1. Scope

The present specifications shall apply to an RN4Z.

2. Outline

Type	Silicon Diode
Structure	Resin Molded
Applications	High Frequency Rectification

3. Flammability

UL94V-0(Equivalent)

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4. Absolute maximum ratings

No.	Item	Symbol	Unit	Rating	Conditions
1	Transient Peak Reverse Voltage	V_{RSM}	V	200	
2	Peak Reverse Voltage	V_{RM}	V	200	
3	Average Forward Current	$I_{F(AV)}$	A	3.5	Refer to Derating of 7
4	Peak Surge Forward Current	I_{FSM}	A	120	10msec. Half sinewave, one shot
5	I^2t Limiting Value	I^2t	A^2s	72	1msec≦t≦10msec
6	Junction Temperature	T_j	℃	-40～+150	
7	Storage Temperature	T_{stg}	℃	-40～+150	

5. Electrical characteristics (Ta=25℃ , unless otherwise specified)

No.	Item	Symbol	Unit	Value	Conditions
1	Forward Voltage Drop	V_F	V	0.92 max.	I_F=3.5A
2	Reverse Leakage Current	I_R	uA	50 max.	$V_R=V_{RM}$
3	Reverse Leakage Current Under High Temperature	$H \cdot I_R$	mA	6.0 max.	$V_R=V_{RM}$, T_j=150℃
4	Reverse Recovery Time	$t_{rr}1$	ns	100 max.	$I_F=I_{RP}$=500mA 90% Recovery point,
		$t_{rr}2$	ns	50 max.	I_F=500mA, I_{RP}=1A 75% Recovery point,
5	Thermal Resistance	$R_{th(j-l)}$	℃/W	8.0 max.	Between Junction and Lead

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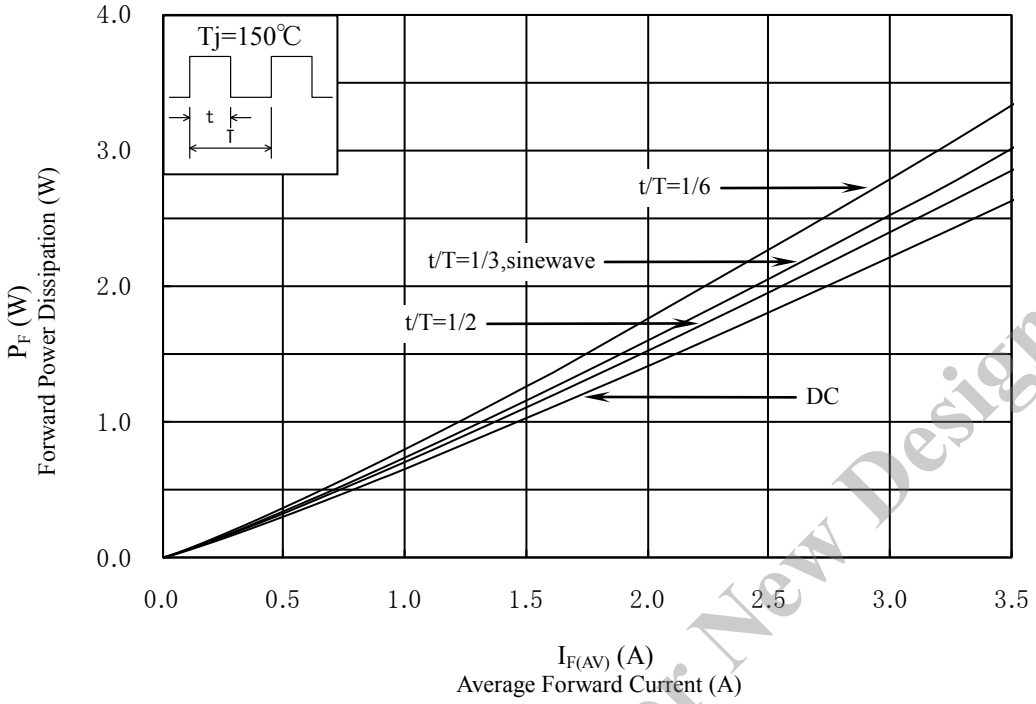
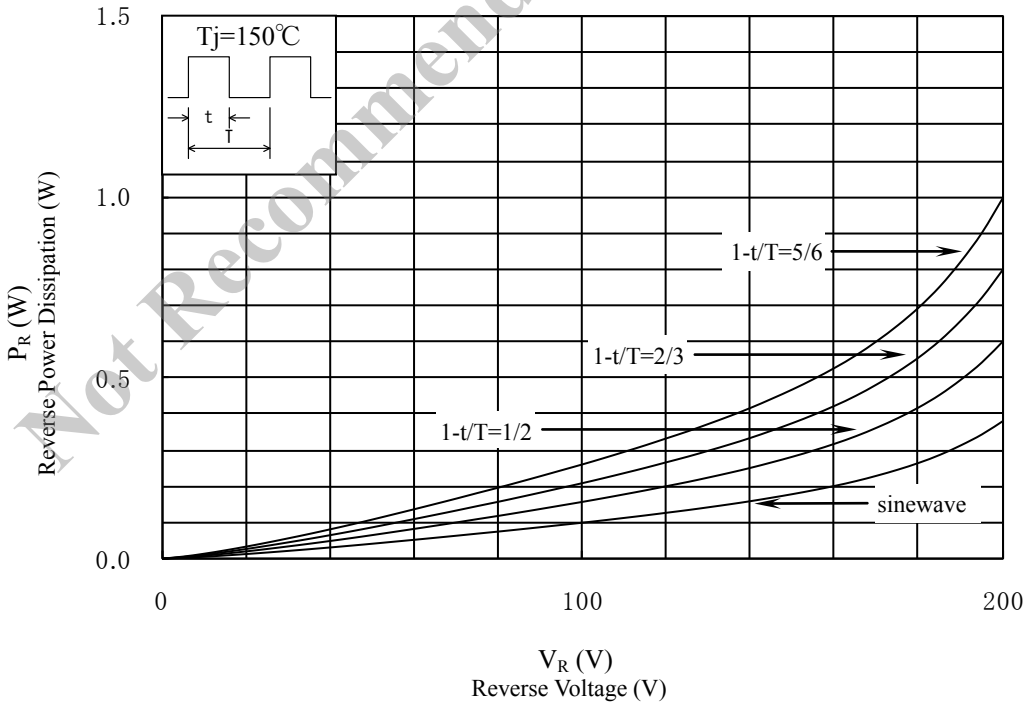
6. Characteristics

