

GP2L09/GP2L24 GP2L26

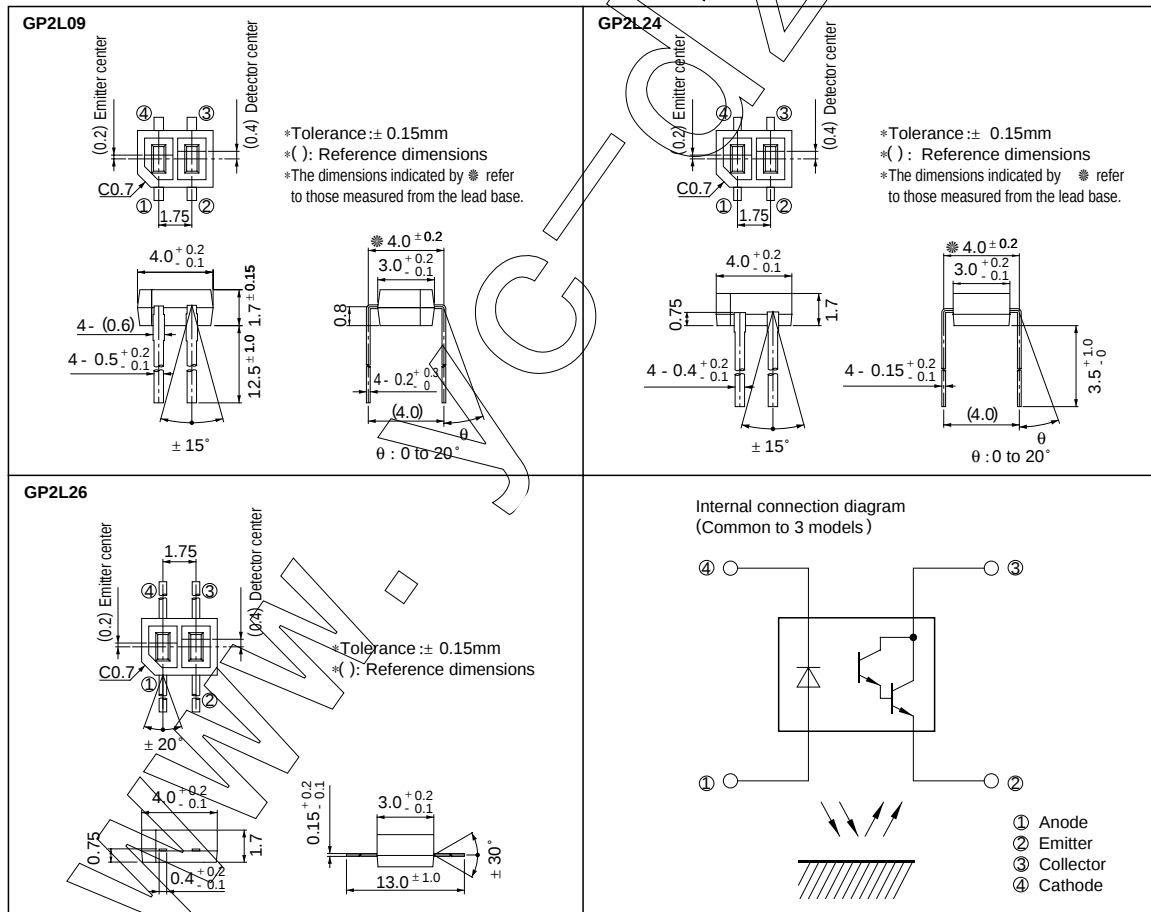
Subminiature, High Sensitivity Photointerrupter

■ Features

1. Compact and thin
GP2L09: Compact DIP, long lead type
GP2L24: Compact DIP type
GP2L26: Flat lead type
2. Optimum detection distance: 0.6 to 0.8mm
3. High sensitivity
 $(I_C: \text{MIN. } 0.5\text{mA at } I_F = 4\text{mA})$
4. Visible light cut-off type

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(Ta = 25°C)

