

GP2L01/GP2L01F

High Sensitivity, Long Focal Distance Type Photointerrupter

■ Features

1. Long focal distance
2. High current transfer ratio

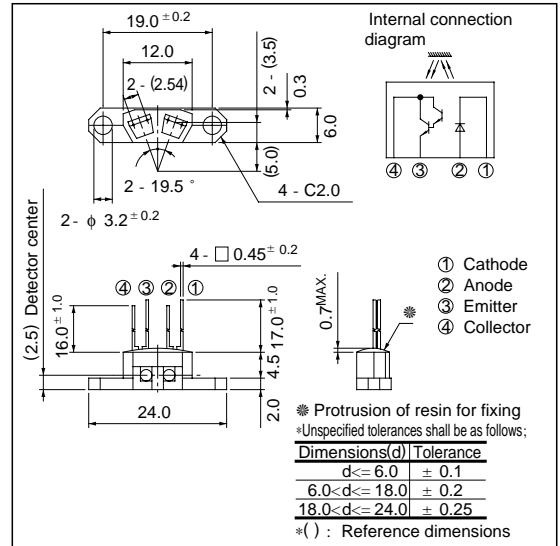
GP2L01 CTR: MIN. 30%	}	at $I_F = 10\text{mA}$
GP2L01F CTR: MIN. 25%		
2. Visible light cut-off type: **GP2L01F**

■ 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 $\leq 100 \mu\text{s}$, 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	μA	
Output	Collector dark current	I_{CEO}	$V_{CE} = 10\text{V}$	-	-	10^{-6}	A	
Transfer characteristics	*3 Collector Current	GP2L01	$I_F = 10\text{mA}, V_{CE} = 2\text{V}$	3	-	-	mA	
		GP2L01F		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	μs
		Fall time	t_f		-	70	350	μs
	*4 Leak current		I_{LEAK}	$I_F = 10\text{mA}, V_{CE} = 2\text{V}$	-	-	100	μA

