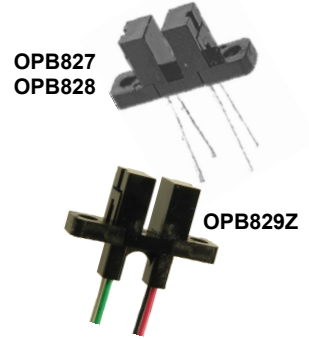


Slotted Optical Switch

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.

Slotted Optical Switch

OPB827, OPB828, OPB829Z Series



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) ⁽¹⁾	260° C

Input Diode

Forward DC Current	50 mA
Peak Forward Current (1 μs pulse width, 300 pps)	3 A
Reverse DC Voltage	2 V
Power Dissipation ⁽²⁾	100 mW

Output Phototransistor

Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Collector DC Current	30 mA
Power Dissipation ⁽²⁾	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	μA	$V_R = 2\text{ V}$

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	-	-	μA	$V_{CE} = 0.6\text{ V}, I_F = 20\text{ mA}$

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.

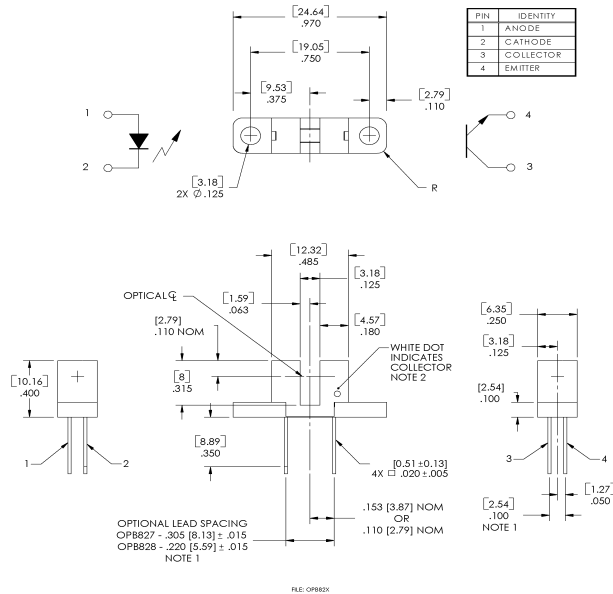
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Slotted Optical Switch

