# INFRARED REMOTE CONTROL RECEIVER

## ■ GENERAL DESCRIPTION

The NJL30H/V000A series are small and high performance receiving devices for infrared remote control system.
They can operate under low and wide supply voltage (2.7V to 5.5V) with enhanced immunity against power saving light.
The NJL30H/V000A series have ten kinds of package including seven types of metal case to meet the various applications.

## ■ FEATURES

1. Wide and low supply voltage 2.7V to 5.5V
2. Low supply current 0.43mA typ. Vcc=3.3V
3. Mold type and metal case type to meet the design of front panel.
4. Line-up for various center carrier frequencies.

## ■ APPLICATIONS

1. Home application such as Room light Air-conditioner, etc.
2. AV instruments such as Audio, TV, DVD, STB etc.

## ■ LINE-UP

Mold type

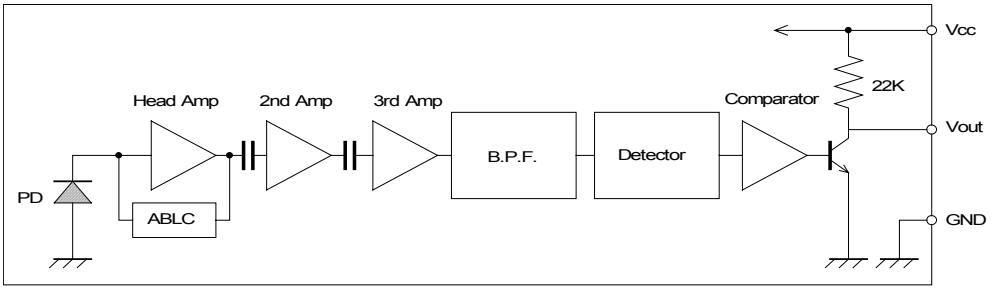
| View | Top | | Side |
|---|---|---|---|
| Height / Carrier Frequency | 5.4mm | 5.4mm | 5.4mm |
| fo= 36 kHz | NJL31H360A | NJL31H360AF3 | NJL31V360A |
| 36.7 kHz | NJL31H367A | NJL31H367AF3 | NJL31V367A |
| 38 kHz | NJL31H380A | NJL31H380AF3 | NJL31V380A |
| 40 kHz | NJL31H400A | NJL31H400AF3 | NJL31V400A |

Metal Case type

| View | Top | | | | Side |
|---|---|---|---|---|---|
| Height / Carrier Frequency | 5.7mm | 8mm | 11mm | 15mm | 6.3mm |
| fo= 36 kHz | NJL31H360A-M | NJL32H360A | NJL33H360A | NJL34H360A | NJL31V360A-M |
| 36.7 kHz | NJL31H367A-M | NJL32H367A | NJL33H367A | NJL34H367A | NJL31V367A-M |
| 38 kHz | NJL31H380A-M | NJL32H380A | NJL33H380A | NJL34H380A | NJL31V380A-M |
| 40 kHz | NJL31H400A-M | NJL32H400A | NJL33H400A | NJL34H400A | NJL31V400A-M |

Regarding other frequency or packages, please contact to New JRC individually.

## ■ BLOCK DIAGRAM



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

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|---|---|---|
| Supply Voltage | Vcc | 6.3 | V |
| Operating Temperature Range | Topr | -30 to +85 | □C |
| Storage Temperature Range | Tstg | -40 to +85 | □C |
| Soldering Temperature | Tsol | 260 (5sec. 4.0mm from mold body) | □C |

## ■ RECOMMENDED OPERATING CONDITION

Supply Voltage Range Vcc 2.7 V to 5.5V

## ■ ELECTRO-OPTICAL CHARACTERISTICS (Vcc=3.3V, Ta=25□C)

| PARAMETER | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Supply Current | Icc | No Signal Input | — | 0.43 | 0.56 | mA |
| Transmission Distance | Lc | Direction of Ray Axis *1 | 13 | 18 | — | m |
| Directivity | θL | Angle of half Lc, Horizontal *2 | — | 45 | — | deg |
| | θV | Angle of half Lc, Vertical *2 | — | 30 | — | deg |
| Output Voltage Low | VL | No Load | — | 0.2 | 0.5 | V |
| Output Voltage High | VH | No Load | 2.8 | — | — | V |
| Low Level Pulse Width | TwL | See Test Circuit | 400 | — | 950 | μs |
| High Level Pulse Width | TwH | See Test Circuit | 250 | — | 800 | μs |
| Center Frequency | fo | See Line-up | — | *3 | — | 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 vertical.

