

INFRARED REMOTE CONTROL RECEIVER

■ GENERAL DESCRIPTION

The NJL70H/V000A series are small and high performance receiving devices for infrared remote control system. They can operate under low and wide supply voltage (2.4V to 5.4V). Also, their supply current is low comparing to the NJL60H/V000A and NJL80H/V000A.

The features, low and wide supply voltage, low supply current are suitable for battery operated items.

■ FEATURES

1. Wide and low supply voltage 2.4V to 5.5V
2. Low supply current 0.6mA max.
3. Mold type and metal case type to meet the design of front panel.
4. Line-up for various center carrier frequencies.

■ APPLICATIONS

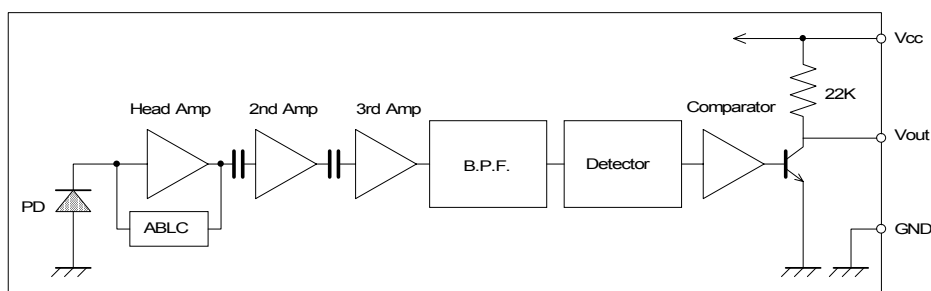
1. AV instruments such as Audio, TV, VCR, CD, MD etc.
2. Home application such as Air-conditioner, Fan etc.
3. Battery operated instruments such as Toy, Camera etc.

■ LINE-UP

| View | Mold type | | Metal Case type | | |
|-------------------|------------|------------|-----------------|------------|------------|
| | Top | Side | Top | | |
| Carrier Frequency | 5.4mm | 6.3mm | 8mm | 11mm | 15mm |
| fo= 36 kHz | NJL71H360A | NJL71V360A | NJL72H360A | NJL73H360A | NJL74H360A |
| 36.7 kHz | NJL71H367A | NJL71V367A | NJL72H367A | NJL73H367A | NJL74H367A |
| 38 kHz | NJL71H380A | NJL71V380A | NJL72H380A | NJL73H380A | NJL74H380A |
| 40 kHz | NJL71H400A | NJL71V400A | NJL72H400A | NJL73H400A | NJL74H400A |

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 | -20 to +75 | °C |
| Storage Temperature Range | Tstg | -40 to +85 | °C |
| Soldering Temperature | Tsol | 260 (5sec. 4.0mm from mold body) | °C |

NJL71H/71V/72H/73H/74H000A

RECOMMENDED OPERATING CONDITION

Supply Voltage Range V_{cc} 2.4 V to 5.5V

ELECTRO-OPTICAL CHARACTERISTICS ($V_{cc}=3.3V, T_a=25^\circ C$)

| PARAMETER | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNIT |
|------------------------|------------|-------------------------------------|------|------|------|---------|
| Supply Current | I_{cc} | No Signal Input | — | 0.43 | 0.6 | mA |
| Transmission Distance | L_c | Direction of Ray Axis *1 | 13 | 18 | — | m |
| Directivity | θ_L | Angle of half L_c , Horizontal *2 | — | 45 | — | deg |
| | θ_V | Angle of half L_c , Vertical *2 | — | 30 | — | deg |
| Output Voltage Low | V_L | No Load | — | 0.2 | 0.5 | V |
| Output Voltage High | V_H | No Load | 2.8 | — | — | V |
| Low Level Pulse Width | T_{wL} | See Test Circuit | 350 | — | 800 | μs |
| High Level Pulse Width | T_{wH} | See Test Circuit | 400 | — | 850 | 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 vertical.

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 V_{out} will be 400mVp-p. (Test circuit is shown in Fig.2)
 Regarding IR LED used for transmitter,
 $\lambda_p=940nm, \Delta\lambda=50nm$.