$I_{F(AV)}$ – P_F



V_R – P_R



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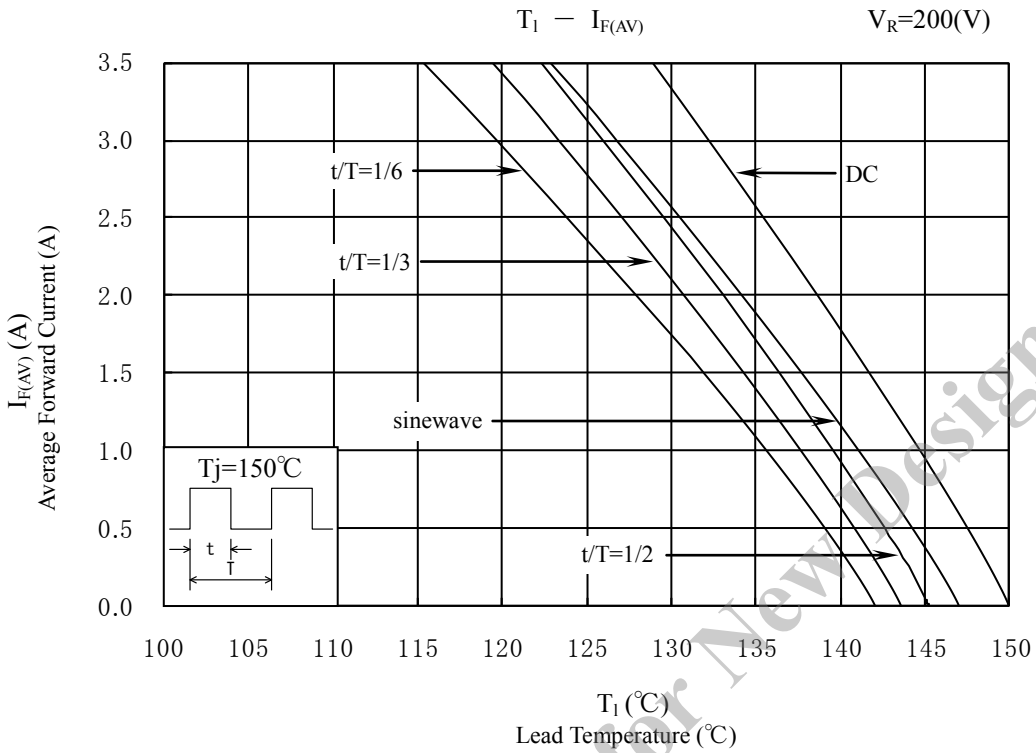
7.

Derating



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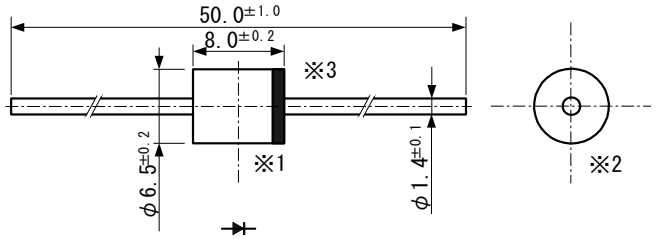
8. Package information

8-1Package type, physical dimensions and material



※1 The allowance position of Body against the center of whole lead wire is 0.5mm(max.)
※2 The centric allowance of lead wire against center of physical body is 0.3mm(max.)
※3 The burr may exit up to 2mm from the body of lead

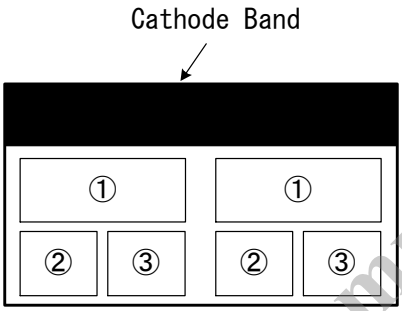
Dimensions in mm

8-2Appearance

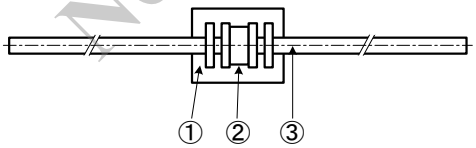
The body shall be clean and shall not bear any stain, rust or flaw.

