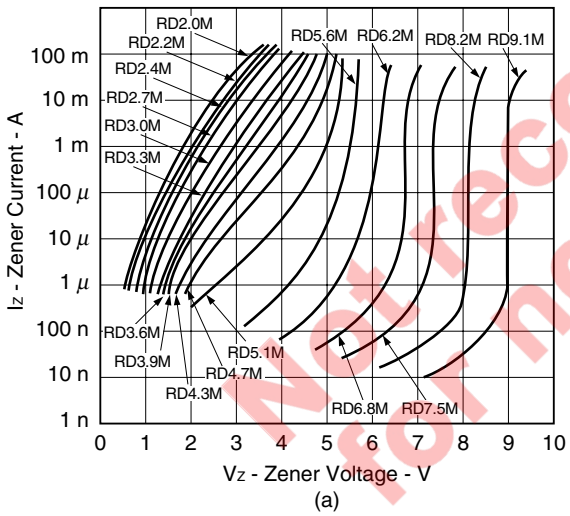
TYPICAL CHARACTERISTICS (T_A = 25°C)

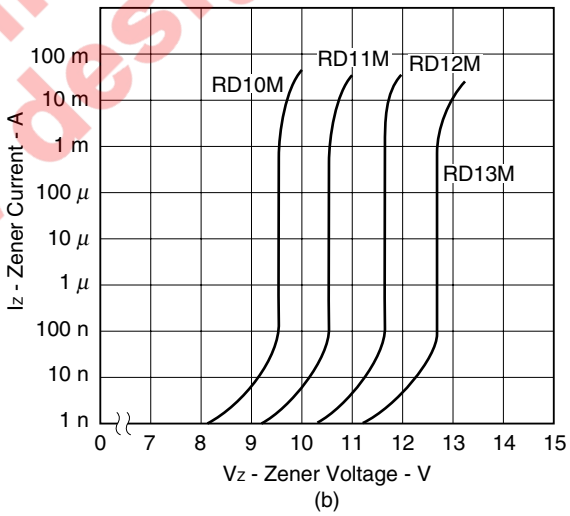
Fig. 1 P - T_A RATING

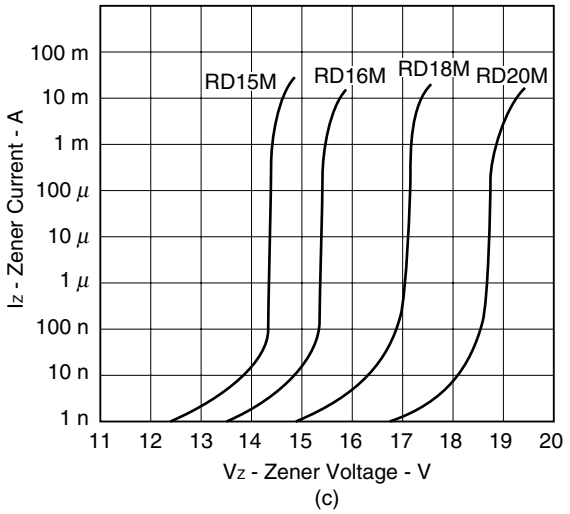


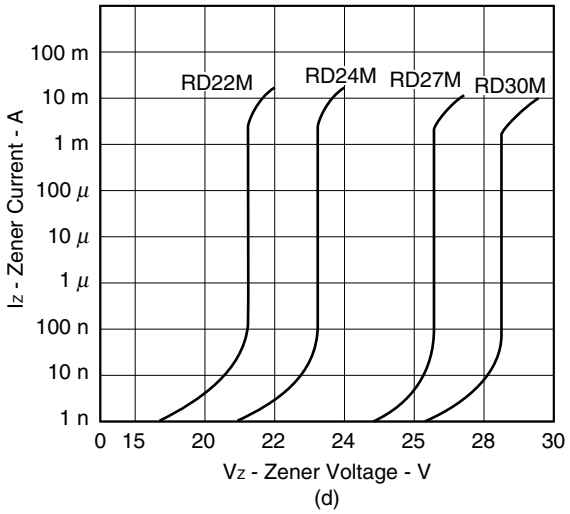
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Fig. 2 I_Z - V_Z CHARACTERISTICS (a to e)









