

## Ambient Light Sensor

### ■ GENERAL DESCRIPTION

The NJL6502R-1 is the ambient light sensor with optical filter to solve the interference problem by the infrared.  
Also, the spectral response is close to human eye.

### ■ FEATURES

1. Peak wavelength 580 nm
2. Photo current 420nA±15%
3. Illuminance linearity 0.1 to 100,000 Lux Condition :  $V_R=0V$ ,  $T_a=25^{\circ}C$
4. COBP Package size : 1.7 x 1.2 x 0.8 mm

### ■ APPLICATIONS

1. Cellular phone, TV, Car navigation system, PND, HUD, PDA, etc.  
to adjust the luminance of display.
2. Lighting equipment, Clock, Toy, etc.  
to control ON/OFF.
3. Diaphragm control of camera.

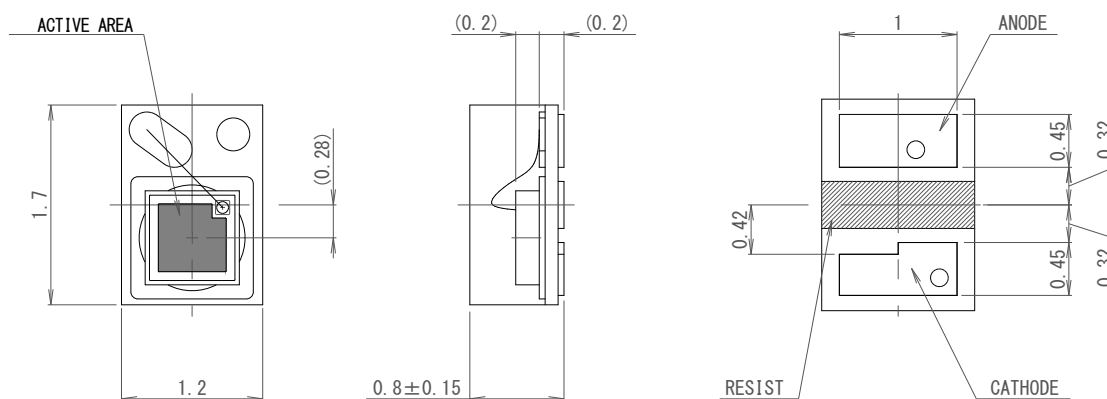
### ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER             | SYMBOL    | RATINGS  | UNIT |
|-----------------------|-----------|----------|------|
| Reverse Voltage       | $V_R$     | 6        | V    |
| Operating Temperature | $T_{opr}$ | -30~+85  | °C   |
| Storage Temperature   | $T_{stg}$ | -40~+100 | °C   |
| Soldering Temperature | $T_{sol}$ | 260      | °C   |

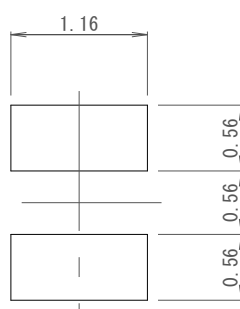
### ■ ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

| PARAMETER                                       | SYMBOL      | TEST CONDITION                  | MIN | TYP | MAX | UNIT |
|-------------------------------------------------|-------------|---------------------------------|-----|-----|-----|------|
| Forward Current                                 | $I_F$       | $I_F=1mA$ , $E_v=0Lux$          | —   | —   | 1   | V    |
| Dark Current                                    | $I_D$       | $V_R=5V$ , $E_v=0Lux$           | —   | —   | 0.5 | nA   |
| Photo Current 1                                 | $I_{L1}$    | $E_v=1,000Lux$ , White LED      | 357 | 420 | 483 | nA   |
| Photo Current 2                                 | $I_{L2}$    | $E_v=1,000Lux$ , Light source A | —   | 500 | —   | nA   |
| Light source A/White LED<br>Light Current Ratio | —           | $I_{L2}/I_{L1}$                 | —   | 1.2 | —   | —    |
| Peak Wavelength                                 | $\lambda_p$ | —                               | —   | 580 | —   | nm   |
| Capacitance                                     | $C_t$       | FREQ=10kHz, $V_R=0V$            | —   | 35  | —   | pF   |