OPB827, OPB828, OPB829Z Series

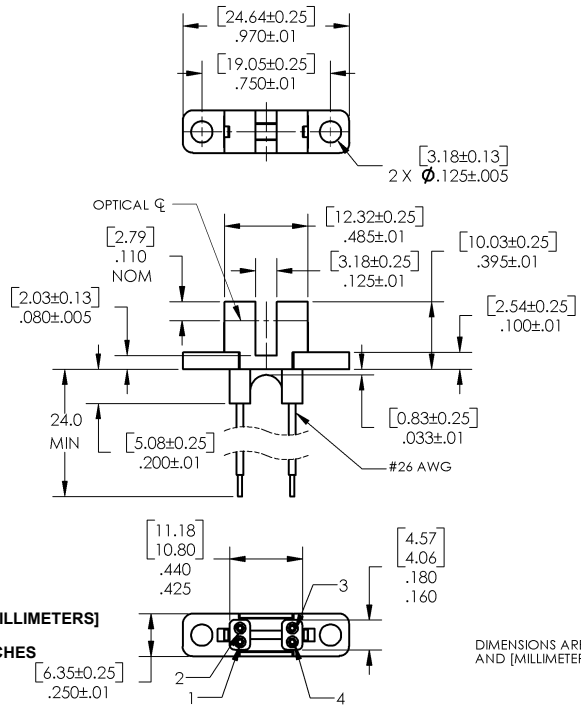


OPB827 and OPB828 Series

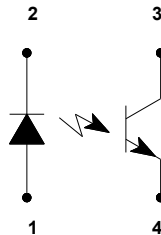


DIMENSIONS ARE IN:
[MILLIMETERS]
INCHES

OPB829Z Series



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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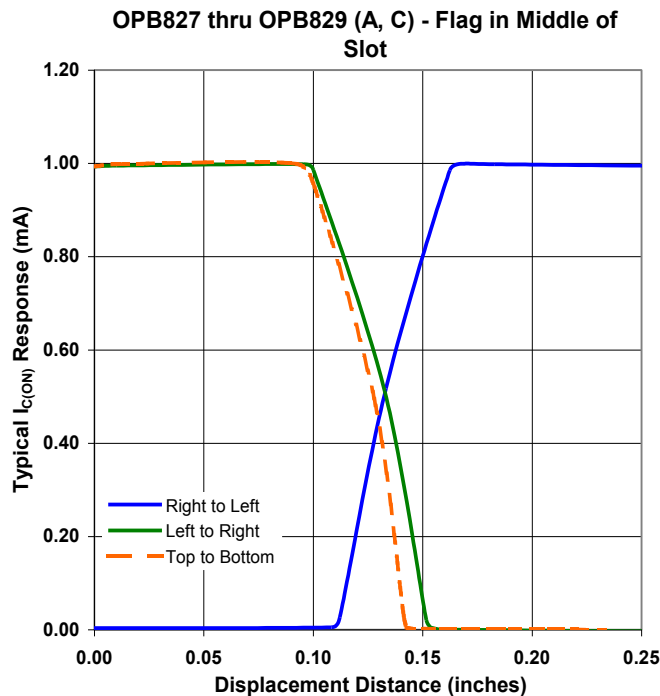
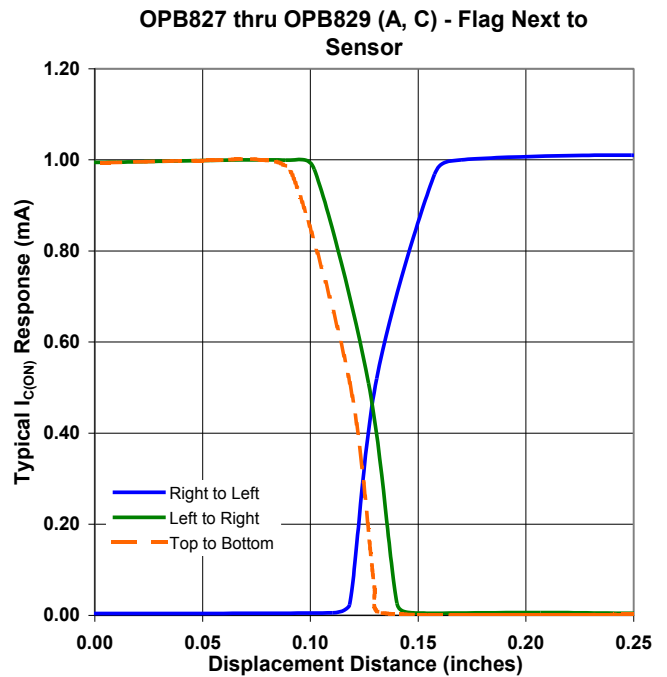
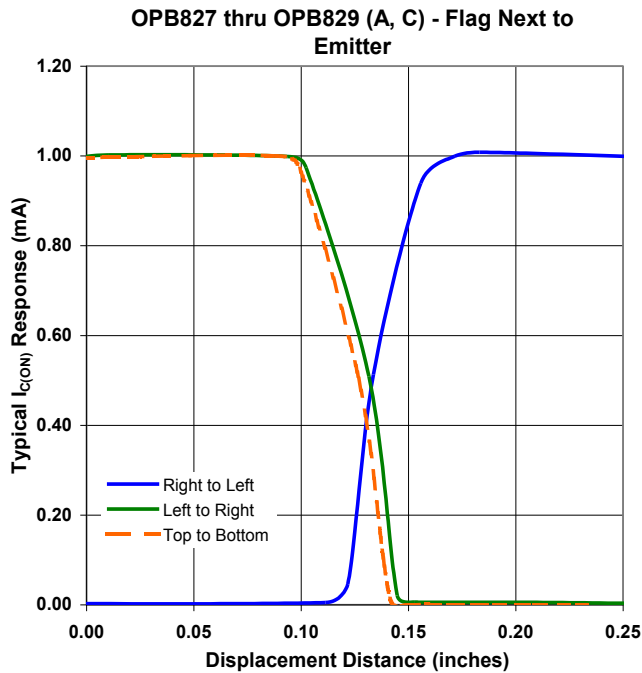
Slotted Optical Switch

