

PNA4601M, PNA4602M

Photodiode with amplifier functions

For infrared remote control systems

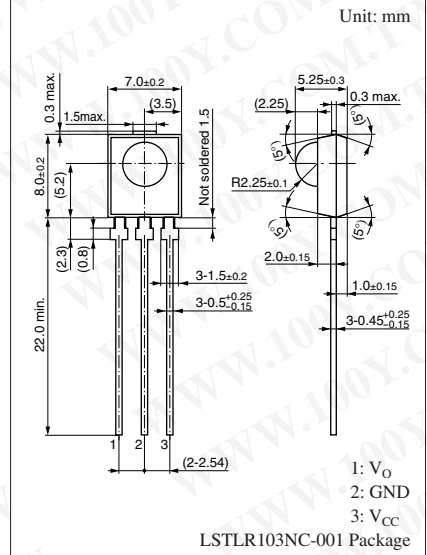
■ Features

- 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 | $^\circ\text{C}$ |

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■ 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 | |
| Pulse width high-level *1 | PNA4602M | T_{WL} | $L = 0.1\text{ m to } 8.0\text{ m}$, 16 pulse | | 200 | 400 | 600 | |
| | | PNA4601M | T_{WH} | $L = 8.0\text{ m}$, 16 pulse | | 200 | 400 | 600 |
| PNA4602M | $L = 0.1\text{ m to } 8.0\text{ m}$, 16 pulse | | | 200 | 400 | 600 | | |
| | Center frequency | PNA4601M | f_O | | | | 36.7 | kHz |
| | | | | | 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

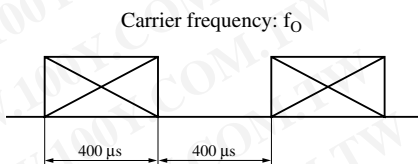


Figure 1

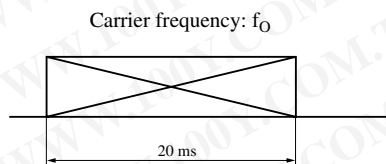
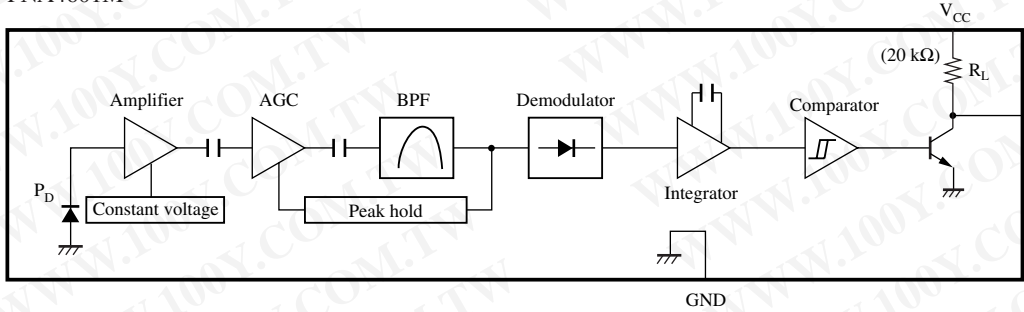


