

INFRARED REMOTE CONTROL RECEIVER

■ GENERAL DESCRIPTION

NJL25V/28H000 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). NJL25V/28H000 series are mesh window type to improve EMI characteristic. Even under strong EMI noise condition such as TV, Air-conditioner, etc., NJL25V/28H000 series can work normally.

■ FEATURES

1. Wide and low supply voltage 2.7V to 5.5V
2. Low supply current 0.43mA typ. $V_{cc}=3.3V$
3. Metal case type with mesh window
4. Line-up for various center carrier frequencies

■ APPLICATIONS

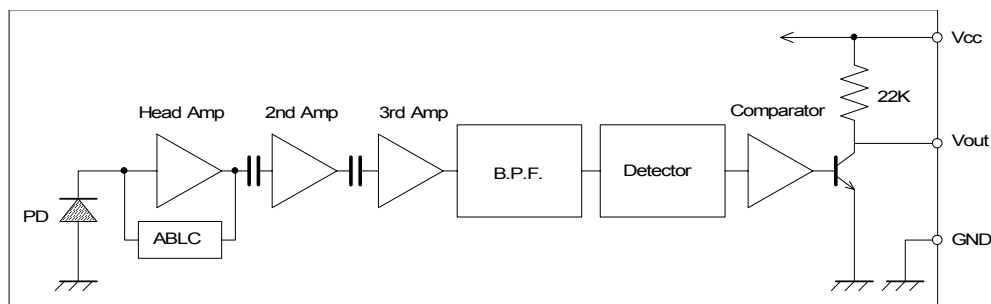
1. AV instruments such as Audio, TV, VCR, CD, MD, DVD, STB etc.
2. Home application such as Air-conditioner, Fan etc.
3. Game machine, toy etc.

■ LINE-UP

View Type	Side	Top
Height	15.6mm	15mm
Carrier Frequency		
fo= 36 kHz	NJL25V360	NJL28H360
36.7 kHz	NJL25V367	NJL28H367
38 kHz	NJL25V380	NJL28H380
40 kHz	NJL25V400	NJL28H400

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

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{cc}	6.3	V
Operating Temperature Range	T_{opr}	-30 to +80	°C
Storage Temperature Range	T_{stg}	-40 to +85	°C
Soldering Temperature	T_{sol}	260 (5sec. 4.0mm from mold body)	°C

RECOMMENDED OPERATING CONDITION

Supply Voltage Range V_{cc} 2.7 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	0.56	mA
Transmission Distance	L_c	Direction of Ray Axis *1	10	15	—	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	400	—	850	μs
High Level Pulse Width	T_{wH}	See Test Circuit	350	—	800	μs
Center Carrier Frequency	f_o	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 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,

