GP1UC6X Series

Low Voltage Operation Type IR Detecting Unit for Remote Control

■ Features

1. Compact
2. Low voltage operation (Supply voltage: 2.4 to 3.6V)
3. Height from PWB to light detecting surface is the same as conventional models **GP1U90X** series/**GP1U26X** series
4. Wide range of user-specific B.P.F. (Band Pass Filter) frequencies

■ Applications

1. Camcorders
2. CD radio cassette players
3. Game equipment

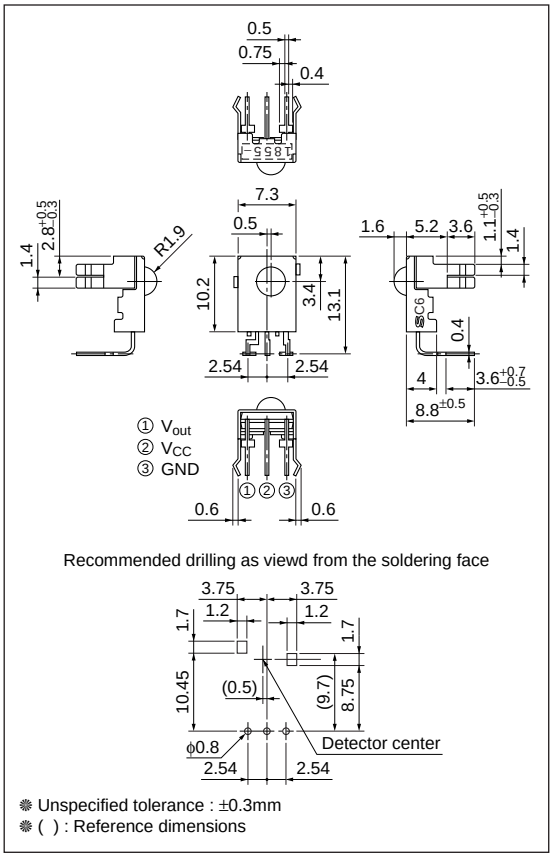
■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply voltage	Vcc	0 to 4.0	V
*1 Operating temperature	Topr	−10 to +70	°C
Storage temperature	Tstg	−20 to +70	°C
*2 Soldering temperature	Tsol	260	°C

*1 No dew formation

*2 For 5s

■ Outline Dimensions (Unit : mm)



■ Recommended Operating Conditions

Parameter	Symbol	Rating	Unit
Supply voltage	Vcc	2.4 to 3.6	V

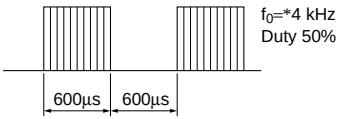
■ Electro-optical Characteristics

(Ta=25°C, V_{CC}=+3V)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit.
Dissipation current	I_{CC}	No input light	–	–	2.5	mA
High level output voltage	V_{OH}	*3	V_{CC}–0.5	–	–	V
Low level output voltage	V_{OL}	*3, I_{OL}=400μA	–	–	0.5	V
High level pulse width	T_1	*3	400	–	850	μs
Low level pulse width	T_2		350	–	800	
B.P.F. center frequency	f_0		–	*4	–	kHz

*3 The burst wave shown below shall be transmitted by the transmitter shown in Fig. 2. It should be measured after 100th pulse, and career frequency shall be the same as *4.
*4 B.P.F. center frequency f_0 is shown in the table below.