*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

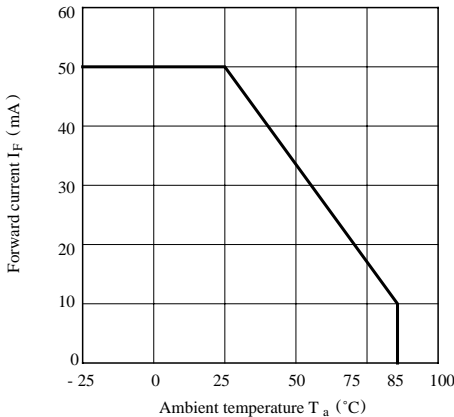


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

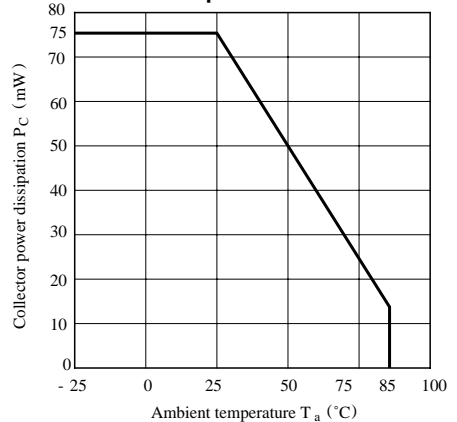


Fig. 3 Peak Forward Current vs. Duty Ratio

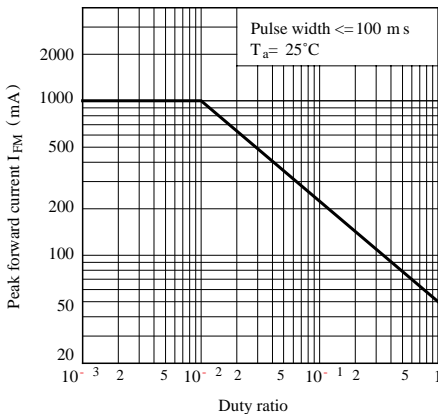


Fig. 4 Forward Current vs. Forward Voltage

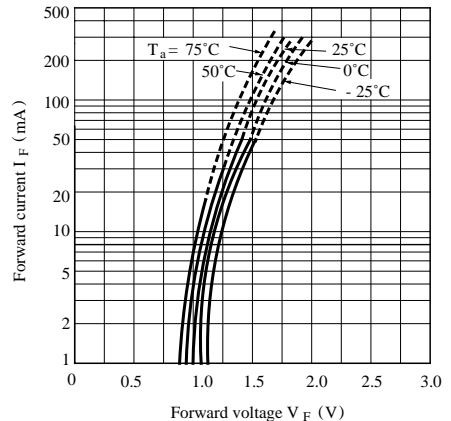


Fig. 5 Collector Current vs. Forward Current

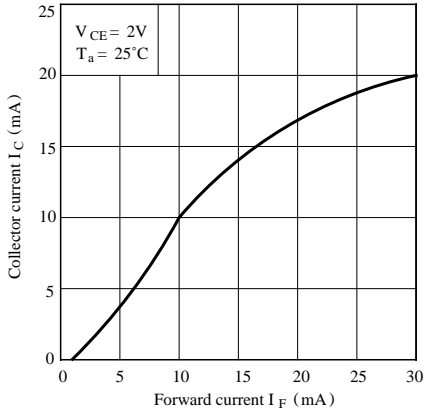


Fig. 6 Collector Current vs. Collector-emitter Voltage

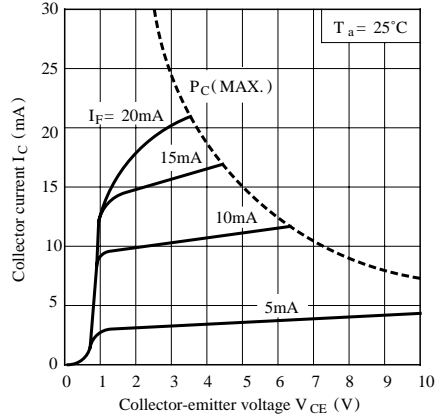


Fig. 7 Relative Collector Current vs. Ambient Temperature

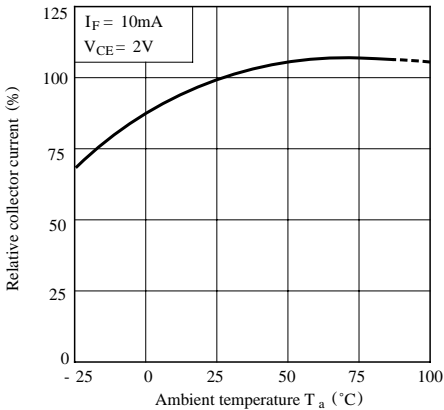


Fig. 8 Collector Dark Current vs. Ambient Temperature

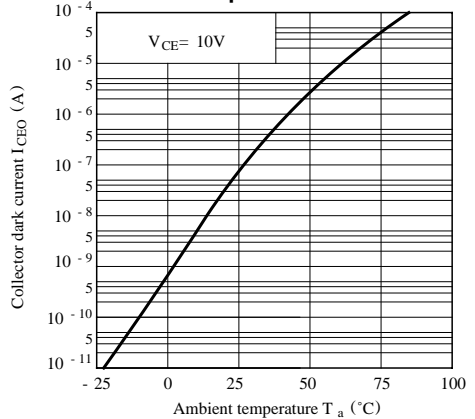
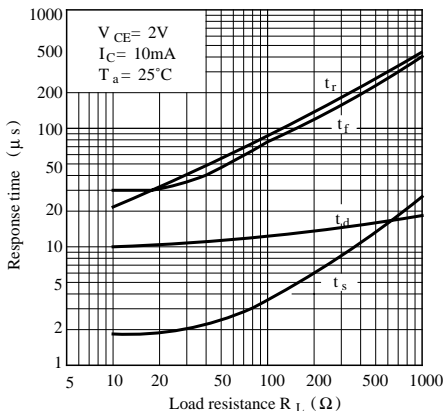


