

OKI electronic components

OPU872CP

Capsule Sensor with Light Emitter and Photosensor

GENERAL DESCRIPTION

The OPU872CP is a capsule sensor which includes both a light emitting diode and a phototransistor in the package with connector.

The transmission type photointerruptor is implemented by combining the OPU872CP with a rectangular prism (Option); optically set with face to face.

Since the sensor and LED are in one side, compared to the conventional sensor in which a sensor is in opposite side of a LED, the OPU872CP will need only a small wiring space.

The capsuled type has the advantages of easy mounting and dustproof construction, so the OPU872CP is best suitable for paper detection sensor applications.

FEATURES

- Easy mounting
- No need to use soldering since the connector is built in
- Small size
- Superior dustproof

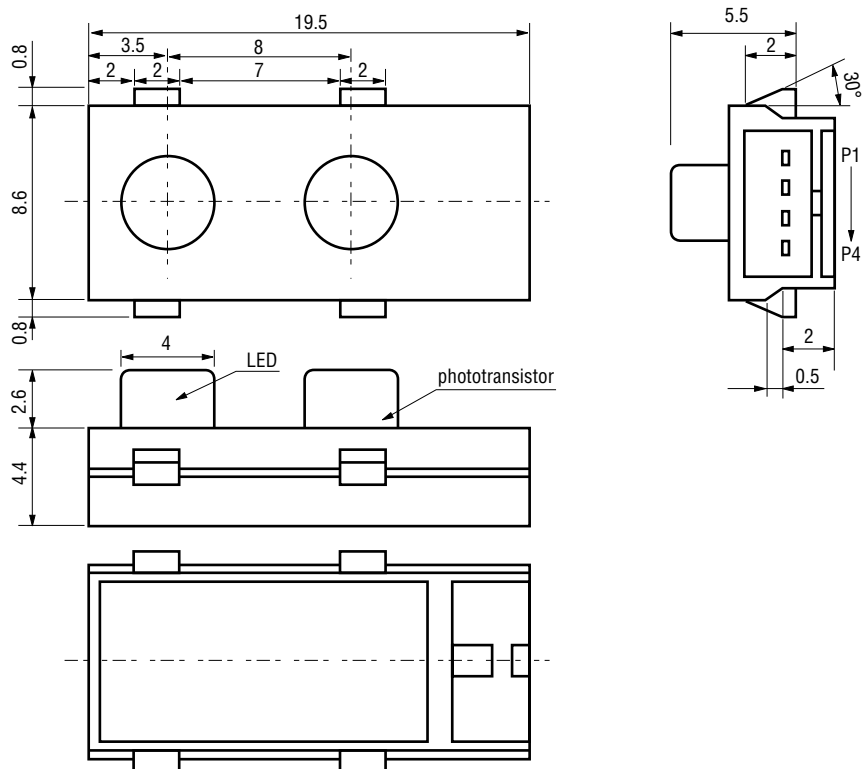
APPLICATIONS

- Passing object sensor
- Position detector

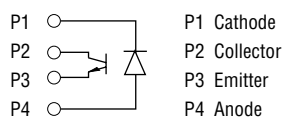
PIN CONFIGURATION

OPU872CP

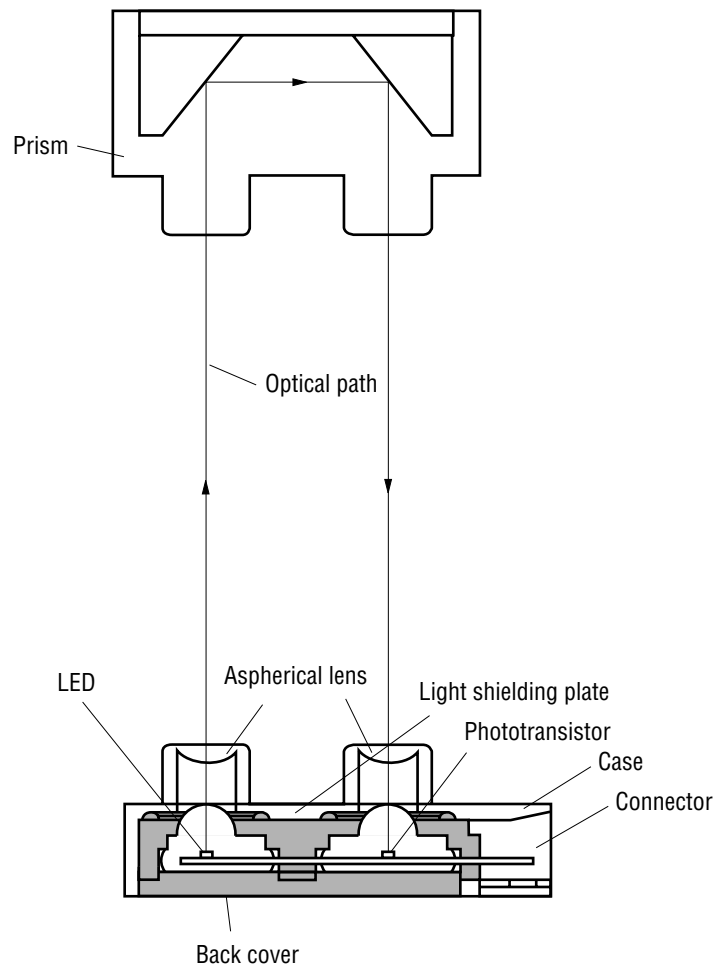
(Unit: mm)



