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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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RENESAS

ZENER DIODES

RD2.0UM to RD39UM

ZENER DIODES

2PIN ULTRA SUPER MINI MOLD

DESCRIPTION

Type RD2.0UM to RD39UM Series are 2-pin Ultra Super Mini Mold Package zener diodes possessing an allowable power dissipation of 150 mW.

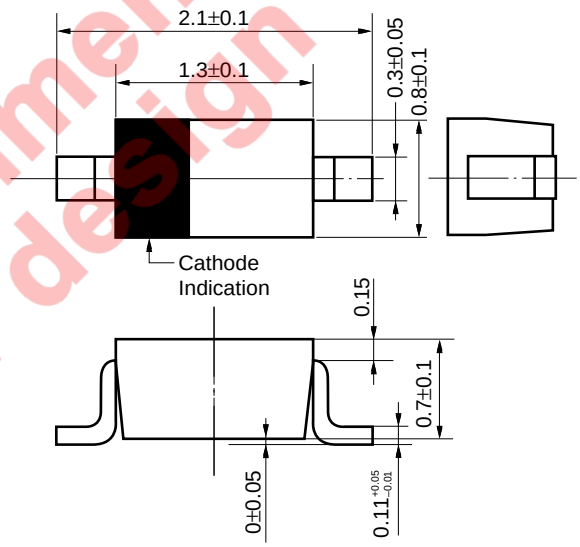
FEATURES

- Sharp Breakdown characteristics
- V_Z; Applied E24 standard

APPLICATIONS

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

PACKAGE DIMENSIONS
(Unit: mm)



MAXIMUM RATINGS (T_A = 25 °C)

Power Dissipation	P	150 mW
Forward Current	I_F	100 mA
Reverse Surge Power	P_{RSM}	85 W (at t = 10 μs/1 pulse) See Fig. 6.
Junction Temperature	T_j	150 °C
Storage Temperature	T_{stg}	–55 to +155 °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)
RD2.0UM	B	1.90	2.20	5	100	5	120	0.5
RD2.2UM	B	2.10	2.40	5	100	5	120	0.7
RD2.4UM	B	2.30	2.60	5	100	5	120	1.0
RD2.7UM	B	2.50	2.90	5	110	5	120	1.0
	B1	2.50	2.75					
	B2	2.65	2.90					
RD3.0UM	B	2.80	3.20	5	120	5	50	1.0
	B1	2.80	3.05					
	B2	2.95	3.20					
RD3.3UM	B	3.10	3.50	5	130	5	20	1.0
	B1	3.10	3.35					
	B2	3.25	3.50					
RD3.6UM	B	3.40	3.80	5	130	5	10	1.0
	B1	3.40	3.65					
	B2	3.55	3.80					
RD3.9UM	B	3.70	4.10	5	130	5	10	1.0
	B1	3.70	3.97					
	B2	3.87	4.10					
RD4.3UM	B	4.00	4.49	5	130	5	10	1.0
	B1	4.00	4.22					
	B2	4.14	4.35					
	B3	4.27	4.49					
RD4.7UM	B	4.40	4.92	5	130	5	10	1.0
	B1	4.40	4.63					
	B2	4.53	4.77					
	B3	4.67	4.92					
RD5.1UM	B	4.82	5.39	5	130	5	5	1.5
	B1	4.82	5.06					
	B2	4.96	5.22					
	B3	5.12	5.39					
RD5.6UM	B	5.29	5.94	5	80	5	5	2.5
	B1	5.29	5.57					
	B2	5.47	5.75					
	B3	5.65	5.94					
RD6.2UM	B	5.84	6.55	5	50	5	2	3.0
	B1	5.84	6.14					
	B2	6.04	6.35					
	B3	6.24	6.55					
RD6.8UM	B	6.44	7.17	5	30	5	2	3.5
	B1	6.44	6.76					
	B2	6.62	6.96					
	B3	6.83	7.17					
RD7.5UM	B	7.03	7.87	5	30	5	2	4.0
	B1	7.03	7.39					
	B2	7.25	7.63					
	B3	7.49	7.87					
RD8.2UM	B	7.73	8.67	5	30	5	2	5.0
	B1	7.73	8.13					
	B2	7.98	8.39					
	B3	8.25	8.67					
RD9.1UM	B	8.53	9.58	5	30	5	2	6.0
	B1	8.53	8.96					
	B2	8.81	9.26					
	B3	9.12	9.58					

