

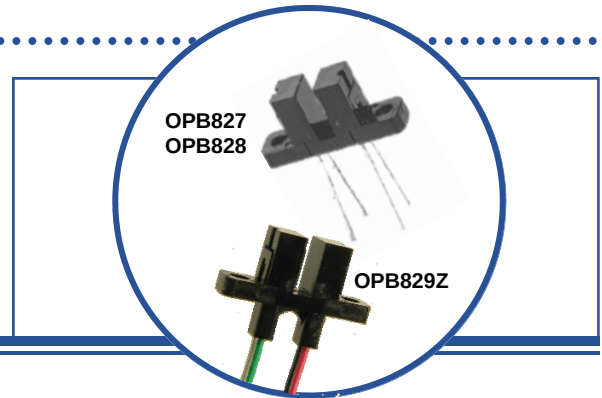
# Slotted Optical Switch

## OPB827, OPB828, OPB829Z Series



### Features:

- 0.125" (3.18 mm) wide, 0.215" (5.46 mm) deep slot
- 0.305" (7.75 mm) lead spacing (OPB827)
- 0.220" (5.59 mm) lead spacing (OPB828)
- 24-inch 26 AWG wire leads (OPB829)
- Inexpensive plastic housing



### Description:

Each **OPB827**, **OPB828** and **OPB829** device consists of an infrared emitting diode (LED, 890 nm center wavelength) and a NPN silicon phototransistor, mounted on opposite sides of a 0.125" (3.18 mm) wide slot in a low-cost black plastic housing. A variety of aperture sizes are offered (see chart below). The **OPB927** and **OPB828** are designed for PCBoard mounting with a minimum lead length of 0.35" (8.9 mm) while the **OPB829Z** (wire version) has 24-inch 26 AWG wire leads. Phototransistor switching occurs when an opaque object passes through the slot.

The **OPB827** is offered with 0.305" (7.75 mm) and the **OPB828** is offered with 0.220" (5.59 mm) lead spacing for PCBoard mounting. The **OPB829Z** has 24" (61 cm) 26 AWG wire leads for remote mounting.

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 safety
- Machine safety

| Ordering Information |                      |                 |                            |                               |
|----------------------|----------------------|-----------------|----------------------------|-------------------------------|
| Part Number          | Slot Width/<br>Depth | Housing         | Aperture<br>Emitter/Sensor | Wire Lead<br>Length / Spacing |
| OPB827A              | 0.120" / 0.315"      | IR Transmissive | None                       | 0.425" / 0.300"               |
| OPB827B              |                      |                 | None / 0.01"               |                               |
| OPB827C              |                      | Opaque          | None / 0.06"               |                               |
| OPB827D              |                      |                 | None / 0.01"               |                               |
| OPB828A              | 0.120" / 0.315"      | IR Transmissive | None                       | 0.425" / 0.220"               |
| OPB828B              |                      |                 | None / 0.01"               |                               |
| OPB828C              |                      | Opaque          | None / 0.06"               |                               |
| OPB828D              |                      |                 | None / 0.01"               |                               |
| OPB829AZ             | 0.125" / 0.315"      | IR Transmissive | None                       | 24" / 26 AWG Wire             |
| OPB829BZ             |                      |                 | None / 0.01"               |                               |
| OPB829CZ             |                      | Opaque          | None / 0.06"               |                               |
| OPB829DZ             |                      |                 | None / 0.01"               |                               |



