

## COBP PHOTO REFLECTOR

### ■ GENERAL DESCRIPTION

NJL5901R-1 is the compact surface mount type photo reflector, which miniaturized outside dimension compared with the current COBP reflector, NJL5901R. Compared with the NJL5901R, the mounting area of NJL5901R-1 is reduced to 54%. Moreover, the output current is 400 $\mu$ A typ. and is raised 180% compared with the NJL5901R.

### ■ FEATURES

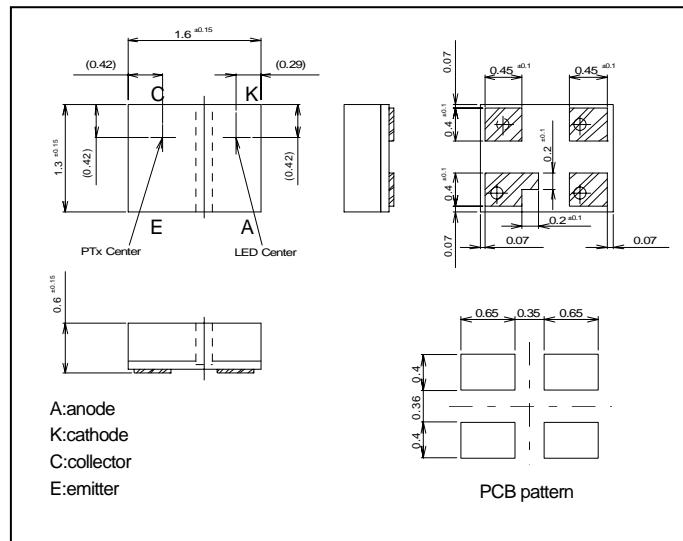
- Miniature, thin package : 1.3mm × 1.6mm × 0.6mm
- High output : 400 $\mu$ A typ.
- Pb free solder re-flowing permitted : 260°C, 2times
- Built-in visible light cut-off filter

### ■ APPLICATIONS

- Detecting the location of Lens unit for Cellular Phone's camera module
- Detecting the location of CD/DVD optical pickup head
- Detecting the rotation of various motors
- Paper edge detection and mechanism timing detection of facsimile, copy machine etc

### ■ OUTLINE (typ.)

Unit : mm



### ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Emitter			
Forward Current (Continuous)	IF	30	mA
Reverse Voltage (Continuous)	VR	6	V
Power Dissipation	PD	45	mW
Detector			
Collector-Emitter Voltage	VCEO	16	V
Emitter-Collector Voltage	VECO	6	V
Collector Current	IC	10	mA
Collector Power Dissipation	PC	25	mW
Coupled			
Total Power Dissipation	Ptot	60	mW
Operating Temperature	Topr	-20 to +85	°C
Storage Temperature	Tstg	-40 to +85	°C
Reflow Soldering Temperature	Tsol	260	°C

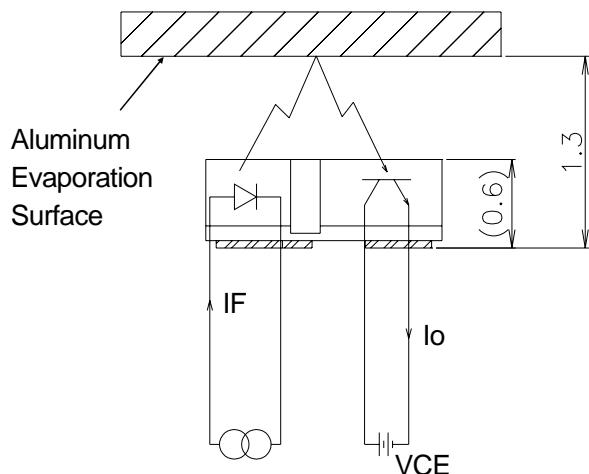
### ■ ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Emitter						
Forward Voltage	VF	IF=4mA	—	—	1.3	V
Reverse Current	IR	VR=6V	—	—	10	$\mu$ A
Capacitance	Ct	VR=0V,f=1MHz	—	25	—	pF
Detector						
Dark Current	ICEO	VCE=10V	—	—	0.2	$\mu$ A
Collector-Emitter Voltage	VCEO	IC=100 $\mu$ A	16	—	—	V
Coupled						
Output Current	IO	IF=4mA,VCE=2V,d=0.7mm	280	—	700	$\mu$ A
Operating Dark Current *1	ICEOD	IF=4mA,VCE=2V	—	—	5	$\mu$ A
Rise Time	tr	IO=100 $\mu$ A,VCE=2V,RL=1KΩ,d=0.7mm	—	30	—	$\mu$ s
Fall Time	tf	IO=100 $\mu$ A,VCE=2V,RL=1KΩ,d=0.7mm	—	30	—	$\mu$ s

