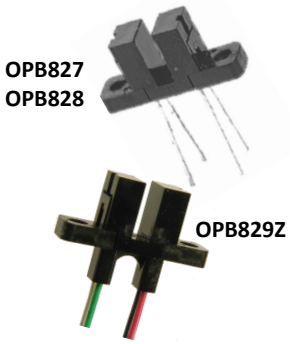
Slotted Optical Switch

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 fro 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.

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Electrical Specifications

Absolute Maximum Ratings (T_A = 25° 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 (1µs 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°C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode (See OP240 for additional information—for reference only)						
V_F	Forward Voltage	-	-	1.7	V	I_F = 20 mA
I_R	Reverse Current	-	-	100	µA	V_R = 2 V
Output Transistor (See OP550 for additional information—for reference only)						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30	-	-	V	I_C = 1 mA
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5	-	-	V	I_E = 100 µA
I_{CEO}	Collector-Emitter Dark Current	-	-	100	nA	V_{CE} = 10 V, I_F = 0, E_E = 0
Coupled						
$V_{CE(SAT)}$	Saturation Voltage	-	-	0.6	V	I_C = 1800 µA, I_F = 20 mA
$I_{C(ON)}$	On-State Collector Current	1800	-	-	µA	V_{CE} = 0.6 V, I_F = 20 mA

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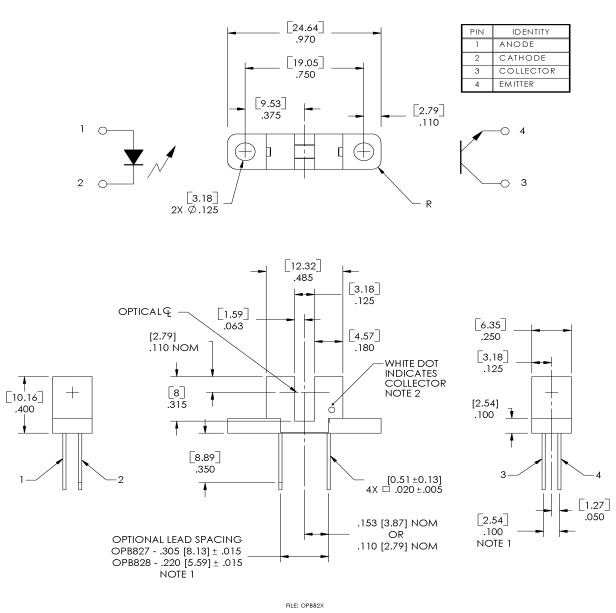
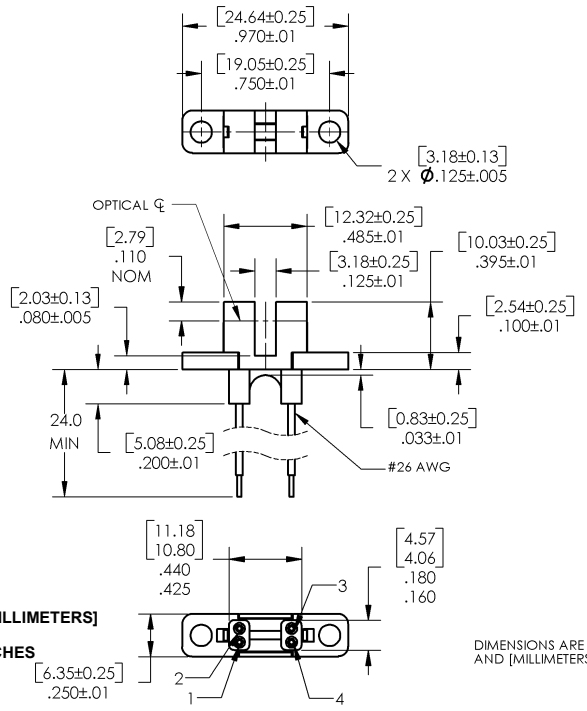
OPB827 and OPB828 Series



OPB829Z Series



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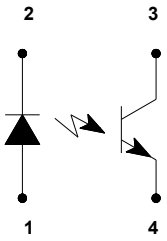

