

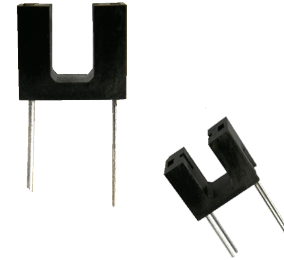
# Slotted Optical Switch

OPB200



**Features:**

- Housing material Opaque to visible and infrared light
- Non-contact switching
- Printed PCBoard mount
- 0.200" (5.1 mm) slot width, 0.320" (8.1 mm) slot depth



**Description:**

The OPB200 contains an Infrared LED (890 nm) and a Phototransistor paired in a plastic housing.

The housing is an opaque grade of injection-molded plastic, which minimizes the assembly's sensitivity to visible and near-infrared radiation. Each device has approximately 0.060" [1.52 mm] diameter lenses providing the versatility necessary for general switching applications.

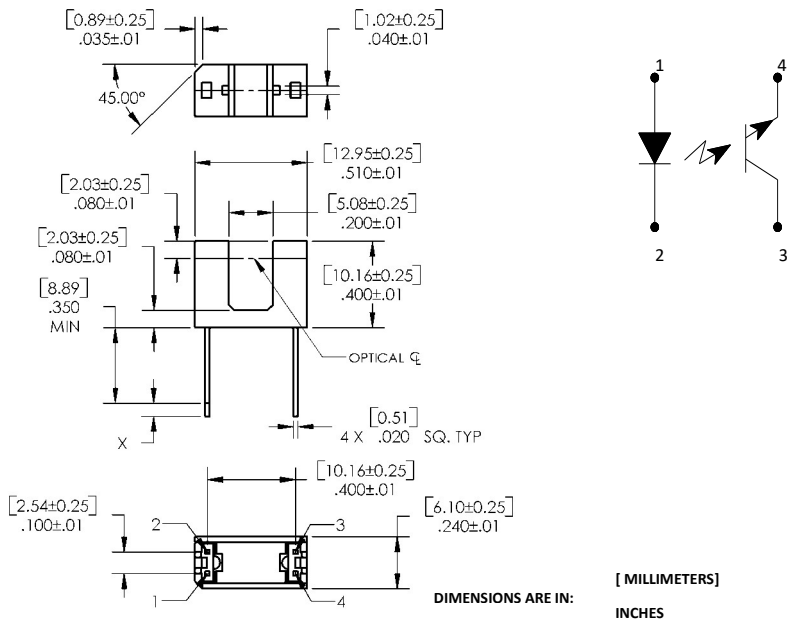
The output Phototransistor ON state conducts current ( $I_{C(ON)}$ ) when no object is in the slot. The output switches to the OFF state when a device interrupts the light beam from the Emitter (LED) to the Phototransistor. The Phototransistor can acknowledge light between 400 nm and 1100 nm with optimum response in the 880 nm range.

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

Pin #	Description
1	Anode
2	Cathode
3	Collector
4	Emitter



Ordering Information					
Part Number	LED Peak Wavelength	Sensor	Slot Width / Depth	Aperture Emitter/Sensor	Lead Length / Spacing
OPB200	890 nm	Transistor	0.200" / 0.320"	None	0.425" / 0.400



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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### Electrical Specifications

#### 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] <sup>(1)</sup>	260°C
<b>Input Diode</b>	
Forward DC Current	50 mA
Peak Forward Current (1 $\mu\text{s}$ pulse width, 300 pps)	3 A
Reverse DC Voltage	2 V
Power Dissipation <sup>(2)</sup>	100 mW
<b>Output Phototransistor</b>	
Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Collector DC Current	30 mA
Power Dissipation <sup>(2)</sup>	100 mW

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>Input Diode</b> (see OP140 for additional information)						
$V_F$	Forward Voltage	-	-	1.7	V	$I_F = 20\text{ mA}$
$I_R$	Reverse Current	-	-	100	$\mu\text{A}$	$V_R = 2\text{ V}$
<b>Output Phototransistor</b> (see OP550 for additional information)						
$V_{(BR)CEO}$	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 Dark Current	-	-	100	nA	$V_{CE} = 10\text{ V}, I_F = 0, E_E = 0$
<b>Combined</b>						
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	-	-	0.4	V	$I_C = 100\ \mu\text{A}, I_F = 20\text{ mA}$
$I_{C(ON)}$	On-State Collector Current	1	4	6	mA	$V_{CE} = 0.4\text{ V}, I_F = 20\text{ mA}$

#### 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) All parameters tested using pulse techniques.
- (4) Lead spacing of 0.400" (10.16 mm). Leads are a minimum of 0.020" sq. (0.508 mm) and 0.425" (10.795 mm) long.
- (5) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones.
- (6) Polarity is denoted by a notch next to pin 1 (LED Anode) of the package.

