

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 ($\pm 90^\circ$) by the position of rolling ball.
4. High reliability due to non-contact structure

■ Applications

1. Digital cameras
2. Camcoders

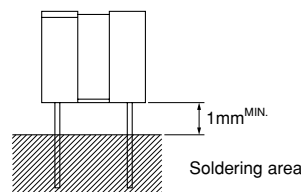
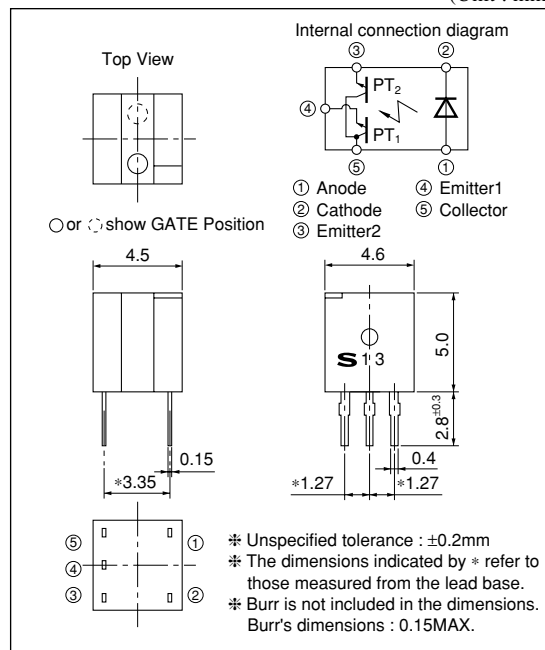
■ Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

	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}	35	V
		V_{CE2O}		
	Emitter-collector voltage	V_{E1CO}	6	V
		V_{E2CO}		
	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	$^\circ\text{C}$
	Storage temperature	T_{stg}	-40 to +100	$^\circ\text{C}$
	*1 Soldering temperature 1	T_{sol}	260	$^\circ\text{C}$

*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 R _L =1kΩ	—	50	150	μs
		Fall time	t _f		—	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°	$\rightarrow$	30°	$\rightarrow$	60°	$\rightarrow$	120°	$\rightarrow$	150°	$\rightarrow$	210°
I_{C1}	OFF						*5			ON	
I_{C2}	OFF		*5			ON					*5

θ	$\rightarrow$	240°	$\rightarrow$	300°	$\rightarrow$	330°	$\rightarrow$	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 PT₁

I_{C2} : Output current of phototransistors PT₂

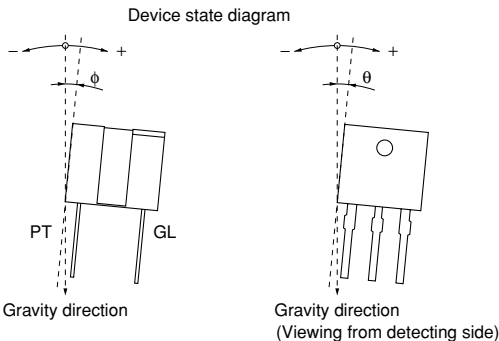
θ : Device condition : Refer to the figure

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

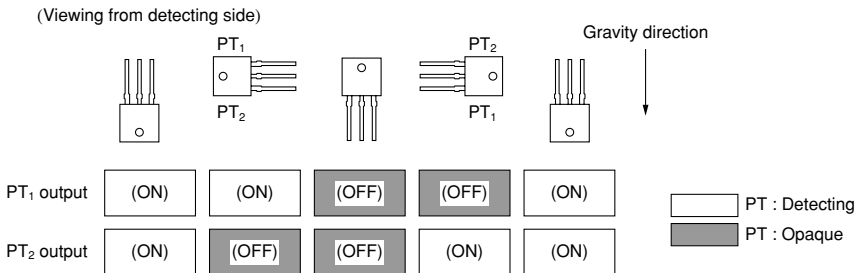


Fig.1 Forward Current vs. Ambient Temperature

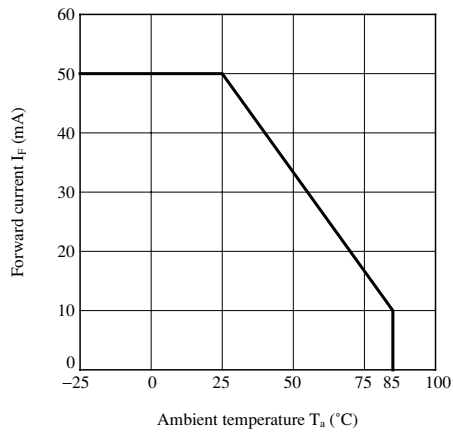
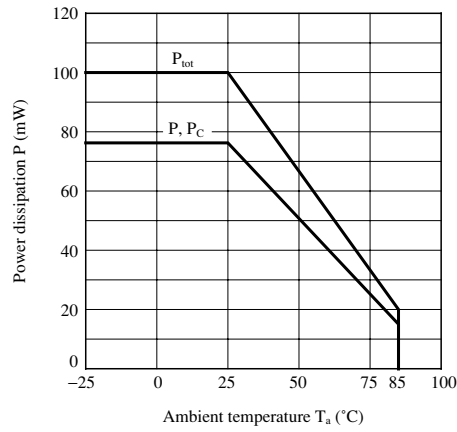


Fig.2 Power Dissipation vs. Ambient Temperature



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