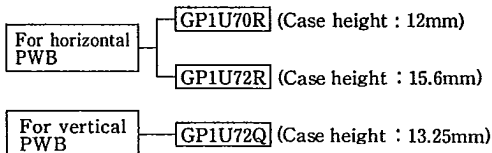# GP1U70R Series/GP1U72R Series
GP1U72Q Series

Light Detecting Unit
for Remote Control

T-41-41

■ Features

1. Anti-electromagnetic noise characteristic is improved due to mesh structured light detecting window.
   (Electric field strength : 5 times or more compared with conventional model)
2. Various B. P. F. (Band Pass Filter) frequency
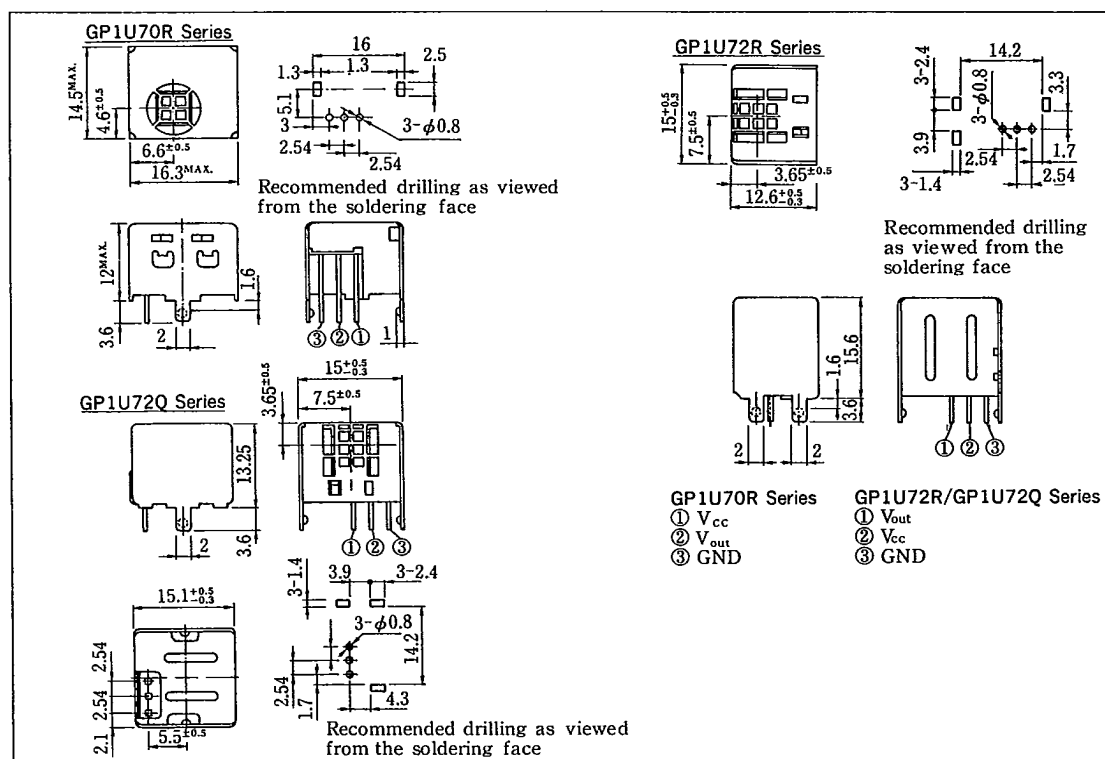
■ Model Line-up

For horizontal PWB ── GP1U70R (Case height : 12mm)
                   └─ GP1U72R (Case height : 15.6mm)

For vertical PWB ── GP1U72Q (Case height : 13.25mm)

■ Applications

○ Light detecting portion of remote control
  1. TVs
  2. VCRs
  3. Air conditioners

■ Outline Dimensions   (Unit : mm)

GP1U70R Series
Recommended drilling as viewed from the soldering face

GP1U72Q Series

GP1U72R Series
Recommended drilling as viewed from the soldering face

GP1U70R Series
① V$_{cc}$
② V$_{out}$
③ GND

GP1U72R/GP1U72Q Series
① V$_{out}$
② V$_{cc}$
③ GND

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■ Absolute Maximum Ratings   (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Supply voltage	V_{cc}	0~6.3	V
*1 Operating temperature	T_{opr}	−10~+60	°C
Storage temperature	T_{stg}	−20~+70	°C
*2 Soldering temperature	T_{sol}	260	°C

