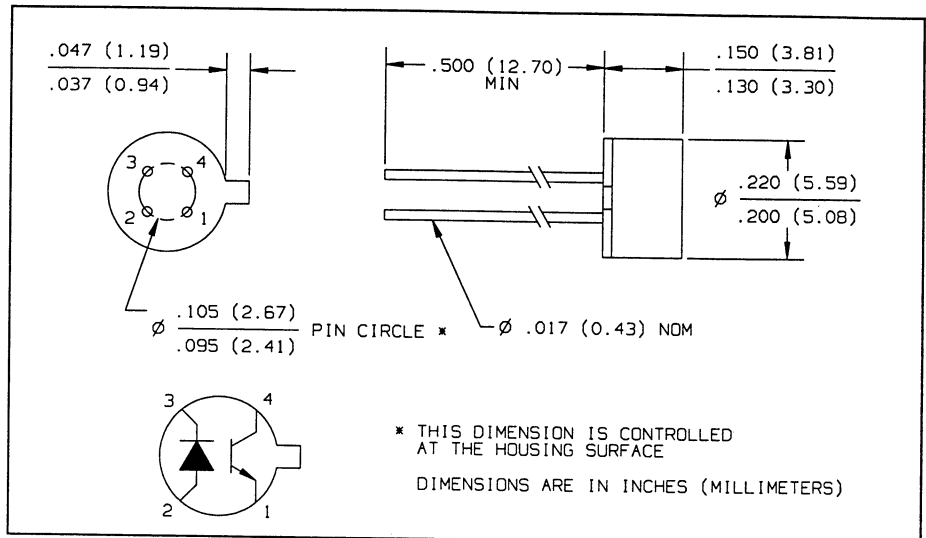
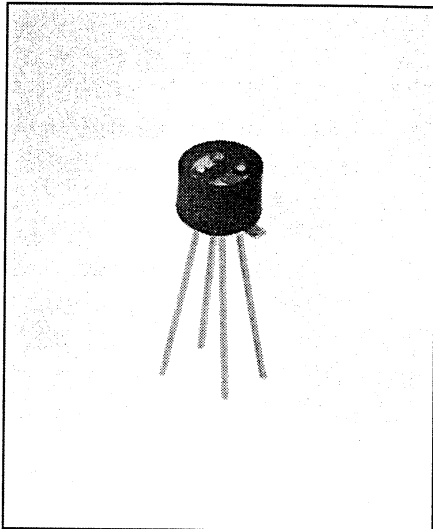


Reflective Object Sensors

Types OPB730, OPB730F



Features

- Photodarlington output
- Unfocused for sensing diffuse surface
- Mounted on standard TO-72 header
- Available in clear encapsulating epoxy (OPB730) or filtered (OPB730F) to reduce the effect of visible or fluorescent light.

Description

The OPB730 and OPB730F each consist of a gallium arsenide infrared emitting diode and an NPN silicon photodarlington. 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" version has a filtering material added to the epoxy to reduce the effect of ambient light. An internal barrier prevents light from reaching the detector directly.

Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

Storage Temperature	-20° C to +85° C
Operating Temperature Range	0° C to +70° C
Lead Soldering Temperature [1/16 inch (1.6mm) from case for 5 sec. with soldering iron]	240° C ⁽¹⁾

Input Diode

Forward DC Current	50 mA
Peak Forward Current (1 μs pulse width, 300pps)	3.0 A
Reverse DC Voltage	3.0 V
Power Dissipation	75 mW ⁽²⁾

Output Photosensor

Collector-Emitter Voltage	15 V
Emitter-Collector Voltage	5.0 V
Collector DC Current	25 mA
Power Dissipation	150 mW ⁽³⁾

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. 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 an Eastman Kodak neutral white test card having 90% diffuse reflectance located 0.250 inch (6.35 mm) from the face of the OPB730. 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.

