GP2S29

Long Focal Distance, Reflective Type Photointerrupter

■ Features

1. Wide range of detecting distance
   (Detecting distance : 1 to 20mm)
2. Prism system
3. High sensitivity (S/N ratio : 75)
4. Easy circuit design in sub sequent stage due to large output current

■ Applications

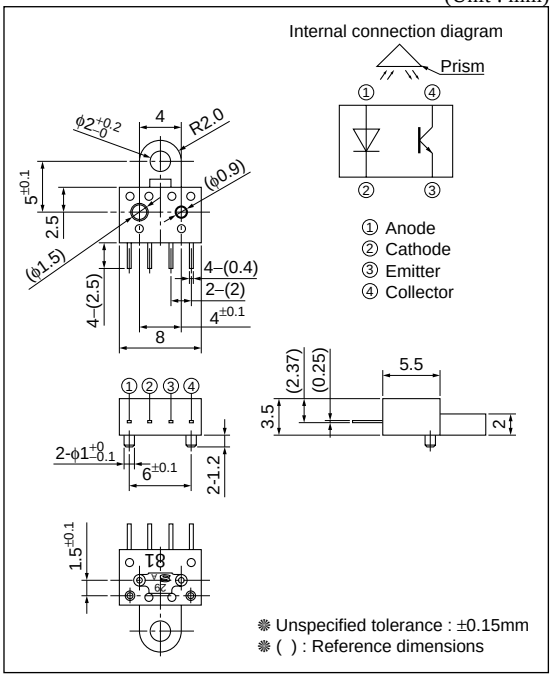
1. Printers
2. Facsimiles
3. DAT
4. Copiers
5. LBPs

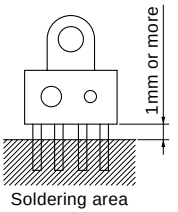
■ Absolute Maximum Ratings (Ta=25˚C)

	Parameter	Symbol	Rating	Unit
Input	*1 Forward current	I_F	50	mA
	*2 Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	*1 Power dissipation	P	75	mW
Output	Collector-emitter voltage	V_{CEO}	35	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector current	I_{CP}	20	mA
	*1 Collector dissipation	P_C	75	mW
*1 Total power dissipation		P_{tot}	100	mW
Operating temperature		T_{opr}	−25 to +85	˚C
Storage temperature		T_{stg}	−40 to +100	˚C
*3 Soldering temperature		T_{sol}	260	˚C

*1 The derating factors of absolute maximum ratings due to ambient temperature are shown in Fig.1 to 2
*2 Pulse width<=100μs, Duty ratio:0.01
*3 For 3s

■ Outline Dimensions (Unit : mm)





■ Electro-optical Characteristics

(Ta=25˚C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	I_F=20mA	–	1.25	1.4	V
	Peak forward voltage		V_{FM}	I_{FM}=0.5A	–	3	4	V
	Reverse current		I_R	V_R=3V	–	–	10	μA
Output	Collector dark current		I_{CEO}	V_{CE}=20V	–	–	100	nA
Transfer characteristics	*4 Collector current		I_C	V_{CE}=5V, I_F=20mA	0.2	–	2.4	mA
	*5 Leak current		I_{LEAK}	V_{CE}=5V, I_F=20mA	–	–	10	μA
	Signal to noise ratio		S/N	I_C/I_{LEAK}	75	–	–	–
	*4 Collector-emitter saturation voltage		$V_{CE\ (sat)}$	I_C=0.1mA I_F=40mA	–	0.1	0.4	V
	Response time	Rise time	t_r	V_{CE}=2V, I_C=0.5mA	–	38	90	μs
		Fall time	t_f	R_L=1kΩ, d=8mm	–	48	110	μs