## OUT LINE

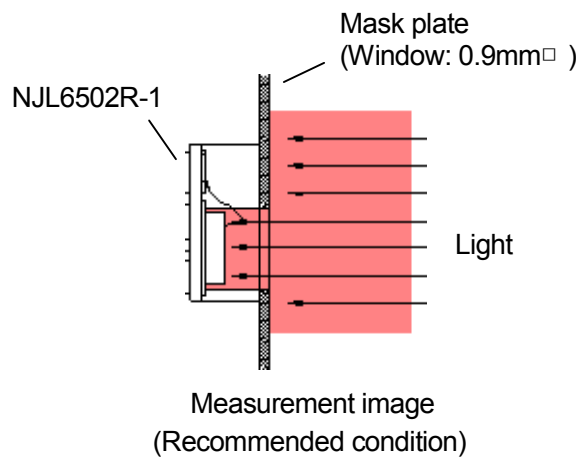
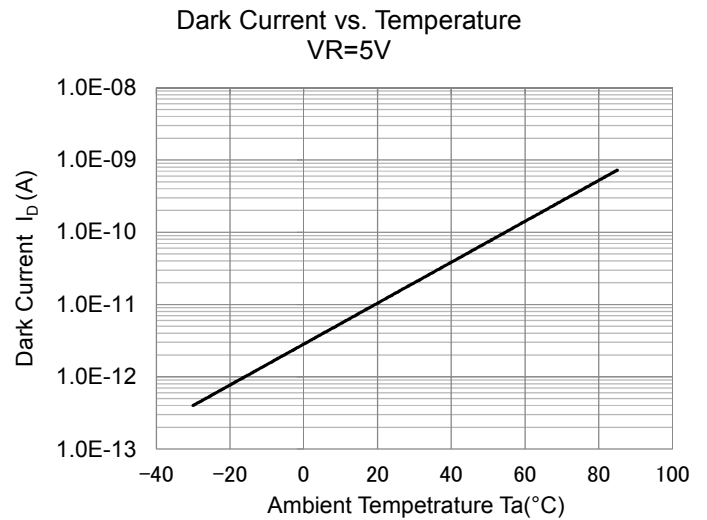
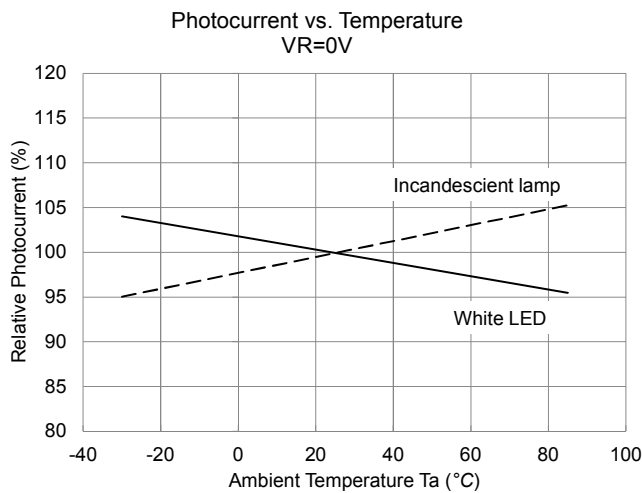
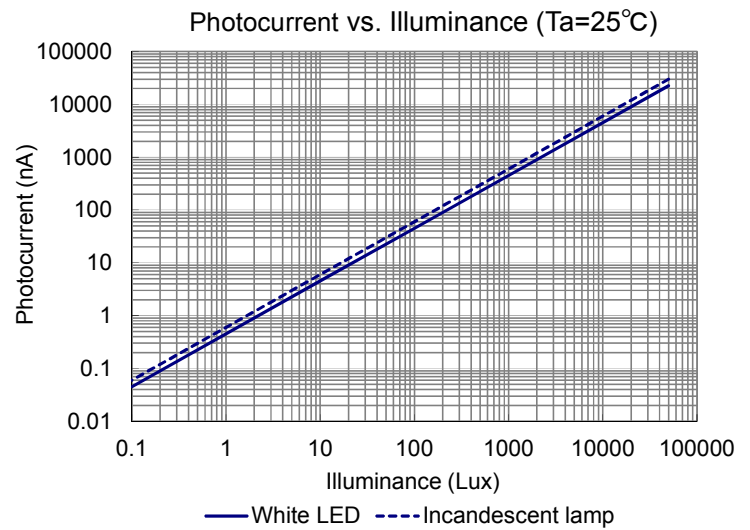
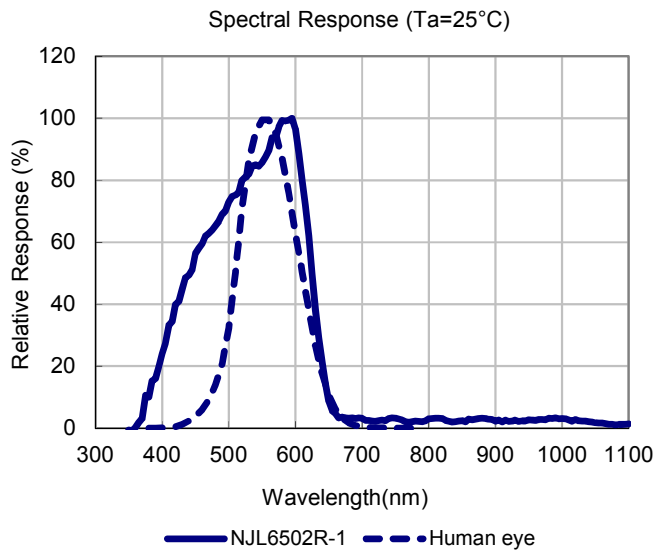


