

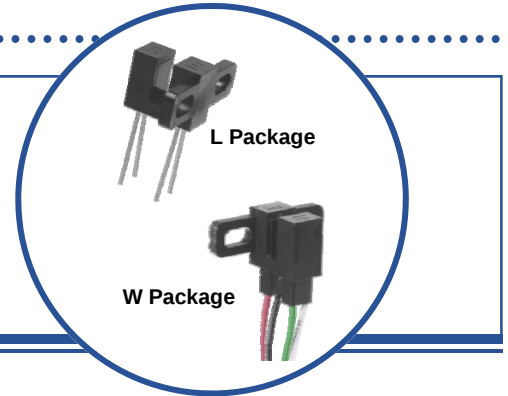
# Slotted Optical Switch

## OPB830 and OPB840 Series (L & W)



### Features:

- 0.125" (3.18 mm) wide slot
- Choice of electrical output parameters
- Choice of aperture
- Choice of opaque or IR transmissive shell material
- Side mount configuration
- Choice of lead spacing (L Series)
- 24" [610 mm] 26 AWG wire leads (W Series)



### Description:

**OPB830** and **OPB840 series** provide the design engineer with the flexibility of a custom device from a standard product line. The **L Series** offers a choice of PCBoard mount lead spacing, while the **W Series** offers 24" (610mm) 26AWG wire leads.

Building from a standard housing that utilizes a .375" (9.5 mm) wide slot, a user can specify the electrical output parameters, choice of aperture, discrete shell material, side mount configuration, and a choice of lead spacing (for the L Series) or 24" [610 mm] UL approved 26 AWG wire leads (W Series).

Housings are made from an opaque grade of injection-molded plastic that minimizes the assembly's sensitivity to visible and near-infrared ambient radiation. Discrete shells (exposed on the parallel faces inside the device throat) are made of either IR transmissive plastic (for applications where aperture contamination may occur) or of opaque plastic with aperture openings (for maximum protection against ambient light).

Switching of the phototransistor occurs whenever an opaque object passes through the slot and interrupts the beam.

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

### Applications:

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



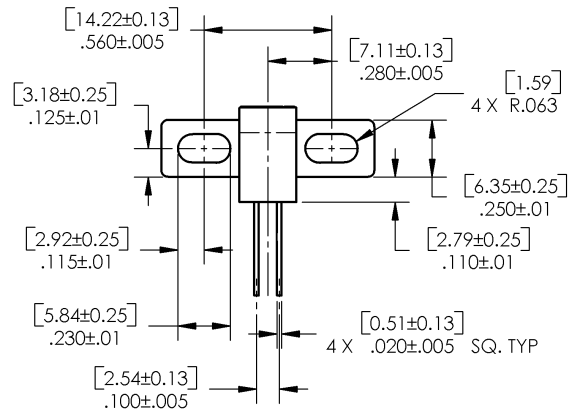
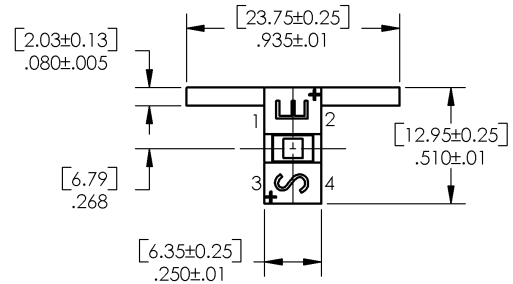
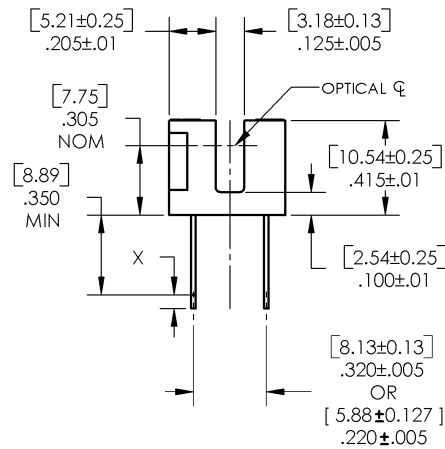
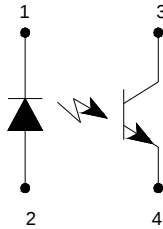
**RoHS**

