To our customers,

Old Company Name in Catalogs and Other Documents

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

April 1st, 2010
Renesas Electronics Corporation

Not recommend for new design

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RENESAS

ZENER DIODES

RD2.0MW to RD39MW

ZENER DIODES
200 mW 3-PIN MINI MOLD

Not recommend for new design

DESCRIPTION

Type RD2.0MW to RD39MW Series are 3-PIN Mini Mold Package zener diodes possessing allowable power dissipation of 200 mW.

FEATURES

- V_Z; Applied E24 standard
- Surge absorber on either side

APPLICATIONS

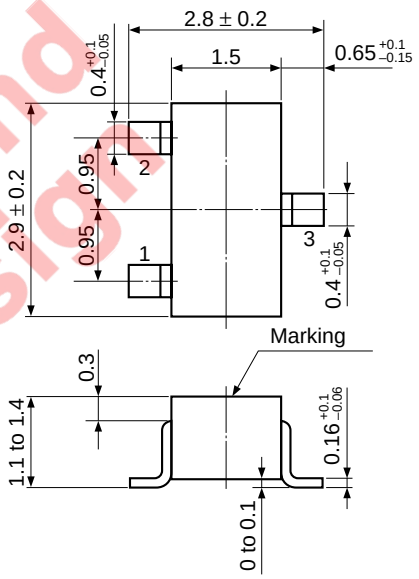
Circuits for Constant Voltage, Constant Current, Wavefore clipper, Surge absorber, ESD Protect circuit, etc.

MAXIMUM RATINGS (T_A = 25°C)

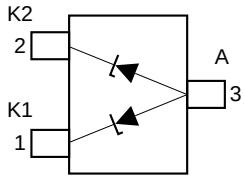
Power Dissipation	P	200 mW
Junction Temperature	T_j	150°C
Storage Temperature	T_{stg}	–55 to +150°C
Peak Reverse Power	P_{RSM}	85 W (t = 10 μs)
Forward Current	I_F	100 mA

PACKAGE DIMENSIONS

(Unit: mm)



1 . Cathode : K1
2 . Cathode : K2 SC-59 (EIAJ)
3 . Anode : A



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Document No. D10247EJ5V0DS00 (5th edition)
Date Published June 2000 N CP(K)
Printed in Japan

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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)
RD2.0MW	B	1.90	2.20	5	100	5	120	0.5
RD2.2MW	B	2.10	2.40	5	100	5	120	0.7
RD2.4MW	B	2.30	2.60	5	100	5	120	1.0
RD2.7MW	B	2.50	2.90	5	110	5	120	1.0
RD3.0MW	B	2.80	3.20	5	120	5	50	1.0
RD3.3MW	B	3.10	3.50	5	130	5	20	1.0
RD3.6MW	B	3.40	3.80	5	130	5	10	1.0
RD3.9MW	B	3.70	4.10	5	130	5	10	1.0
RD4.3MW	B	4.01	4.48	5	130	5	10	1.0
RD4.7MW	B	4.42	4.90	5	130	5	10	1.0
RD5.1MW	B	4.84	5.37	5	130	5	5	1.0
RD5.6MW	B	5.31	5.92	5	80	5	5	1.5
RD6.2MW	B	5.86	6.53	5	50	5	2	2.5
RD6.8MW	B	6.47	7.14	5	30	5	2	3.5
RD7.5MW	B	7.06	7.84	5	30	5	2	4.0
RD8.2MW	B	7.76	8.64	5	30	5	2	5.0
RD9.1MW	B	8.56	9.55	5	30	5	2	6.0
RD10MW	B	9.45	10.55	5	30	5	2	7.0
RD11MW	B	10.44	11.56	5	30	5	2	8.0
RD12MW	B	11.42	12.60	5	35	5	2	9.0
RD13MW	B	12.47	13.96	5	35	5	2	10
RD15MW	B	13.84	15.52	5	40	5	2	11
RD16MW	B	15.37	17.09	5	40	5	2	12
RD18MW	B	16.94	19.03	5	45	5	2	13
RD20MW	B	18.86	21.08	5	50	5	2	15
RD22MW	B	20.88	23.17	5	55	5	2	17
RD24MW	B	22.93	25.57	5	60	5	2	19
RD27MW	B	25.10	28.90	2	70	2	2	21
RD30MW	B	28.00	32.00	2	80	2	2	23
RD33MW	B	31.00	35.00	2	80	2	2	25
RD36MW	B	34.00	38.00	2	90	2	2	27
RD39MW	B	37.00	41.00	2	100	2	2	30