*4 Refer to Fig.13
*5 Refer to Fig.15

Fig.1 Forward Current vs. Ambient Temperature

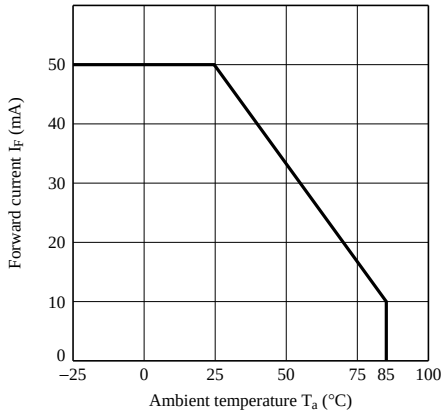


Fig.2 Power Dissipation vs. Ambient Temperature

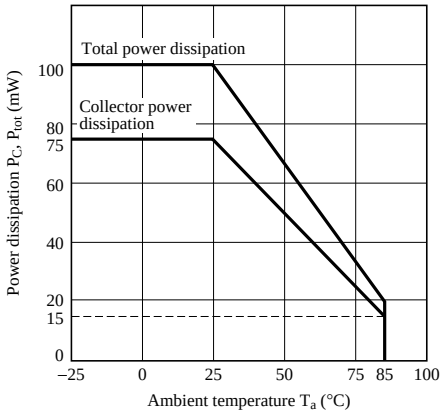


Fig.3 Peak Forward Current vs. Duty Ratio

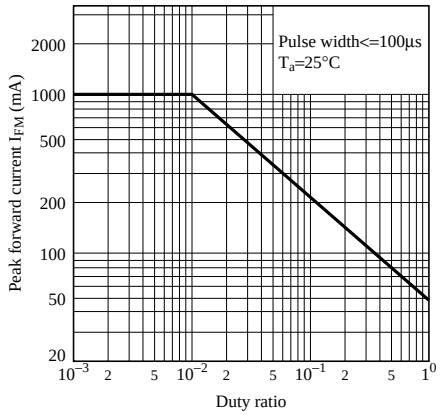


Fig.4 Forward Current vs. Forward Voltage

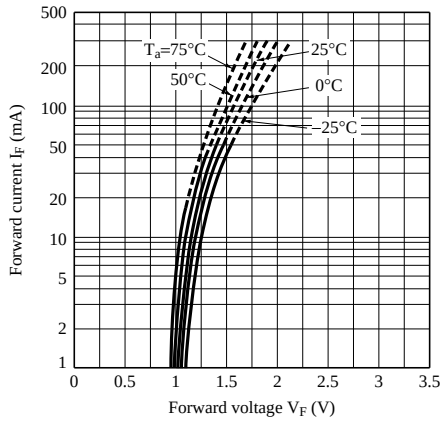


Fig.5 Collector Current vs. Forward Current

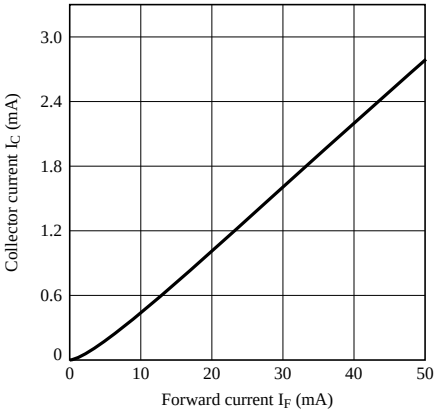


Fig.6 Collector Current vs. Collector-emitter Voltage

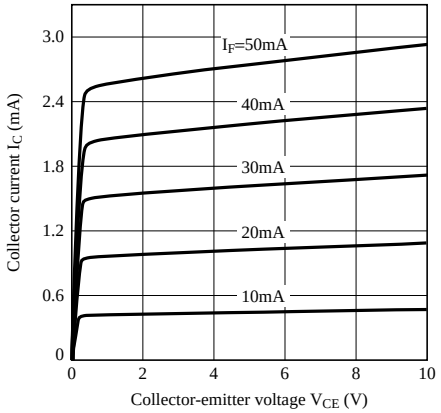


Fig.7 Relative Collector Current vs. Ambient Temperature

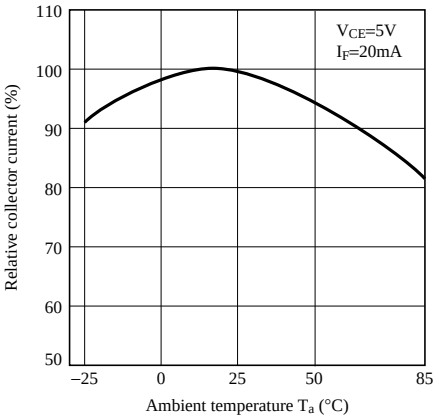


Fig.8 Collector Dark Current vs. Ambient Temperature