*3:Four types of frequency :36.0, 36.7, 38.0, 40.0KHz

## ■ TEST METHOD

Test condition in as follows:

(1) Standard transmitter:
Transmitting waveform is shown in Fig.1
Transmitting power should be adjusted so that output voltage Vout will be 400mVp-p.(Test circuit is shown in Fig.2)
Regarding IR LED used for transmitter,
λp=940nm, Δλ=50nm.
Regarding photo diode,
Sensitivity S=26nA/Lx
in case light source temperature2856°K,
Ee=100Lx, VR=5V

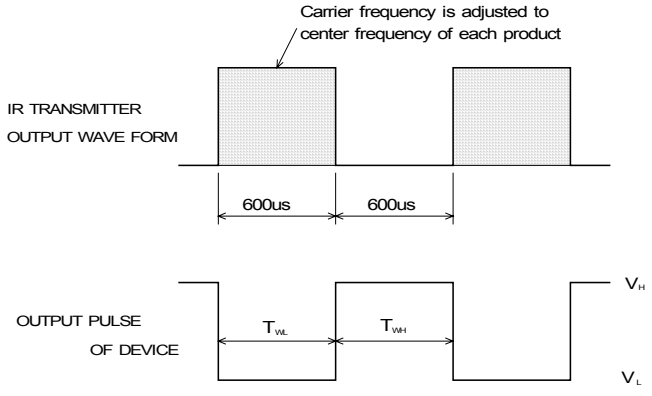



Fig.1 TRANSMITTER WAVE FORM

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

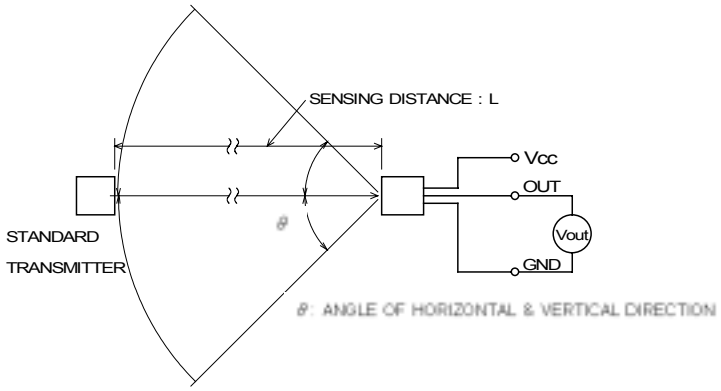



Fig.3 TEST SYSTEM

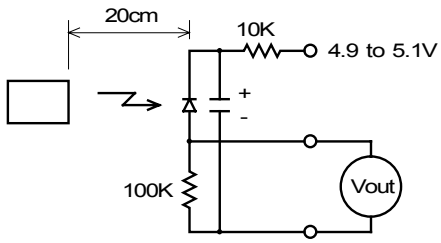
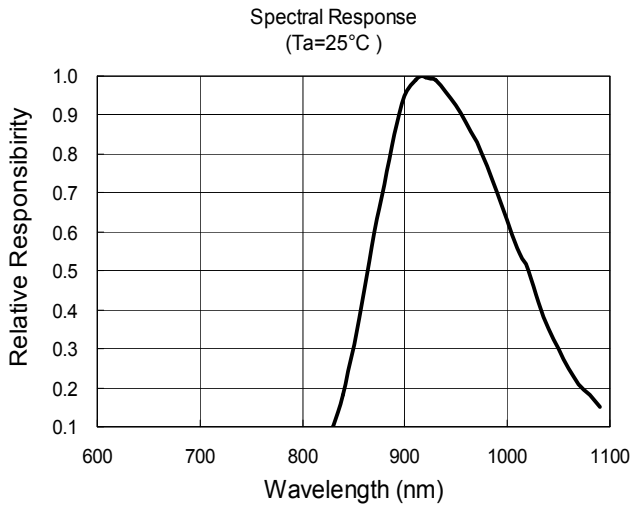
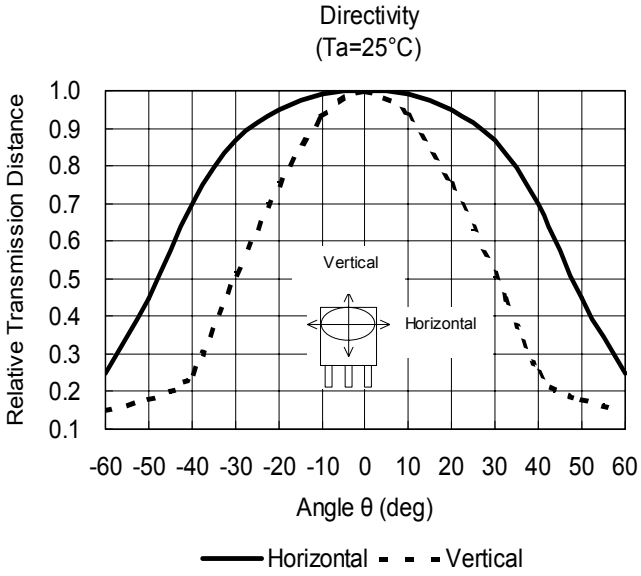
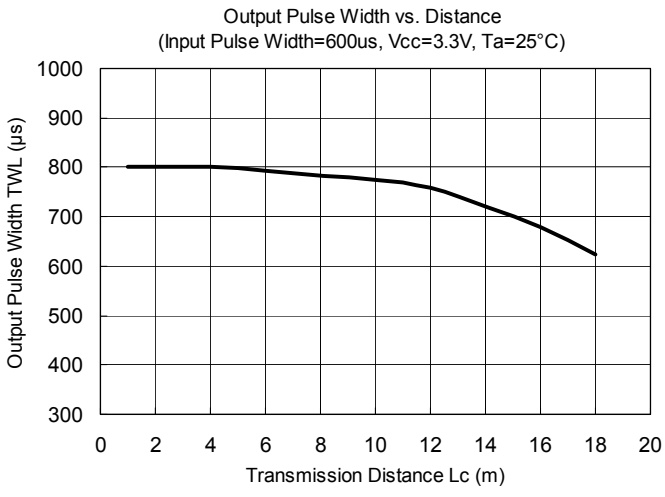


