

Ambient Light Sensor

■ GENERAL DESCRIPTION

The NJL7502L is the photo transistor which spectral response is similar to human eye.

■ FEATURES

1. Peak wavelength 560 nm

2. Photo current 33 µA typ. Condition : White LED, 100Lux

3. Lead pin package

■ APPLICATIONS

Room light, Toy, TV, PDP, Clock, Refrigerator, etc.

to adjust the luminance of display

to control ON/OFF

Replacement of CdS

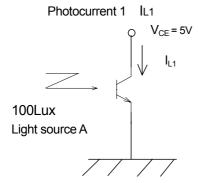
■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------------|-----------|-------------|------|
| Collector - Emitter Voltage | V_{CEO} | 70 | V |
| Emitter - Collector Voltage | V_{ECO} | 10 | V |
| Photocurrent | IL | 10 | mA |
| Power Dissipation | P_{D} | 150 | mW |
| Operating Temperature | Topr | -40 to +85 | °C |
| Storage Temperature | Tstg | -40 to +100 | °C |
| Soldering Temperature | Tsol | 260 | °C |

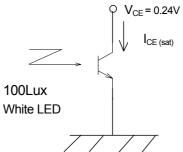
■ ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

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|---|----------------------|---|-----|-----|-----|------|--|
| PARAMETER | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNIT | |
| Photocurrent 1 | I _{L1} | V _{CE} =5V, Light source A, 100Lux | | 46 | | μΑ | |
| Photocurrent 2 | I _{L2} | V _{CE} =5V, White LED, 100Lux | 15 | 33 | 73 | μA | |
| Dark Current | I_D | V _{CE} =20V | | _ | 0.1 | μΑ | |
| Peak Wavelength | λ_{P} | | | 560 | | nm | |
| Collector - Emitter Saturation Current | I _{CE(sat)} | V _{CE} =0.24V, White LED, 100Lux | 10 | | | μΑ | |
| Emitter - Collector Voltage | V _{ECL} | I _{ECL} =1μA , White LED, 100Lux | 9 | | | V | |
| Half Angle | Θ _{1/2} | _ | | ±20 | | deg. | |
| Rise Time | tr | V_{CE} =5V, I_{C} =1mA, R_{L} =100 Ω | _ | 10 | _ | μs | |
| Fall Time | tf | V_{CE} =5V, I_{C} =1mA, R_{L} =100 Ω | _ | 10 | _ | μs | |

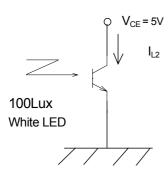
■ TEST CIRCUIT



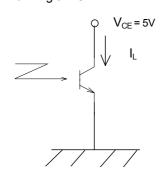
Collector - Emitter Saturation Current ICE(sat)



