

Optical Emitter and Sensor Pair



OPB100, OPB100-E, OPB100-S

Technical Data

Features

- 890nm infrared LED emitter
- Silicon phototransistor sensor
- Snap-in mounting
- Variable sensing distance up to 12 inches
- Low profile package
- 24" wire leads (UL1429), 26 AWG

Description

The OPB100 series consists of an infrared LED (OPB100-E) and phototransistor (OPB100-S) in separate plastic housings. The low cost, snap-in design requires no screws or other mounting hardware for ease of installation.

The emitter and sensor are not apertured, which allows separation distances up to 12" without concern for precise alignment. The front side clip allows mounting of the product to any 0.062" thick material.

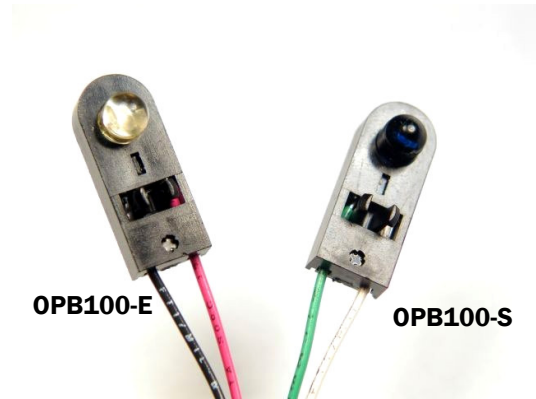
This product is designed for general switching and low speed data communications applications.

Applications

- Non-contact object sensing
- Assembly line automation
- Machine automation
- Machine safety

Ordering Information

OPB100	Emitter/Sensor pair (packaged Separately)
OPB100-E	Emitter only
OPB100-S	Sensor only
Customization	To change wire length or add connectors, call for quote



Absolute Maximum Ratings

(T_A = 25°C unless otherwise noted)

Storage Temperature Range	-40°C to +85°C
Operating Temperature Range ⁽¹⁾	-40°C to +85°C

Input Diode

Forward DC Current	100 mA
Peak Forward Current (1µs pulse, 300pps)	1.0A
Reverse DC Voltage	2.0V
Power Dissipation ⁽²⁾	142 mW

Output Phototransistor

Collector-Emitter Voltage	30V
Emitter-Collector Voltage	5V
Collector DC Current	50 mA
Power Dissipation ⁽¹⁾	250 mW

Notes:

1. Derate linearly 3.33mW/°C above 25°C.
2. All parameters measured using pulse technique.
3. Derate linearly 1.43mW/°C above 25°C.

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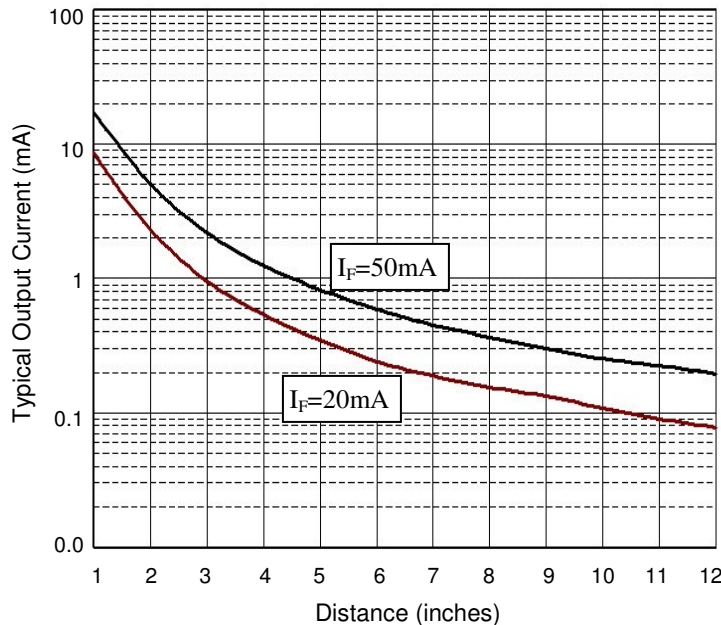
OPB100 Series Technical Data