$$\lambda_p = 940\text{nm}, \Delta\lambda = 50\text{nm}.$$

Regarding photo diode,

$$\text{Sensitivity } S = 26\text{nA/Lx}$$

in case light source temperature $2856^{\circ}K$,

$$E_e = 100\text{Lx}, V_R = 5V$$

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

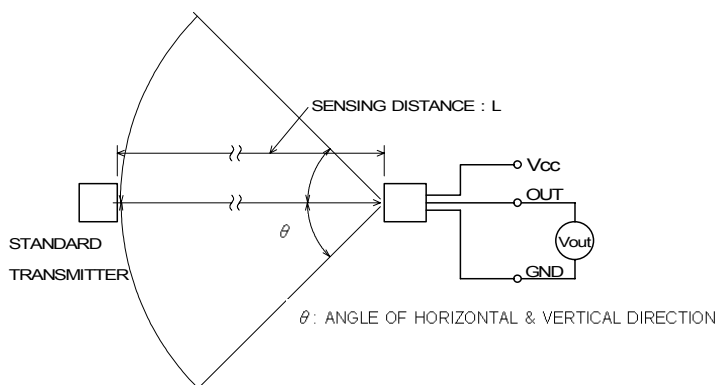


Fig.3 TEST SYSTEM

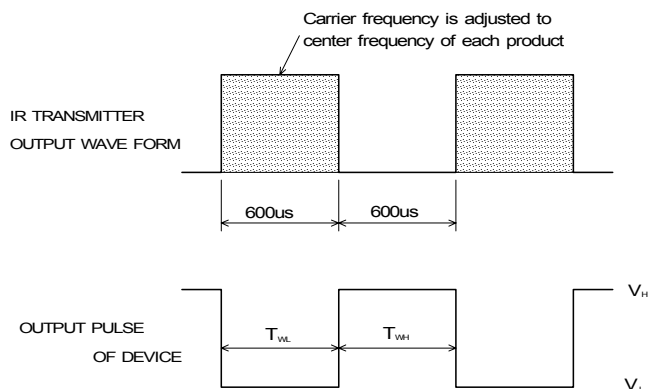


Fig.1 TRANSMITTER WAVE FORM

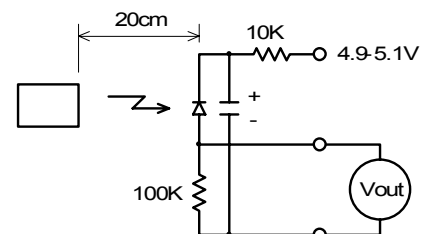
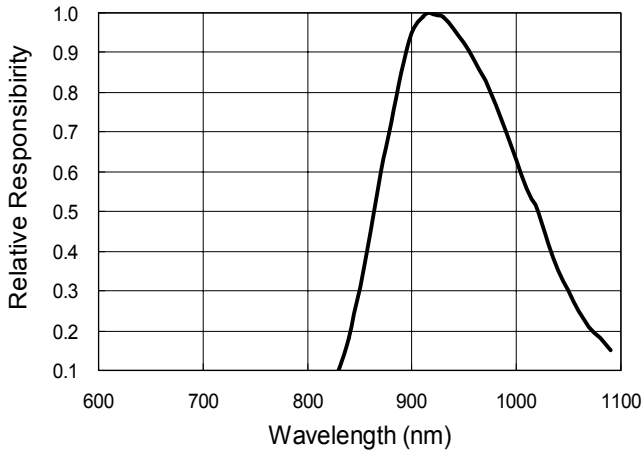


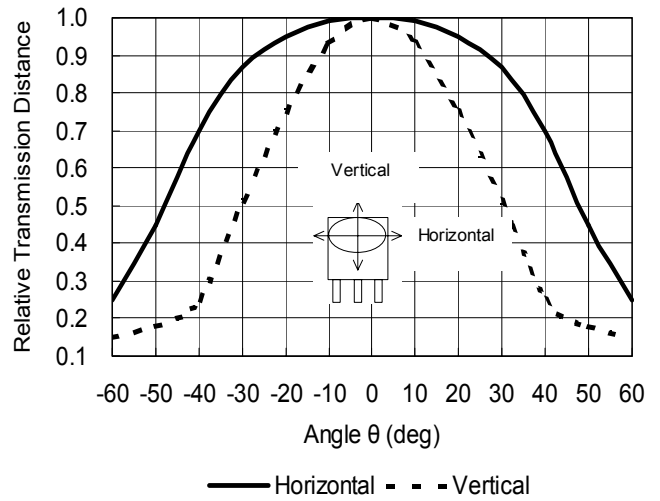
Fig.2 STD. TRANSMITTER TEST CIRCUIT

TYPICAL CHARACTERISTICS

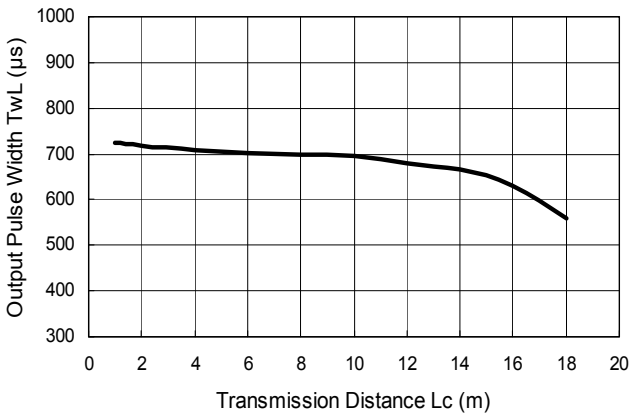
Spectral Response
($T_a=25^\circ\text{C}$)



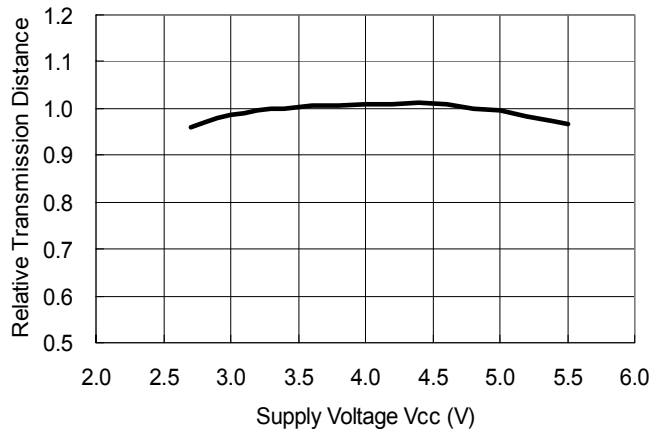
Directivity
($T_a=25^\circ\text{C}$)



