

GP1L03

Wide Gap Type Photointerrupter

■ Features

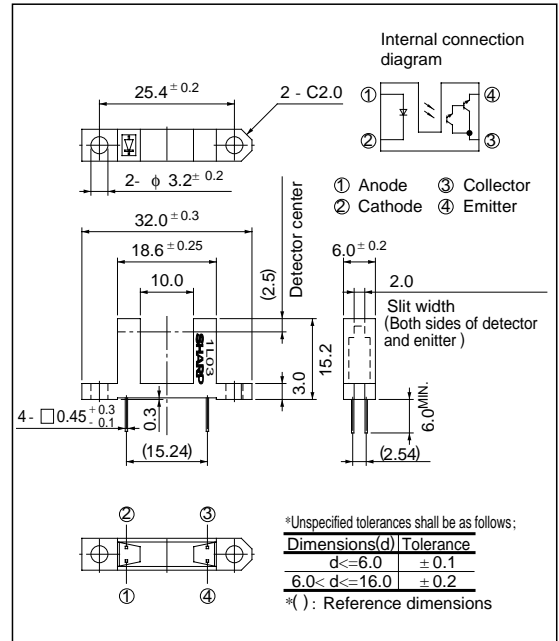
1. Wide gap between emitter and detector
(10mm)
2. Deep gap (12.2mm)
3. High current transfer ratio
(CTR: MIN. 100% at $I_F = 1\text{mA}$)

■ Applications

1. Analyzers, measuring instruments
2. Automatic vending machines, amusement equipment
3. Optoelectronic switches, optoelectronic counters

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

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

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	$^\circ\text{C}$
Storage temperature		T_{stg}	- 40 to + 100	$^\circ\text{C}$
*2 Soldering temperature		T_{sol}	260	$^\circ\text{C}$

*1 Pulse width $\leq 100\mu\text{s}$, 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	$I_F = 20\text{mA}$	-	1.2	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	Collector Current	I_C	$I_F = 1\text{mA}, V_{CE} = 2\text{V}$	1	-	20	mA	
	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	μs
		Fall time	t_f		-	70	350	μs

