

**ZENER DIODES**  
**1 W DO-41 GLASS SEALED PACKAGE**

**DESCRIPTION**

NEC type RD\*\*F Series are DHD (Double Heatsink Diode) Construction planar type zener diodes possessing an allowable power dissipation of 1 watt.

**FEATURES**

- DHD (Double Heatsink Diode) Construction
- Planar process
- Vz: Applied E24 standard
- DO-41 Glass sealed package

**APPLICATIONS**

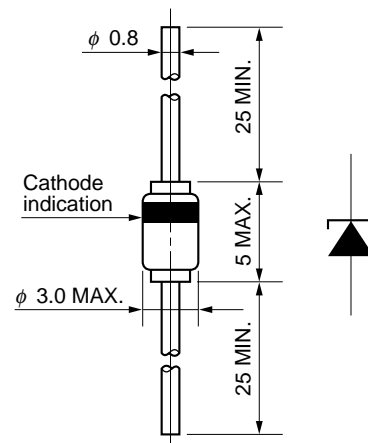
Circuits for,  
Constant Voltage, Constant Current,  
Wave form clipper, Surge absorber, etc.

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

Power Dissipation (P)	1 W (See Fig. 1)
Forward Current (I <sub>F</sub> )	200 mA
Junction Temperature (T <sub>j</sub> )	175°C
Storage Temperature (T <sub>stg</sub> )	-65 to +175°C
Peak Reverse Power (P <sub>RSM</sub> )	See Fig. 9

**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<sub>A</sub> = 25 ± 2°C)**

Type Number	Zener Voltage V <sub>Z</sub> (V) <sup>Note 1</sup>				Dynamic Impedance Z <sub>Z</sub> (Ω) <sup>Note 2</sup>		Reverse Current I <sub>R</sub> (μA)		
	Suffix	MIN.	MAX.	I <sub>Z</sub> (mA)	MAX.	I <sub>Z</sub> (mA)	MAX.	V <sub>R</sub> (V)	
RD2.0F	B	B1	1.88	2.12	40	25	40	200	0.5
		B2	2.01	2.25					
RD2.2F	B	B1	2.11	2.34	40	20	40	200	0.7
		B2	2.21	2.45					
RD2.4F	B	B1	2.31	2.55	40	15	40	200	1.0
		B2	2.41	2.65					
RD2.7F	B	B1	2.52	2.78	40	15	40	150	1.0
		B2	2.68	2.93					
RD3.0F	B	B1	2.83	3.07	40	15	40	100	1.0
		B2	2.97	3.22					
RD3.3F	B	B1	3.13	3.37	40	15	40	80	1.0
		B2	3.27	3.51					
RD3.6F	B	B1	3.43	3.68	40	15	40	60	1.0
		B2	3.58	3.83					
RD3.9F	B	B1	3.73	4.00	40	15	40	40	1.0
		B2	3.88	4.15					
RD4.3F	B	B1	4.03	4.28	40	15	40	20	1.0
		B2	4.15	4.41					
		B3	4.28	4.55					
RD4.7F	B	B1	4.41	4.65	40	10	40	20	1.0
		B2	4.53	4.78					
		B3	4.66	4.91					
RD5.1F	B	B1	4.79	5.05	40	8	40	20	1.0
		B2	4.95	5.22					
		B3	5.10	5.38					
RD5.6F	B	B1	5.28	5.56	40	8	40	20	1.5
		B2	5.46	5.75					
		B3	5.65	5.95					
RD6.2F	B	B1	5.76	6.14	40	6	40	20	3.0
		B2	5.98	6.33					
		B3	6.17	6.52					
RD6.8F	B	B1	6.35	6.71	40	6	40	20	3.5
		B2	6.55	6.90					
		B3	6.74	7.10					
RD7.5F	B	B1	6.93	7.33	40	4	40	20	4.0
		B2	7.17	7.55					
		B3	7.39	7.80					
RD8.2F	B	B1	7.58	8.03	40	4	40	20	5.0
		B2	7.87	8.28					
		B3	8.12	8.54					
RD9.1F	B	B1	8.34	8.80	40	6	40	20	6.0
		B2	8.64	9.08					
		B3	8.91	9.38					
RD10F	B	B1	9.16	9.67	40	6	40	10	7.0
		B2	9.50	9.99					
		B3	9.83	10.40					
RD11F	B	B1	10.22	10.75	20	8	20	10	8.0
		B2	10.54	11.09					
		B3	10.87	11.43					
RD12F	B	B1	11.19	11.77	20	8	20	10	8.0
		B2	11.50	12.09					
		B3	11.80	12.41					