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

# Slotted Optical Switch OPB830 and OPB840 Series (L & W)



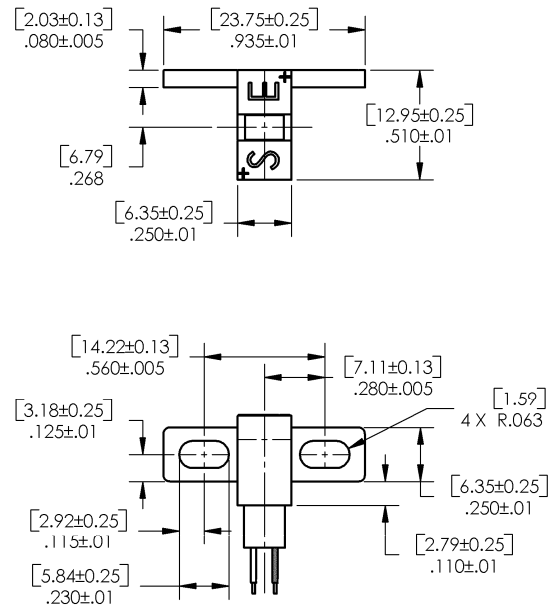
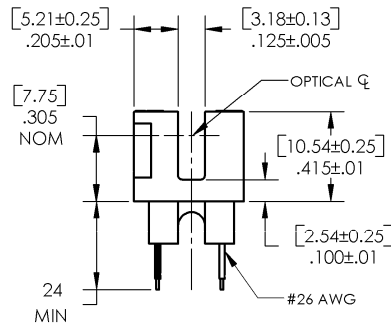
## OPB830/840L Series



DIMENSIONS ARE IN INCHES AND [MILLIMETERS].

## OPB830/840W Series

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



DIMENSIONS ARE IN INCHES AND [MILLIMETERS].

DIMENSIONS ARE IN: [ MILLIMETERS]  
INCHES

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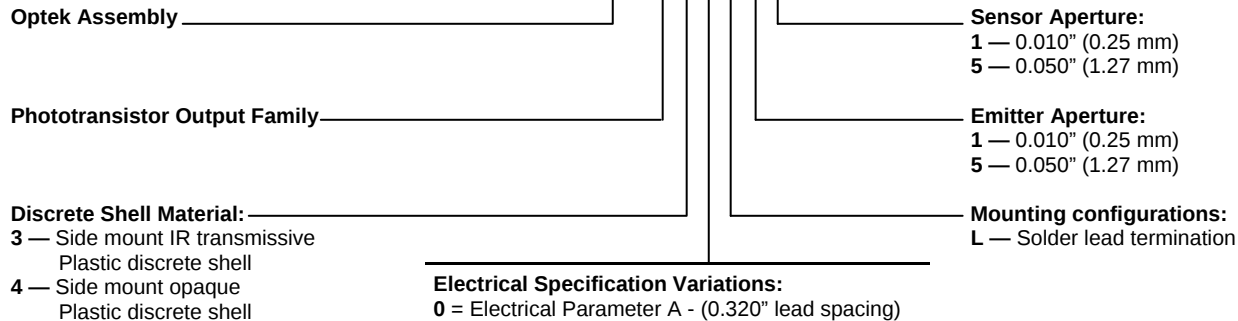
# Slotted Optical Switch

