

GP1L03

Wide Gap Type Photointerrupter

■ Features

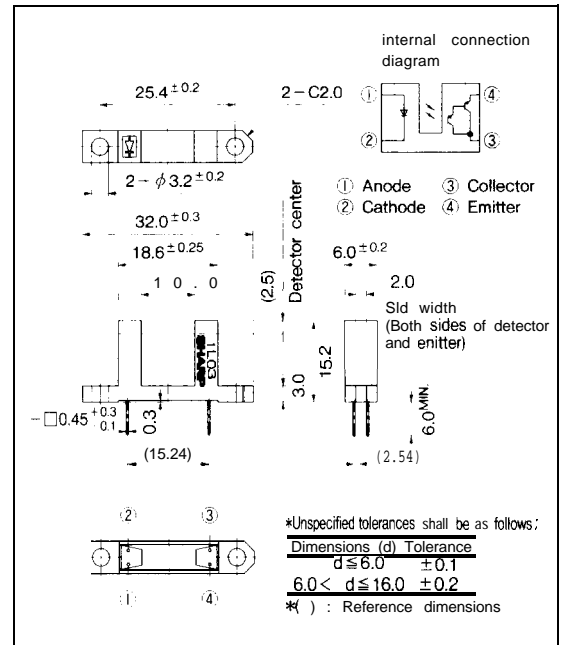
1. Wide gap between emitter and detector (10mm)
2. Deep gap (12.2 mm)
3. High current transfer ratio (CTR:MIN. 100% at $I_F=1\text{mA}$)

■ Applications

1. Analyzers, measuring instruments
2. Automatic vending machines, 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
output	Power dissipation	P	75	mW
	Collector-emitter voltage	V_{CEO}	35	V
	Emitter-collector voltage	V_{EC1}	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
	*soldering temperature	T_{sol}	260	°C

*1 Pulse width $\leq 100 \mu\text{s}$. Duty ratio () () 1

*2 For 5 seconds

■ Electro-optical Characteristics

(Ta = 25°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_{CE0}	$V_{CE} = 10\text{V}$			10 ⁻⁶	A
Transfer characteristics	Current transfer ratio	CTR	$I_F = 1\text{mA}, V_{CE} = 2\text{V}$	100	-	2 000	%
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 2\text{mA}, I_C = 0.5\text{mA}$			1.0	V
	Response time	Rise time	t_r	$I_C = 10\text{mA}, V_{CE} = 2\text{V}, R_L = 100\Omega$		80	400
Fall time		t_f			70	350	μs