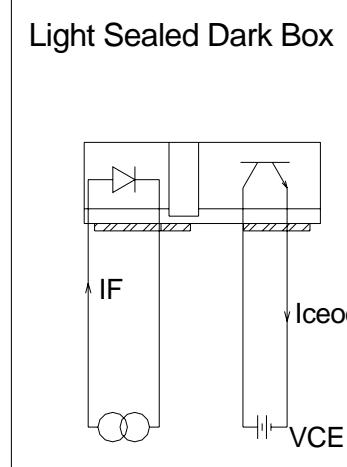
\*1 Icoed may increase according to the periphery situation of the surface mounted product.

## ■ OUTPUT CURRENT TEST CONDITION

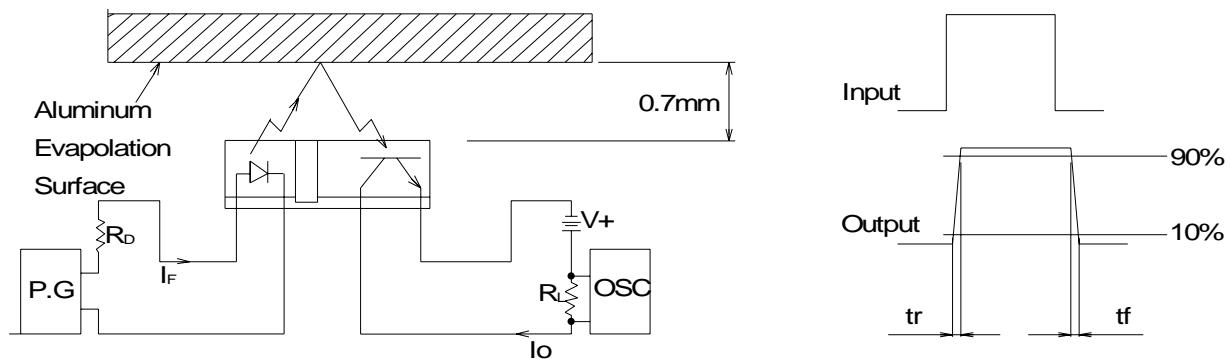
The infrared signal from LED is reflected at the aluminum surface