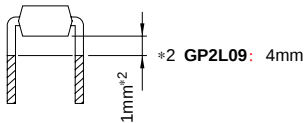
	Parameter	Symbol	Rating	Unit
Input	Forward current	I _F	50	mA
	Reverse voltage	V _R	6	V
	Power dissipation	P	75	mW
Output	Collector-emitter voltage	V _{CEO}	35	V
	Emitter-collector voltage	V _{ECO}	6	V
	Collector current	I _C	50	mA
	Collector power dissipation	P _C	75	mW
	Total power dissipation	P _{tot}	100	mW
	Operating temperature	T _{opr}	- 25 to + 85	°C
	Storage temperature	T _{stg}	- 40 to + 100	°C
	*1 Soldering temperature	T _{sol}	260	°C

*1 Within 5 seconds (Soldering areas for each model are shown below.)

GP2L09, GP2L24

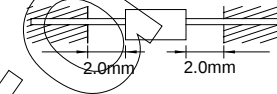
Soldering area

The hatched area more than 1mm*² away from the lower edge of package as shown in the drawing below.

**GP2L26**

Soldering area

The hatched area more than 2.0mm away from the both edge of package as shown in the drawing below.



■ Electro-optical Characteristics

(Ta = 25°C)

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	I _F	I _F = 20mA	-	1.2	1.4	V
	Reverse current	I _R	V _R = 6V	-	-	10	μA
Output	Collector dark current	I _{CEQ}	V _{CE} = 10V, I _F = 0	-	-	1x 10 ⁻⁶	A
Transfer-characteristics	*3 Collector current	I _C	V _{CE} = 2V, I _F = 4mA	0.5	3.0	15.0	mA
	Response time	Rise time	V _{CE} = 2V, I _C = 10mA R _L = 100Ω, d = 1mm	-	80	400	μs
		Fall time		-	70	400	μs
	*4 Leak current	I _{LEAK}	I _F = 4mA, V _{CE} = 5V	-	-	5.0	μA

*3 The condition and arrangement of the reflective object are shown in the right drawing.

*4 Without reflective object

The ranking of collector current shall be classified into the following 6 ranks.
(GP2L09, GP2L24, GP2L26)

Rank	Collector current I _C (mA)
*5 A	0.5 to 1.9
B	1.45 to 5.4
C	4.0 to 15.0
A or B	0.5 to 5.4
B or C	1.45 to 15.0
A, B or C	0.5 to 15.0

*5 GP2L24 and GP2L26 don't have A rank.

