DATA SHEET

NEC

ZENER DIODES

RD4.7FM to RD51FM

1 W PLANAR TYPE 2-PIN POWER MINI-MOLD ZENER DIODES

The RD4.7FM to RD51FM are zener diodes with an allowable dissipation of 1 W and a planar type 2-pin power mini-mold.

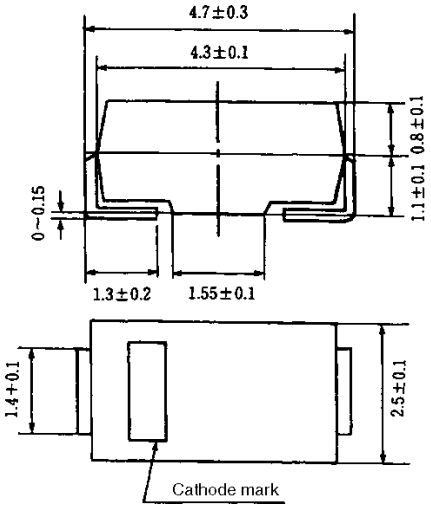
FEATURES

- This diode is ideal for high density mounting due to about 65% of mounting area in comparison with the conventional 3-pin power mini-mold RD[ ]P.
- This diode realizes the 2-pin structured area mounting by specifying the zener voltage classifications confirming to the conventional RD[ ]P.

QUALITY GRADES

- Standard
  Please refer to "Quality Grades on NEC Semiconductor Devices" (Document No. C11531E) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

PACKAGE DRAWING (UNIT: mm)



APPLICATIONS

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

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Ratings	Unit	Remarks
Power dissipation	P	1.0	W	Refer to Figure 1.
Forward current	I_F	200	mA	
Reverse surge power	P_{RSM}	400	W	t = 10 μs
Junction temperature	T_j	150	°C	
Storage temperature	T_{stg}	–55 to +150	°C	

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Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.

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ELECTRICAL CHARACTERISTICS (Ta = 25°C ± 2°C)

Type Number	Suffix	Zener Voltage V_Z (V) Note 1			Dynamic Impedance Z_Z (Ω) Note 2		Reverse Current I_R (μA)	
		MIN.	MAX.	Iz (mA)	MAX.	Iz (mA)	MAX.	Iz (mA)
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	2	55	2	10	17
RD24FM	B	22.8	25.6	2	70	2	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

Notes 1. The zener voltage (V_Z) is tested for 40 ms after power ON.

2. The operation resistance (Z_Z) is tested by superimposing a micro AC on the standard current (I_Z).

TYPICAL CHARACTERISTICS (Ta = 25°C)