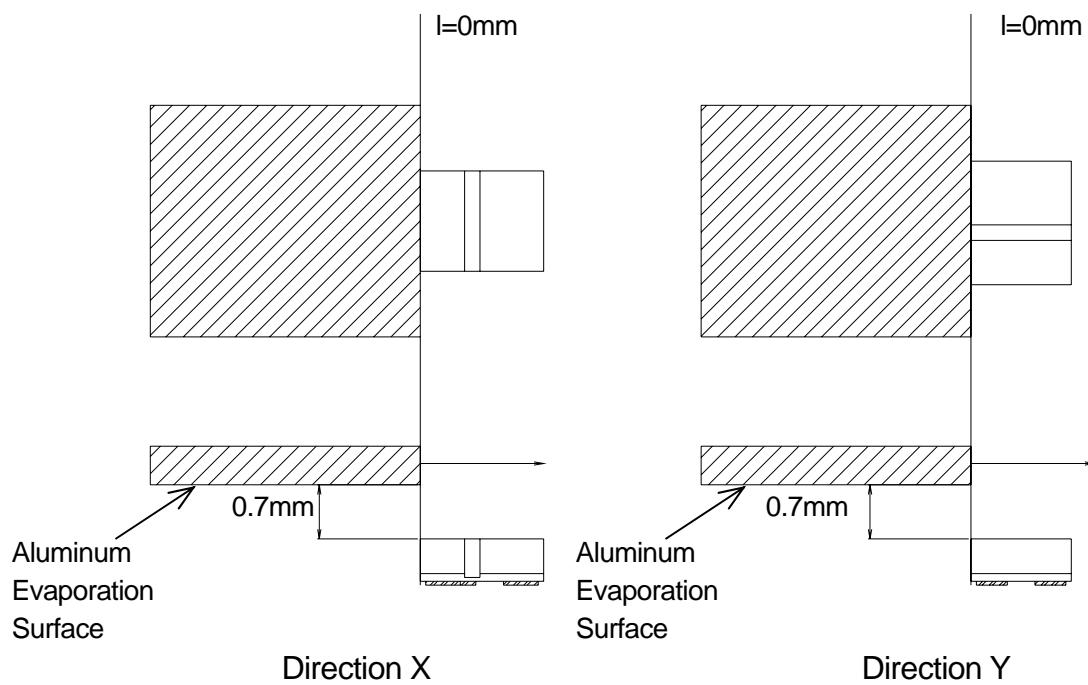
## ■ DARK CURRENT TEST CONDITION



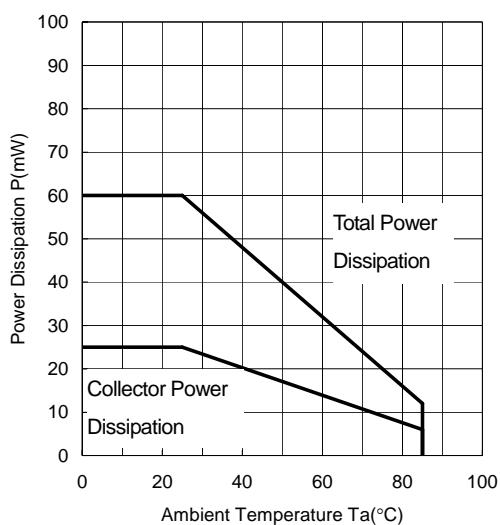
## ■ RESPONSE TIME TEST CONDITION



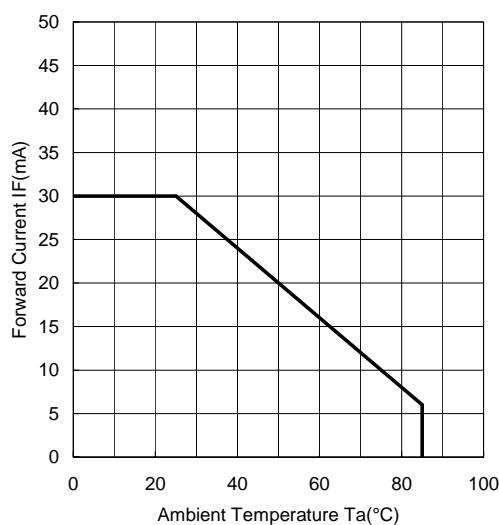
## ■ EDGE RESPONSE TEST CONDITION



**Power Dissipation vs. Temperature**

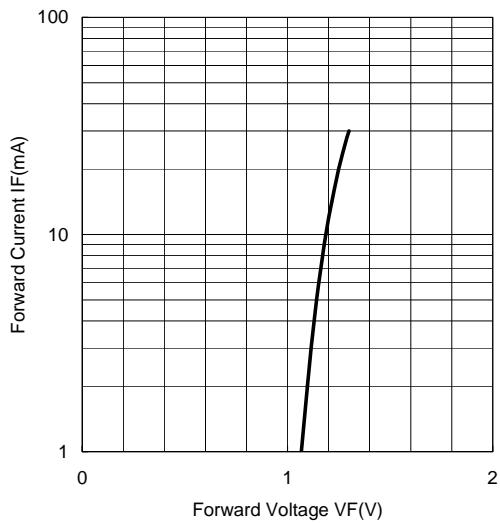


