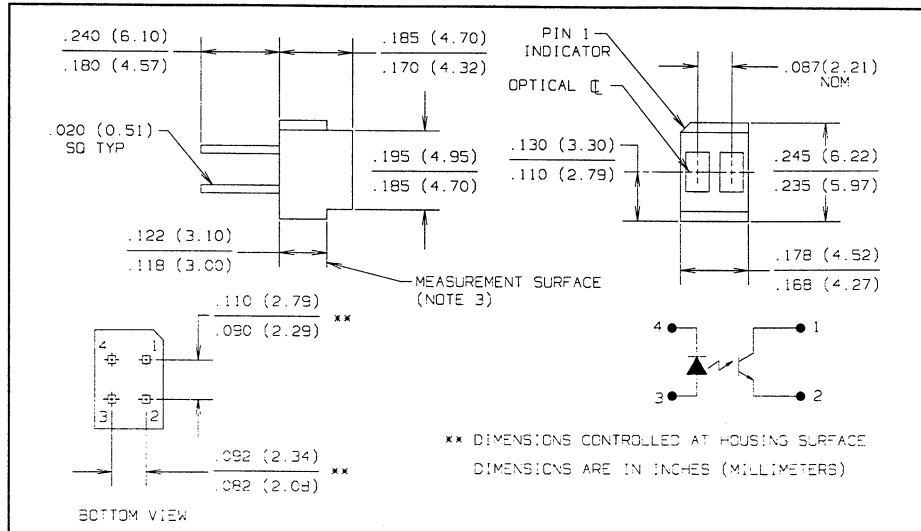
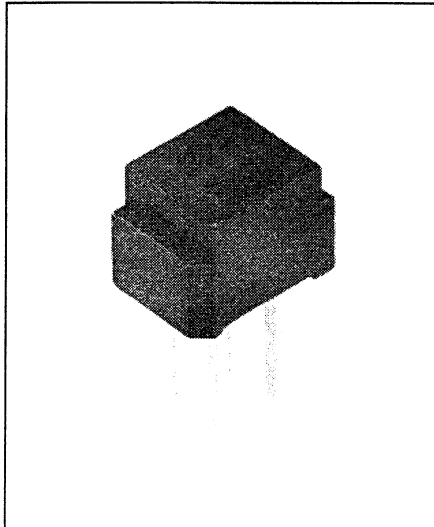


Reflective Object Sensors Types OPB606A, OPB606B, OPB606C



Features

- Phototransistor output
- Unfocused for sensing diffuse surface
- Low cost plastic housing

Description

The OPB606 consists of an infrared emitting diode and an NPN silicon phototransistor mounted "side-by-side" on parallel axes in a black opaque plastic housing. Both the emitting diode and phototransistor are encapsulated in a filtering epoxy to reduce ambient light noise. The phototransistor 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 -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

Forward DC Current 50 mA
 Peak Forward Current (1 μs pulse width, 300 pps) 3.0 A
 Reverse DC Voltage 2.0 V
 Power Dissipation $75\text{ mW}^{(2)}$

Output Phototransistor

Collector-Emitter Voltage 30 V
 Emitter-Collector Voltage 5.0 V
 Collector DC Current 25 mA
 Power Dissipation $75\text{ mW}^{(2)}$

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 sec. max when flow soldering.
- (2) Derate linearly $1.25\text{ mW}/^\circ\text{C}$ above 25°C .
- (3) d is the distance from the assembly measurement surface to the reflective surface.
- (4) Measured using Eastman Kodak neutral white test card with 90% diffuse reflectance as a reflecting surface.
- (5) Off state collector current $I_{C(OFF)}$ is measured with no reflective surface in the optical path.
- (6) Lower curve is a calculated worst case and not the conventional - 2σ limit.
- (7) All parameters tested using pulse techniques.

