

T-41-73

# GP2L04/GP2L06 /GP2L09

## Subminiature, High Sensitivity Photointerrupter

### ■ Features

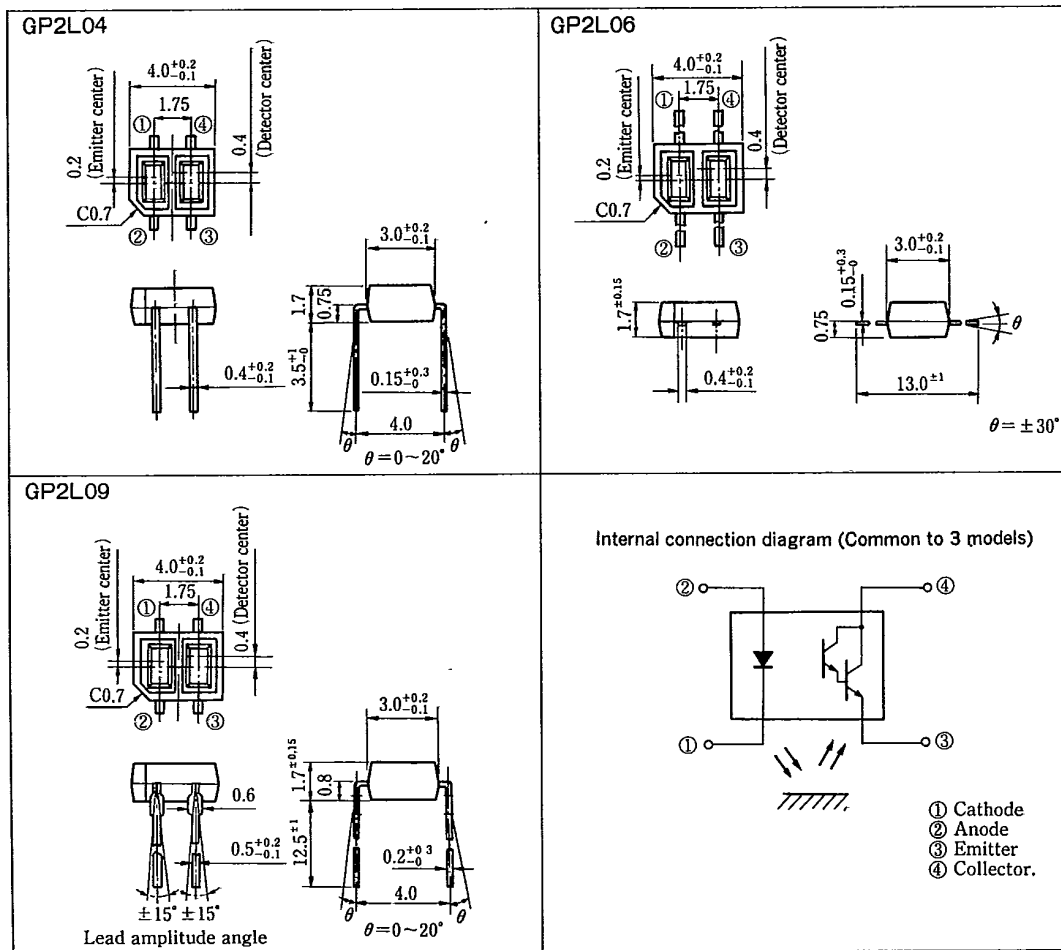
1. Compact and thin  
GP2L04: Compact DIP type  
GP2L06: Flat lead type  
GP2L09: Compact DIP, long lead type
2. Optimal detection distance: 0.8~1mm
3. High sensitivity  
( $I_c$ : MIN. 0.5mA at  $I_F = 4mA$ )
4. Visible light cut-off type

### ■ Applications

1. Cassette tape recorders, VCRs
2. Floppy disk drives
3. Various microcomputerized control equipment

### ■ Outline Dimensions

(Unit : mm)



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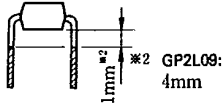
■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Input	Forward current	$I_F$	50 mA
	Reverse voltage	$V_R$	6 V
	Power dissipation	$P_D$	75 mW
Output	Collector-emitter voltage	$V_{CE0}$	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 ~ +85	°C
Storage temperature	$T_{stg}$	-40 ~ +100	°C
*1 Soldering temperature	$T_{sol}$	260	°C

\*1 Within 5 seconds (Soldering areas are shown below.)

