GP1S38/GP1S381

Optical Guide Photointerrupter

■ Features

1. Optical guide for setting detecting position that can be devided 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)

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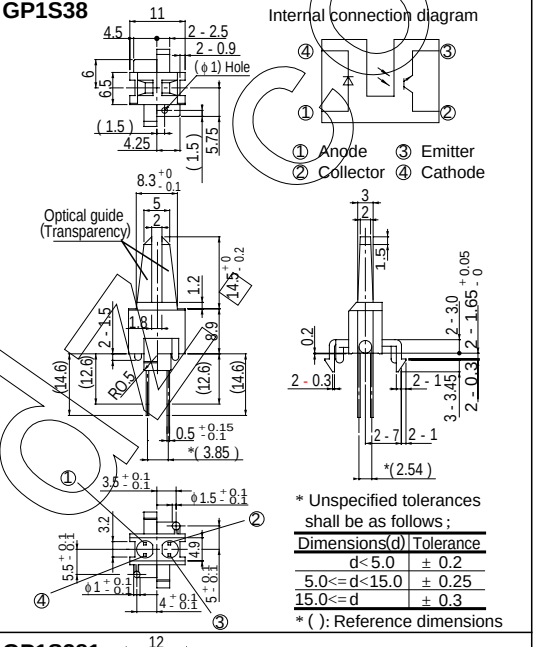

* Unspecified tolerances shall be as follows;

Dimensions(d)	Tolerance
d< 5.0	± 0.2
5.0<= d<15.0	± 0.25
15.0<= d	± 0.3

* ( ): Reference dimensions

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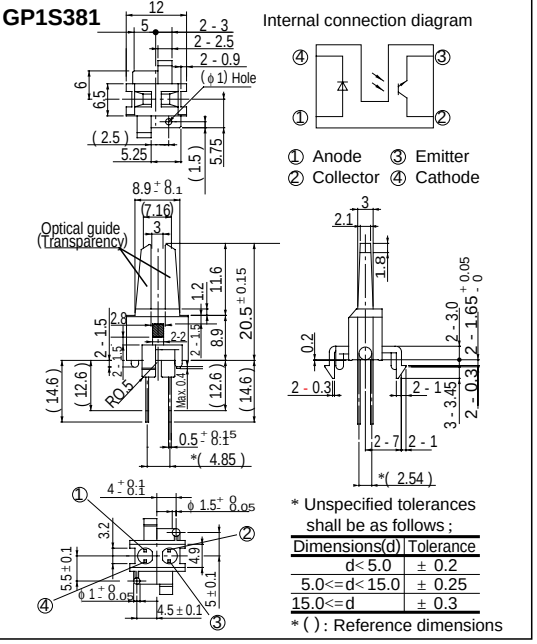


* Unspecified tolerances shall be as follows;

Dimensions(d)	Tolerance
d< 5.0	± 0.2
5.0<= d< 15.0	± 0.25
15.0<= 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 <= 100μ 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 = 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	-	0.85	2.5	ms
		Fall time	t_f	R_L = 100kΩ	-	0.75	2.1	ms