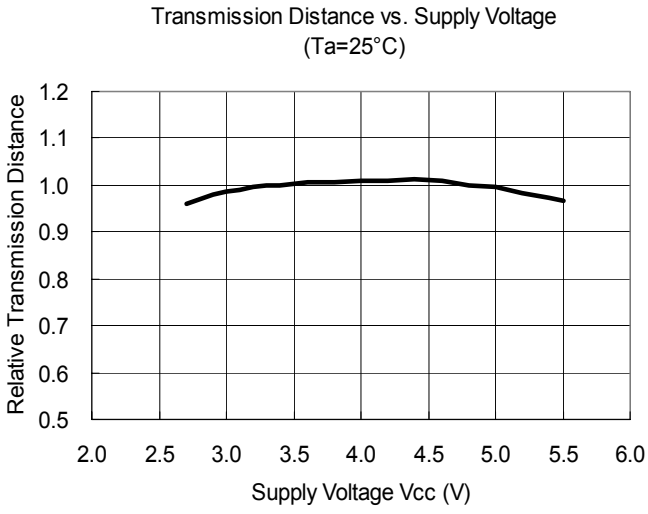

Fig.2 STD.TRANSMITTER TEST CIRCUIT

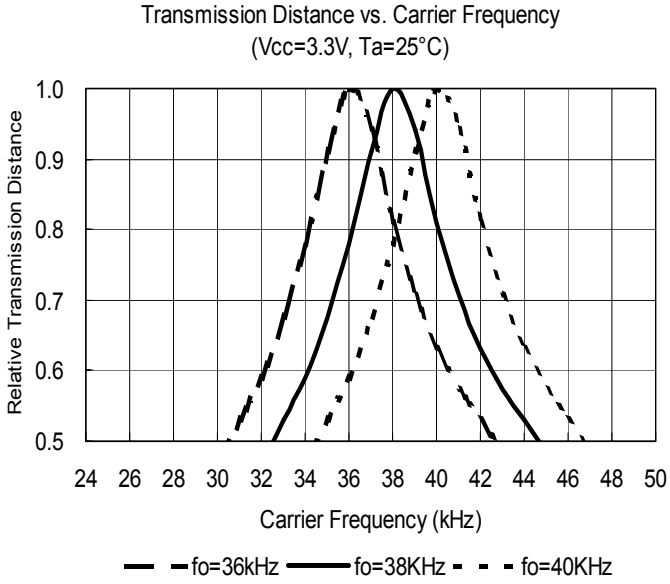
## ■ TYPICAL CHARACTERISTICS

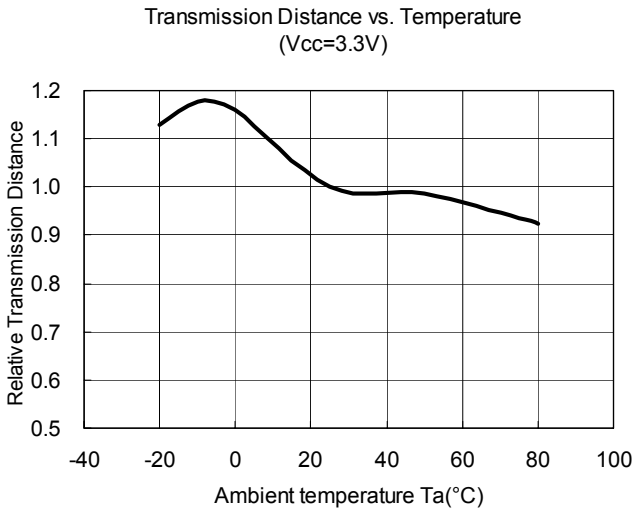


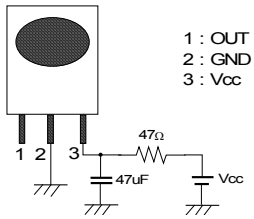





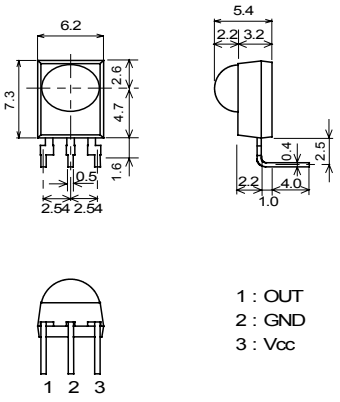




## ■ RECOMMENDED APPLICATION CIRCUIT

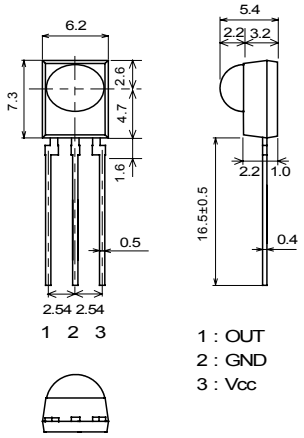



RC Filter should be connected closely between Vcc pin and GND pin.