## OPB830 and OPB840 Series (L & W)



### Part Number Guide — OPB8XX

**OPB 8 X X L X X**



#### Electrical Specification Variations:

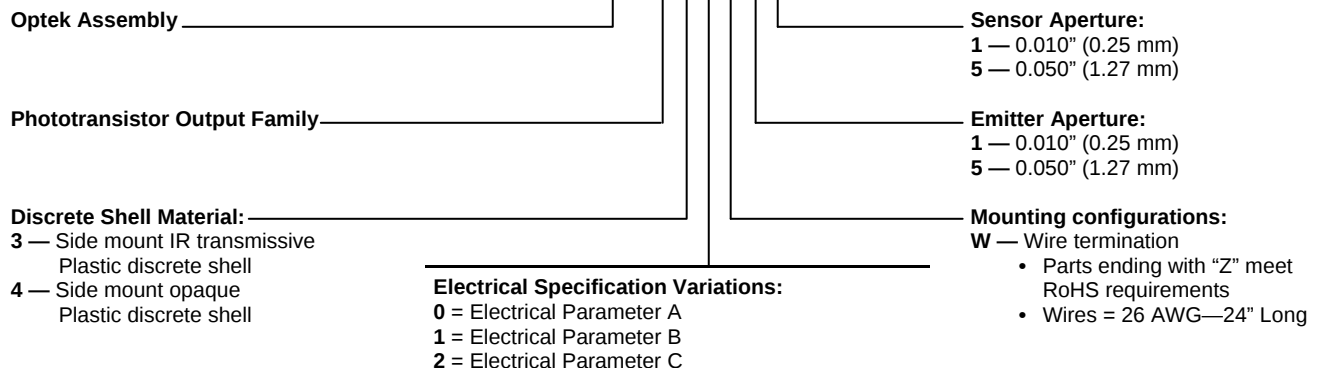
0 = Electrical Parameter A - (0.320" lead spacing)  
1 = Electrical Parameter B - (0.320" lead spacing)  
2 = Electrical Parameter C - (0.320" lead spacing)  
5 = Electrical Parameter A - (0.220" lead spacing)  
6 = Electrical Parameter B - (0.220" lead spacing)  
7 = Electrical Parameter C - (0.220" lead spacing)

#### Notes:

- Assemblies with dual 0.010" apertures are currently available with electrical parameter "A" only.

### Part Number Guide — OPB8XX

**OPB 8 X X W X X Z**



#### Notes:

- Assemblies with dual 0.010" apertures are currently available with electrical parameter "A" only.

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

|                                                                                                            |                                    |
|------------------------------------------------------------------------------------------------------------|------------------------------------|
| Storage and Operating Temperature<br>L Series <sup>(1)</sup><br>W Series <sup>(1)</sup>                    | -40° C to +85°C<br>-40° C to +80°C |
| Lead Soldering Temperature [1/16 inch (1.6mm) from the case for 5 sec. with soldering iron] <sup>(2)</sup> | 260°C                              |

**Input Diode**

|                                                             |        |
|-------------------------------------------------------------|--------|
| Forward DC Current                                          | 50 mA  |
| Peak Forward Current (1 $\mu\text{s}$ pulse width, 300 pps) | 1 A    |
| Reverse DC Voltage                                          | 2 V    |
| Power Dissipation <sup>(1)</sup>                            | 100 mW |

**Output Phototransistor**

|                                  |        |
|----------------------------------|--------|
| Collector-Emitter Voltage        | 30 V   |
| Emitter-Collector Voltage        | 5 V    |
| Collector DC Current             | 30 mA  |
| Power Dissipation <sup>(1)</sup> | 100 mW |

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

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

**Input Diode LED** (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 | $\mu\text{A}$ | $V_R = 2 \text{ V}$   |

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

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

Notes:

- (1) Derate linearly 1.67 mW/° C above 25° C for L Series.
- (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. Plastic housing is soluble in chlorinated hydrocarbons and ketones.
- (4) The W Series includes wire terminations of 24" (610 mm) 7-strand, 26 AWG UL insulated wire on each terminal. Each device incorporates a wire strain relief at the housing surface. The insulation functions and colors are: anode (red), cathode (black), phototransistor collector (white) and phototransistor emitter (green).
- (5) All parameters tested using pulse technique.

