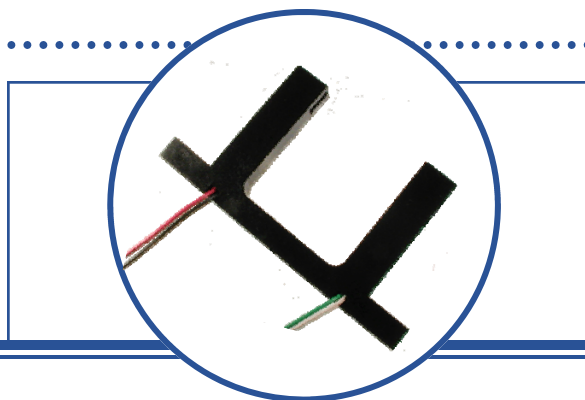


# Slotted Optical Switch OPB819Z



## Features:

- Non-contact switching
- 24" (609 mm) long wire leads
- 1.25" (31.75 mm) wide slot, 1.38" (35.05 mm) deep slot



## Description:

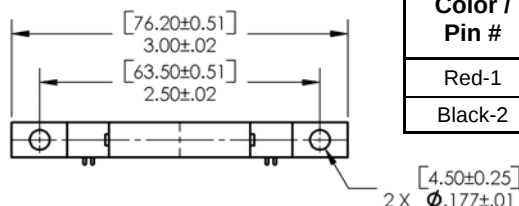
The **OPB819Z** slotted switch consists of an infrared emitting diode and an NPN silicon phototransistor mounted in an opaque housing with clear windows for dust protection. Switching of the phototransistor occurs whenever an opaque object passes through the slot.

The **OPB819Z** has an 1.38" (35.05 mm) deep and 1.25" (31.75 mm) wide slot allowing for a longer reach of the optical center line from the mounting plane. The switch housing is designed to use the lens of each component as the optical aperture resulting in an equivalent aperture diameter of 0.06" (1.52 mm).

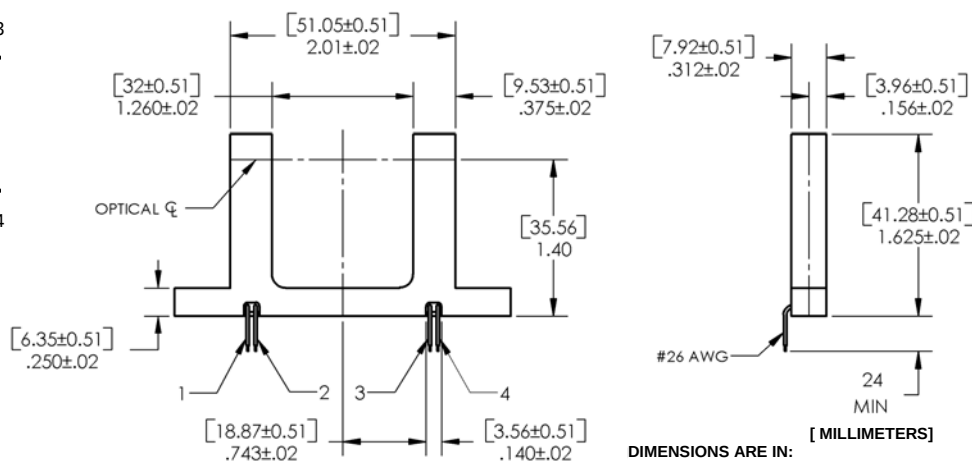
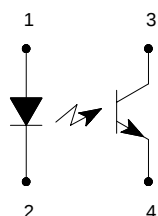
Custom electrical, wire and cabling and connectors are available. Contact your local representative or OPTEK for more information.

## Applications:

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



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



## Ordering Information

| Part Number | LED Peak Wavelength | Sensor     | Slot Width / Depth | Aperture Emitter/ Sensor | Lead Length / Spacing |
|-------------|---------------------|------------|--------------------|--------------------------|-----------------------|
| OPB819Z     | 890 nm              | Transistor | 1.26" / 1.38"      | None                     | 24" / 26 AWG Wire     |



RoHS

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

**CONTAINS POLYSULFONE**  
To avoid stress cracking, we suggest using ND Industries' Vibra-Tite for thread-locking. Vibra-Tite evaporates fast without causing structural failure in OPTEK's molded plastics.

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

|                                                                                                            |                  |
|------------------------------------------------------------------------------------------------------------|------------------|
| Storage & Operating Temperature Range                                                                      | -40° C to +85° 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 V    |
| Collector DC Current             | 30 mA  |
| 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 |
|--------|-----------|-----|-----|-----|-------|-----------------|
|--------|-----------|-----|-----|-----|-------|-----------------|

**Input Diode**

|       |                 |   |   |     |               |                       |
|-------|-----------------|---|---|-----|---------------|-----------------------|
| $V_F$ | Forward Voltage | - | - | 1.8 | V             | $I_F = 20 \text{ mA}$ |
| $I_R$ | Reverse Current | - | - | 100 | $\mu\text{A}$ | $V_R = 2.0 \text{ V}$ |

