

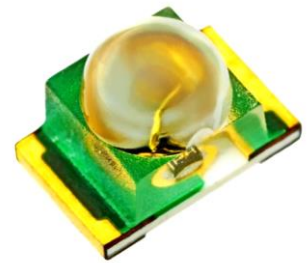


**THE DATASHEET OF  
JFN1105H-TR**



# Data sheet

Part number : JFN1105H-TR



Package	Dome lens Type, <b>IRED Peak wavelength : 950nm</b> Outer dimension 2.5 x 1.6 x 1.85mm( L x W x H )
Product features	<ul style="list-style-type: none"> <li>• Smaller size and higher power compared to existing product “TAN1105W” (22% smaller, 3.7 times brighter)</li> <li>• Lead-free soldering compatible</li> <li>• RoHS2 compliant</li> </ul>

This product is classified “**Exempt**” according to “Photobiological safety of lamps and lamp systems: IEC62471”. (Calculated at radiant intensity 45 mW/sr)

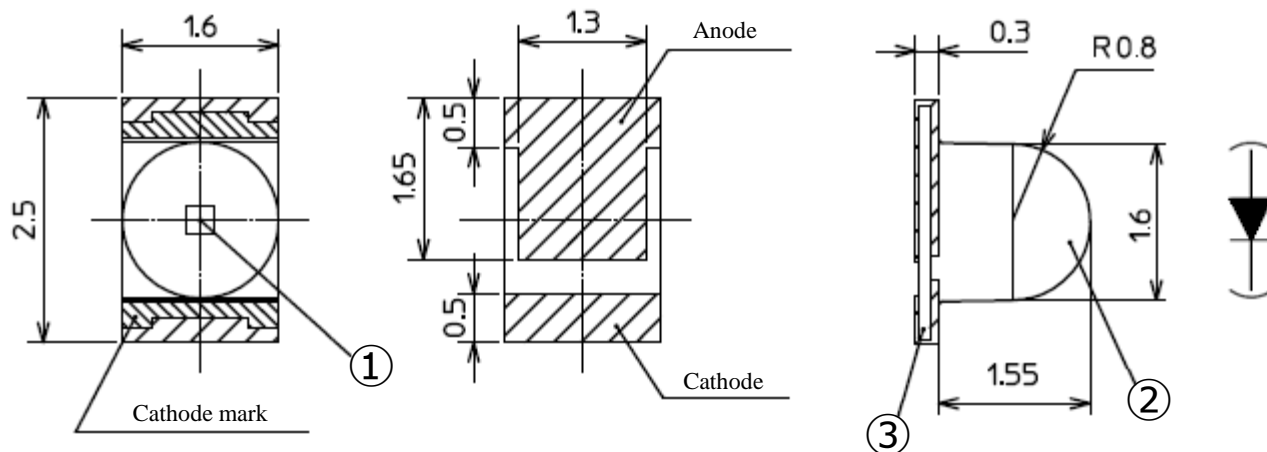
## Recommended applications

- Right source for various sensors, touch panels, and Security equipment etc.

# Outline dimensions

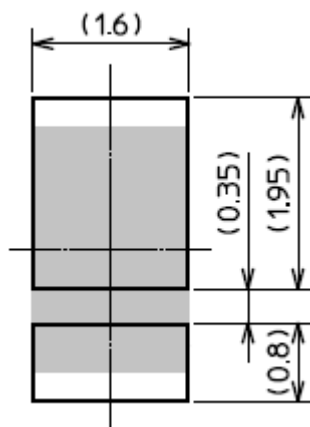
JFN1105H-TR

Unit : mm  
 Weight : 9.0mg  
 Tolerance : ±0.1



NO.	PART NAME	MATERIALS	QTY.
①	LED Die	GaAlAs	1
②	Mold Resin	Epoxy Resin	1
③	Substrate	Glass Fabrics	1

## Recommended Soldering Pad



Unit : mm

## Specifications

JFN1105H-TR

## 【 Absolute Maximum Ratings 】

(Ta=25°C)

ITEM	SYMBOL	MAXIMUM RATINGS	UNITS
Power Dissipation	$P_d$	240	mW
Forward Current	$I_F$	120	mA
Repetitive Peak Forward Current "0.1ms, 1/100duty"	$I_{FRM}$	1,200	mA
$I_F$ Derate Linearly from "60°C"	$\Delta I_F$	2.4	mA/°C
$I_{FRM}$ Derate Linearly from "60°C"	$\Delta I_{FRM}$	24	mA/°C
Reverse Voltage	$V_R$	5	V
Operating Temperature	$T_{opr}$	-40 to +100	°C
Storage Temperature	$T_{stg}$	-40 to +100	°C
Soldering Temperature "Reflow Soldering"	$T_{sld}$	260	°C

Note1

Note 1 Please refer to page 9, Soldering Conditions.

## 【 Electro and Optical Characteristics 】

(Ta=25°C)

ITEM	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Forward Voltage	$V_F$	$I_F = 50\text{mA}$	1.10	1.35	1.65	V
Reverse Current	$I_R$	$V_R = 5\text{V}$	-	-	100	$\mu\text{A}$
Capacitance	$C_o$	$V=0\text{V}, f=1\text{MHz}$	-	29	-	pF
Radiant Intensity	$I_E$	$I_F = 50\text{mA}$	22.5	45	62	mW/sr
Total Power	$P_o$	$I_F = 50\text{mA}$	-	27	-	mW
Peak Wavelength	$\lambda_p$	$I_F = 50\text{mA}$	920	950	980	nm
Spectral Line Half Width	$\Delta\lambda$	$I_F = 50\text{mA}$	-	45	-	nm
Half Intensity Angle	$2\theta_{1/2}$	$I_F = 50\text{mA}$	-	30	-	deg.
Response Time (Rise)	$t_r$	$I_F = 50\text{mA}$	-	13	-	ns
Response Time (Fall)	$t_f$	$I_F = 50\text{mA}$	-	13	-	

※ Above the table of Radiant Intensity ( $I_E$ ) values are the setup value of the selection machine.【Tolerance :  $\pm 10\%$ 】

## Specifications

JFN1105H-TR

### 【 Sorting Chart for Radiant Intensity 】

LED's shall be sorted out into the following ranks of Radiant Intensity.

The each shipping lot shall consist of mixed rank (A,B and C)  
and the quantity of LEDs in each rank can not be specified.