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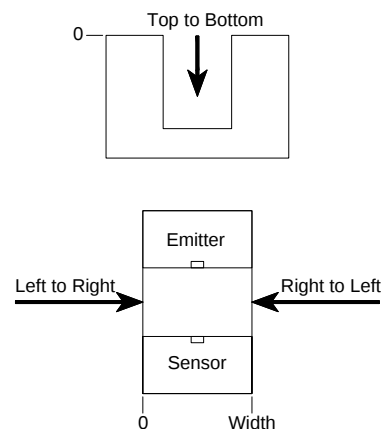
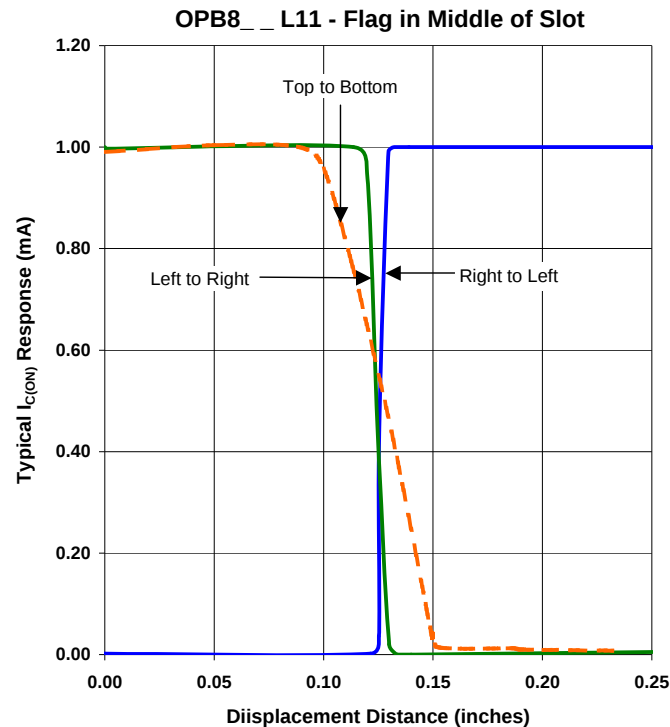
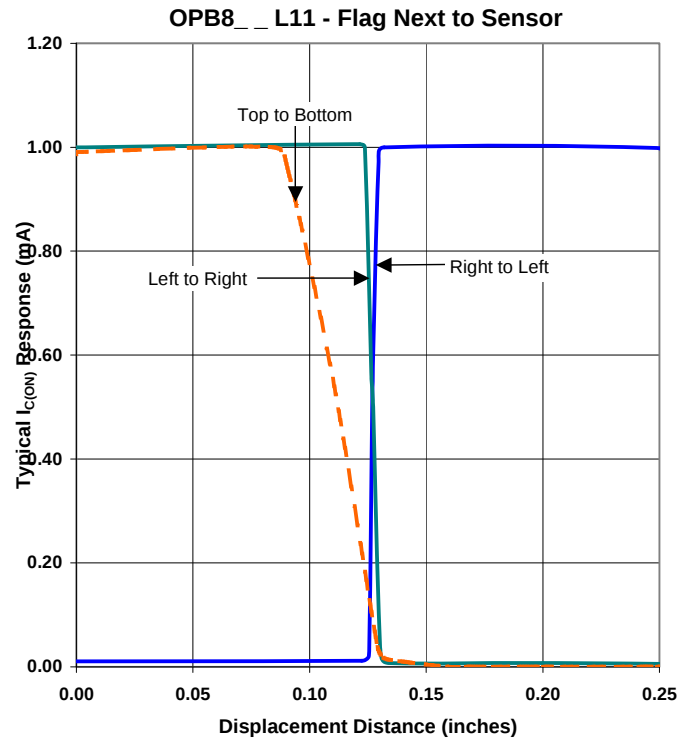
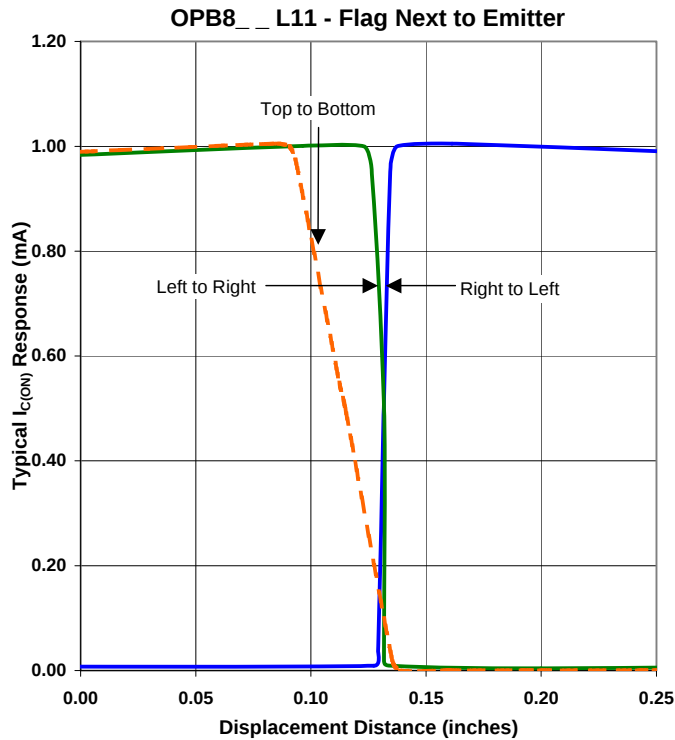
## OPB830 and OPB840 Series (L & W)



