

PNA4601M, PNA4602M

Photodiode with amplifier functions

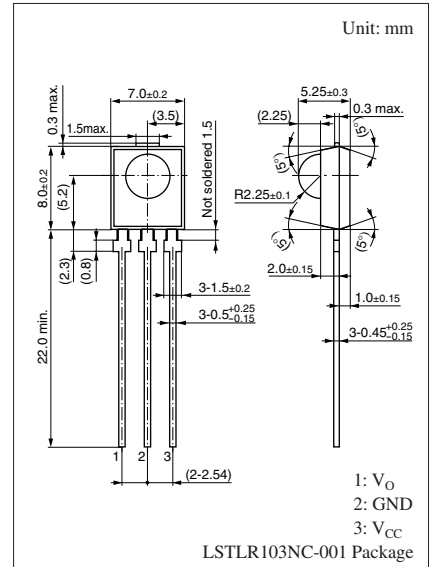
For infrared remote control systems

■ Features

- Extension distance is 8 m or more
- External parts not required
- Adoption of visible light cutoff resin

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector supply voltage	V_{CC}	- 0.5 to +7	V
Power dissipation	P_D	200	mW
Operating ambient temperature	T_{opr}	-20 to +75	$^\circ\text{C}$
Storage temperature	T_{stg}	-40 to +100	$^\circ\text{C}$



■ Electrical-Optical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$, $V_{CC} = 5.0\text{ V}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit	
Collector supply voltage	V_{CC}		4.7	5.0	5.3	V	
Supply current	I_{CC}	No signal condition	1.8	2.4	3.0	mA	
Load resistance	R_L		15	20	25	k Ω	
Maximum reception distance *1	L_{max}		8.0	10.0		m	
Output voltage low-level *2	V_{OL}	$L \leq 8.0\text{ m}$, $I_{OL} = 400\ \mu\text{A}$		0.35	0.50	V	
Output voltage high-level	V_{OH}	No signal condition, $I_{OH} = -10\ \mu\text{A}$	4.75	4.80		V	
Pulse width low-level *1	PNA4601M	T_{WL1}	$L = 8.0\text{ m}$, 16 pulse	200	400	600	μs
		T_{WL2}	$L = 0.2\text{ m}$, 16 pulse, $T_a = 65^\circ\text{C} \pm 3^\circ\text{C}$	100		700	
	PNA4602M	T_{WL}	$L = 0.1\text{ m to } 8.0\text{ m}$, 16 pulse	200	400	600	
Pulse width high-level *1	PNA4601M	T_{WH}	$L = 8.0\text{ m}$, 16 pulse	200	400	600	μs
	PNA4602M		$L = 0.1\text{ m to } 8.0\text{ m}$, 16 pulse	200	400	600	
Center frequency	PNA4601M	f_O		36.7		kHz	
	PNA4602M			38.0			

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.

2. *1: Burst wave form Figure 1

*2: Constant wave form Figure 2

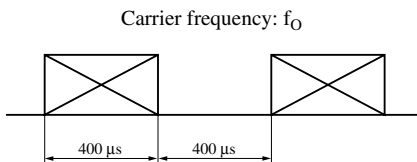


Figure 1

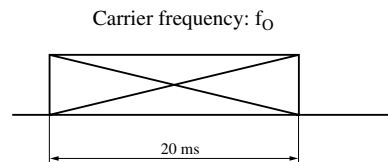
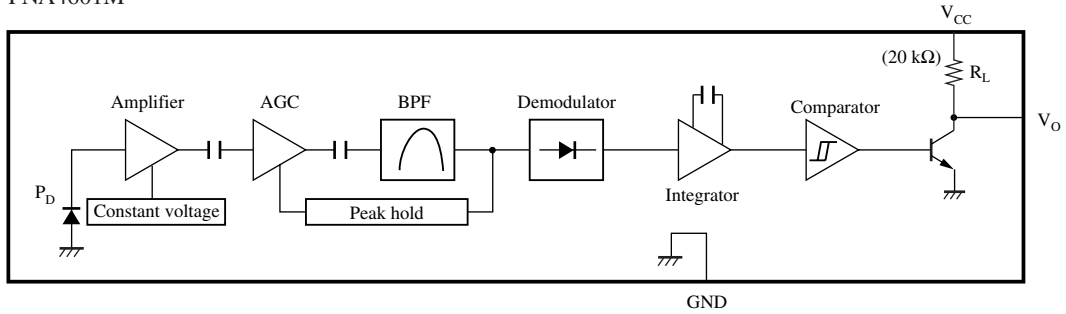