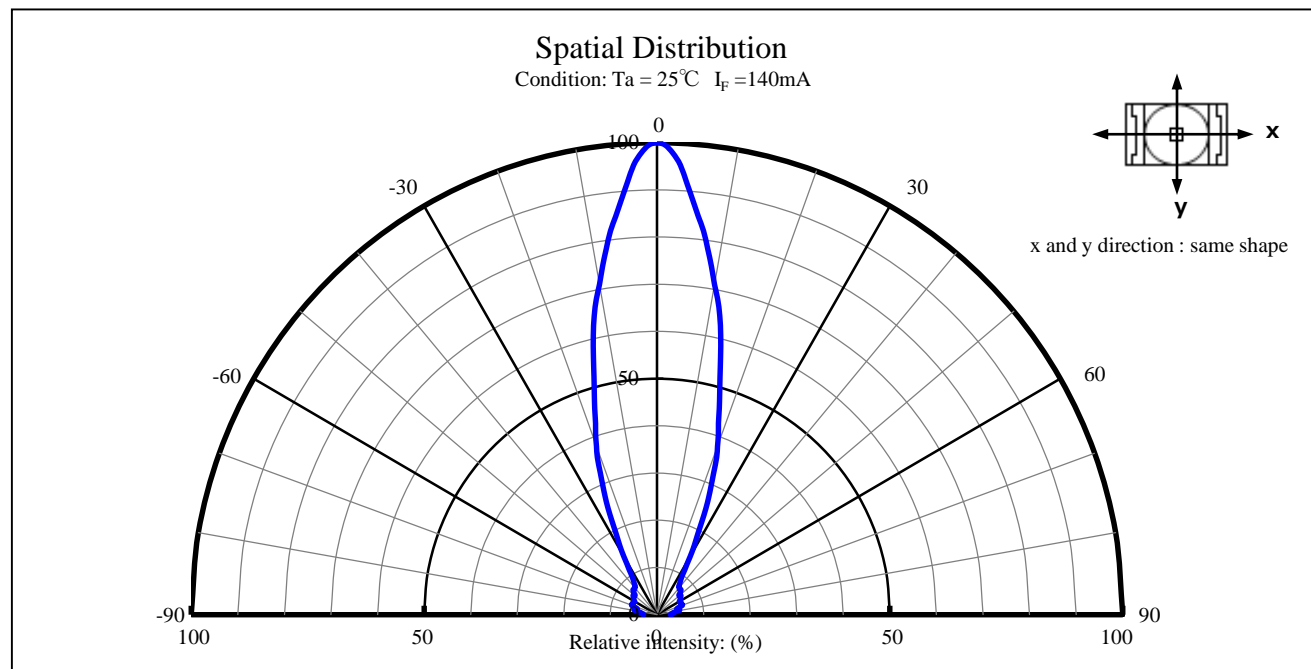
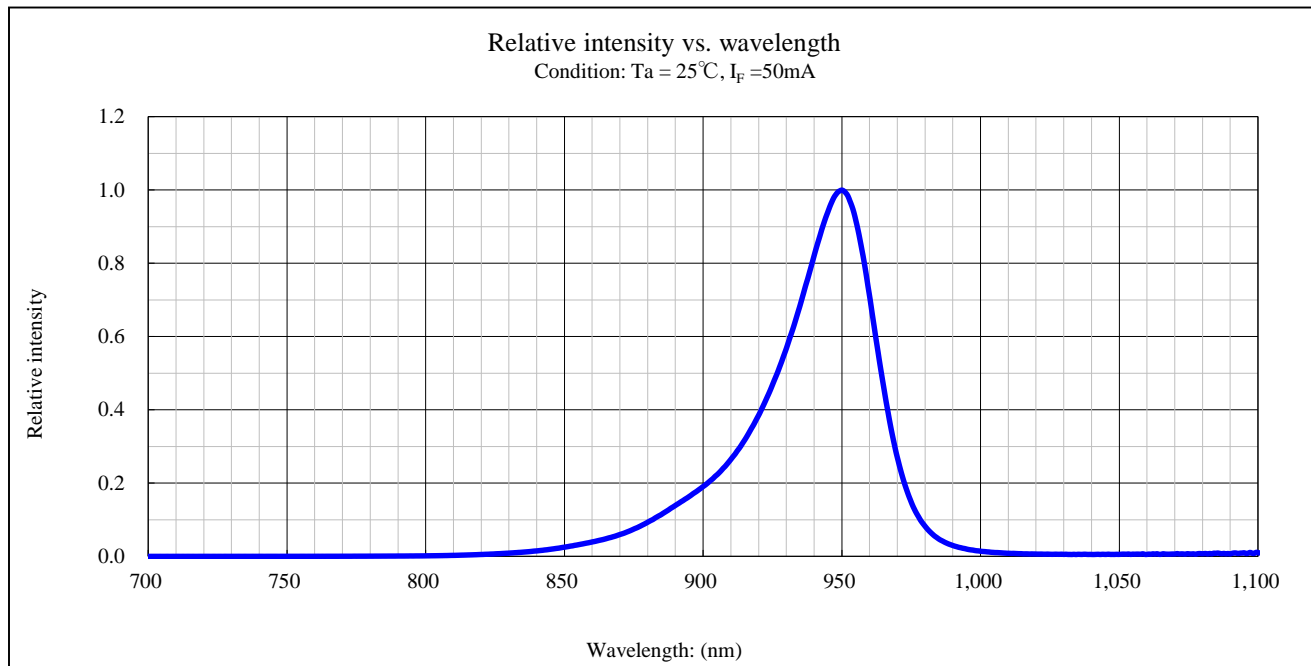
Rank	Radiant Intensity ( $I_E$ : mW/sr)		Conditions
	MIN.	MAX.	
A	22.5	31.5	$I_F=50\text{mA}$ $T_a=25^\circ\text{C}$
B	31.5	44	
C	44	62	

※ Above the table of Radiant Intensity ( $I_E$ ) values are the setup value of the selection machine .

