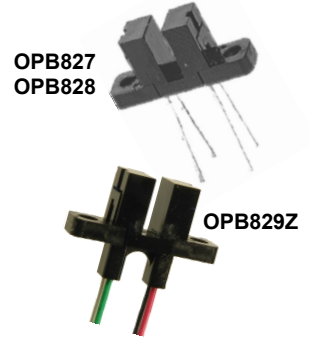


# Slotted Optical Switch

## OPB827, OPB828, OPB829Z Series



### Features:

- 0.125" (3.18 mm) wide, 0.315" (8.00 mm) deep slot
- 0.305" (7.75 mm) lead spacing (OPB827)
- 0.220" (5.59 mm) lead spacing (OPB828)
- 24-inch 26 AWG wire leads (OPB829)
- Inexpensive plastic housing

### Description:

Each **OPB827**, **OPB828** and **OPB829** device consists of an infrared emitting diode (LED, 890 nm center wavelength) and a NPN silicon phototransistor, mounted on opposite sides of a 0.125" (3.18 mm) wide slot in a low-cost black plastic housing. A variety of aperture sizes are offered (see chart below). The **OPB827** and **OPB828** are designed for PCBoard mounting with a minimum lead length of 0.35" (8.9 mm) while the **OPB829Z** (wire version) has 24-inch 26 AWG wire leads. Phototransistor switching occurs when an opaque object passes through the slot.

The **OPB827** is offered with 0.305" (7.75 mm) and the **OPB828** is offered with 0.220" (5.59 mm) lead spacing for PCBoard mounting. The **OPB829Z** has 24" (61 cm) 26 AWG wire leads for remote mounting.

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

### Applications:

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

Ordering Information				
Part Number	Slot Width/Depth	Housing	Aperture Emitter/Sensor	Wire Lead Length / Spacing
OPB827A	0.120" / 0.315"	IR Transmissive	None	0.425" / 0.300"
OPB827B			None / 0.01"	
OPB827C		Opaque	None / 0.06"	
OPB827D			None / 0.01"	
OPB828A	0.120" / 0.315"	IR Transmissive	None	0.425" / 0.220"
OPB828B			None / 0.01"	
OPB828C		Opaque	None / 0.06"	
OPB828D			None / 0.01"	
OPB829AZ	0.125" / 0.315"	IR Transmissive	None	24" / 26 AWG Wire
OPB829BZ			None / 0.01"	
OPB829CZ		Opaque	None / 0.06"	
OPB829DZ			None / 0.01"	



RoHS

**CONTAINS POLYSULFONE**

To avoid stress cracking, we suggest using ND Industries' **Vibra-Tite** for thread-locking. **Vibra-Tite** evaporates fast without causing structural failure in OPTEK's molded plastics.

**Applies to: OPB360, OPB370, OPB380, OPB390 and OPB860, OPB870, OPB880, OPB890.**

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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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 and Operating Temperature OPB827, OPB828 OPB829Z	-40° C to +85° C -40° C to +80° C
Lead Soldering Temperature (1/16 inch [1.6 mm] from case for 5 seconds with soldering iron) <sup>(1)</sup>	260° C

#### Input Diode

Forward DC Current	50 mA
Peak Forward Current (1 $\mu$ s pulse width, 300 pps)	3 A
Reverse DC Voltage	2 V
Power Dissipation <sup>(2)</sup>	100 mW

#### Output Phototransistor

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

#### Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
- (2) Derate linearly 1.82 mW/° C above 25° C.
- (3) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones.
- (4) All parameters were tested using pulse technique.

#### 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 (See OP240 for additional information—for reference only)

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

#### Output Transistor (See OP550 for additional information—for reference only)

$V_{(BR)CEO}$	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-Emitter Dark Current	-	-	100	nA	$V_{CE} = 10\text{ V}, I_F = 0, E_E = 0$

#### Coupled

$V_{CE(SAT)}$	Saturation Voltage	-	-	0.6	V	$I_C = 1800\ \mu\text{A}, I_F = 20\text{ mA}$
$I_{C(ON)}$	On-State Collector Current	1800	-	-	$\mu\text{A}$	$V_{CE} = 0.6\text{ V}, I_F = 20\text{ mA}$