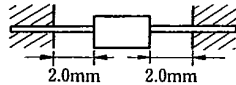
GP2L04, GP2L09

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



GP2L06

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



■ Electro-optical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	$V_F$ $I_F=20mA$	—	1.2	1.4	V
	Reverse current	$I_R$ $V_R=6V$	—	—	10	$\mu A$
Output	Collector dark current	$I_{CE0}$ $V_{CE}=10V, I_F=0$	—	—	$1 \times 10^{-6}$	A
Transfer characteristics	*3 Collector current	$I_C$ $V_{CE}=2V, I_F=4mA$	0.5	3.0	15.0	mA
	Response time (Rise)	$t_r$ $V_{CE}=2V, I_C=10mA$	—	80	400	$\mu s$
	Response time (Fall)	$t_f$ $R_L=100\Omega$	—	70	400	$\mu$
	**Leak current	$I_{LEAK}$ $I_F=4mA, V_{CE}=5V$	—	—	5.0	$\mu A$

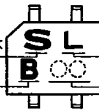
\*3 The condition and arrangement of the reflective object are shown in the right drawing.

\*4 Without reflective object

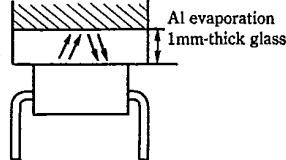
Rank	$I_C$ (mA)	Rank mark
A	0.5~1.9	A
B	1.45~5.4	B
C	4.0~15.0	C
AB	0.5~5.4	A or B
BC	1.45~15.0	B or C
ABC	0.5~15.0	A, B or C

Marking Example  
 GP2L04

Sharp's mark  
 Rank mark

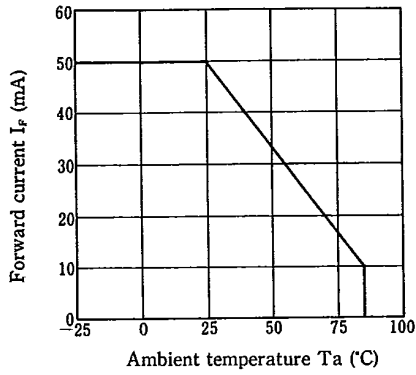


Test Condition and Arrangement for Collector Current

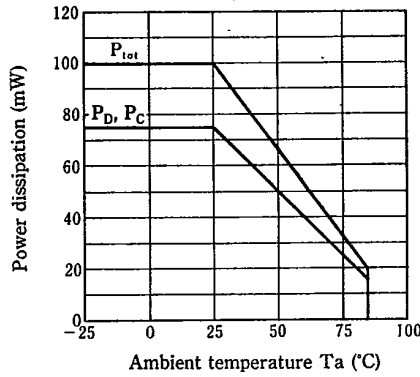


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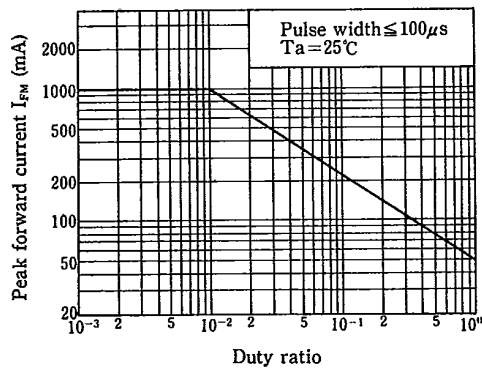
**Fig. 1 Forward Current vs. Ambient Temperature**



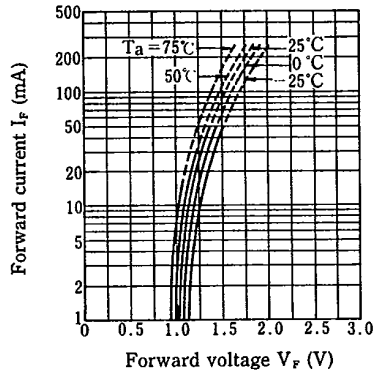
**Fig. 2 Power Dissipation vs. Ambient Temperature**



