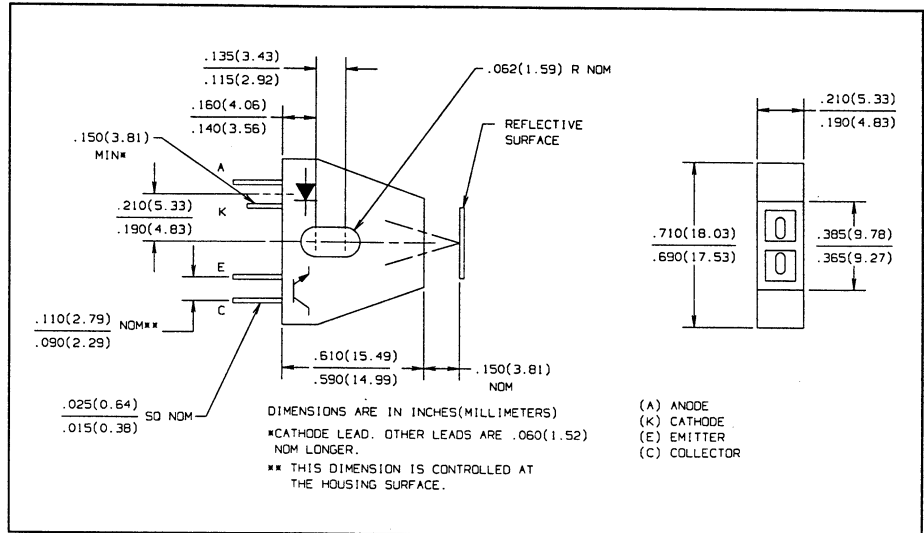
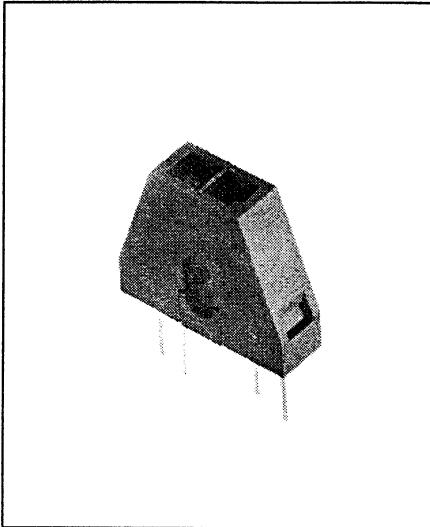


Reflective Object Sensor

Type OPB745



Features

- Focused for maximum sensitivity
- Photodarlington output
- Crosstalk does not exceed specified I_{CEO}
- PC board mounting

Description

The OPB745 reflective object sensor consists of an infrared emitting diode and an NPN silicon photodarlington mounted side by side on converging optical axes in a black plastic housing.

The photodarlington responds to radiation from the emitter only when a reflective object passes within its field of view.

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Storage and Operating Temperature Range -40°C to $+85^\circ\text{C}$
 Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron] $240^\circ\text{C}^{(1)}$

Input Diode

Continuous Forward Current 40 mA
 Reverse Voltage 2.0 V
 Power Dissipation 100 mW⁽²⁾

Output Photodarlington

Collector-Emitter Voltage 15 V
 Emitter-Collector Voltage 5.0 V
 Power Dissipation 100 mW⁽²⁾

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
- (2) Derate Linearly 1.67 mW/ $^\circ\text{C}$ above 25°C .
- (3) d is distance from the assembly face to the reflective surface.
- (4) Reflective surface is Eastman Kodak neutral white test card with 90% diffuse reflectance as a reflecting surface. Reference: Eastman Kodak, Catalog #1257795.
- (5) Lower curve is based on calculated worst case condition rather than the conventional -2σ limit.
- (6) Crosstalk is the photocurrent measured with current to the input diode & no reflecting surface.
- (7) All parameters tested using pulse technique.