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

| SYMBOL          | PARAMETER                                                                                                                              | MIN   | TYP | MAX | UNITS | TEST CONDITIONS                                   |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------|-------|-----|-----|-------|---------------------------------------------------|
| <b>Combined</b> |                                                                                                                                        |       |     |     |       |                                                   |
| $V_{CE(SAT)}$   | Collector-Emitter Saturation Voltage<br>Parameter A (OPB830L,OPB840L)<br>(OPB835L, OPB845L)<br>(OPB830W,OPB840W)<br>(OPB835W, OPB845W) | -     | -   | 0.4 | V     | $I_C = 400\ \mu\text{A}$ , $I_F = 20\ \text{mA}$  |
|                 | Parameter B (OPB831L,OPB841L)<br>(OPB836L,OPB846L)<br>(OPB831W,OPB841W)<br>(OPB836W,OPB846W)                                           | -     | -   | 0.4 | V     | $I_C = 800\ \mu\text{A}$ , $I_F = 10\ \text{mA}$  |
|                 | Parameter C (OPB832L,OPB842L)<br>(OPB837L,OPB847L)<br>(OPB832W,OPB842W)<br>(OPB837W,OPB847W)                                           | -     | -   | 0.6 | V     | $I_C = 1800\ \mu\text{A}$ , $I_F = 20\ \text{mA}$ |
| $I_{C(ON)}$     | On-State Collector Current<br>Parameter A (OPB830L,OPB840L)<br>(OPB835L, OPB845L)<br>(OPB830W,OPB840W)<br>(OPB835W, OPB845W)           | 0.625 | -   | -   | mA    | $V_{CE} = 10\ \text{V}$ , $I_F = 20\ \text{mA}$   |
|                 | Parameter B (OPB831L,OPB841L)<br>(OPB836L,OPB846L)<br>(OPB831W,OPB841W)<br>(OPB836W,OPB846W)                                           | 1.250 | -   | -   | mA    | $V_{CE} = 5\ \text{V}$ , $I_F = 10\ \text{mA}$    |
|                 | Parameter C (OPB832L,OPB842L)<br>(OPB837L,OPB847L)<br>(OPB832W,OPB842W)<br>(OPB837W,OPB847W)                                           | 2.250 | -   | -   | mA    | $V_{CE} = .6\ \text{V}$ , $I_F = 20\ \text{mA}$   |