Color/Pin #	Description	Color/Pin #	Description
Black-2	Cathode	White-3	Collector
Red-1	Anode	Green-4	Emitter
Lead Spacing			
OPB827 = 0.305”	OPB828 = 0.220”	OPB829 = 24” 26 AWG Wires	

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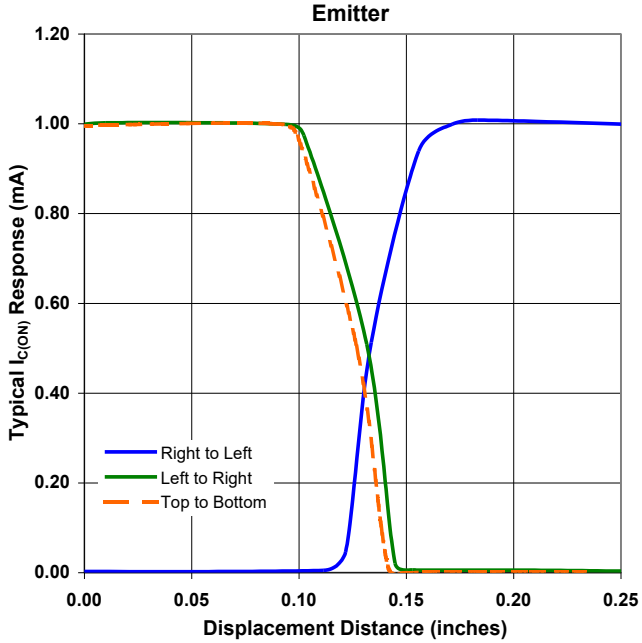
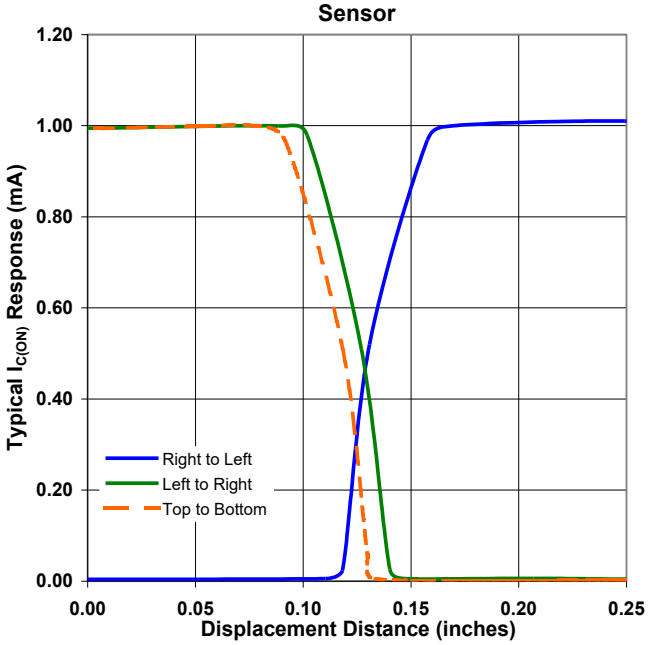
Performance

OPB827, OPB828, OPB829 Series - Devices A and C

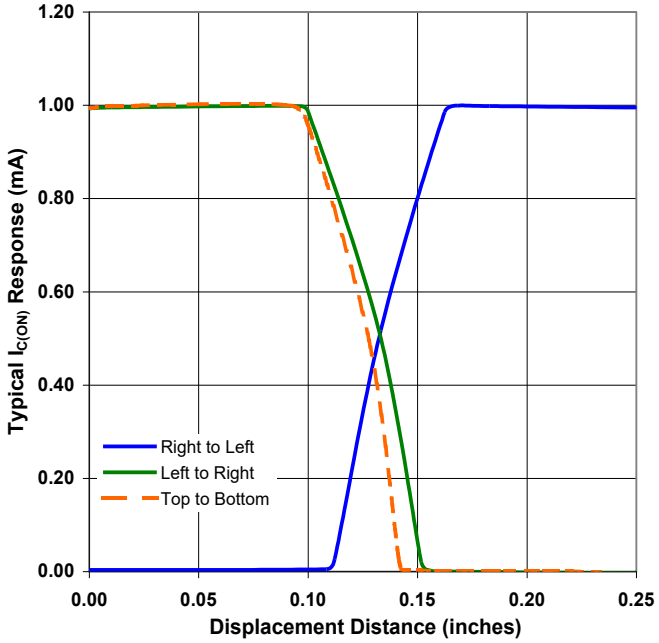
OPB827 thru OPB829 (A, C) - Flag Next to Emitter



