# INFRARED REMOTE CONTROL RECEIVER

## ■ GENERAL DESCRIPTION

NJL60H/V000A series are small and high performance receiving devices for infrared remote control system. Regarding the transmission distance, NJL60H/V000A is longer than NJL60H/V000. The pulse width of NJL60H/V000A series are stable relating to commander's power or distance between transmitter and receiver. NJL60H/V000A series have five kinds of package including three types of metal case to meet the various applications.

## ■ FEATURES

1. Mold type and metal case type to meet the design of front panel.
2. Elliptic lens to improve the characteristic against light noise from the upper and lower side.
3. Line-up for various center carrier frequencies.

## ■ APPLICATIONS

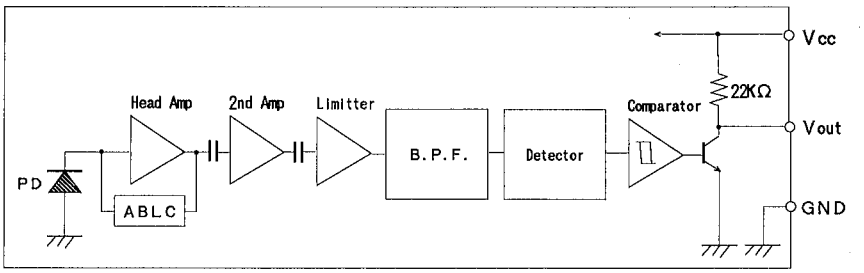
1. AV instruments such as Audio, TV, VCR, CD, MD, etc.
2. Home appliances such as Air-conditioner, Fan, etc.
3. The other equipments with wireless remote control.

## ■ LINE-UP

| Mold/ Metal Case | Mold Type | | Metal Case Type | | |
|---|---|---|---|---|---|
| View | Top | Side | Top | | |
| Height / Carrier Frequency | 5.4 mm | 6.3 mm | 8 mm | 11 mm | 15 mm |
| fo=36 KHz | NJL61H360A | NJL61V360A | NJL62H360A | NJL63H360A | NJL64H360A |
| 36.7 KHz | NJL61H367A | NJL61V367A | NJL62H367A | NJL63H367A | NJL64H367A |
| 38 KHz | NJL61H380A | NJL61V380A | NJL62H380A | NJL63H380A | NJL64H380A |
| 40 KHz | NJL61H400A | NJL61V400A | NJL62H400A | NJL63H400A | NJL64H400A |
| 56.8 KHz | NJL61H568A | NJL61V568A | NJL62H568A | NJL63H568A | NJL64H568A |

※ Regarding the other frequencies or packages, please contact to New JRC individually.

## ■ BLOCK DIAGRAM




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

| | | |
|---|---|---|
| Supply Voltage | $V_{CC}$ | 6.3V |
| Operating Temperature Range | $T_{opr}$ | -30 °C — +85 °C |
| Storage Temperature Range | $T_{stg}$ | -40 °C — +85 °C |
| Soldering Temperature | $T_{sol}$ | 260 °C 5sec 4.0mm from mold body |

## ■ RECOMMENDED OPERATING CONDITION

Supply Voltage Range $V_{CC}$ 4.5V ~ 5.5V

## ■ ELECTRO-OPTICAL CHARACTERISTICS ($V_{CC}$ = 5.0V, Ta = 25°C)

| PARAMETER | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Supply Current | $I_{CC}$ | No Signal Input | — | — | 3 | mA |
| Transmission Distance | $L_C$ | Direction of Ray Axis *1 | 13 | 18 | — | m |
| Directivity | $\theta_L$ | Angle of half Lc, Horizontal *2 | — | 50 | — | deg |
| | $\theta_V$ | Angle of half Lc, Vertical *2 | — | 35 | — | deg |
| Output Voltage Low | $V_L$ | No Load | — | 0.2 | 0.5 | V |
| Output Voltage High | $V_H$ | No Load | 4.5 | — | — | V |
| Low Level Pulse Width | $T_{WL}$ | See Test Circuit | 400 | — | 800 | μs |
| High Level Pulse Width | $T_{WH}$ | See Test Circuit | 400 | — | 800 | μs |
| Center Frequency | $f_O$ | See Line-up | 36.0 | — | 56.8 | KHz |

Note *1: Test with each center carrier frequency under the test condition shown below.
*2: Place major axis of elliptic lens in horizontal direction and minor in vertical.

## ■ TEST METHOD

Test condition is as follows:

(1) Standard Transmitter:
Transmitting waveform is shown in Fig.1. Transmitting power should be adjusted so that output voltage Vout will be 400 mVp-p.
Regarding IR LED used for transmitter, $\lambda p$ = 940nm, $\Delta\lambda$ = 50nm.
Regarding photo diode, Sensitivity S = 26nA/Lx, in case light source temperature 2856°K, Ee = 100Lx, VR = 5V

(2) Test system: Shown in Fig.3.