**Forward Current vs. Temperature**

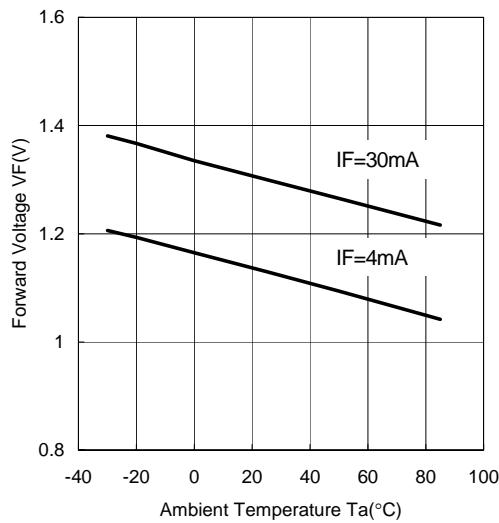


## ■ TYPICAL CHARACTERISTICS

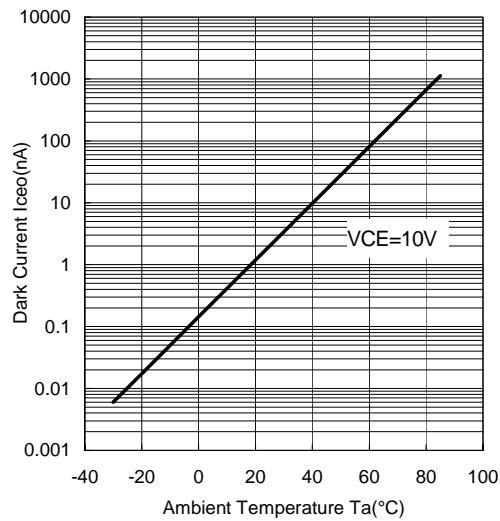
**Forward Voltage vs. Forward Current**



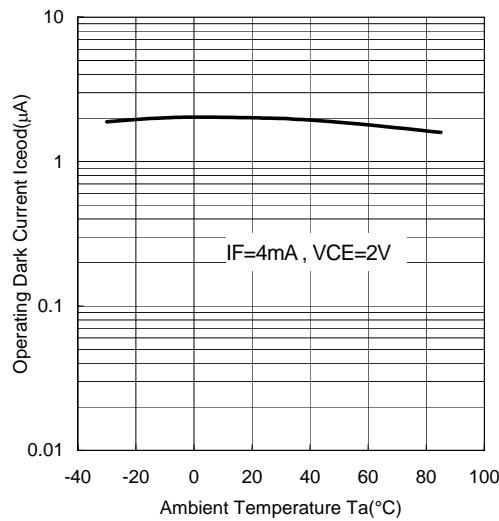