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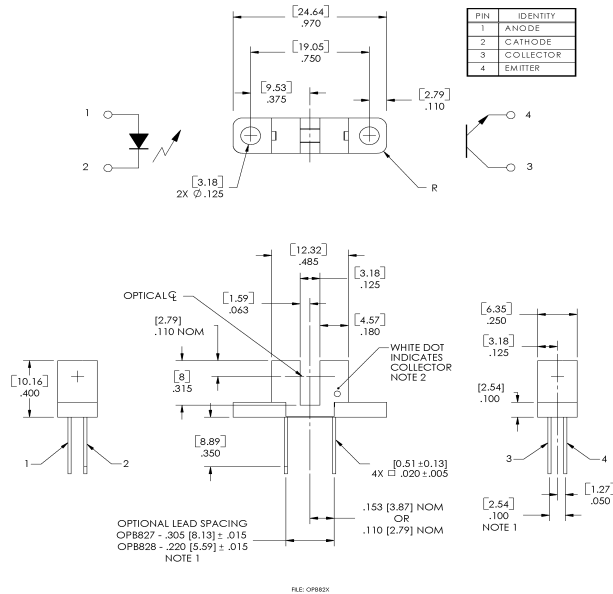
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# Slotted Optical Switch

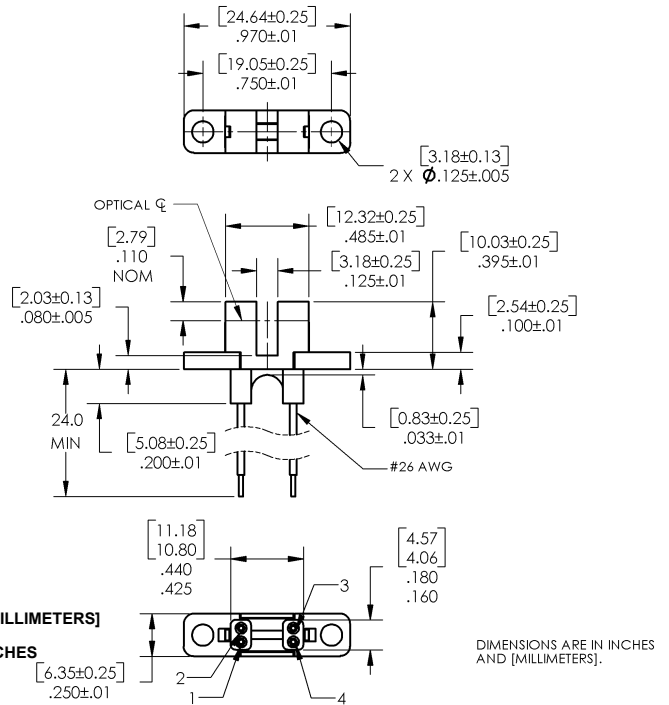
## OPB827, OPB828, OPB829Z Series



### OPB827 and OPB828 Series

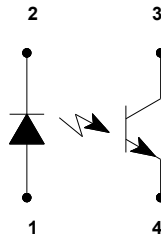


### OPB829Z Series



DIMENSIONS ARE IN:  
[ MILLIMETERS]  
INCHES

DIMENSIONS ARE IN INCHES  
AND [MILLIMETERS].



Color/Pin #	Description	Color/Pin #	Description
Black-2	Cathode	White-3	Collector
Red-1	Anode	Green-4	Emitter
Lead Spacing			
OPB827 = 0.305"	OPB828 = 0.220"	OPB829 = 24" 26 AWG Wires	

