

INFRARED REMOTE CONTROL RECEIVER

■ GENERAL DESCRIPTION

The NJL70H/V000 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/V000 and NJL80H/V000.

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

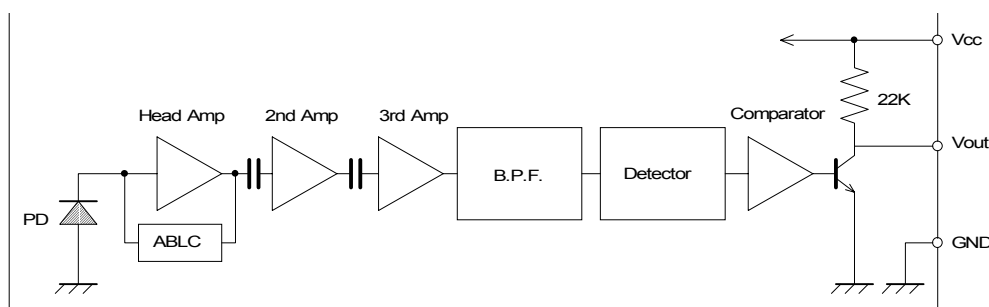
1. AV instruments such as Audio, TV, VCR, CD, MD etc.
2. Home application such as Air-conditioner, Fan etc.
3. Battery operated instruments such as Toy, Camera etc.

■ LINE-UP

Mold/Metal case	Mold type		Metal Case type		
View	Top	Side	Top		
Hight					
Carrier Frequency	5.4mm	6.3mm	8mm	11mm	15mm
fo= 36 kHz	NJL71H360	NJL71V360	NJL72H360	NJL73H360	NJL74H360
36.7 kHz	NJL71H367	NJL71V367	NJL72H367	NJL73H367	NJL74H367
38 kHz	NJL71H380	NJL71V380	NJL72H380	NJL73H380	NJL74H380
40 kHz	NJL71H400	NJL71V400	NJL72H400	NJL73H400	NJL74H400

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

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	8	16	—	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.

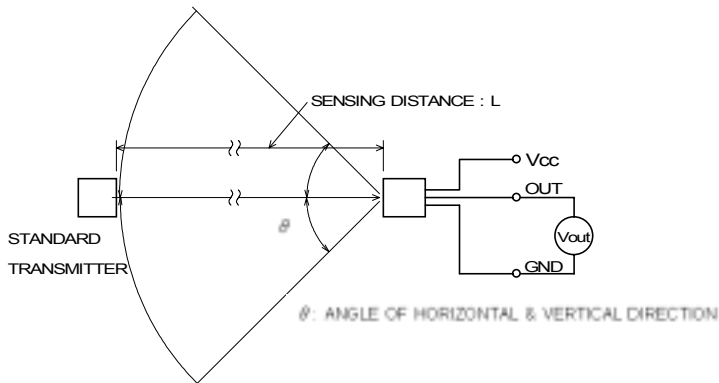


Fig.3 TEST SYSTEM

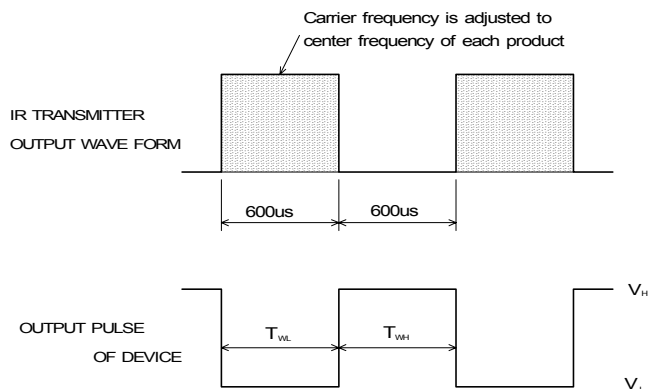


Fig.1 TRANSMITTER WAVE FORM

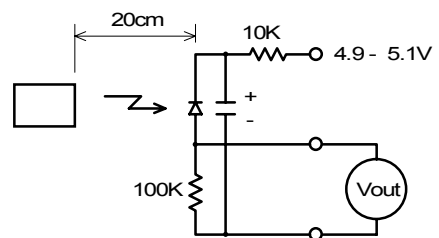
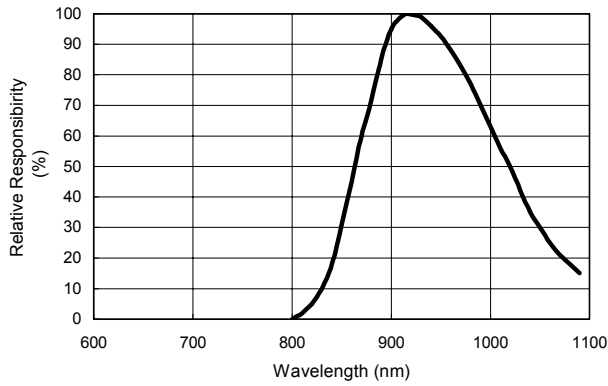