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)
RD10UM	B	9.42	10.58	5	30	5	2	7.0
	B1	9.42	9.90					
	B2	9.74	10.24					
	B3	10.08	10.58					
RD11UM	B	10.40	11.60	5	30	5	2	8.0
	B1	10.40	10.92					
	B2	10.72	11.26					
	B3	11.06	11.60					
RD12UM	B	11.38	12.64	5	30	5	2	9.0
	B1	11.38	11.94					
	B2	11.69	12.28					
	B3	12.04	12.64					
RD13UM	B	12.43	14.00	5	35	5	2	10
	B1	12.43	13.07					
	B2	12.87	13.53					
	B3	13.33	14.00					
RD15UM	B	13.80	15.56	5	40	5	2	11
	B1	13.80	14.50					
	B2	14.30	15.02					
	B3	14.81	15.56					
RD16UM	B	15.31	17.14	5	40	5	2	12
	B1	15.31	16.07					
	B2	15.78	16.58					
	B3	16.30	17.14					
RD18UM	B	16.89	19.08	5	45	5	2	13
	B1	16.89	17.75					
	B2	17.51	18.40					
	B3	18.16	19.08					
RD20UM	B	18.80	21.14	5	50	5	2	15
	B1	18.80	19.76					
	B2	19.46	20.45					
	B3	20.15	21.14					
RD22UM	B	20.81	23.25	5	55	5	2	17
	B1	20.81	21.84					
	B2	21.46	22.55					
	B3	22.15	23.25					
RD24UM	B	22.86	25.66	5	60	5	2	19
	B1	22.86	24.03					
	B2	23.65	24.85					
	B3	24.45	25.66					
RD27UM	B	25.10	28.90	2	70	2	2	21
RD30UM	B	28.00	32.00	2	80	2	2	23
RD33UM	B	31.00	35.00	2	80	2	2	25
RD36UM	B	34.00	38.00	2	90	2	2	27
RD39UM	B	37.00	41.00	2	100	2	2	30

Notes 1. Tested with pulse (40 ms)

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

TYPICAL CHARACTERISTICS (T_A = 25 °C)