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

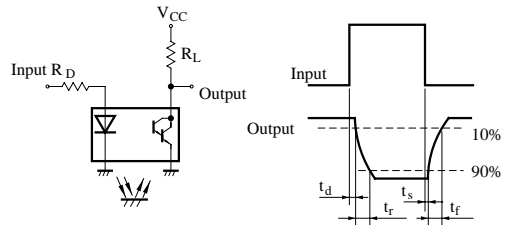


Fig.10 Frequency Response

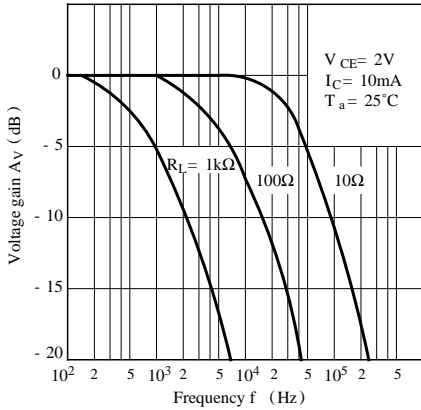


Fig.11 Relative Collector Current vs. Distance between GP2L01 (F) and Test Card

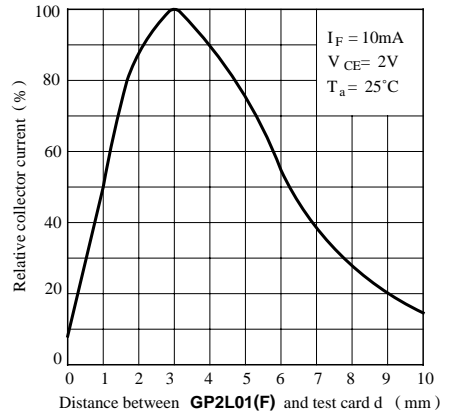
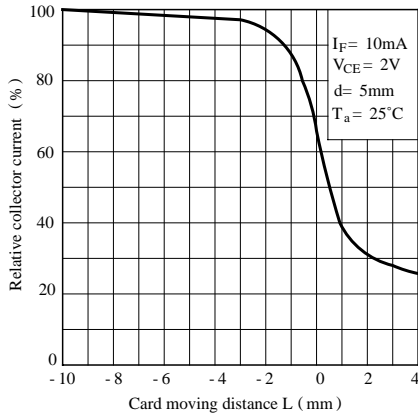


Fig.12 Relative Collector Current vs. Card Moving Distance



Distance Characteristic Test Conditions

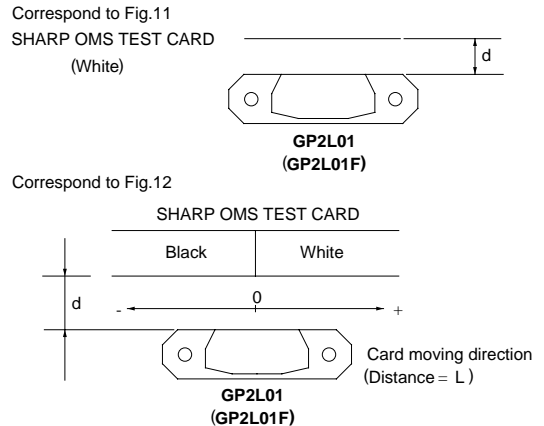
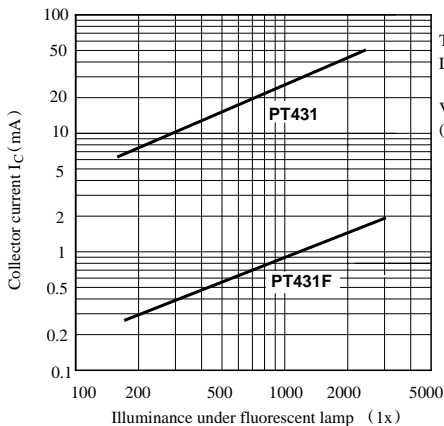


Fig.13 Collector Current vs. Illuminance (Reference)



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