

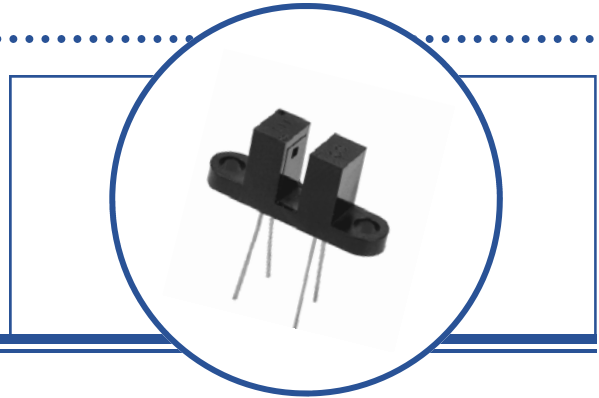
# Slotted Optical Switch

OPB852A1, OPB852A2, OPB852A3  
 OPB853A1, OPB853A2, OPB853A3



## Features:

- Inexpensive opaque plastic housing
- Choice of transistor (OPB852) or photodarlington (OPB853) output
- 0.125" (3.18 mm) slot width
- 0.290" (7.37 mm) lead spacing
- Apertured for high resolution



## Description:

Slotted optical switches in the **OPB852**, and **OPB853** series consist of an infrared emitting diode and a NPN silicon phototransistor or photodarlington, mounted on opposite sides of a 0.125" (3.175 mm) wide slot. The **OPB852A**, **OPB852B** and **OPB852C** have phototransistor output, while the **OPB853A**, **OPB853B** and **OPB853C** have photodarlington output.

On each of these devices, the emitter has a molded-in aperture of 0.050" x 0.050" (1.270 mm x 1.270 mm) and the phototransistor (**OPB852**) or photodarlington (**OPB853**) has a molded-in aperture of 0.010" x 0.050" (0.254 mm x 1.270 mm).

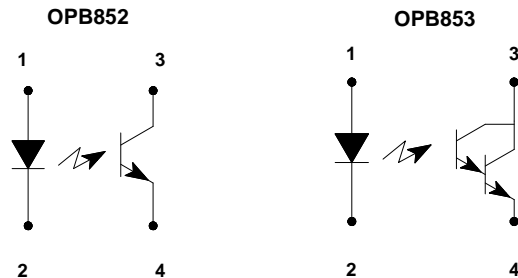
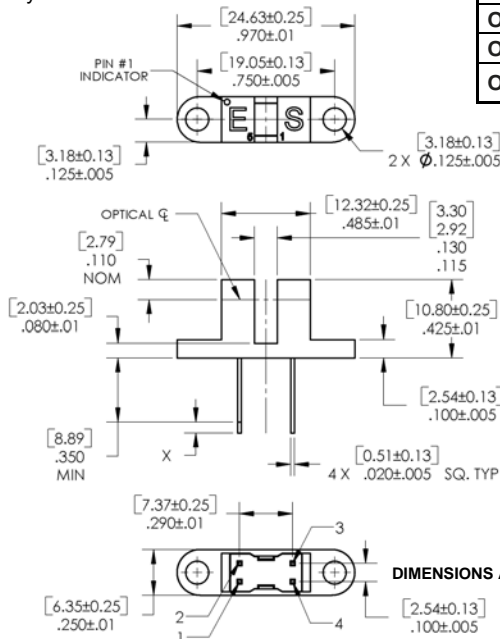
Phototransistor or photodarlington switching occurs when an opaque object passes through the slot.

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

## Applications:

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

| Part Number | LED Peak Wavelength | Sensor     | Slot Width/Depth | Aperture Emitter/Sensor | Lead Length / Spacing |
|-------------|---------------------|------------|------------------|-------------------------|-----------------------|
| OPB852A1    | 890 nm              | Transistor | 0.120" / 0.315"  | 0.05" / 0.01"           | 0.425" / 0.290"       |
| OPB852A2    |                     |            |                  |                         |                       |
| OPB852A3    |                     |            |                  |                         |                       |
| OPB853A1    |                     | Darlington |                  |                         |                       |
| OPB853A2    |                     |            |                  |                         |                       |
| OPB853A3    |                     |            |                  |                         |                       |



| Pin # | Description |
|-------|-------------|
| 1     | Anode       |
| 2     | Cathode     |
| 3     | Collector   |
| 4     | Emitter     |



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**  
**OPB852A1, OPB852A2, OPB852A3**  
**OPB853A1, OPB853A2, OPB853A3**



**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] | 260° C <sup>(1)</sup> |

**Input Diode**

|   |                       |
|---|-----------------------|
| Forward DC Current  | 40 mA                 |
| Peak Forward Current (1 $\mu\text{s}$ pulse width, 300 pps) | 3 A                   |
| Reverse DC Voltage  | 2 V                   |
| Power Dissipation   | 100 mW <sup>(2)</sup> |