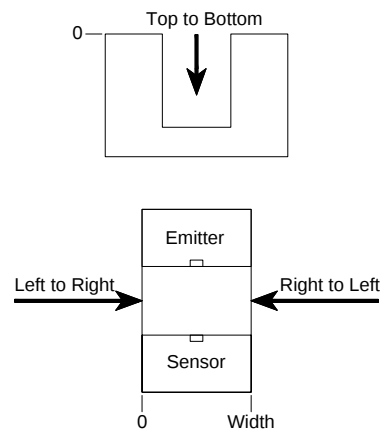
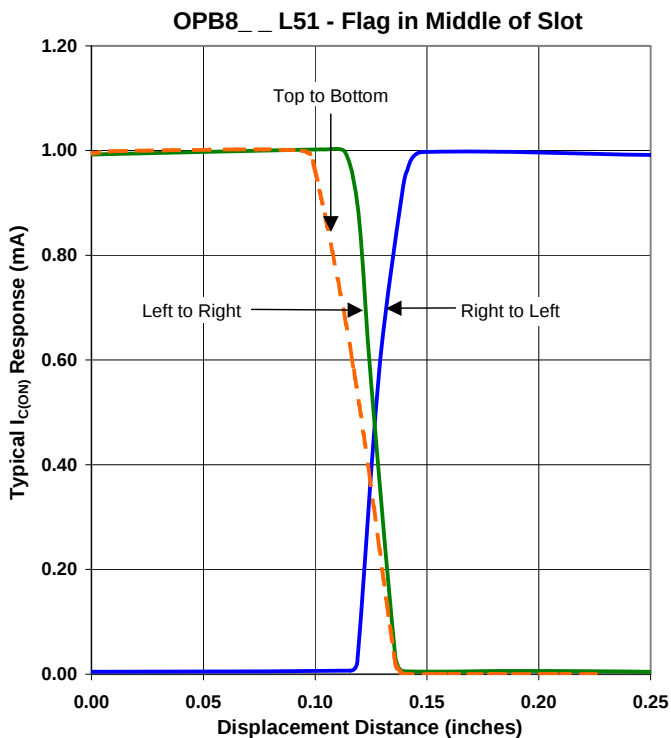
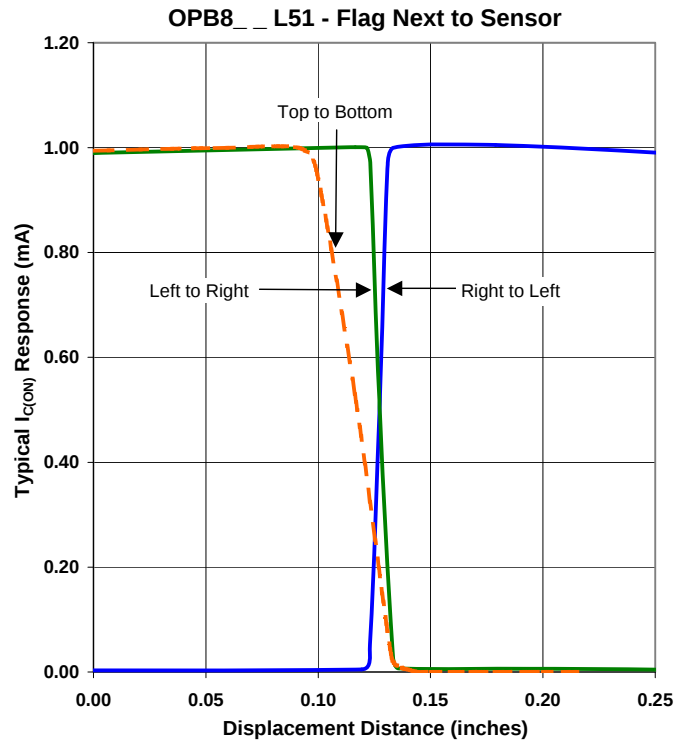
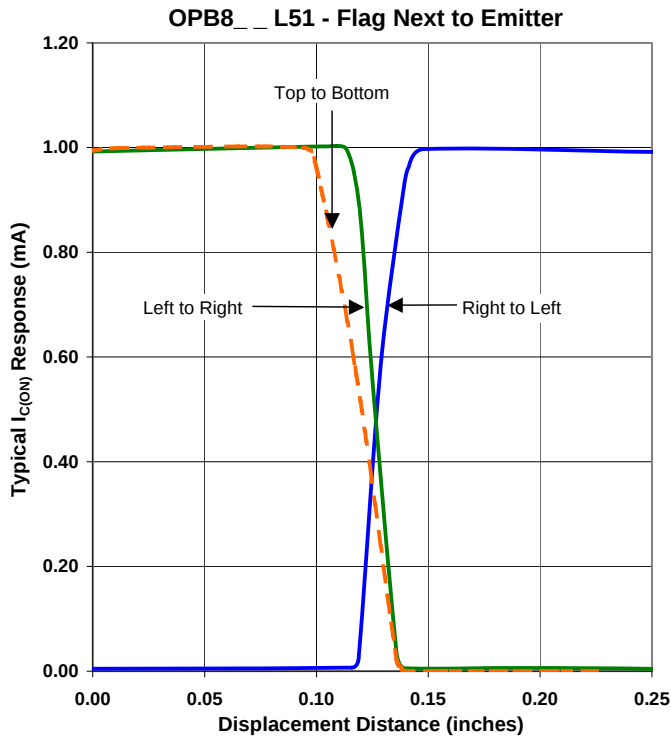
