

# GP2L01/GP2L01F

## High Sensitivity, Long Focal Distance Type Photointerrupter

### ■ Features

1. Long focal distance
2. High current transfer ratio
 

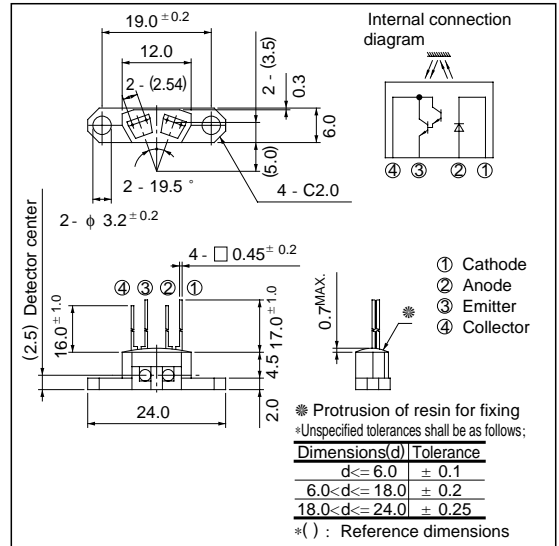
<b>GP2L01</b> CTR: MIN. 30%	}	at $I_F = 10\text{mA}$
<b>GP2L01F</b> CTR: MIN. 25%		
2. Visible light cut-off type: **GP2L01F**

### ■ Applications

1. Copiers, printers
2. Automatic vending machines, ticket vending machines
3. Optoelectronic switches, optoelectronic counters

### ■ Outline Dimensions

(Unit : mm)



### ■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	$I_F$	50	mA
	*1 Peak forward current	$I_{FM}$	1	A
	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	$I_C$	40	mA
	Collector power dissipation	$P_C$	75	mW
Operating temperature		$T_{opr}$	- 25 to + 85	°C
Storage temperature		$T_{stg}$	- 40 to + 100	°C
*2 Soldering temperature		$T_{sol}$	260	°C

\*1 Pulse width ≤ 100 μs, Duty ratio = 0.01

\*2 For 3 seconds

**■ Electro-optical Characteristics**

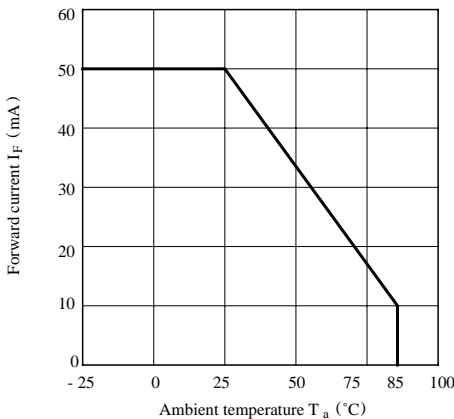
( $T_a = 25^\circ\text{C}$ )

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	$V_F$	$I_F = 20\text{mA}$	-	1.2	1.4	V	
	Peak forward voltage	$V_{FM}$	$I_{FM} = 0.5\text{A}$	-	3.0	4.0	V	
	Reverse current	$I_R$	$V_R = 3\text{V}$	-	-	10	$\mu\text{A}$	
Output	Collector dark current	$I_{CEO}$	$V_{CE} = 10\text{V}$	-	-	$10^{-6}$	A	
Transfer characteristics	*3 Collector Current	<b>GP2L01</b>	$I_F = 10\text{mA}, V_{CE} = 2\text{V}$	3	-	-	mA	
		<b>GP2L01F</b>		2.5	-	25	mA	
	Response time	Rise time	$t_r$	$I_C = 10\text{mA}, V_{CE} = 2\text{V}, R_L = 100\Omega$ $d = 5\text{mm}$	-	80	400	$\mu\text{s}$
		Fall time	$t_f$		-	70	350	$\mu\text{s}$
	*4 Leak current		$I_{LEAK}$	$I_F = 10\text{mA}, V_{CE} = 2\text{V}$	-	-	100	$\mu\text{A}$

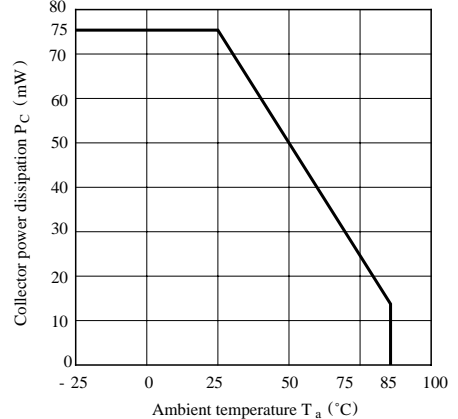
\*3 Test method : A reflective object shall be an OMS test card (white) specified by Sharp, and be 5.0mm away from the sensor.

