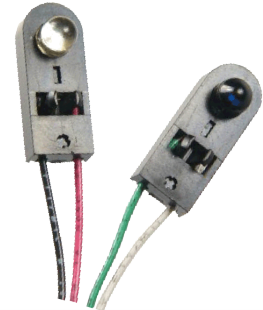


Optical Emitter and Sensor Pair

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) #26 AWG UL rated 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.

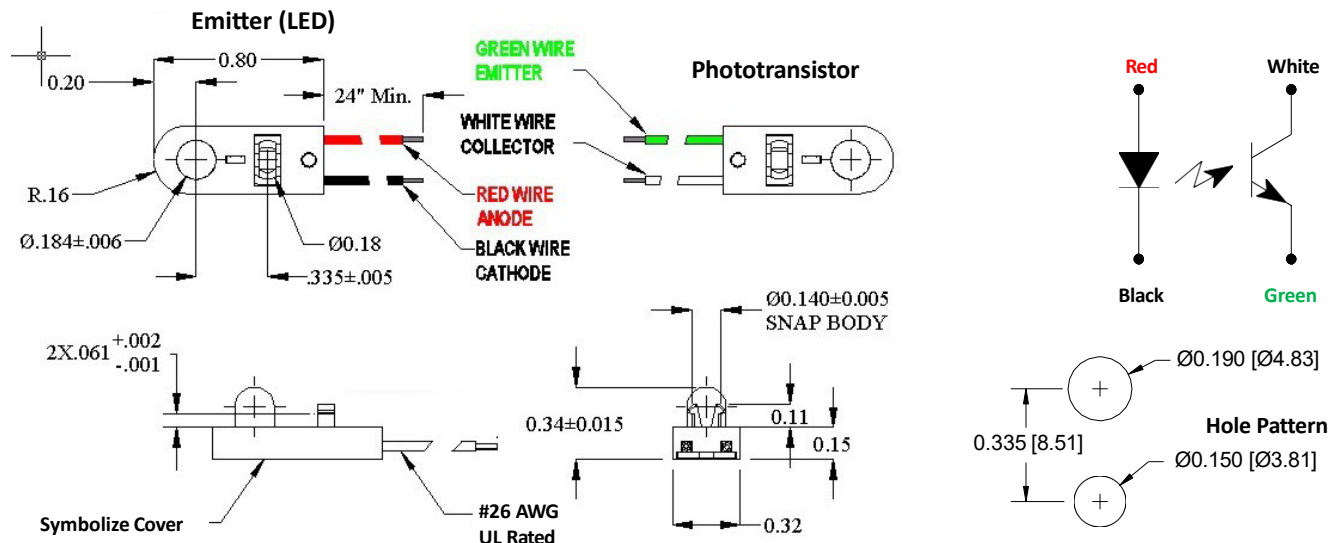
Custom electrical, wire and cabling services are available. Contact your local representative or OPTEK for more information.

For application information, see Application Bulletin 248 and 213.

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	890 nm	Transistor	24" / #26 AWG UL Rated Wire
OPB100-SZ			
OPB100Z	Contains both OPB100-EZ & OPB100-SZ		



General Note

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Electrical Specifications

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Storage Temperature Range	-40° C to +85° C
Operating Temperature Range ⁽¹⁾	-40° C to +80° C
Input LED	
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	
Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Collector DC Current	50 mA
Power Dissipation ⁽³⁾	250 mW

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage	1.0	-	1.7	V	$I_F = 20\text{ mA}$
I_R	Reverse Current	-	-	15	μA	$V_R = 10\text{ V}$
Θ_{HP}	Emission Angle at Half Power Points	-	25	-	Deg	$I_F = 20\text{ mA}$
E_E (APT)	Apertured Radiant Intensity	6.5	-	-	mW/cm^2	$I_F = 100\text{ mA}$ Distance = 1.43" (3.63 cm) Aperture = 0.25" (6.35 mm)
Output Phototransistor						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30	-	-	V	$I_C = 1\text{ mA}$, $E_E = 0\text{ mw}/\text{cm}^2$ (no light)
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5	-	-	V	$I_C = 100\text{ }\mu\text{A}$, $E_E = 0\text{ mw}/\text{cm}^2$ (no light)
I_{CEO}	Collector Dark Current	-	-	100	nA	$V_{CE} = 10\text{ V}$, $I_F = 0$, $E_E = 0\text{ mw}/\text{cm}^2$ (no light)
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	-	-	0.4	V	$I_C = 400\text{ }\mu\text{A}$, $E_E = 1.7\text{ mw}/\text{cm}^2$
$I_{C(ON)}$	On-State Collector Current	5	-	-	mA	$V_{CE} = 5\text{ V}$, $E_E = 1.7\text{ mw}/\text{cm}^2$