Regarding photo diode,
 Sensitivity $S=26nA/Lx$
 in case light source temperature $2856^\circ K$,
 $E_e=100Lx, V_R=5V$

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

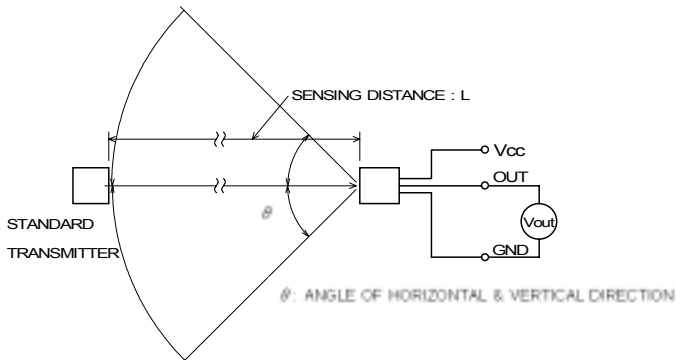


Fig.3 TEST SYSTEM

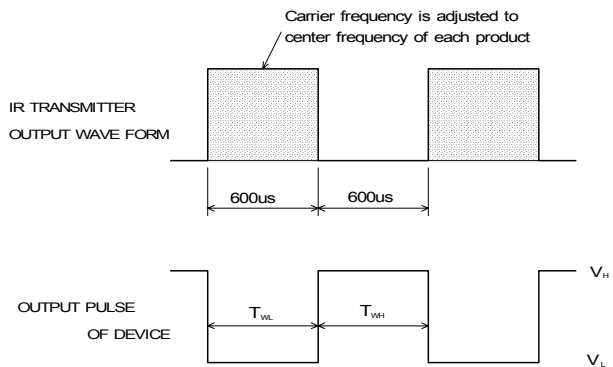


Fig.1 TRANSMITTER WAVE FORM