- Pin Connection Diagram



OPTICAL LAYOUT



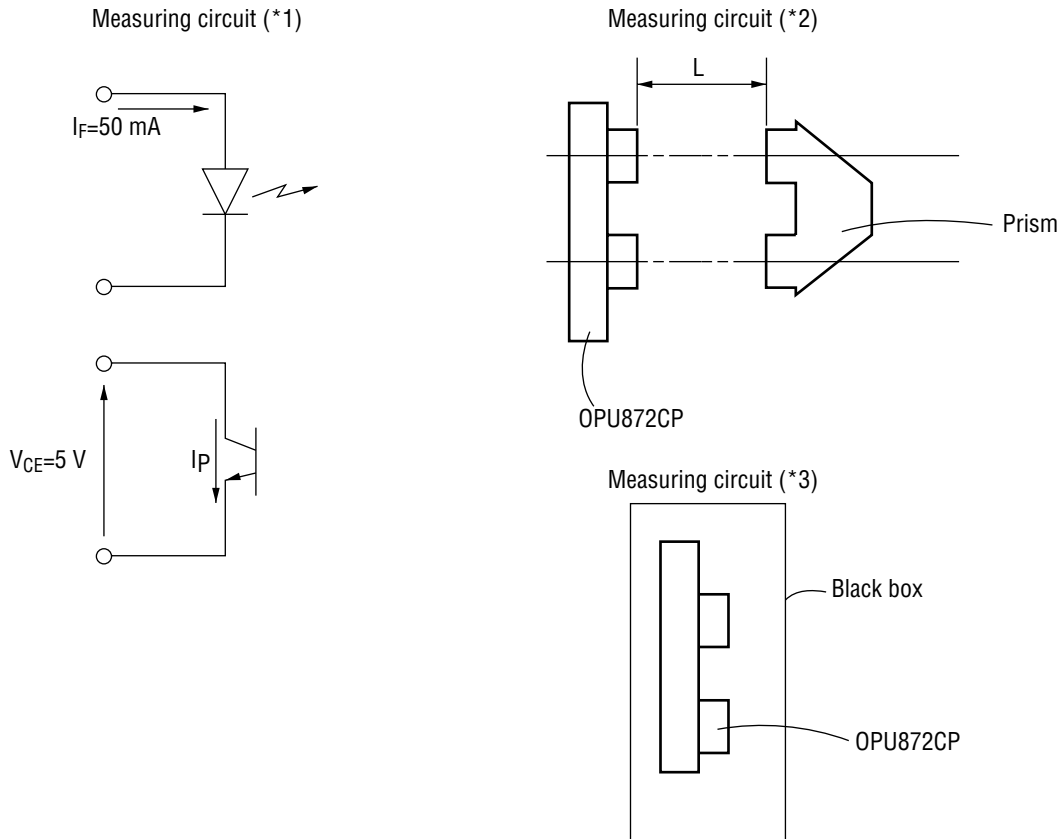
ABSOLUTE MAXIMUM RATINGS

	Parameter	Symbol	Test Condition	Rating	Unit	Note
Light Emitter	Forward Current	I_F	$T_a=25^{\circ}\text{C}$	60	mA	—
	Pulse Forward Current	I_{FM}		0.5	A	$t_w=100\mu\text{s}$ $T=10\text{ms}$
	Reverse Voltage	V_R		6	V	—
	Power Dissipation	P_D		120	mW	—
	Forward Current Derating Factor	—	$T_a\geq 25^{\circ}\text{C}$	1.7	mA/ $^{\circ}\text{C}$	—
Photosensor	Collector-emitter Voltage	V_{CEO}	$T_a=25^{\circ}\text{C}$	20	V	—
	Collector Current	I_C		10	mA	—
	Collector Power Dissipation	P_C		150	mW	—
	Emitter-collector Voltage	V_{ECO}		5	V	—
Operating Temperature		T_{opr}	—	-10 to +60	$^{\circ}\text{C}$	—
Storage Temperature		T_{stg}	—	-10 to +60	$^{\circ}\text{C}$	—