## ■ OUTLINE




NJL31H000A
UNIT:mm




NJL31V000A
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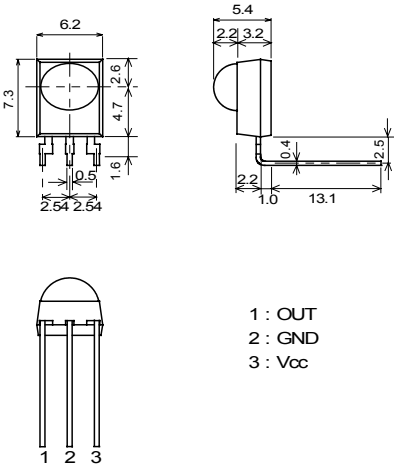
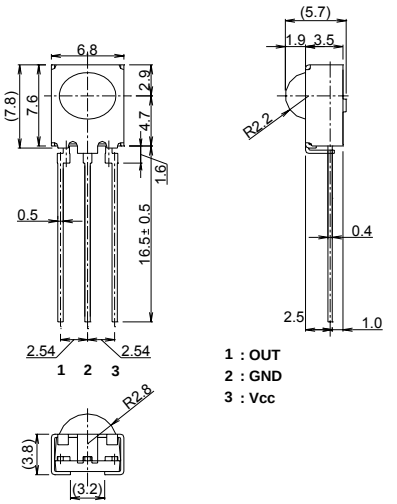
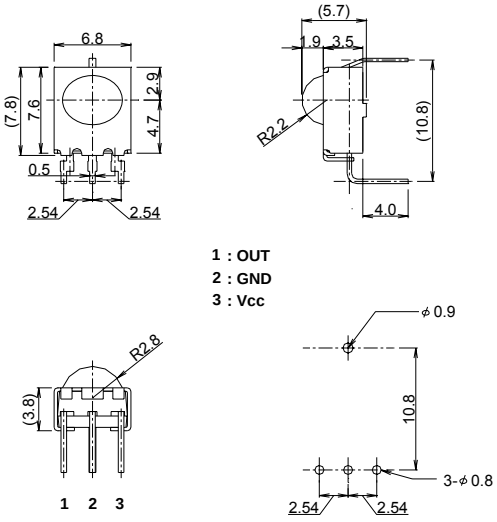



NJL31H000AF3
UNIT:mm




NJL31V000A-M
UNIT:mm

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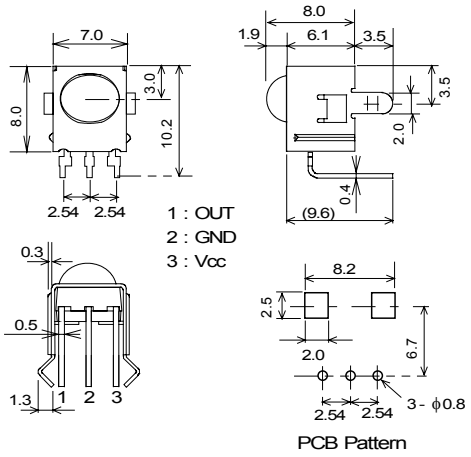
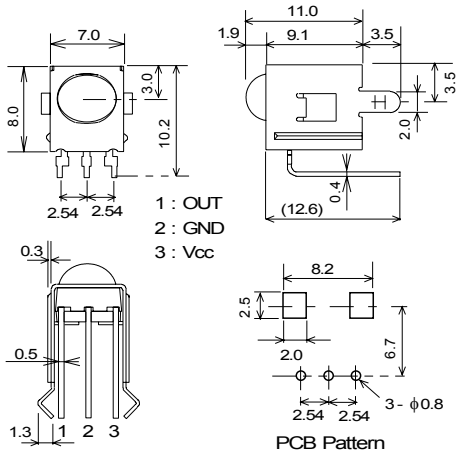
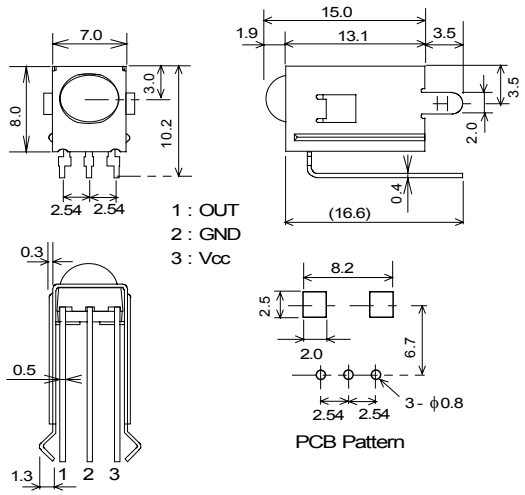



NJL32H000A
UNIT:mm




NJL33H000A
UNIT:mm




NJL34H000A
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.Tolerance is ±0.3mm unless otherwise noted.