Figure 1. P vs. Ta Rating

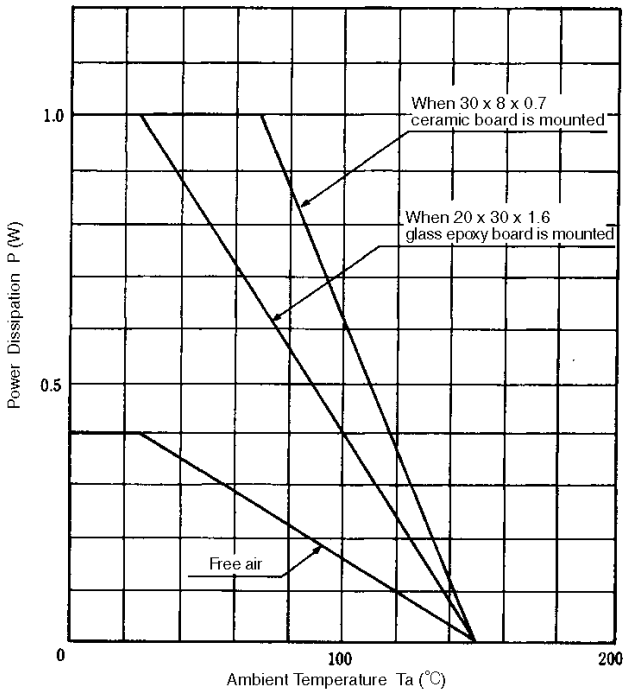
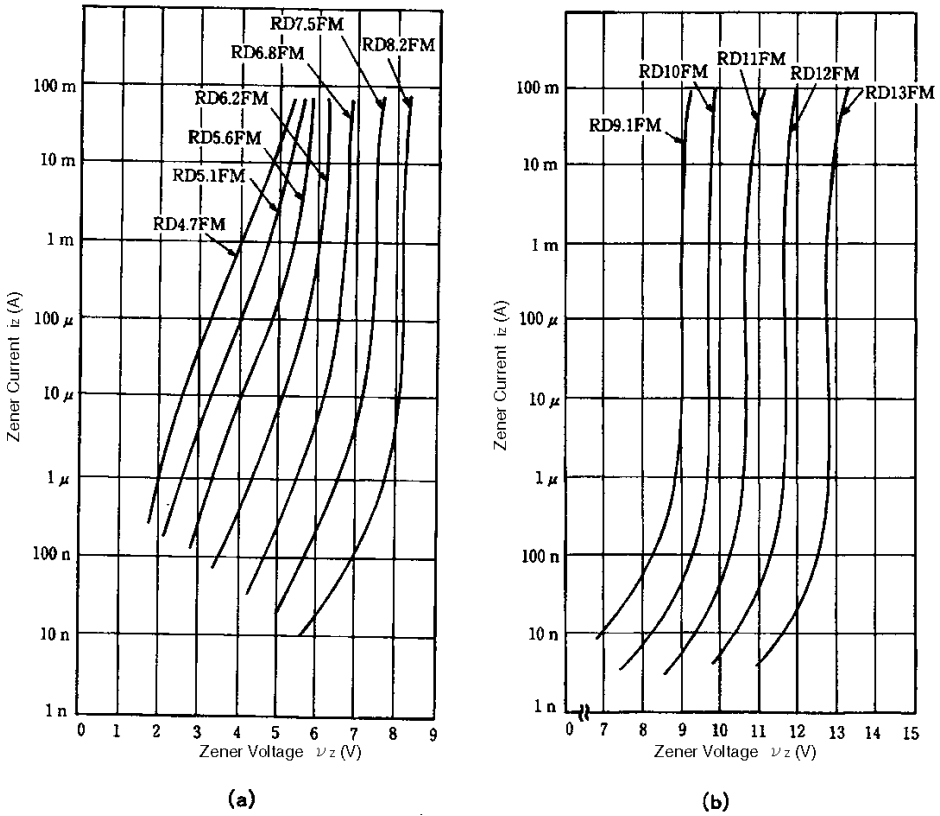
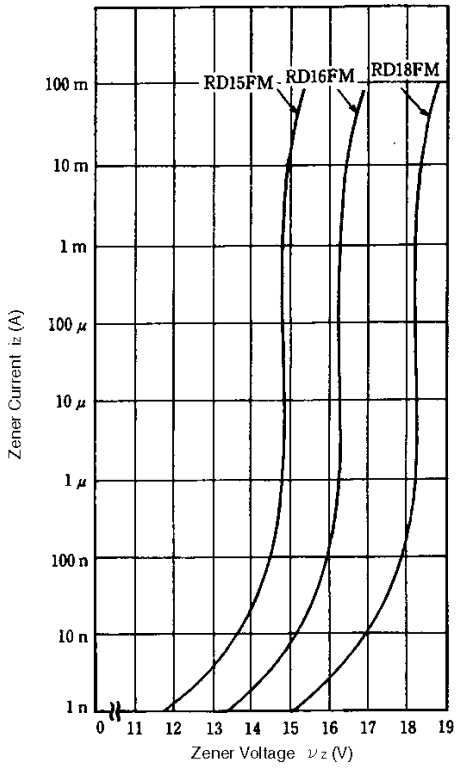
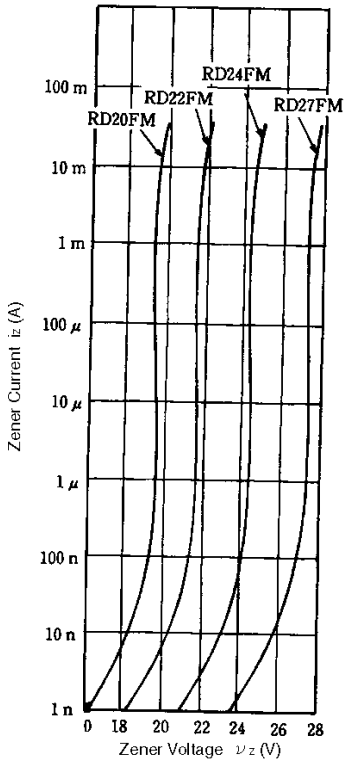


