# INFRARED REMOTE CONTROL RECEIVER

## ■ GENERAL DESCRIPTION

NJL80H/V000A series are small and high performance receiving devices for infrared remote control system. Regarding the supply current, NJL80H/V000A is lower than NJL60H/V000A. The other characteristics and packages are same as NJL60H/V000A.

## ■ FEATURES

1. Low supply current : 1mA max. in case of no input signal.
2. Mold type and metal case type to meet the design of front panel.
3. Elliptic lens to improve the characteristic against light noise from the upper and lower side.
4. Line-up for various center carrier frequencies.

## ■ APPLICATIONS

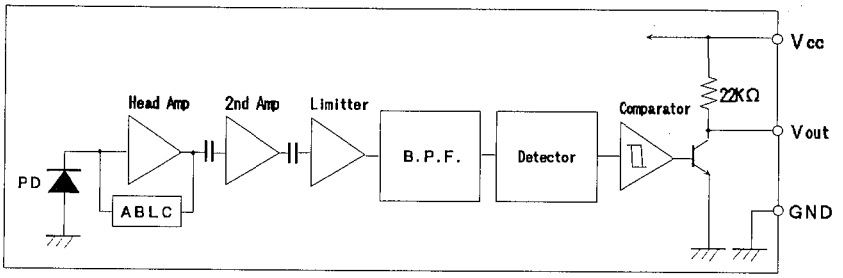
1. AV instruments such as Audio, TV, VCR, CD, MD, etc.
2. Home appliances such as Air-conditioner, Fan, etc.
3. The other equipment with wireless remote control.

## ■ 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 |
| 36 KHz | NJL81H360A | NJL81V360A | NJL82H360A | NJL83H360A | NJL84H360A |
| 36.7 KHz | NJL81H367A | NJL81V367A | NJL82H367A | NJL83H367A | NJL84H367A |
| 38 KHz | NJL81H380A | NJL81V380A | NJL82H380A | NJL83H380A | NJL84H380A |
| 40 KHz | NJL81H400A | NJL81V400A | NJL82H400A | NJL83H400A | NJL84H400A |

※ 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, $T_a$ = 25 °C)

| PARAMETER | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Supply Current | $I_{CC}$ | No Signal Input | – | 0.73 | 1 | 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 | – | 40.0 | 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 wave form 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

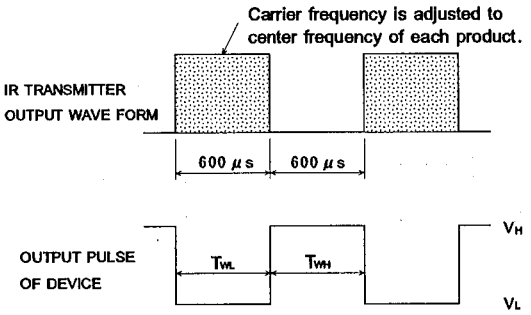



Fig. 1 TRANSMITTER WAVE FORM

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

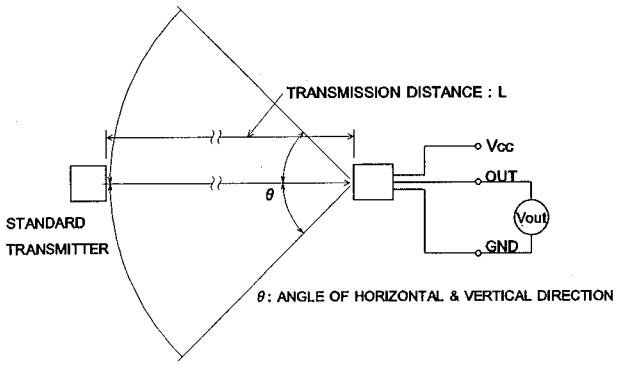



Fig. 3 TEST SYSTEM

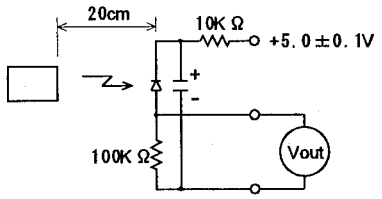
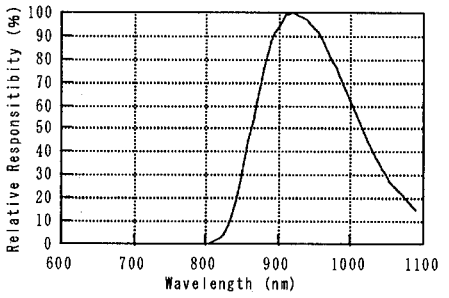


