

## INFRARED REMOTE CONTROL RECEIVER

### ■ GENERAL DESCRIPTION

The NJL10H000 series are surface mount receiving devices for infrared remote control system with surface mount package which can be soldered by reflow method.

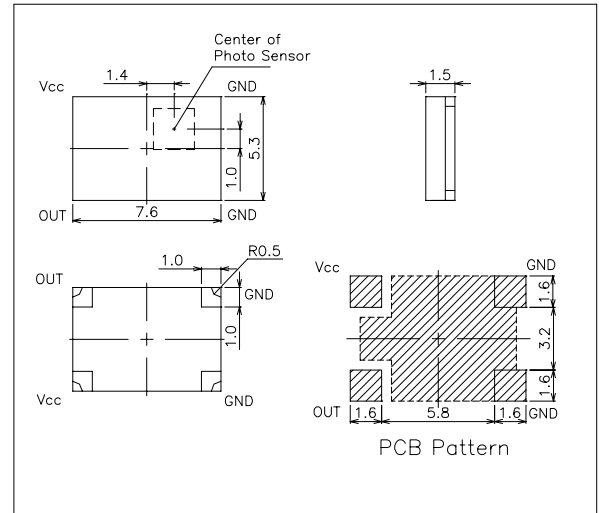
### ■ FEATURES

1. Surface mount type
2. Package size                    5.3 mm × 7.6mm × 1.5mm
3. Half angle                        75deg typ.
4. Line-up for various center carrier frequencies.

### ■ APPLICATIONS

1. Small AV instruments such as Portable Audio, DVD etc.
2. Car Audio, Car Navigation system etc.
3. Camera, VCR Camera etc.

### ■ OUTLINE (typ.) unit: mm

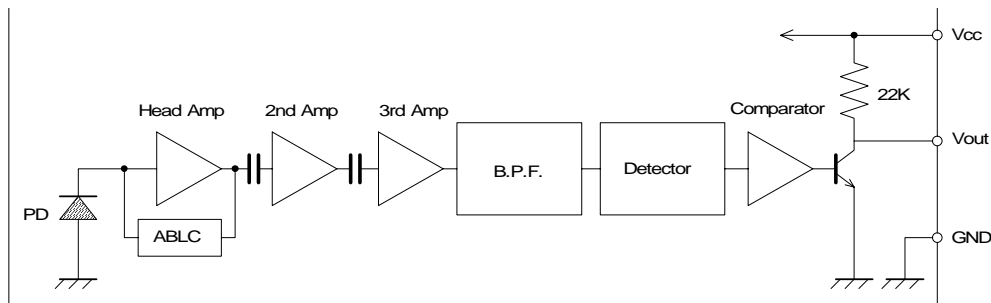


### ■ LINE-UP

Carrier Frequency	Item Number
36 kHz	NJL10H360
36.7 kHz	NJL10H367
38 kHz	NJL10H380
40 kHz	NJL10H400

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

### ■ BLOCK DIAGRAM



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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sub>cc</sub>	6.3	V
Operating Temperature Range	T <sub>opr</sub>	-30 to +85	°C
Storage Temperature Range	T <sub>stg</sub>	-40 to +85	°C
Reflow Soldering Temperature	T <sub>sol</sub>	260 (10sec.)	°C

## RECOMMENDED OPERATING CONDITION

Supply Voltage Range     $V_{cc}$     4.5V to 5.5V

## ELECTRO-OPTICAL CHARACTERISTICS ( $V_{cc} = 5.0V, T_a = 25^\circ C$ )

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Supply Current	$I_{cc}$	No Signal Input	—	1.0	2.0	mA
Transmission Distance	$L_c$	Direction of Ray Axis *1	8	12	—	m
Directivity	$\theta_{1/2}$	Angle of half $L_c$	—	75	—	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	350	—	850	$\mu s$
High Level Pulse Width	$T_{wH}$	See Test Circuit	350	—	850	$\mu s$

Note \*1: Test with each center carrier frequency under the test condition shown below.

## 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  $V_{out}$  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.

