Slotted Optical Switch

OPB804



Features:

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

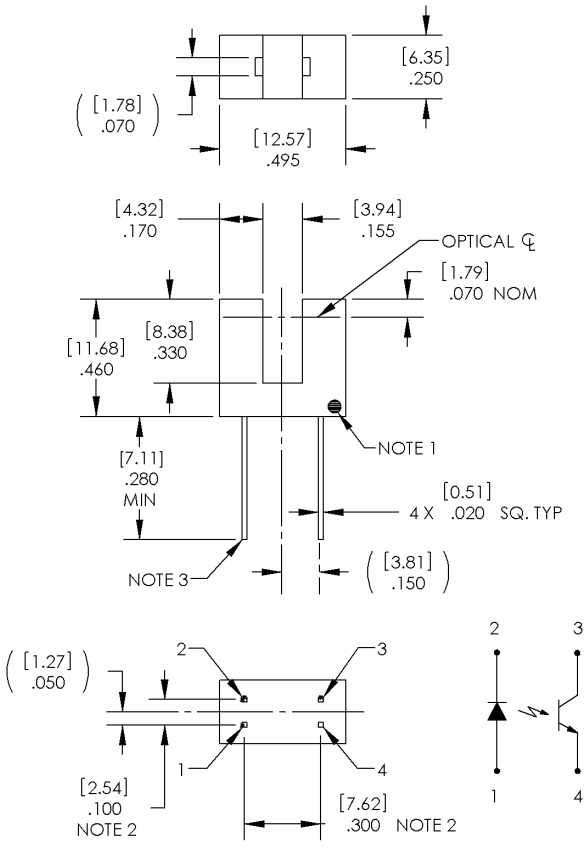
Description:

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



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

RoHS

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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TT Electronics | OPTEK Technology
2900 E. Plano Pkwy, Plano, TX 75074 | Ph: +1 972 323 2200
www.ttelectronics.com | sensors@ttelectronics.com

Electrical Specifications

Absolute Maximum Ratings (T_A = 25° 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°C	50 mA(7)
Input Diode Peak Forward Pulse Current, T_A = 25°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°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 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 mA, E_E = 0 mw/cm^2
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0	-	-	V	I_E = 100 µA, E_E = 0 mw/cm^2
I_{CEO}	Collector Dark Current	-	-	100	nA	V_{CE} = 10 V, I_F = 0, E_E = 0 mw/cm^2
Coupled						
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	-	-	0.40	V	I_C = 250 µA, I_F = 20 mA
$I_{C(ON)}$	On-State Collector Current	0.5	5	-	mA	V_{CE} = 10 V, I_F = 20 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.