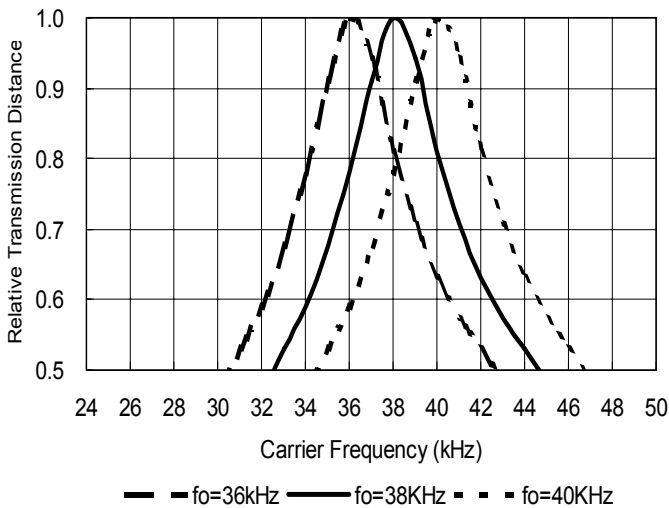
Output Pulse Width vs. Distance
(Input Pulse Width=600 μs , $V_{cc}=3.3\text{V}$, $T_a=25^\circ\text{C}$)



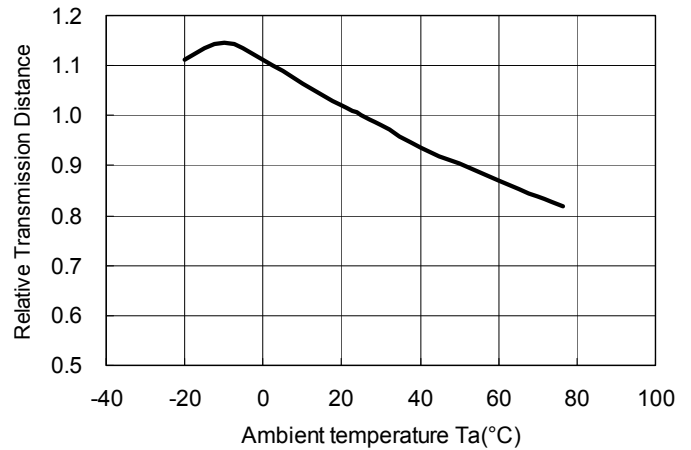
Transmission Distance vs. Supply Voltage
($T_a=25^\circ\text{C}$)



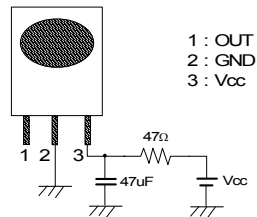
Transmission Distance vs. Carrier Frequency
($V_{cc}=3.3\text{V}$, $T_a=25^\circ\text{C}$)



Transmission Distance vs. Temperature
($V_{cc}=3.3\text{V}$)

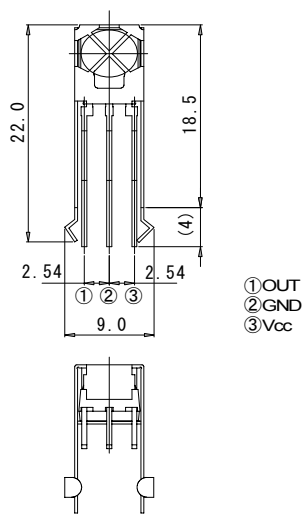


RECOMMENDED APPLICATION CIRCUIT

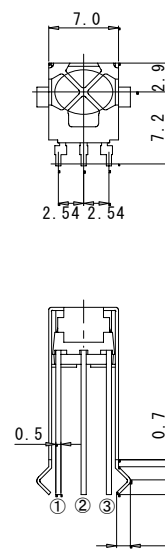
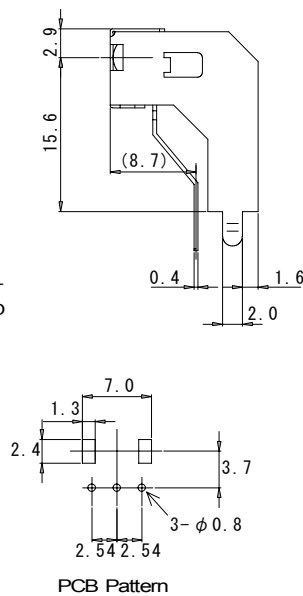


RC Filter should be connected closely between Vcc pin and GND pin.

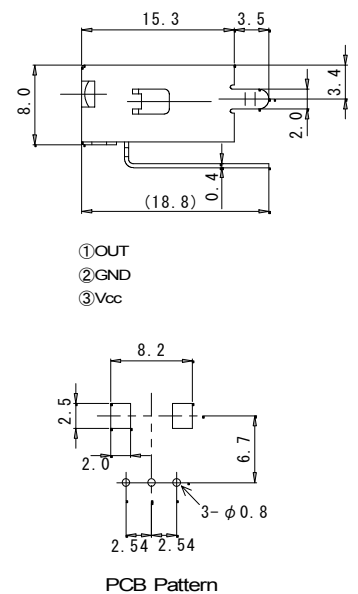
OUTLINE



NJL25V000
UNIT:mm



NJL28H000
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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