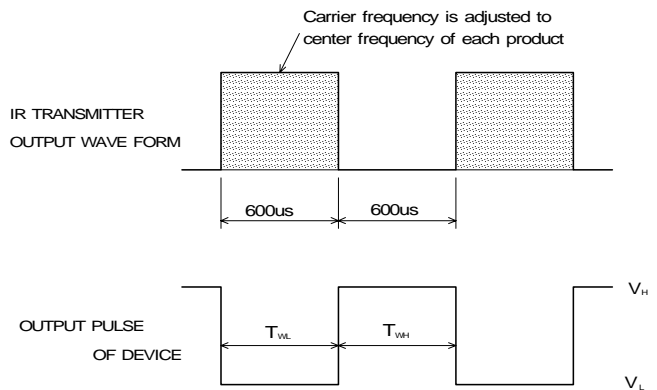


Fig.1 TRANSMITTER WAVE FORM

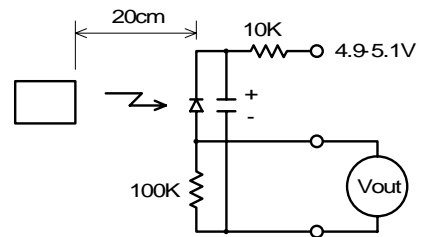


Fig.2 STD. TRANSMITTER TEST CIRCUIT

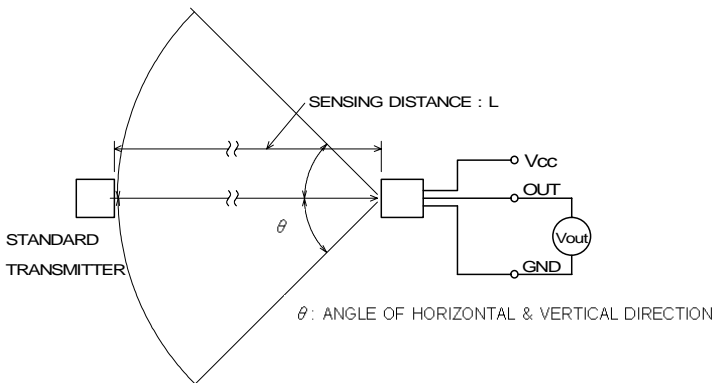


Fig.3 TEST SYSTEM

PRECAUTION FOR HANDLING

1. Soldering to actual circuit board

Soldering condition

- Heated condition of plastic package.

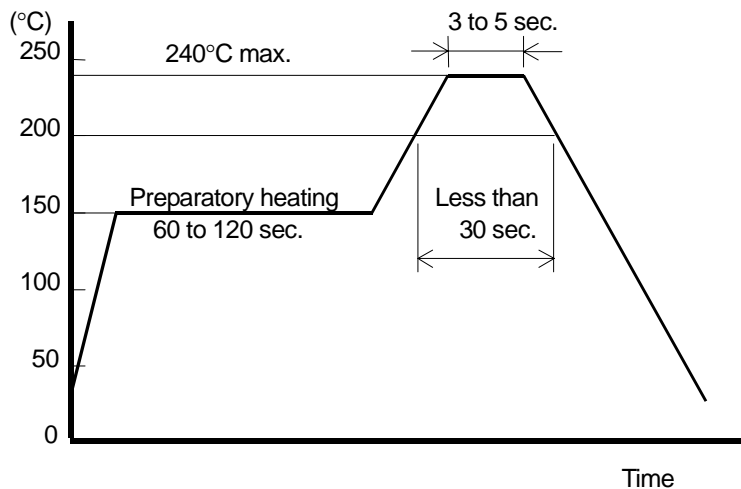
Lower than 240°C of maximum surface temperature, less than 30 seconds of time kept higher than 200°C.

Soldering Method

1) Reflow Method

Recommended temperature profile of its method.

- ① Preparatory heating condition : 120 to 150°C about 60 sec.
- ② Recommended soldering temperature : 230 to 240°C about 3 to 5 sec.
- ③ Slowly cool down right after soldering.
- ④ Soldering to be done within twice under this condition.



2) Reflow Method (In case of infrared heating)

- Temperature profile : Same to the above

- Avoid direct irradiation to the plastic package because it is mold resin, absorbs the Infrared Radiation and its surface temperature will be higher than lead itself.

3) The other method

Avoid rapid heating up like dipping the devices directly into the melting solder or vapor phase method (VPS).

If the device is heated to high temperature and kept in its condition for longer time, it would affect to its reliability.

It is necessary to solder in short time as soon as possible.

2. Cleaning

Avoid washing of the device after soldering by reflow method.

3. Attention in handling

- 1) Avoid dust and any other foreign materials (paint, bonding material, etc.) on the lens surface.
- 2) When mounting, special care has to be taken on the mounting position and tilting of the device because it is very important to place the device to the optimum position to the object.

4. Storage

In order to prevent from degradation of this device in moisturing at reflow method, so that this device is contained in dampproof packaging. So that mount the device as short as possible after opening the envelope.

[CAUTION]  
 The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages