Reflective Object Sensor

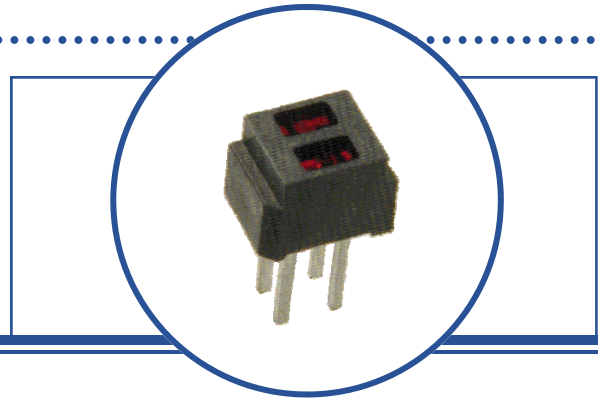
OPB606A, OPB606B, OPB606C

OPB607A, OPB607B, OPB607C

TT electronics
OPTEK Technology

Features:

- Choice of phototransistor (OPB606) or photodarlington (OPB607) output
- Unfocused for sensing diffuse surface
- Low cost plastic housing
- Filtered (OPB606, OPB607)



Description:

OPB606 consists of an infrared Light Emitting Diode (LED) and an NPN silicon phototransistor which are mounted “side-by-side” on parallel axes in a black opaque plastic housing.

The **OPB607** consists of an infrared Light Emitting Diode (LED) and an NPN silicon photodarlington which are mounted “side-by-side” on parallel axes in a black plastic housing.

The emitting diode and phototransistor of both the **OPB606** and **OPB607** are encapsulated in a filtering epoxy that reduces ambient light noise. On both models, the phototransistors respond to radiation from the emitter only when a reflective object passes within the field of view.

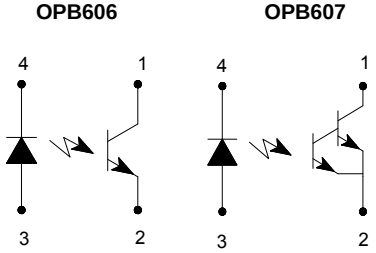
Custom electrical, wire and cabling and connectors are available. Contact your local representative or OPTEK for more information.

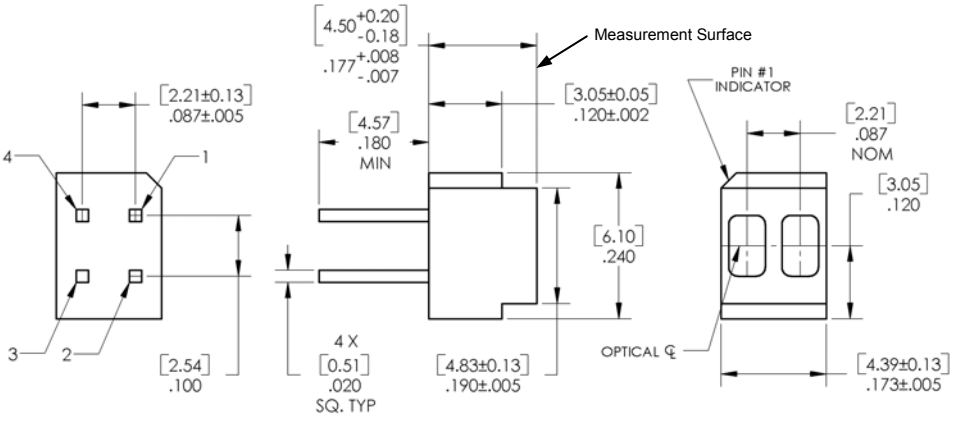
Applications:

- Non-contact reflective object sensor
- Assembly line automation
- Machine automation
- Machine safety
- End of travel sensor
- Door sensor

Ordering Information				
Part Number	LED Peak Wavelength	Sensor	Typical Reflection Distance Inch (mm)	Lead Length
OPB606A	935 nm	Transistor	0.050" (1.27mm)	0.18” (Min)
OPB606B				
OPB606C				
OPB607A		Darlington		
OPB607B				
OPB607C				

Pin #	LED	Pin #	Transistor
4	Cathode	1	Collector
3	Anode	2	Emitter





RoHS

DIMENSIONS ARE IN: [MILLIMETERS] INCHES

CONTAINS POLYSULFONE
To avoid stress cracking, we suggest using ND Industries’ **Vibra-Tite** for thread-locking. **Vibra-Tite** evaporates fast without causing structural failure in OPTEK’s molded plastics.

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. — 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 sensors@optekinc.com www.optekinc.com

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

Storage & Operating Temperature Range	-40° C to +85° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from the case for 5 sec. with soldering iron][1]	260° C