Not recommend for new design

Note 1. Tested with pulse (40 ms)

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

Type Number	Class	Zener Voltage +Forward Voltage (V_Z + V_F) (V)			Zener Voltage + Forward Voltage Δ(V + V_F) (V)		Forward Voltage V_F (V) A–K1 A–K2	
		MIN.	MAX.	I_Z (mA)	MAX.	I_Z (mA)	MAX.	I_F (mA)
RD2.0MW	B	2.54	3.04	5	0.35	5	1.2	100
RD2.2MW	B	2.74	3.24	5	0.35	5		
RD2.4MW	B	2.97	3.47	5	0.35	5		
RD2.7MW	B	3.17	3.77	5	0.35	5		
RD3.0MW	B	3.47	4.07	5	0.35	5		
RD3.3MW	B	3.77	4.37	5	0.35	5		
RD3.6MW	B	4.07	4.67	5	0.35	5		
RD3.9MW	B	4.37	4.97	5	0.35	5		
RD4.3MW	B	4.68	5.35	5	0.35	5		
RD4.7MW	B	5.09	5.77	5	0.35	5		
RD5.1MW	B	5.51	6.24	5	0.35	5		
RD5.6MW	B	5.98	6.79	5	0.35	5		
RD6.2MW	B	6.53	7.40	5	0.35	5		
RD6.8MW	B	7.14	8.01	5	0.35	5		
RD7.5MW	B	7.73	8.71	5	0.35	5		
RD8.2MW	B	8.07	9.87	5	0.35	5		
RD9.1MW	B	8.87	10.87	5	0.35	5		
RD10MW	B	10.12	11.42	5	0.70	5		
RD11MW	B	11.11	12.43	5	0.70	5		
RD12MW	B	12.09	13.47	5	0.70	5		
RD13MW	B	13.14	14.83	5	0.90	5		
RD15MW	B	14.51	16.37	5	0.90	5		
RD16MW	B	16.04	17.96	5	0.90	5		
RD18MW	B	17.61	19.90	5	1.20	5		
RD20MW	B	19.53	21.95	5	1.20	5		
RD22MW	B	21.55	24.04	5	1.20	5		
RD24MW	B	23.60	26.44	5	1.20	5		
RD27MW	B	25.73	29.73	2	1.70	2		
RD30MW	B	28.63	32.83	2	1.70	2		
RD33MW	B	31.63	35.83	2	1.70	2		
RD36MW	B	34.63	38.83	2	1.70	2		
RD39MW	B	37.63	41.83	2	1.70	2		

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TYPICAL CHARACTERISTICS (T_A = 25°C)