\*4 Without reflective object

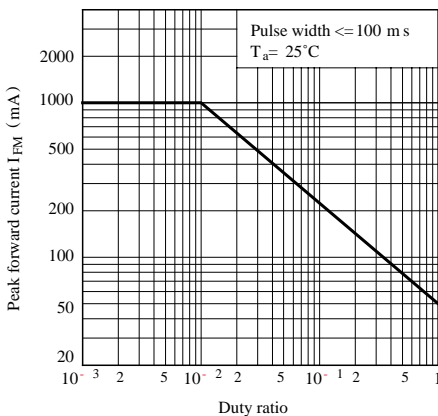
**Fig. 1 Forward Current vs. Ambient Temperature**



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



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



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

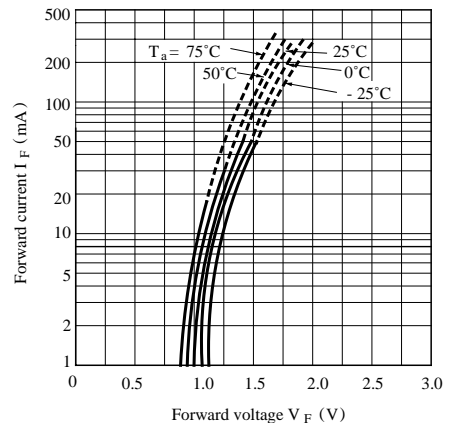


Fig. 5 Collector Current vs. Forward Current

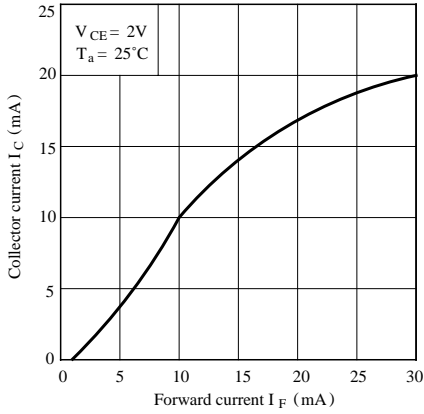


Fig. 6 Collector Current vs. Collector-emitter Voltage

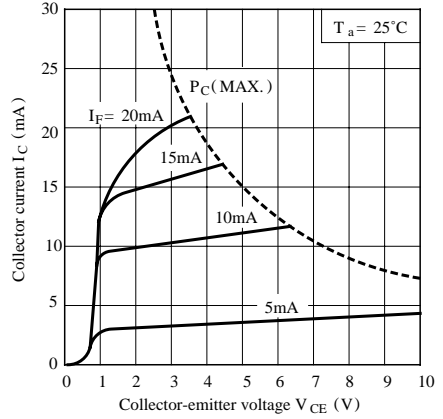


Fig. 7 Relative Collector Current vs. Ambient Temperature

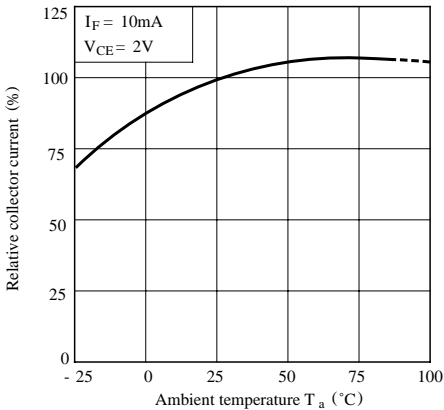


Fig. 8 Collector Dark Current vs. Ambient Temperature

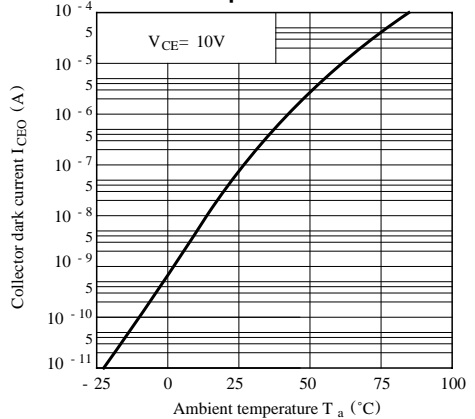
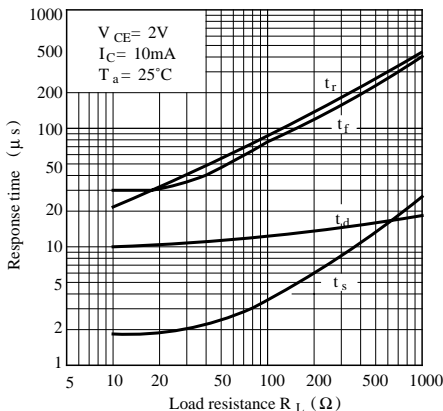