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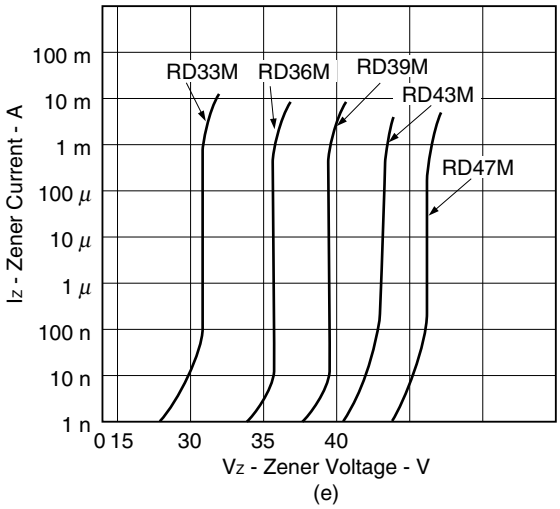


Fig. 3 γz - Vz CHARACTERISTICS

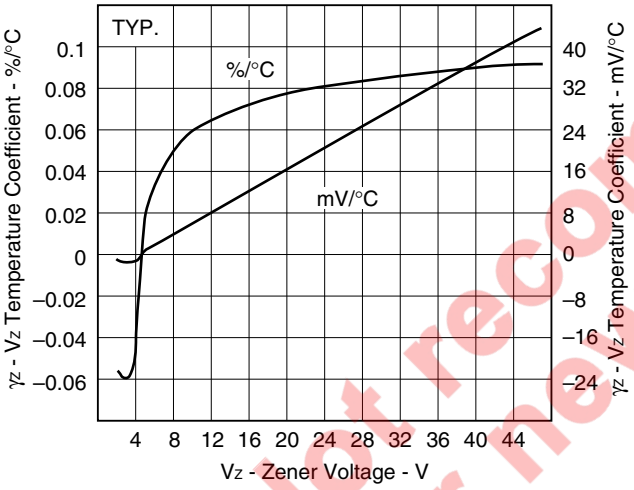
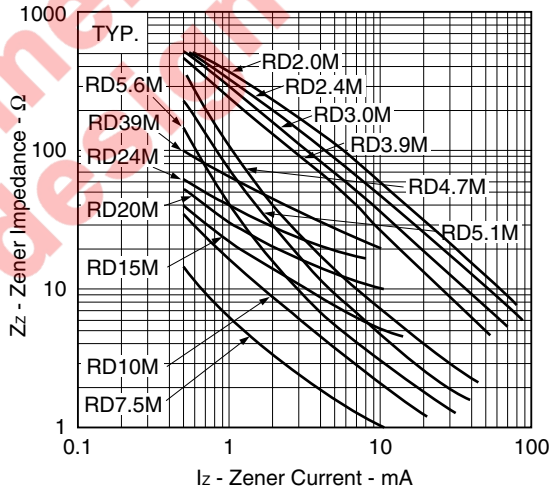
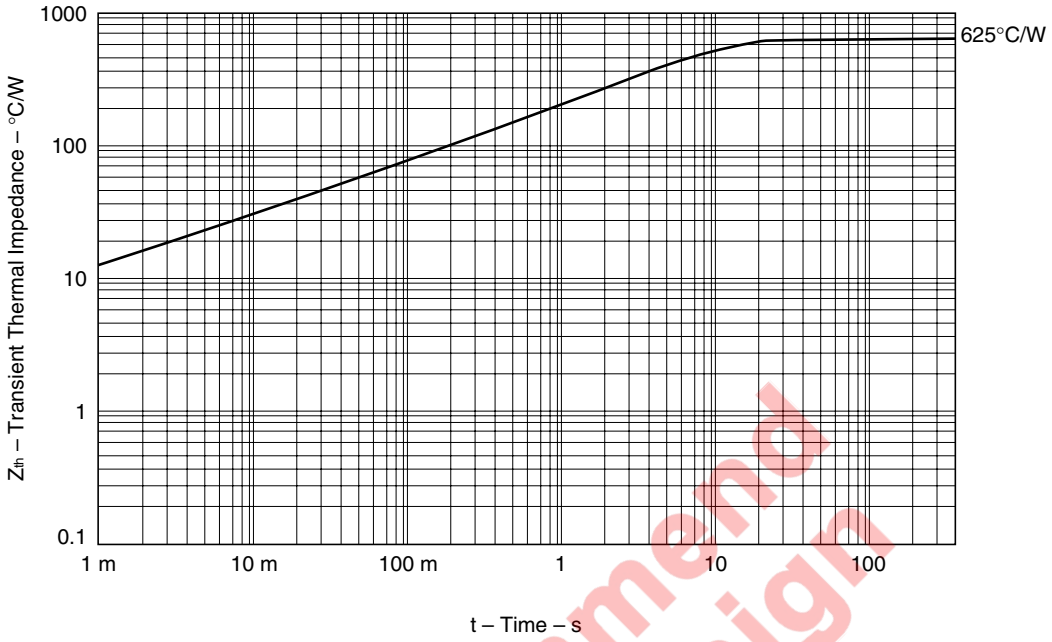