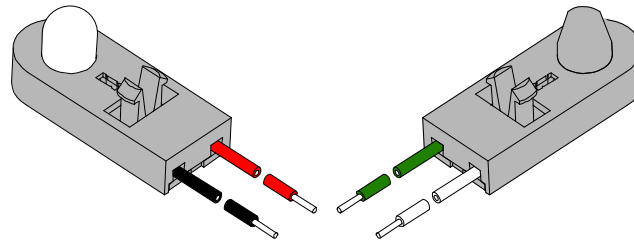
Electrical Characteristics (T_A = 25°C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNIT	TEST CONDITION
Input Diode (See OP298 for additional information)						
V _F	Forward Voltage			1.70	V	I _F = 20mA
I _R	Reverse Current			15	μA	V _R = 10.0V
θ _{HP}	Emission Angle at Half Power Points		25		Deg.	I _F =20mA
Output Phototransistor (See OP598 for additional information)						
V _{(BR) CEO}	Collector-Emitter Breakdown Voltage	30			V	I _C = 1.0 mA, E _E = 0mw/cm ²
V _{(BR) ECO}	Emitter-Collector Breakdown Voltage	5.0	10.0	15.0	V	I _E = 100μA, E _E = 0mw/cm ²
I _{CEO}	Collector-Emitter Dark Current			100	nA	V _{CE} = 10V, I _F = 0, E _E = 0mw/cm ²
Coupled						
V _{CE(SAT)}	Collector-Emitter Saturation Voltage:			0.40	V	I _C = 400μA, E _E = 1.7mw/cm ²
I _{C(ON)}	On-State Collector Current:	5.0			mA	V _{CE} = 5.0V, E _E = 1.7mw/cm ²

Output Current vs. Distance

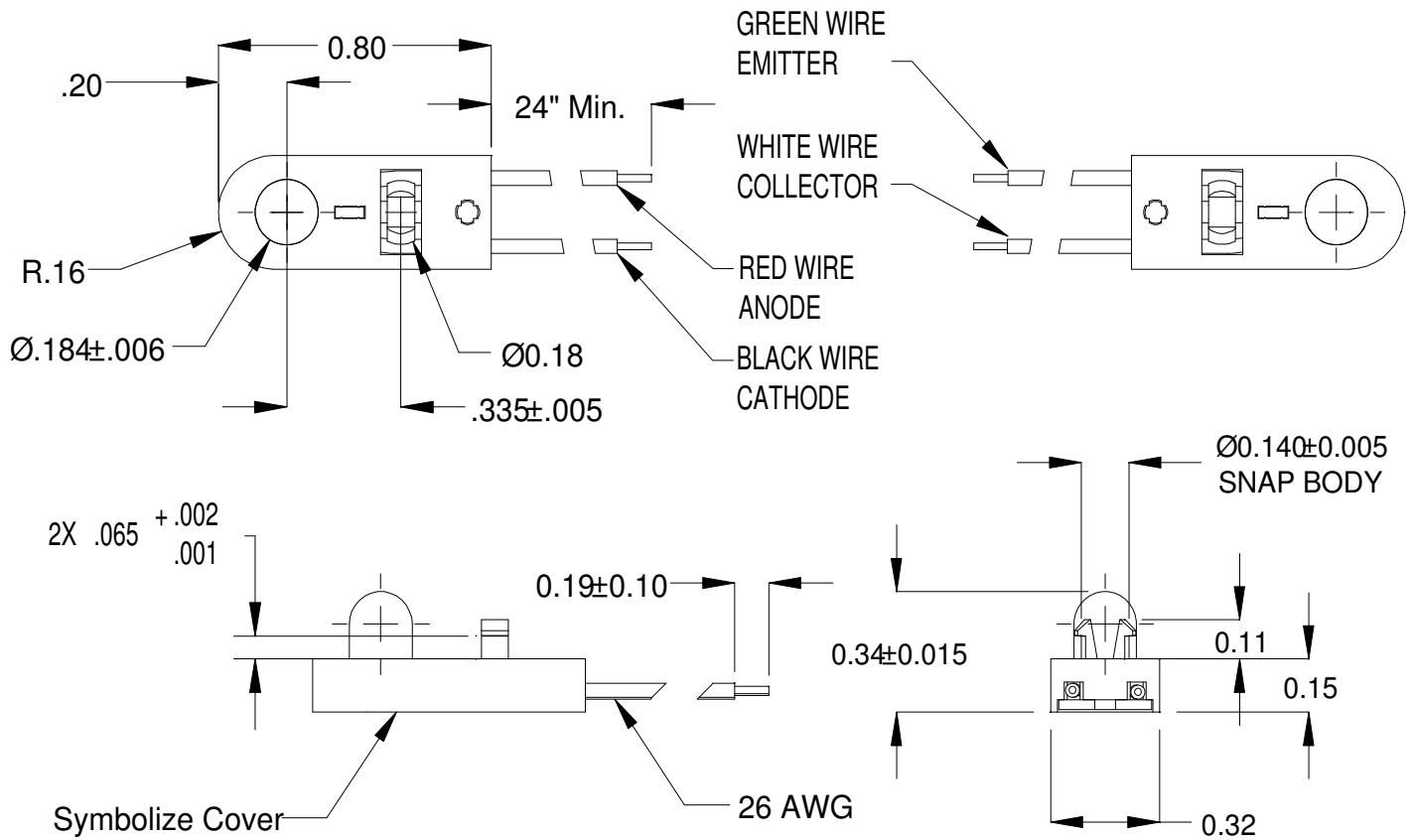


OPB100 Series Technical Data



Emitter (LED)

Phototransistor



Dimensions are in inches; tolerances are ± 0.01" unless otherwise specified

Driver Circuits for LED & Phototransistor