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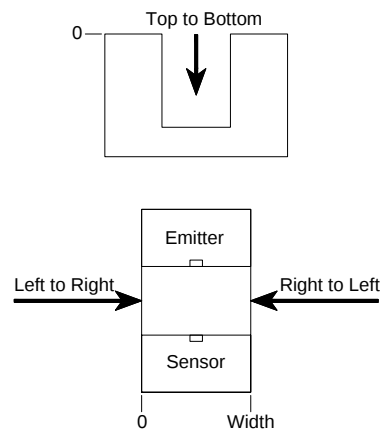
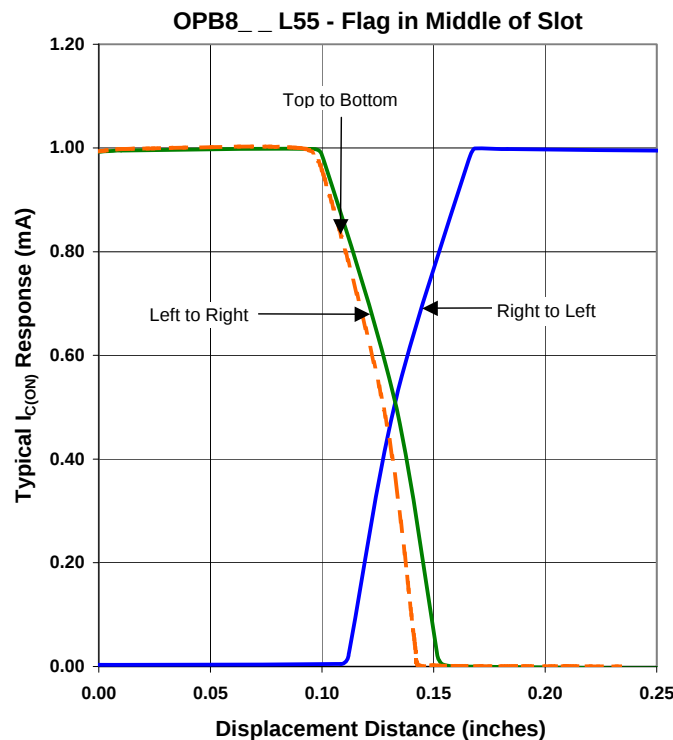