■ Test Circuit for Response Time

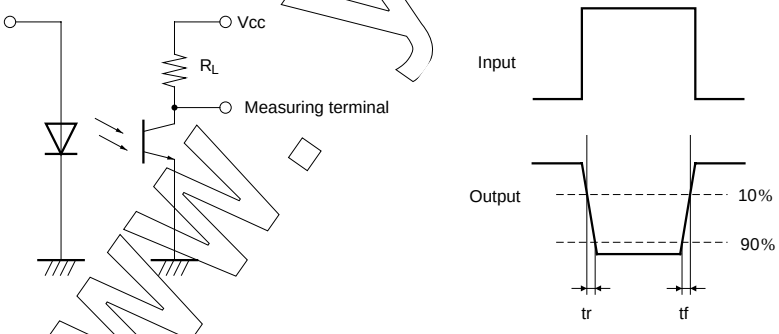


Fig. 1 Forward Current vs. Ambient Temperature

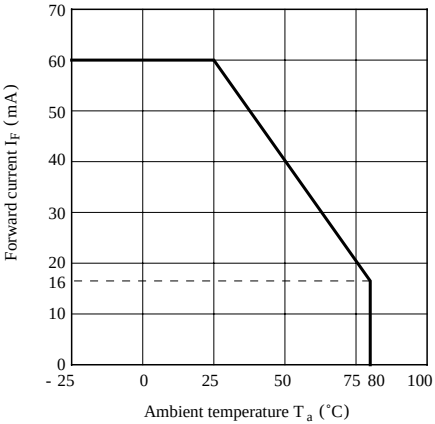


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

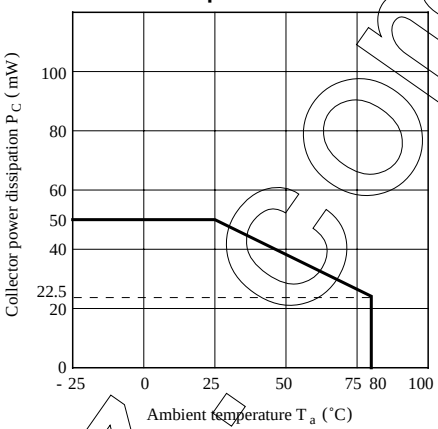


Fig. 3 Peak Forward Current vs. Duty Ratio

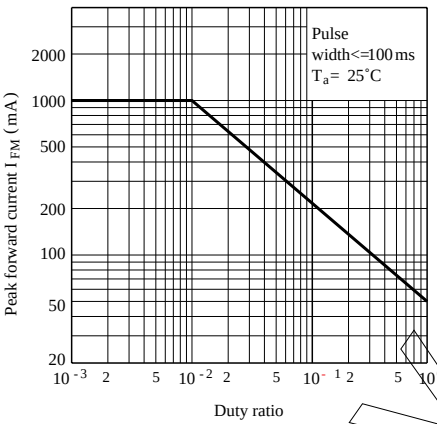


Fig. 4 Forward Current vs. Forward Voltage

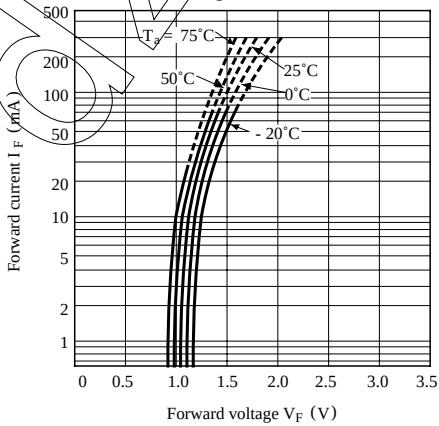


Fig. 5 Collector Current vs. Forward Current

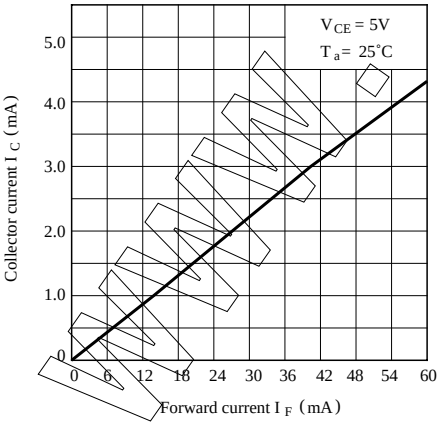


Fig. 6 Collector Current vs. Collector-emitter Voltage

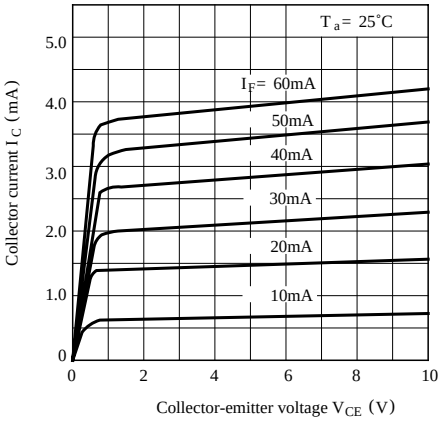


Fig. 7 Collector Current vs. Ambient Temperature

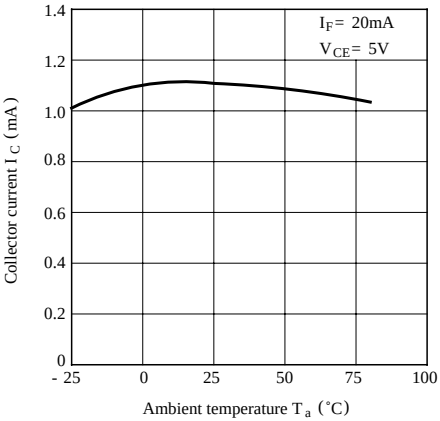


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