Fig. 1 Forward Current vs. Ambient Temperature

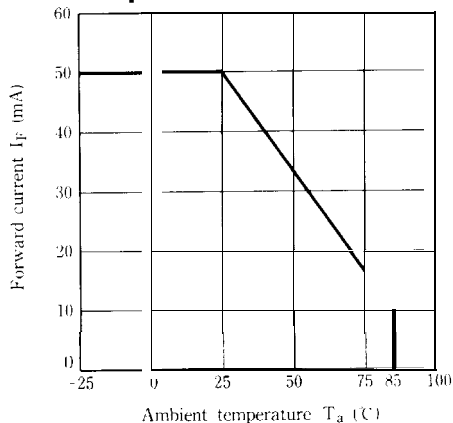


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

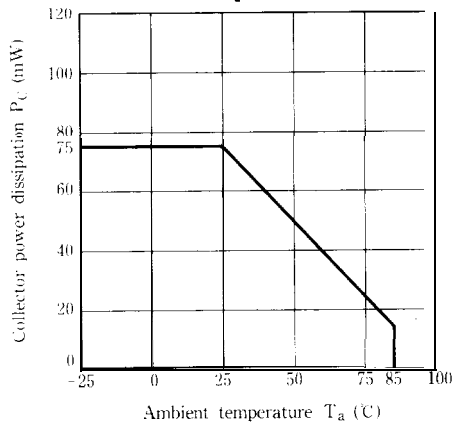


Fig. 3 Peak Forward Current vs. Duty Ratio

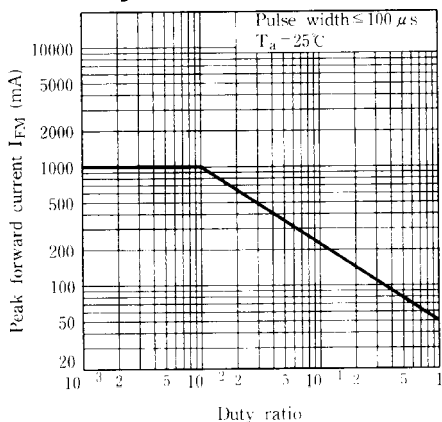


Fig. 4 Forward Current vs. Forward Voltage

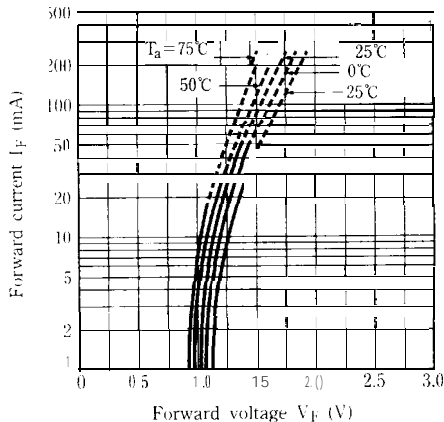


Fig. 5 Collector current V_{a_m} Forward Current

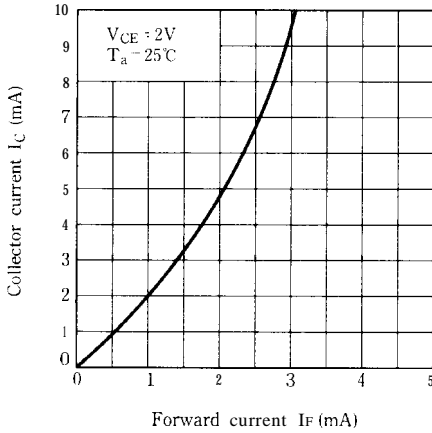


Fig. 6 Collector Current vs. Collector-emitter Voltage

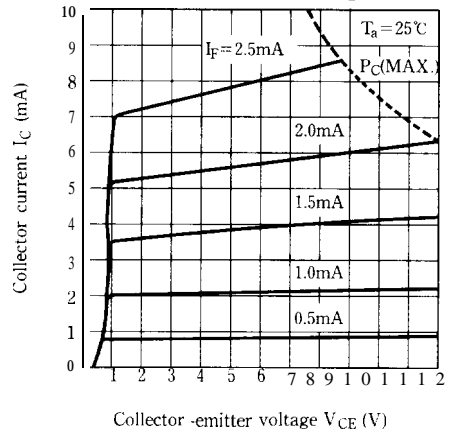


Fig. 7 Collector Current vs. Ambient Temperature

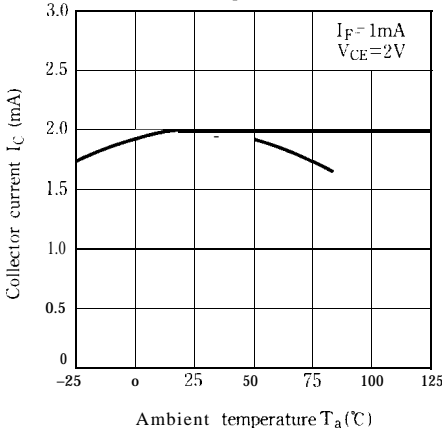


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

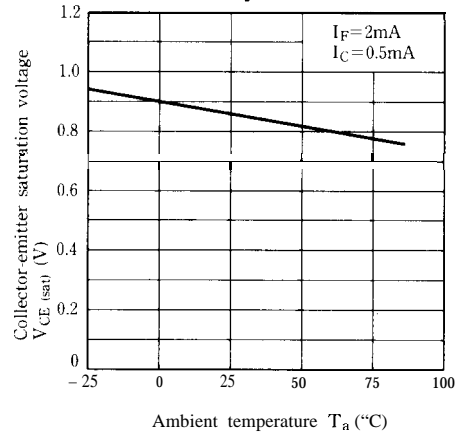
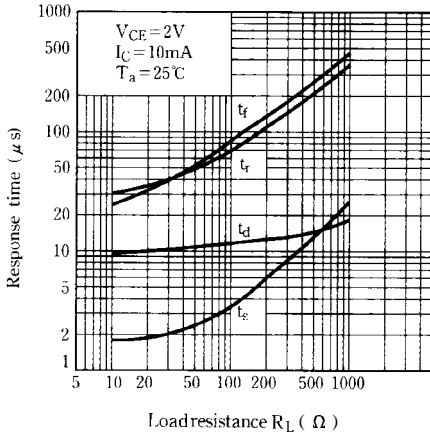


