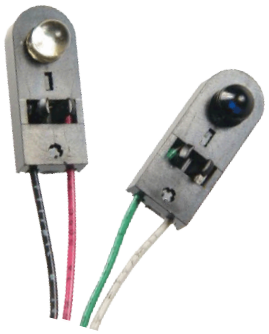
Optical Emitter and Sensor Pair

OPB100Z, OPB100-EZ, OPB100-SZ



Features:

- Infrared LED emitter
- Silicon phototransistor sensor
- Snap-in mounting
- Variable sensing distance over 36” (91.4 cm)
- Low profile package
- 24” (61.0 cm) wire leads

Description:

The **OPB100Z** series consists of an infrared LED (**OPB100-EZ**) and phototransistor (**OPB100-SZ**) in separate plastic housings. The low cost, snap-in design requires no screws or other mounting hardware for ease of installation.

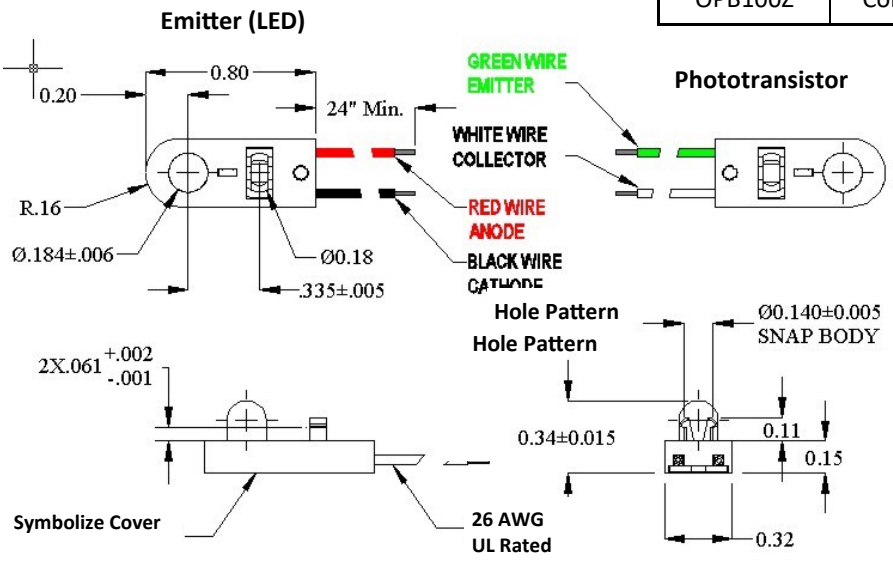
The emitter and sensor are not apertured, which allows separation distances in excess of 36” (91.4 cm) without concern for precise alignment. The front side clip allows mounting of the product to any 0.059” (1.50 mm) thick material.

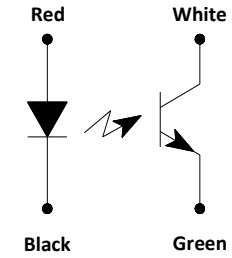
This product is designed for general switching and low-speed data communications applications.

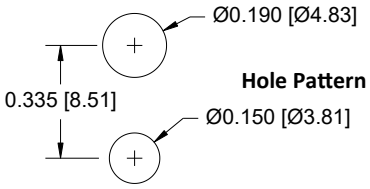
Applications:

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

Ordering Information			
Part Number	LED Peak Wavelength	Sensor	Lead Length / Spacing
OPB100-EZ	880 nm		24" / 26 AWG Wire
OPB100-SZ		Transistor	
OPB100Z	Contains both OPB100-EZ & OPB100-SZ		







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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 +80° C
Input LED (OP298 for additional information)	
Forward DC Current	100 mA
Peak Forward Current (1 µs pulse width, 300 pps)	1 A
Reverse DC Voltage	2 V
Power Dissipation(2)	142 mW
Output Phototransistor (OP598 for additional information)	
Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Collector DC Current	50 mA
Power Dissipation(3)	250 mW

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode (See OP298 for additional information — for reference only)						
V_F	Forward Voltage	-	-	1.7	V	I_F = 20 mA
I_R	Reverse Current	-	-	15	µA	V_R= 10 V
q_{HP}	Emission Angle at Half Power Points	-	25	-	Degree	I_F = 20 mA
E_E (APT)	Apertured Radiant Intensity	6.5	-	-	mW/cm^2	I_F = 100 mA Distance = 1.43” (3.63 cm) Aperture = 0.25” (6.35 mm)
Output Phototransistor (See OP598 for additional information — for reference only)						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30	-	-	V	I_C = 1 mA, E_E = 0mw/cm^2 (no light)
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5	-	-	V	I_C = 100 µA, E_E = 0mw/cm^2 (no light)
I_{CEO}	Collector Dark Current	-	-	100	nA	V_{CE} = 10V, I_F = 0, E_E = 0 mw/cm^2 (no light)
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	-	-	0.4	V	I_C = 400 µA, E_E = 1.7 mw/cm^2
$I_{C(ON)}$	On-State Collector Current	5	-	-	mA	V_{CE} = 5 V, E_E = 1.7 mw/cm^2

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

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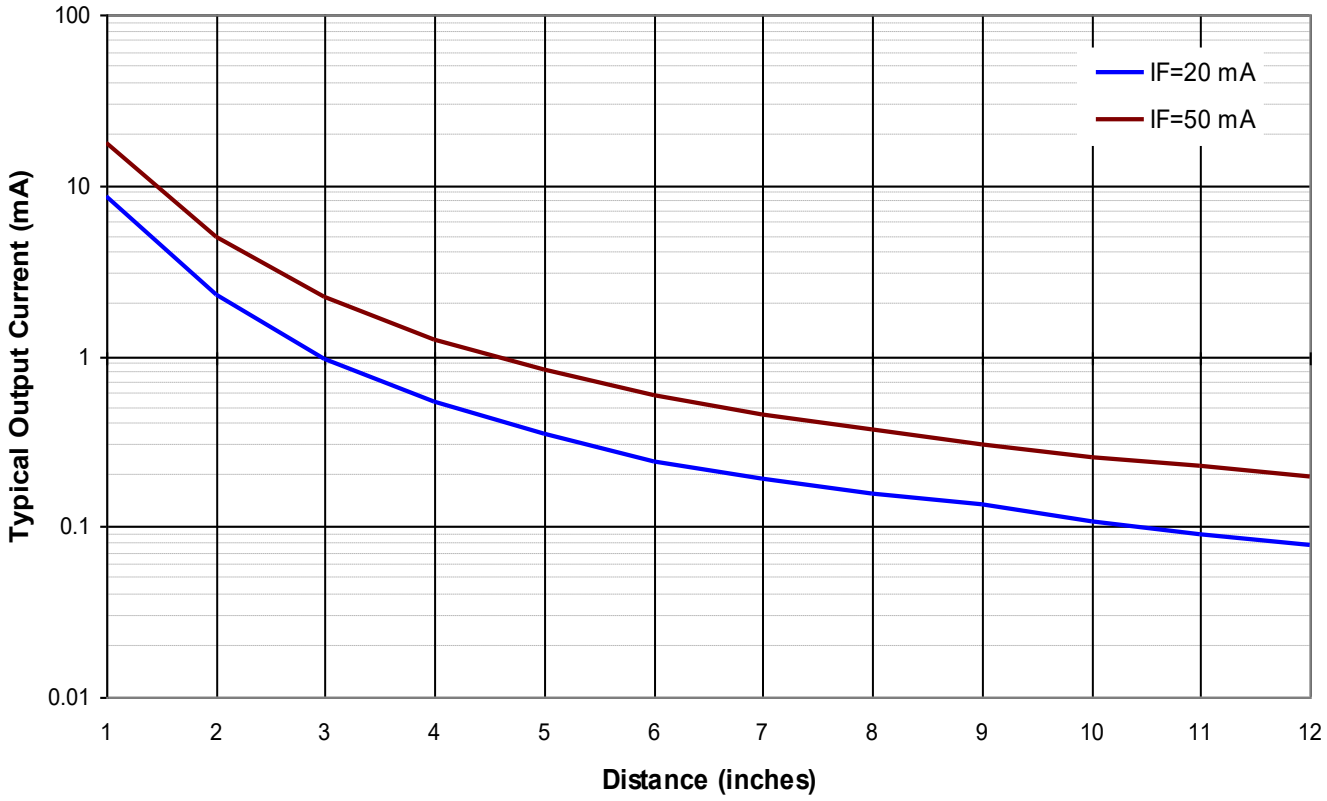
Performance

Output Current vs. Distance



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