【Tolerance :  $\pm 10\%$ 】

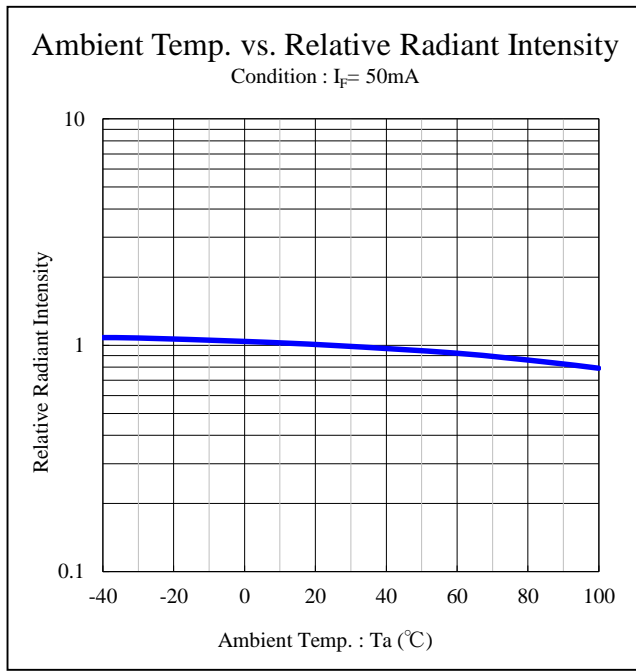
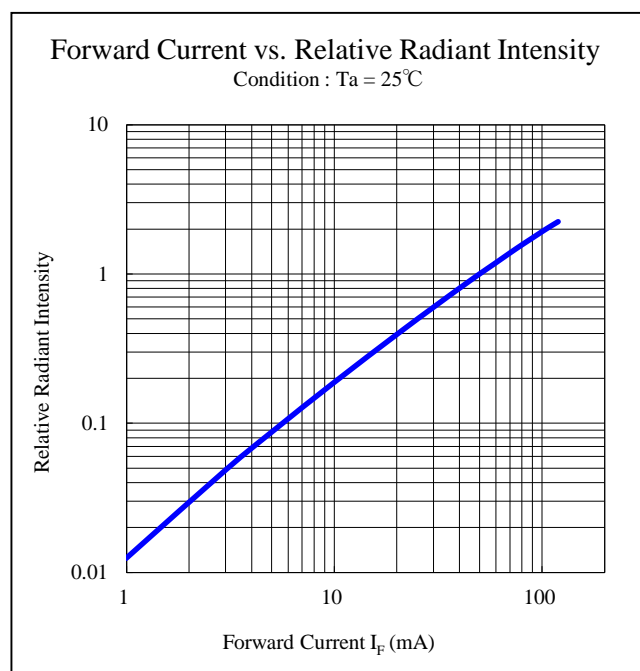
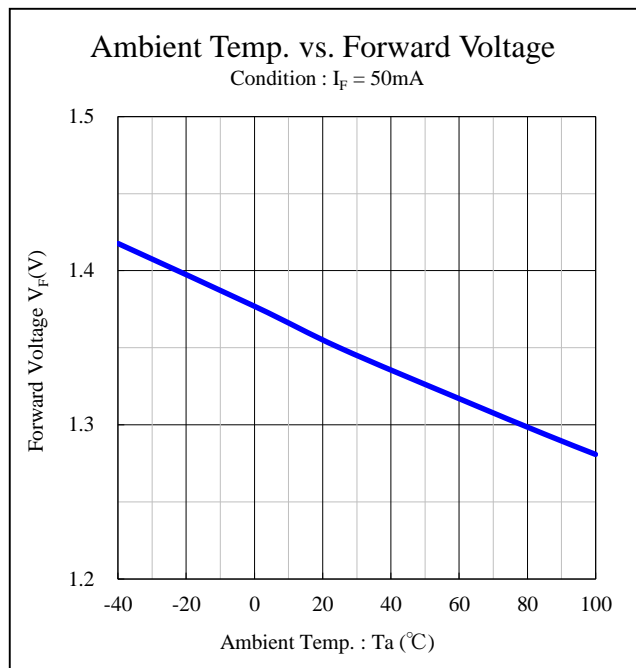
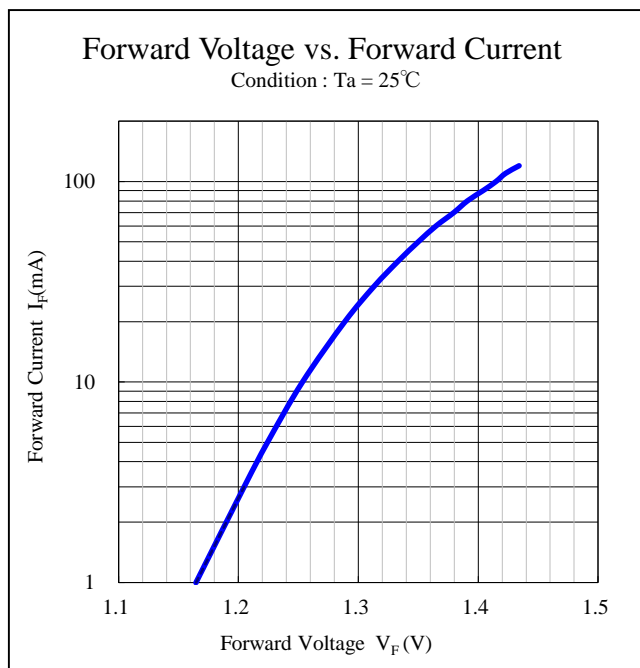
# Technical Data

# JFN1105H-TR



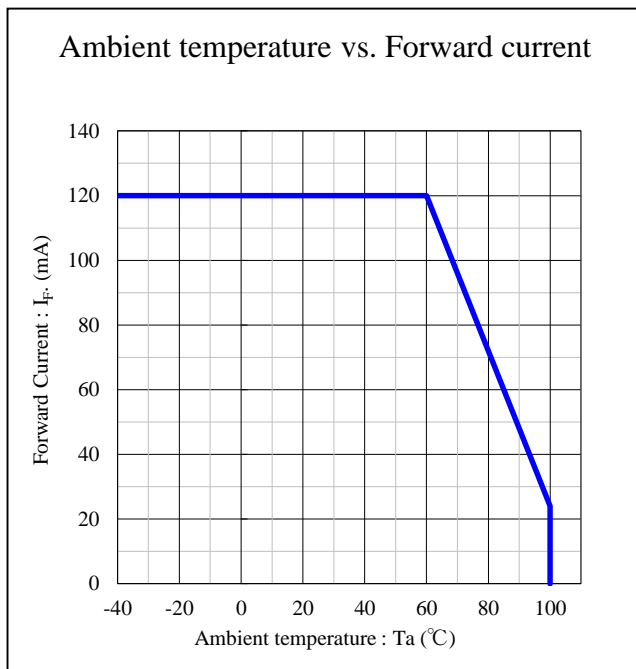
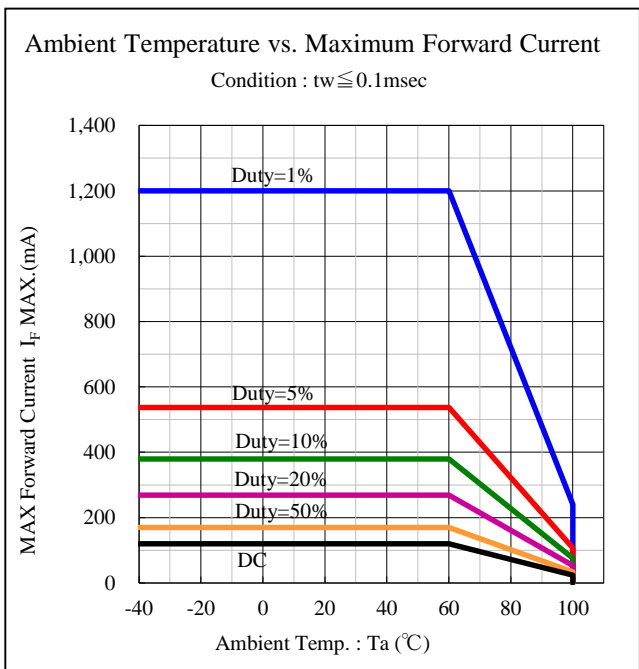
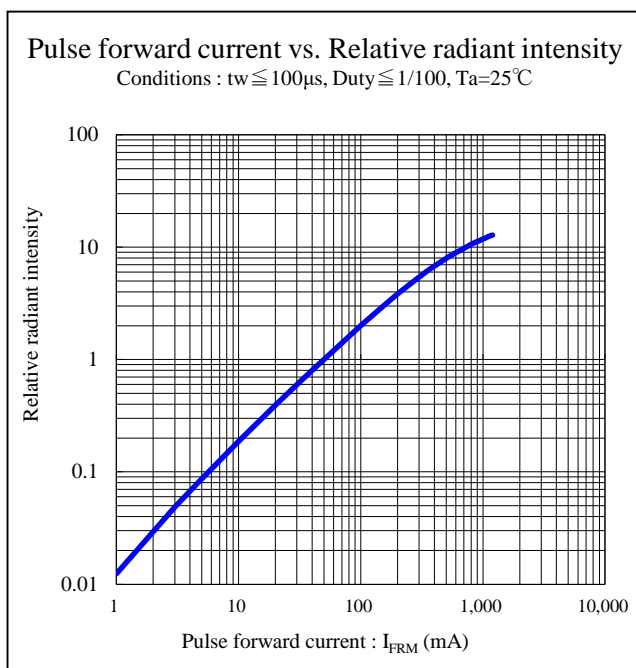
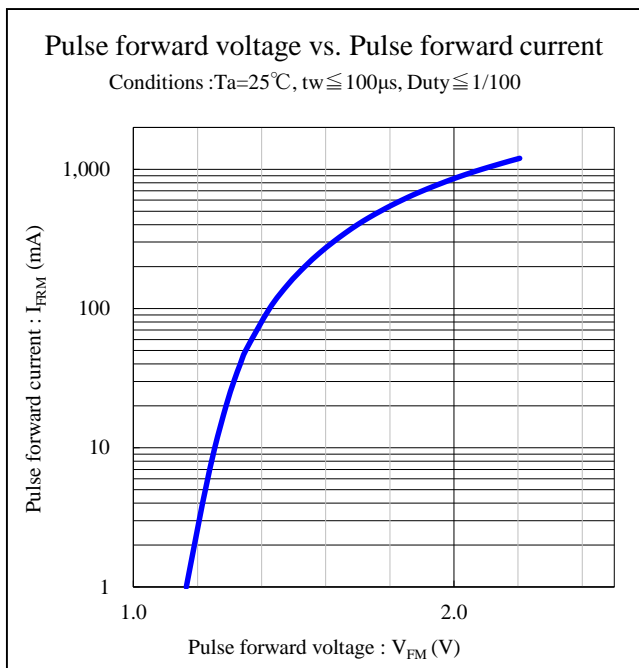
# Technical Data

