

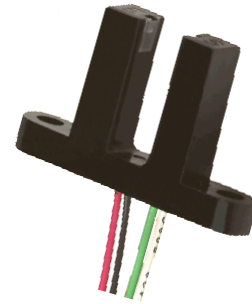
# Slotted Optical Switch

OPB817Z



## Features:

- 0.20" (5.08 mm) wide gap, 0.86" (21.84 mm) deep slot
- 24" (609 mm) 26 AWG wires
- Dust protection
- Two mounting tabs



## Description:

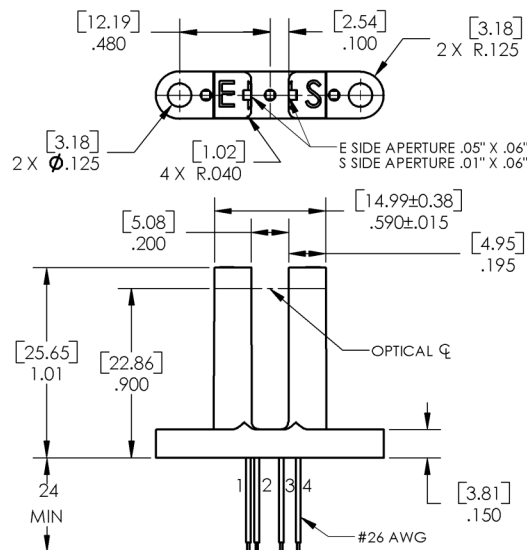
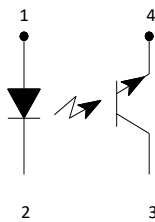
The OPB817Z slotted switch consists of an infrared emitting diode and a NPN silicon phototransistor mounted in an opaque housing with clear windows for dust protection. Switching of the phototransistor occurs whenever an opaque object passes through the slot.

The OPB817Z has an 0.86" (21.844 mm) deep slot allowing for a longer reach of the optical center line from the mounting plane. The phototransistor internal apertures are 0.10" x 0.06" (0.25 mm x 1.52 mm) on the sensor side ("S") and 0.05" x 0.06" (1.27 mm x 1.52 mm) on the emitter side ("E").

## Applications:

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

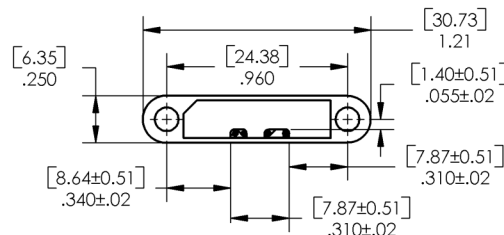
| Ordering Information |                |
|----------------------|----------------|
| Part Number          | Description    |
| OPB817Z              | Slotted switch |



| Wire Color | Description |
|------------|-------------|
| Red        | Anode       |
| Black      | Cathode     |
| White      | Collector   |
| Green      | Emitter     |



RoHS



DIMENSIONS ARE IN: [MILLIMETERS]  
INCHES

## General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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### Electrical Specifications

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

|                                                                                                             |                                                  |
|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Storage & Operating Temperature Range                                                                       | -40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$ |
| Lead Soldering Temperature [1/16 inch (1.6 mm) from the case for 5 sec. with soldering iron] <sup>(1)</sup> | 260 $^{\circ}\text{C}$                           |

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

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|--------|-----------|-----|-----|-----|-------|-----------------|
|--------|-----------|-----|-----|-----|-------|-----------------|

#### Input Diode (see OP140 for additional information)

|       |                 |   |   |     |               |                      |
|-------|-----------------|---|---|-----|---------------|----------------------|
| $V_F$ | Forward Voltage | - | - | 1.8 | V             | $I_F = 20\text{ mA}$ |
| $I_R$ | Reverse Current | - | - | 100 | $\mu\text{A}$ | $V_R = 2\text{ V}$   |

#### Output Phototransistor (see OP552 for additional information)

|                 |                                     |    |   |     |    |                                                        |
|-----------------|-------------------------------------|----|---|-----|----|--------------------------------------------------------|
| $V_{(BR)(CEO)}$ | Collector-Emitter Breakdown Voltage | 30 | - | -   | V  | $I_C = 1\text{ mA}$ , $I_F = 0$ , $E_E = 0$            |
| $V_{(BR)(ECO)}$ | Emitter-Collector Breakdown Voltage | 5  | - | -   | V  | $I_E = 100\text{ }\mu\text{A}$ , $I_F = 0$ , $E_E = 0$ |
| $I_{CEO}$       | 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 | 1.0 | - | 10.0 | mA | $V_{CE} = 5\text{ V}$ , $I_F = 20\text{ mA}$          |
| $V_{CE(SAT)}$ | Collector-Emitter          | -   | - | 0.4  | V  | $I_C = 100\text{ }\mu\text{A}$ , $I_F = 20\text{ mA}$ |

#### Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
- (2) Derate linearly 1.67 mW/ $^{\circ}\text{C}$  above 25  $^{\circ}\text{C}$
- (3) All parameters were 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" square (5.08 mm) and 0.425" long (10.80 mm), which is the minimum.
- (5) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones. Spray and wipe; do not submerge.
- (6) Polarity is denoted by color of housing top: LED (gray or clear), sensor (black).
- (7) Clear dust protection.

