

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

GP1S38:2mm

GP1S381:3mm

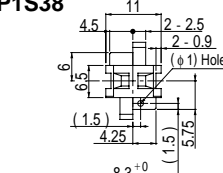
■ Applications

1. VCRs

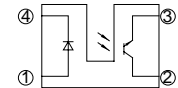
■ Outline Dimensions

(Unit : mm)

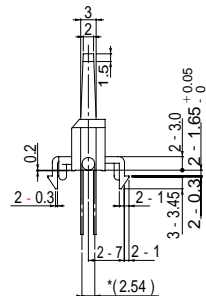
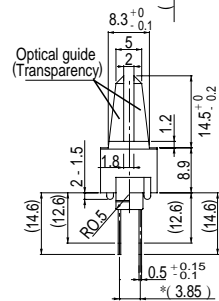
GP1S38



Internal connection diagram



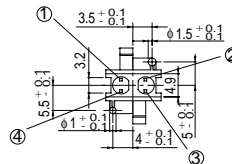
① Anode ③ Emitter
② Collector ④ Cathode



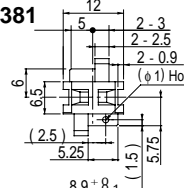
* Unspecified tolerances shall be as follows :

Dimensions(d)	Tolerance
$d < 5.0$	± 0.2
$5.0 \leq d < 15.0$	± 0.25
$15.0 \leq d$	± 0.3

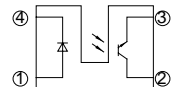
*() : Reference dimensions



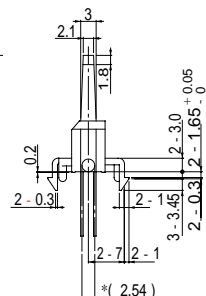
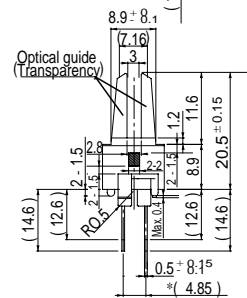
GP1S381



Internal connection diagram



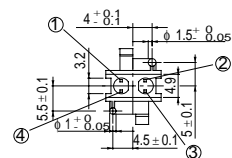
① Anode ③ Emitter
② Collector ④ Cathode



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$d < 5.0$	± 0.2
$5.0 \leq d < 15.0$	± 0.25
$15.0 \leq d$	± 0.3

*() : Reference dimensions



■ 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 ≤ 100μs, 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 = 50mA	-	-	1.5	V	
	Peak forward voltage	V _{FM}	I _{FM} = 0.5A	-	-	3.5	V	
	Reverse current	I _R	V _R = 3V	-	-	10	μA	
Output	Collector dark current	I _{CEO}	V _{CE} = 20V	-	-	100	nA	
Transfer characteristics	Collector current	I _C	V _{CE} = 5V, I _F = 20mA	100	-	-	μA	
	Collector-emitter saturation voltage	V _{CE(sat)}	I _F = 40mA, I _C = 30μA	-	-	0.4	V	
	Response time	Rise time	t _r	V _{CE} = 10V, I _C = 50μA R _L = 100kΩ	-	0.85	2.5	ms
		Fall time	t _f		-	0.75	2.1	ms

■ Test Circuit for Response Time

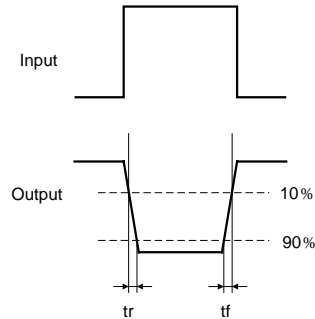
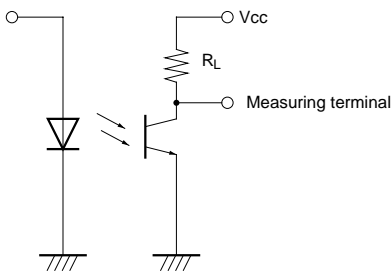