**Output Phototransistor**

|                           |                       |
|---------------------------|-----------------------|
| Collector-Emitter Voltage | 30 V                  |
| Emitter-Collector Voltage | 5 V                   |
| Power Dissipation         | 100 mW <sup>(2)</sup> |

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

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

**Input Diode** (see OP140 for additional information—OPB852A\_, OP245 for additional information—OPB853A)

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

**Output Phototransistor** (see OP550 for additional information—OPB852A\_, OP565 for additional information—OPB853A)

|               |  |    |   |     |    |                          |
|---------------|--|----|---|-----|----|--------------------------|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage                          | 30 | - | -   | V  | $I_C = 1\text{ mA}$      |
|               | OPB852A1, OPB852A2, OPB852A3<br>OPB853A1, OPB853A2, OPB853A3 | 15 | - | -   | V  |                          |
| $V_{(BR)ECO}$ | Emitter-Collector Breakdown Voltage                          | 5  | - | -   | V  | $I_E = 100\ \mu\text{A}$ |
| $I_{CEO}$     | Collector-Emitter Dark Current                               | -  | - | 100 | nA | $V_{CE} = 10\text{ V}$   |

**Combined**

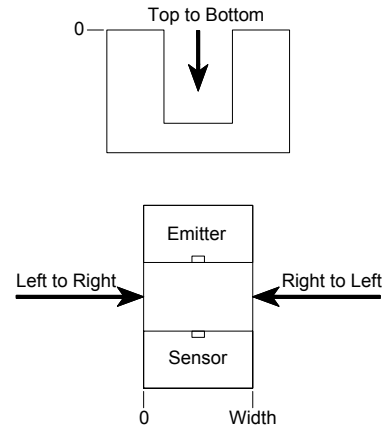
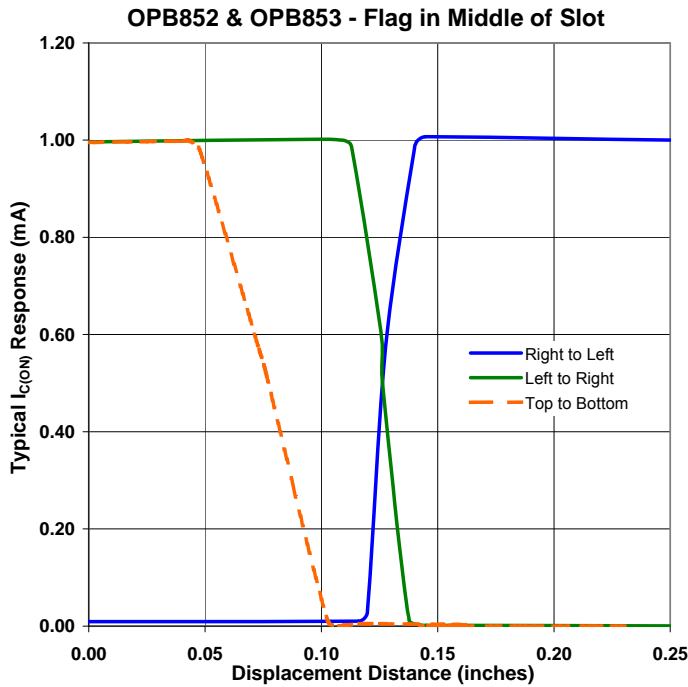
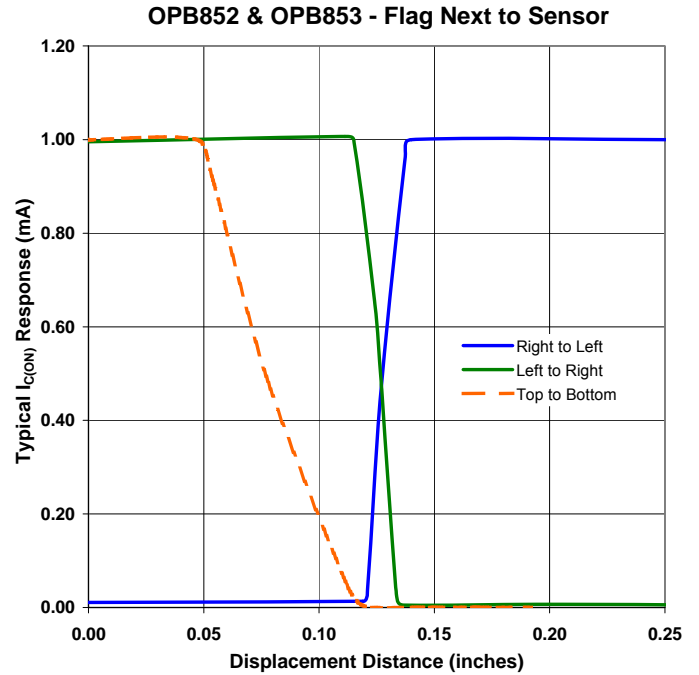
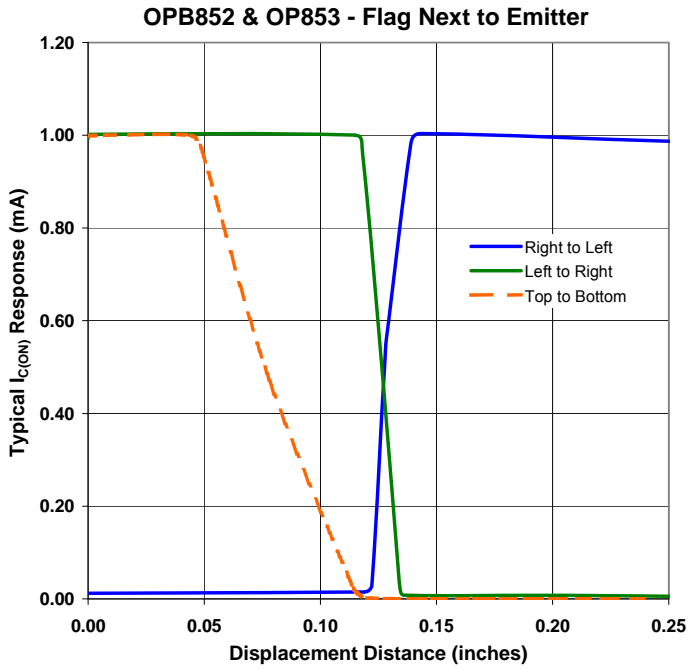
|               |  |      |   |     |    |  |  |
|---------------|--|------|---|-----|----|--|--|
| $V_{CE(SAT)}$ | Saturation Voltage                       | -    | - | -   | V  | $I_C = 500\ \mu\text{A}, I_F = 20\text{ mA}$ |  |
|               | OPB852A1, OPB852A2                       | -    | - | 0.4 | V  |  | $I_C = 1.8\text{ mA}, I_F = 20\text{ mA}$  |
|               | OPB852A3<br>OPB853A1, OPB853A2, OPB853A3 | -    | - | 1.0 | V  |  | $I_C = 1.8\text{ mA}, I_F = 10\text{ mA}$  |
| $I_{C(ON)}$   | On-State Collector Current               | 1.0  | - | -   | mA | $V_{CE} = 5\text{ V}, I_F = 20\text{ mA}$    |  |
|               | OPB852A1                                 | 2.0  | - | -   | mA |  | $V_{CE} = 5\text{ V}, I_F = 20\text{ mA}$  |
|               | OPB852A2                                 | 4.0  | - | -   | mA |  | $V_{CE} = 5\text{ V}, I_F = 20\text{ mA}$  |
|               | OPB852A3                                 | 2.5  | - | -   | mA |  | $V_{CE} = 1.5\text{ V}, I_F = 5\text{ mA}$ |
|               | OPB853A1                                 | 5.0  | - | -   | mA |  | $V_{CE} = 1.5\text{ V}, I_F = 5\text{ mA}$ |
|               | OPB853A2<br>OPB853A3                     | 10.0 | - | -   | mA |  | $V_{CE} = 1.5\text{ V}, I_F = 5\text{ mA}$ |