Test Condition for Collector Current

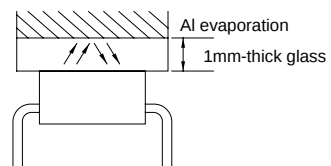


Fig. 1 Forward Current vs. Ambient Temperature

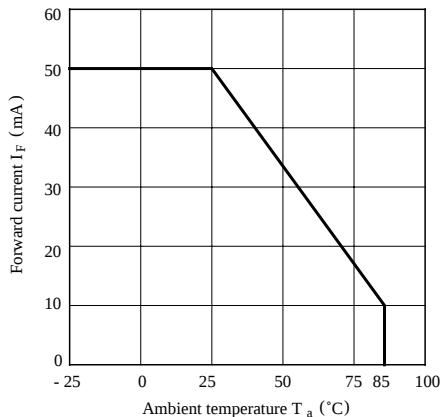


Fig. 2 Power Dissipation vs. Ambient Temperature

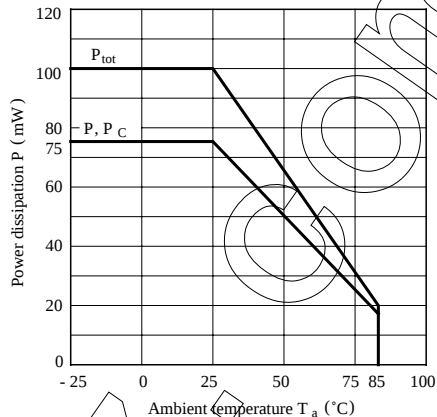


Fig. 3 Peak Forward Current vs. Duty Ratio

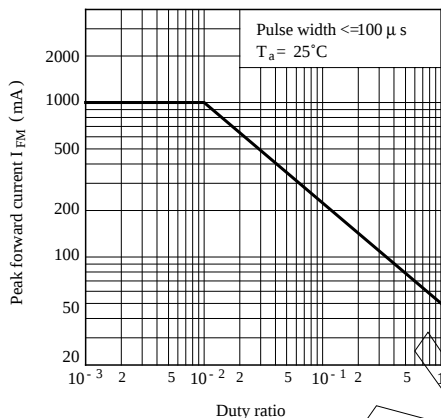


Fig. 4 Forward Current vs. Forward Voltage

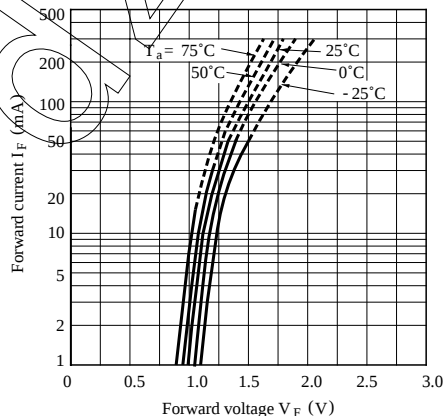


Fig. 5 Collector Current vs. Forward Current

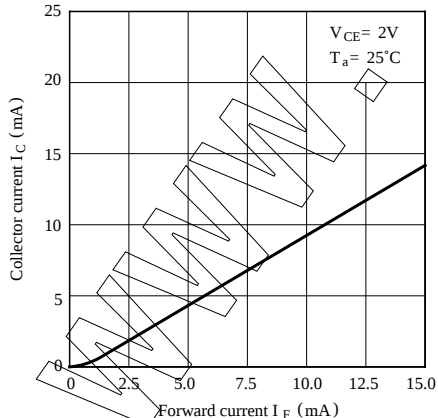


Fig. 6 Collector Current vs. Collector-emitter Voltage

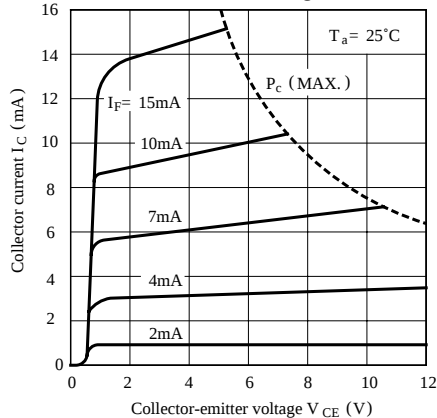


Fig. 7 Relative Collector Current vs. Ambient Temperature