Fig. 1 Forward Current vs. Ambient Temperature

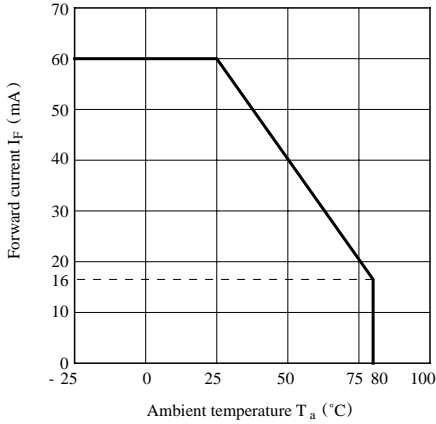


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

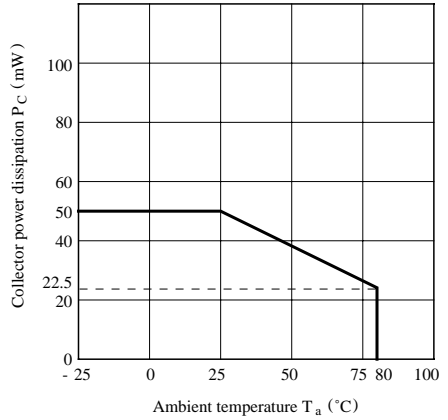


Fig. 3 Peak Forward Current vs. Duty Ratio

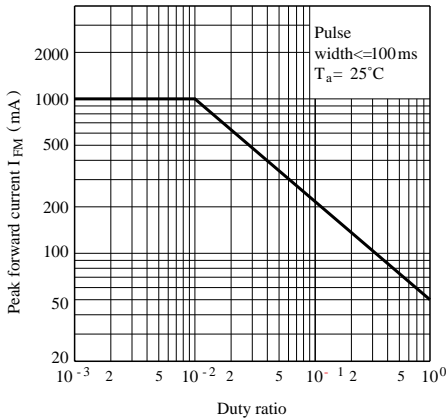


Fig. 4 Forward Current vs. Forward Voltage

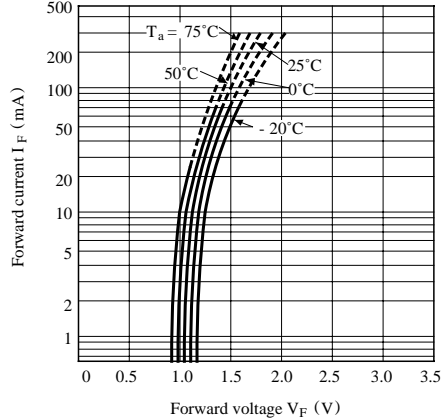


Fig. 5 Collector Current vs. Forward Current

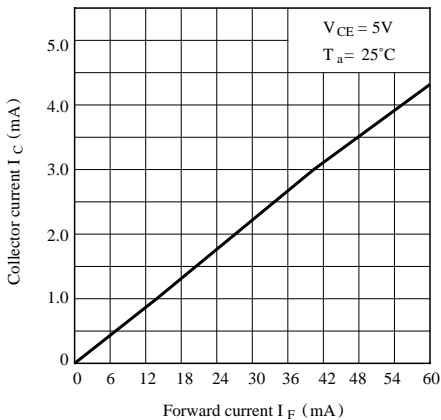


Fig. 6 Collector Current vs. Collector-emitter Voltage

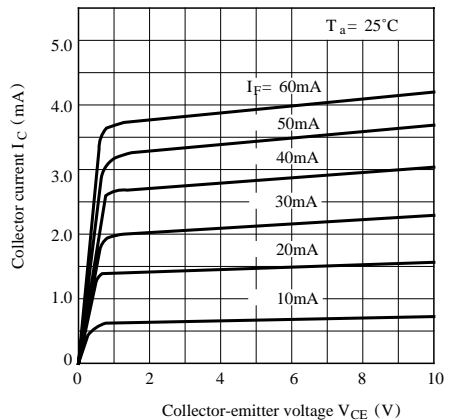


Fig. 7 Collector Current vs. Ambient Temperature

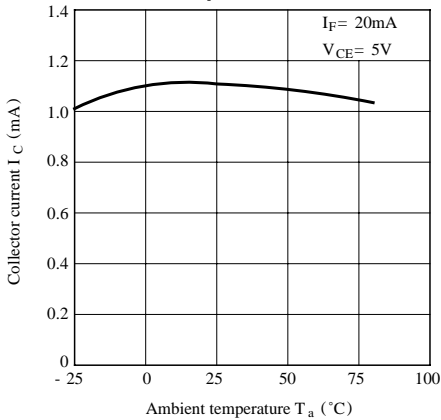


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