# JFN1105H-TR



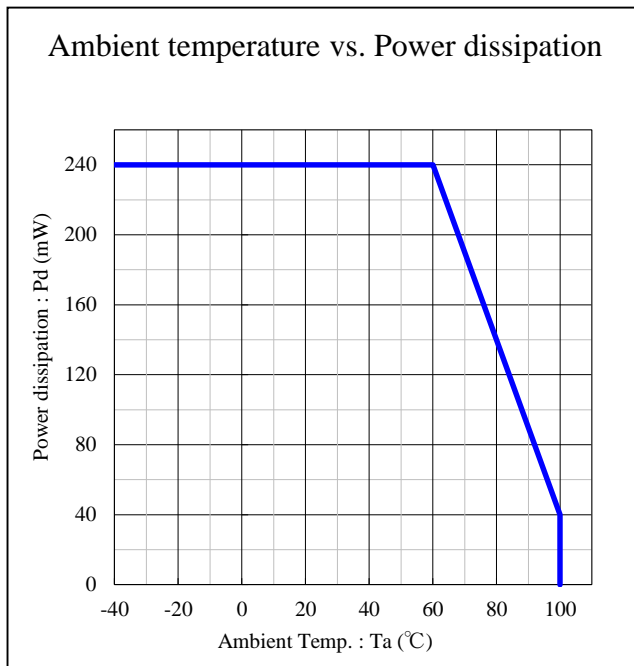
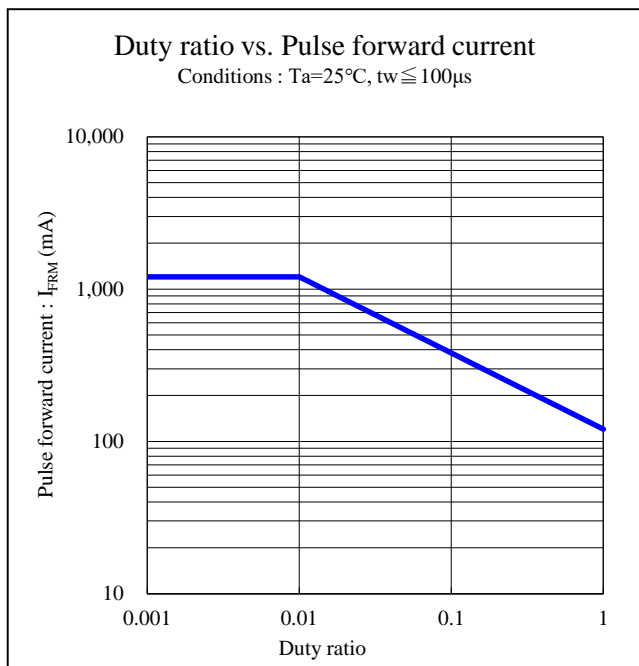
# Specifications

# JFN1105H-TR



# Technical Data

# JFN1105H-TR



## Soldering condition

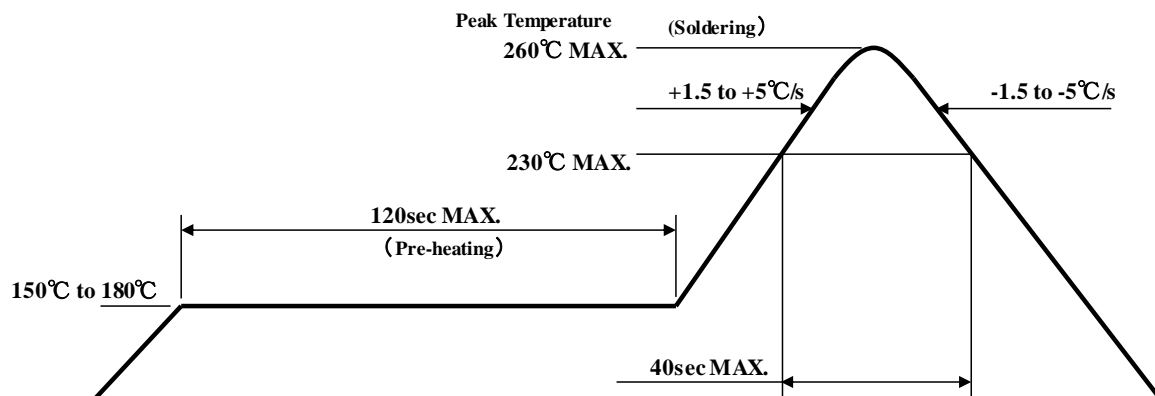
JFN1105H-TR

## 【Soldering Precaution】

(acc.to EIAJ-4701/300)

- Heat stress during soldering will influence the reliability of LEDs, however that effect will vary on heating method. Also, if components of varying shape are soldered together, it is recommended to set the soldering pad temperature according to the component most vulnerable to heat (e.g., surface mount LED).
- LED parts including the resin are not stable immediately after soldering ( when they are not at room temperature), any mechanical stress may cause damage to the product. Please avoid such stress after soldering, especially stacking of the boards which may cause the boards to warp and any other types of friction with hard materials.
- Recommended temperature profile for the Reflow soldering is listed as the temperature of the resin surface. Temperature distribution varies on heating method, PCB material, other components in the assembly, and mounting density.  
Typically, when FR-4 PCB is mounted with one LED and heated via far infrared and hot air, the difference in temperature between PCB and LED resin will be around 5 to 10°C.  
Please do not repeat the heating process in Reflow process more than twice.

## 【Recommended reflow soldering condition】



- Note 1 Temperature Profile for the reflow should be set to the surface temperature of resin which is on the top of LED. This should be the maximum temperature for soldering. Lowering the heating temperature and decreasing heating time is very effective in achieving higher reliability.
- Note 2 The reflow soldering process should be done up to twice (2 times Max). When second process is performed, interval between first and second process should be as short as possible to prevent absorption of moisture to resin of LED. The second soldering process should not be done until LEDs have returned to room temperature (by nature-cooling) after first soldering process.