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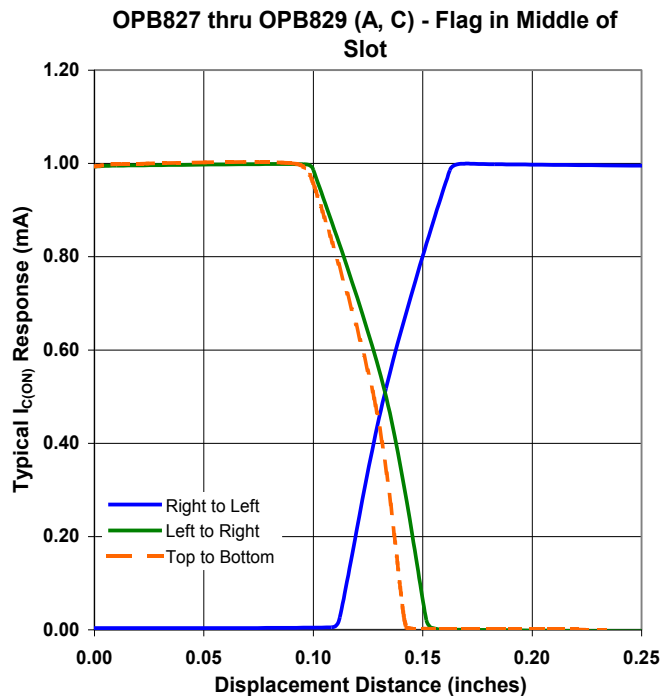
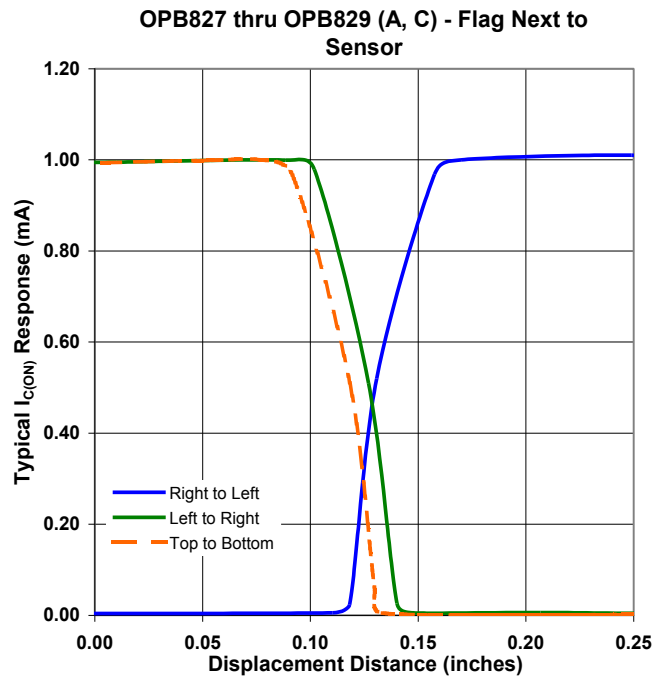
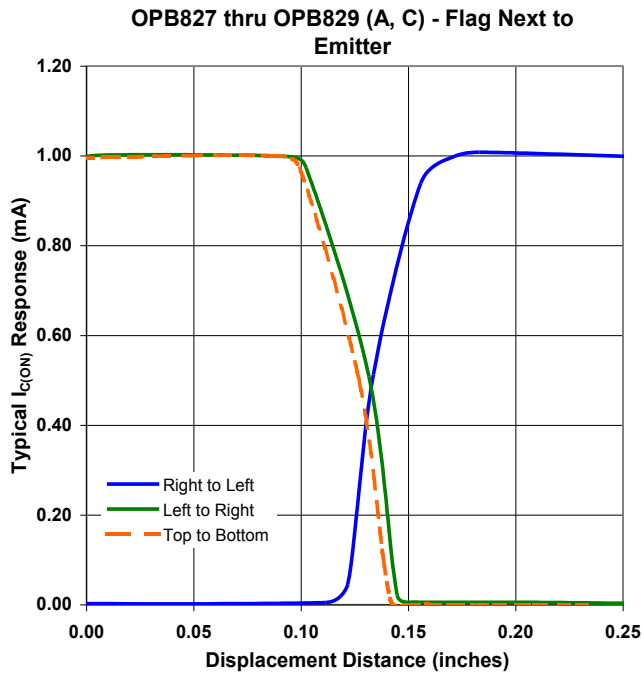
# Slotted Optical Switch