RoHS

#### CONTAINS POLYSULFONE

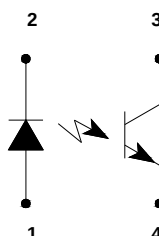
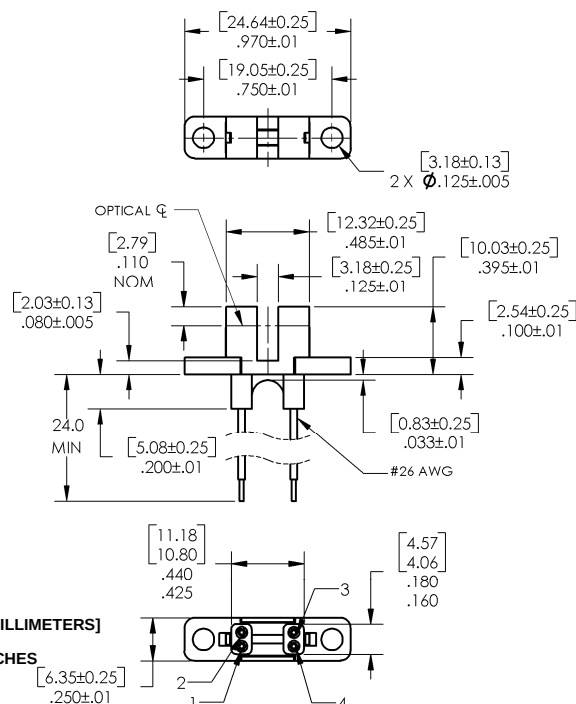
To avoid stress cracking, we suggest using ND Industries' **Vibra-Tite** for thread-locking. **Vibra-Tite** evaporates fast without causing structural failure in OPTEK's molded plastics.

Applies to: OPB360, OPB370, OPB380, OPB390 and OPB860, OPB870, OPB880, OPB890.

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

**TT electronics**  
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## OPB829Z Series



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

|                                                                                                            |                                      |
|------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Storage and Operating Temperature<br>OPB827, OPB828<br>OPB829Z                                             | -40° C to +85° C<br>-40° C to +80° C |
| Lead Soldering Temperature (1/16 inch [1.6 mm] from case for 5 seconds with soldering iron) <sup>(1)</sup> | 260° C                               |

**Input Diode**

|                                                 |        |
|-------------------------------------------------|--------|
| Forward DC Current                              | 50 mA  |
| Peak Forward Current (1μs 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 |

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
- (2) Derate linearly 1.82 mW/° C above 25° C.
- (3) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones.
- (4) All parameters were tested using pulse technique.