UNIT: mm  
GENERAL TOLERANCE:  $\pm 0.1$



PCB Pattern

## ■ TYPICAL CHARACTERISTICS



## ■ MOUNTING METHOD

### NOTE

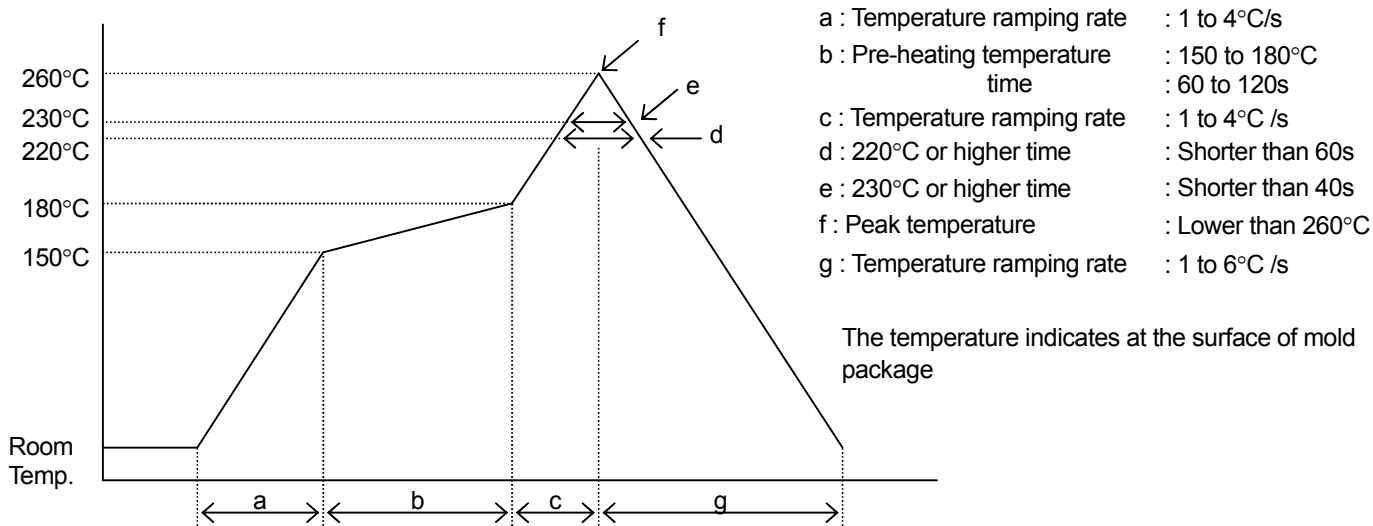
Mounting was evaluated with the following profiles in our company, so there was no problem.  
However, confirm mounting by the condition of your company beforehand.