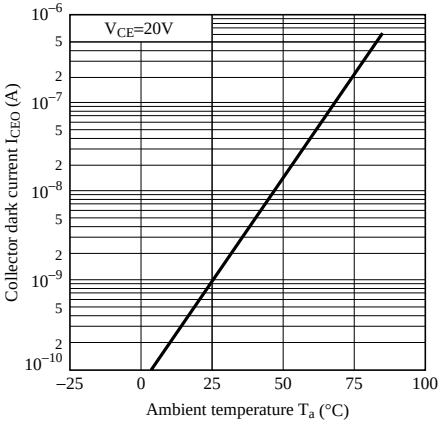


Fig.9 Collector - emitter Saturation Voltage vs. Ambient Temperature

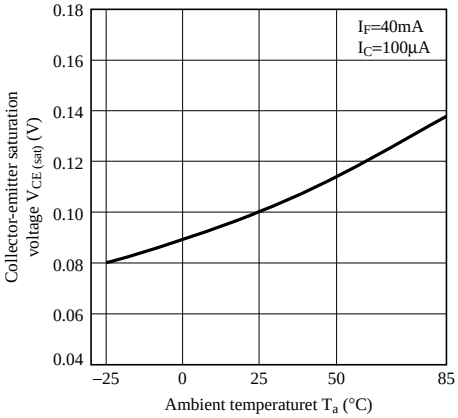


Fig.10 Response Time vs. Load Resistance

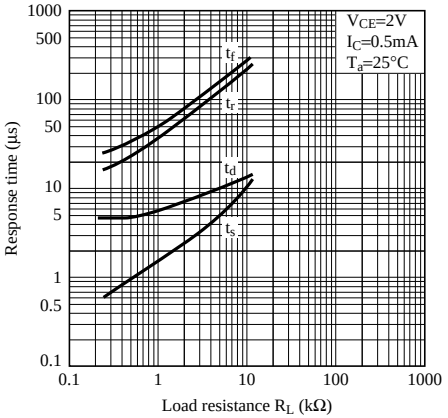


Fig.11 Test Circuit For Response Time

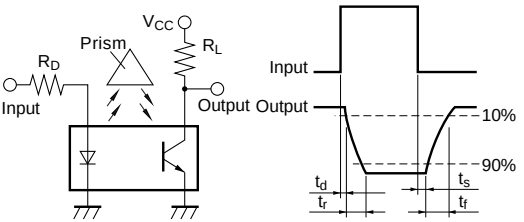


Fig.12 Relative Collector Current vs. Distance Between Sensor and Rectangle Prism

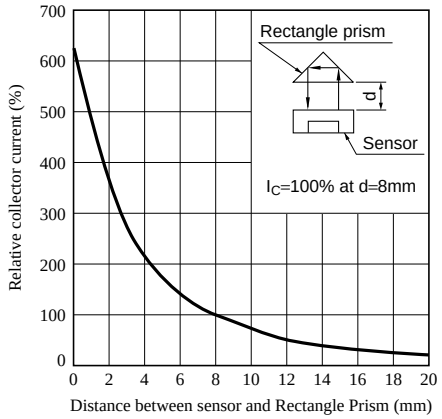


Fig.13 Measuring Configulation of Collector Current

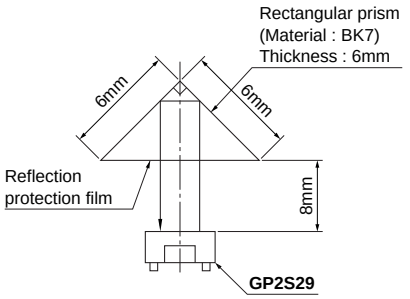


Fig.14 Voltage Gain vs Frequency

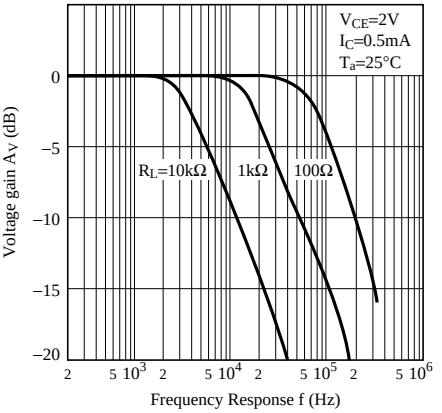
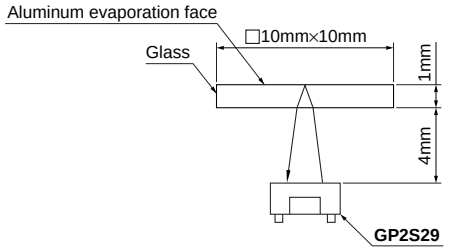


Fig.15 Measuring Configulation of Leak Current



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