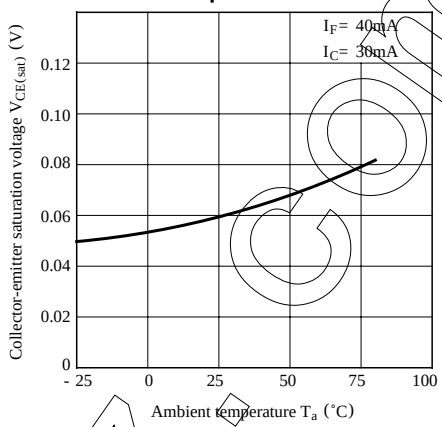


Fig. 9 Response Time vs. Load Resistance

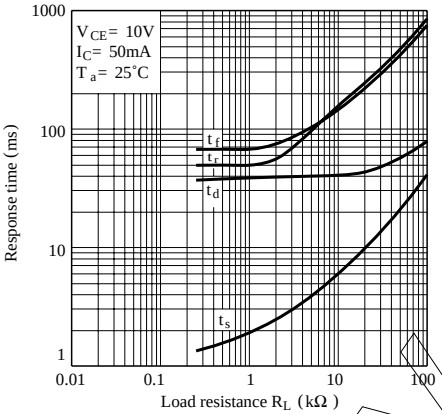


Fig.10 Collector Dark Current vs. Ambient Temperature

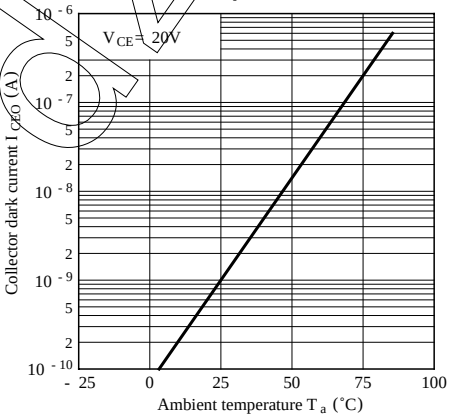


Fig.11 Relative Collector Current vs. Shield Distance (1)

(GP1S38)

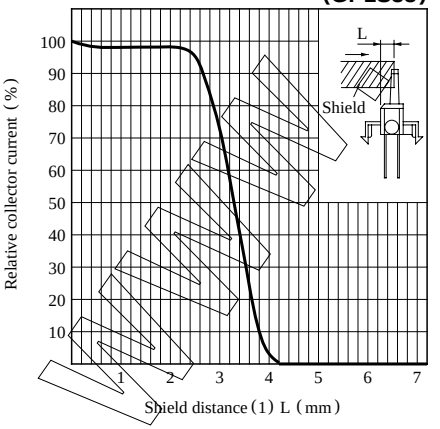


Fig.12 Relative Collector Current vs. Shield Distance (2)

(GP1S38)

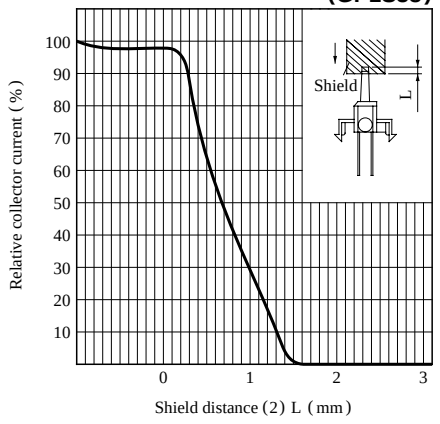


Fig.13 Relative Collector Current vs. Shield Distance (1)

(GP1S381)

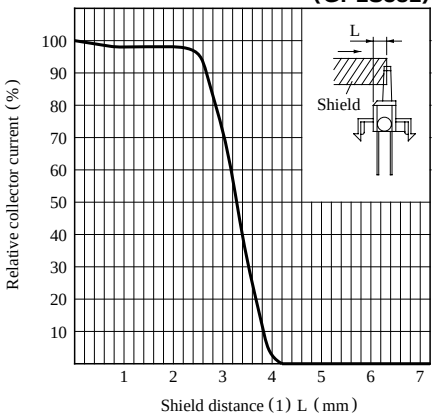
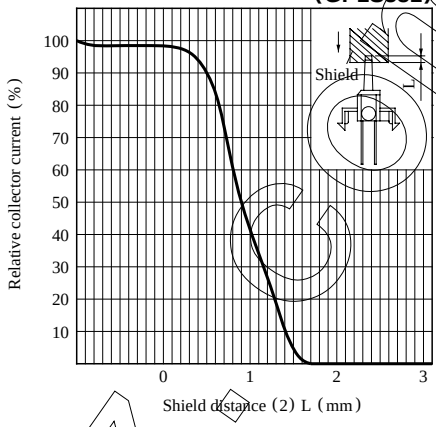


Fig.14 Relative Collector Current vs. Shield Distance (2)

(GP1S381)



- Please refer to the chapter " Precautions for Use".