The exposure of device under higher temperature may affect to the reliability of the products, it is recommended to complete soldering in the shortest time possible.

Mounting: Twice soldering is allowed.

## ■ INFRARED REFLOW SOLDERING METHOD

Recommended reflow soldering procedure



(NOTE1) Using reflow furnace with short wave infrared radiation heater such as halogen lamp

Regarding temperature profile, please refer to those for reflow furnace.

In this case the resin surface temperature may become higher than lead terminals due to endothermic alloy of black colored mold resin. Therefore, please avoid from direct exposure to mold resin.

(NOTE2) Other method

Such other methods of soldering as dipping the device into melted solder and vapor phase method (VPS) are not appropriate because the body of device will be heated rapidly. Therefore, these are not recommended to apply.

(NOTE3) The resin gets softened right after soldering, so, the following care has to be taken

Not to contact the lens surface to anything.

Not to dip the device into water or any solvents.

## ■ FLOE SOLDERING METHOD

Flow soldering is not possible.

## ■ IRON SOLDERING METHOD

Iron soldering is not possible.

**■ CLEANING**

Avoid washing the device after soldering by reflow method.

**■ IC STORAGE CONDITIONS AND ITS DURATION**

(1) Temperature and humidity ranges

|              |              |              |
|--------------|--------------|--------------|
| Pack Sealing | Temperature: | 5 to 40 [°C] |
|              | Humidity:    | 40 to 80 [%] |
| Pack Opening | Temperature: | 5 to 30 [°C] |
|              | Humidity:    | 40 to 70 [%] |

After opening the bag, solder products within 48 hours.

Avoid a dry environment below 40% because the products are easily damageable by the electrical discharge.

Store the products in the place where it does not create dew with the products due to a sudden change in temperature.

(2) When baking, place the reel vertically to avoid load to the side.

(3) Do not store the devices in corrosive-gas atmosphere.

(4) Do not store the devices in a dusty place.

(5) Do not expose the devices to direct rays of the sun.

(6) Do not allow external forces or loads to be applied to IC's.

(7) Be careful because affixed label on the reel might be peeled off when baking.

(8) The product is recommended to do the baking before using for the stability of the quality.

**■ BAKING**

In case of keeping expect above condition be sure to apply baking. (Heat-resistant tape)

Baking method:      Ta=60°C, 48 to 72h, Three times baking is allowed  
                             Ta=100°C, 2 to 6h, Three times baking is allowed

**■ STORAGE DURATION**

Within a year after delivering this device.

For the products stored longer than a year, confirm their terminals and solderability before they are used.