Figure 2. i_Z vs. v_Z Example of Characteristics

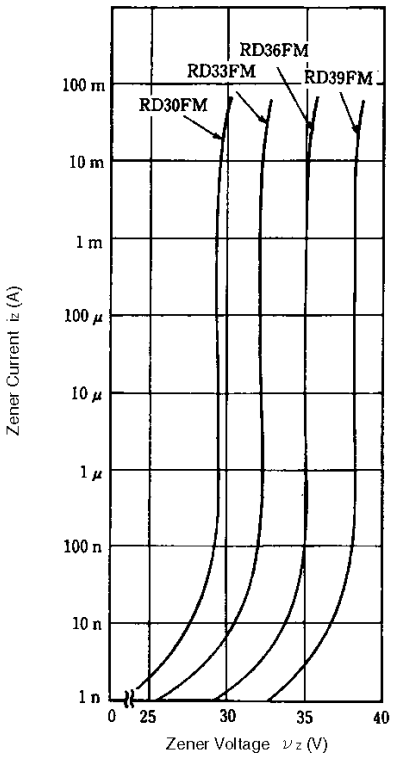



RD15FM
RD16FM
RD18FM
100 m
10 m
1 m
100 μ
10 μ
1 μ
100 n
10 n
1 n
0 11 12 13 14 15 16 17 18 19
Zener Current Iz (A)
Zener Voltage νz (V)

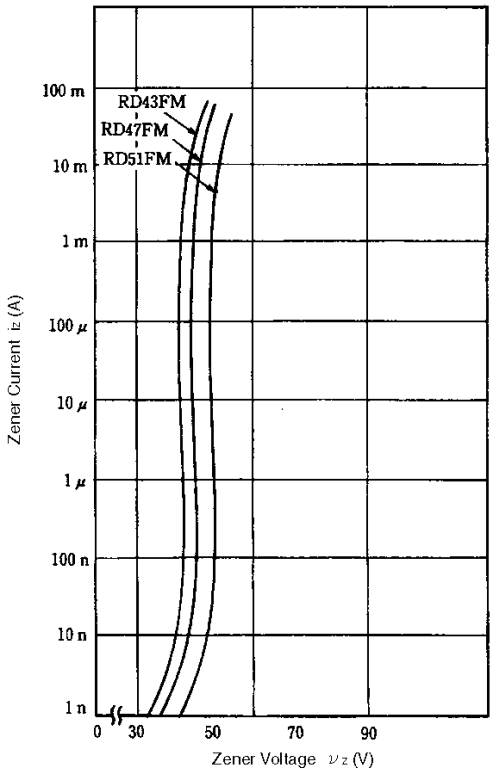
(c)


RD20FM
RD22FM
RD24FM
RD27FM
100 m
10 m
1 m
100 μ
10 μ
1 μ
100 n
10 n
1 n
0 18 20 22 24 26 28
Zener Current Iz (A)
Zener Voltage νz (V)

(d)