Input Diode

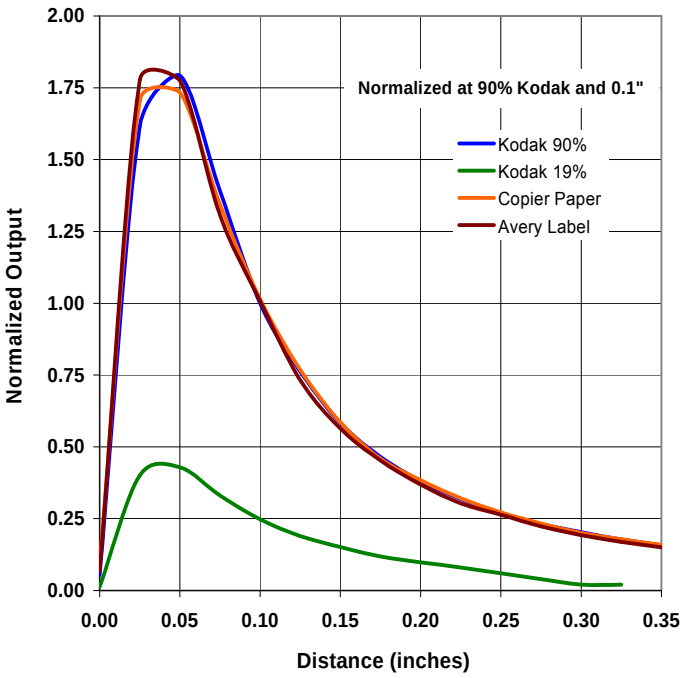
Forward DC Current	50 mA
Peak Forward Current (1 µs pulse width, 300 pps)	3 A
Reverse DC Voltage	2 V
Power Dissipation[2]	75 mW

Output Phototransistor (OPB606) / Output Photodarlington (OPB607)

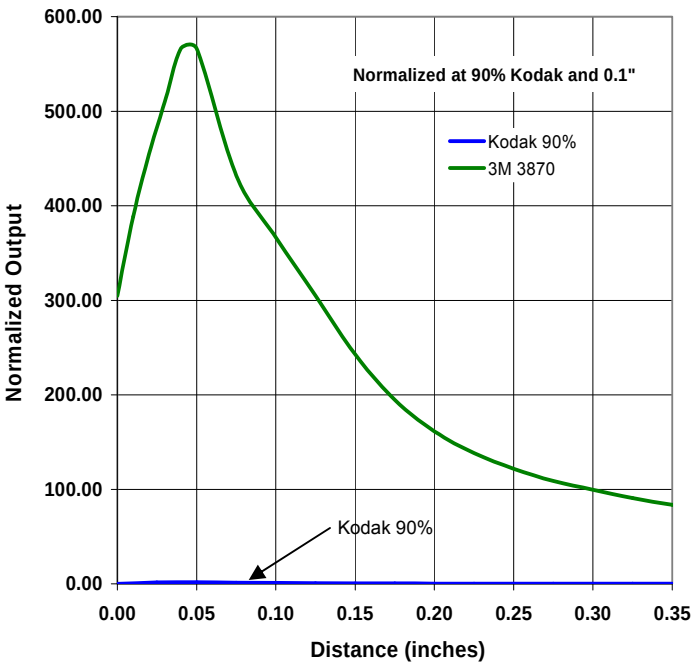
Collector-Emitter Voltage OPB606A, OPB606B, OPB606C OPB607A, OPB607B, OPB607C	 30 V 15 V
Emitter-Collector Voltage	5 V
Collector DC Current OPB606A, OPB606B, OPB606C OPB607A, OPB607B, OPB607C	 25 mA 125 mA
Power Dissipation[2]	75 mW

Notes:
(1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
(2) Derate linearly 1.25 mW/°C above 25° C.

OPB606 - Output vs Distance



OPB606 - Output vs Distance (Retro)



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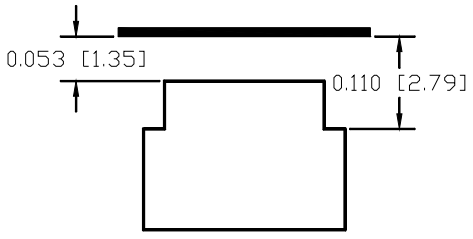
Electrical Characteristics (T_A = 25°C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode (See OP165 for additional information)						
V_F	Forward Voltage	-	-	1.7	V	I_F = 20 mA
I_R	Reverse Current	-	-	100	µA	V_R = 2 V
Output Phototransistor (see OP268 for additional information—for reference only)						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage OPB606 OPB607	 30 15	 - -	 - -	 V V	I_C = 100 µA
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5	-	-	V	I_E = 100 µA
I_{CEO}	Collector Dark Current OPB606 OPB607	 - -	 - -	 100 250	 nA nA	V_{CE} = 5 V, I_F = 0
Combined (see OP508 or OP509 for additional information—for reference only)						
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage OPB606 OPB607	 - -	 - -	 0.4 1.1	 **v**	 I_F = 20 mA, I_C = 100 µA, d = 0.053" (1.45 mm)(1)(2) I_F = 20 mA, I_C = 2 mA, d = 0.053" (1.45 mm)(1)(2)
$I_{C(ON)}$	On-State Collector Current OPB606A OPB606B OPB606C OPB607A OPB607B OPB607C	 500 350 200 25 17 10	 - - - - - -	 - - - - - -	 µA µA µA mA mA mA	I_F = 20 mA, V_{ce} = 5 V, d = 0.053" (1.45 mm)(1)(2)
$I_{C(OFF)}$	Off-State Collector Current OPB606 OPB607	 - -	 - -	 200 10	 nA µA	V_{CE} = 5 V, I_F = 20 mA(3) V_{CE} = 5 V, I_F = 20 mA (3)

Notes:
(1) "d" is the distance from the assembly measurement surface to the reflective surface.
(2) Measured using Eastman Kodak neutral white test card with 90% diffuse reflectance as a reflecting surface. Reference: Eastman Kodak, Catalog # E 152 7795.
(3) On OPB606, off-state collector current $I_{C(OFF)}$ is measured with no reflective surface in the optical path. On OPB607, Crosstalk (I_{cx}) is the collector current measured with the indicated current in the input diode and with no reflecting surface.
(4) All parameters tested using pulse techniques.



Test Distance