GP1U50X Series/GP1U51X Series GP1U52X Series/GP1U52Y Series

Light Detecting Unit for Remote Control

T-41-41

■ Features

1. Various B. P. F. (Band Pass Filter) frequency
2. Two installation type
   - For horizontal PWB……GP1U50X series, GP1U51X series, GP1U52X series
   - For vertical PWB……GP1U52Y series

■ Model Line-up

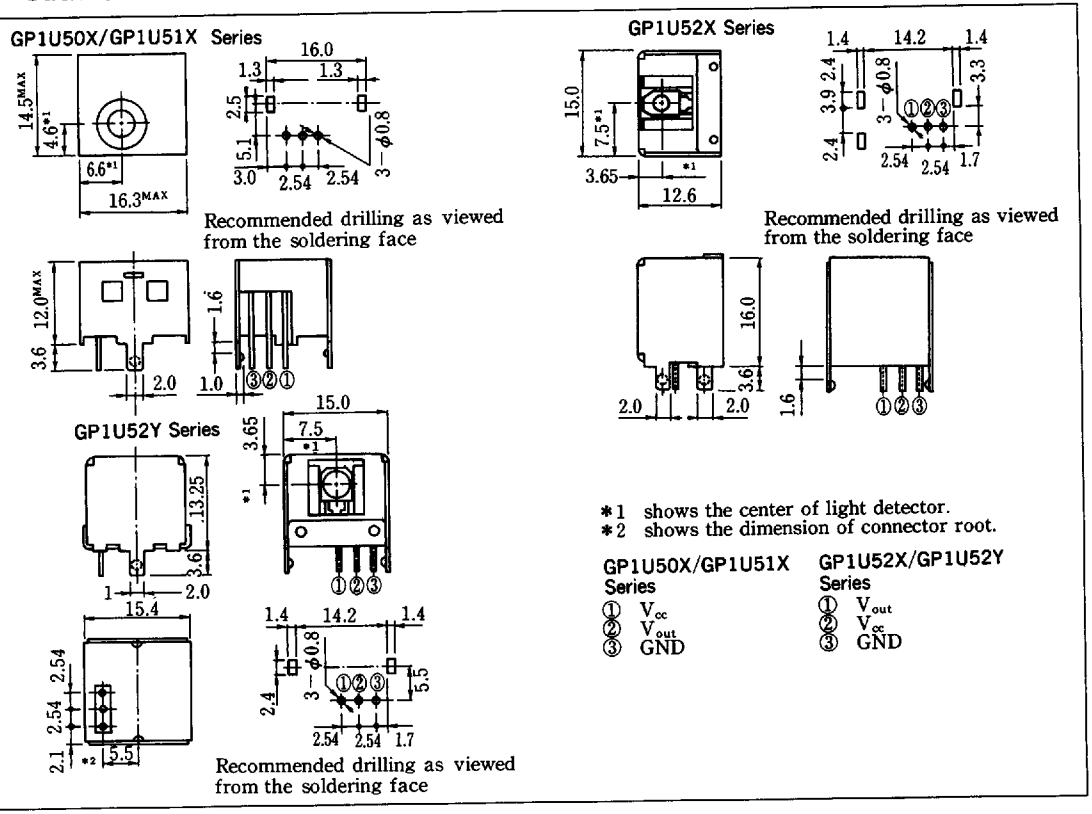
- For horizontal PWB
  - GP1U50X series (Case height : 12mm)
  - GP1U51X series (Case height : 12mm) Without CR for power supply
  - GP1U52X series (Case height : 16mm)
- For vertical PWB
  - GP1U52Y series (Case height : 13.25mm)

■ Applications

- Light detecting portion of remote control
  1. TVs
  2. VCRs
  3. Audio equipment

■ Outline Dimensions

(Unit : mm)



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■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Supply voltage	V_{cc}	6.3	V
*1 Operating temperature	T_{opr}	−10~+60	°C
Storage temperature	T_{stg}	−20~+70	°C
*2 Soldering temperature	T_{sol}	260	°C

*1 No dew formation
*2 For 5 seconds

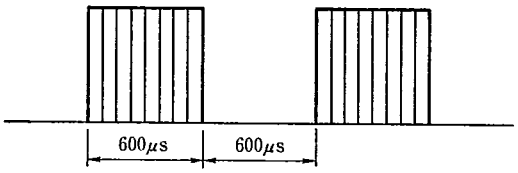
■ Recommended Operating Conditions

Parameter	Symbol	Value	Unit
Supply voltage	V_{cc}	4.7~5.3	V

■ Electrical Characteristics (Ta=25°C, Vcc=+5V)