RD30FM
RD33FM
RD36FM
RD39FM
100 m
10 m
1 m
100 μ
10 μ
1 μ
100 n
10 n
1 n
0 25 30 35 40
Zener Current Iz (A)
Zener Voltage νz (V)

(e)


RD43FM
RD47FM
RD51FM
100 m
10 m
1 m
100 μ
10 μ
1 μ
100 n
10 n
1 n
0 30 50 70 90
Zener Current Iz (A)
Zener Voltage νz (V)

(f)

Figure 3. ν_Z vs. γ_Z Example of Characteristics

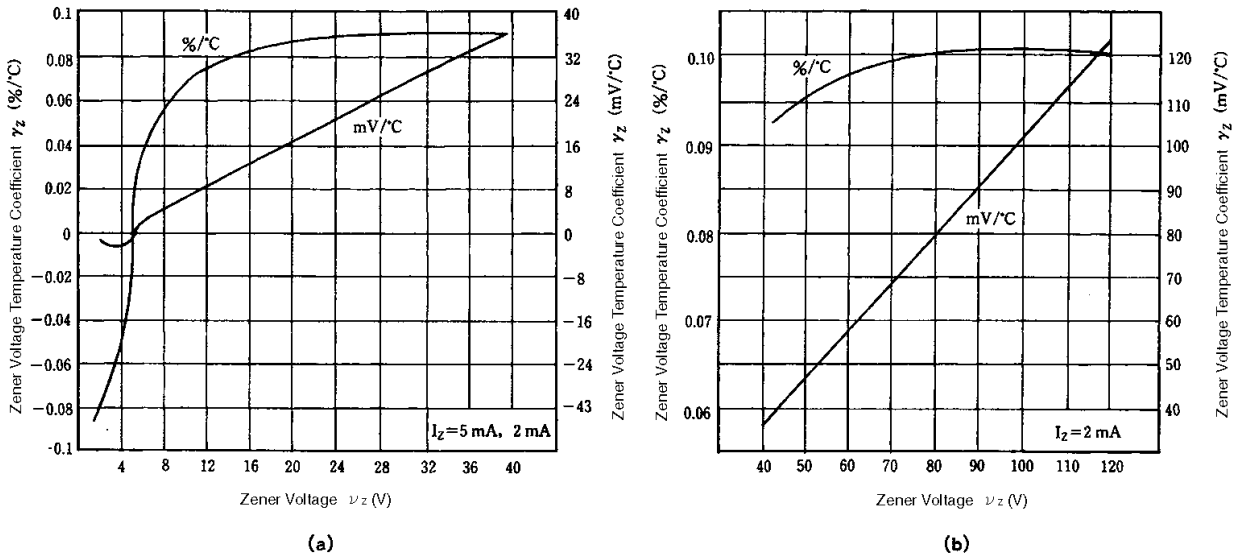


Figure 4. Z_Z vs. I_Z Example of Characteristics

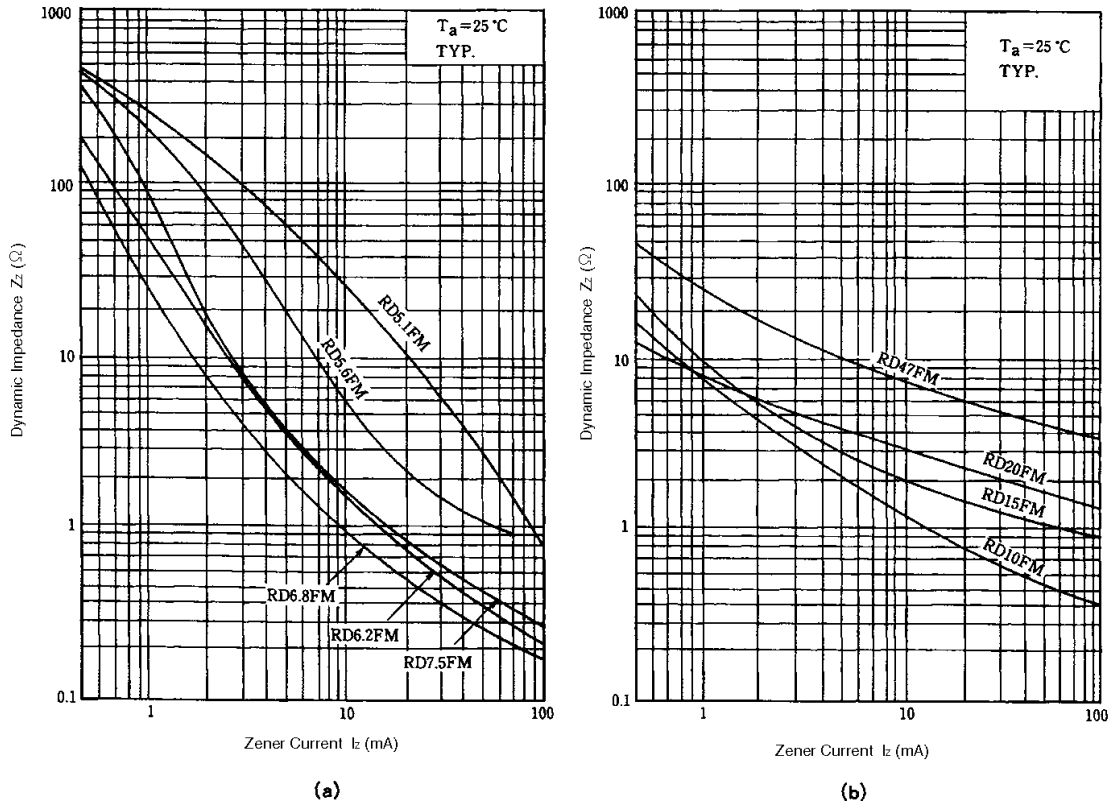


