

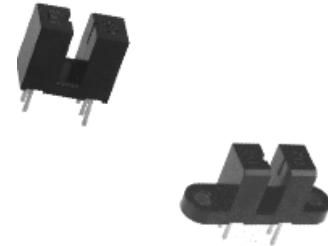
# Slotted Optical Switch

OPB660N, OPB660T



## Features:

- Non-contact switching
- Printed circuit board mounting
- Enhanced signal to noise ratio
- Gap 0.125" (3.18mm) wide and 0.345" (8.76mm) deep slot
- Emitter Aperture 0.05" X 0.06" (1.27mm X 1.52mm),
- Sensor Aperture 0.01" X 0.06" (0.25mm X 1.52mm)



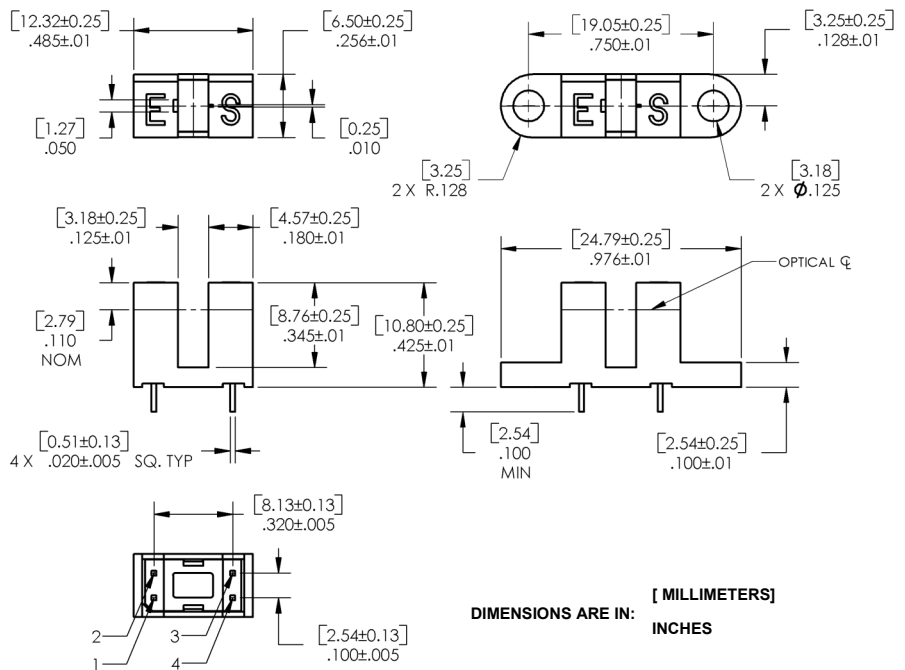
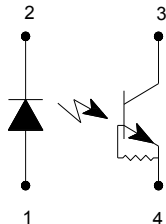
## Description:

Each OPB660 slotted optical switch consists of an infrared emitting diode and a NPN silicon phototransistor, combined with an enhanced low current roll-off that improves contrast ratio and provides immunity to background irradiance. Housings are made from an opaque grade of injection-molded plastic to minimize sensitivity to both visible and near-infrared light.

## Applications:

- Non-contact transmissive object sensor
- Assembly line automation
- Machine automation
- Machine safety
- End of travel sensor
- Door sensor

Part Number	LED Peak Wavelength	Sensor	Slot Width / Depth	Aperture Emitter/Sensor	Lead Length / Spacing
OPB660N	890 nm	Rbe Transistor	0.125" / 0.345"	0.05" / 0.01"	0.100" / 0.320" (MIN)
OPB660T					



Pin #	LED	Pin #	Transistor
1	Anode	3	Collector
2	Cathode	4	Emitter



### 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

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## Electrical Specifications

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

Storage & Operating Temperature Range	-40° C to +100° C
Lead Soldering Temperature [1/16 inch (1.6mm) from the case for 5 sec. with soldering iron] <sup>(1)</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	3 V
Power Dissipation <sup>(2)</sup>	100 mW

### Output Phototransistor

Collector-Emitter Voltage	24 V
Collector DC Current	30 mA
Power Dissipation <sup>(3)</sup>	200 mW

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
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### Input Diode

$V_F$	Forward Voltage	-	-	1.6	V	$I_F = 10 \text{ mA}$
$I_R$	Reverse Current	-	-	100	$\mu\text{A}$	$V_R = 3 \text{ V}$

### Output Phototransistor

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	24	-	-	V	$I_{CE} = 100 \mu\text{A}$
$BV_{ECO}$	Emitter Reverse Breakdown Voltage	0.4	-	-	V	$I_{EC} = 100 \mu\text{A}$
$I_{CEO}$	Collector-Emitter Dark Current	-	-	100	$\mu\text{A}$	$V_{CE} = 5 \text{ V}$

### Combined

$V_{SAT}$	Collector-Emitter Saturation Voltage	-	-	0.4	V	$I_F = 10 \text{ mA}$ , $I_C = 100 \mu\text{A}$ , (gap unblocked)
$I_{C(ON)}$	On-State Collector Current	600	-	-	$\mu\text{A}$	$I_F = 10 \text{ mA}$ , $V_{CE} = 5 \text{ V}$

### Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering. A maximum of 20 grams force may be applied to leads when soldering.
- (2) Derate linearly 1.33 mW/° C above 25° C.
- (3) Derate linearly 2.0 mW/° C above 25° C.

