

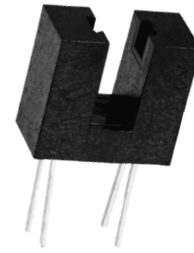
Slotted Optical Switch

OPB804



Features:

- Non-contact switch
- PCB mount
- Wide aperture
- Opaque body to minimize sensitivity to ambient light



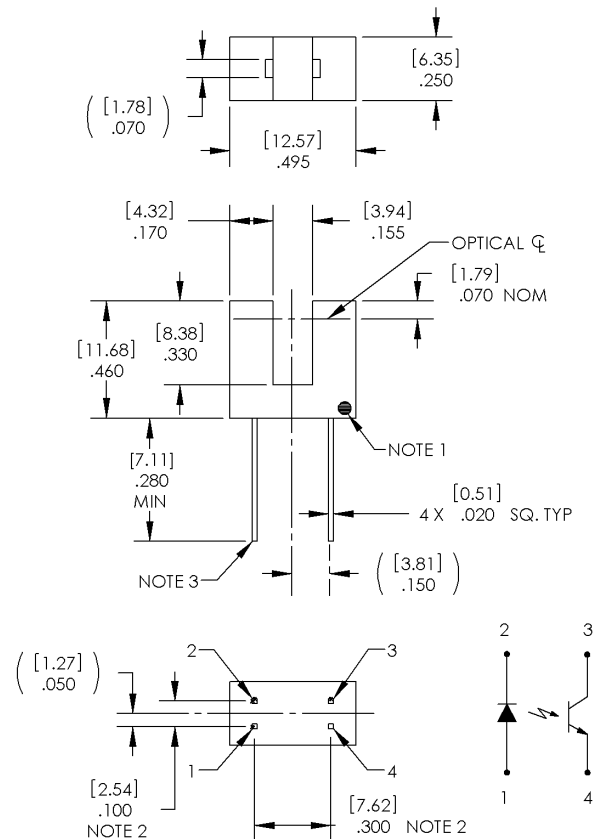
Description:

OPB804 is a non-contact optical switch with a NPN silicon phototransistor and infrared Light Emitting Diode (LED) which are mounted on opposite sides of a 0.155" (3.94 mm) wide slot.

The device body is a single molded piece opaque plastic that reduces ambient light interference. A wide open aperture makes it versatile for general applications. LED emissions are near-infrared (850 – 940nm).

Applications:

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



RoHS

DIMENSIONS ARE IN INCHES AND [MILLIMETERS]
TOLERANCES ARE \pm .010" [0.25] UNLESS
OTHERWISE STATED

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.

TT Electronics | Optek Technology, Inc.
1645 Wallace Drive, Ste. 130, Carrollton, TX USA 75006 | Ph: +1 972 323 2200
www.ttelectronics.com | sensors@ttelectronics.com

Electrical Specifications

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

| | |
|--|-----------------------|
| Storage Temperature Range | -40°C to +100°C |
| Operating Temperature Range | -40°C to +85°C |
| Lead Soldering Temperature | 260°C ⁽⁵⁾ |
| Input Diode | |
| Input Diode Power Dissipation | 75 mW ⁽⁷⁾ |
| Input Diode Forward D.C. Current, $T_A = 25^\circ\text{C}$ | 50 mA ⁽⁷⁾ |
| Input Diode Peak Forward Pulse Current, $T_A = 25^\circ\text{C}$ (1µs pulse width, 300pps) | 1 A |
| Phototransistor | |
| Power Dissipation | 100 mW ⁽⁷⁾ |
| Collector - Emitter Voltage | 30V |
| Emitter - Collector Voltage | 5.0V |

Electrical Characteristics ($T_A = 25^\circ\text{C}$)

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

Input Diode (see OP140 or OP240 for additional information)

| | | | | | | |
|-------|-----------------|---|------|------|---|------------------------------------|
| V_F | Forward Voltage | - | 1.25 | 1.70 | V | $I_F = 20\text{ mA}$ |
| I_R | Reverse Current | - | - | - | - | Not designed for reverse operation |

