

GP1S38/GP1S381

Optical Guide Photointerrupter

Features

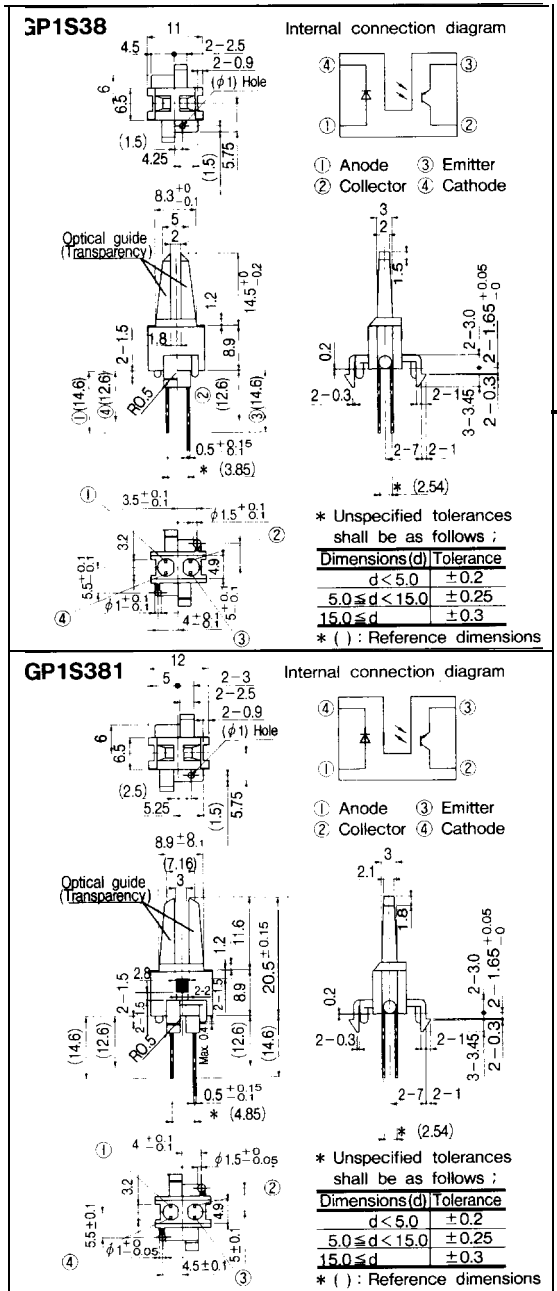
1. Optical guide for setting detecting position that can be divided into Assy substrate (mather substrate) without leads, connectors, etc.
2. PWB mounting type
3. Easy mounting to PWB due to the holder with hook
4. Gap between light emitter and detector : 2mm

Applications

1. VCRs

Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings (Ta = 25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	60	mA
	*1 Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	150	mW
output	Collector -emitter voltage	V_{CEO}	35	v
	Emitter -collector voltage	V_{ECO}	6	v
	Collector current	I_C	20	mA
	Collector power dissipation	P_C	50	mW
Operating temperature		T_{opr}	-25 to + 80	°C
Storage temperature		T_{stg}	-40 to + 80	°C
*2 Soldering temperature		T_{sol}	260	°c

*1 Pulse width ≤ 100 μ s, Duty ratio : 0.01

*2 3 seconds or less at the position of 1mm or more from the surface of resin

■ Electro-optical Characteristics (Ta = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	V_F	$I_F = 50\text{mA}$		—	1.5	V	
	Peak forward voltage	V_{FM}	$I_{FM} = 0.5\text{A}$			3.5	v	
	Reverse current	I_R	$V_R = 3\text{V}$			10	μ A	
output	Collector dark current	I_{CEO}	$V_{CE} = 20\text{V}$	—	—	100	nA	
Transfer characteristics	Collector current	I_C	$V_{CE} = 5\text{V}, I_F = 20\text{mA}$	100	—	—	μ A	
	Collector -emitter saturation voltage	$V_{CE(sat)}$	$I_F = 40\text{mA}, I_C = 30 \mu\text{A}$	—	—	0.4	V	
	Response time	Dynamic resistance	r_{on}	$V_{CE} = 10\text{V}, I_C = 50 \mu\text{A}$	—	0.85	2.5	ms
				$R_L = 100\text{k}\Omega$	—	0.75	2.1	ms

■ Test Circuit for Response Time

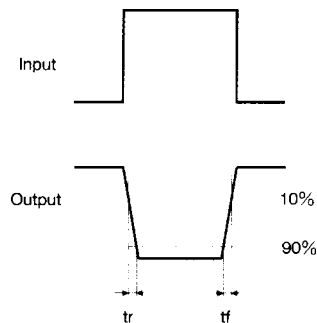
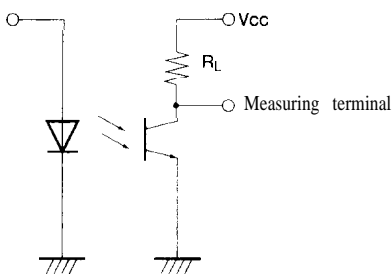