**Forward Voltage vs. Temperature**

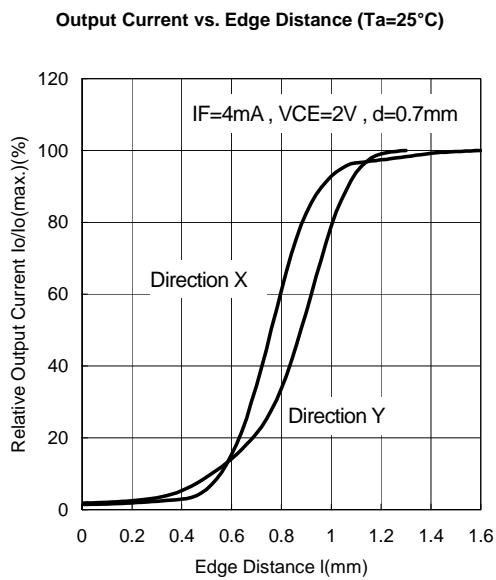
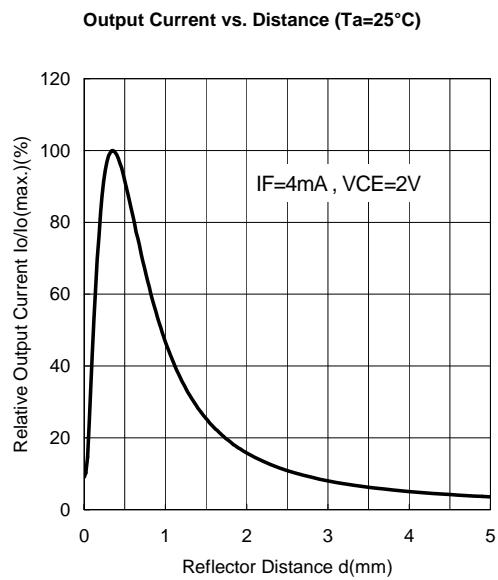
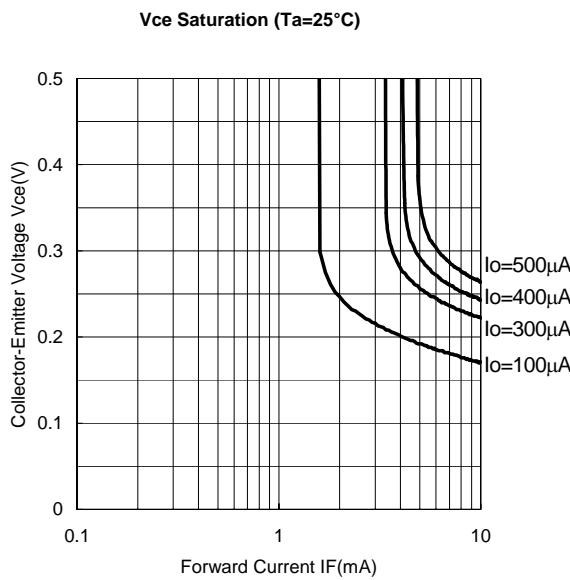
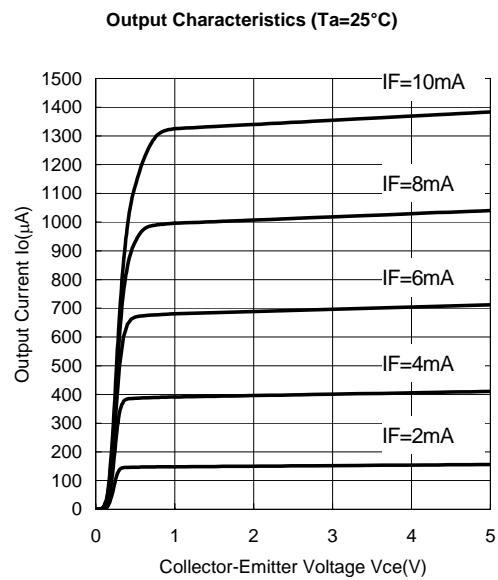
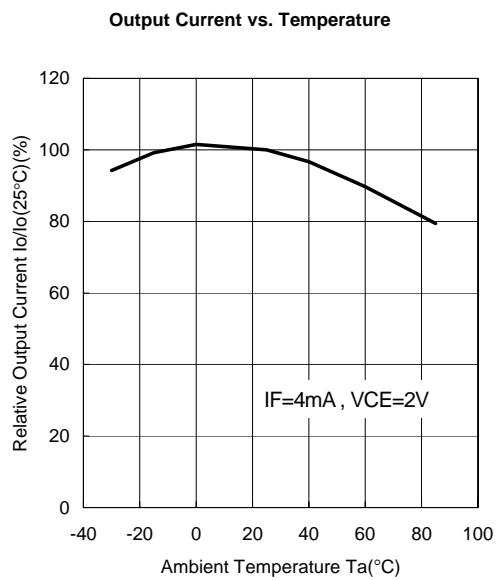
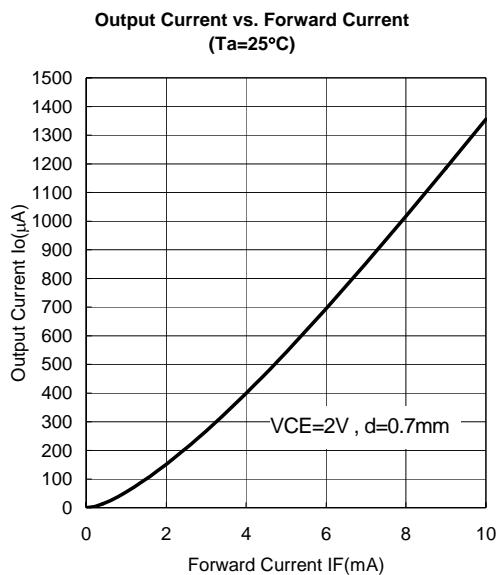