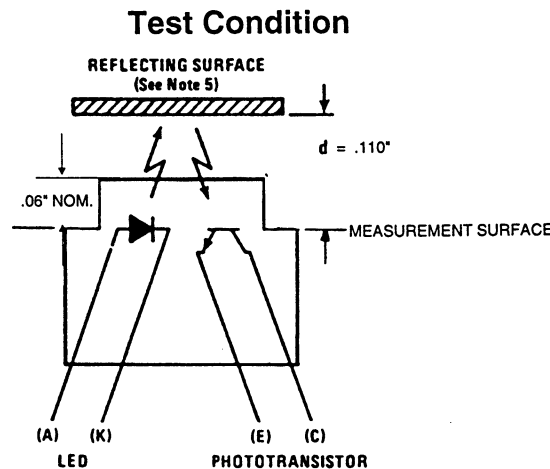
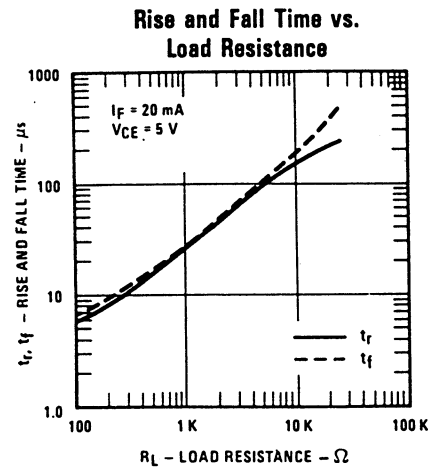
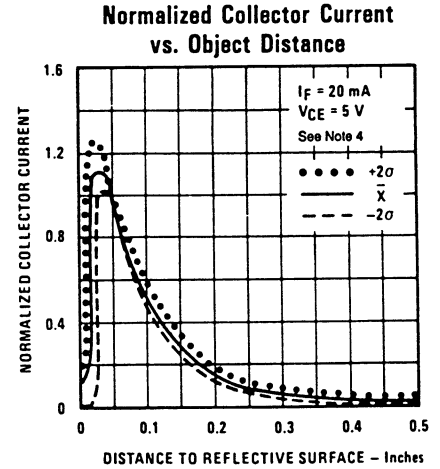
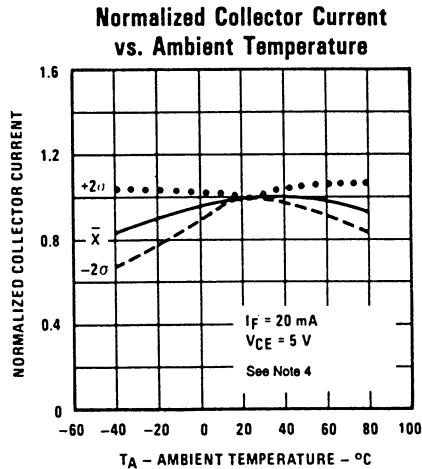
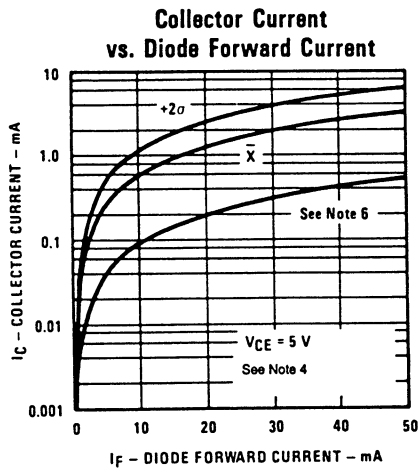
Types OPB606A, OPB606B, OPB606C

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		1.70	V	$I_F = 20\text{ mA}$
I_R	Reverse Current		100	μA	$V_R = 2.0\text{ V}$
Output Phototransistor					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30		V	$I_C = 100\ \mu\text{A}$,
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0		V	$I_E = 100\ \mu\text{A}$,
I_{CEO}	Collector Dark Current		100	nA	$V_{CE} = 5.0\text{ V}$, $I_F = 0$, $E_e \leq 0.10\ \mu\text{W}/\text{cm}^2$
Combined					
$I_{C(ON)}$	On-State Collector Current	OPB606A OPB606B OPB606C	500 350 200	μA μA μA	$V_{CE} = 5.0\text{ V}$, $I_F = 20\text{ mA}$, $d = 0.110\text{ in. (2.79 mm)}$ ⁽³⁾⁽⁴⁾
$I_{C(OFF)}$	Off-State Collector Current		200	nA	$V_{CE} = 5.0\text{ V}$, $I_F = 20\text{ mA}$, ⁽⁵⁾
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage		0.40	V	$I_F = 20\text{ mA}$, $I_C = 100\ \mu\text{A}$, $d = 0.110\text{ in. (2.79 mm)}$ ⁽³⁾⁽⁴⁾

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