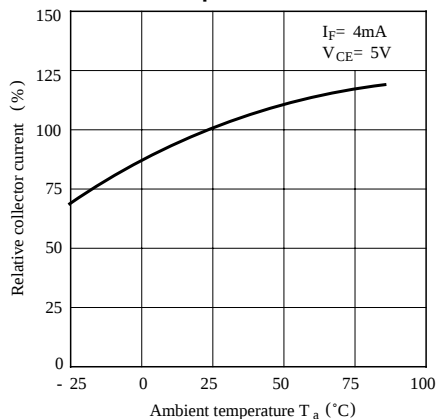


Fig. 8 Collector Dark Current vs. Ambient Temperature

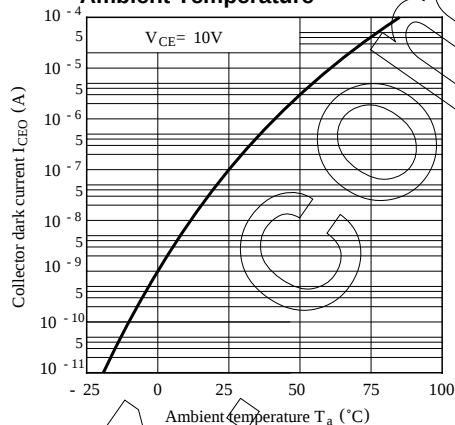


Fig. 9-a Response Time vs. Load Resistance

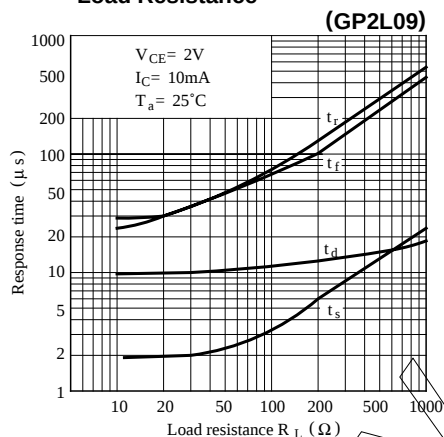
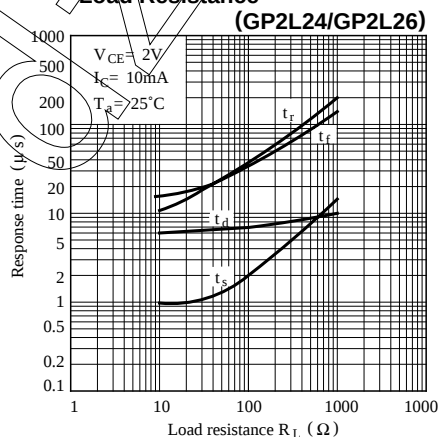


Fig. 9-b Response Time vs. Load Resistance



Test Circuit for Response Time

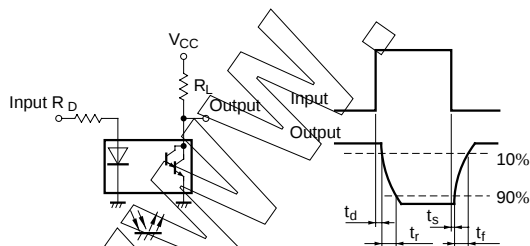


Fig.10 Relative Collector Current vs. Distance between Sensor and Al Evaporation Glass

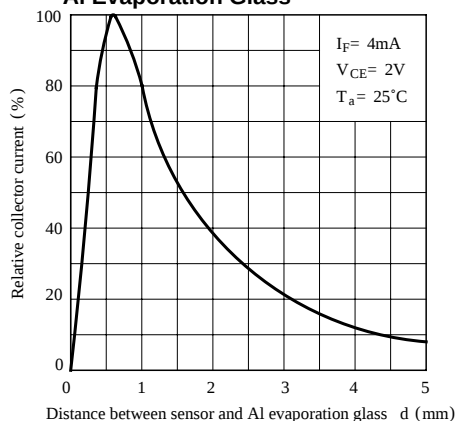


Fig.11 Relative Collector Current vs. Card Moving Distance (1)

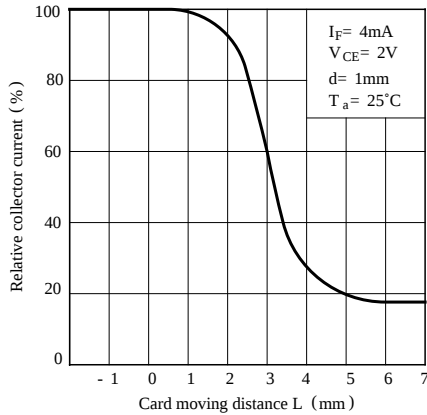
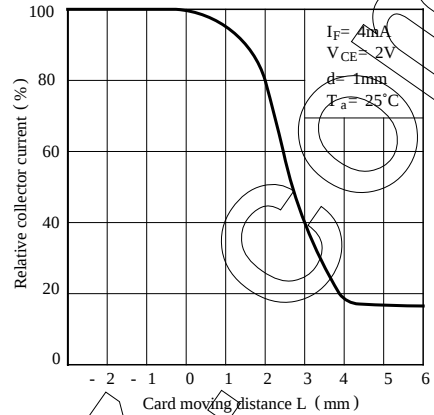