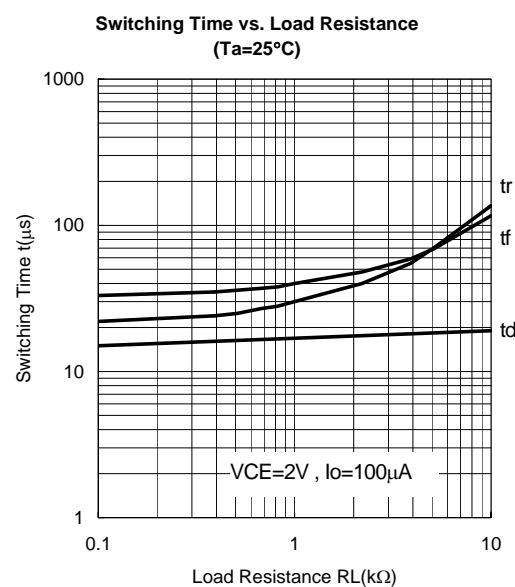
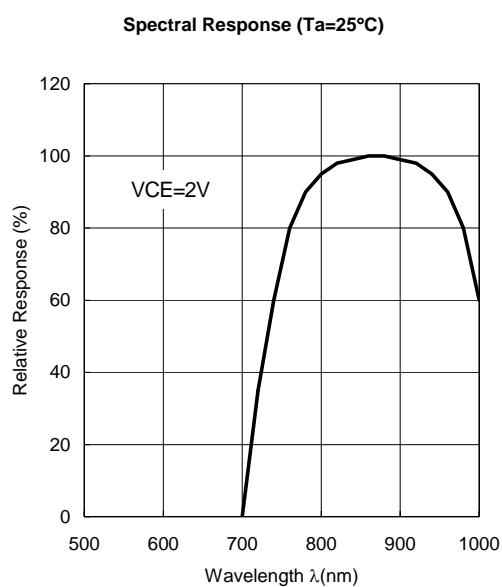
**Dark Current vs. Temperature**