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

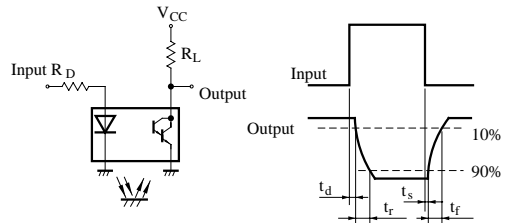


Fig.10 Frequency Response

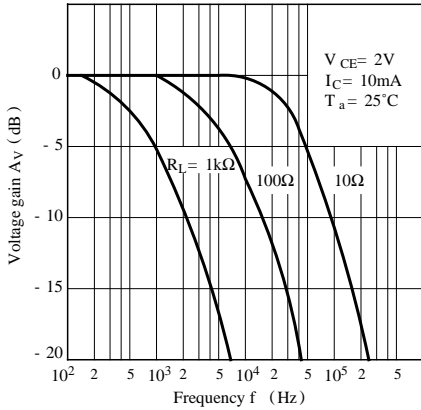


Fig.11 Relative Collector Current vs. Distance between GP2L01 (F) and Test Card

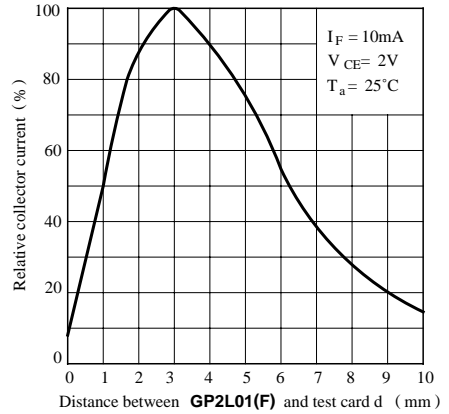
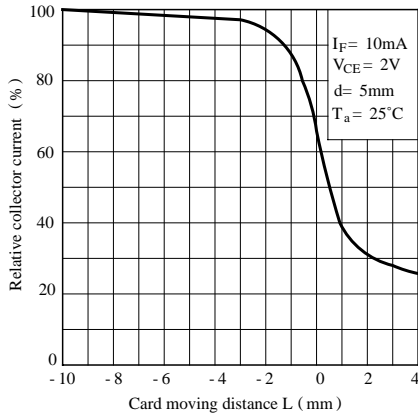


Fig.12 Relative Collector Current vs. Card Moving Distance



Distance Characteristic Test Conditions

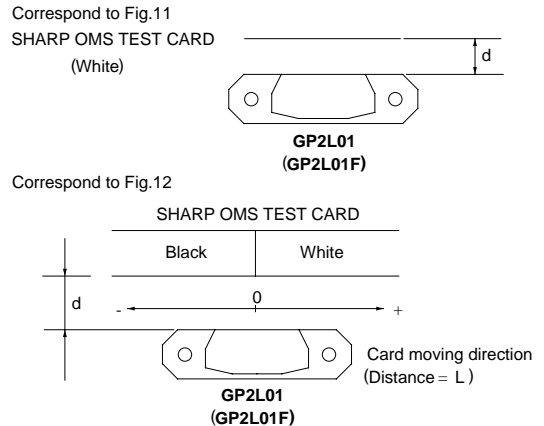
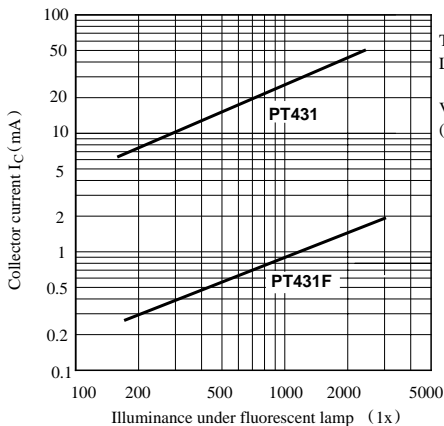


Fig.13 Collector Current vs. Illuminance (Reference)



- Please refer to the chapter “Precautions for Use”.