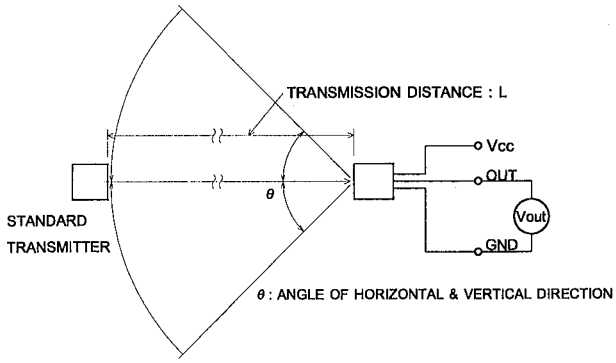



Fig. 3 TEST SYSTEM

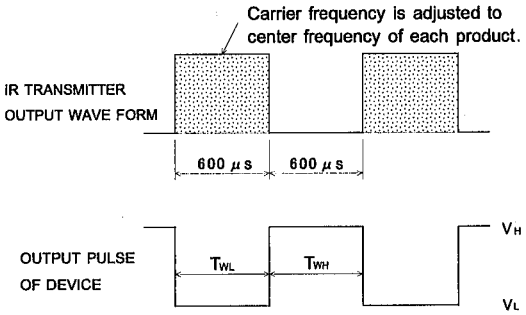



Fig. 1 TRANSMITTER WAVE FORM

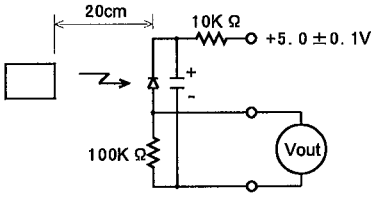
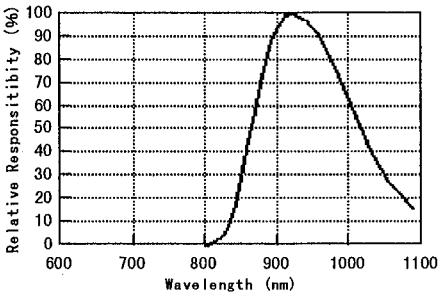


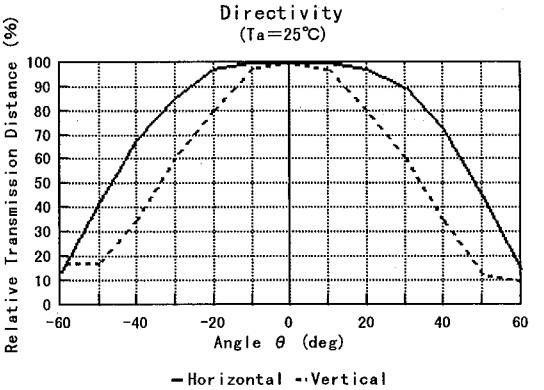

Fig. 2 STD. TRANSMITTER TEST CIRCUIT

## ■ TYPICAL CHARACTERISTICS

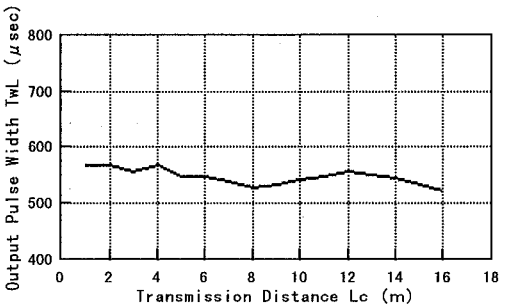
Spectral Response
(Ta=25℃)



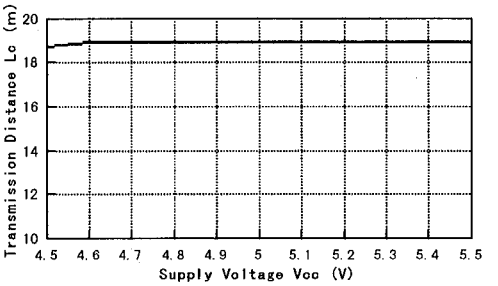

Directivity
(Ta=25℃)



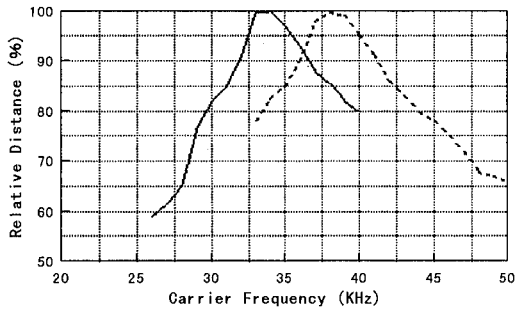

Output Pulse Width vs. Distance
(Input Pulse Width=600μs, Vcc=5.0V, Ta=25℃)




Transmission Distance vs. Supply Voltage
(Ta=25℃)