Fig. 1 P–T_A RATING

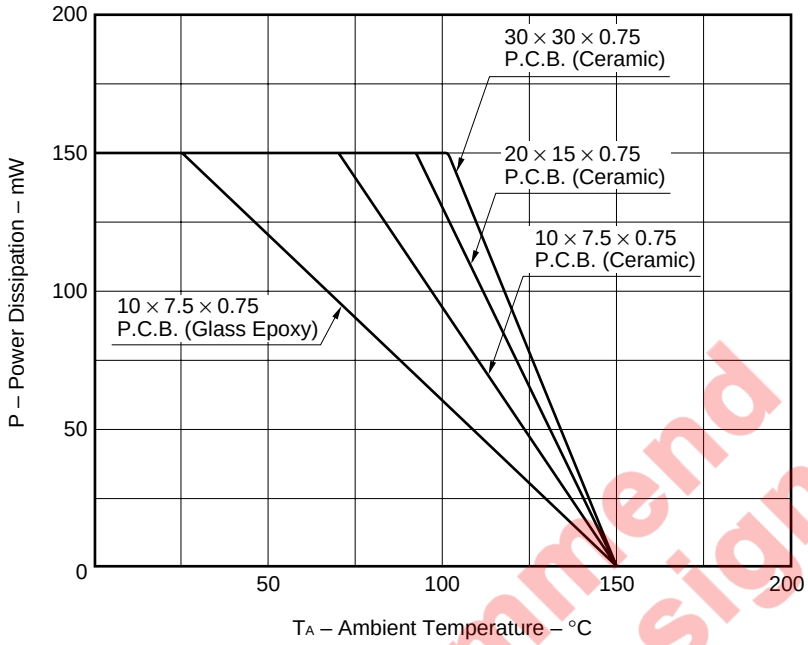
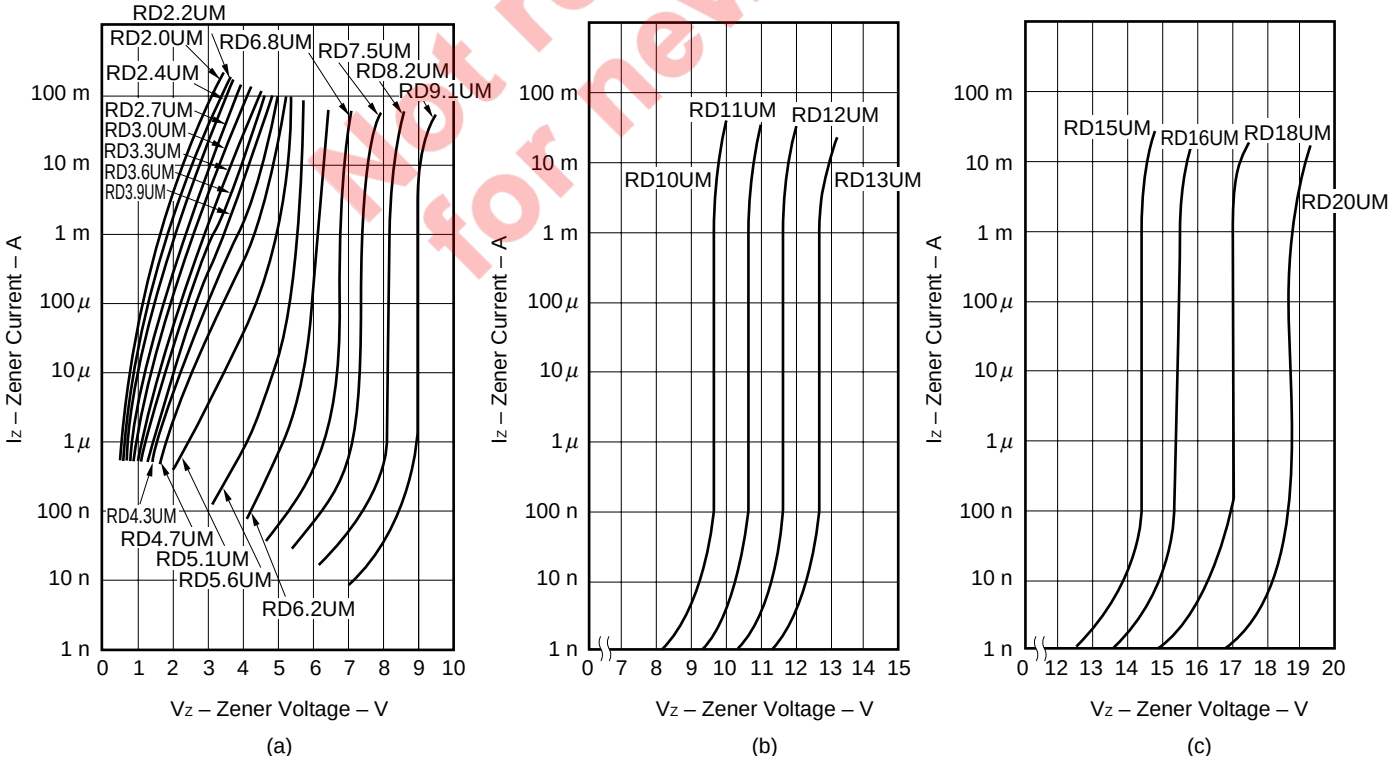
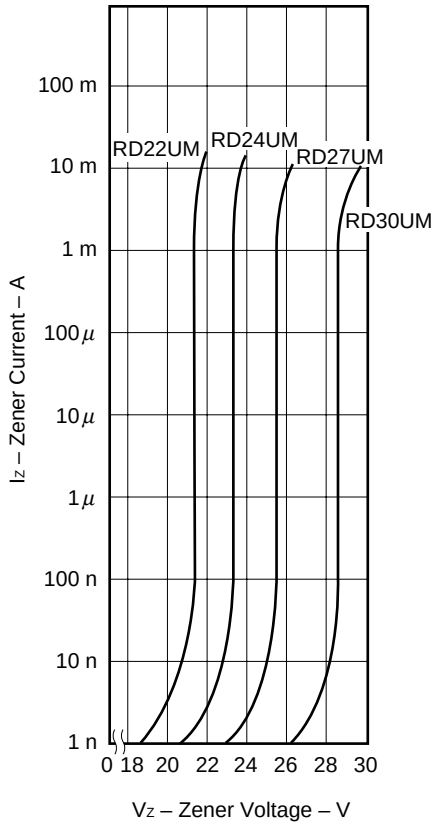
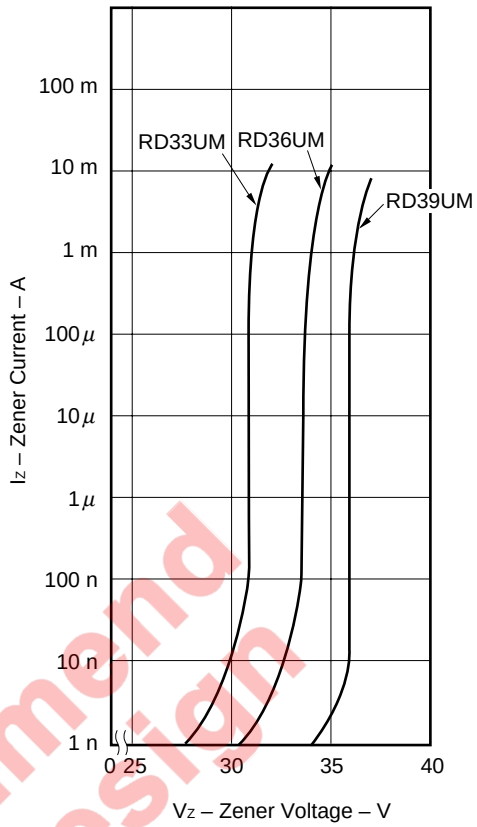