Output Phototransistor (see OP550 for additional information)

| | | | | | | |
|---------------|-------------------------------------|-----|---|-----|----|---|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | 30 | - | - | V | $I_C = 1\text{ mA}, E_E = 0\text{ mw/cm}^2$ |
| $V_{(BR)ECO}$ | Emitter-Collector Breakdown Voltage | 5.0 | - | - | V | $I_E = 100\text{ }\mu\text{A}, E_E = 0\text{ mw/cm}^2$ |
| I_{CEO} | Collector Dark Current | - | - | 100 | nA | $V_{CE} = 10\text{ V}, I_F = 0, E_E = 0\text{ mw/cm}^2$ |

Coupled

| | | | | | | |
|---------------|--------------------------------------|-----|---|------|----|--|
| $V_{CE(SAT)}$ | Collector-Emitter Saturation Voltage | - | - | 0.40 | V | $I_C = 250\text{ }\mu\text{A}, I_F = 20\text{ mA}$ |
| $I_{C(ON)}$ | On-State Collector Current | 0.5 | 5 | - | mA | $V_{CE} = 10\text{ V}, I_F = 20\text{ mA}$ |

Notes:

- (1) Dot indicates # 3 collector lead side.
- (2) Feature controlled at body.
- (3) Cathode lead may be shorter.
- (4) RMA flux recommended. Highly activated water soluble fluxes may attack plastic. Recommend trial to verify application.
- (5) Maximum lead soldering temperature .060" [1.6mm] from case for 5 seconds with soldering iron.
- (6) Plastic is soluble in chlorinated hydrocarbons and ketones. Methanol or isopropanol are recommended as cleaning agents.
- (7) Derate linearly 1.67 mW/°C above 25° C.
- (8) All parameters tested using pulse techniques.
- (9) Do not connect input diode directly to a voltage source without an external current limiting resistor.
- (10) Do not apply reverse voltage to LED. LED will be a 0V in reverse voltage and draw current as if a short.

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.

TT Electronics | Optek Technology, Inc.
1645 Wallace Drive, Ste. 130, Carrollton, TX USA 75006 | Ph: +1 972 323 2200
www.ttelectronics.com | sensors@ttelectronics.com