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

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

**Input Diode** (See OP240 for additional information—for reference only)

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

**Output Transistor** (See OP550 for additional information—for reference only)

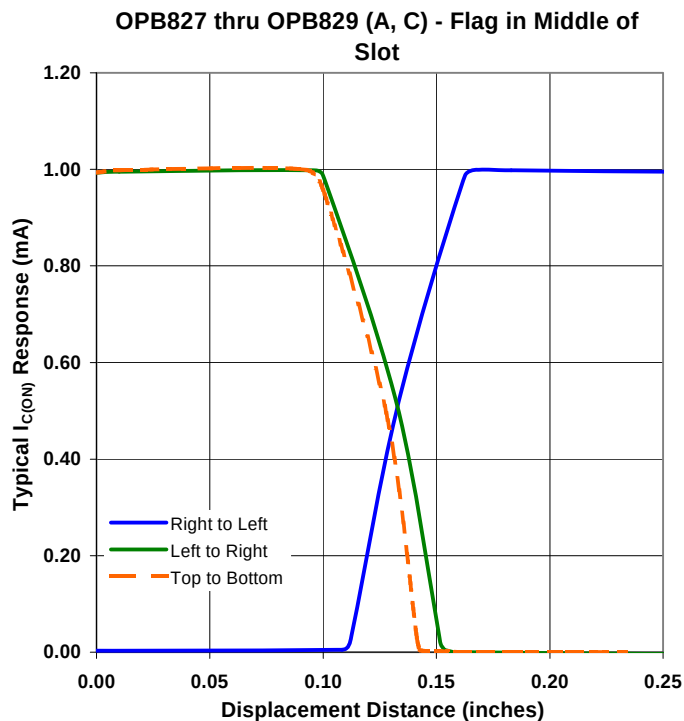
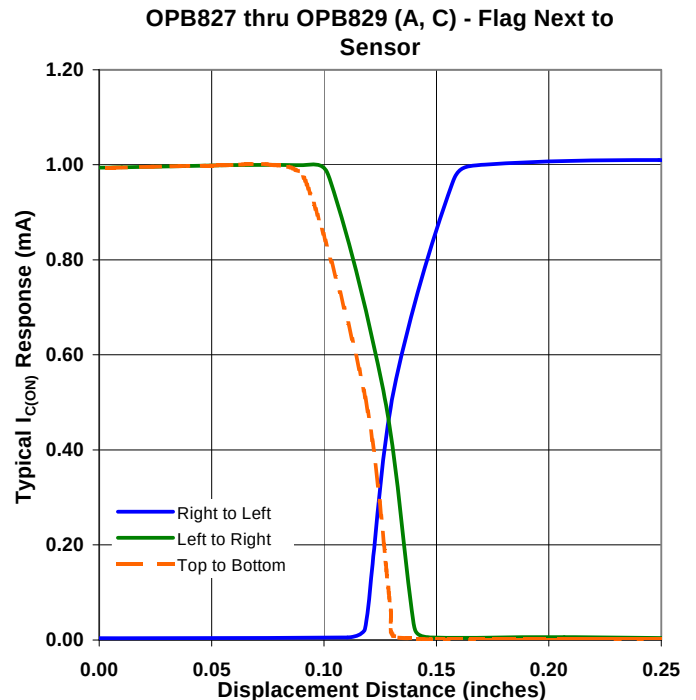
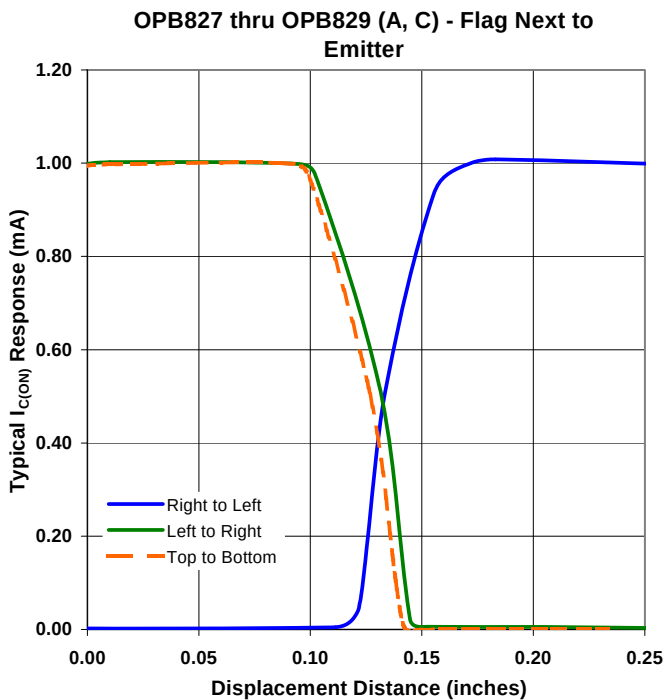
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|---------------|-------------------------------------|----|---|-----|----|-------------------------------------------|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | 30 | - | -   | V  | $I_C = 1 \text{ mA}$                      |
| $V_{(BR)ECO}$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

**Coupled**

|               |                            |      |   |     |    |                                               |
|---------------|----------------------------|------|---|-----|----|-----------------------------------------------|
| $V_{CE(SAT)}$ | Saturation Voltage         | -    | - | 0.6 | V  | $I_C = 1800 \text{ μA}, I_F = 20 \text{ mA}$  |
| $I_{C(ON)}$   | On-State Collector Current | 1800 | - | -   | μA | $V_{CE} = 0.6 \text{ V}, I_F = 20 \text{ mA}$ |