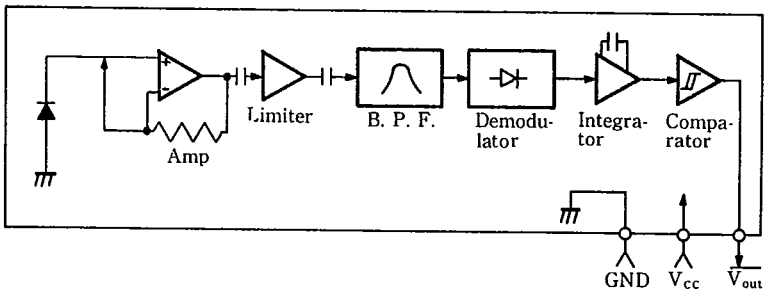
Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Dissipation current		I_{cc}	No input light	—	—	5.0	mA
High level output voltage		V_{OH}	*3	V_{cc}−0.5	—	—	V
Low level output voltage		V_{OL}		—	—	0.45	V
High level pulse width	GP1U50X/GP1U51X series	T_1		440	—	770	μs
	GP1U52X/GP1U52Y series			400	—	800	
Low level pulse width	GP1U50X/GP1U51X series	T_2		440	—	770	μs
	GP1U52X/GP1U52Y series			400	—	800	
B. P. F. center frequency		f_o		—	※※40	—	kHz

*3 The burst wave as shown in the following figure shall be transmitted by the transmitter shown in Fig. 1.
※※ Diversified models with a different B. P. F. frequency, as shown in a separate table, are also available.



The value of f_o is shown in a separate table.
Duty 50%

■ Internal Block Diagram



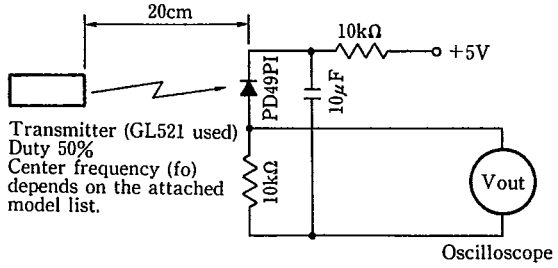
■ Performance

Using the transmitter shown in Fig. 1, the output signal of the light detecting unit is good enough to meet the following items in the standard optical system in Fig. 2.

(1) Linear reception distance characteristics
When L=0.2~8m, Ee<10 lx and ϕ=0° in Fig. 2, the output signal shall meet the electrical characteristics in the attached list.

(2) Sensitivity angle reception distance characteristics
When L=0.2~6m, Ee<10 lx and $\phi \leqq 30°$ in Fig. 2, the output signal shall meet the electrical characteristics in the attached list.

(3) Anti outer peripheral light reception distance characteristics
When L=0.2~4m, Ee≦300 lx and ϕ=0° in Fig. 2, the output signal shall meet the electrical characteristics in the attached list.



In the above figure, the transmitter should be set so that the output Vout can be $40mV_{pp}$. However, the PD49PI to be used here should be of the short-circuit current I_{sc}=2.6μA at E_v= 100 lx.
(E_v is an illuminance by CIE standard light source A (tungsten lamp).)

Fig. 1 Transmitter

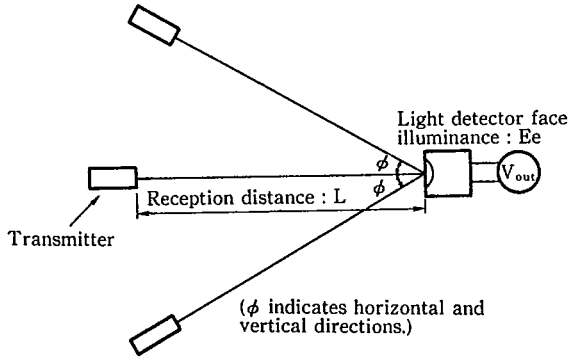


Fig. 2 Standard optical system

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Model Line-up

Model No.	B. P. F. frequency	Unit
GP1U50X/GP1U51X/GP1U52X/GP1U52Y	40	kHz
GP1U501X/GP1U511X/GP1U521X/GP1U521Y	38	
GP1U502X/GP1U512X/GP1U522X/GP1U522Y	36.7	
GP1U503X/GP1U513X/GP1U523X/GP1U523Y	32.75	
GP1U505X/GP1U515X/GP1U525X/GP1U525Y	41.7	
GP1U506X/GP1U516X/GP1U526X/GP1U526Y	48	
GP1U507X/GP1U517X/GP1U527X/GP1U527Y	56.8	
GP1U508X/GP1U518X/GP1U528X/GP1U528Y	39	
GP1U509X/GP1U519X/GP1U529X/GP1U529Y	35	

Precautions for Use

(1) Use the light emitting unit (remote control transmitter), in consideration of performance, characteristics and operating condition of light emitting device and the characteristics of the light detecting unit.

(2) Pay attention to a malfunction of the light detecting unit when the surface is stained with dust and refuse.
Care must be taken not to touch the light detector surface.
If it should be dirty, wipe off with soft cloth so as to prevent scratch. In case some solvents are required, use metyl alcohol, ethyl alcohol or isoprophyl alcohol. Also, protect the light detecting unit against flux and others.

(3) The shield case shall be grounded on PWB pattern.

(4) Do not apply unnecessary force to the terminals and case from outside.

(5) Do not push the light detector surface (photodiode) from outside.

(6) To avoid the electrostatic breakdown of IC, handle the unit under the condition of grounding with human body, soldering iron, etc.

(7) In case of adopting the infrared light detecting unit for the wireless remote control, use it in accordance with the transmission scheme and the signal format recommended in "Countermeasures for malfunction prevention of home appliances with infrared remote control" issued from Japan Association of Electrical Home Appliances (AEHA) in July 1987.