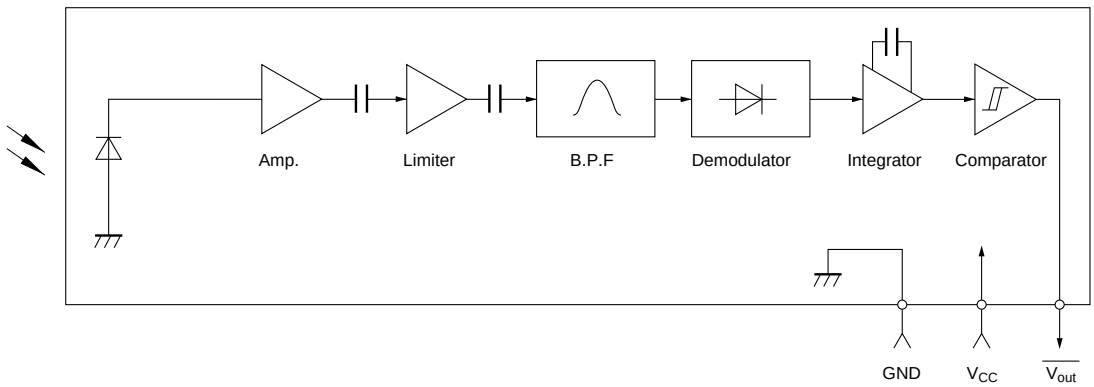
Burst Wave



■ Model Line-up

Model No.	B. P. F. center frequency	Unit
GP1UC6X	40	kHz
GP1UC60X	36	
GP1UC61X	38	
GP1UC62X	36.7	
GP1UC63X	32.75	
GP1UC67X	56.8	

Fig.1 Internal Block Diagram



■ Performance

Using the transmitter shown in Fig.2, the output signal of the light detecting unit is good enough to meet the following items in the standard optical system in Fig.3.

(1) Linear reception distance characteristics

When L=0.2 to 8.0m, *5Ev<10 lx and ϕ=0° in Fig.3, the output signal shall meet the value shown in the table of electrical characteristcs.

(2) Sensitivity angle vs. reception distance characteristics

When L=0.2 to 6.0m, *5Ev<10 lx and ϕ<=30° in Fig.3, the output signal shall meet the value shown in the table of electrical characteristics.

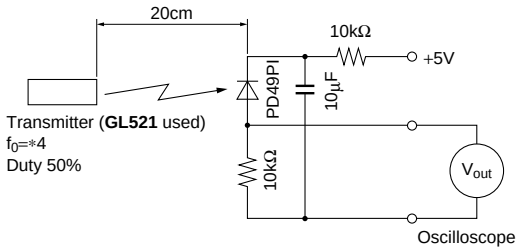
(3) Anti outer peripheral light vs. reception distance characteristics

When L=0.2 to 4.0m, *5 *6Ev<=300 lx and ϕ=0° in Fig.3, the output signal shall meet the value shown in the table of electrical characteristics.

*5 Ee stands for illuminance of detector face.

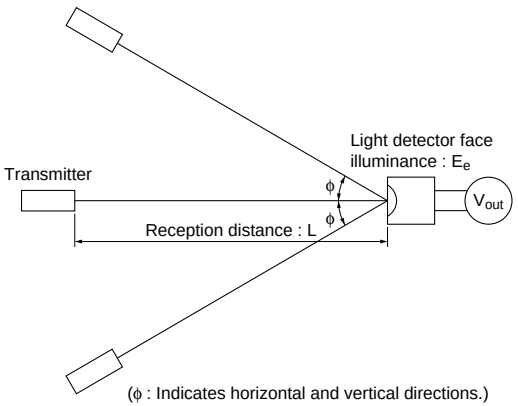
*6 Outer peripheral light source : CIE standard light source A shall be used and placed at 45° from the perpendicular axis of the detector face center.

Fig.2 Transmitter



In the above figure, the transmitter should be set so that the output Vout can be 52mVpp. PIN photodiode (**PD49PI**) to be used here should meet the value of Isc=2.6μA at Ev=100 lx. (Ev is an illuminance by CIE standard light source A (tungsten lamp).)

Fig.3 Standard Optical System



■ Precautions for Use

(1) In case of adopting the IR detecting unit for the 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 form Japan Associatoin of Electrical Home Appliances (AEHA) in July 1987. Or, it may cause malfunctions. (ex. Signal format with no reader signal, bit structure of small duty ratio, etc.)

(2) 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.

(3) Pay attention not to cause 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 to prevent from lowering performance and disapparing the model number.

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

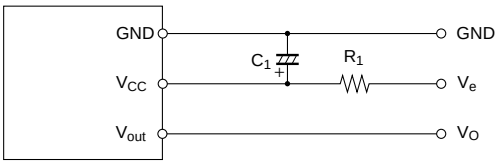
(5) Do not apply unnecessary force to the terminals and case form outside.

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

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

(8) Do not use any hole or any gap on the case of the light detecting unit for other purpose than intended.

(9) External Circuit Examples (Mount the outer parts as near the unit as possible).



(Circuit parameters)
R_1=47Ω±5%
C_1=47μF

In setting R_1 and C_1, use suitable values after considering under the real condition.

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— Telecommunication equipment [terminal]
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— Audio visual equipment
— Consumer electronics

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— Traffic signals
— Gas leakage sensor breakers
— Alarm equipment
— Various safety devices, etc.

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