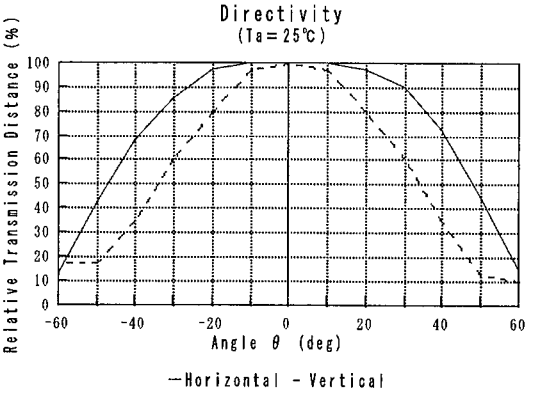

Fig. 2 STD. TRANSMITTER TEST CIRCUIT

## ■ TYPICAL CHARACTERISTICS

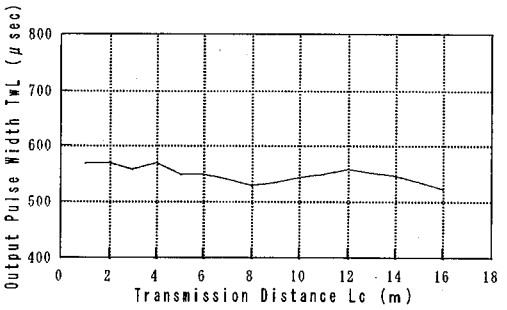
Spectral Response
(Ta=25℃)



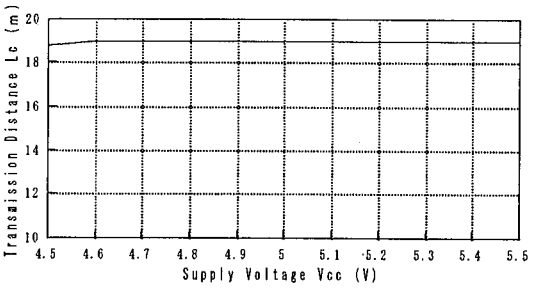

Directivity
(Ta=25℃)



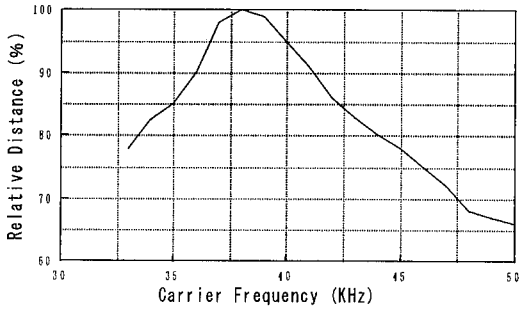

Output Pulse Width vs. Distance
(Input Pulse Width=600μs, Vcc=5.0V, Ta=25℃)



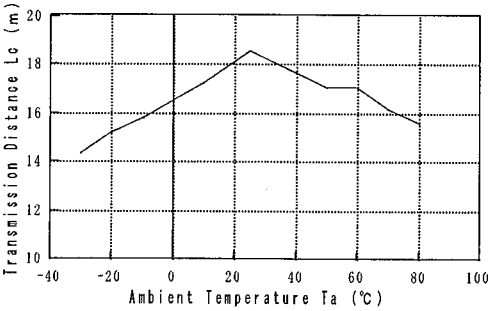

Transmission Distance vs. Supply Voltage
(Ta=25℃)



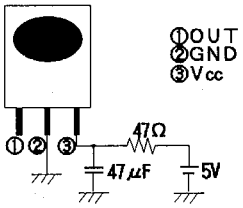

Transmission Distance vs. Carrier Frequency
(fo=38KHz, Vcc=5.0V, Ta=25℃)




Transmission Distance vs. Temperature
(Vcc=5.0V)