Fig. 1 Forward Current vs. Ambient Temperature

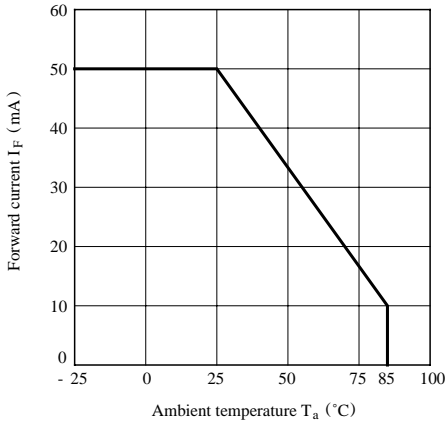


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

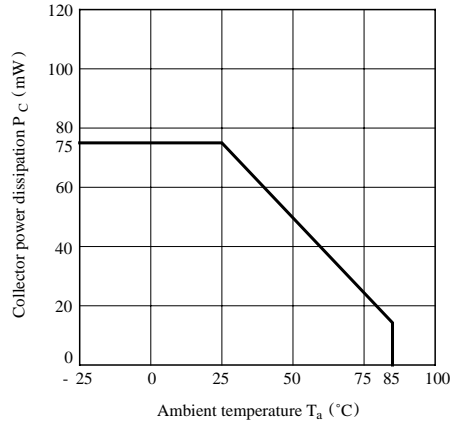


Fig. 3 Peak Forward Current vs. Duty Ratio

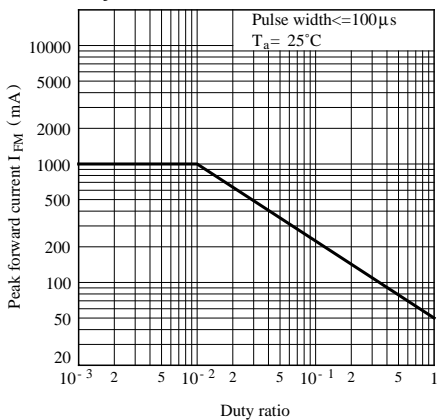


Fig. 4 Forward Current vs. Forward Voltage

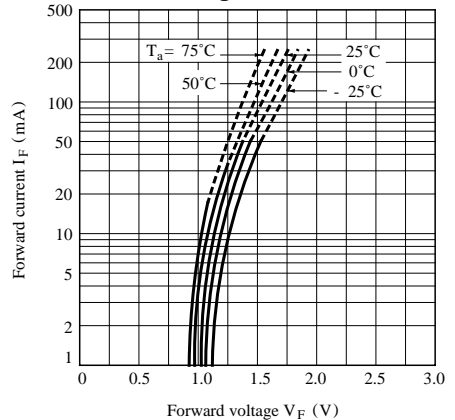


Fig. 5 Collector Current vs. Forward Current

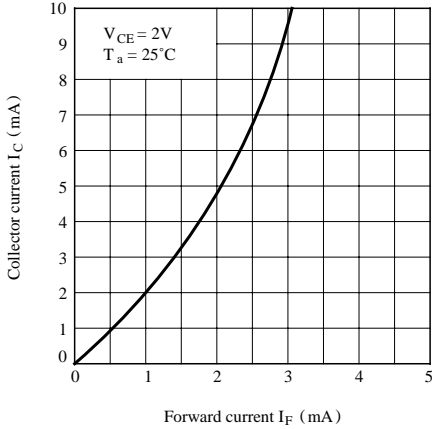


Fig. 6 Collector Current vs. Collector-emitter Voltage

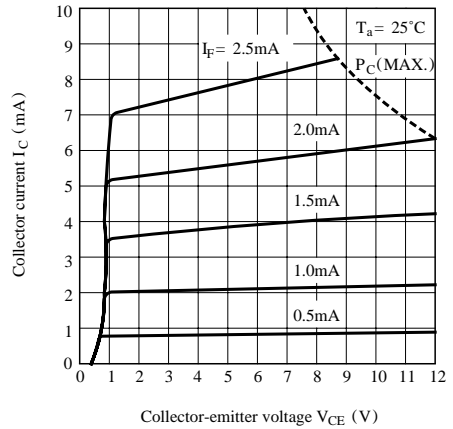


Fig. 7 Collector Current vs. Ambient Temperature

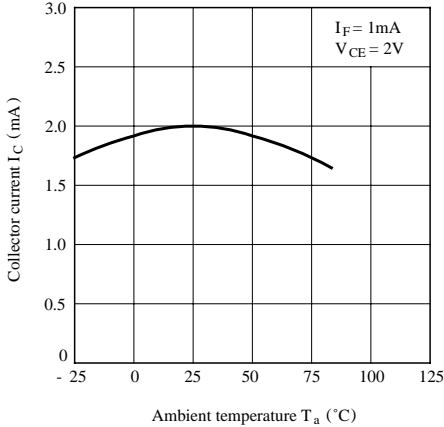


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

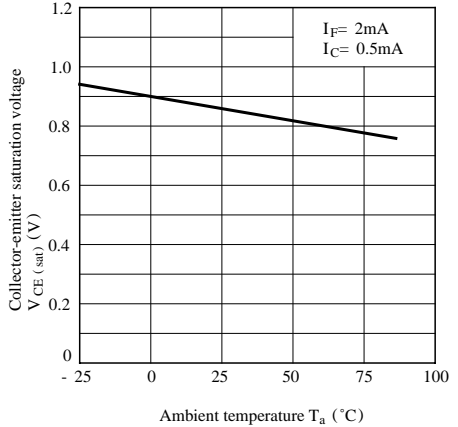
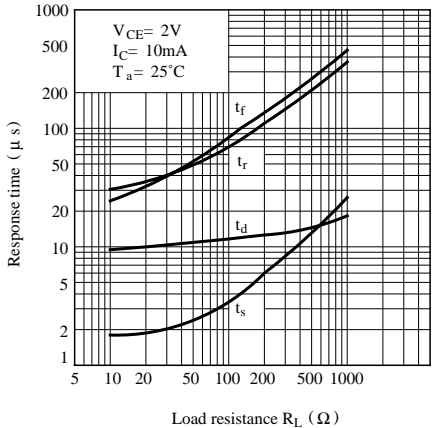