Fig. 2 I_Z–V_Z CHARACTERISTICS (a to e)





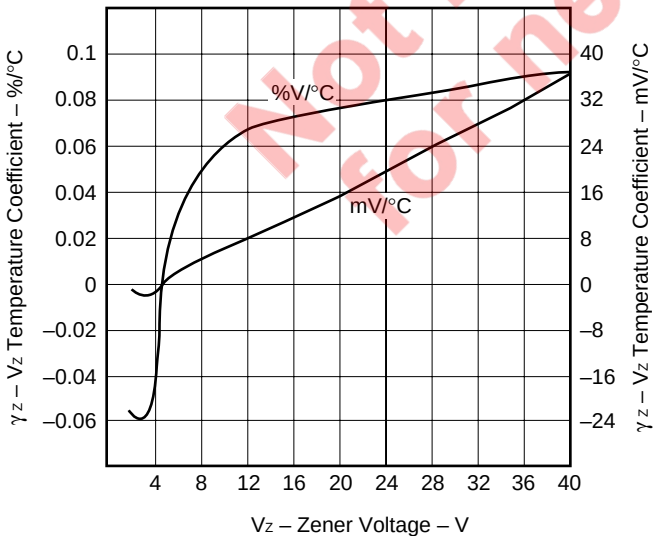
(d)



(e)