#### General Note

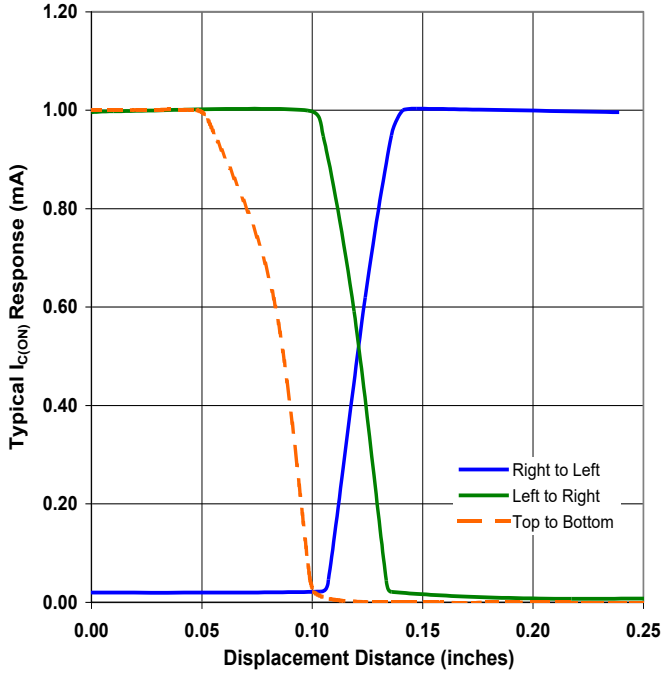
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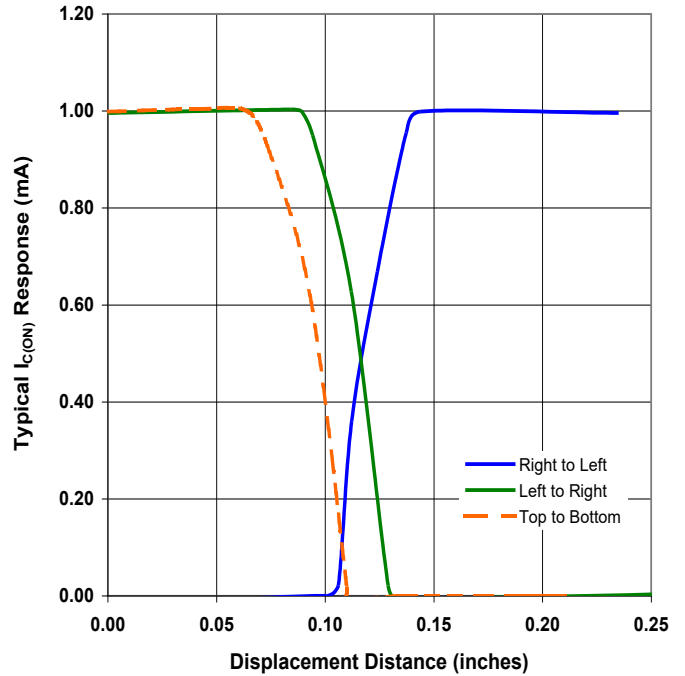
## OPB200



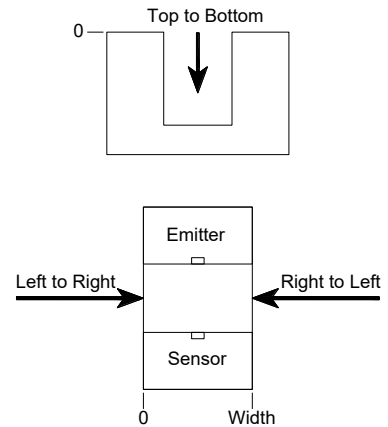
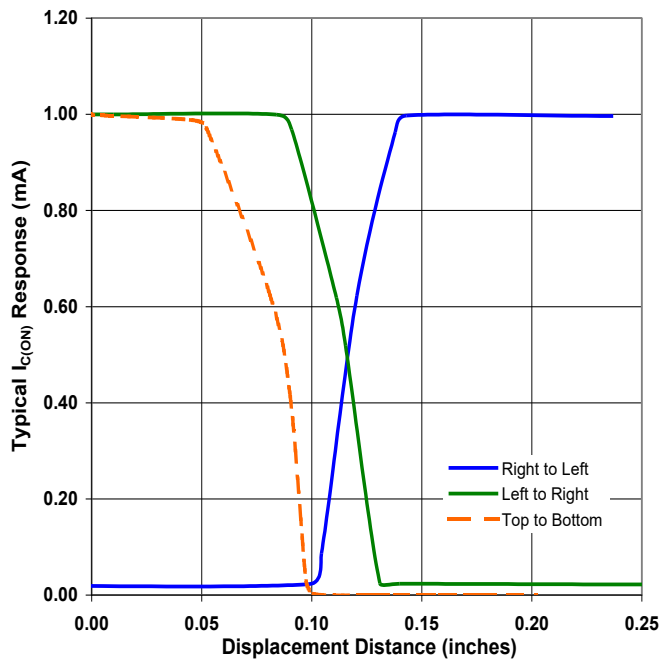
OPB200 - Flag Next to Emitter



OPB200 - Flag Next to Sensor



OPB200 - Flag in Middle of Slot



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