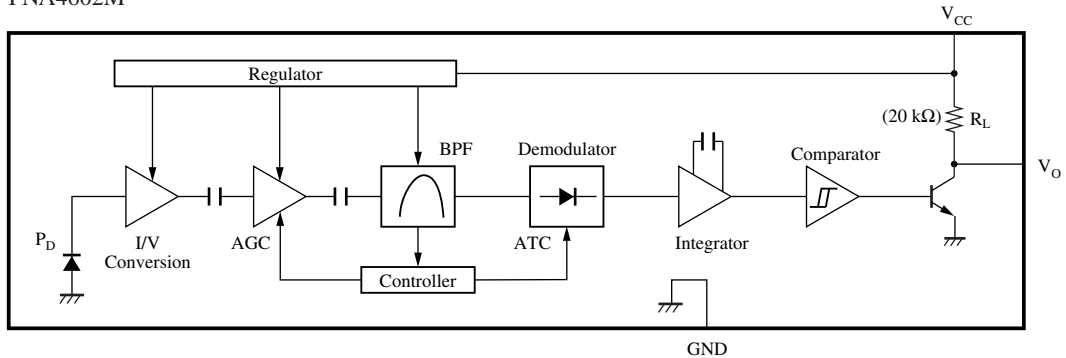
Figure 2

■ Block Diagram

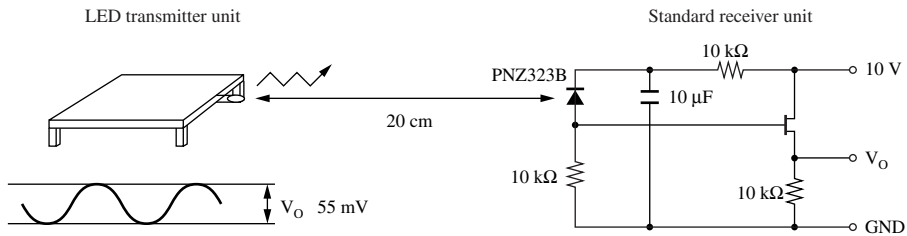
PNA4601M



PNA4602M

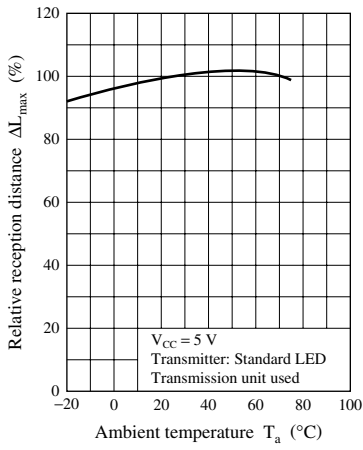


■ Panasonic Transmitter Specifications

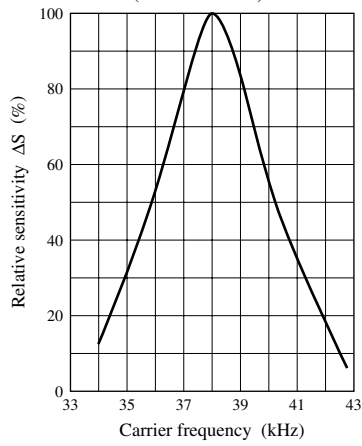


1. The output of the LED transmitter unit is adjusted so that the output standard receiver unit, V_O may be 55 mV when transmitting waves (duty = 50%) are output from the transmitter unit, where the sensitivity to infrared emitters (S_{IR}) of PNZ323B is 0.53 μA when the irradiance H is 12.45 $\mu\text{W}/\text{cm}^2$.
2. The maximum detection distance of this specification is guaranteed by T_{WH} and T_{WL1} being within the limits when constant 16 pulses are transmitted with the output of the transmitter unit corresponded to the maximum detection distance in the system above. (The maximum detection distance is measured in the darkness without disturbing noises.)

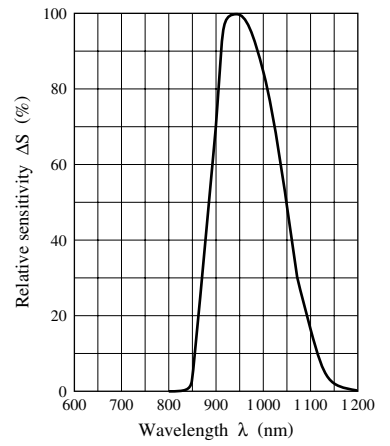
$\Delta L_{\max} - T_a$



BPF frequency characteristics (PNA4602M) *

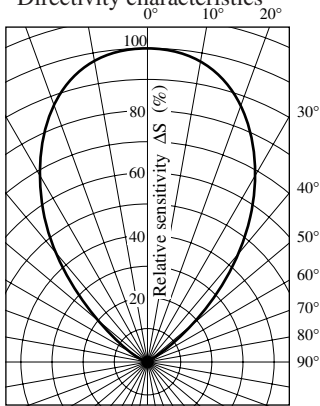


Spectral sensitivity characteristics



* The peak for PNA4601M is f_0 .

Directivity characteristics



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