Fig. 3 γz–Vz CHARACTERISTICS

Fig. 4 Zz–Iz CHARACTERISTICS



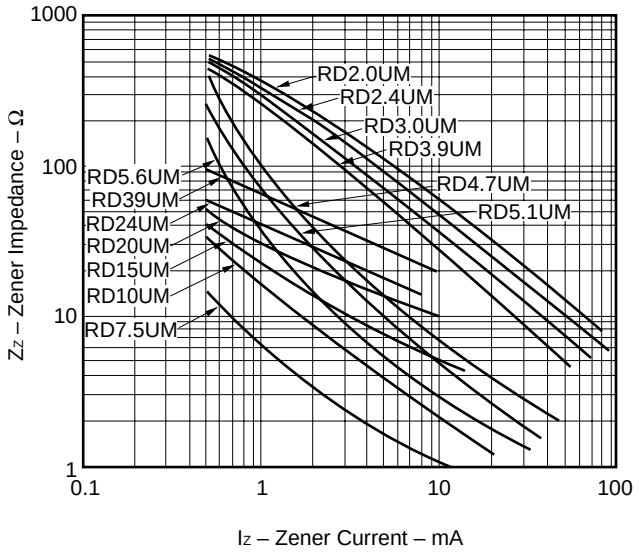


Fig. 5 TRANSIENT THERMAL IMPEDANCE CHARACTERISTIC

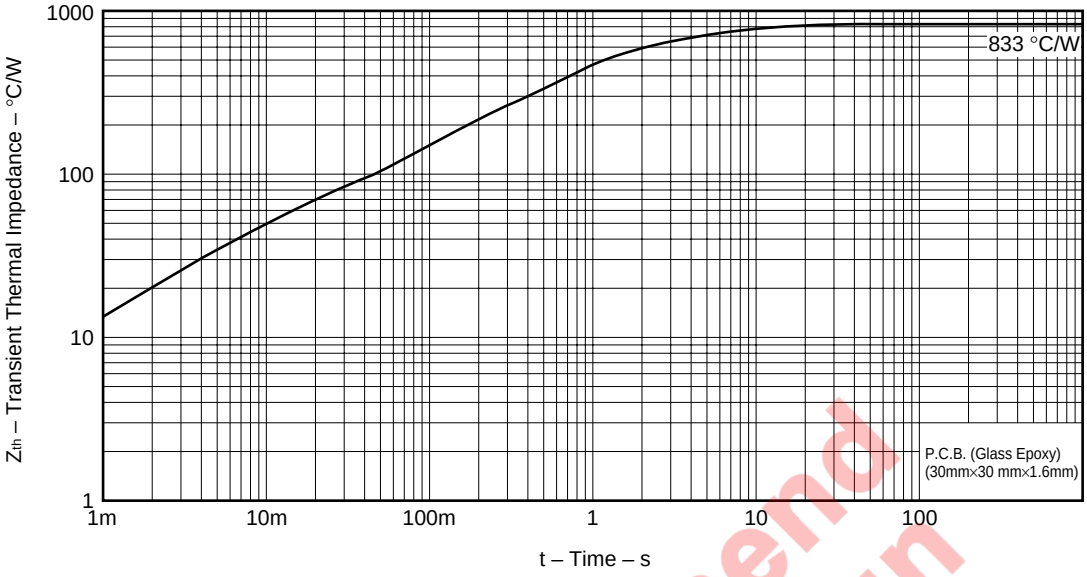
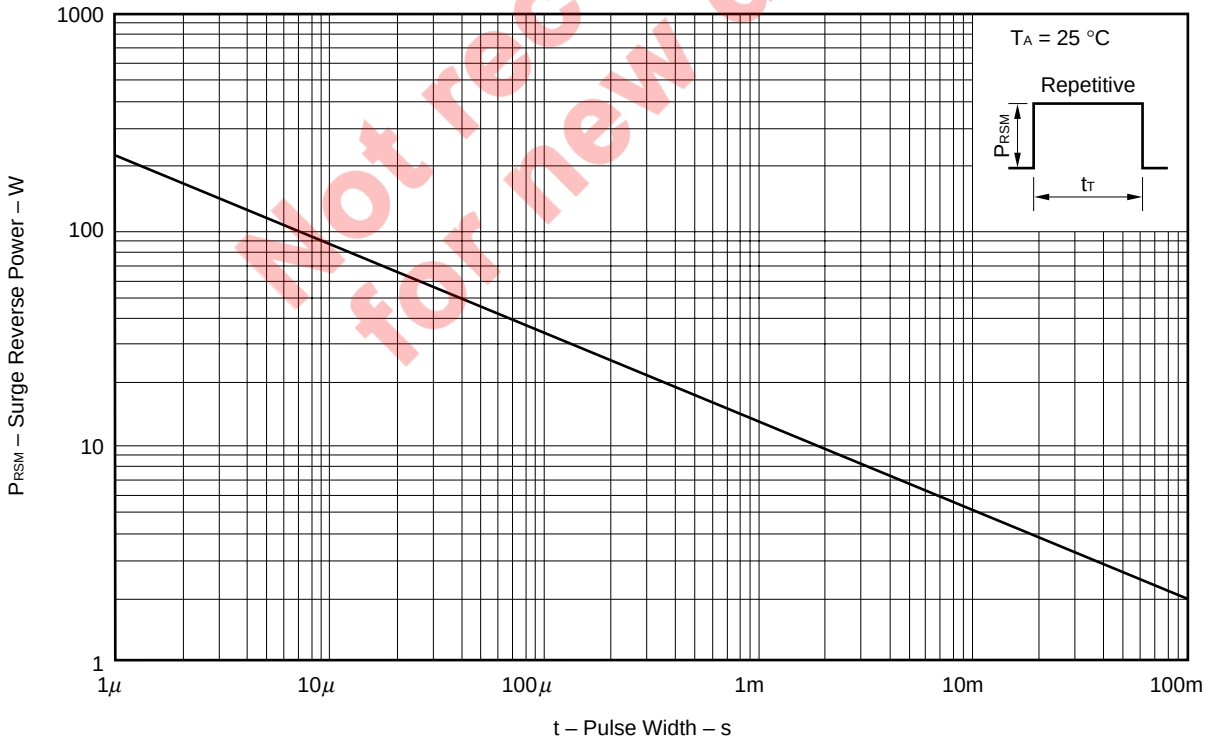


Fig. 6 SURGE REVERSE POWER RATINGS



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