GP1S036HEZ

Photointerrupter for Detecting Tilt Direction

■ Features

1. Subminiature
   (with built-in super compact ball for detecting tilt direction)
2. 2-phase output type (4
3. Able to detect the tilt direction of both side (±90°) by the position of rolling ball.
4. High reliability due to non-contact structure

■ Applications

1. Digital cameras
2. Camcoders

■ Absolute Maximum Ratings

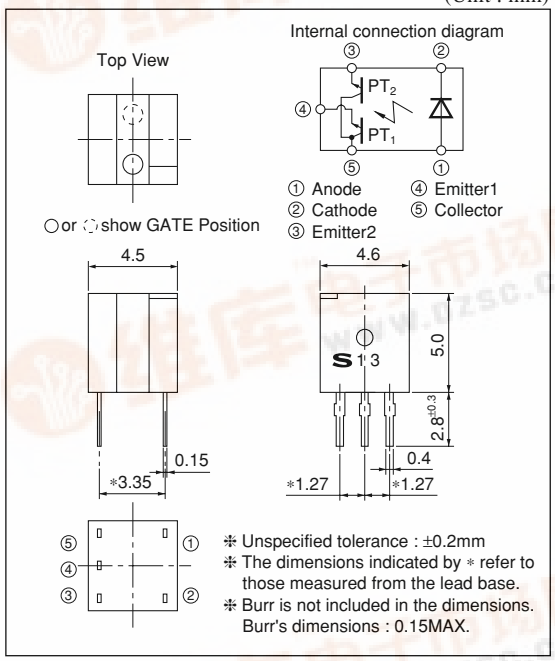
(T_a=25°C)

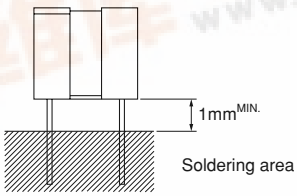
	Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	Reverse voltage	V_R	6	V
	Power dissipation	P	75	mW
Output	Collector-emitter voltage	V_{CE1O} / V_{CE2O}	35	V
	Emitter-collector voltage	V_{E1CO} / V_{E2CO}	6	V
	Collector current	I_C	20	mA
	Collector Power dissipation	P_C	75	mW
Total power dissipation		P_{tot}	100	mW
Operating temperature		T_{opr}	−25 to +85	°C
Storage temperature		T_{stg}	−40 to +100	°C
*1 Soldering temperature 1		T_{sol}	260	°C

*1 For MAX. 5s

■ Outline Dimensions

(Unit : mm)





■ Electro-optical Characteristics

(T_a=25°C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	I_F=20mA	–	1.2	1.4	V
	Reverse current		I_R	V_R=3V	–	–	10	μA
*3 Output	Collector dark current		I_{CEO}	V_{CE}=20V	–	–	100	nA
*3 Coupling Characteristics	Collector current		I_C	V_{CE}=5V, I_F=5mA	55	–	300	μA
	*4 Leak current		I_{LEAK}	V_{CE}=5V, I_F=5mA			17	μA
	Response time	Rise time	t_r	V_{CE}=5V, I_C=100μA	–	50	150	μs
		Fall time	t_f	R_L=1kΩ	–	50	150	μs
	Collector-emitter saturation voltage		$V_{CE(sat)}$	I_F=10mA, I_C=55μA	–	–	0.4	V

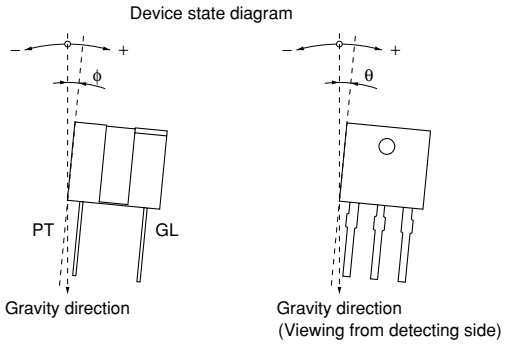
*3 Output and coupling characteristics are common to the both phototransistors
*4 Characteristics except leak current is measured at θ=180°, ϕ=0°
Leak current is the output current of transistor when θ=±90°, ϕ=0° and I_C=OFF

■ Detecting Angle Characteristics

θ	0°	→	30°	→	60°	→	120°	→	150°	→	210°
I_{C1}	OFF						*5		ON		
I_{C2}	OFF		*5				ON				*5

θ	→	240°	→	300°	→	330°	→	360°
I_{C1}	ON			*5			OFF	
I_{C2}	*5		OFF					

❊ Conditions : I_F=5mA, V_{CE}=5V, ϕ=±5°
*5 Indefinite



I_{C1} : Output current of phototransistors PT_1

I_{C2} : Output current of phototransistors PT_2

θ : Device condition : Refer to the figure

ϕ : Device condition : Refer to the figure

ON :Output current of phototransistors : 55μA or more

OFF : Output current of phototransistors : 17μA or less

❊ Output current of ON/OFF is output when device is at a standstill

■ Supplement

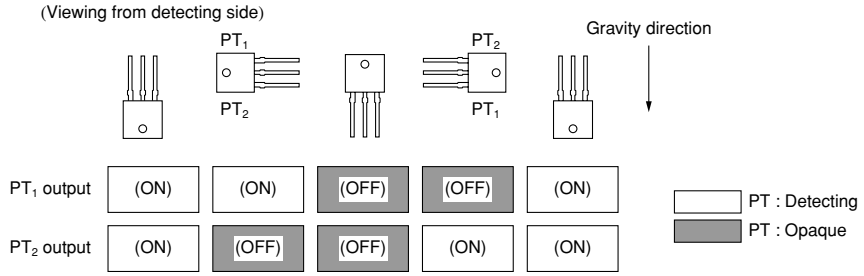


Fig.1 Forward Current vs. Ambient Temperature

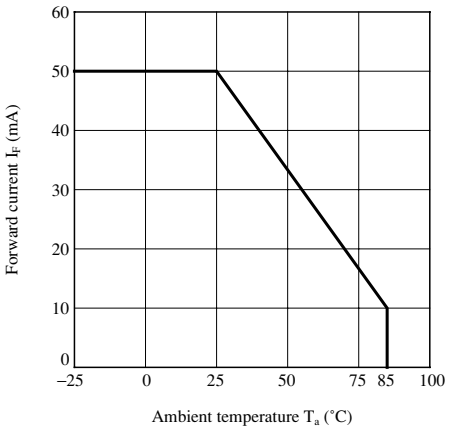
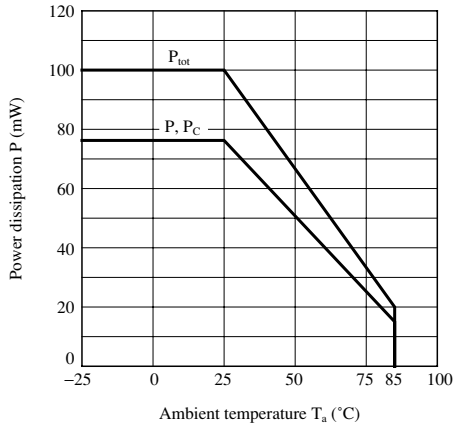


Fig.2 Power Dissipation vs. Ambient Temperature



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  --- Consumer electronics

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