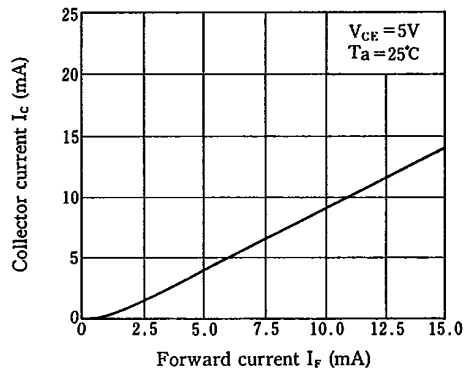
**Fig. 3 Peak Forward Current vs. Duty Ratio**



**Fig. 4 Forward Current vs. Forward Voltage**



**Fig. 5 Collector Current vs. Forward Current**



**Fig. 6 Collector Current vs. Collector-emitter Voltage**

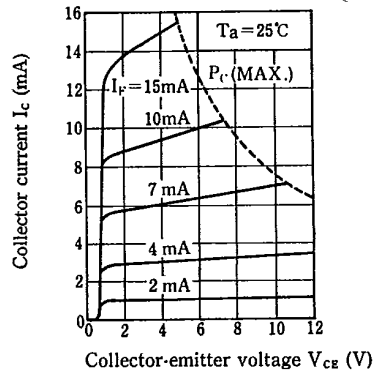


Fig. 7 Relative Collector Current vs. Ambient Temperature

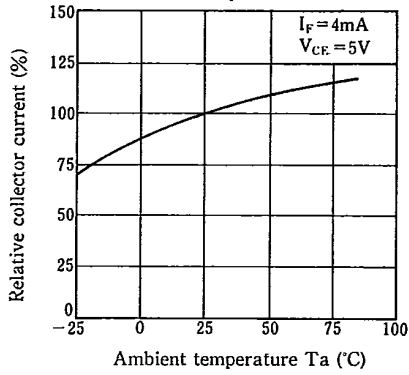


Fig. 8 Collector Dark Current vs. Ambient Temperature

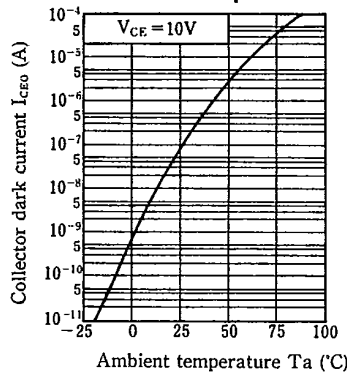
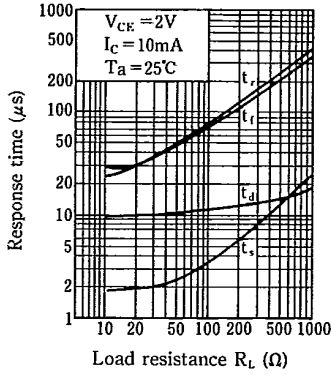


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

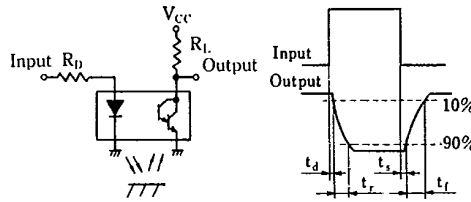


Fig. 10 Relative Collector Current vs. Distance between GL2L04 and Card

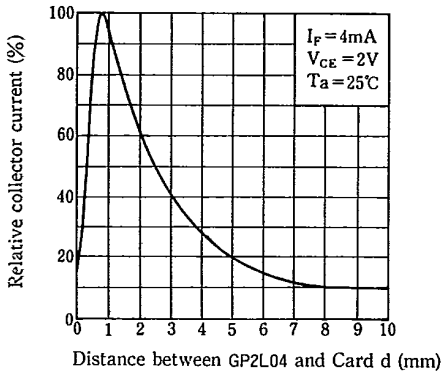


Fig. 11 Relative Collector Current vs. Card Moving Distance (1)

