

Reflective Object Sensors

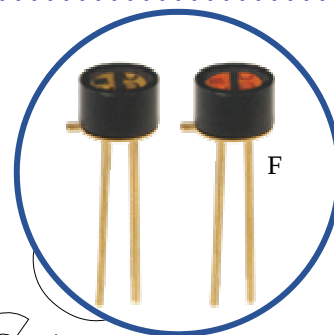
OPB710, OPB710F

OPB730, OPB730F



OPB710, OPB710F, OPB730, OPB730F series

- Output: Phototransistor (OP710, OP710F); Photodarlington (OP730, OP730F)
- Unfocused for sensing diffuse surface
- Mounted on standard TO-72 header
- Available in clear encapsulating epoxy (OPB710, OPB730)
- Filtered to reduce the effect of visible or fluorescent light (OPB710F, OPB730F)



Description:

The OPB710 and OPB710F consist of a gallium arsenide infrared emitting diode and an NPN silicon phototransistor.

The OPB 730 and OPB730F consist of a gallium arsenide infrared emitting diode and an NPN silicon photodarlington.

On each of these sensors, the emitting diode and detector are mounted side-by-side on parallel axes on a standard TO-72 header. A black plastic sleeve is attached and filled with encapsulating epoxy to cover the emitter and detector.

The “F” versions both have a filtering material added to the epoxy to reduce the effect of ambient light. The package contains an internal barrier which prevents diode emissions from reaching the sensor directly.

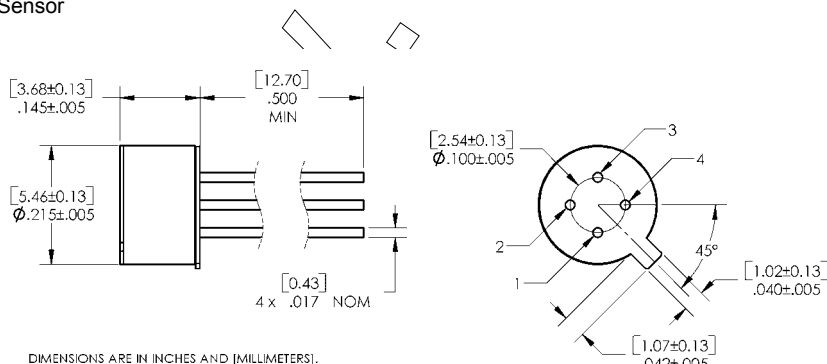
Applications:

- Non-Contact Reflective Object Sensor
- Assembly Line Automation
- Machine Automation
- Machine safety
- End of Travel Sensor
- Door Sensor

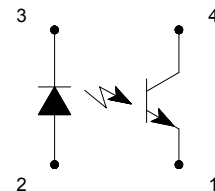
Ordering Information

OPB710 & OPB730	Filter
OPB710 & OPB730	Visible Light Filter (below 700 nm)

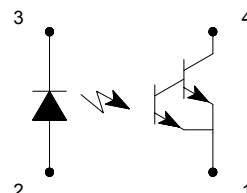
Pin #	LED	Pin #	Transis-
2	Anode	1	Collector
3	Cathode	1	Emitter



OPB710



OPB730



RoHS

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OPB710, OPB710F

OPB730, OPB730F



Absolute Maximum Ratings

(T_A=25°C unless otherwise noted)

Storage Temperature Range	-20°C to +85°C
Operating Temperature Range	0°C to +70°C
Lead Soldering Temperature [1/16 inch (1.6mm) from the case for 5 sec. with soldering iron]	240°C ⁽¹⁾
Input Diode	
Forward DC Current	50 mA
Peak Forward Current (1 µs pulse width, 300 pps)	3.0 A
Reverse DC Voltage	3.0 V
Power Dissipation	75 mW ⁽²⁾
Output Photosensor	
Collector-Emitter Voltage	(OPB710, OPB710F) (OPB730, OPB730F) 30 V 15 V
Emitter-Collector Voltage	5.0 V
Collector DC Current	25 mA
Power Dissipation	150 mW ⁽³⁾

Electrical Characteristics

(T_A=25°C unless otherwise noted)

Symbol	Parameter	Min	Max	Units	Test Conditions
Input Diode					
V _F	Forward Voltage	1.5		V	I _F = 50 mA
I _R	Reverse Current	100		µA	V _R = 3.0 V
Output Phototransistor					
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	30		V	I _C = 1 mA
V _{(BR)ECO}	Emitter-Collector Breakdown Voltage	5.0		V	I _E = 100 µA
I _{CEO}	Collector Dark Current (OPB710, OPB710F) (OPB730, OPB730F)		100 250	nA	V _{CE} = 5 V, I _F = 0, E _e ≤ 0.1 µW/cm ²
Combined					
I _{CX}	Crosstalk (OPB710, OPB710F) (OPB730, OPB730F)		100 500	nA	I _F = 50mA, V _{CE} = 5 V, No reflecting surface ⁽⁵⁾
I _{C(ON)}	On-State Collector Current (OPB710, OPB710F) (OPB730, OPB730F)	150 1.0		µA mA	I _F = 50 mA, V _{CE} = 5 V, d = 0.250 in. (6.35 mm) ⁽⁴⁾

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
- (2) Derate linearly 1.67 mW/°C above 25 ° C.
- (3) Derate linearly 3.33 mW/°C above 25 ° C.
- (4) Measured using Eastman Kodak neutral white test card having 90% diffuse reflectance located 0.250 inch (6.35 mm) from the face of the OPB710. Reference: Eastman Kodak, Catalog #1257795.
- (5) Crosstalk (I_{CX}) is the collector current measured with the indicated current on the input diode and with no reflecting surface. Ambient light is excluded with a black box.

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OPB710, OPB710F

OPB730, OPB730F