Fig. 1 P - T_A RATING

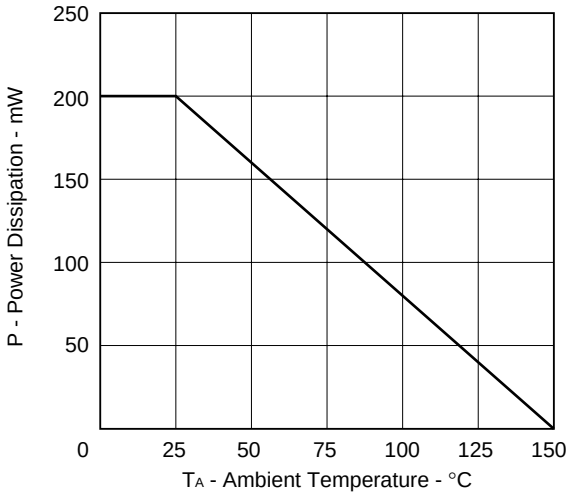
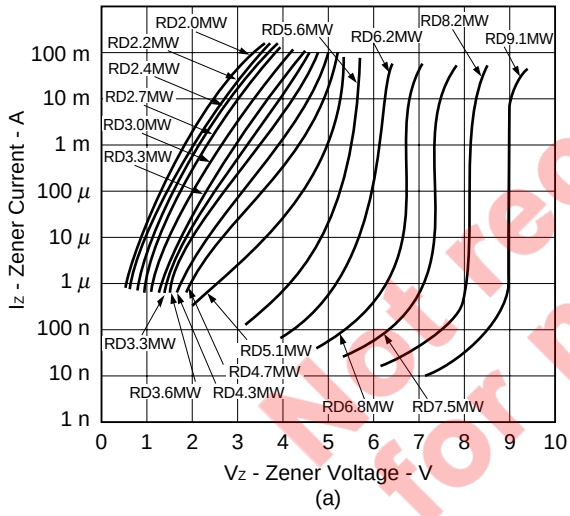
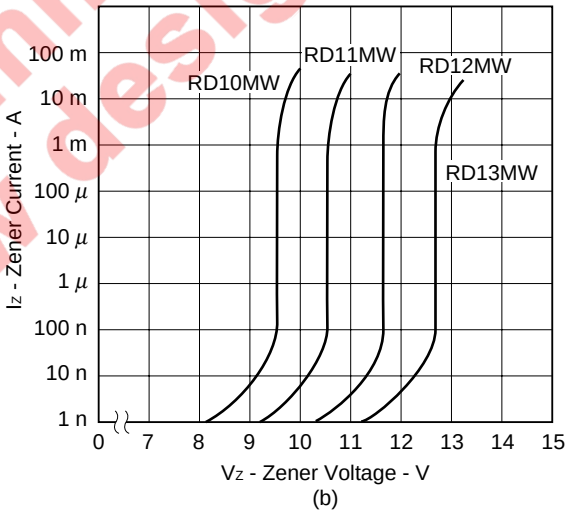
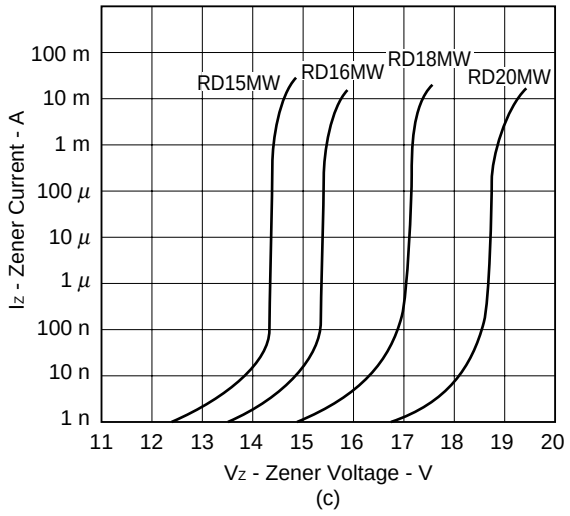
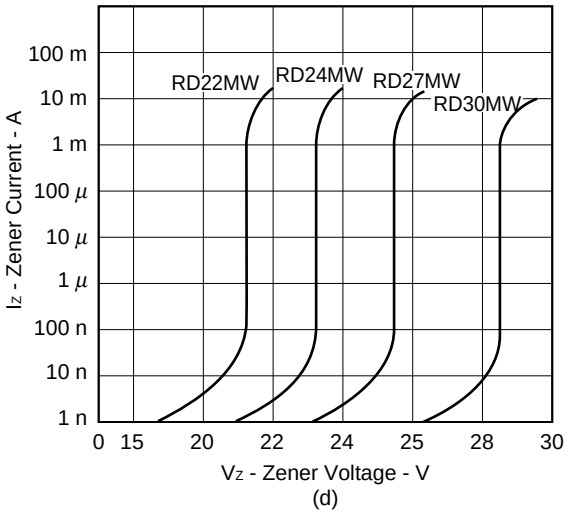