**Operating Dark Current vs. Temperature**







## PRECAUTION FOR HANDLING

### 1. Soldering to actual circuit board

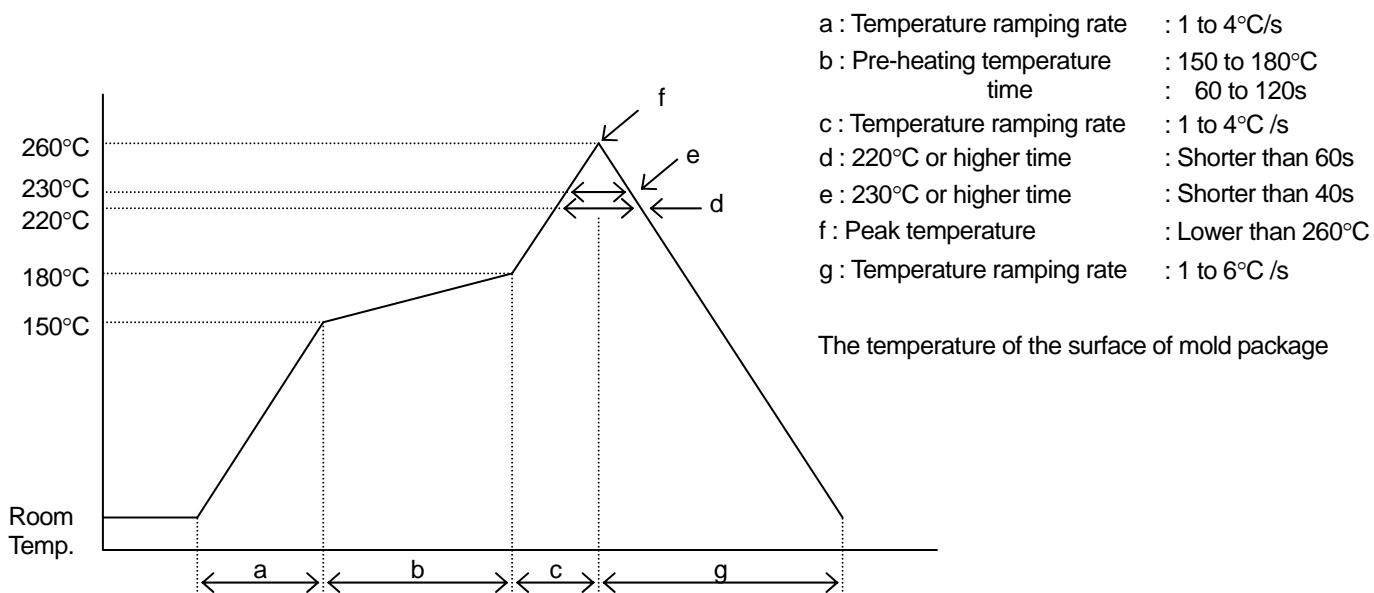
#### Soldering condition

The surface temperature of plastic package is lower than 260 °C.

#### Soldering Method

##### 1) Reflow Method

Soldering to be done within twice under the recommended condition mentioned below



##### 2) Reflow Method (In case of infrared heating)

The temperature profile is same as the above

Avoid direct irradiation to the plastic package because it may absorb the Infrared Radiation and its surface temperature will be higher than the lead.

##### 3) The other method

Avoid rapid heating up like dipping the devices directly into the melting solder or vapor phase method (VPS).

Solder the device in short time as soon as possible.

If the device is heated and kept in high temperature for longer time, its reliability would be affected.

### 2. Cleaning

Avoid washing the device after soldering by reflow method.

### 3. Attention in handling

- 1) Treat not to touch the lens surface.
- 2) Avoid dust and any other foreign materials on the lens surface such as paint, bonding material, etc.
- 3) Never to apply reverse voltage ( $V_{EC}$ ) of more than 6V on the photo transistor when measuring the characteristics or adjusting the system. If applied, it causes to lower the sensitivity.
- 4) When mounting, special care has to be taken on the mounting position and tilting of the device because it is very important to place the device to the optimum position to the object.

### 4. Storage

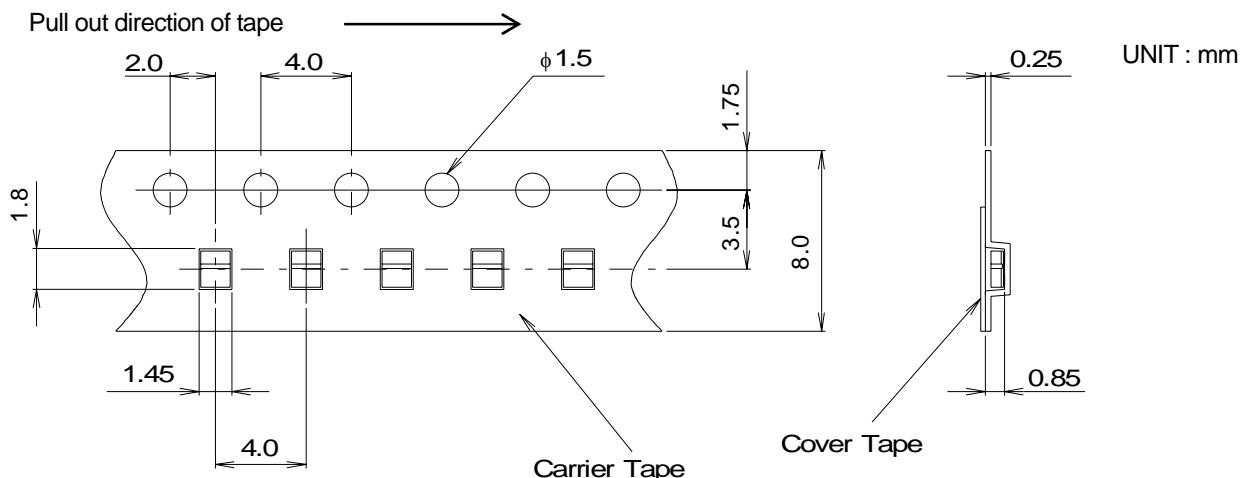
Mount the device as soon as possible after opening the envelope. In order to prevent from degradation by the moisture at the reflow process, the device is contained in deaeration packaging.