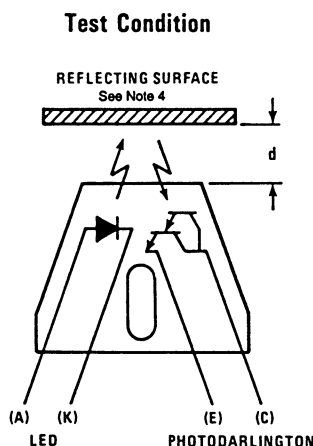
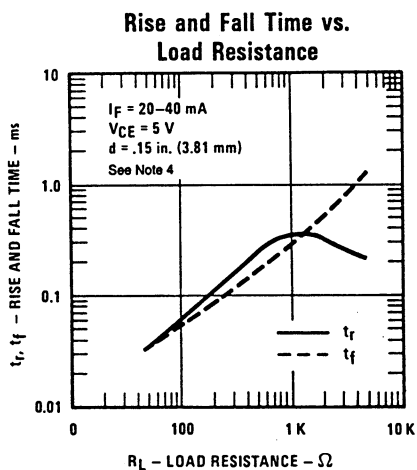
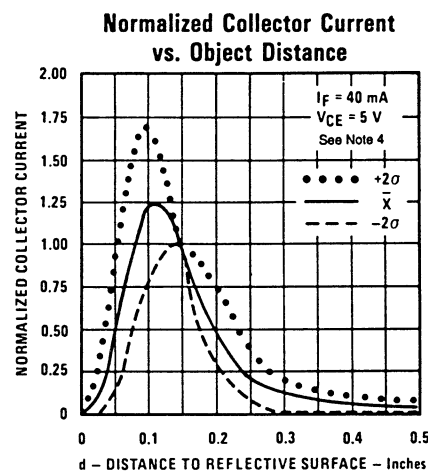
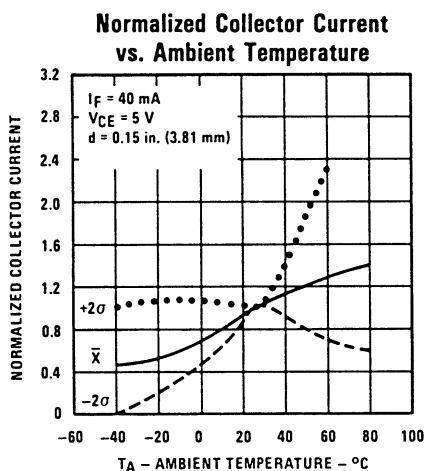
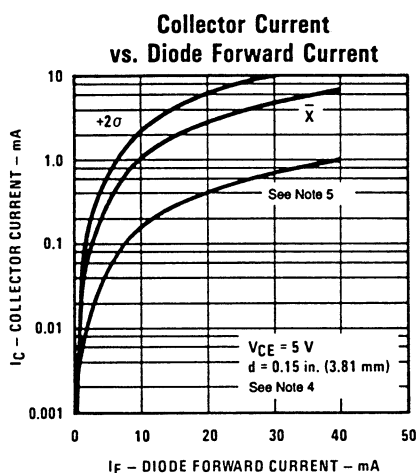
Type OPB745

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

SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
Input Diode					
V_F	Forward Voltage		1.70	V	$I_F = 40\text{ mA}$
I_R	Reverse Current		100	μA	$V_R = 2.0\text{ V}$
Output Photodarlington					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	15		V	$I_C = 100\text{ }\mu\text{A}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0		V	$I_E = 100\text{ }\mu\text{A}$
I_{CEO}	Collector Dark Current		250	nA	$V_{CE} = 10\text{ V}$, $I_F = 0$, $E_e = 0$
Combined					
$I_{C(ON)}^{(3)(4)}$	On-State Collector Current	1.0		mA	$V_{CE} = 5\text{ V}$, $I_F = 40\text{ mA}$, $d = 0.15''$
$I_{CX}^{(2)}$	Crosstalk		250	nA	$V_{CC} = 5\text{ V}$, $I_F = 40\text{ mA}$

REFLECTIVE
OBJECT
SENSORS

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.

Optek Technology, Inc. 1215 W. Crosby Road Carrollton, Texas 75006 (972)323-2200 Fax (972)323-2396