

# GP1L57

## Wide Gap Type Photointerrupter

### ■ Features

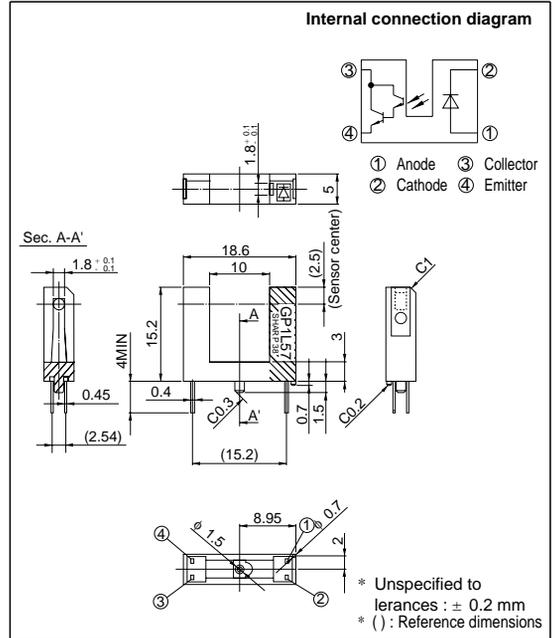
1. Wide gap between emitter and detector (Gap width : 10 mm)
2. Deep groove type (Depth : 12.2 mm)
3. With positioning pin
4. PWB direct mounting type package

### ■ Applications

1. Analytical equipment, measuring instruments
2. Amusement equipment
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  $\leq 100\mu$  s, Duty ratio=0.01

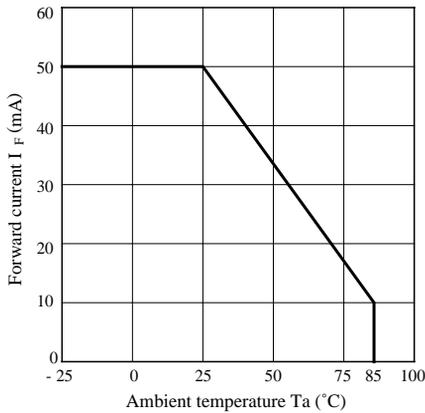
\*2 For 5 seconds

**■ Electro-optical Characteristics**

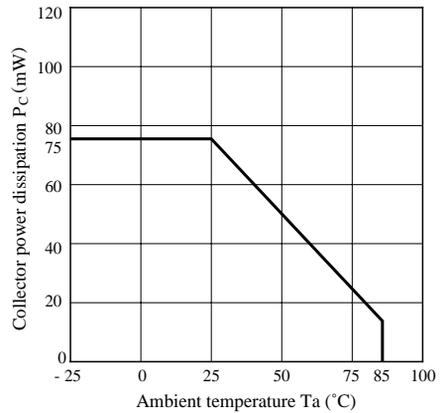
( $T_a=25^\circ\text{C}$ )

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	$V_F$	$I_F = 20\text{mA}$	-	1.25	1.4	V
	Peak forward voltage	$V_{FM}$	$I_{FM} = 0.5\text{A}$	-	3	4	V
	Reverse current	$I_R$	$V_R = 3\text{V}$	-	-	10	$\mu\text{A}$
Output	Dark current	$I_{CEO}$	$V_{CE} = 10\text{V}$	-	-	$10^{-6}$	A
Transfer characteristics	Collector current	$I_C$	$I_F = 1\text{mA}, V_{CE} = 2\text{V}$	0.7	-	28	mA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 4\text{mA}, I_C = 0.6\text{mA}$	-	-	1	V
	Response time	Rise time	$t_r$	$V_{CE} = 2\text{V}, I_C = 2\text{mA}$	-	130	400
Fall time		$t_f$	$R_L = 100\ \Omega$	-	100	350	$\mu\text{s}$