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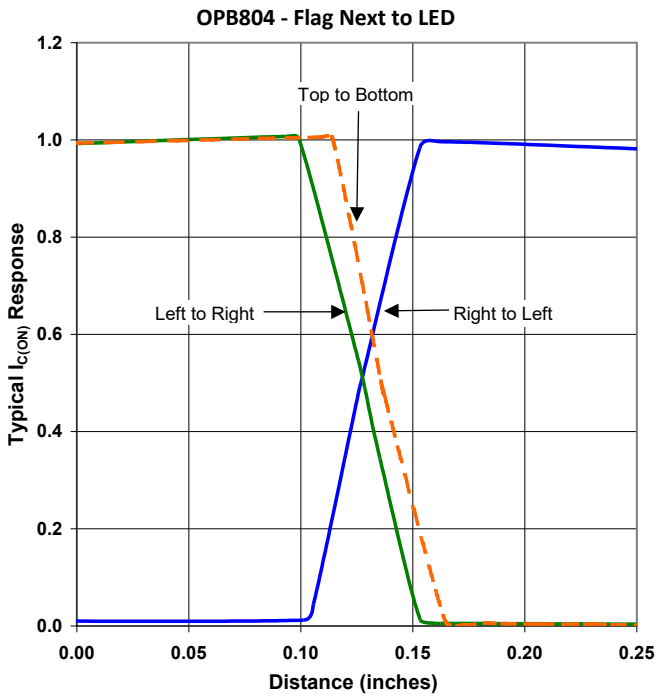
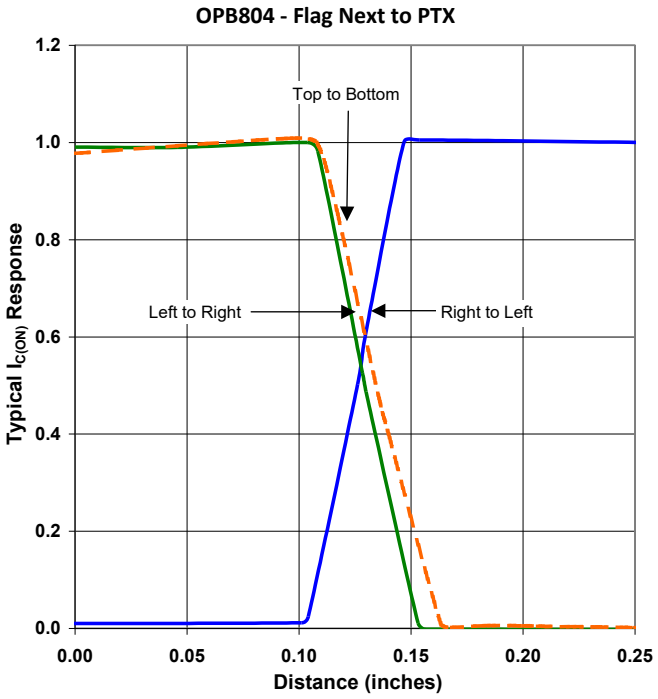
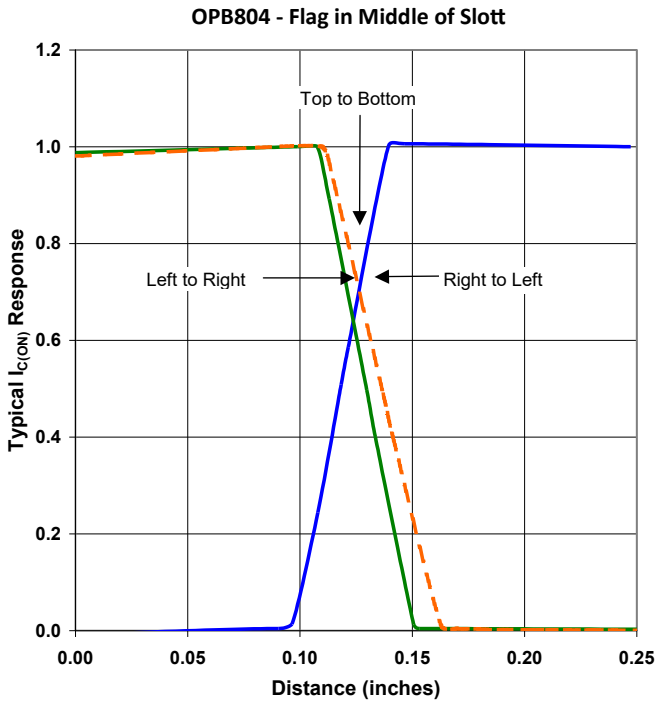
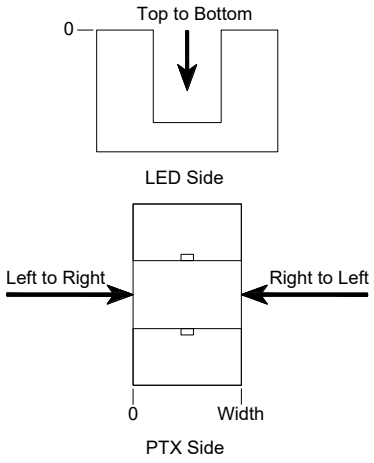
Performance









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