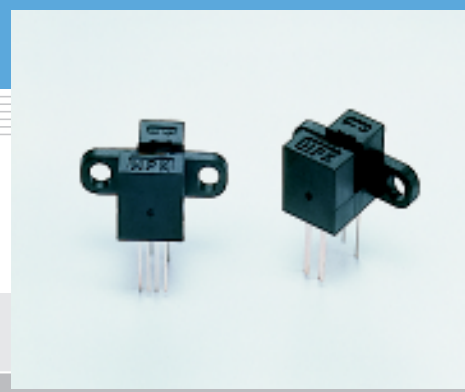


Photointerrupter

P5747

High resolution photointerrupter



P5747 consists of a photo IC, an LED and a mask slit enclosed in a C-shape plastic package. When used with a rotary disk (codewheel) or linear scale (codestrip), P5747 serves as a rotary or linear encoder that provides incremental two-phase digital outputs.

P5747 uses the moire stripe slit method for incremental encoding. Light passing through the slits is detected by the 4-channel photodiode array in the photo IC and the detected signals are digitally processed. This method delivers a high resolution of 42 μm equal to 1/4 of the slit pitch (169 μm).

Features

- High resolution: 42 μm
- Incremental two-phase digital output
- TTL compatible

Applications

- Head positioning for compact printers, etc.

■ Absolute maximum ratings (Ta=25 °C)

Parameter		Symbol	Value	Unit
Input (LED)	Forward current *1	IF	65	mA
	Pulse forward current *2	IFP	1	A
	Reverse voltage	VR Max.	5	V
	Power dissipation	P	100	mW
Output (photo IC)	Supply voltage	Vcc	7	V
	Low level output current	IOL	20	mA
	Power dissipation *3	P	250	mW
Operating temperature		Topr	0 to +70	°C
Storage temperature		Tstg	-30 to +80	°C

*1: Derate forward current at a rate of 0.8 mA/°C above Ta=25 °C.

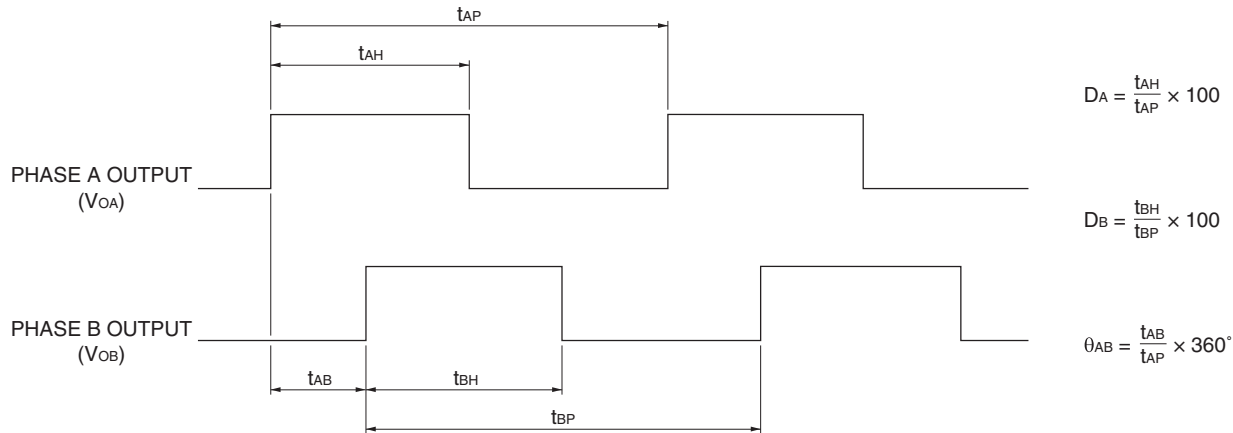
*2: Pulse width $\leq 100 \mu\text{s}$, duty ratio $\leq 1/100$

*3: Derate power dissipation at a rate of 3.3 mA/°C above Ta=25 °C.

■ Electrical and optical characteristics (Ta=25 °C, Vcc=5 V, IF=15 mA, unless otherwise noted)

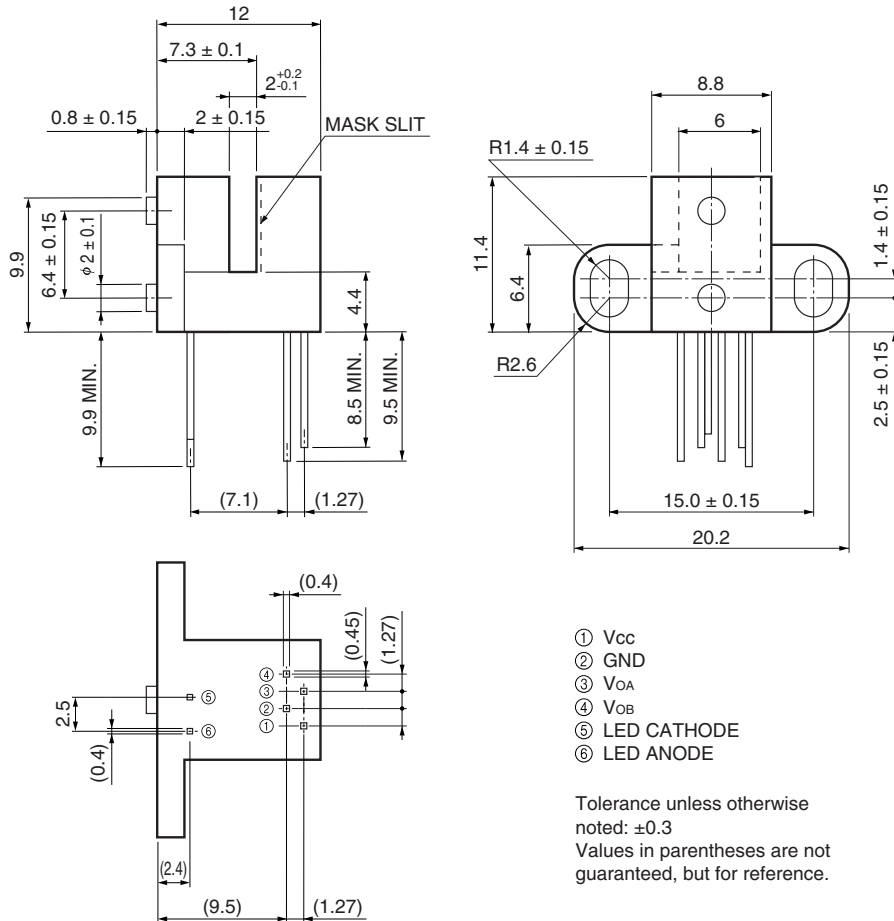
Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input (LED)	Forward voltage	VF		-	1.41	1.9	V
	Reverse current	IR	VR=5 V	-	-	100	μA
Output (photo IC)	Phase A	High level voltage	VAH	4.9	-	-	V
		Low level voltage	VAL	-	0.2	0.4	
	Phase B	High level voltage	VBH	4.9	-	-	
		Low level voltage	VBH	-	0.2	0.4	
	Current consumption		-	-	6	20	mA
	Duty ratio		DA, DB	30	50	70	%
Transfer characteristics	Phase difference		θ_{AB}	30	90	150	degree
	Rise time		tr	-	1.0	2.0	μs
	Fall time		tf	-	1.0	2.0	μs

Output transition diagram



KPCC0006EA

Dimensional outline (unit: mm)



KPCA0004EA

HAMAMATSU

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