## Soldering condition

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4. If soldering manually, Stanley recommends using a soldering iron equipped with temperature control. During the actual soldering process, make sure that the soldering iron never touches the LED itself, and prevent the LED's electrode heating temperature from reaching above the heating temperature of the solder pad. All repairs must be performed only once in the same spot; please avoid reusing components.
5. During soldering process, immediately after iron tip is cleaned please make sure that the soldering iron reaches the appropriate temperature before using. Also, please avoid applying any types of pressure to the soldered components before the solder has cooled down and hardened, as it may deteriorate solder performance and solder quality.

### 【Recommended manual soldering condition】

Temperature of iron tip	350°C Max.
Soldering duration, time	3sec.Max.,1 time

6. When using adhesive material for temporary fixing, thermosetting resin or Ultraviolet radiation (UV) setting resin with heat is recommended.  
《Curing conditions, Temperature:150°CMax./Time:120sec.Max.》
7. Flow soldering (dip soldering) is not recommended for this product.
8. Isopropyl alcohol is recommended for cleaning. Some chemicals, including Freon substitute detergents, might corrode the lens or the casing surface, which might cause discoloration, clouding, cracks and so on. Please review the reference chart below before cleaning. If water is used to clean (including the final cleaning process), please use pure water (not tap water), and completely dry the LED before using. Ultrasonic cleaning is not recommended.

Cleaning agents	Recommended / Not recommended
Isopropyl alcohol	✓ <b>Recommended</b>
Ethyl alcohol	✓ <b>Recommended</b>
Pure water	✓ <b>Recommended</b>
Trichloroethylene	x <b>Not recommended</b>
Chloroethene	x <b>Not recommended</b>
Acetone	x <b>Not recommended</b>
Thinner	x <b>Not recommended</b>

## Handling precautions

JFN1105H-TR

### 【 Other precautions 】

1. Stanley LED Lamps have semiconductor characteristics and are designed to ensure high reliability. However, the performance may vary depending on usage conditions
2. Absolute Maximum Ratings are set to prevent LED lamps from failing due to excess stress( temperature, current, voltage, etc.). Usage conditions must not exceed the ratings for a moment, nor do reach one item of absolute maximum ratings simultaneously.
3. In order to ensure high reliability from LED Lamps, variable factors that arise in actual usage conditions should be taken into account for designing. ( Derating of TYP., MAX Forward Voltage, etc.)
4. Please insert Protective Resistors into the circuit in order to stabilize LED operation and to prevent the device from igniting due to excess current.
5. Please check the actual performance in the assembly because the Specification Sheets are described for LED device only.
6. Please refrain from looking directly at the light source of LED at high output, as it may harm your vision.
7. The products are designed to operate without failure in recommended usage conditions. However, please take the necessary precautions to prevent fire, injury, and other damages should any malfunction or failure arise.
8. The products are manufactured to be used for ordinary electronic equipment. Please contact our sales staff beforehand when exceptional quality and reliability are required, and the failure or malfunction of the products might directly jeopardize life or health ( such as for airplanes, aerospace, transport equipment, medical applications, nuclear reactor control systems and so on).
9. When there is a process of supersonic wave welding etc. after mounting the product, there is a possibility of affecting on the reliability of junction part in package (junction part of die bonding and wire bonding). Please make sure there is no problem before using.
10. The formal specification sheets shall be valid only by exchange of documents signed by both parties.

## Packaging specifications

JFN1105H-TR

This product is baked (moisture removal) before packaging, and is shipped in moisture-proof packaging (as shown below) to minimize moisture absorption during transportation and storage. However, with regard to storing the products, Stanley recommends the use of dry-box under the following conditions is recommended. Moisture-proof bag as the packaging is made of anti-static material but packaging box is not.

### 【Recommended storage condition / Products warranty period】

Temperature	+5 to 30°C
Humidity	Under 60%

In the case of the package unopened , **1 year under 【 Recommended storage condition 】**.  
Please avoid rapid transition from low temp. condition to high temp. condition and storage in corroding and dusty environment.

### 【Time elapsed after package opening】

The package should not be opened until immediately prior to its use, and please keep the time frame between package opening and soldering which is **【maximum 1 year】**.

If the device needs to be soldered twice, both soldering operations must be completed within the year.

If any components should remain unused, please reseal the package and store them under the conditions described in the **【 Recommended storage conditions 】** above.

This product must be required to perform baking process (moisture removal) **for 48h (Min.) to 72h (Max.) at 60±5 degrees Celsius** if following conditions apply.

- 1.The enclose blue silica gel, which indicates the moisture level within the package, changes or loses its blue color.
2. If 1 year has passed after the package has been opened once.

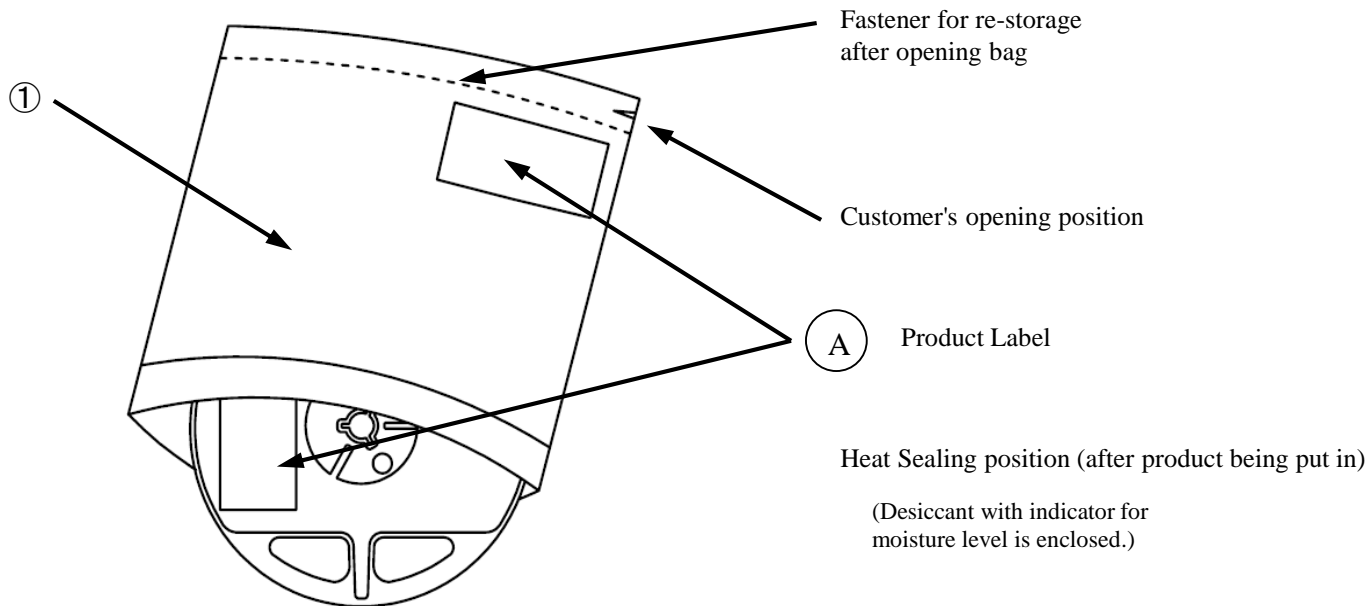
Baking process should be performed after LED having been taken out of the package.