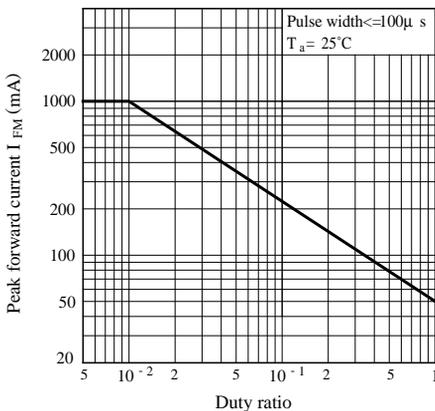
**Fig. 1 Forward Current vs. Ambient Temperature**



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



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



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

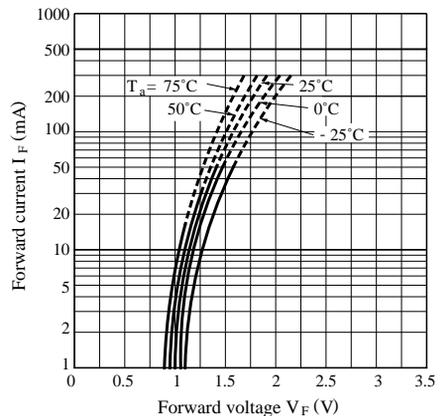


Fig. 5 Collector Current vs. Forward Current

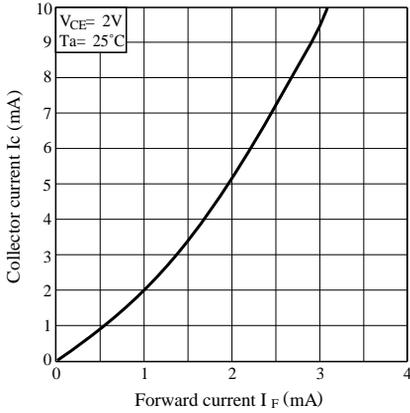


Fig. 6 Collector Current vs. Collector-emitter Voltage

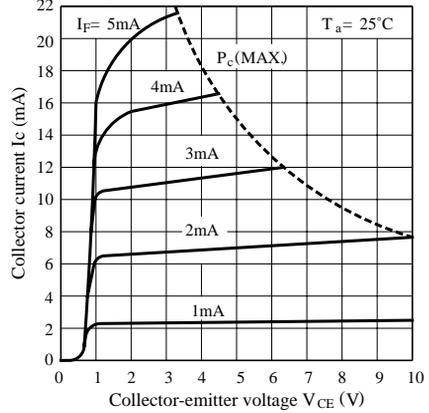


Fig. 7 Collector Current vs. Ambient temperature

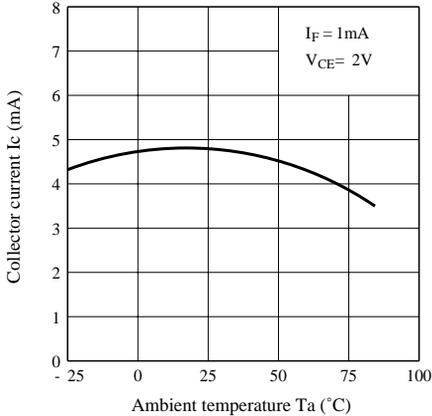


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

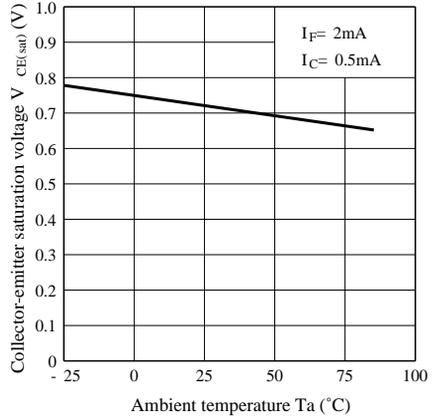
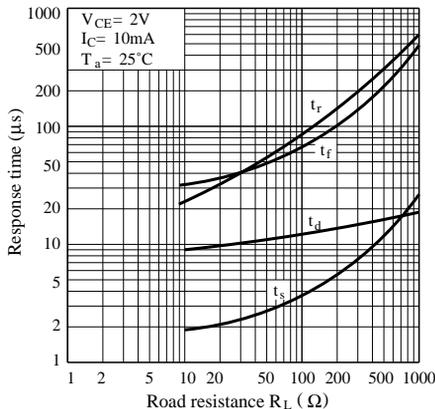
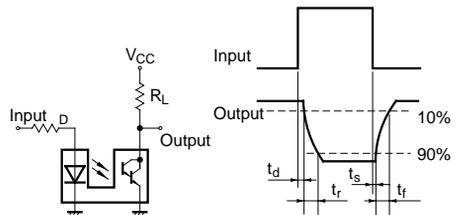