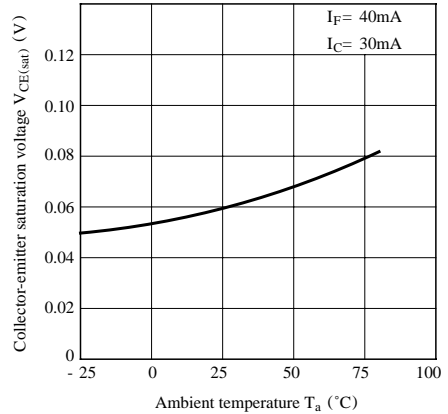


Fig. 9 Response Time vs. Load Resistance

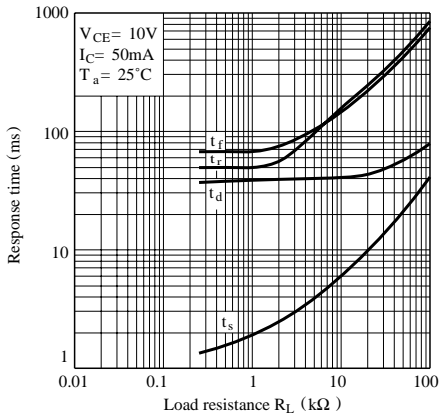


Fig.10 Collector Dark Current vs. Ambient Temperature

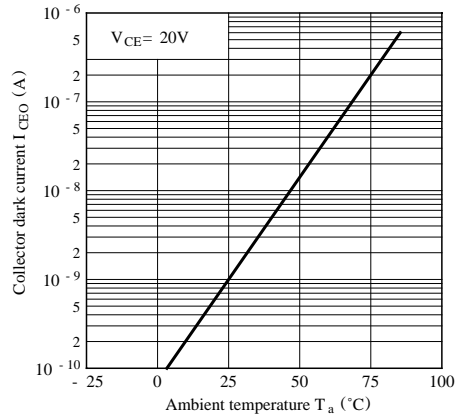


Fig.11 Relative Collector Current vs. Shield Distance (1)

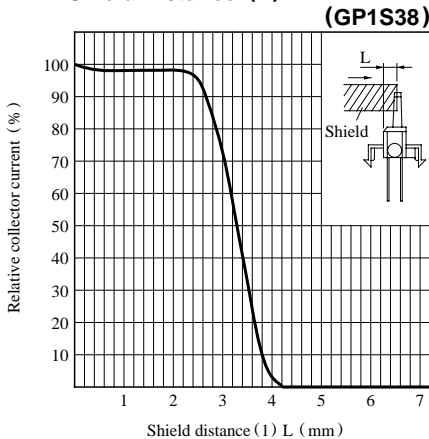


Fig.12 Relative Collector Current vs. Shield Distance (2)

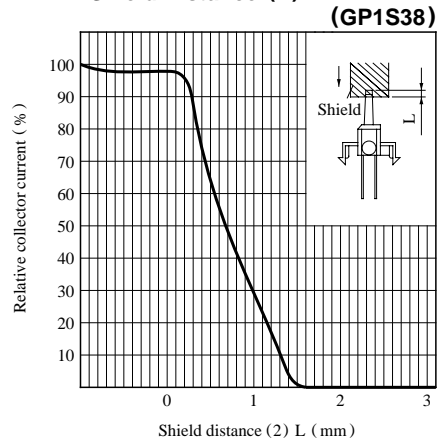


Fig.13 Relative Collector Current vs. Shield Distance (1) (GP1S381)

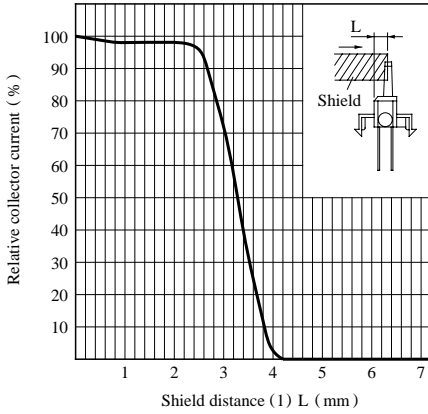
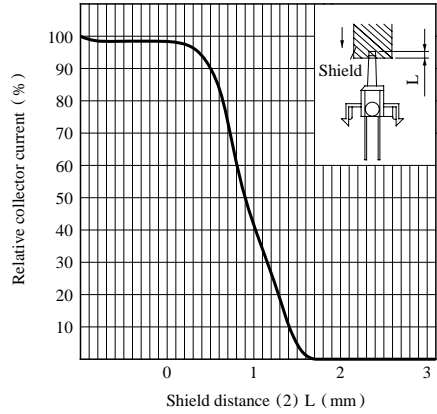


Fig.14 Relative Collector Current vs. Shield Distance (2) (GP1S381)



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