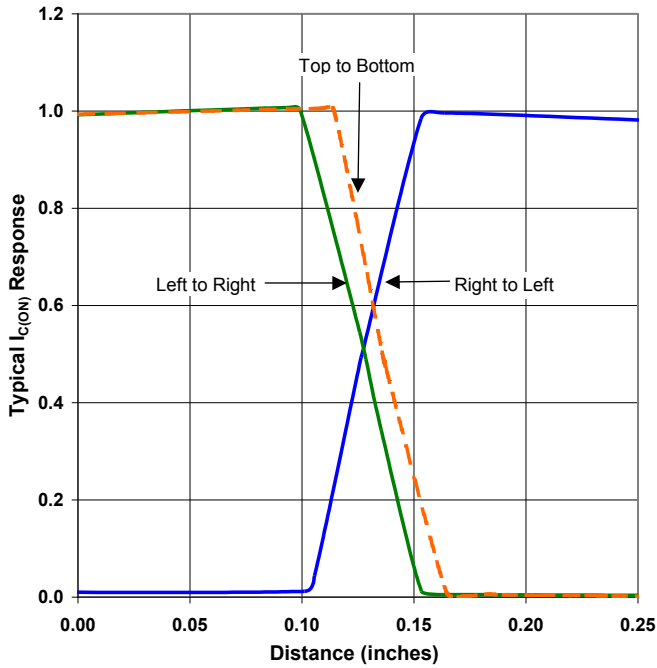
Slotted Optical Switch

OPB804

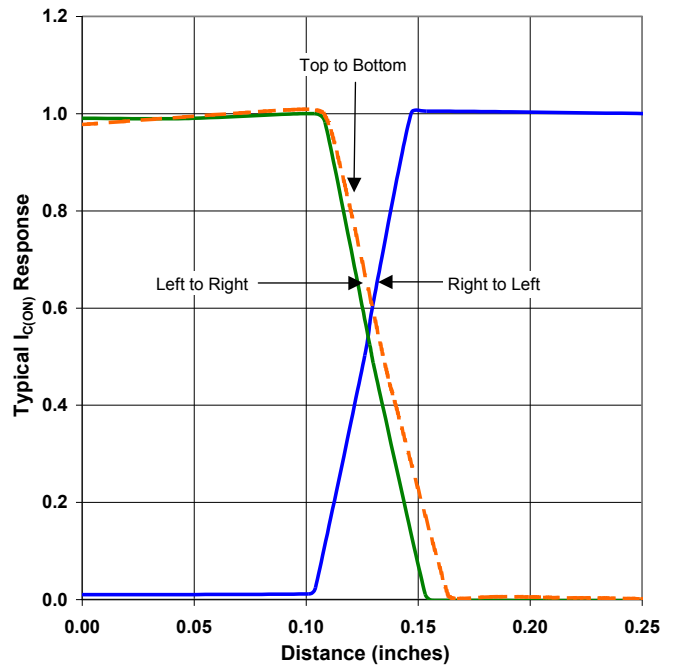


Performance

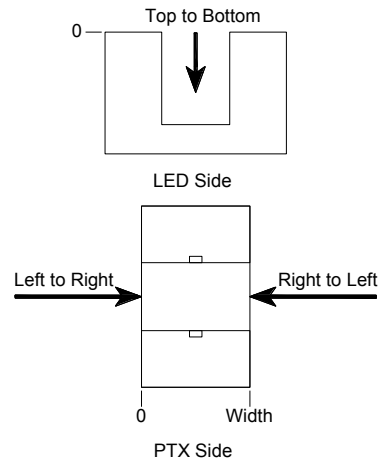
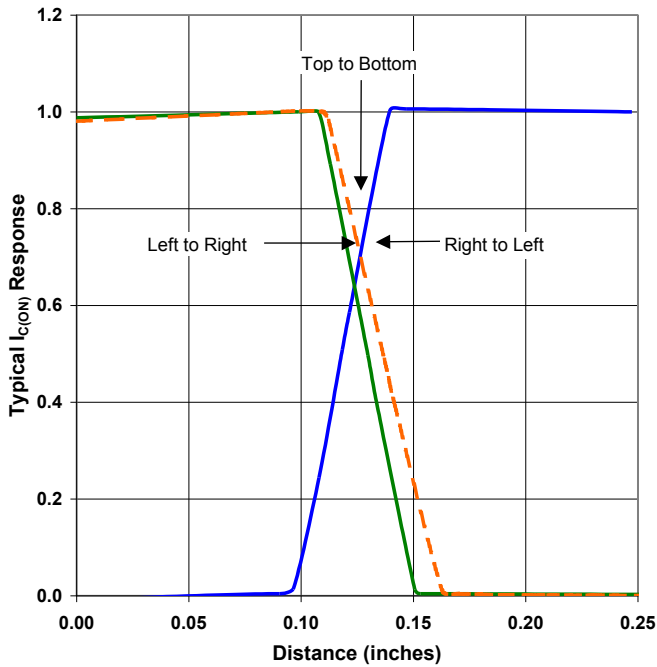
OPB804 - Flag Next to LED



OPB804 - Flag Next to PTX



OPB804 - Flag in Middle of Slott



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.

TT Electronics | Optek Technology, Inc.
 1645 Wallace Drive, Ste. 130, Carrollton, TX USA 75006 | Ph: +1 972 323 2200
www.ttelectronics.com | sensors@ttelectronics.com

Slotted Optical Switch

OPB804



| Issue | Change Description | Approval | Date |
|-------|--|-------------|----------|
| 1.0 | Initial Revision | B. Nunley | 1/1/80 |
| 2.0 | Update for Out Source Discrete devices | Mark Miller | 3/31/03 |
| A | Revised to new template format. Required changes on all pages. | | 12/02/05 |
| A.1 | Removed component parts charts (2 pages). Fixed issue, date and page number in footer. Added new .jpg logo to master page and ROHS symbol to first page. | | 01/23/06 |
| A.2 | Updated sheet 1 and graphs | | 04/04/06 |
| A.3 | Clarify package outline “dot”. Update notes. | Mark Miller | 03/10/10 |
| B | Delete Reverse D.C. from Absolute Maximum Ratings chart and delete limits from the IR test under Electrical Characteristics. | Mark Miller | 06/15/12 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

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.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[TT Electronics:](#)

[OPB804](#)