ELECTRICAL CHARACTERISTICS

Parameter		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Light Emitter	Forward Voltage	V _F	I _F =60 mA	—	1.55	2.00	V
	Reverse Current	I _R	V _R =6 V	—	—	10	μA
	Peak-emission Wavelength	λ _P	I _F =60 mA	—	910	—	nm
Photosensor	Collector-emitter Voltage	V _{CEO}	I _C =100 μA	20	—	—	V
	Dark Current	I _D	V _{CE} =9 V	—	—	100	nA
Leakage Current ^{*1} ^{*3}		I _{LEAK}	I _F =50 mA V _{EC} =5 V	—	—	200	μA
Output Photocurrent ^{*1} ^{*2}		I _P	I _F =50 mA V _{CE} =5 V L=25 mm	2000	—	—	μA
S/N Ratio		—	I _P /I _{LEAK}	30	—	—	—

MEASURING CIRCUITS AND CONDITIONS

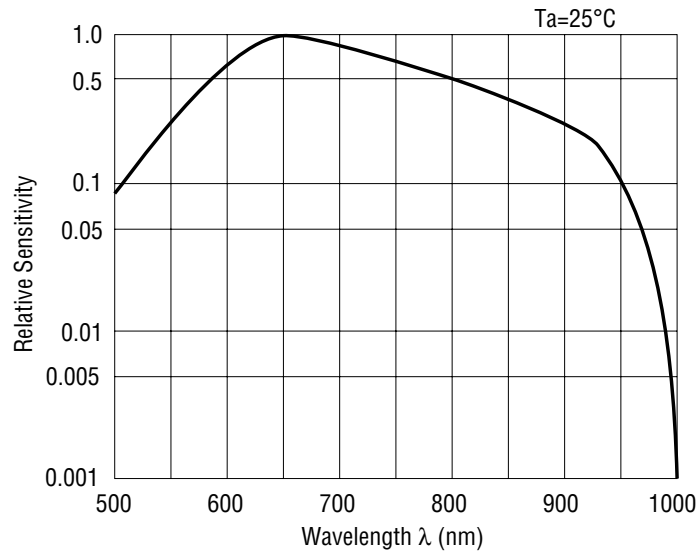


Recommended Connector for Capsule Sensor (Female Connector)

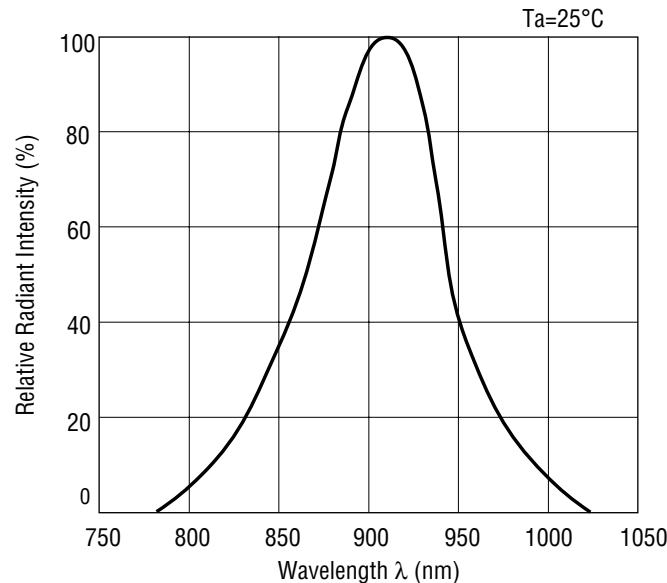
Product Name	Type	Maker
Connector	IL-Y-3S-S15C3	Japan Aviation Electronics Ind., Ltd.