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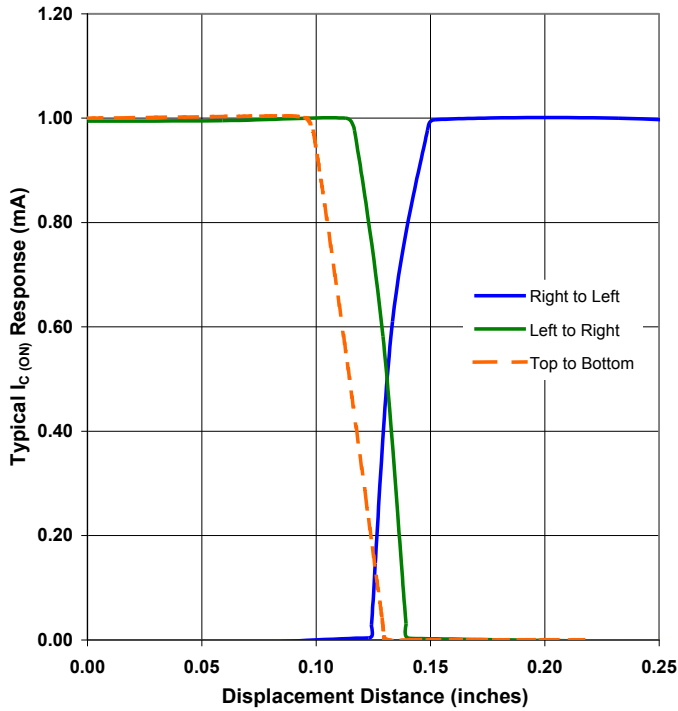
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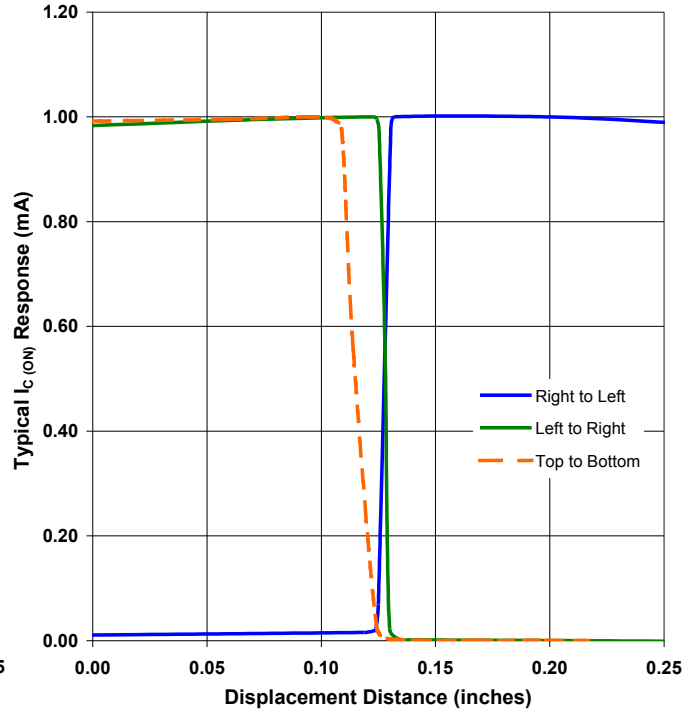


## Performance

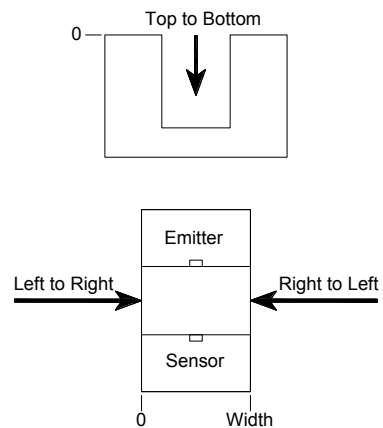
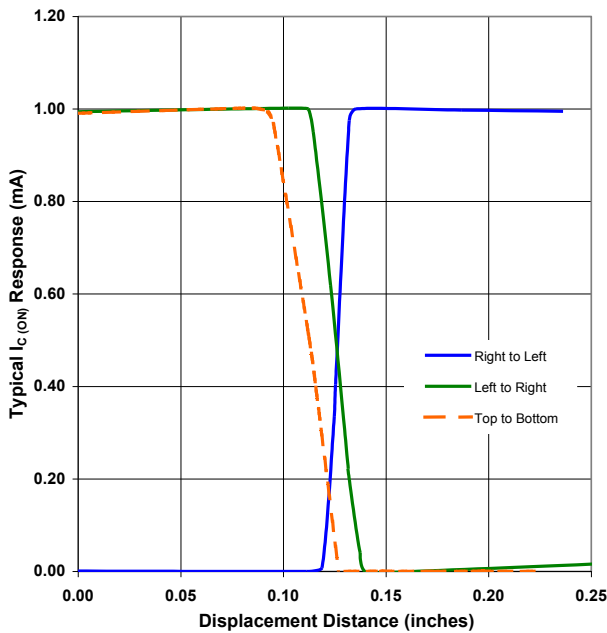
OPB660 - Flag Next to Emitter



OPB660 - Flag Next to Sensor



OPB660 - Flag in Middle of Slot



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