Figure 5. Transient Thermal Impedance

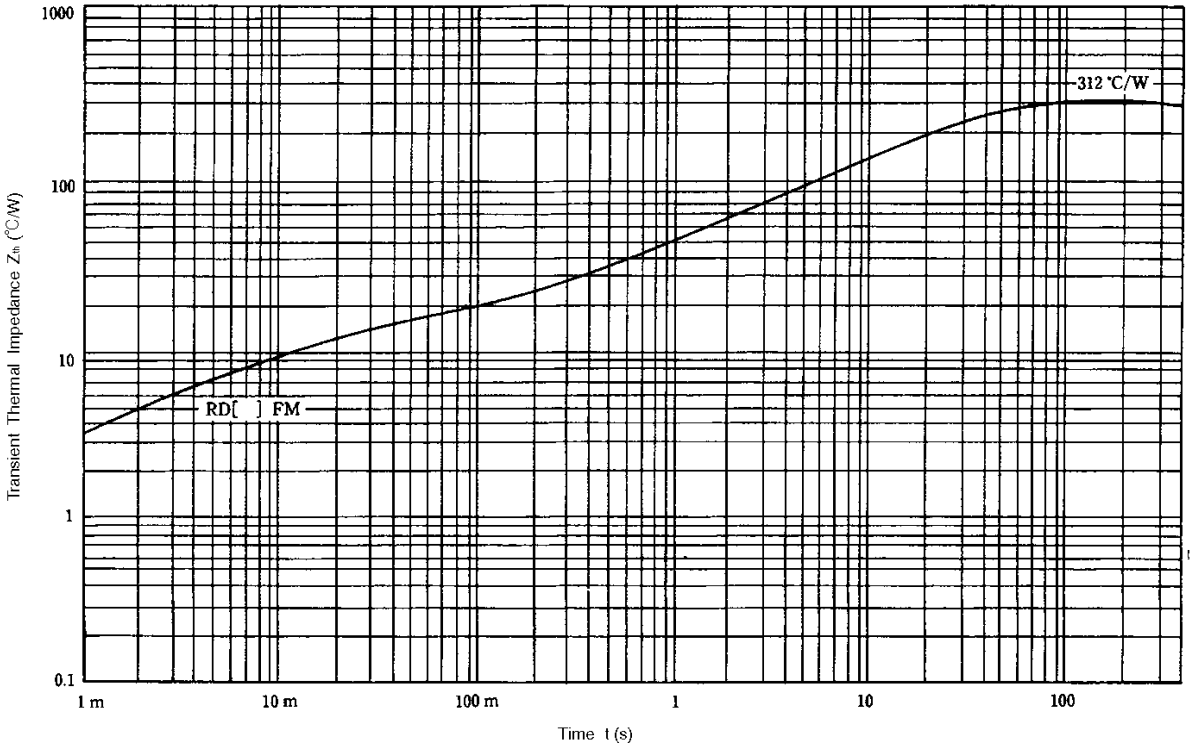
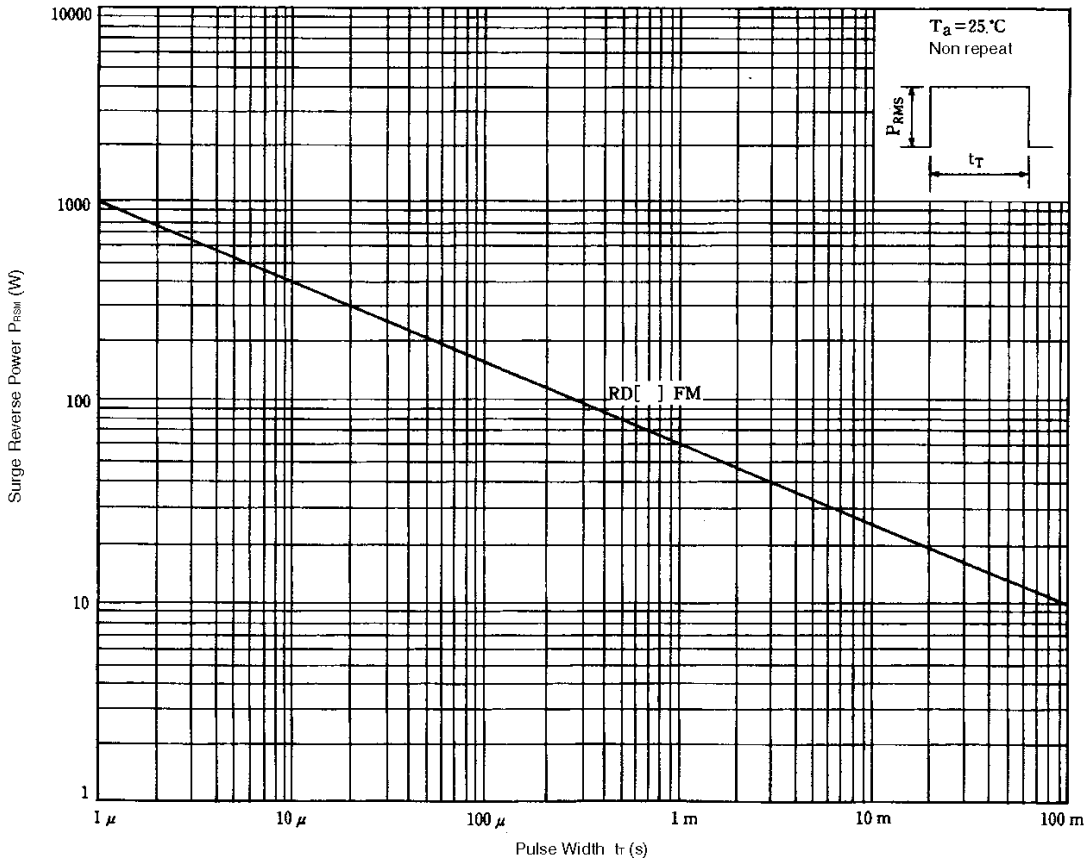


Figure 6. Surge Reverse Power Rating



[MEMO]

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