8-3Marking

① Type number：RN4Z
② Lot number 1
First digit: Last digit of Year
Second digit: Month
From 1 to 9 for Jan. to Sep.
O for Oct., N for Nov., and D for Dec.
③ Lot number 2 (ten days)
・ : Top of the month
・・ : Middle of month
・・・ : End of month



9. Internal structure diagram



Weight of products: Approx. 1.2g

No.	Name of part	Materials
①	Plastic body	Epoxy Resin
②	Chip	Silicon
③	Leads	Solder Dipped Silver plated copper wire

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10. Reliability

No.	Item	Rating	Conditions
1	Thermal Fatigue Test	5000 cycles	⊿Tj=100℃
2	High Temperature Reverse Bias Test	1000 hours	Ta=120℃, $V_R=V_{RM}$(Half sine wave)
3	Humidity Reverse Bias Test	500 hours	Ta=85℃, R.H.=85%, $V_R=V_{RM}\times0.8$(D.C.)
4	High Temperature Storage Test	1000 hours	Ta=150℃
5	Moisture Resistance Test	1000 hours	Ta=85℃, 85%R.H.
6	Thermal Shock Test	100 cycles	Ice-water(5min.) ~ R.T.(20sec.) ~ Boiling-water(5min.)
7	Temperature Cycle Test	100 cycles	-40℃(30min.) ~ +150℃(30min.)
8	Pressure Cooker Test	48 hours	2.03×10^5Pa, 100%R.H., Unsaturated equipment
9	Resistance to Soldering Heat Test	10 sec.	260±5℃, Dipping up to 1.5mm form case
		3.5 sec.	380±5℃, Using soldering iron
10	Solder ability Test	95%	245±5℃, 5±0.5sec., Using rosin flux
11	Lead Bend Test	2 cycles	Apply EIAJ ED 4701/400
12	Lead Pull Test	10 sec.	
13	Lead Twist Test	2 times	
14	Drop Test	10 times	Naturally drop from 1m height on maple plate

11. Acceptance Criteria

(1)Item No.1~9 The product shall meet the electrical specifications in paragraph 5 satisfy 1 and 2 after being exposed to normal temperature for less than 24 hours in 2 hours or more

(2)Item No.10 The product shall meet the rating.

(3)Item No.11~14 There shall be no trouble in testing and the electrical characteristics in paragraph 5 satisfy 1 and 2.

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12. Cautions and warnings

- Application and operation examples described in this document are quoted for the sole purpose of reference for the use of the products herein and Sanken can assume no responsibility for any infringement of industrial property rights, intellectual property rights or any other rights of Sanken or any third party which may result from its use.

- Although Sanken undertakes to enhance the quality and reliability of its products, the occurrence of failure and defect of semiconductor products at a certain rate is inevitable. Users of Sanken products are requested to take, at their own risk, preventative measures including safety design of the equipment or systems against any possible injury, death, fires or damages to the society due to device failure or malfunction.

- Sanken products listed in this document are designed and intended for the use as components in general purpose electronic equipment or apparatus (home appliances, office equipment, telecommunication equipment, measuring equipment, etc.). Please return to us this document with your signature(s) or seal(s) prior to the use of the products herein.
  When considering the use of Sanken products in the applications where higher reliability is required (transportation equipment and its control systems, traffic signal control systems or equipment, fire/crime alarm systems, various safety devices, etc.), please contact your nearest Sanken sales representative to discuss, and then return to us this document with your signature(s) or seal(s) prior to the use of the products herein.
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- In the case that you use our semiconductor devices or design your products by using our semiconductor devices, the reliability largely depends on the degree of derating to be made to the rated values. Derating may be interpreted as a case that an operation range is set by derating the load from each rated value or surge voltage or noise is considered for derating in order to assure or improve the reliability. In general, derating factors include electric stresses such as electric voltage, electric current, electric power etc., environmental stresses such as ambient temperature, humidity etc. and thermal stress caused due to self-heating of semiconductor devices. For these stresses, instantaneous values, maximum values and minimum values must be taken into consideration.
  In addition, it should be noted that since power devices or IC's including power devices have large self-heating value, the degree of derating of junction temperature (Tj) affects the reliability significantly.

- When using the products specified herein by either (i) combining other products or materials therewith or (ii) physically, chemically or otherwise processing or treating the products, please duly consider all possible risks that may result from all such uses in advance and proceed therewith at your own responsibility.

- Anti radioactive ray design is not considered for the products listed herein.

- Sanken assumes no responsibility for any troubles, such as dropping products caused during transportation out of Sanken's distribution network.

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