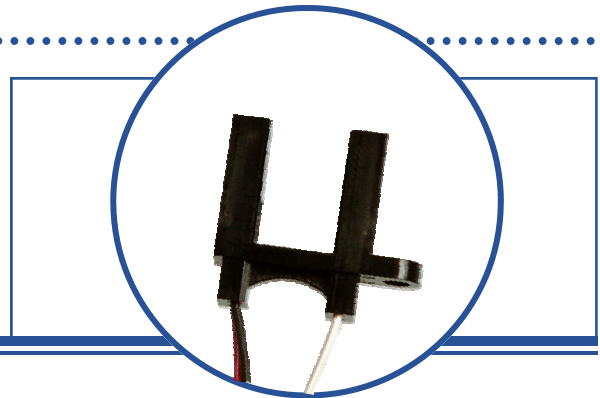


Slotted Switch OPB885Z

Features:

- 26 gauge wired assembly
- Non-contact infrared switch
- Opaque plastic housing
- 0.375" (9.525 mm) slot width
- 0.595" (15.113 mm) slot depth



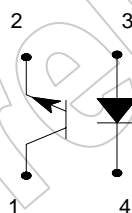
Description:

OPB885 uses an Infrared LED and a phototransistor in a slotted switch configuration. The assembly has 24" (609.600 mm) wires on each terminal and uses an opaque housing to reduce the sensor's ambient light sensitivity. Each discrete has an 0.050" (1.270 mm) aperture that focuses the switching sensitivity and limits ambient light absorption by the phototransistor. The housing is made from an opaque plastic with IR transmissive plastic in the front of each aperture to provide dust protection.

The phototransistor can be configured as a common collector or common emitter device. When the gap is unobstructed or has material that is transmissive to infrared light from the LED, the light will penetrate the housing and aperture to irradiate the surface (base) of the phototransistor. When infrared light strikes the phototransistor, the transistor becomes forward biased and is considered to be in the "on" state, providing an $I_{C(ON)}$ current that is proportional to the light striking the phototransistor. As the light is blocked by using an opaque object that blocks the infrared light from the LED to the phototransistor, the phototransistor turns "off," minimizing the $I_{C(ON)}$ current and thus allowing the electrical state to be switched.

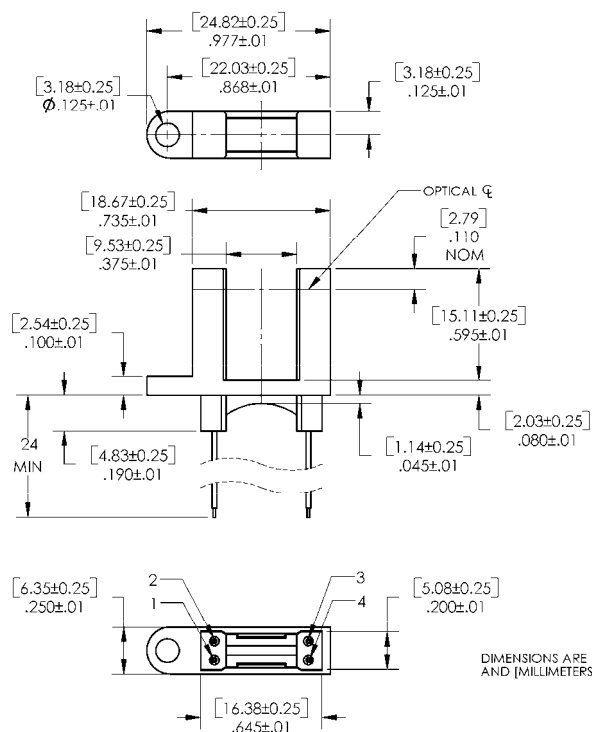
Applications:

- Non-contact interruptive object sensor
- Assembly line automation
- Machine automation
- Equipment security
- Machine safety
- End of travel sensor
- Door sensor



| Ordering Information | |
|----------------------|-----------------------------|
| OPB885 | Non-contact infrared switch |

| Pin # | Description |
|---------|-------------|
| White-1 | Collector |
| Green-2 | Emitter |
| Red-3 | Anode |
| Black-4 | Cathode |



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 Temperature | -40° C to +100° C |
| Operating Temperature | -40° C to +85° C |
| Lead Soldering Temperature (1/16 inch (1.6mm) from the case for 5 sec. with soldering iron) | 260° C ⁽²⁾ |

LED

| | |
|---|--------|
| Forward Current | 50 mA |
| Peak Forward Current (2 μs pulse width, 0.1% duty cycle) | 1.0 A |
| Reverse DC Voltage | 3.0 V |
| Power Dissipation | 100 mW |

Output Phototransistor

| | |
|---------------------------|--------|
| Collector-Emitter Voltage | 30 V |
| Collector DC Current | 50 mA |
| Power Dissipation | 100 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 | - | - | 1.7 | V | $I_F = 20 \text{ mA}$ |
| I_R | Reverse Current | - | - | 100 | μA | $V_R = 3 \text{ V}$ |