Fig.12 Relative Collector Current vs. Card Moving Distance (2)



Test Condition for Distance & Detecting Position Characteristics

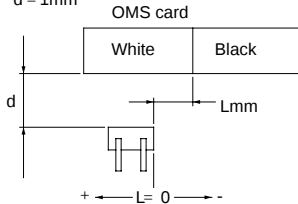
(EX.: GP2L24)

Correspond to Fig.10



Correspond to Fig.11

Test condition
 $I_F = 4\text{mA}$
 $V_{CE} = 2\text{V}$
 $d = 1\text{mm}$



Correspond to Fig.12

Test condition
 $I_F = 4\text{mA}$
 $V_{CE} = 2\text{V}$
 $d = 1\text{mm}$

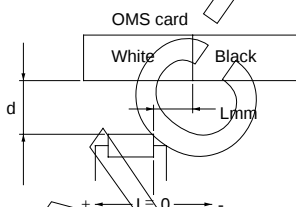


Fig.13 Frequency Response (GP2L09)

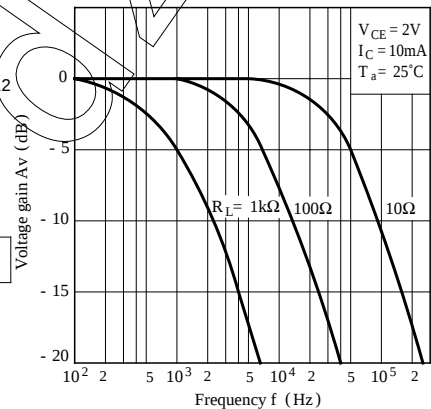


Fig.14 Frequency Response (GP2L24/ GP2L26)

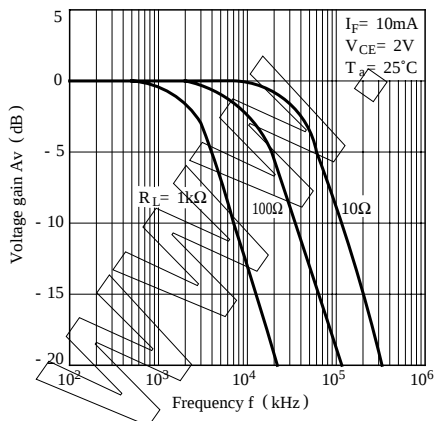
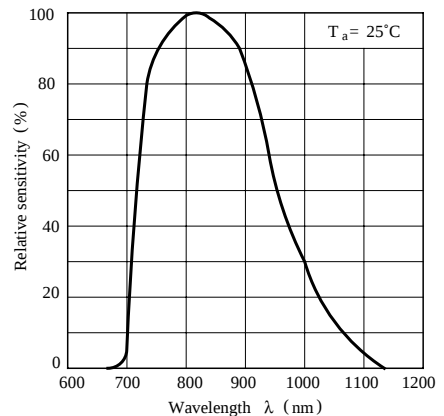


Fig.15 Spectral Sensitivity (Detecting Side)



■ Precautions for Use

- (1) In order to stabilize power supply line, connect a by-pass capacitor of more than 0.01 μ F between Vcc and GND near the device.
- (2) In this product, the PWB is fixed with a resin cover, and cleaning solvent may remain inside the case; therefore, dip cleaning or ultrasonic cleaning are prohibited.
- (3) Remove dust or stains, using an air blower or a soft cloth moistened in cleaning solvent. However, do not perform the above cleaning using a soft cloth with cleaning solvent in the marking portion.
In this case, use only the following type of cleaning solvent used for wiping off:
Ethyl alcohol, Methyl alcohol, Isopropyl alcohol, Freon TE, Freon TF, Diflon solvent S3-E
When the cleaning solvents except for specified materials are used, please consult us.
- (4) As for other general cautions, refer to the chapter “Precautions for Use”.

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