Fig. 4 Zz - Iz CHARACTERISTICS



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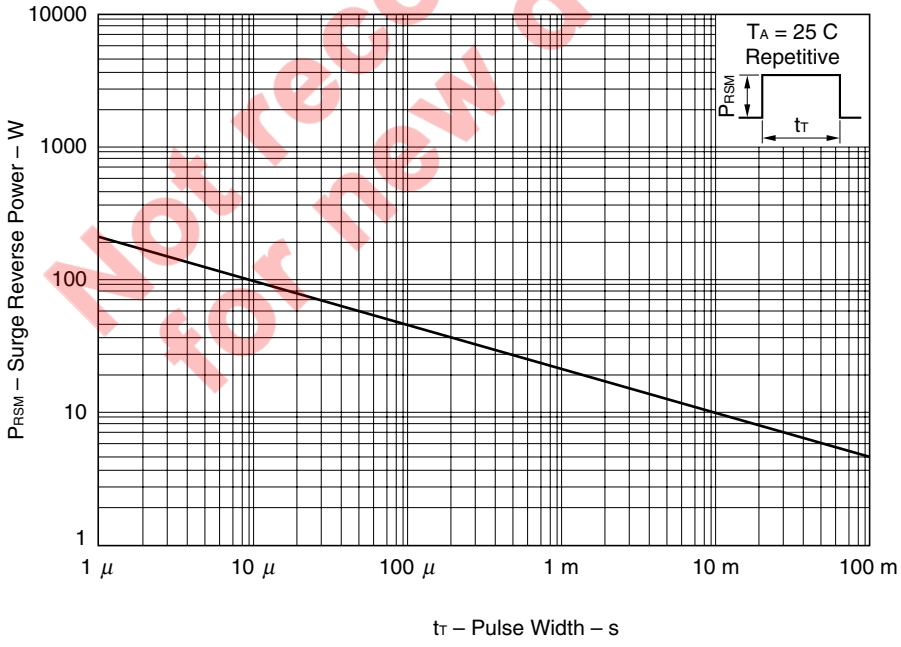
Fig. 5 TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS



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Fig. 6 SURGE REVERSE POWER RATINGS



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