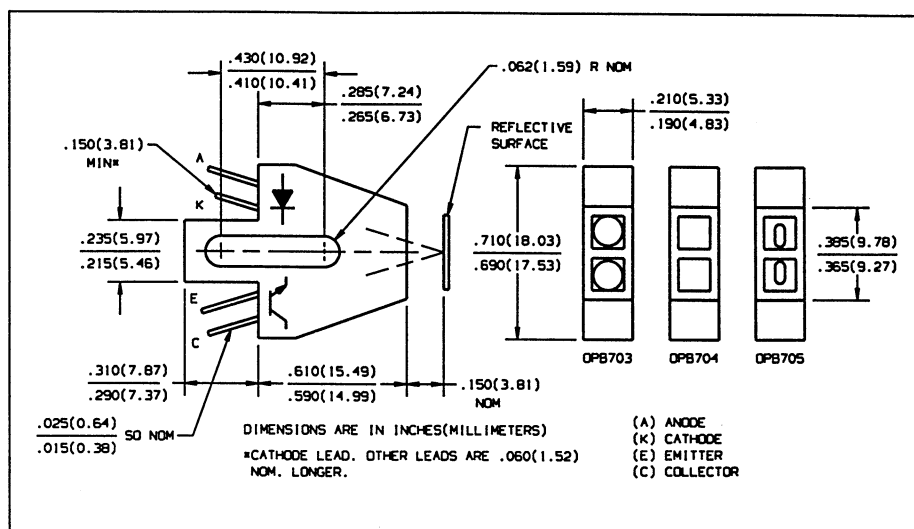
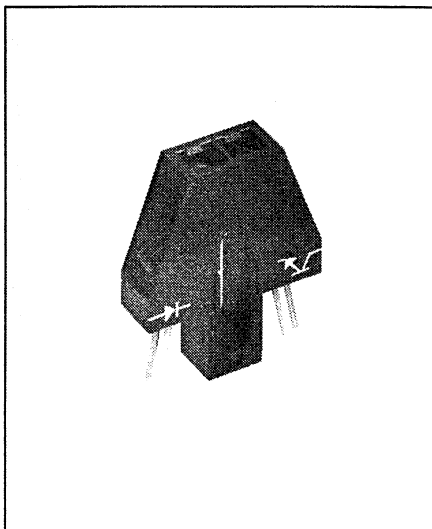


Reflective Object Sensors Types OPB703, OPB704, OPB705



Features

- Phototransistor output
- High sensitivity
- Low cost plastic housing
- Available with lenses for dust protection and ambient light filtration

Description

The OPB703, OPB704 and OPB705 each consist of an infrared emitting diode and an NPN silicon phototransistor mounted side-by-side on converging optical axes in a black plastic housing. The phototransistor responds to radiation from the emitter only when a reflective object passes within its field of view. Various options allow no lens, blue polysulfone lens for dust protection or offset lens for improved resolution.

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 40 mA
Reverse DC Voltage 2.0 V
Power Dissipation $100\text{ mW}^{(2)}$

Output Phototransistor

Collector-Emitter Voltage 30 V
Emitter-Collector Voltage 5.0 V
Collector DC Current 25 mA
Power Dissipation $100\text{ mW}^{(2)}$

Notes:

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

DESCRIPTION

OPB703	No Lens
OPB704	Blue Polysulfone Lens
OPB705	Offset Lens



RoHS

Types OPB703, OPB704, OPB705

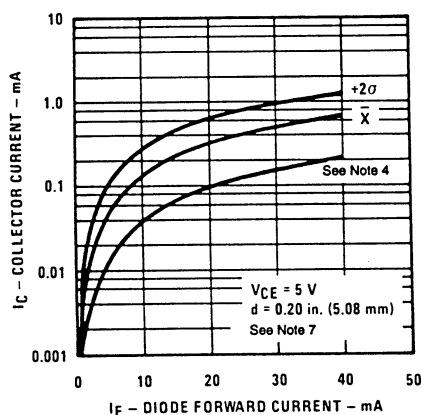
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