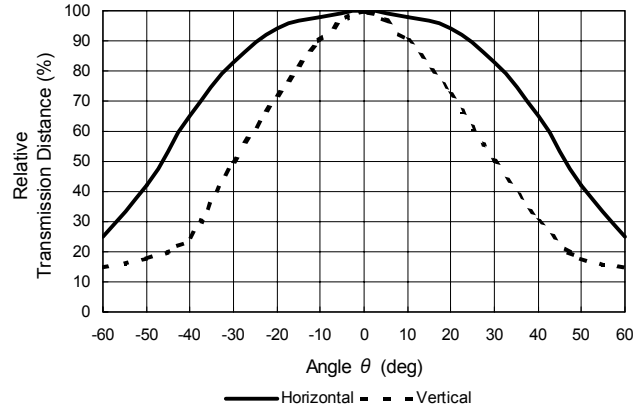
Fig.2 STD. TRANSMITTER TEST CIRCUIT

TYPICAL CHARACTERISTICS

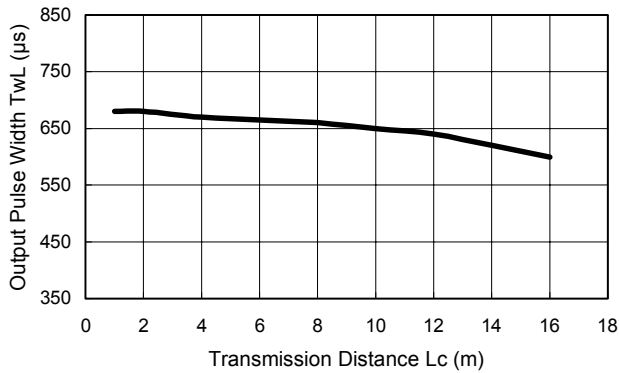
Spectral Response
(Ta=25°C)



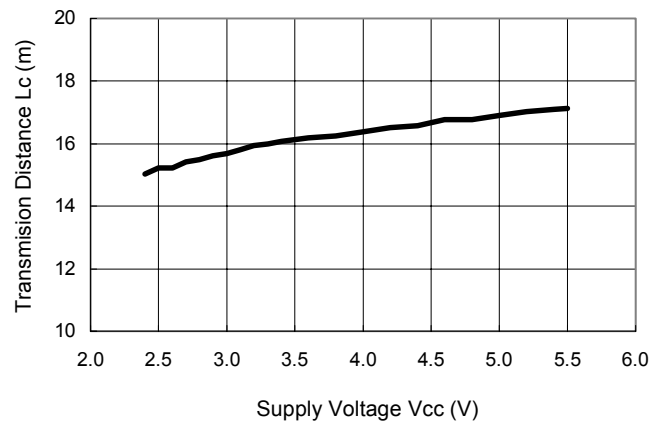
Directivity
(Ta=25°C)



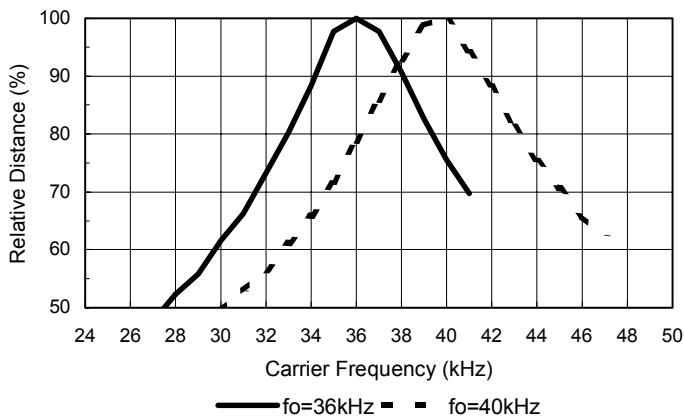
Output Pulse Width vs. Distance
(Input Pulse Width=600 μs, Vcc=3.3V, Ta=25°C)



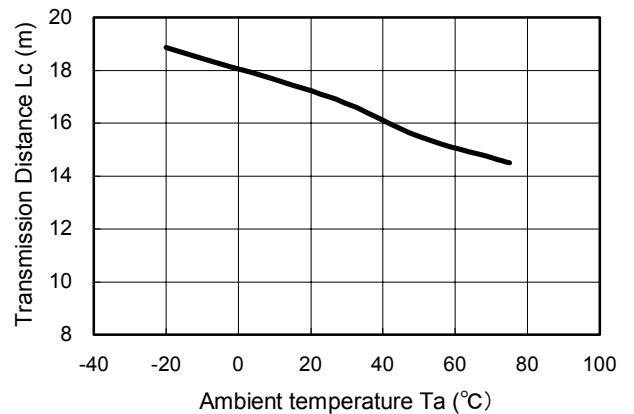
Transmission Distance vs. Supply Voltage
(Ta=25°C)



