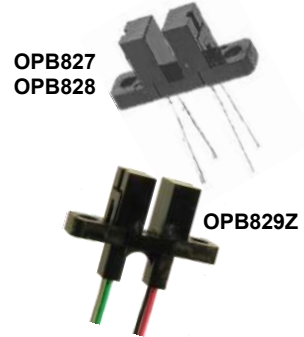


# Slotted Optical Switch

## 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

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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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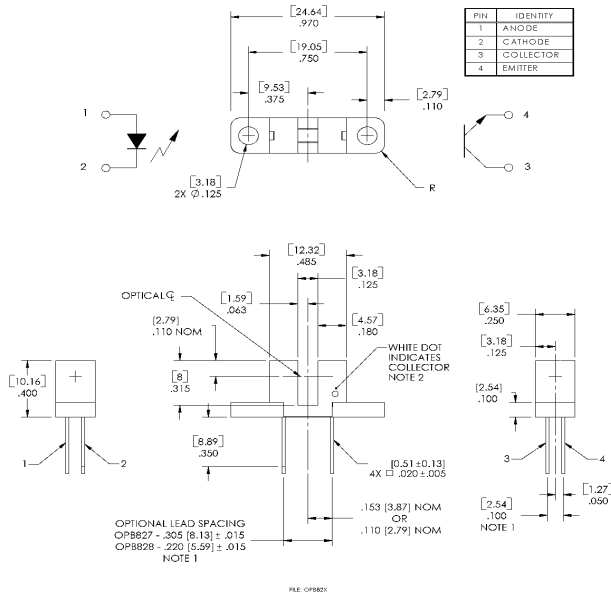
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# Slotted Optical Switch

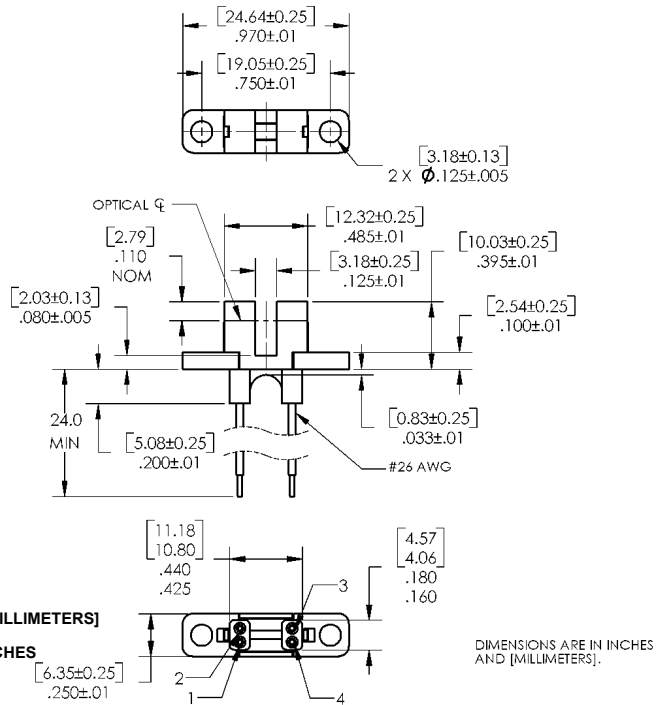
## OPB827, OPB828, OPB829Z Series



### OPB827 and OPB828 Series

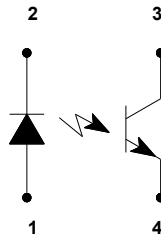


### OPB829Z Series



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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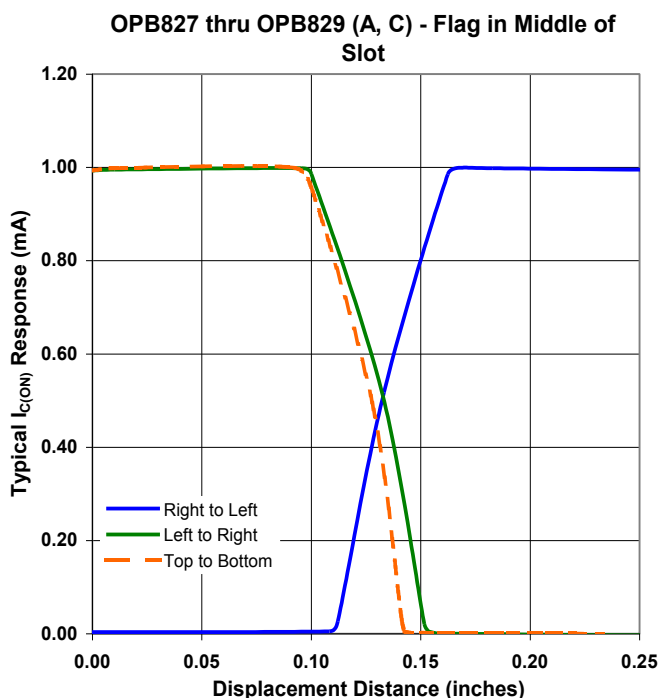
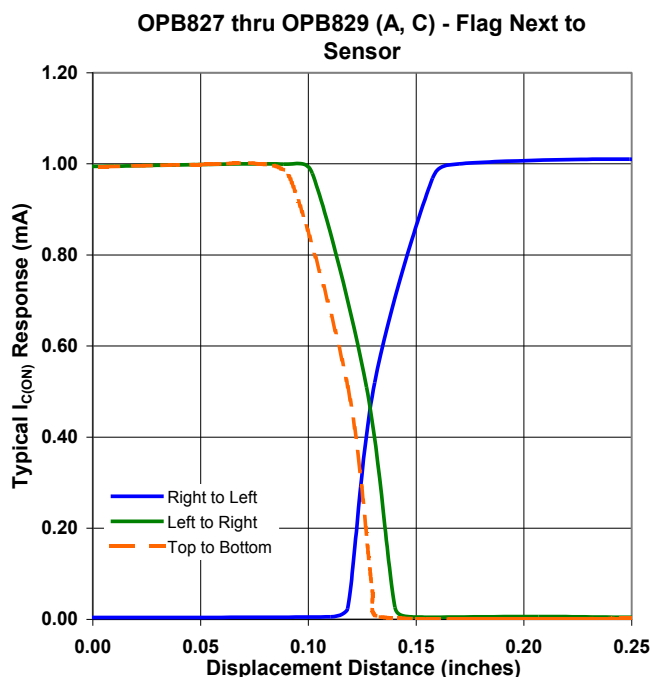
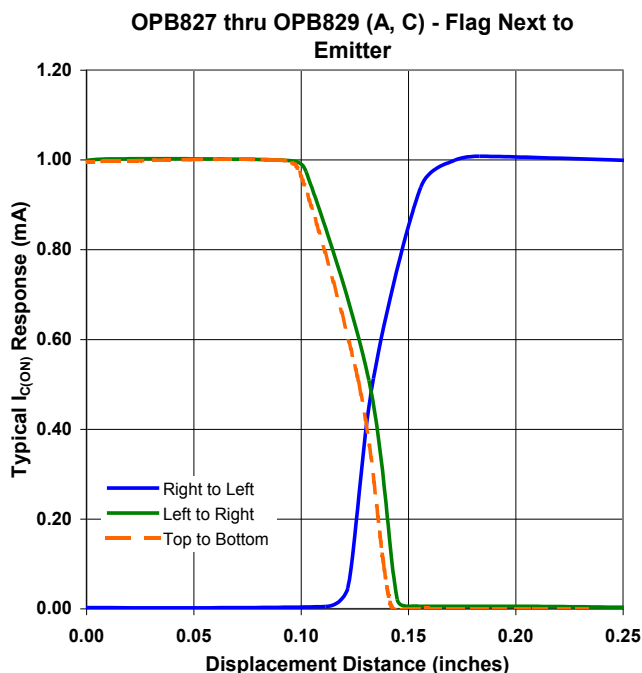
# Slotted Optical Switch

## OPB827, OPB828, OPB829Z Series



### Performance

#### OPB827, OPB828, OPB829 Series - Devices A and C



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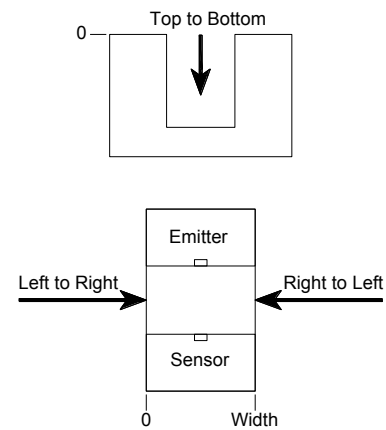
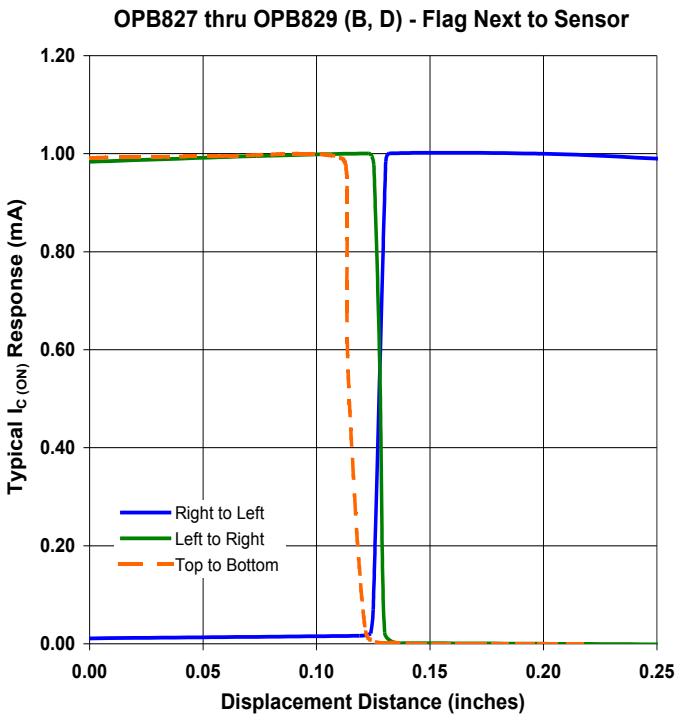
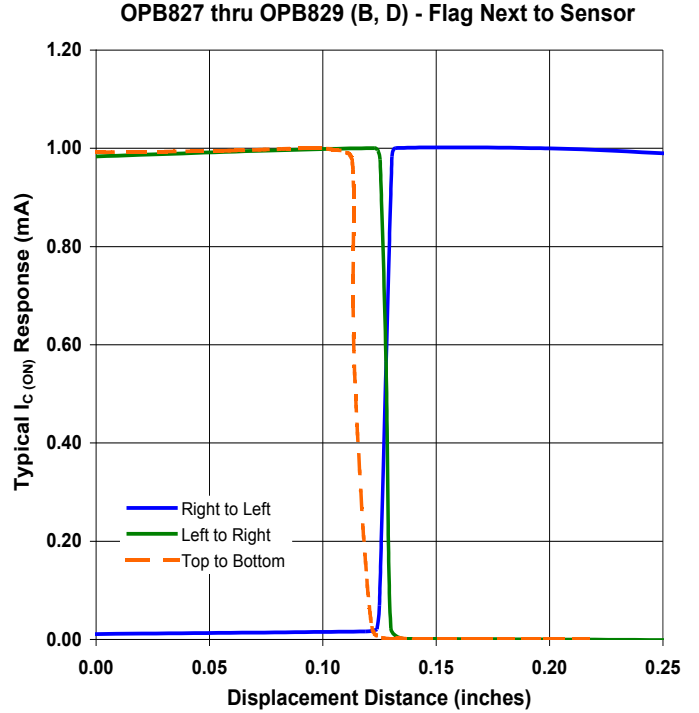
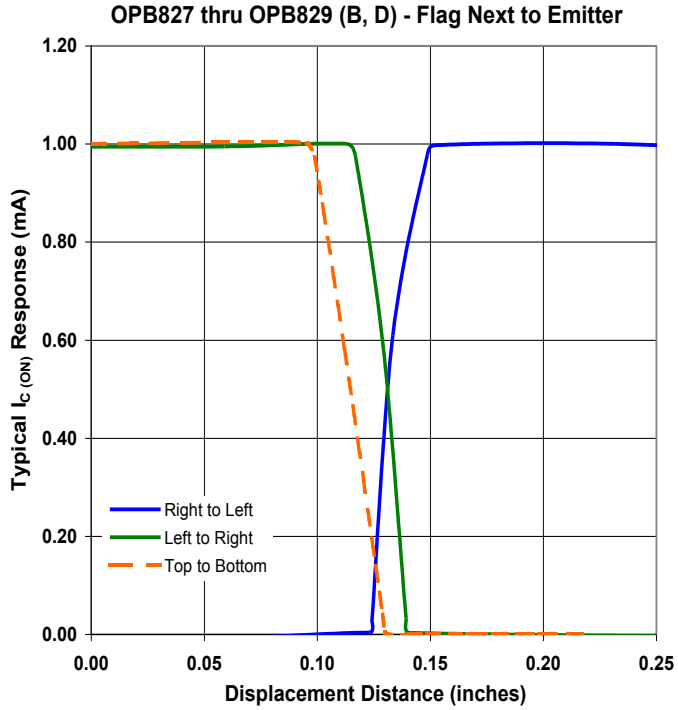
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# Slotted Optical Switch

## OPB827, OPB828, OPB829Z Series



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



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# Slotted Optical Switch

## OPB827, OPB828, OPB829Z Series



Issue	Change Description	Approval	Date
-	Initial Release	-	01/2005
A.1	Formatted sheet according to new template. Changed font size in header to match other datasheets		01/12/2006
A.2	Changed schematic on page 2.	Bob Procsal	09/21/2006
B	Update package outline for OPB827 and OPB828 series	Trevor Schelp	01/13/2012
C	Change 0.215" (5.46 mm) to 0.315" (8.00 mm) under features on first page. Update in new TT format.	Priyanka Poojari	9/20/2015