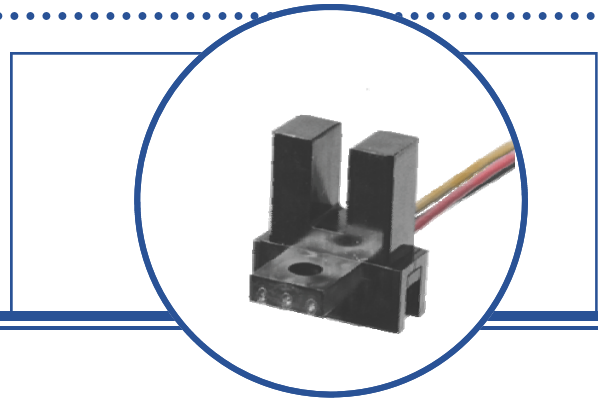


# Slotted Optical Switch OPB857Z



## Features:

- Choice of opaque or IR transmissive shell material
- Three lead wires for electrical connection
- Sealed plastic housing
- Non-contact switching (fast switching speed)
- 11.5" (292 mm) minimum length 26 AWG lead wires



## Description:

**OPB857Z** consists of a NPN silicon phototransistor and an infrared Light Emitting Diode (LED) which are mounted on opposite sides of a 0.15" (3.8 mm) wide slot in an expensive plastic housing, which reduces interference from ambient light and provides dirt and dust protection.

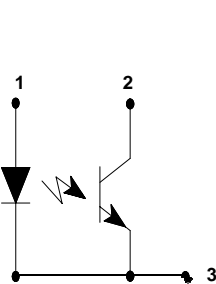
The **OPB857Z** uses an OP140 or OP240 LED and an OP550 family sensor.

Switching of the phototransistor occurs when an opaque object passes through the slot.

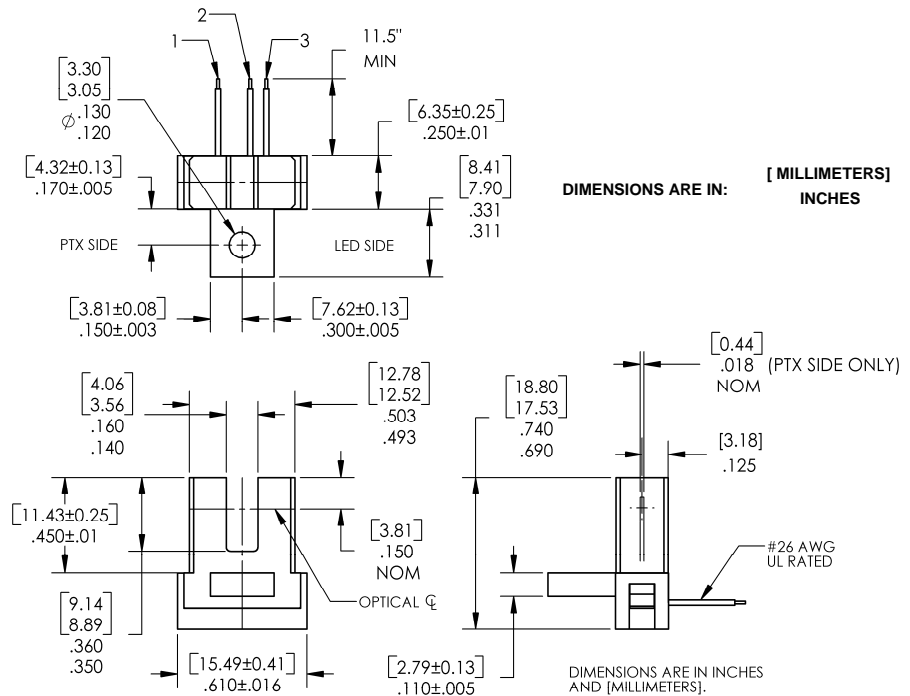
## Applications:

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

Ordering Information					
Part Number	LED Peak Wavelength	Sensor	Slot Width / Depth	Aperture Emitter/Sensor	Lead Length / Spacing
OPB857Z	890 nm or	Transistor	0.150" / 0.355"	None	11.5" / 26 AWG



Color/Pin #	Description
Red—1	Collector
Brown—2	Anode
Black—3	Common



RoHS

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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

Storage & Operating Temperature Range	-40°C to +80° C
Lead Soldering Temperature [1/16 inch (1.6mm) from the case for 5 sec. with soldering iron] <sup>(1)</sup>	260° C

**Input Diode**

Forward DC Current	50 mA
Peak Forward Current (1 $\mu\text{s}$ pulse width, 300 pps)	3 A
Reverse DC Voltage	2 V
Power Dissipation <sup>(2)</sup>	100 mW

**Output Phototransistor**

Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5.0 V
Power Dissipation <sup>(2)</sup>	100 mW

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
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**Input Diode** (see OP140 or OP240 for additional information)

$V_F$	Forward Voltage	-	-	1.7	V	$I_F = 20 \text{ mA}$
$I_R$	Reverse Current	-	-	100	$\mu\text{A}$	$V_R = 2 \text{ V}$

**Output Phototransistor** (see OP550 for additional information)

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30	-	-	V	$I_C = 1 \text{ mA}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5	-	-	V	$I_E = 100 \mu\text{A}$
$I_{CEO}$	Collector Dark Current	-	-	100	nA	$V_{CE} = 10 \text{ V}, I_F = 0, E_E = 0$