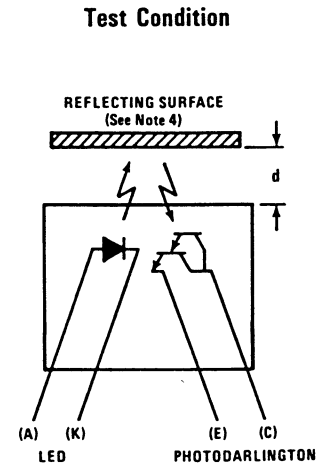
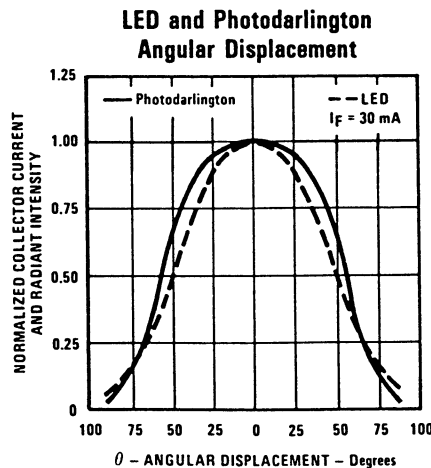
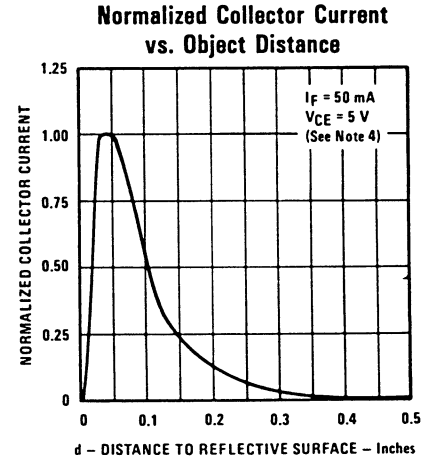
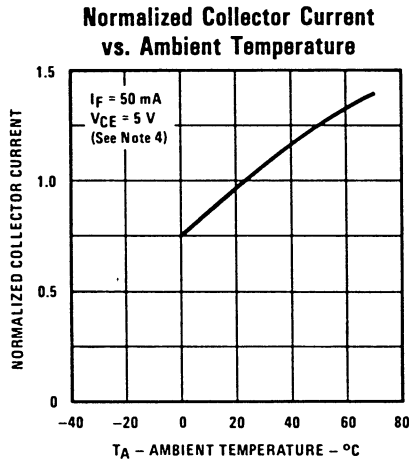
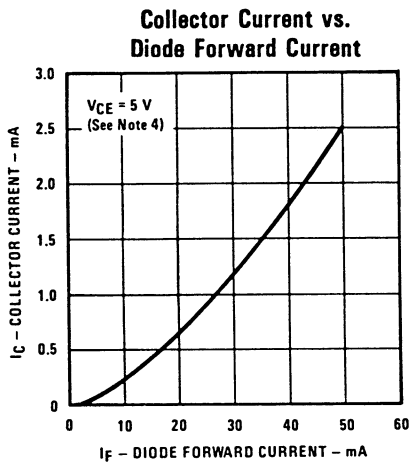
Types OPB730, OPB730F

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

REFLECTIVE OBJECT SENSORS

SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
Input Diode					
V_F	Forward Voltage		1.50	V	$I_F = 50\text{ mA}$
I_R	Reverse Current		100	μA	$V_R = 3.0\text{ V}$
Output Photodarlington					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	15		V	$I_C = 1.00\text{ mA}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0		V	$I_E = 100\ \mu\text{A}$
I_{CEO}	Collector Dark Current		250	nA	$V_{CE} = 5\text{ V}, I_F = 0, E_e \leq 0.1\ \mu\text{W}/\text{cm}^2$
Combined					
$I_{C(ON)}$	On-State Collector Current	1.0		mA	$V_{CE} = 5\text{ V}, I_F = 50\text{ mA}, d = 0.250\text{ in. (6.35 mm)}^{(4)}$
I_{CX}	Crosstalk		500	nA	$V_{CE} = 5\text{ V}, I_F = 50\text{ mA}, \text{No Reflecting Surface}^{(5)}$

Typical Performance Curves



Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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