Baking may be performed in the tape-reel form , however if it is performed with the reel stacked over one another, it may cause deformation of the reels and taping materials and later obstruct mounting. Please handle only once it has returned to room temperature. Provided that, baking process shall be 2 times Max.

# Packaging specifications

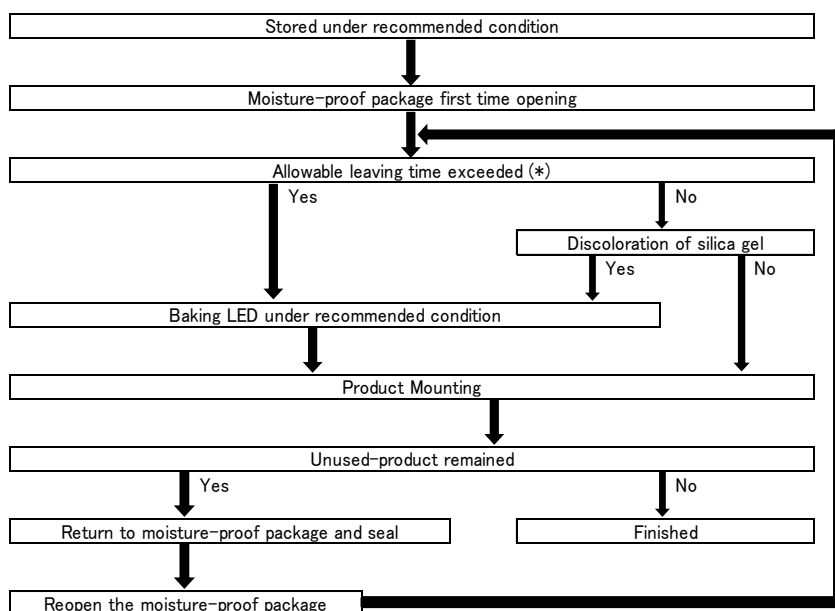
JFN1105H-TR

## 【Moisture-proof packaging specification】



No.	Part name	Material	Remarks
①	Moisture-proof bag with aluminum layer	PET+Al+PE	with ESD protection

## 【Flow chart-package opening to mounting】



Allowable leaving time means the maximum allowable leaving time after opening package, which depends on each LED type. The allowable leaving time should be calculated from the first opening of package to the time when soldering process is finished. When judging if the allowable leaving time has exceeded or not, please subtract the soldering time. The allowable leaving time after reopening should be calculated from the first opening of package, or from the time when baking process is finished.

## Packaging specifications

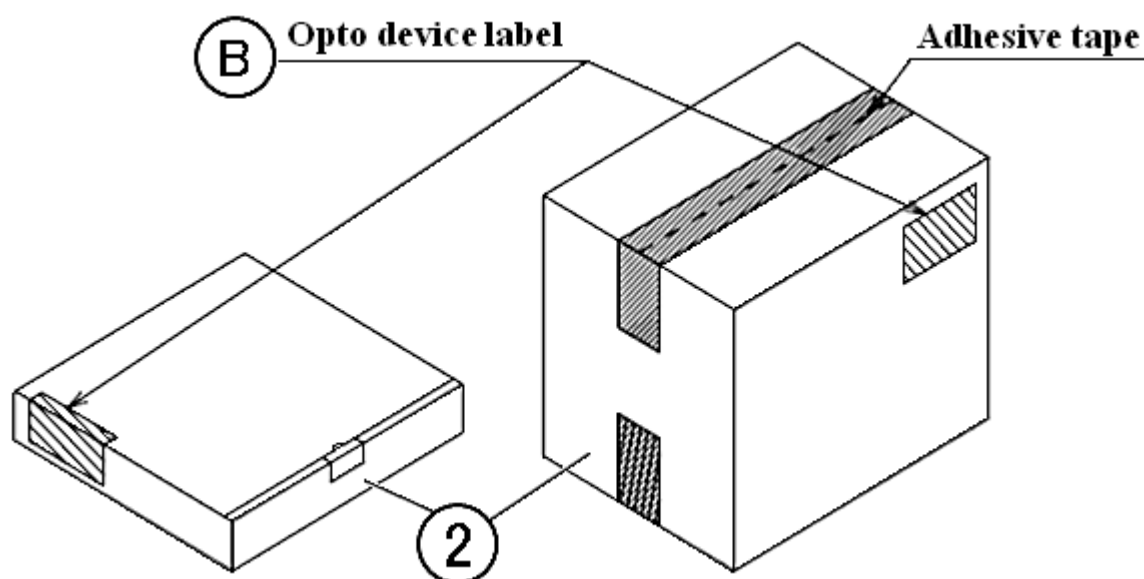
JFN1105H-TR

### 【 Packing box 】

(RoHS2/ELV compliant)

Box Type	Outline dimension L × W × H (mm)	Capacity of the box
Type A	280 × 265 × 45 (mm)	3 reels
Type B	310 × 235 × 265 (mm)	15 reels
Type C	440 × 310 × 265 (mm)	30 reels

The above measurements are reference values.



Type A

Material / box : Cardboard C5BF

Type B,C

Material / box : Cardboard K5AF

Partition : Cardboard K5AF

NO.	PART NAME	MATERIAL	REMARKS
②	Packing Box	Corrugated Cardbord	without ESD protection

## Packaging specifications

JFN1105H-TR

## 【 Label specification】

( acc.to JIS-X0503(Code-39)

## A Product label

The diagram shows a rectangular label with the following layout:

- Top header: STANLEY - STANLEY ELECTRIC CO., LTD. -
- Field A: A horizontal line for customer name.
- Field B: A barcode for parts number.
- Field C: A horizontal line for parts code, enclosed in parentheses.
- Field D: A horizontal line for packed parts quantity, followed by "PCS".
- Field E: A barcode for packed parts quantity.
- Field F: A horizontal line for lot number and rank, preceded by "Lot No. ".
- Field G: A barcode for lot number and rank.

- A. Parts number
- B. Bar-code for parts number
- C. Parts code (In-house identification code for each parts number)
- D. Packed parts quantity
- E. Bar-Code for packed parts quantity
- F. Lot number & rank  
(refer to lot number notational system for details )
- G. Bar-code for lot number & rank

## B Opto device label

The diagram shows a rectangular label with the following layout:

- Top header: STANLEY OPTO DEVICES
- Field A: A horizontal line for customer name, followed by the Japanese characters "御中".
- Field B: A horizontal line for parts type.
- Field C: A horizontal line for parts code, enclosed in parentheses.
- Field D: A horizontal line for parts number.
- Field E: A horizontal line for packed parts quantity, followed by "PCS".
- Field F: A horizontal line for carton number, preceded by "C/NO".
- Field G: A horizontal line for shipping date.
- Field H: A barcode for in-house identification number.
- Bottom header: STANLEY ELECTRIC CO., LTD.