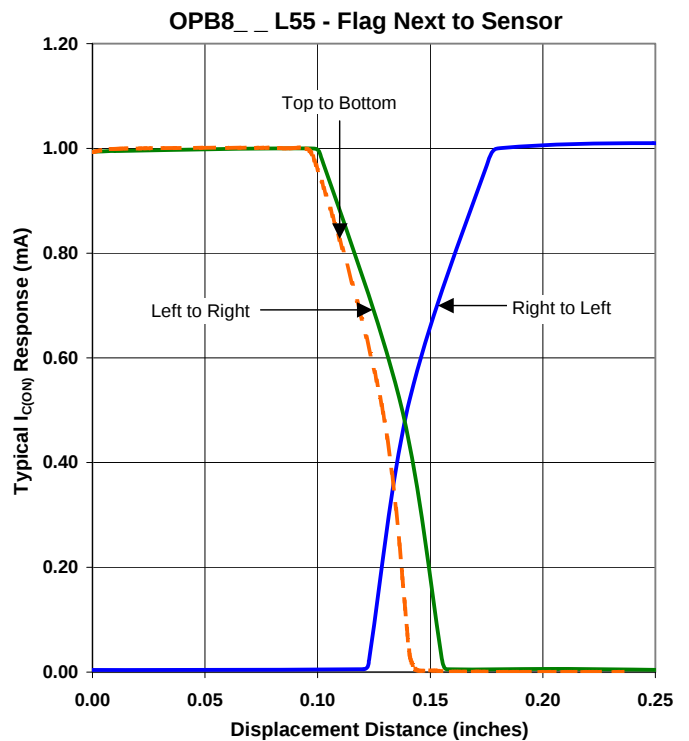
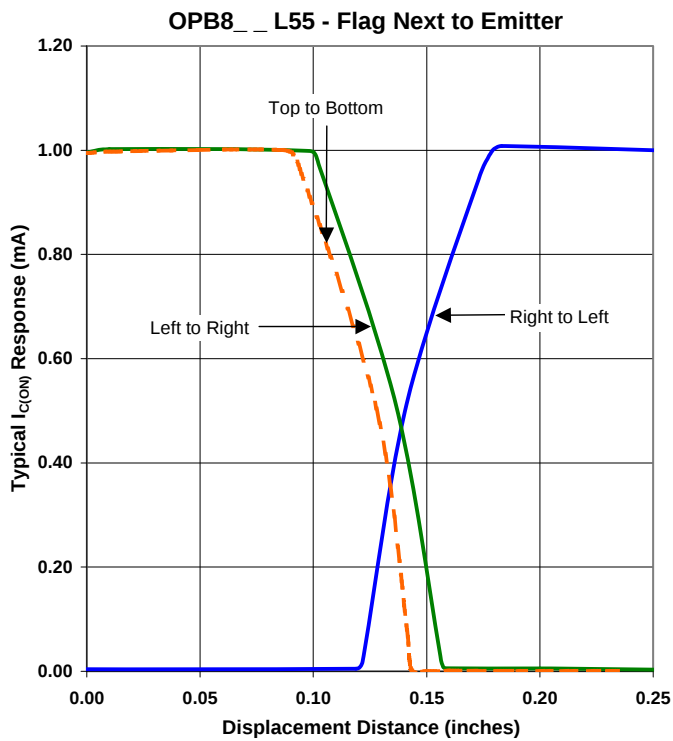
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