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

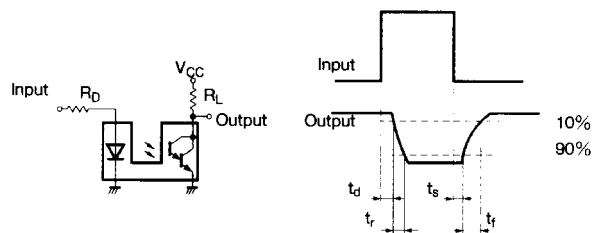


Fig.1 O Frequency Response

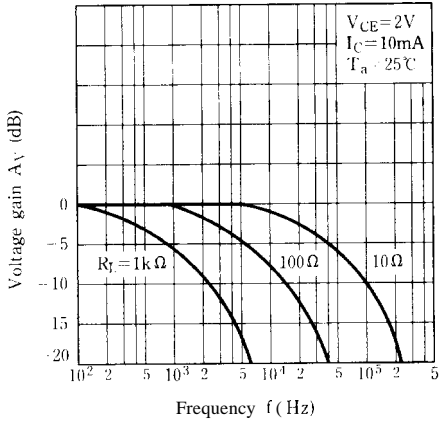
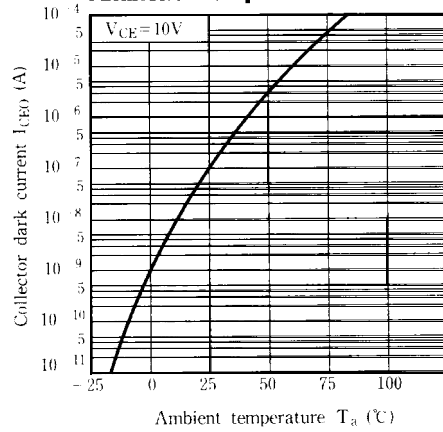
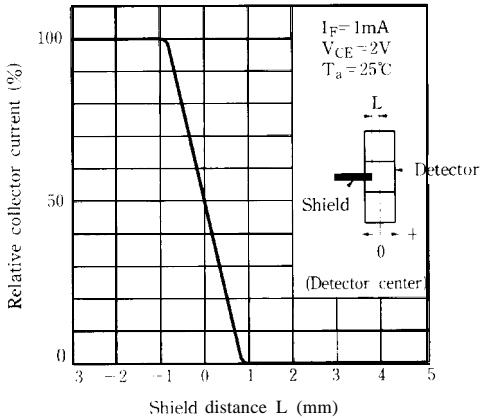


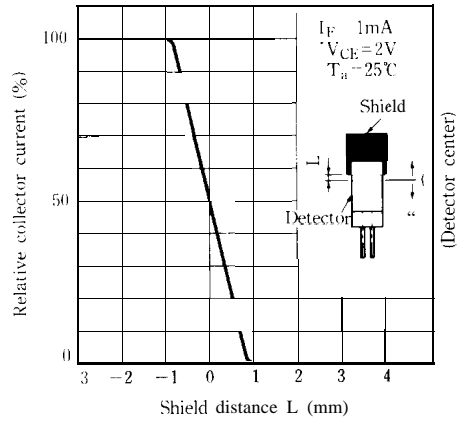
Fig.11 Collector Dark Current vs. Ambient Temperature



Ffg.12 Relative Collector Current vs. Shield Distance (1)



Fg.13 Relative Collector current vs. Shield Distance (2)



● Please refer to the chapter "Precautions for Use." (Page 78 to 93)