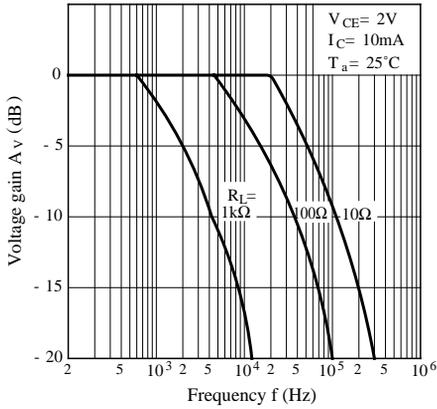
Fig. 9 Response Time vs. Load Resistance



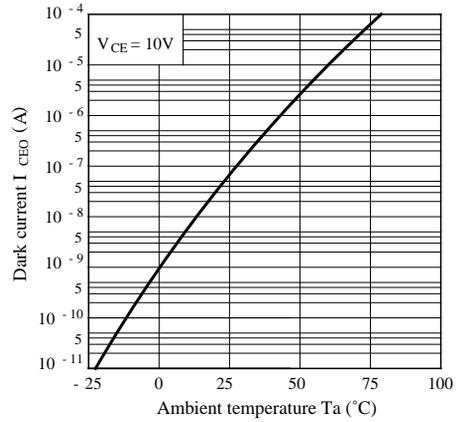
Test Circuit for Response Time



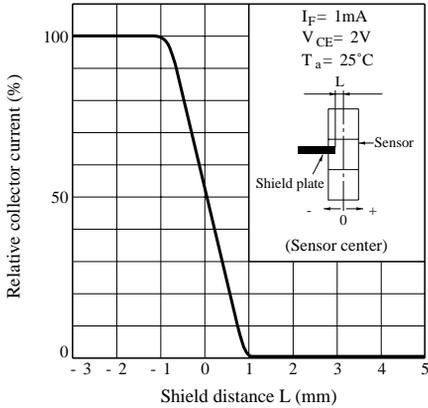
**Fig. 10 Frequency characteristics**



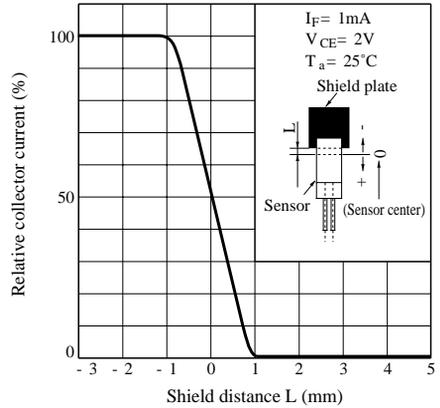
**Fig. 11 Dark Current vs. Ambient Temperature**



**Fig. 12 Detecting Position Characteristics (1)**



**Fig. 13 Detecting Position Characteristics (2)**



**(Precautions for Operation)**

In case of cleaning, use only the following type of cleaning solvent.

Ethyl alcohol, Methyl alcohol, Isopropyl alcohol

- As for other general precautions, please refer to the chapter "Precautions for Use".

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