**Output Phototransistor**

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

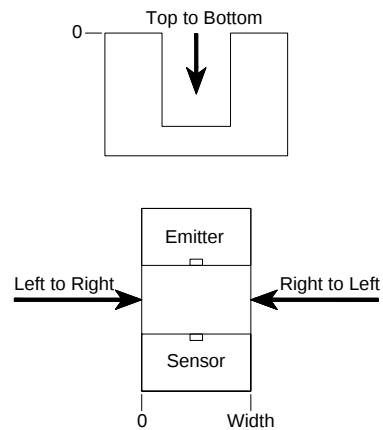
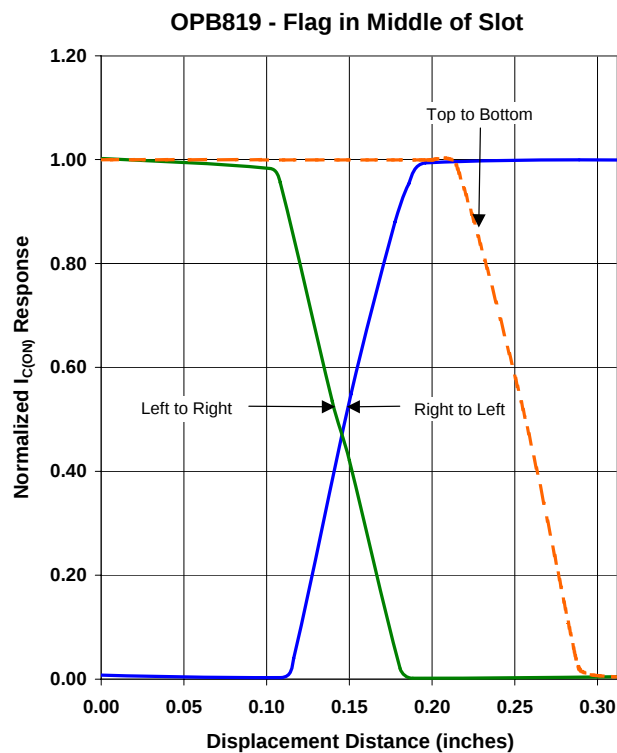
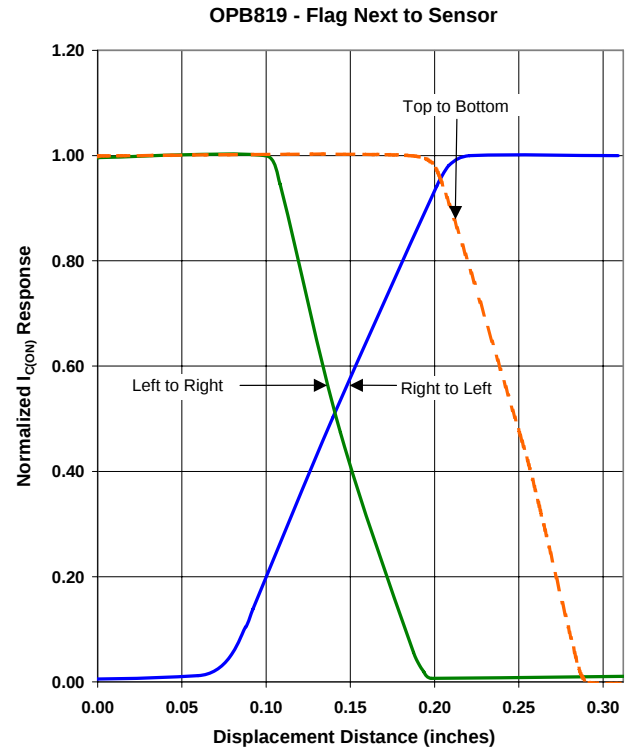
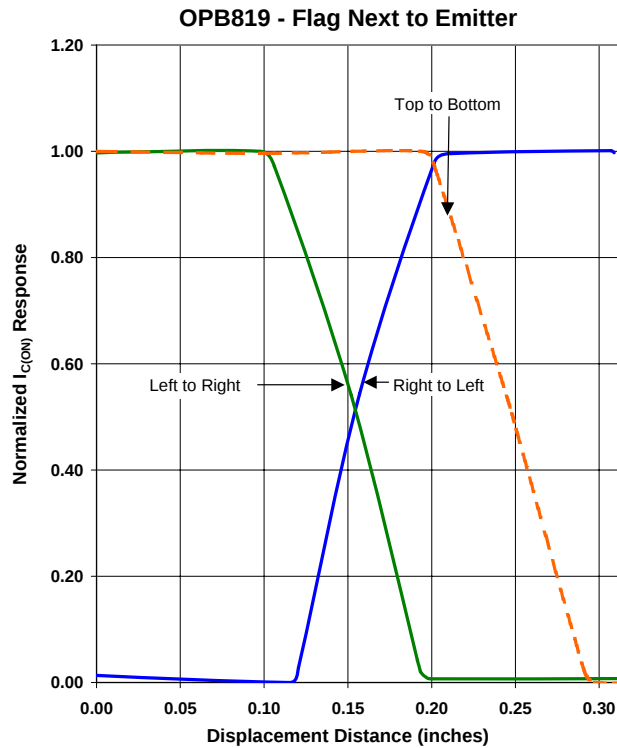
**Coupled**

|               |                                      |     |   |      |    |                                                 |
|---------------|--------------------------------------|-----|---|------|----|-------------------------------------------------|
| $I_{C(ON)}$   | On-State Collector Current           | 0.5 | - | 12.0 | mA | $V_{CE} = 5 \text{ V}$ , $I_F = 40 \text{ mA}$  |
| $V_{CE(SAT)}$ | Collector-Emitter Saturation Voltage | -   | - | 0.4  | V  | $I_C = 250 \mu\text{A}$ , $I_F = 40 \text{ mA}$ |

**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) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones. Spray and wipe. Do not submerge.
- (5) Polarity is denoted by color the wires: LED (Anode—Red, Cathode—Black); Phototransistor (Collector—White, Emitter—Green).

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