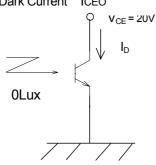
Photocurrent 2 IL2



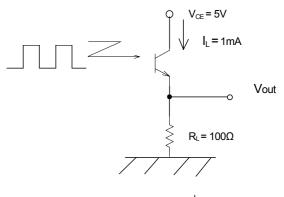
Half Angle $\Theta_{1/2}$



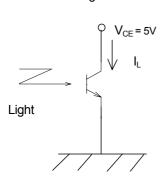
Dark Current ICEO

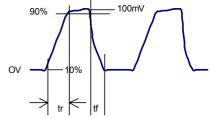


Rise Time tr Fall Time tf

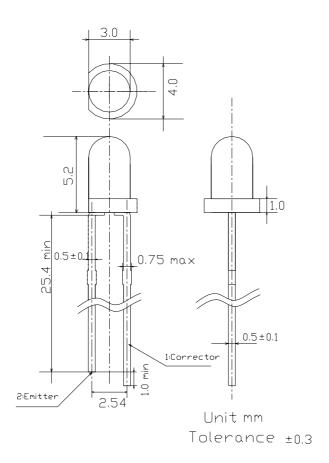


Peak Wavelength λP



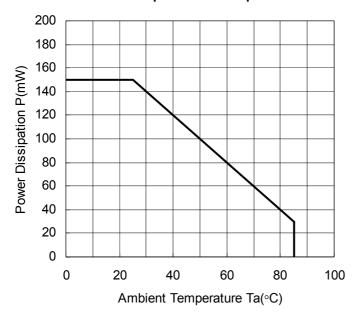


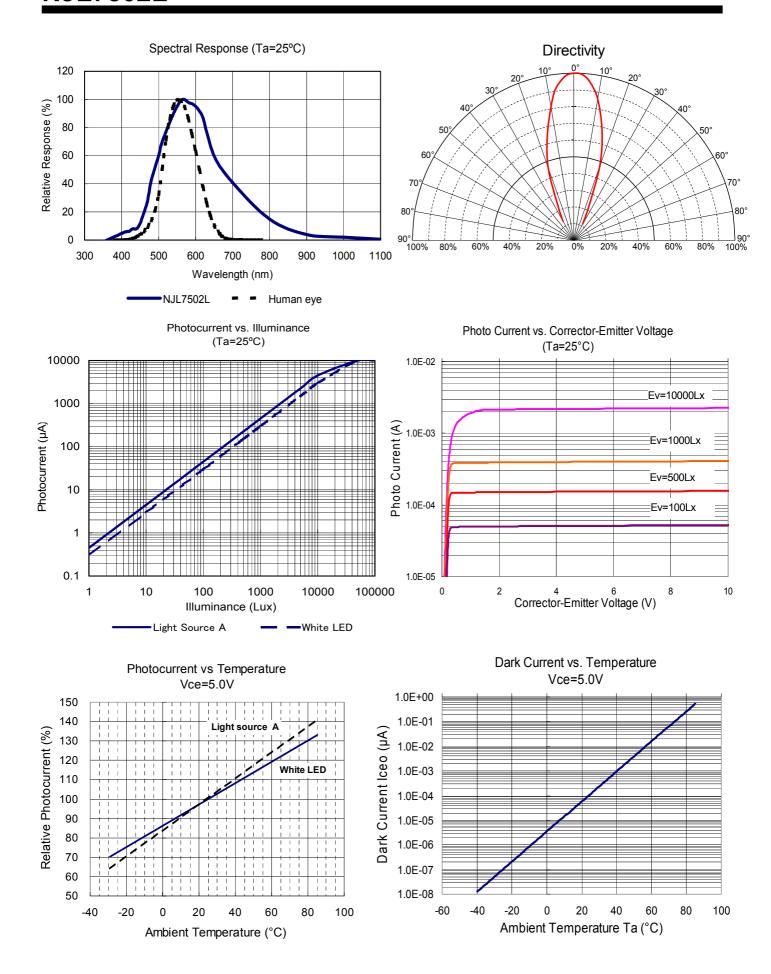
■ OUTLINE (TYP.)