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) Methanol and isopropanol are recommended as cleaning agents. Housings are soluble in chlorinated hydrocarbons and ketones. Highly activated, water soluble fluxes may attack housings in some situations.
- (4) All parameters tested using pulse technique.

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**  
**OPB852A1, OPB852A2, OPB852A3**  
**OPB853A1, OPB853A2, OPB853A3**



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

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for* [Optical Switches, Transmissive, Phototransistor Output](#) *category:*

*Click to view products by* [TT Electronics](#) *manufacturer:*

Other Similar products are found below :

[LTH-301-07](#) [LTH-301-23](#) [E3C-X2C](#) [E3S-LS20B4S1](#) [E3SX2CE4](#) [RPI-0125B](#) [RPI-2501](#) [RPI-576A](#) [KRA021](#) [LTH-306-04M](#) [LTH-309-08](#)  
[HOA0865-100](#) [HOA1961-055](#) [E3F-3C4](#) [LTH-306-01](#) [EESX677C1JR01M](#) [SIT506F-A](#) [HOA1883-501](#) [PT928-6B-F](#) [RPI-243](#) [EE-SX675P-](#)  
[WR 1M](#) [OPB806](#) [EE-SX1128](#) [OPB857Z](#) [EE-SV3-B](#) [EE-SJ3-D](#) [RPI-0226](#) [EE-SX672R](#) [EE-SX670P-WR 1M](#) [LTH-301-32](#)  
[EESX674PWR1M](#) [EE-SX952-W 1M](#) [RPI-0352E](#) [RPI-352C40N](#) [DY-ITR002](#) [DY-ITR1100](#) [DY-ITR9909-W2](#) [HOA0825-001](#) [HOA0825-003](#)  
[HOA0860-N51](#) [HOA0861-N55](#) [HOA0861-P55](#) [HOA0861-T55](#) [HOA0866-P55](#) [HOA0866-T55](#) [HOA0867-P55](#) [HOA0867-T55](#) [HOA0870-](#)  
[T51](#) [HOA0871-L55](#) [HOA0872-N55](#)