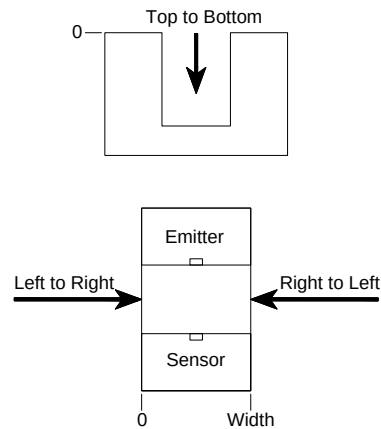
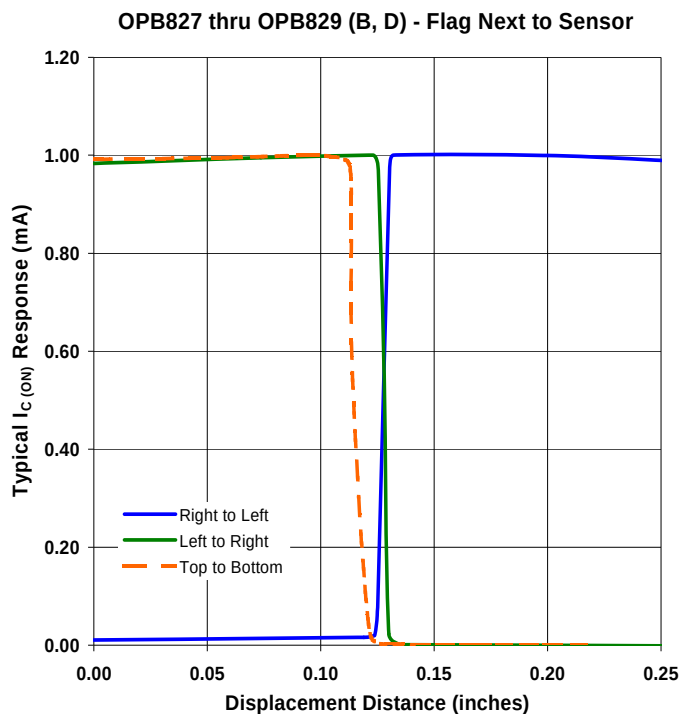
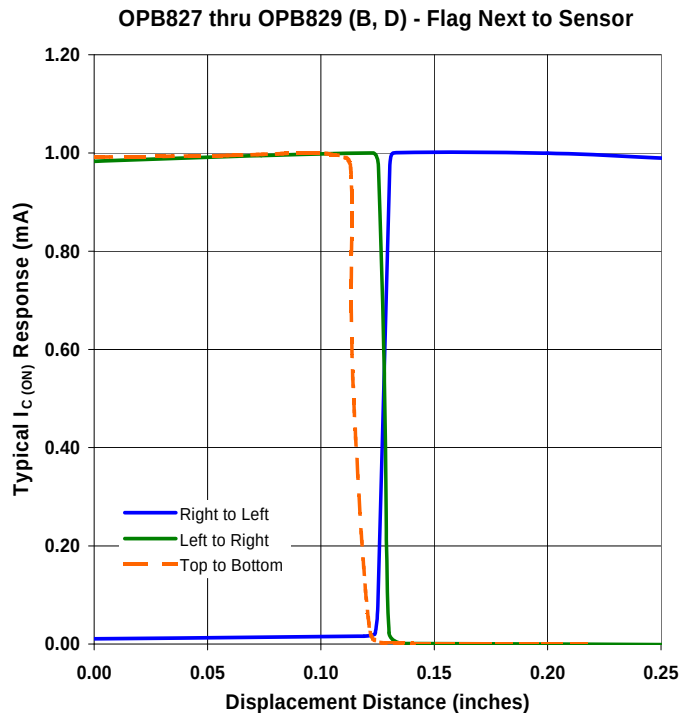
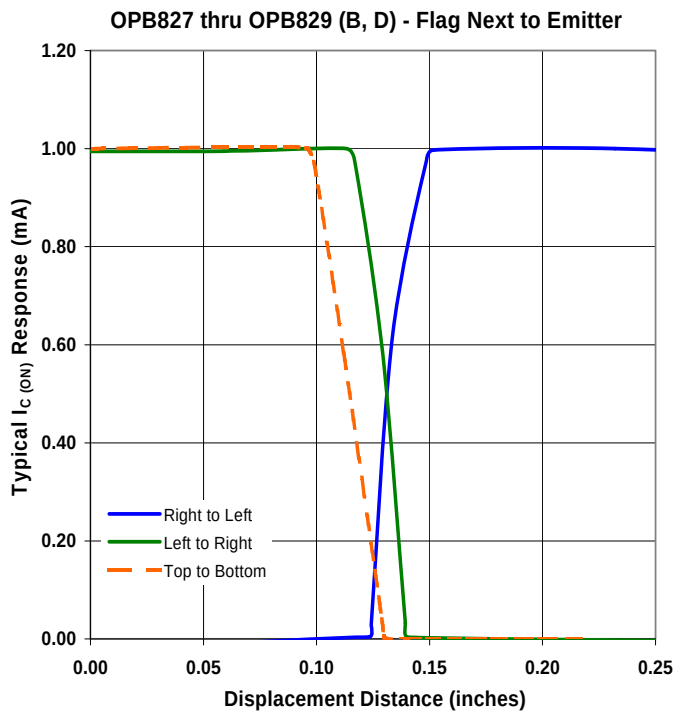
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OPB827, OPB828, OPB829 Series - Devices A and C



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OPB827, OPB828, OPB829 Series - Devices B and D



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