# **Slotted Optical Switch**

## **OPB857Z**



#### **Features:**

- Three wires for economy in electrical connection
- Water resistant, no optical openings in upper plastic body
- Internal narrow aperture for high motion resolution



#### **Description:**

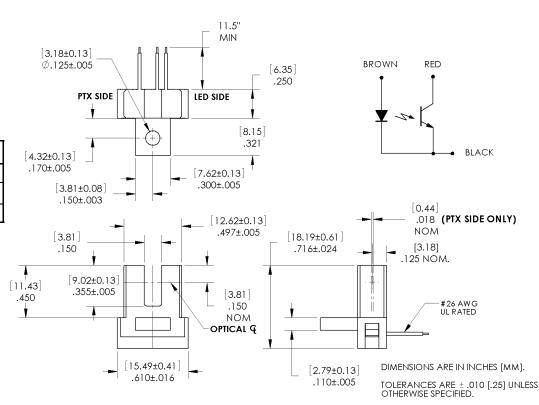
OPB857Z is a non-contact optical switch with a NPN silicon phototransistor and infrared Light Emitting Diode (LED) which are mounted on opposite sides of a 0.150" (3.8 mm) wide slot.

The device upper body is a single molded piece IR transparent plastic that is tinted to reduce ambient light interference and offers water resistance as well as dirt/dust protection. The phototransistor has a internal aperture that offers good optical resolution. LED emissions are near-infrared (850 – 940nm).

### **Applications:**

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

Wire Color	Description				
Red	Collector				
Brown	Anode				
Black	Common				





### Notes:

- (1) Wire is 26AWG, UL Rated PVC insulation.
- (2) Ideal torque for bolt or screw 0,45 to 0,68 Nm (4 to 6 Lb-in).
- (3) When using a thread lock compound, ND Industries "ND Vibra-Tite" Formula 3" will avoid stress cracking plastic.
- (4) Plastic is soluble in chlorinated hydrocarbons and ketones. Methanol or isopropanol are recommended as cleaning agents.

# **Slotted Optical Switch**

**OPB857Z** 



# **Electrical Specifications**

## **Absolute Maximum Ratings**

Storage & Operating Temperature Range	-40°C to +80° C		
Input Diode			
Input Diode Power Dissipation	100 mW <sup>(5)</sup>		
Input Diode Forward D.C. Current, T <sub>A</sub> = 25°C	50 mA <sup>(5)</sup>		
Input Diode Peak Forward Pulse Current, T <sub>A</sub> = 25°C (1μs pulse width, 300pps)	1 A		
Input Diode Reverse D.C. Voltage, T <sub>A</sub> = 25°C	2 V		
Phototransistor			
Power Dissipation	100 mW <sup>(5)</sup>		
Collector - Emitter Voltage	30V		
Emitter - Collector Voltage	5.0V		

## **Electrical Characteristics** ( $T_A = 25$ °C)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS		
Input Diode (see OP140 or OP240 for additional information)								
V <sub>F</sub>	Forward Voltage	-	-	1.70	V	I <sub>F</sub> = 20 mA		
I <sub>R</sub>	Reverse Current	-	1	100	μΑ	V <sub>R</sub> = 2 V		

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

V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage	30	-	-	V	$I_C = 1 \text{ mA}, \ E_E = 0$
V <sub>(BR)ECO</sub>	Emitter-Collector Breakdown Voltage	5.0	-	-	V	$I_E = 100 \mu A, E_E = 0$
I <sub>CEO</sub>	Collector Dark Current	-	-	100	nA	$V_{CE} = 10 \text{ V}, I_F = 0, E_E = 0$

### Coupled

V <sub>CE(SAT)</sub>	Collector-Emitter Saturation Voltage	-	-1	0.40	V	I <sub>C</sub> = 1.50 mA, I <sub>F</sub> = 20 mA
I <sub>C(ON)</sub>	On-State Collector Current	1.5	-1	17.0	mA	V <sub>CE</sub> = 10 V, I <sub>F</sub> = 20 mA

Issue B 11/2016 Page 2

# **Slotted Optical Switch**

**OPB857Z** 



### **Performance**