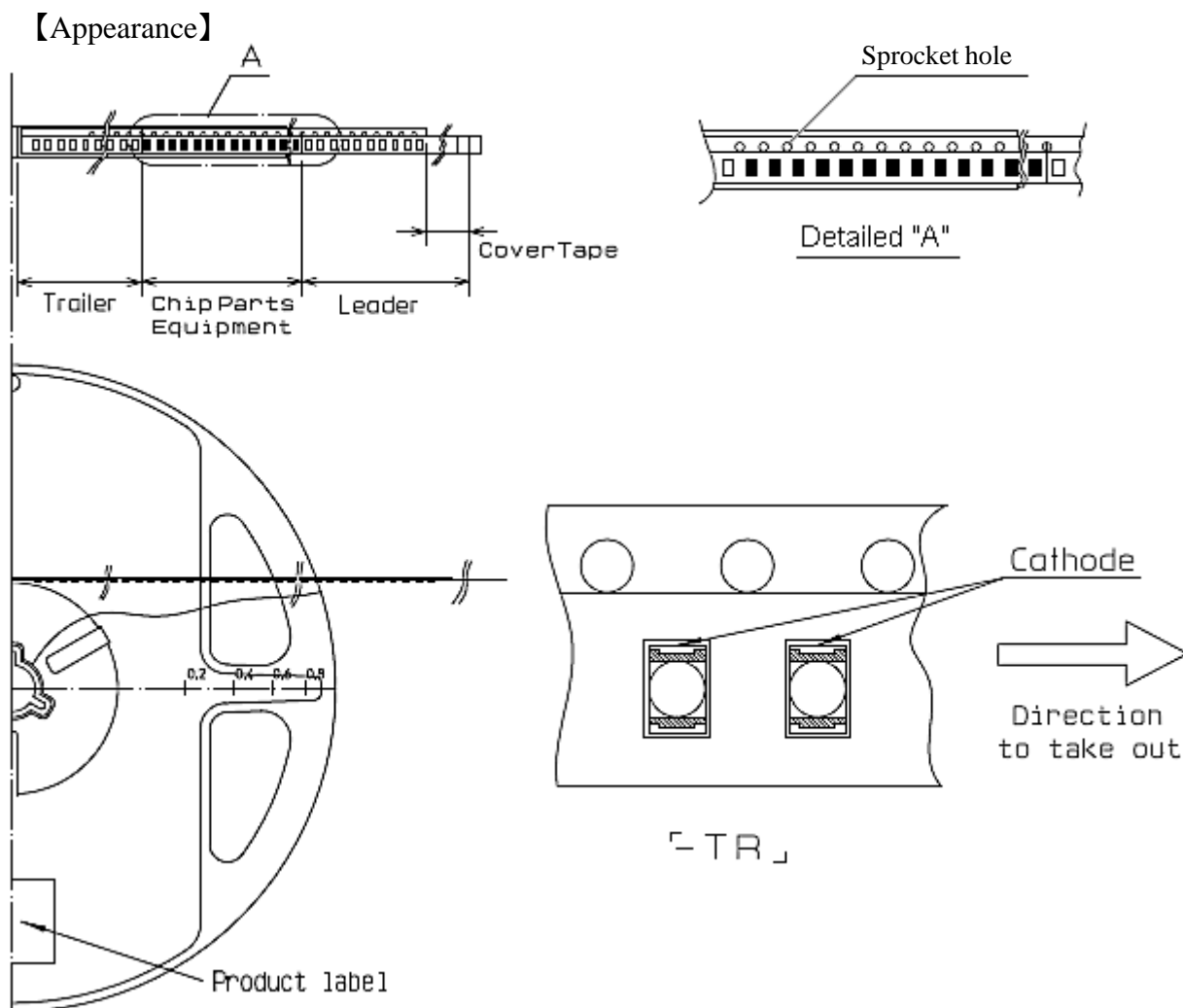
- A. Customer name
- B. Parts type
- C. Parts code
- D. Parts number
- E. Packed parts quantity
- F. Carton number
- G. Shipping date
- H. Bar-code for in-house identification number

&lt;Remarks&gt; Bar-code font : acc.to Code-39 (JIS-X0503)

# Taping and reel specifications

JFN1105H-TR

(acc.to JIS-C0806-03)



**Note**

“-TR” means cathode side of LEDs should be placed on the sprocket-hole side.

Items		Specifications	Remarks
Leader area	Cover-tape	Cover-tape shall be longer than 300mm without carrier-tape	The end of cover-tape shall be held with adhesive tape.
	Carrier-tape	Empty pocket shall be more than 25 pieces.	Please refer to the above figure for Taping & reel orientation .
Trailer area		Empty pocket shall be more than 40 pieces.	The end of taping shall be inserted into a slit of the hub.

## Taping and reel specifications

JFN1105H-TR

(acc.to JIS-C0806-03)

### 【Qty. per Reel】

2,000parts/reel

Minimum Qty. per reel might be 500 parts when getting less than 2,000 parts. In such case, parts of 500-unit-qty. shall be packed in a reel and the qty. shall be identified on the label.

### 【Mechanical strength】

Cover-tape adhesive strength shall be 0.1~1.0N ( An angle between carrier-tape and cover-tape shall be 170 deg. ) Both tapes shall be so sealed that the contained parts will not come out from the tape when it is bent at a radius of 15mm.

### 【Others】

Reversed-orientation, Up-side down placing, side placing and out of spec. parts mixing shall not be held. Max. qty. of empty pocket per reel shall be defined as follows.

Qty./reel	Max. qty. of empty pocket	Remarks
500	1	-
1,000	1	-
1,500	1	-
2,000	2	No continuance