REFLECTIVE
OBJECT
SENSORS

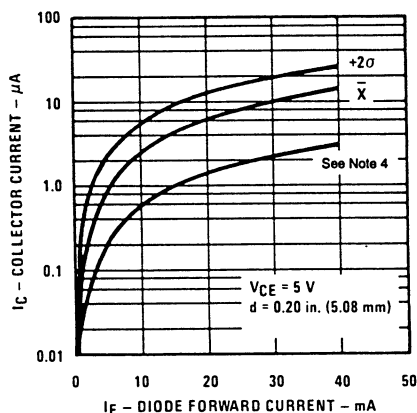
SYMBOL	PARAMETER		MIN	MAX	UNITS	TEST CONDITIONS
Output Diode						
V _F	Forward Voltage			1.70	V	I _F = 40 mA
I _R	Reverse Current			100	μA	V _R = 2.0 V
Output Phototransistor						
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage		30		V	I _{CE} = 100 μA
V _{(BR)ECO}	Emitter-Collector Breakdown Voltage		5.0		V	I _{EC} = 100 μA
I _{CEO}	Collector Dark Current			100	nA	V _{CE} = 10.0 V, I _F = 0, E _e = 0
Combined						
I _{C(ON)}	On-State Collector Current	OPB703 OPB704 OPB705	200 200 100		μA μA μA	V _{CE} = 5.0 V, I _F = 40 mA, d = 0.15 inch (3.81 mm) ⁽³⁾⁽⁷⁾
I _{CX}	Crosstalk	OPB703 OPB704 OPB705		20 20 10	μA μA μA	V _{CE} = 5.0 V, I _F = 40 mA ⁽⁶⁾

Typical Performance Curves

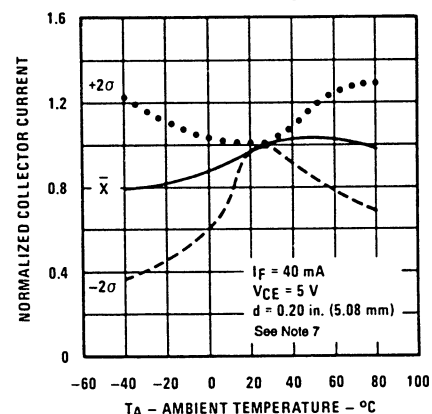
Reflective Surface Collector Current
vs. Diode Forward Current



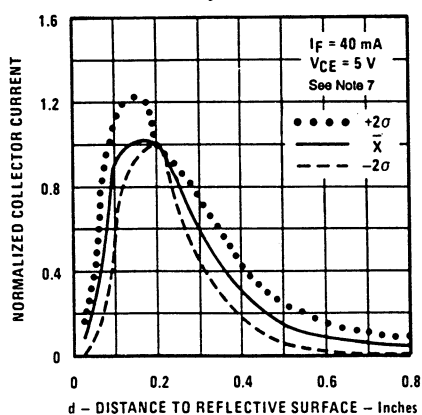
Diffused Surface Collector Current
vs. Diode Forward Current



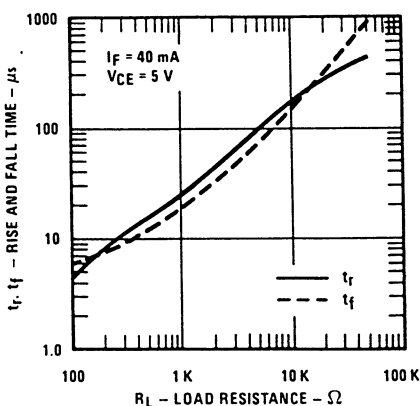
Normalized Collector Current
vs. Ambient Temperature



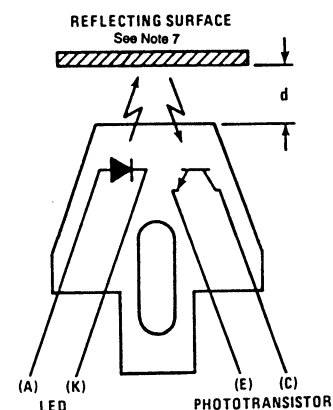
Normalized Collector Current
vs. Object Distance



Rise and Fall Time vs.
Load Resistance



Test Condition



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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