Fig. 1 Forward Current vs. Ambient Temperature

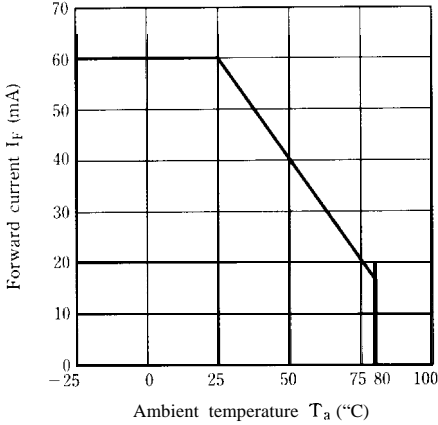


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

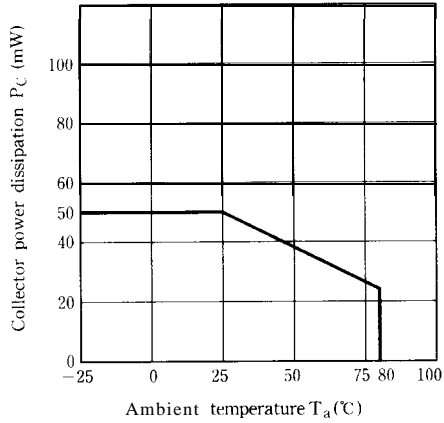


Fig. 3 Paak Forward Current vs. Duty Ratio

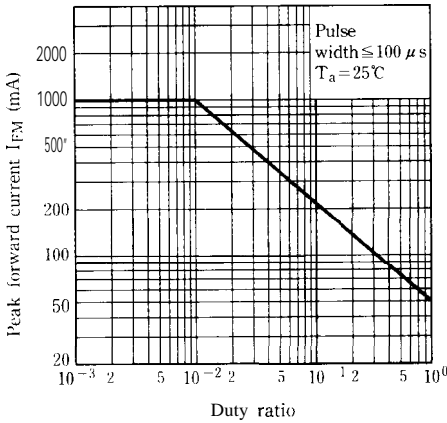


Fig. 4 Forward Current vs. Forward Voltage

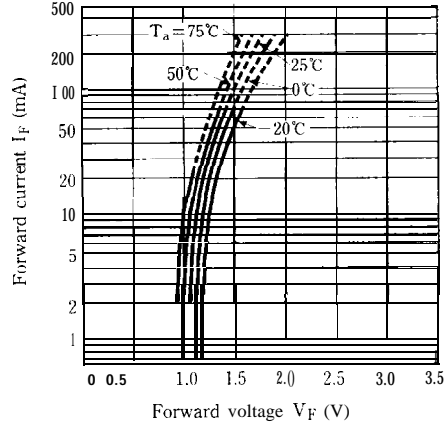


Fig. 5 Collector Current vs. Forward Current

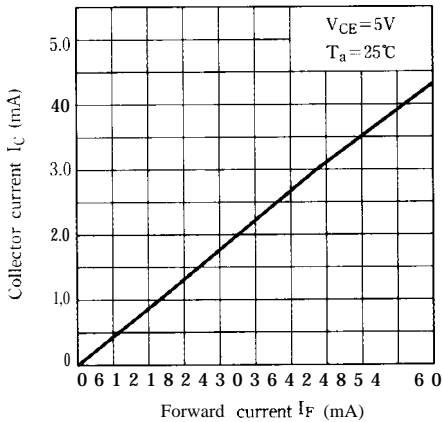
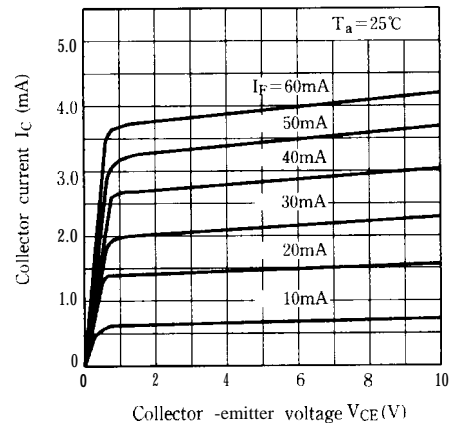