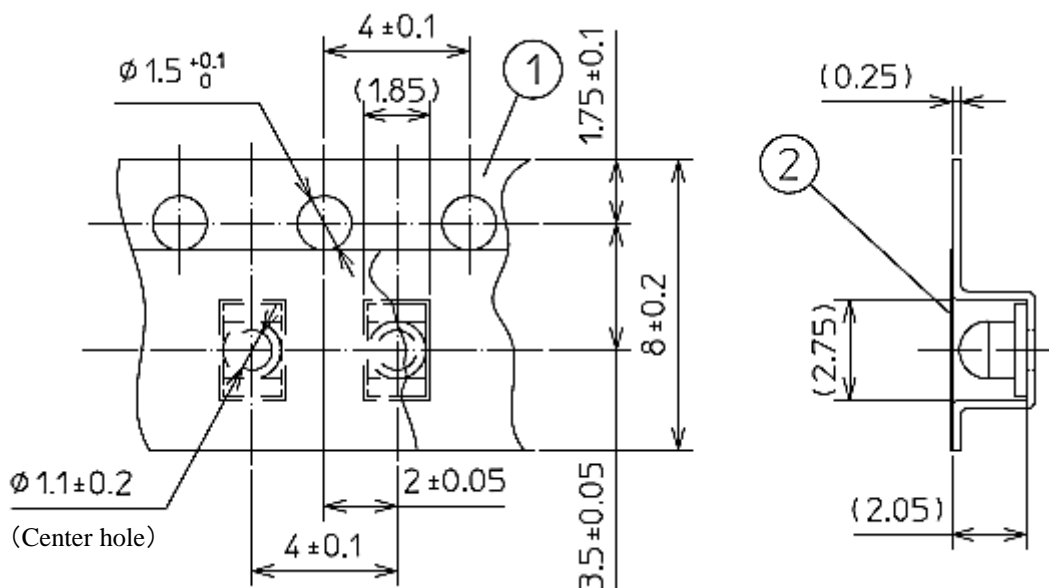
# Taping and reel specifications

JFN1105H-TR

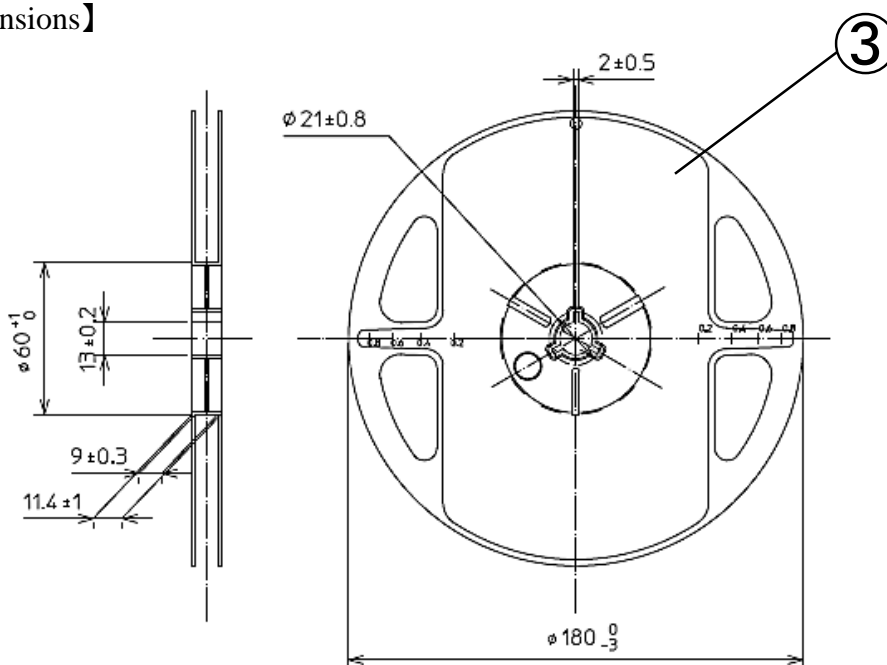
(acc.to JIS-C0806-03)

Unit: mm

## 【Taping Dimensions】



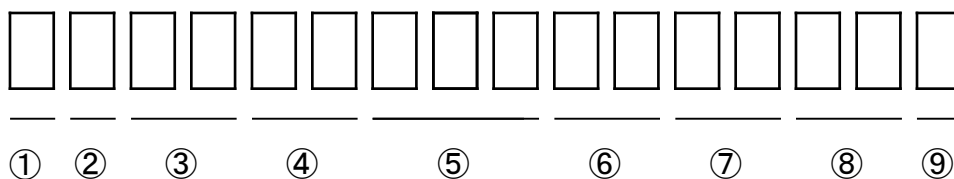
## 【Reel Dimensions】



SYMBOL	PART NAME	REMARKS
①	Carrier-tape	with ESD protection
②	Cover-tape	with ESD protection
③	Carrier-reel	without ESD protection

## Lot number notational system

JFN1105H-TR



- ① - 1digit : Production location (mark identify alphabet)
- ② - 1digit : Production year (The last digit of production year 2025→5, 2026→6, 2027→7, 2028 →8 …)
- ③ - 2digits : Production month (Jan. to Sep. , should be 01,02,03 …)
- ④ - 2digits : Production date
- ⑤ - 3digits : Serial number
- ⑥ - 2digits : Tape and reel following number
- ⑦ - 2digits : Total power rank.  
(If total power rank is 1 digit, "-" shall be dashed on the place for the second digit.  
If there is no identified rank, "- -" is used to indicate.)
- ⑧ - 2digits : Wavelength rank  
(If wavelength rank is 1 digit, "-" shall be dashed on the place for the second digit.  
If there is no identified rank, "- -" is used to indicate.)
- ⑨ - 1digit : VF Rank (If rank is not defined, "-" is described.)

## Compliance with RoHS2/ELV

JFN1105H-TR

This product is in compliance with RoHS2/ELV.

Prohibition substance and its criteria value of RoHS2/ELV are as follows.

- RoHS2 instruction ... Refer to following 1 to 10.
- ELV instruction ... Refer to following 1 to 4.

No.	Substances	Threshold
1	Lead and its compounds	0.1% (1,000ppm)
2	Mercury and its compounds	0.1% (1,000ppm)
3	Cadmium and its compounds	0.01% (100ppm)
4	Hexavalent chromium compounds	0.1% (1,000ppm)
5	PBB : Polybrominated Biphenyls	0.1% (1,000ppm)
6	PBDE : Polybrominated Biphenyl Ethers	0.1% (1,000ppm)
7	DEHP : Bis (2-ethylhexyl) phthalate	0.1% (1,000ppm)
8	BBP : Butyl benzyl phthalate	0.1% (1,000ppm)
9	DBP : Dibutyl phthalate	0.1% (1,000ppm)
10	DIBP : Diisobutyl phthalate	0.1% (1,000ppm)

# Reliability testing result

JFN1105H-TR

## 1. Reliability testing result

Test Item	Reference Standard	Test Condition	Duration	Failure
Operating life	EIAJ ED-4701 /100(101)	Ta=25°C I <sub>F</sub> =100mA	1,000h	0 / 20
High temperature operating life	EIAJ ED-4701 /100(101)	Ta=85°C I <sub>F</sub> =20.2mA	1,000h	0 / 20
Low temperature operating life	EIAJ ED-4701 /100(101)	Ta=-30°C I <sub>F</sub> =100mA	1,000h	0 / 20
Wet high temperature operating life	EIAJ ED-4701 /100(102)	Ta=60°C Rh=90% I <sub>F</sub> =53.5mA	1,000h	0 / 20
High temperature storage Life	EIAJ ED-4701 /200(201)	Ta=100°C	1,000h	0 / 20
Low temperature storage life	EIAJ ED-4701 /200(202)	Ta=-40°C	1,000h	0 / 20
Thermal shock	EIAJ ED-4701 /100(105)	Ta=-40°C to 100°C (each 15min)	200 cycles	0 / 20
Resistance to soldering heat	EIAJ ED-4701 /300(301)	Moisture Soak : Ta=30°C, Rh=70% 72h Preheating : 150 to 180°C 90 to 120sec. Soldering : 230 to 260°C 40sec. Max.	Twice	0 / 20
※ Human body model electrostatic discharge	EIAJ ED-4701 /300(304)	C=100pF R <sub>2</sub> =1.5kΩ ±2,000V	once of each polarity	0 / 10

※ Reference Test

## 2. Failure criteria

Item	Symbol	Condition	Failure Criteria
Relative Radiant Intensity	I <sub>E</sub>	I <sub>F</sub> =50mA	I <sub>E</sub> ≤ [Initial Value]×0.5
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =50mA	V <sub>F</sub> ≥ [Initial Value]×1.2
Reverse Current	I <sub>R</sub>	V <sub>R</sub> =5V	I <sub>R</sub> ≥ [Standard Max. Value] × 2.5

## Special Notice to Customers Using the Products and Technical Information Shown in This Data Sheet

- 1) The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.
- 2) For the purpose of product improvement, the specifications, characteristics and technical data described in the data sheets are subject to change without prior notice. Therefore it is recommended that the most updated specifications be used in your design.
- 3) When using the products described in the data sheets, please adhere to the maximum ratings for operating voltage, heat dissipation characteristics, and other precautions for use. We are not responsible for any damage which may occur if these specifications are exceeded.
- 4) The products that have been described to this catalog are manufactured so that they will be used for the electrical instrument of the benchmark (OA equipment, telecommunications equipment, AV machine, home appliance and measuring instrument).  
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