Fig. 2 I_Z - V_Z CHARACTERISTICS (a to e)









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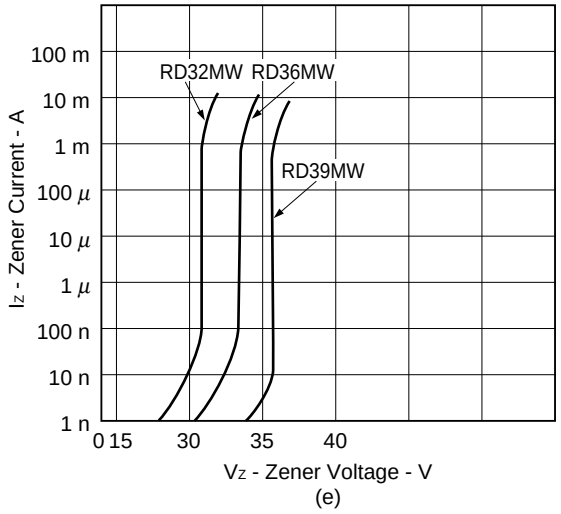

Fig. 3 γz - Vz CHARACTERISTICS

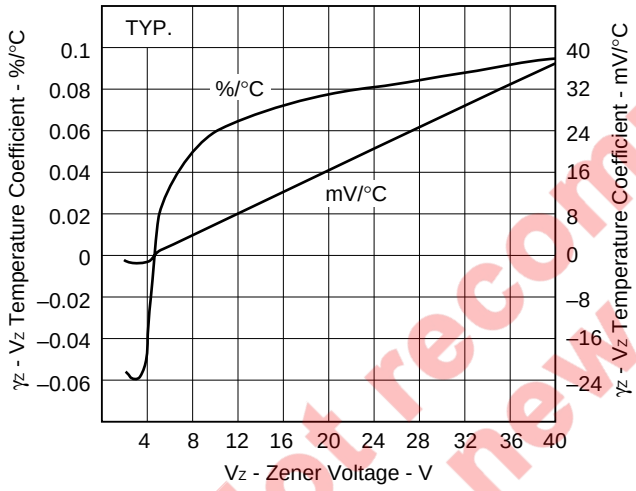

Fig. 4 Zz - Iz CHARACTERISTICS

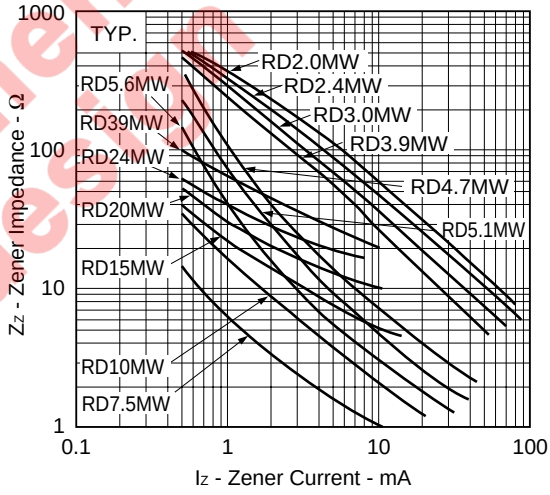

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Fig. 5 TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS

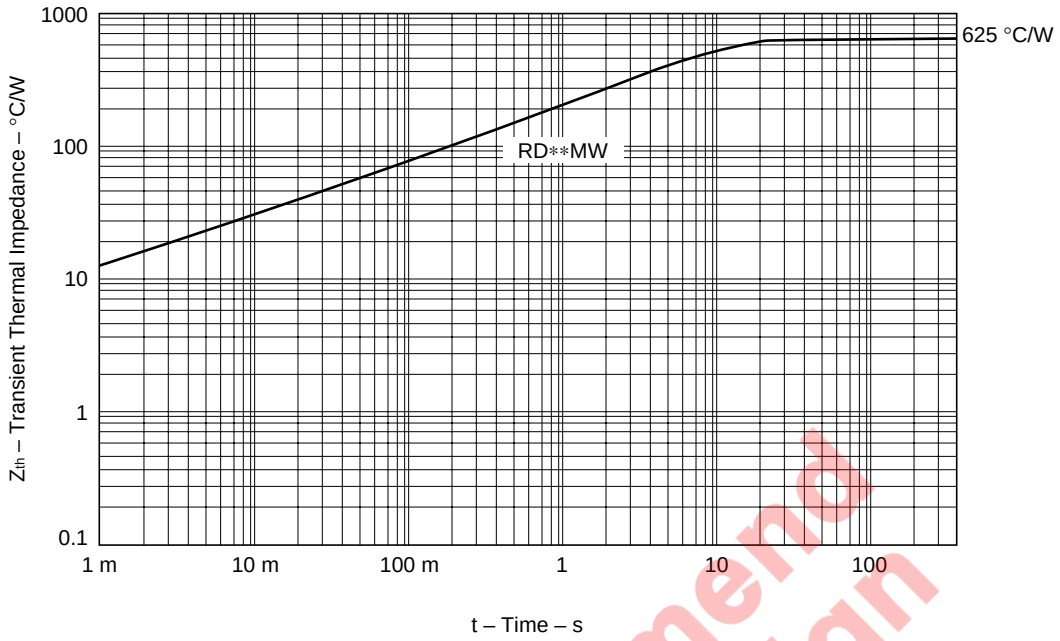
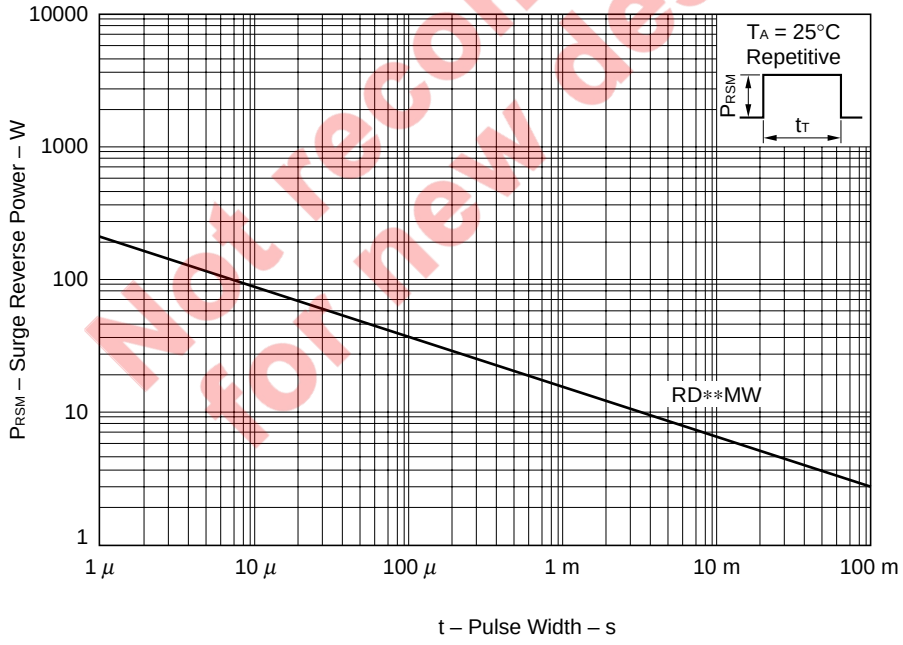


Fig. 6 SURGE REVERSE POWER RATINGS



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