OPB827, OPB828, OPB829Z Series



Performance

OPB827, OPB828, OPB829 Series - Devices A and C



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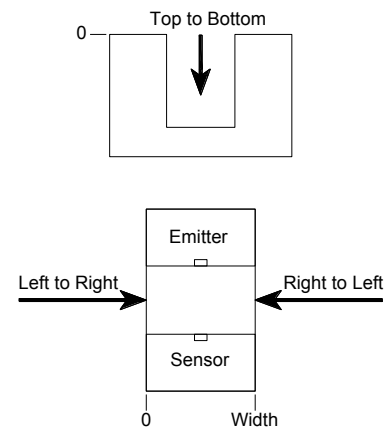
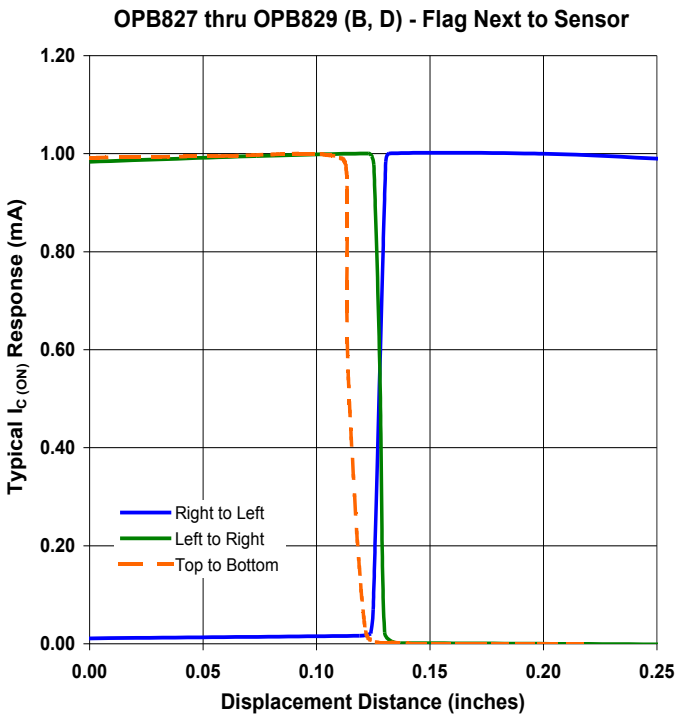
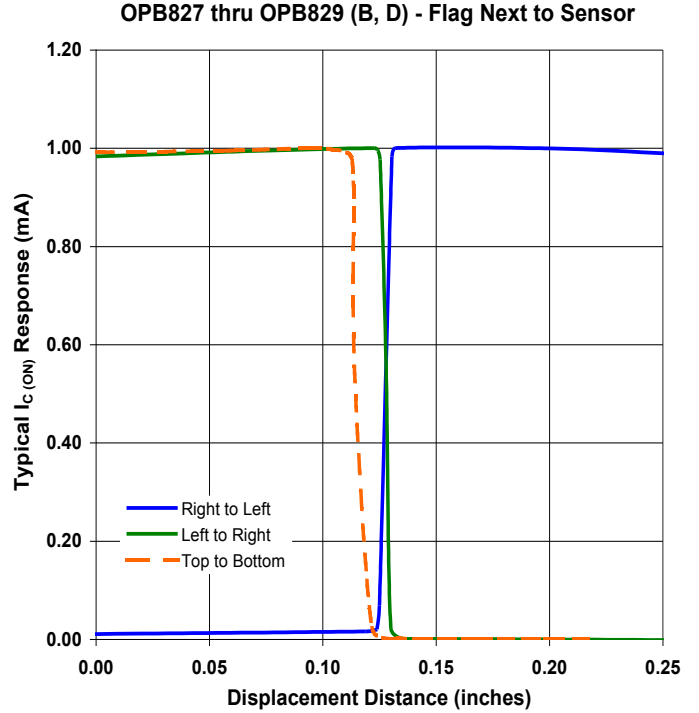
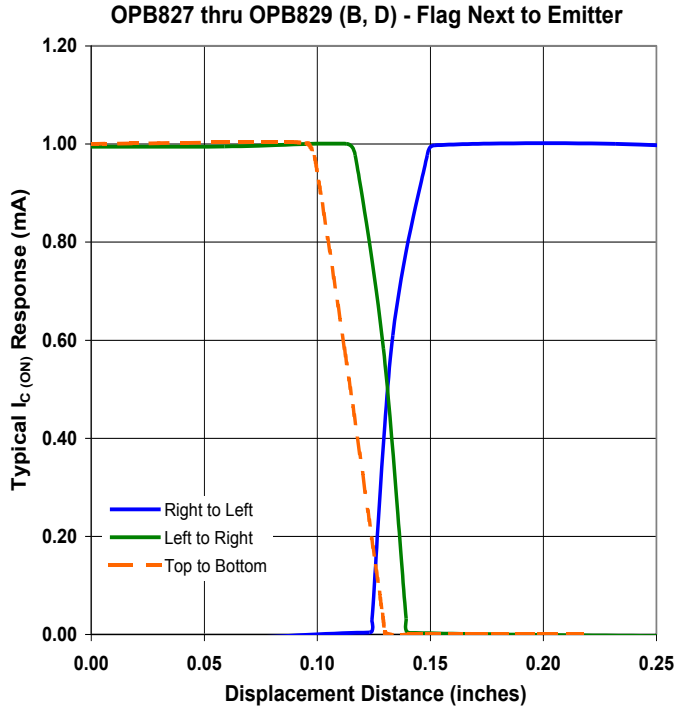
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Slotted Optical Switch

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

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[OPB828C](#) [OPB828D](#)