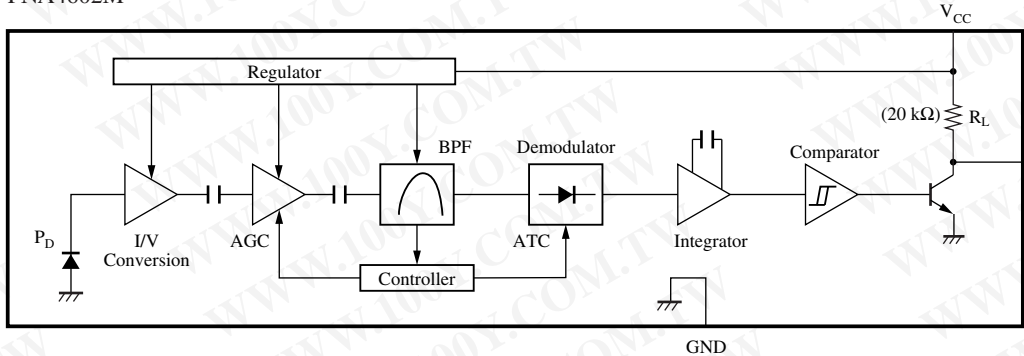
Figure 2

■ Block Diagram

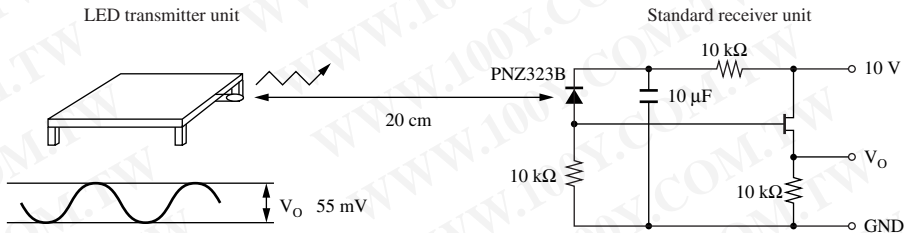
PNA4601M



PNA4602M



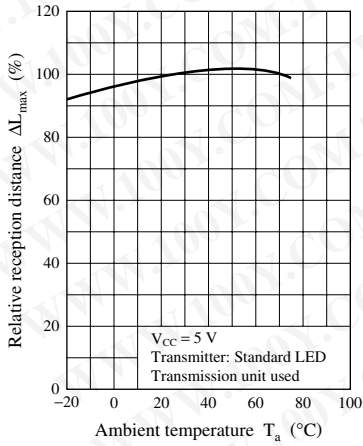
■ Panasonic Transmitter Specifications



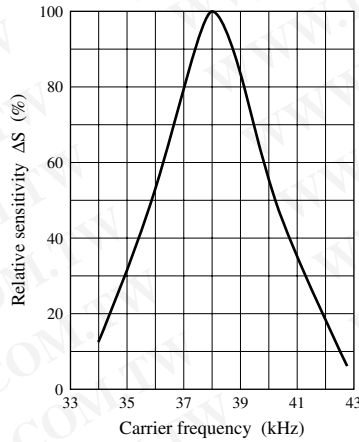
1. The output of the LED transmitter unit is adjusted so that the output standard receiver unit, V_O may be 55 mV when transmitting waves (duty = 50%) are output from the transmitter unit, where the sensitivity to infrared emitters (S_{IR}) of PNZ323B is $0.53 \mu A$ when the irradiance H is $12.45 \mu W/cm^2$.
2. The maximum detection distance of this specification is guaranteed by T_{WH} and T_{WLI} 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.)

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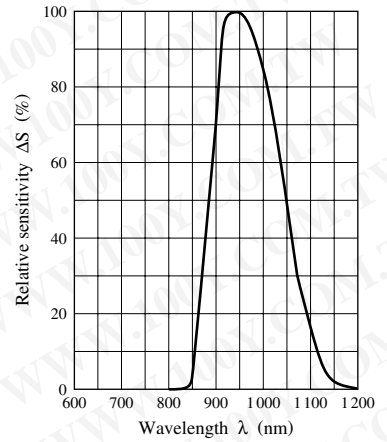
ΔL_{\max} — T_a



BPF frequency characteristics
(PNA4602M) *

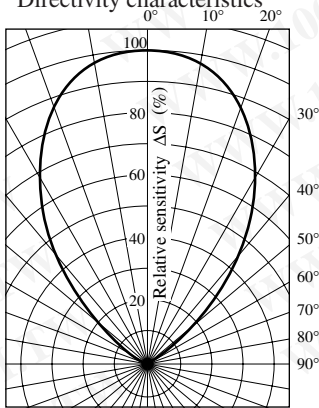


Spectral sensitivity characteristics



* The peak for PNA4601M is f_0 .

Directivity characteristics



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