OPB827, OPB828, OPB829Z Series



## Performance

OPB827, OPB828, OPB829 Series - Devices A and C



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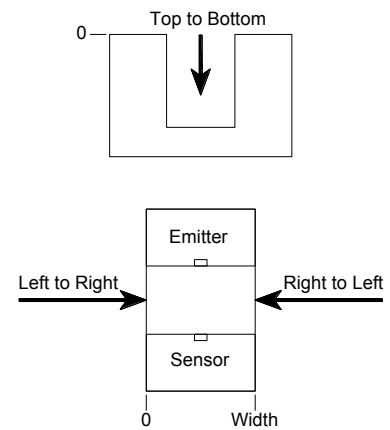
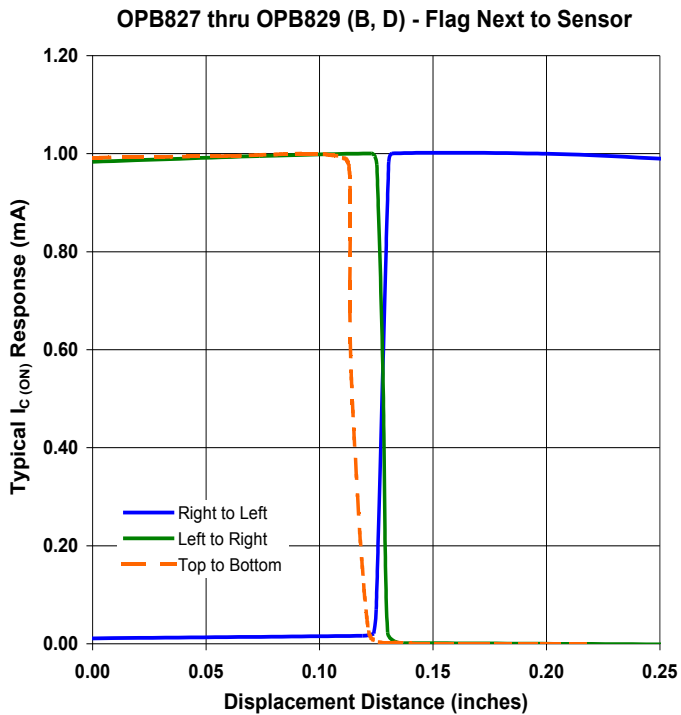
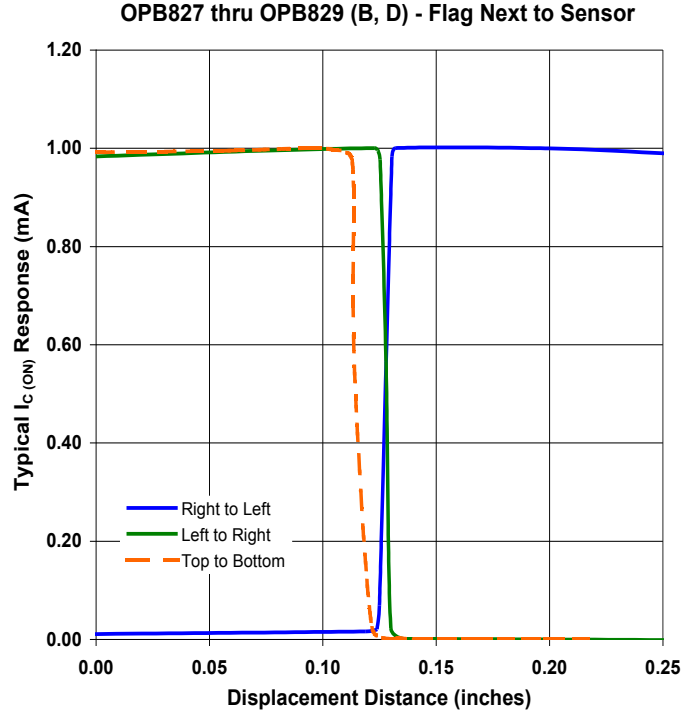
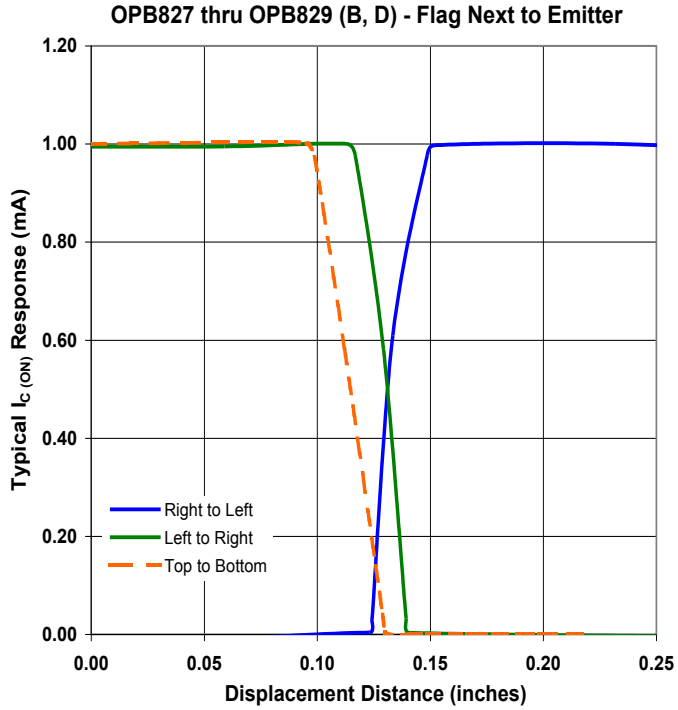
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# Slotted Optical Switch

## OPB827, OPB828, OPB829Z Series



### OPB827, OPB828, OPB829 Series - Devices B and D



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[www.ttelectronics.com](http://www.ttelectronics.com) | [sensors@ttelectronics.com](mailto:sensors@ttelectronics.com)