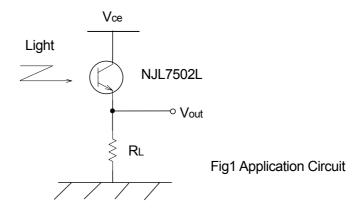


■ TYPICAL CHARACTERISTICS

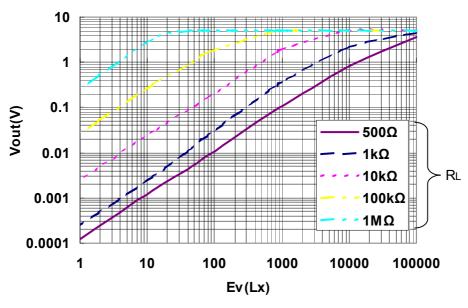
Power Dissipation vs. Temperature

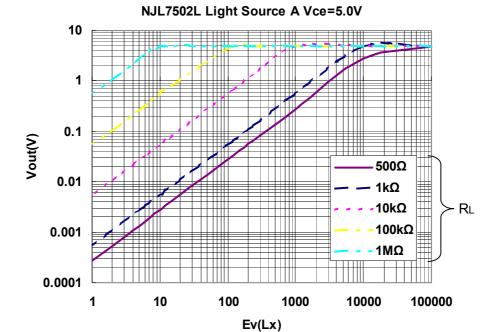




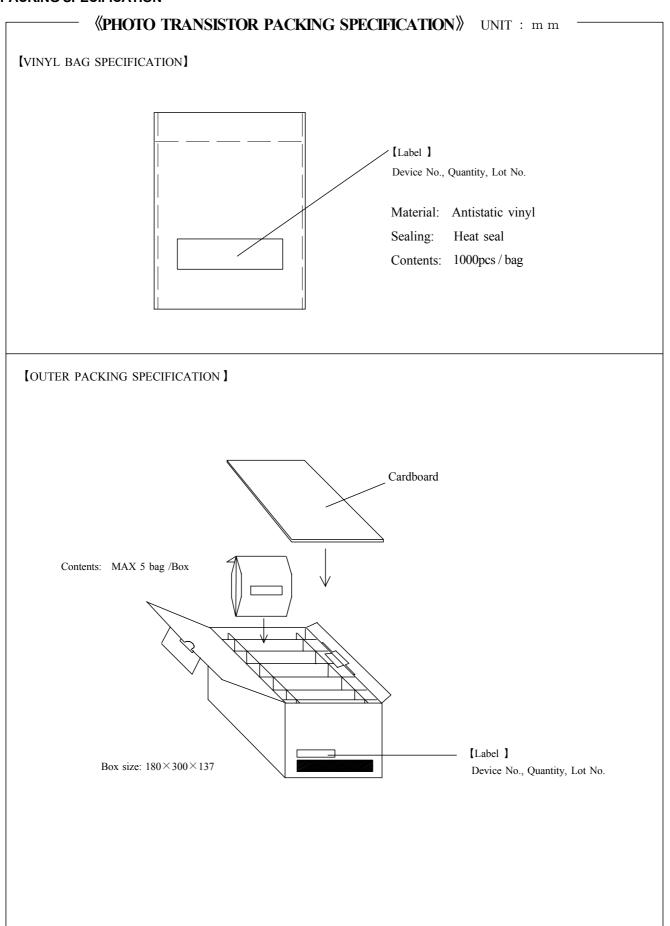


NJL7502L White LED Vce=5.0V





■ PACKING SPECIFICATION



■ MOUNTING METHOD

NOTE

 $\label{lem:mounting was evaluated with the following profiles in our company, so there was no problem.$

However, confirm mounting by the condition of your company beforehand.

Mounting: Twice soldering is allowed.

REFLOW SOLDERING METHOD

*Reflow soldering is not possible.

FLOW SOLDERING METHOD

* Flow soldering is not possible.

IRON SOLDERING METHOD

* Recommended Iron Soldering conditions

Temperature of Iron : 350°C or less Soldering time : within 3s (At a lead)

Soldering Position : At least 4mm away from body. (Prevent the temperature rise of the body.)

(Note1) Do not apply load to body and lead when soldering.

(Note2) Do not heat the whole body when soldering.

■ CLEANING CONDITIONS

(1) Please refrain from cleaning of the device as much as possible.

A void the solvent or the vapor solvent from the resin of the device even during the mounting and using.

(2) This device can be cleaned if it is only a lead part when the cleaning of flux etc is indispensable.

How ever, clean the device by using the following solvent by the condition within 35°C and 3minute.

Solvent: isopropyl alcohol, methyl alcohol

NJL7502L

■ IC STORAGE CONDITION AND ITS DURATION

(1) Temperature and humidity ranges.

Temperature: 5 to 40 (°C) Humidity : 30 to 75 (%)

Normally a package product does not have a quality problem such as package crack because of absorbing humidity. However, the above stated conditions are recommended for storage. Please note that an electrostatic discharge is apt to destroy the product under the dried environment below 30%.

It is also recommended to store the products avoiding the place where it creates dew with the products due to a sudden change in temperature.

- (2) Please do not expose the products in the corrosive atmosphere.
- (3) Please store the products in dust free place.
- (4) Please do not expose the products to a direct sun light.
- (5) Please store the IC without adding a load.
- (6) No need to worry about baking under above storage terms.
- (7) The leads are silver plated and they are discolored if the device is left open to the air for long after taken out of the envelop. It causes deterioration of soldering characteristics. Mount the device as short as possible after opening the envelope.

■ STORAGE DURATION

Please store the products less than one year after opening the envelop is made.

For the products which storage duration are longer than one year, please check the solderability and if the leads are rusty before they are used.

[CAUTION]

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