Output Phototransistor

| | | | | | | |
|---------------|-------------------------------------|----|---|-----|----|---|
| $V_{(BR)ECO}$ | Collector-Emitter Breakdown Voltage | 30 | - | - | V | $I_C = 100 \mu\text{A}, I_F = 0, E_E = 0 \text{ mw/cm}^2$ |
| I_{CEO} | Collector-Emitter Dark Current | - | - | 100 | nA | $V_{CE} = 10 \text{ V}, I_F = 0, E_E = 0 \text{ mw/cm}^2$ |

Combined

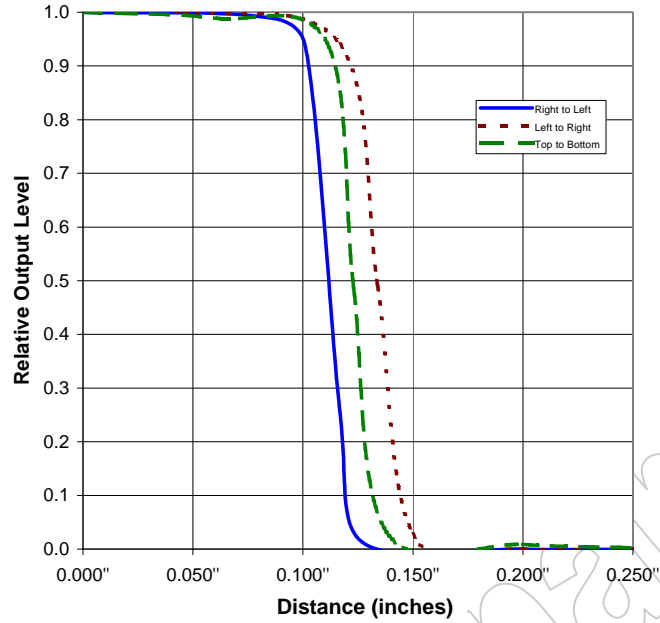
| | | | | | | |
|---------------|--------------------------------------|-----|---|-----|----|---|
| $V_{CE(SAT)}$ | Collector-Emitter Saturation Voltage | - | - | 0.6 | V | $I_C = 1 \text{ mA}, I_F = 20 \text{ mA}$ |
| $I_{C(ON)}$ | On-State Collector Current | 1.3 | - | 8.0 | mA | $V_{CE} = 5 \text{ V}, I_F = 20 \text{ mA}$ |

Notes:

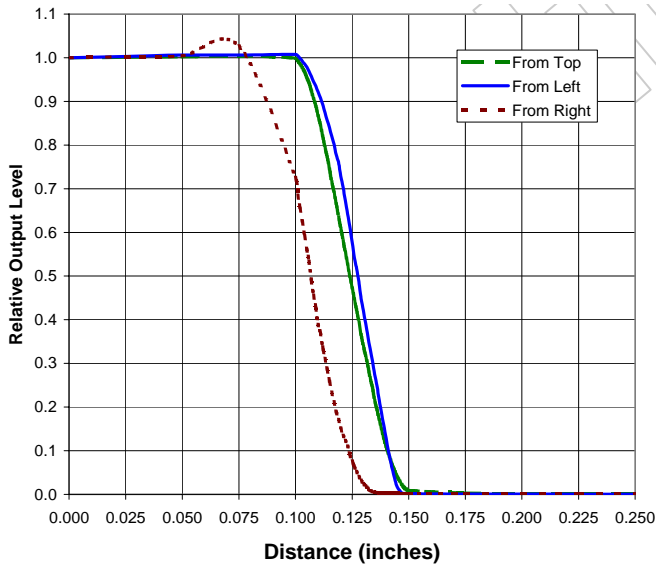
- (1) All parameters tested using pulse technique.
- (2) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
- (3) Methanol or isopropanol are recommended as cleaning agents. The plastic housing is soluble in chlorinated hydrocarbons and keytones.

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

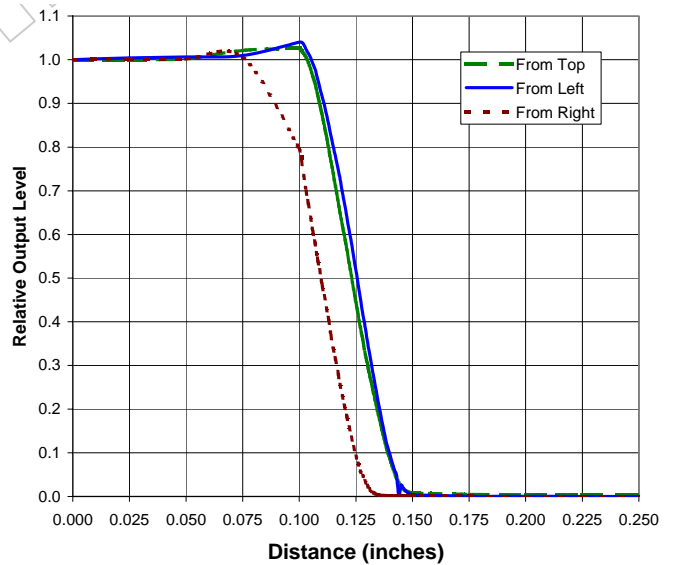
Middle of Slot vs Output vs Distance



Switching Flag Next to Emitter



Switching Flag Next to Sensor



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