■ 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}		V_{cc}−0.5	——	——	V
Low level output voltage		V_{OL}	*3	——	——	0.45	V
High level pulse width	GPIU70R series	T_1		440	——	770	μs
	GPIU72R/GPIU72Q series			400	——	800	
Low level pulse width	GPIU70R series	T_2		440	——	770	μs
	GPIU72R/GPIU72Q 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.
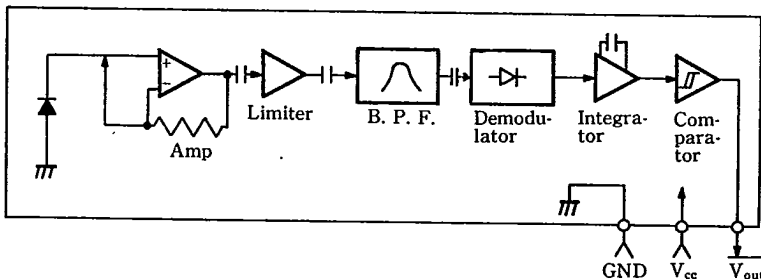※※ Diversified models with a different B. P. F. frequency, as shown in a separate table, are also available.
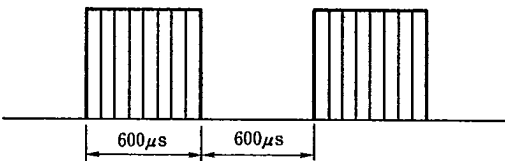
The value of f_o is shown in a separate table.
Duty 50%

■ Internal Block Diagram

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■ Performance

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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 $L=0.2\sim6.5m$, Ee*4 <10 lx and $\phi=0°$ in Fig. 2, the output signal shall meet the electrical characteristics in the attached list.

(2) Sensitivity angle reception distance characteristics

When $L=0.2\sim4.5m$, Ee*4 <10 lx and $\phi\leqq30°$ in Fig. 2, the output signal shall meet the electrical characteristics in the attached list.

(3) Anti outer peripheral light reception distance characteristics

When $L=0.2\sim3m$, Ee*5 $\leqq300$ lx and $\phi=0°$ in Fig. 2, the output signal shall meet the electrical characteristics in the attached list.

*4 Detector face illuminance

*5 Outer peripheral light source : The light source A shall be used and placed at 45° from the perpendicular axis at the detector face center.
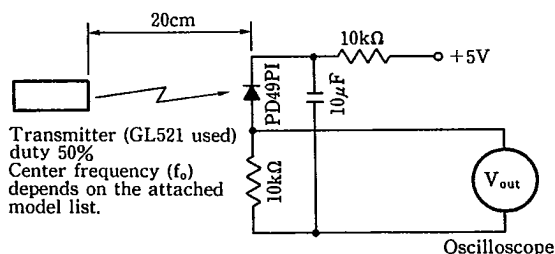
In this figure, the transmitter should be set so that the output Vout can be 40mV$_{pp}$. However, the PD49PI to be used here should be of the short-circuit current $I_{sc}=2.6\mu A$ at $E_v=100$ lx. (E_v is an illuminance by CIE standard light source A (tungsten lamp).)

Fig. 1   Transmitter

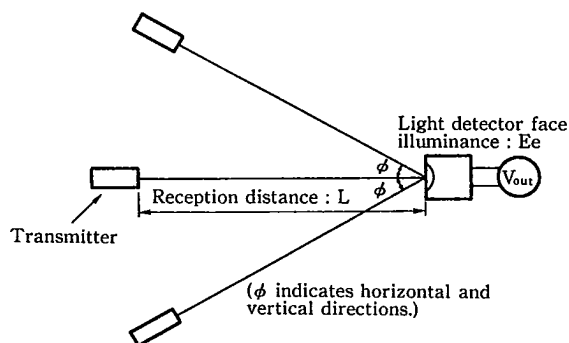**Fig. 2   Standard optical system**

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■ Model Line-up

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Model No.	B. P. F. frequency	Unit
GP1U70R/GP1U72R/GP1U72Q	40	
GP1U700R/GP1U720R/GP1U270Q	36	
GP1U701R/GP1U721R/GP1U721Q	38	
GP1U702R/GP1U722R/GP1U722Q	36.7	
GP1U703R/GP1U723R/GP1U723Q	32.75	. kHz
GP1U705R/GP1U725R/GP1U725Q	41.7	
GP1U706R/GP1U726R/GP1U726Q	48	
GP1U707R/GP1U727R/GP1U727Q	56.8	
GP1U708R/GP1U728R/GP1U728Q	39	
GP1U709R/GP1U729R/GP1U729Q	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.

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