## NJL5901R-1 Taping Specification

(TE1)

**1. Taping Size**

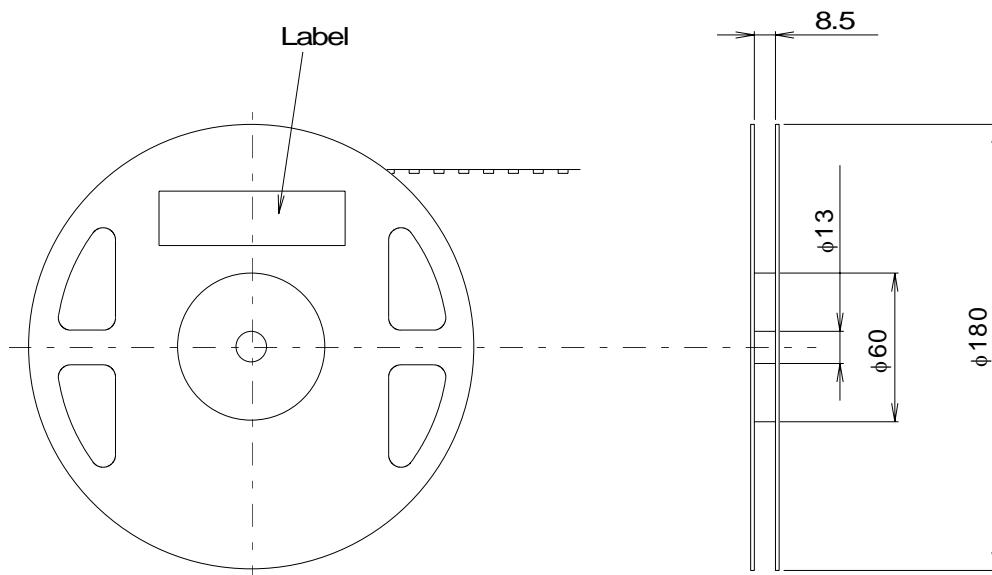
- 1) Carrier tape is used with Styrene type Carbonated Plastic.
- 2) Cover tape is used with electro statistically prevention treated Polyester type tape.
- 3) Product taping direction is to place the index mark against the pull out direction of the tape as in the drawing.

**2. Taping Strength**

Pull up the cover tape from the carrier tape, and when the opening angle comes around 10 to 15°, and the peeling-off strength is to be within the power of 20 to 70g.

**3. Packaging**

- 1) The taped products are to be rolled up on the taping reel as on the drawing.
- 2) Rolling up specification
  - 2-1) Start rolling : Carrier tape open space more than 20 Pieces.
  - 2-2) End of rolling : Carrier tape open space more than 20 Pieces, and 2 round of reel space at the cover tape only.
- 3) Taping quantity : 2,000 Pieces.
- 4) Seal off after putting each reels in a damp proof bag with silica gel (3 bags).



**[CAUTION]**  
The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

NJR:

[NJL5901R-TE1](#)

ООО "ЛайфЭлектроникс"

"LifeElectronics" LLC

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибуторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибуторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помочь разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)  
Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)