TYPICAL CHARACTERISTICS

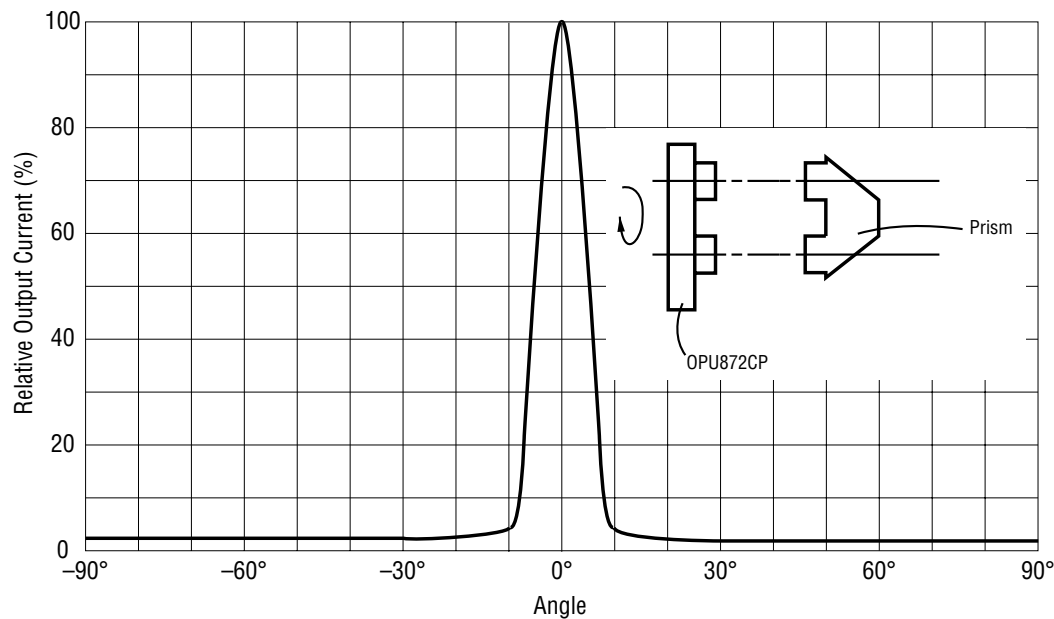
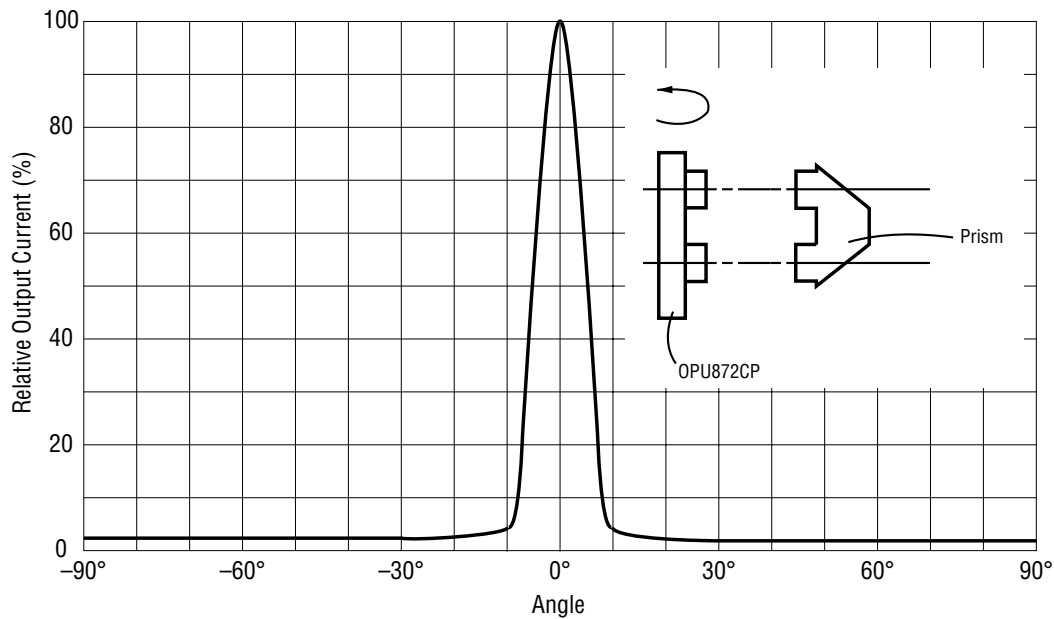
Spectral Sensitivity