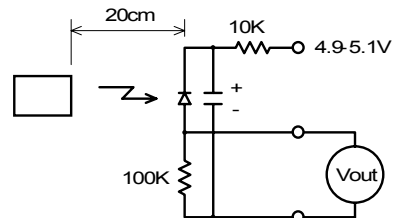
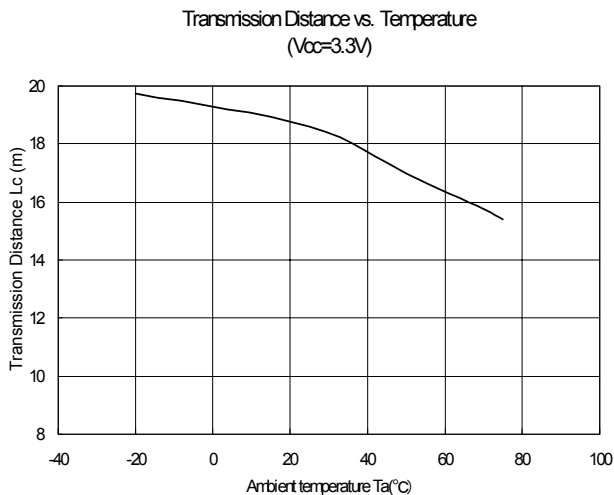
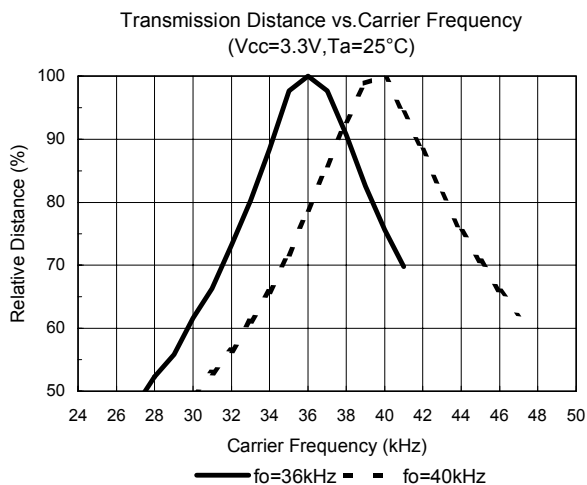
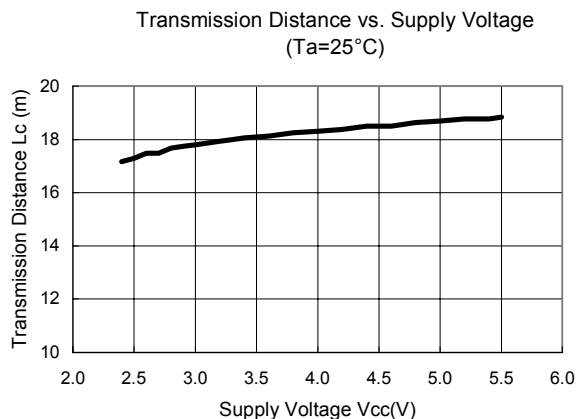
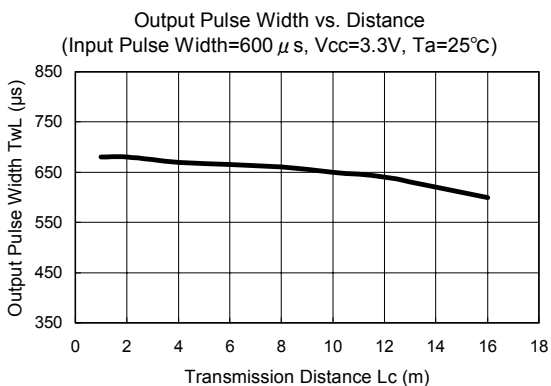
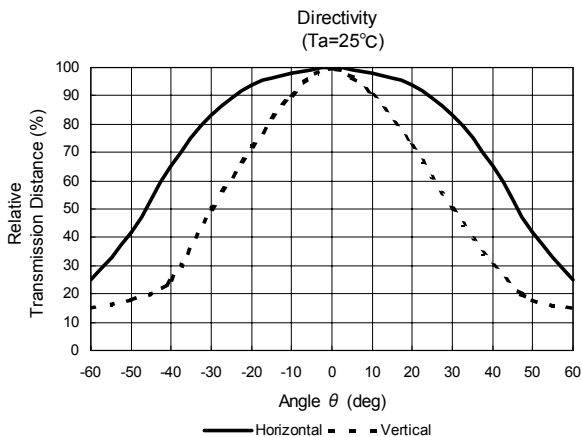
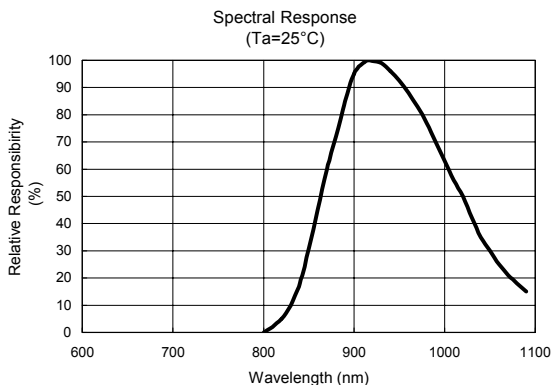