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

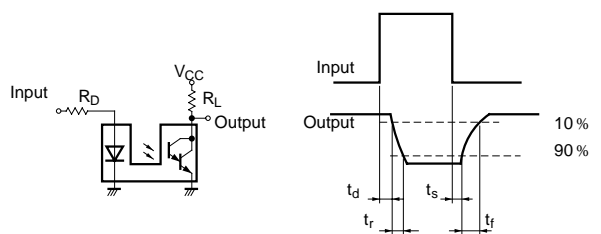


Fig.10 Frequency Response

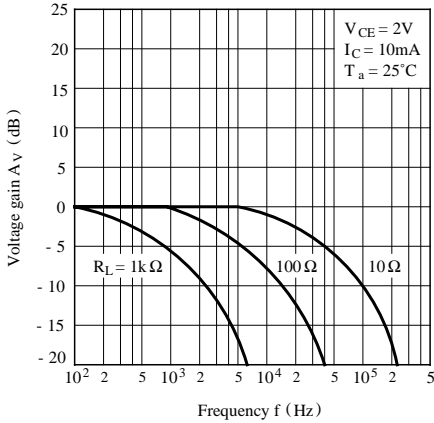


Fig.11 Collector Dark Current vs. Ambient Temperature

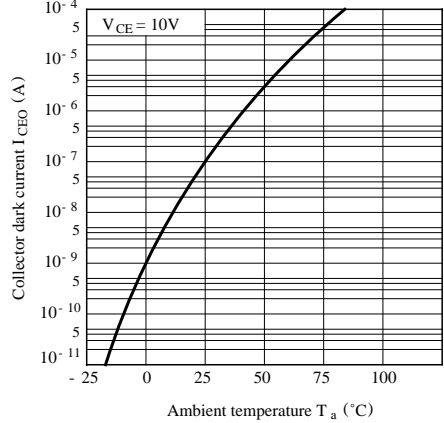


Fig.12 Relative Collector Current vs. Shield Distance (1)

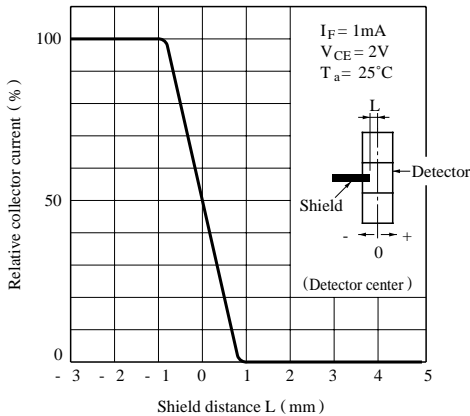
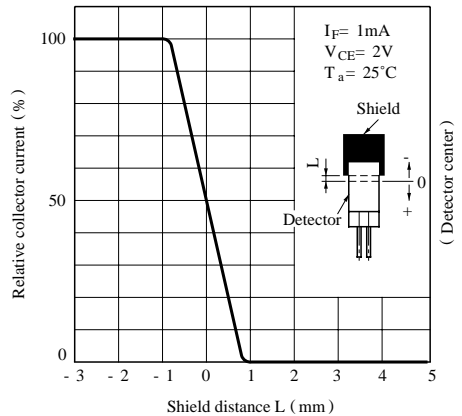


Fig.13 Relative Collector Current vs. Shield Distance (2)



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



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