**■ Moisture Sensitivity Levels**

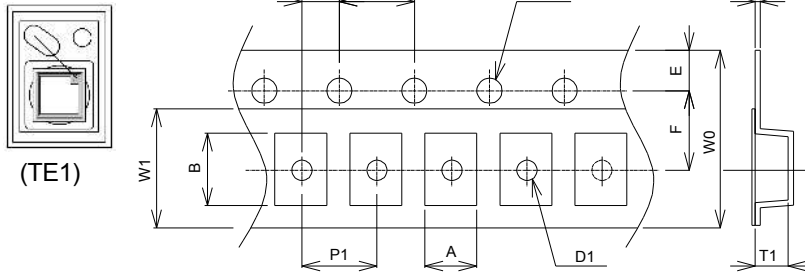
JEDEC : Level 5

## PACKING SPECIFICATION

PACKING DIMENTIONS UNIT : mm

Drawing direction →

Insert direction



| SIMBOL | DIMENSION                             | REMARKS          |
|--------|---------------------------------------|------------------|
| A      | 1.40 ±0.10                            | BOTOM DIMENSION  |
| B      | 2.00 ±0.10                            | BOTOM DIMENSION  |
| D0     | 1.50 <sup>+0.10</sup> <sub>-0.0</sub> |                  |
| D1     | 1.10 ±0.10                            |                  |
| E      | 1.75 ±0.10                            |                  |
| F      | 3.50 ±0.05                            |                  |
| P0     | 4.00 ±0.10                            |                  |
| P1     | 4.00 ±0.10                            |                  |
| P2     | 2.00 ±0.05                            |                  |
| T0     | 0.25 ±0.05                            |                  |
| T1     | 1.05 ±0.10                            |                  |
| W0     | 8.00 ±0.30                            |                  |
| W1     | 5.40 ±0.10                            | THICKNESS 0.1MAX |

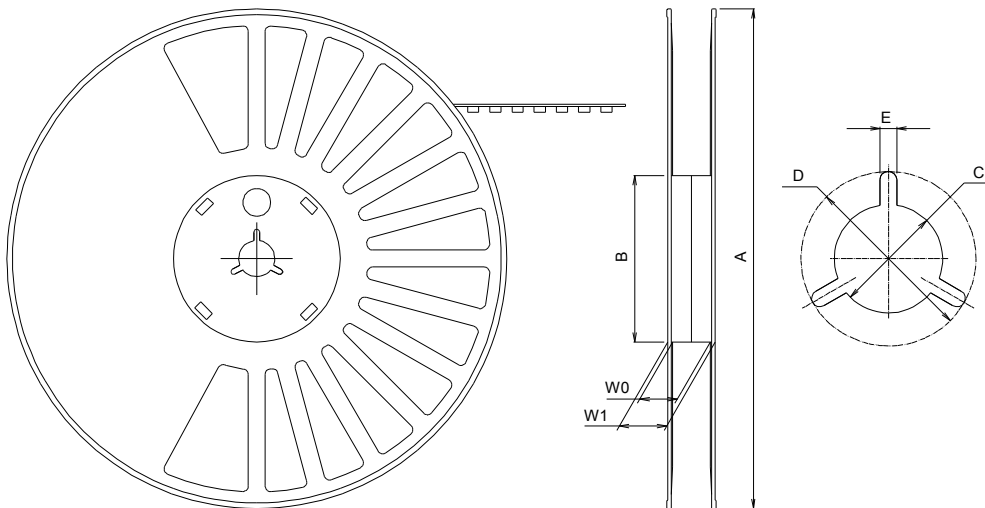
\* Carrier tape material : Polycarbonate(antistatic)  
Cover tape material : Polyester(antistatic)

## 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 40g.

## 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.



| SIMBOL | DIMENSION  |
|--------|------------|
| A      | φ180.0±1.0 |
| B      | φ60.0±1.0  |
| C      | φ13.0±0.2  |
| D      | φ21.0±0.8  |
| E      | 2.0±0.5    |
| W0     | 9.5±1.0    |
| W1     | 13.1±1.0   |

\* Reel material : PPE(antistatic)

### [CAUTION]

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