Notes:

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

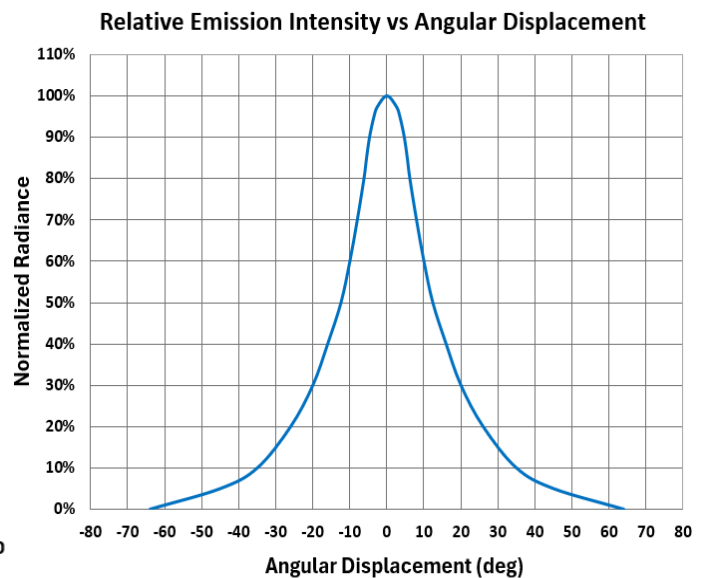
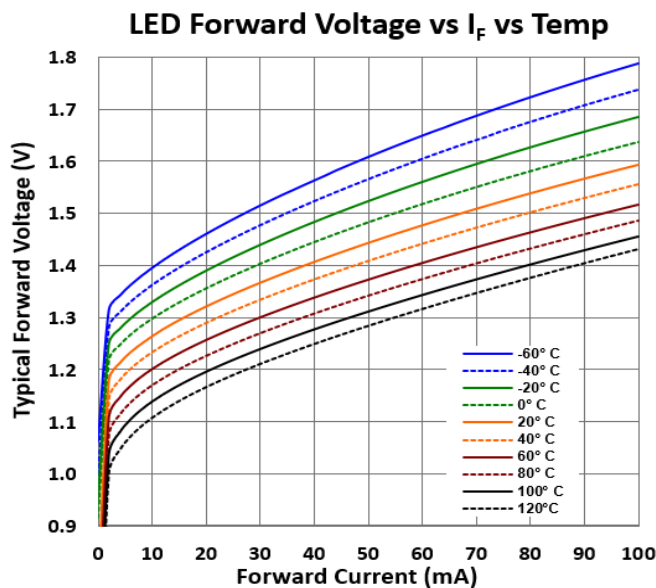
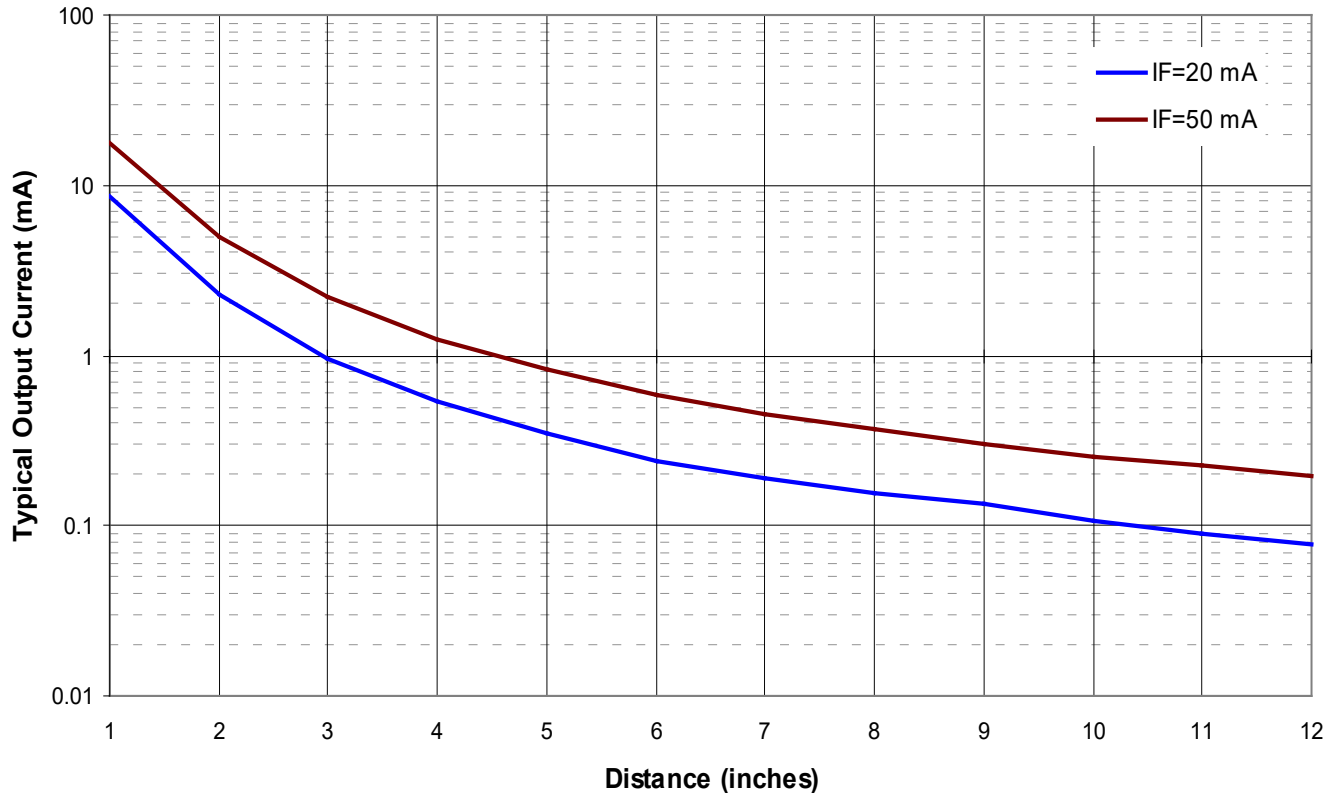
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Typical Performance