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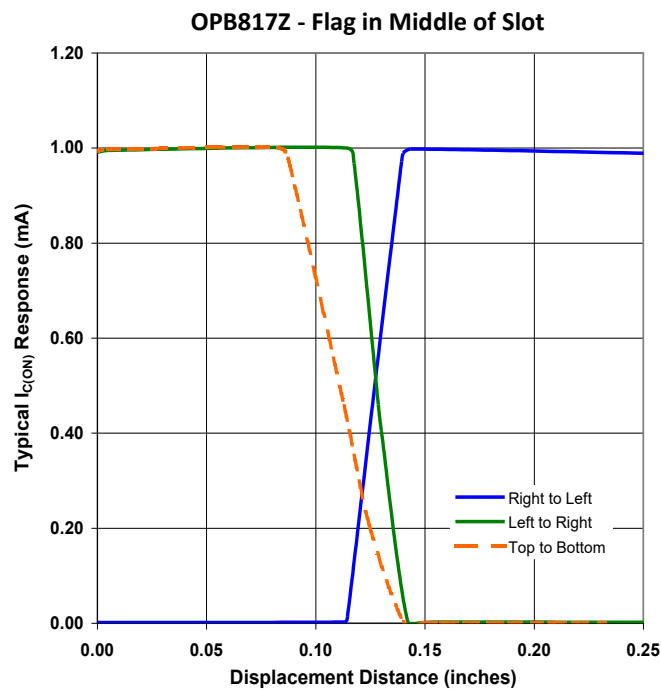
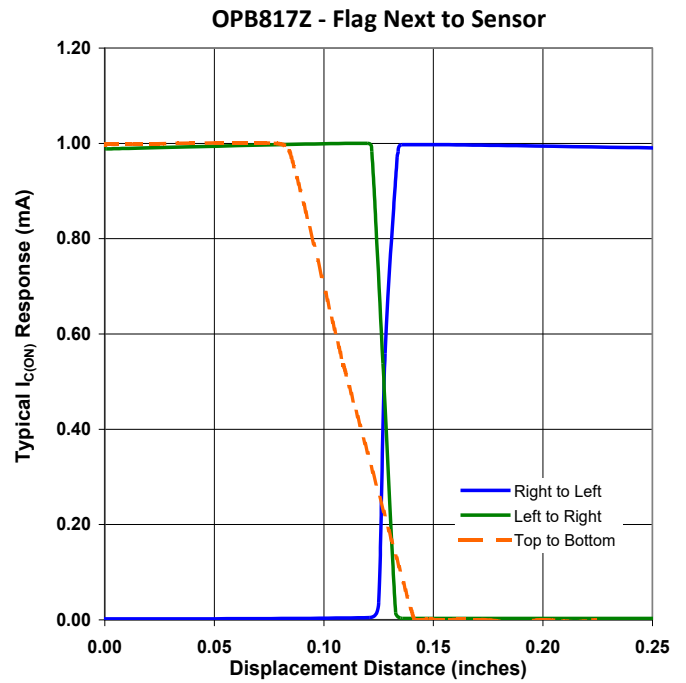
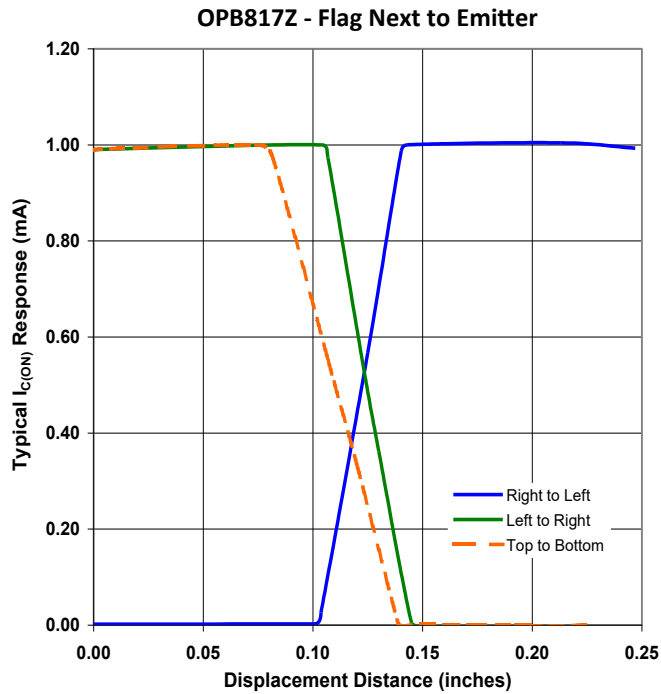
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# Slotted Optical Switch

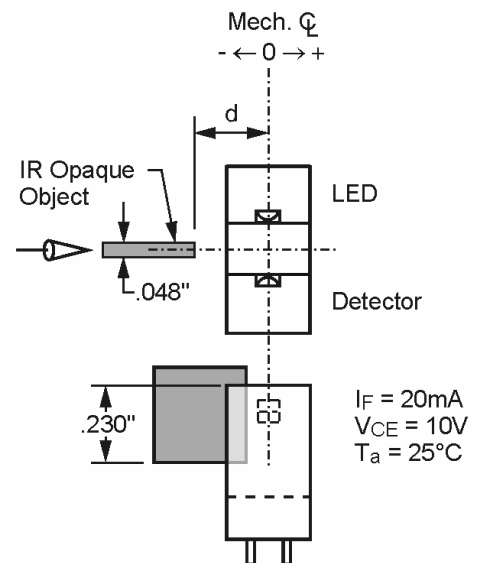
OPB817Z



## Performance



## Test Schematic



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