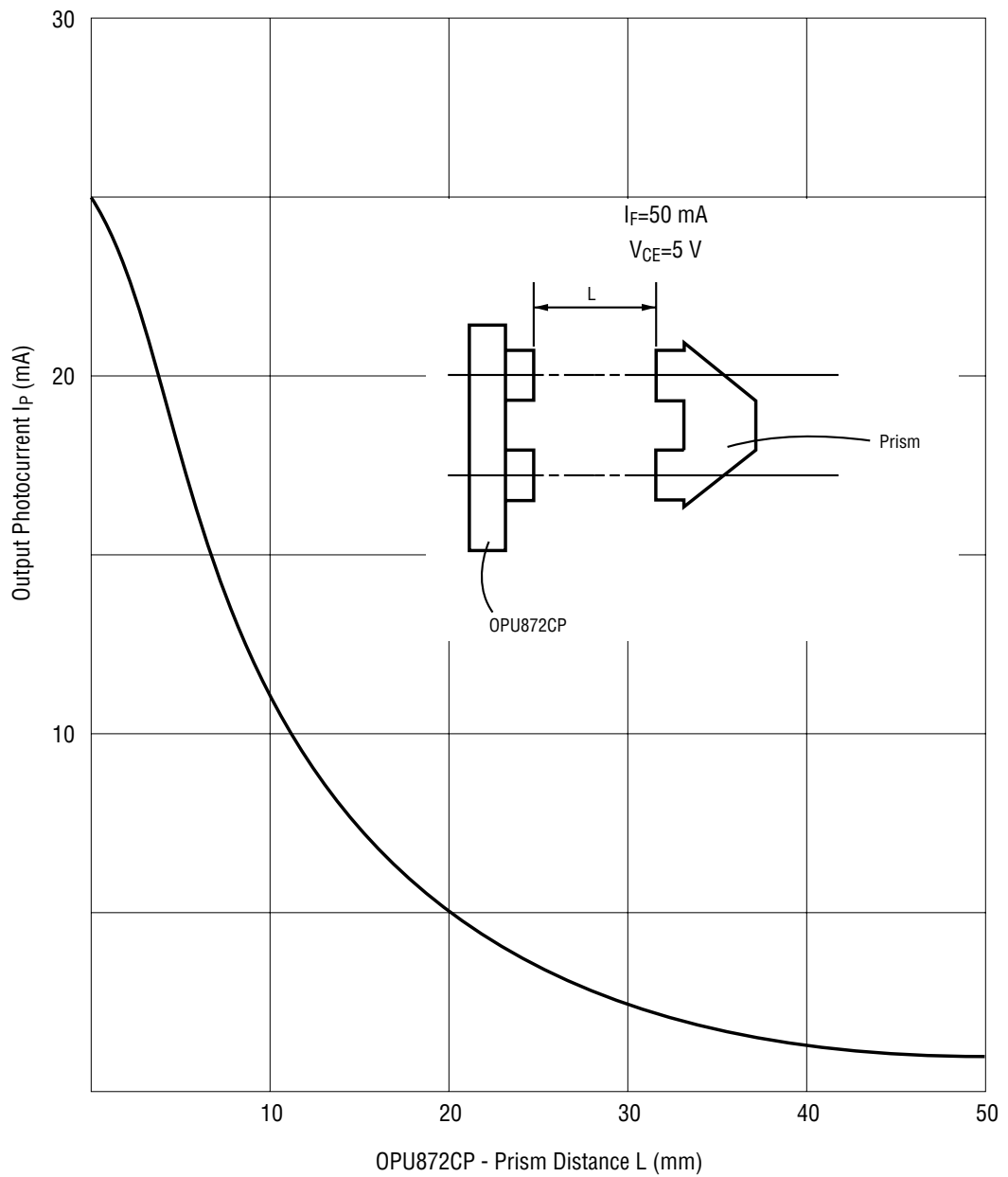
Emission Spectrum Measured at Sensing Part



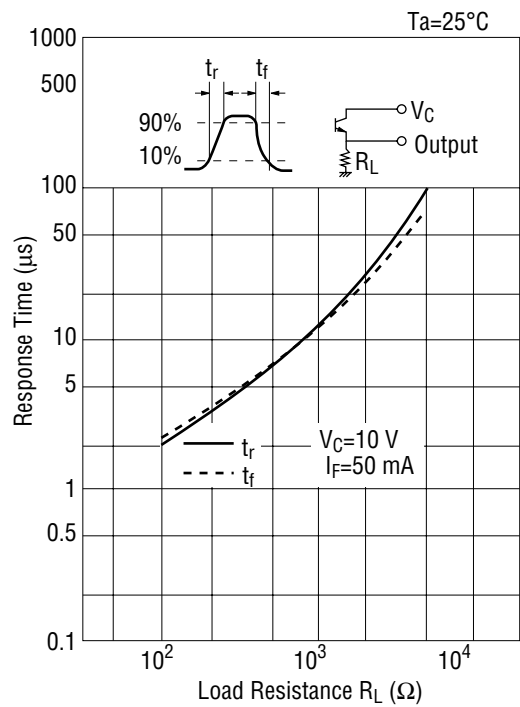
Directional Characteristics



Output Photocurrent vs. OPU872CP-Prism Spacing



Switching Time vs. Load Resistance



Maximum Pulse Forward Current Tolerance