Output Current vs. Distance



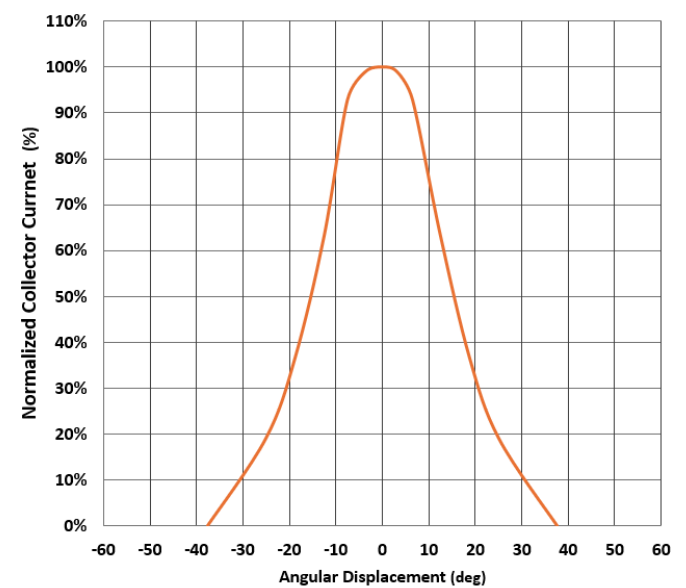
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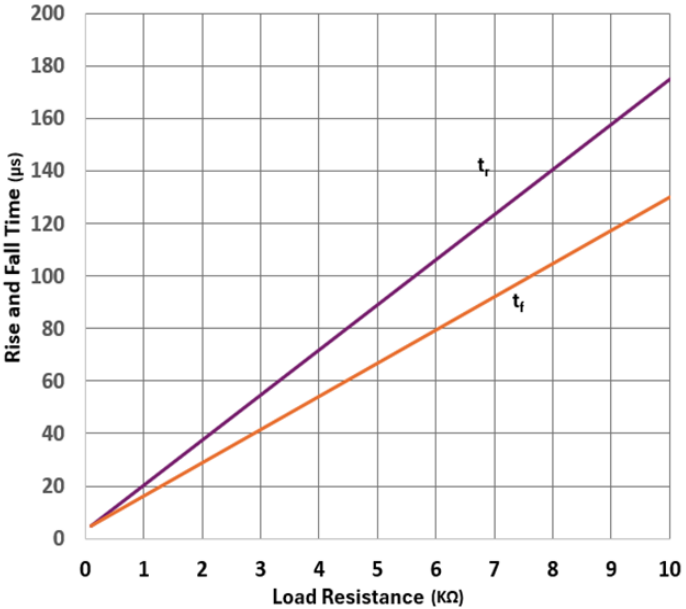
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Typical Performance

Normalized Collector Current vs Angular Displacement



Rise and Fall Times vs Load Resistance



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