Transmission Distance vs. Carrier Frequency
(Vcc=3.3V, Ta=25°C)

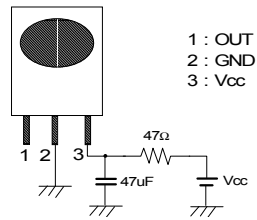


Transmission Distance vs. Temperature
(Vcc=3.3V)



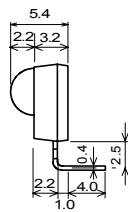
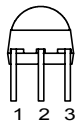
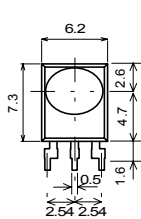
NJL71H/71V/72H/73H/74H000

RECOMMENDED APPLICATION CIRCUIT

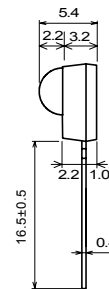
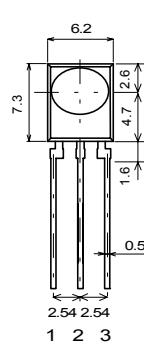


RC Filter should be connected closely between Vcc pin and GND pin.

OUTLINE



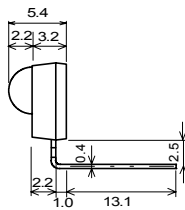
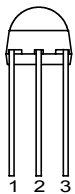
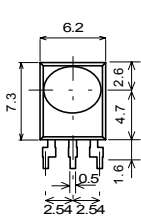
1 : OUT
2 : GND
3 : Vcc



1 : OUT
2 : GND
3 : Vcc

NJL71H000
UNIT:mm

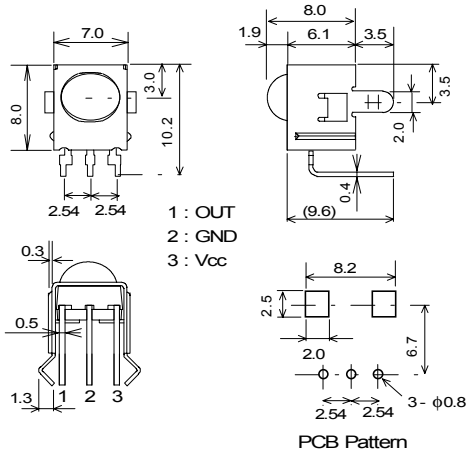
NJL71V000
UNIT:mm



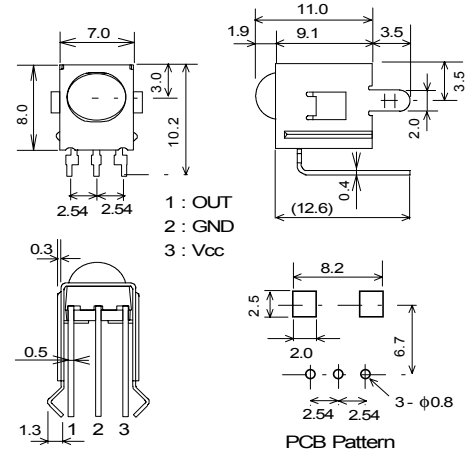
1 : OUT
2 : GND
3 : Vcc

NJL71H000F3
UNIT:mm

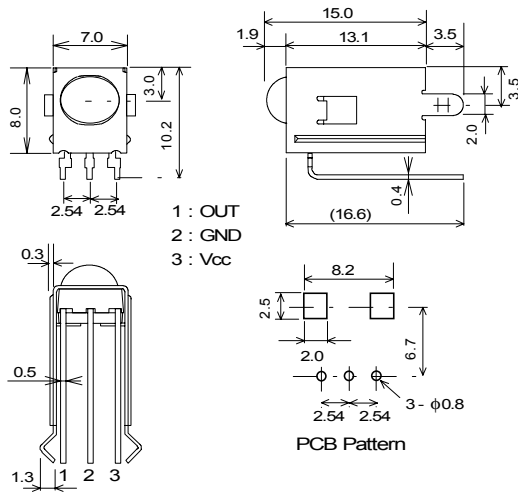
NJL71H/71V/72H/73H/74H000



NJL72H000
UNIT:mm



NJL73H000
UNIT:mm



NJL74H000
UNIT:mm

1. Tolerance is $\pm 0.3\text{mm}$ unless otherwise noted.
2. Ground metal case on PCB. Metal case is not connected to GND pin inside.

[CAUTION]

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