Type Number		Zener Voltage $V_Z$ (V) <sup>Note 1</sup>			Dynamic Impedance $Z_Z$ ( $\Omega$ ) <sup>Note 2</sup>		Reverse Current $I_R$ ( $\mu$ A)		
		Suffix	MIN.	MAX.	$I_Z$ (mA)	MAX.	$I_Z$ (mA)	MAX.	$V_R$ (V)
RD13F	B	B1	12.19	12.85	20	10	20	10	10
		B2	12.63	13.30					
		B3	13.11	13.83					
RD15F	B	B1	13.55	14.28	20	10	20	10	11
		B2	14.05	14.77					
		B3	14.52	15.26					
RD16F	B	B1	14.98	15.75	20	12	20	10	12
		B2	15.44	16.23					
		B3	15.89	16.71					
RD18F	B	B1	16.37	17.27	20	12	20	10	13
		B2	17.03	17.91					
		B3	17.64	18.55					
RD20F	B	B1	18.26	19.21	20	14	20	10	15
		B2	18.93	19.91					
		B3	19.59	20.84					
RD22F	B	B1	20.45	21.51	10	14	10	10	17
		B2	21.10	22.18					
		B3	21.75	22.86					
RD24F	B	B1	22.44	23.59	10	16	10	10	19
		B2	23.17	24.36					
		B3	23.90	25.14					
RD27F	B	B1	24.63	26.10	10	16	10	10	21
		B2	25.70	27.12					
		B3	26.72	28.43					
RD30F	B	B1	27.43	29.09	10	18	10	10	23
		B2	28.64	30.10					
		B3	29.57	31.26					
RD33F	B	B1	30.35	31.97	10	18	10	10	25
		B2	31.49	33.06					
		B3	32.39	34.15					
RD36F	B	B1	33.24	34.94	10	20	10	10	27
		B2	34.26	36.01					
		B3	35.19	37.01					
RD39F	B	B1	36.11	38.00	10	20	10	10	30
		B2	37.14	39.04					
		B3	38.13	40.80					
RD43F	B	40	45	10	50	10	5	33	
RD47F	B	44	49	10	50	10	5	36	
RD51F	B	48	54	10	50	10	5	39	
RD56F	B	53	60	10	50	10	5	43	
RD62F	B	58	66	10	50	10	5	47	
RD68F	B	64	72	10	70	10	5	52	
RD75F	B	70	79	10	90	10	5	57	
RD82F	B	77	87	10	90	10	5	63	

**Note 1.** Tested with pulse (40 ms).

**2.**  $Z_Z$  is measured at  $I_Z$  given an very small A.C. Current Signal.

TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)

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

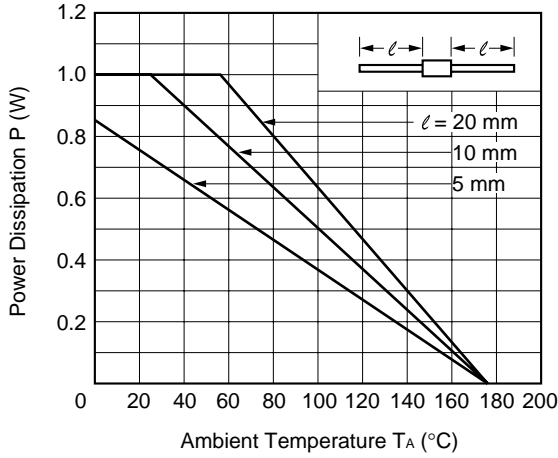


Fig. 2 I<sub>Z</sub>-V<sub>Z</sub> CHARACTERISTIC

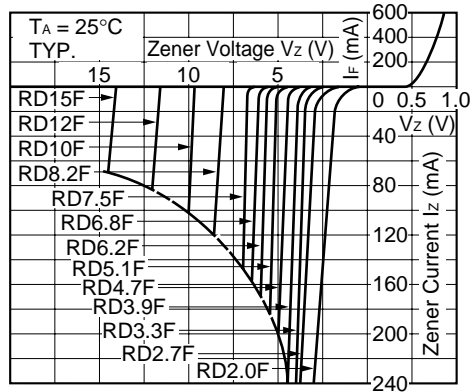


Fig. 3 I<sub>Z</sub>-V<sub>Z</sub> CHARACTERISTIC

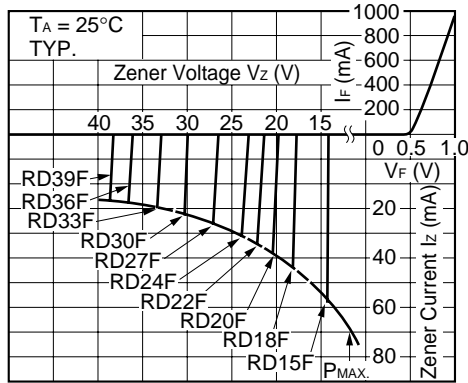


Fig. 4 I<sub>Z</sub>-V<sub>Z</sub> CHARACTERISTIC

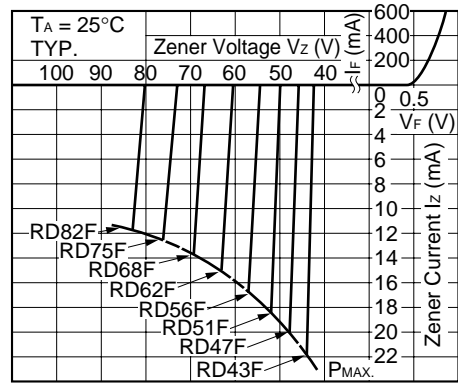


Fig. 5 γ<sub>Z</sub>-V<sub>Z</sub> CHARACTERISTIC

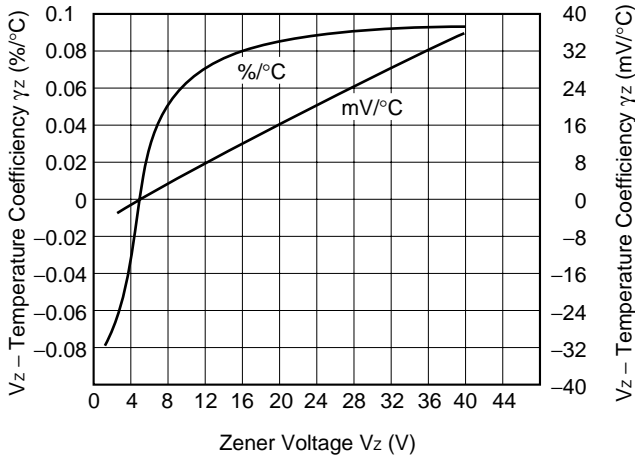


Fig. 6 γ<sub>Z</sub>-V<sub>Z</sub> CHARACTERISTIC

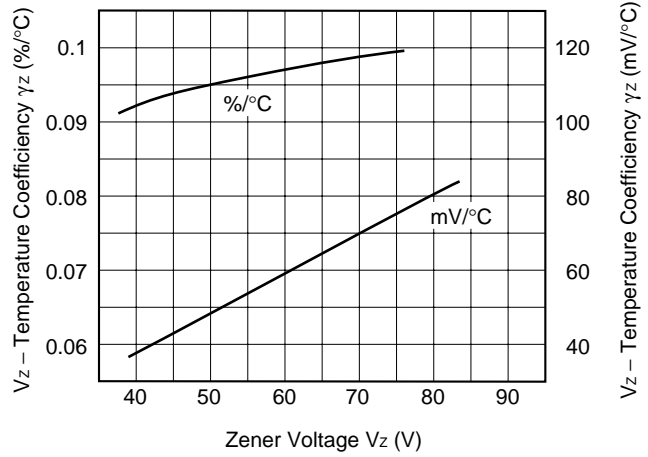


Fig. 7 Z<sub>z</sub>-I<sub>z</sub> CHARACTERISTIC

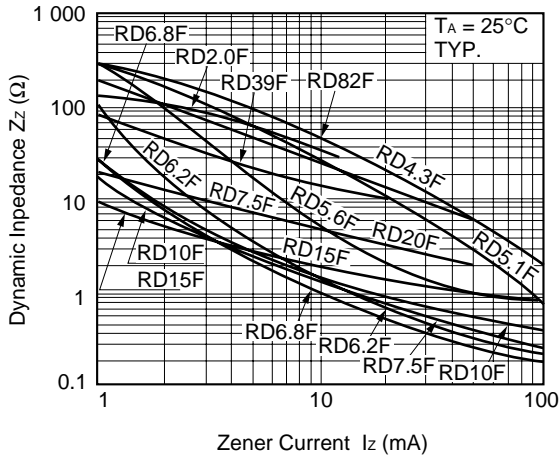


Fig. 8 R<sub>th</sub>-S CHARACTERISTIC

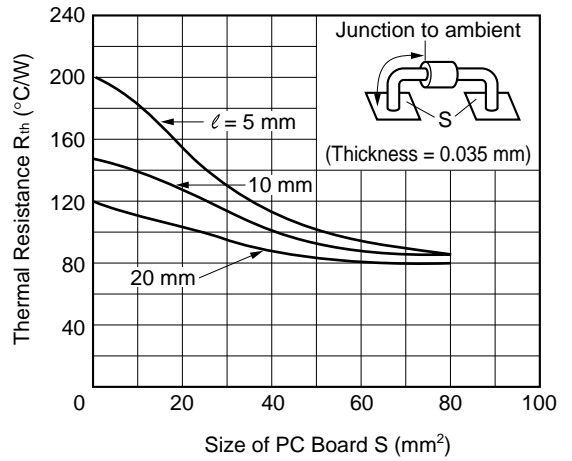


Fig. 9 P<sub>PRSM</sub> RATING

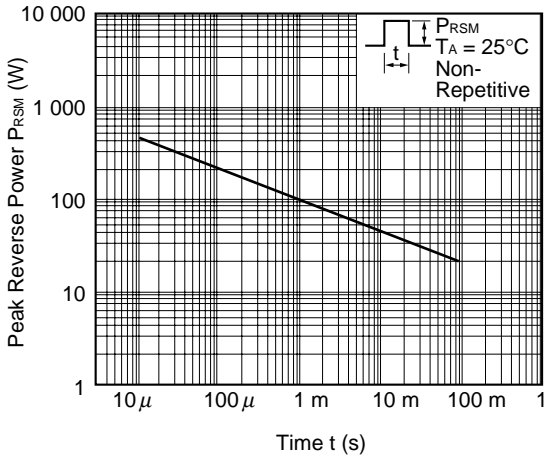


Fig. 11 POWER DISSIPATION NOMOGRAM

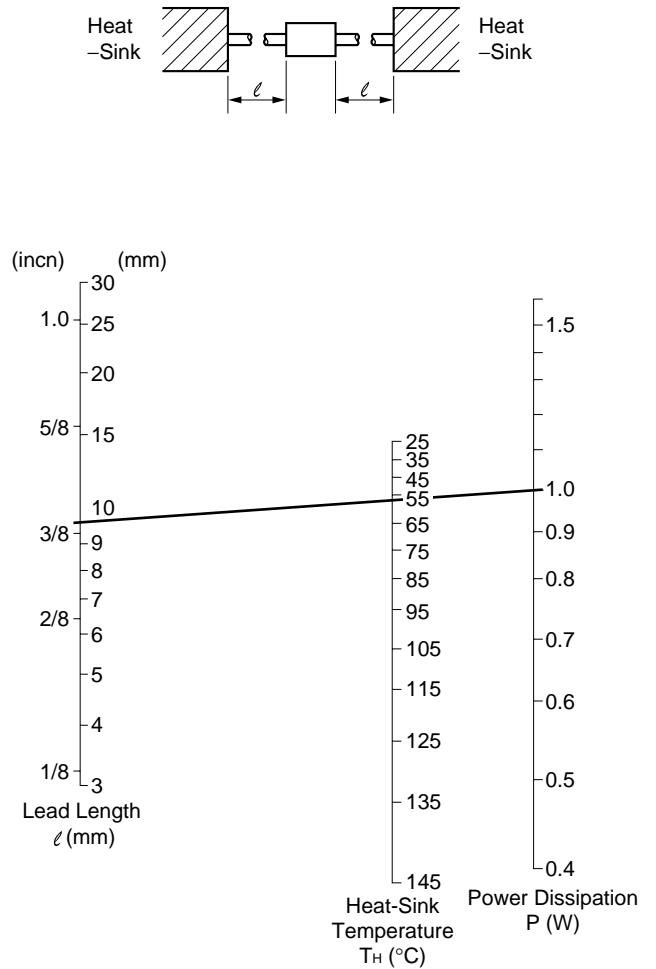
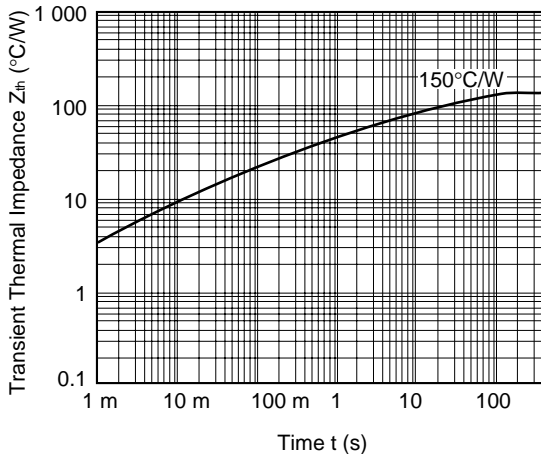


Fig. 10 Z<sub>th</sub> CHARACTERISTIC



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