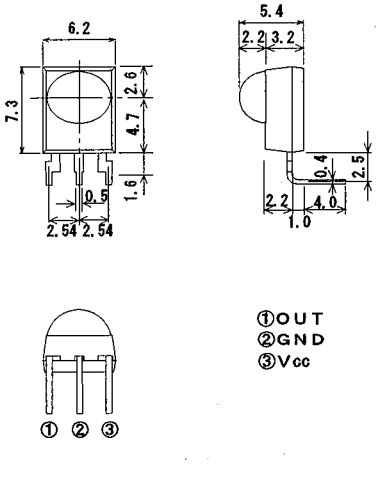


## ■ RECOMMENDED APPLICATION CIRCUIT

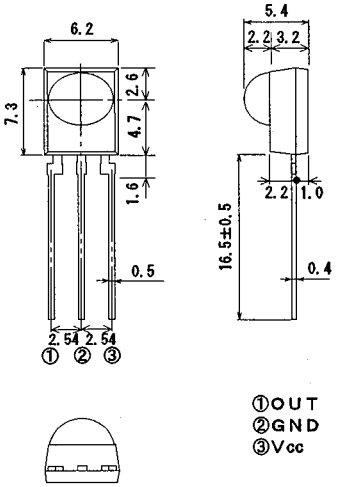



RC Filter should be connected closely between Vcc pin and GND pin.

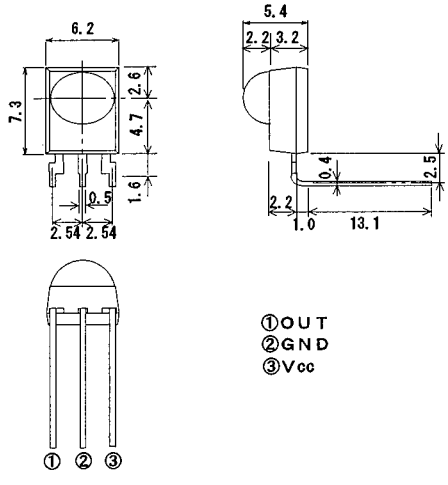
## ■ OUTLINE



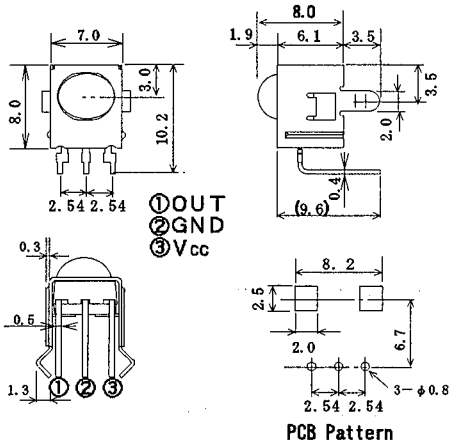

NJL81H000A
UNIT : mm



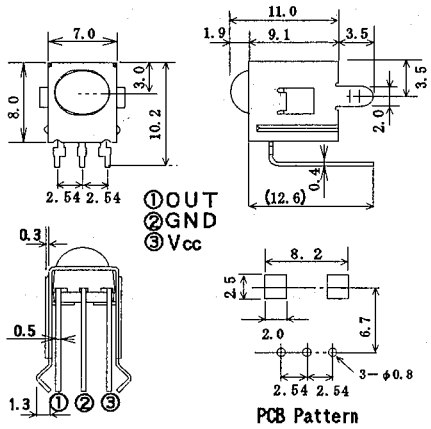

NJL81V000A
UNIT : mm



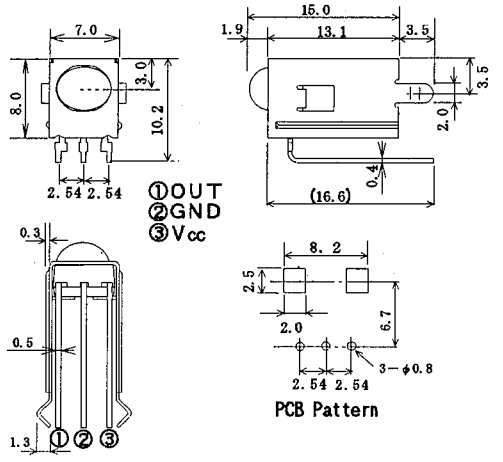

NJL81H000AF3
UNIT : mm




NJL82H000A
UNIT : mm




NJL83H000A
UNIT : mm




NJL84H000A
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