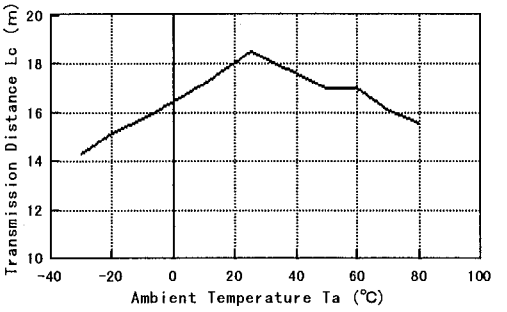



Transmission Distance vs. Carrier Frequency
(Vcc=5.0V, Ta=25℃)

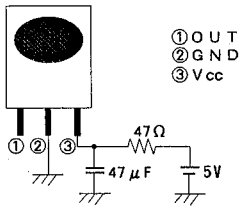



— fo=32.75KHz -- fo=38KHz

Transmission Distance vs. Temperature
(Vcc=5.0V)

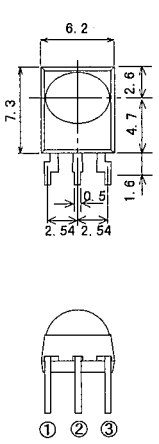


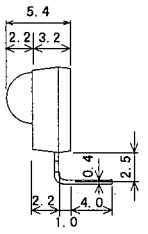
## ■ RECOMMENDED APPLICATION CIRCUIT




RC Filter should be connected closely between Vcc pin and GND pin.

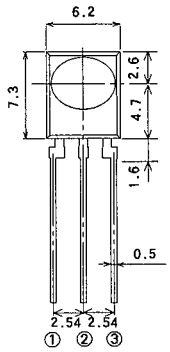
## ■ OUTLINE

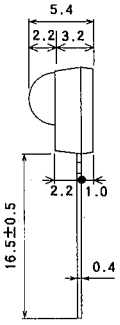



①OUT
②GND
③Vcc

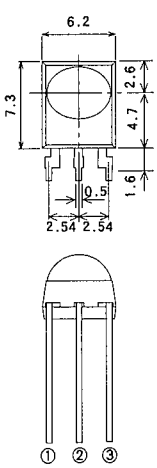
NJL61H000A
UNIT : mm

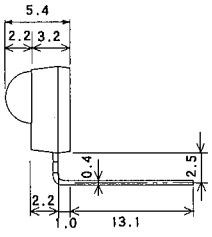



①OUT
②GND
③Vcc

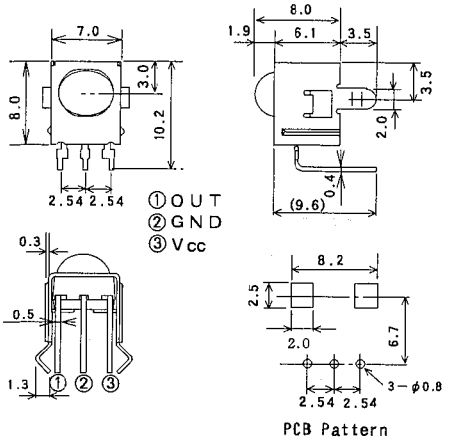
NJL61V000A
UNIT : mm



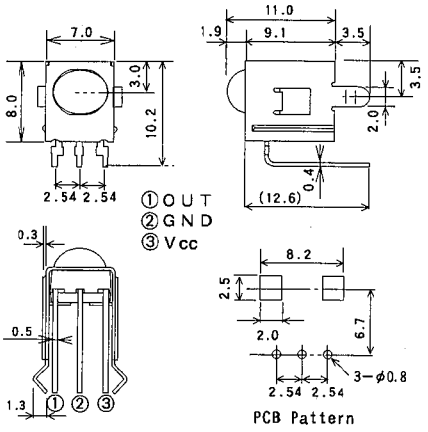




①OUT
②GND
③Vcc

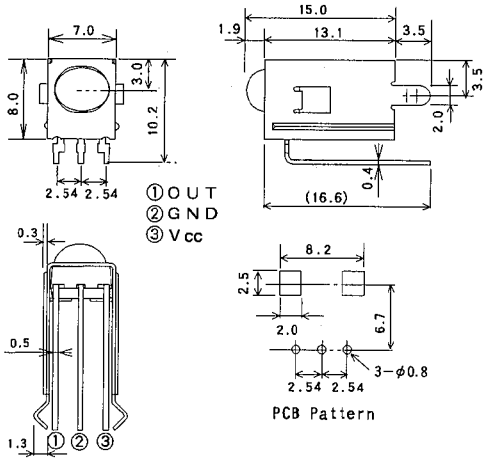
NJL61H000AF3
UNIT : mm




NJL62H000A
UNIT : mm




NJL63H000A
UNIT : mm




NJL64H000A
UNIT : mm

1. Tolerance is ± 0.3mm unless otherwise noted.

2. Ground metal case on PCB. Metal case is not connected to GND pin inside.

MEMO

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