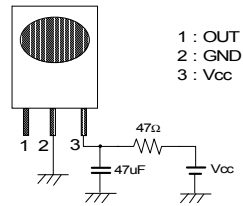
Fig.2 STD. TRANSMITTER TEST CIRCUIT

TYPICAL CHARACTERISTICS



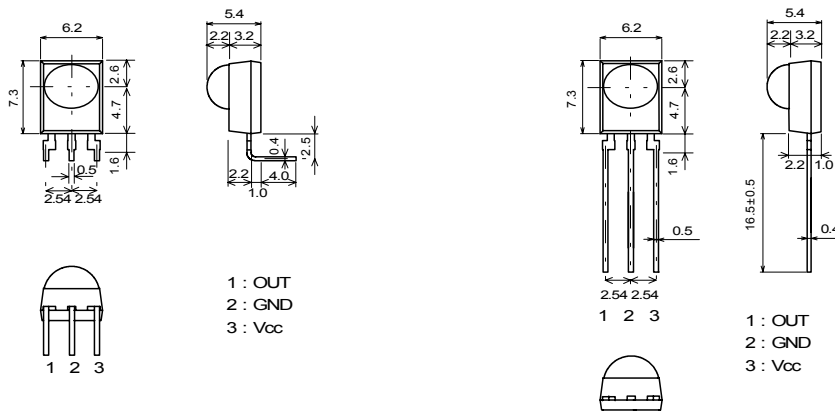
NJL71H/71V/72H/73H/74H000A

RECOMMENDED APPLICATION CIRCUIT



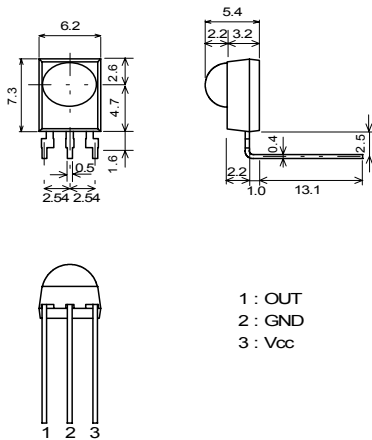
RC Filter should be connected closely between Vcc pin and GND pin.

OUTLINE



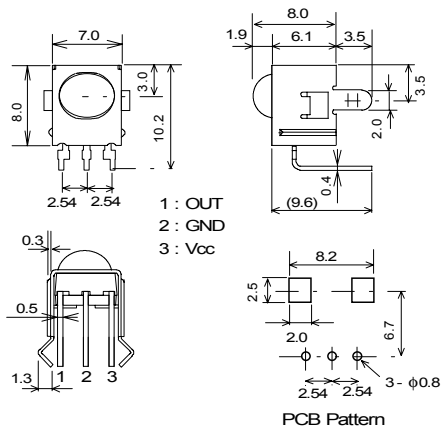
NJL71H000A
UNIT:mm

NJL71V000A
UNIT:mm

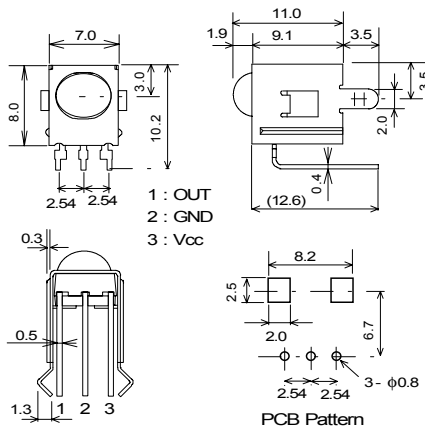


NJL71H000AF3
UNIT:mm

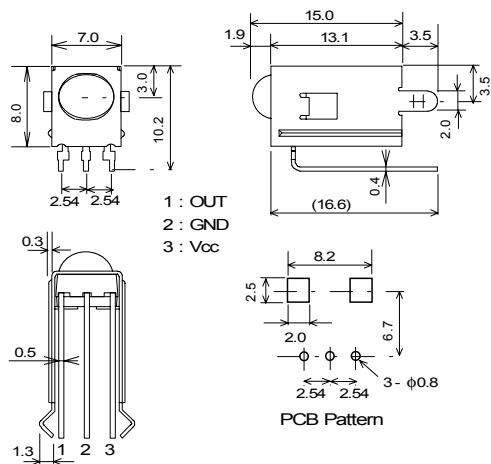
NJL71H/71V/72H/73H/74H000A



NJL72H000A
UNIT:mm



NJL73H000A
UNIT:mm



NJL74H000A
UNIT:mm

1. Tolerance is ± 0.3 mm unless otherwise noted.
2. Ground metal case on PCB. Metal case is not connected to GND pin inside. Tolerance is ± 0.3 mm unless otherwise noted.

[CAUTION]
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