Fig. 6 Collector Current vs. Collector-emitter Voltage



Photointerrupters



Fig. 7 Collector Current vs. Ambient Temperature

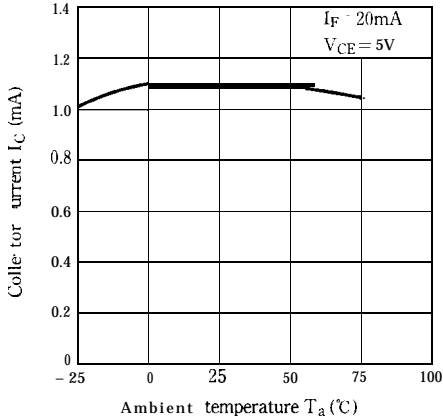


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

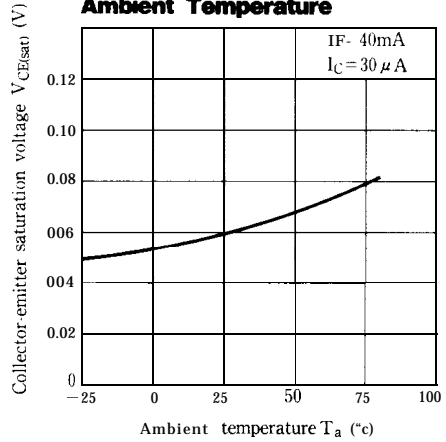


Fig. 9 Response Time vs. Load Resistance

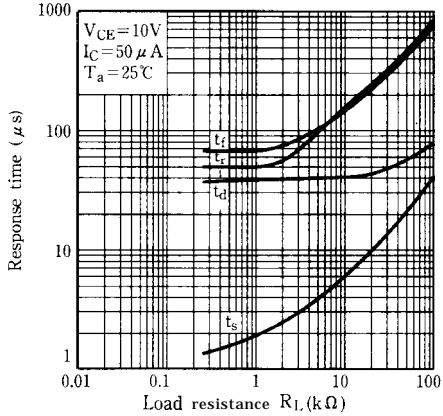


Fig.10 Collector Dark Current vs. Ambient Temperature

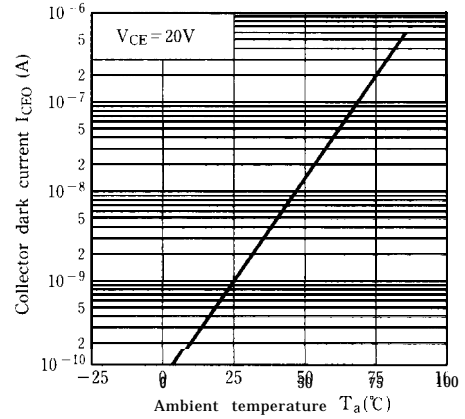


Fig.11 Relative Collector Current vs. Shield Distance (1)

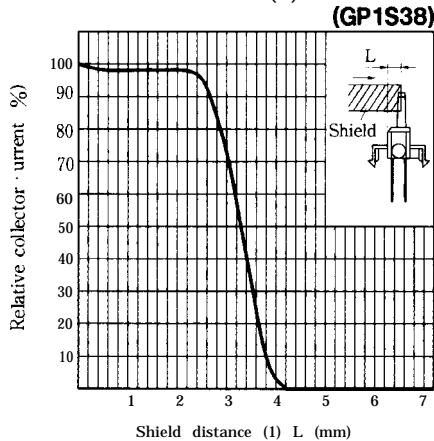


Fig.12 Relative Collector Current vs. Shield Distance (2)

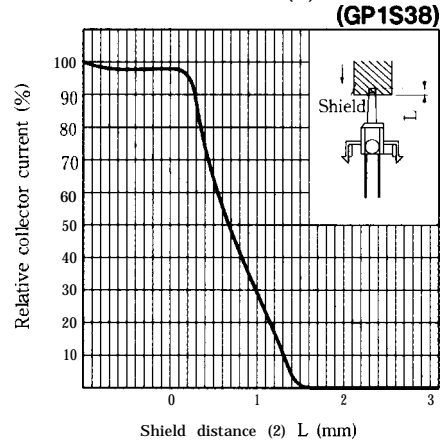


Fig.13 Relative Collector Current vs. Shield Distance (1)

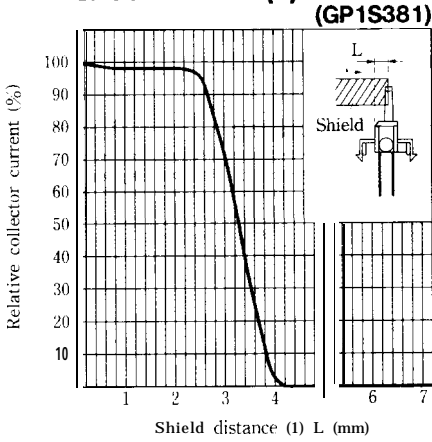
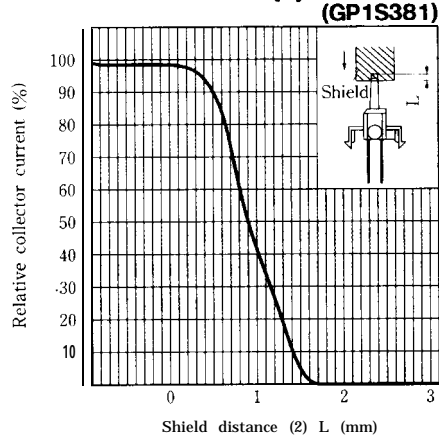


Fig.14 Relative Collector Current vs. Shield Distance (2)



● Pleaw refer to the chapter “Precautions for Use” (Page 78 to 93).