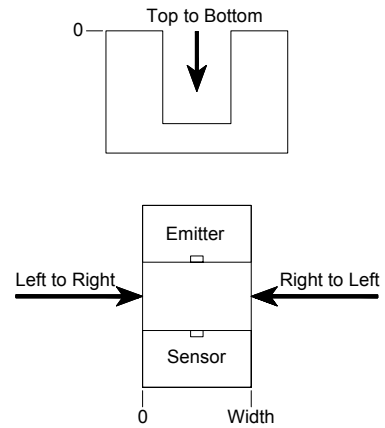
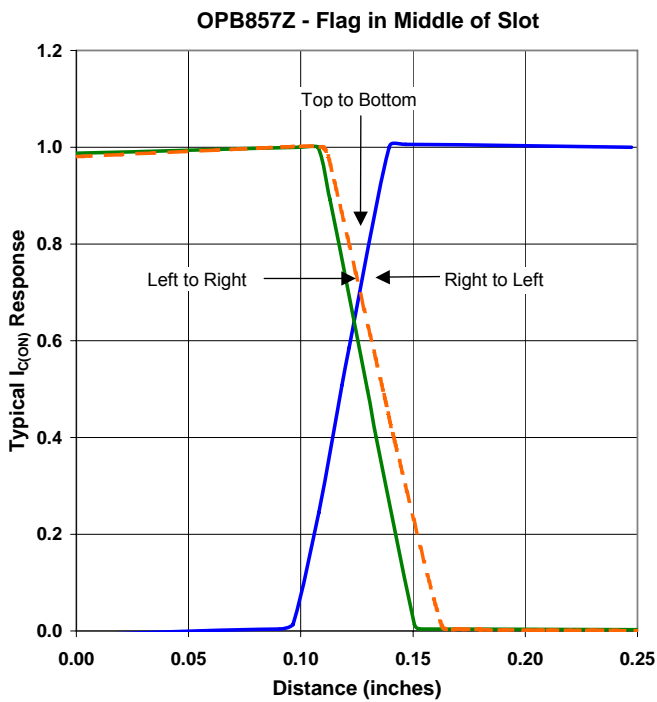
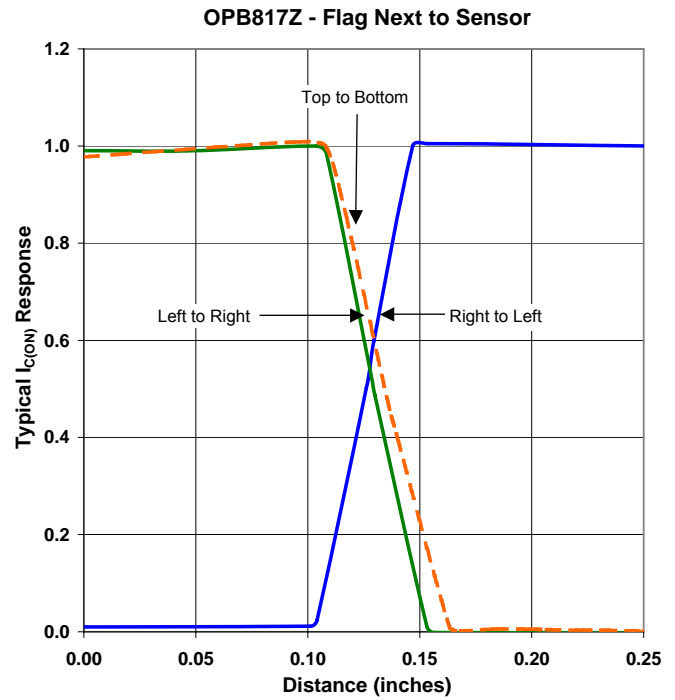
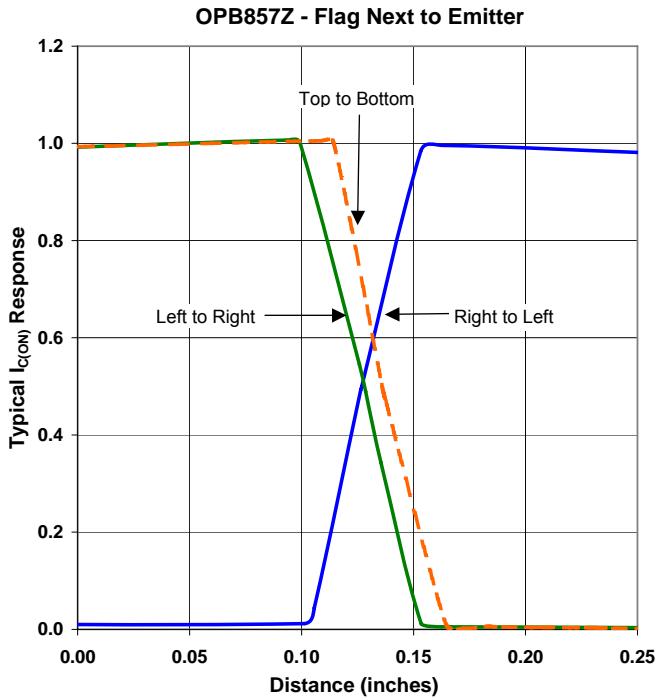
**Combined**

$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	-	-	0.4	V	$I_C = 1.50 \text{ mA}, I_F = 20 \text{ mA}$
$I_{C(ON)}$	On-State Collector Current	1.5	-	17	mA	$I_F = 20 \text{ mA}, V_{CE} = 10 \text{ V}$

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
- (2) Derate linearly 1.67 mW/°C above 25 °C.
- (3) All parameters tested using pulse techniques.
- (4) Lead spacing of 0.220" (5.59 mm) or 0.320" (8.13 mm) is available. Leads are 0.20" sq. (5.08 mm) and 0.425" (10.80 mm) long (min).
- (5) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones.
- (6) Polarity is denoted by color of housing top (gray or clear LED, black sensor).

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