OPB827 thru OPB829 (A, C) - Flag Next to Sensor



OPB827 thru OPB829 (A, C) - Flag in Middle of Slot



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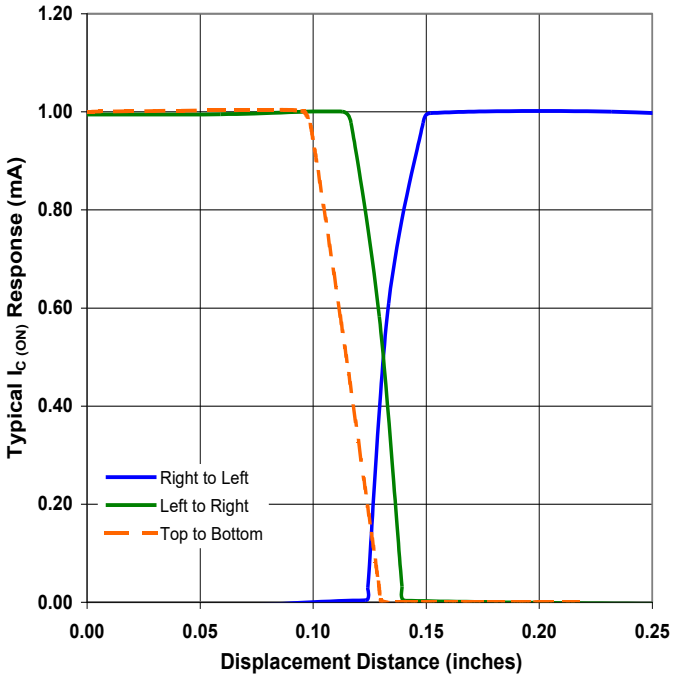
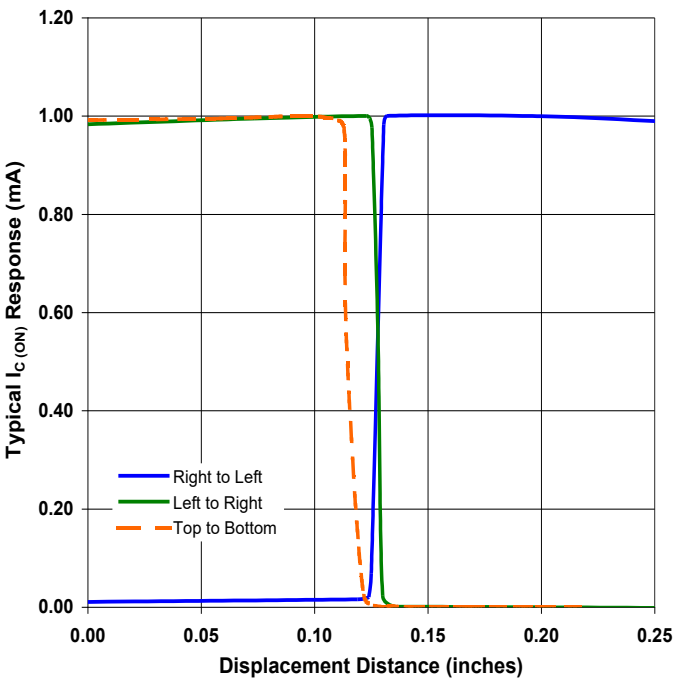
OPB827, OPB828, OPB829 Series - Devices B and D

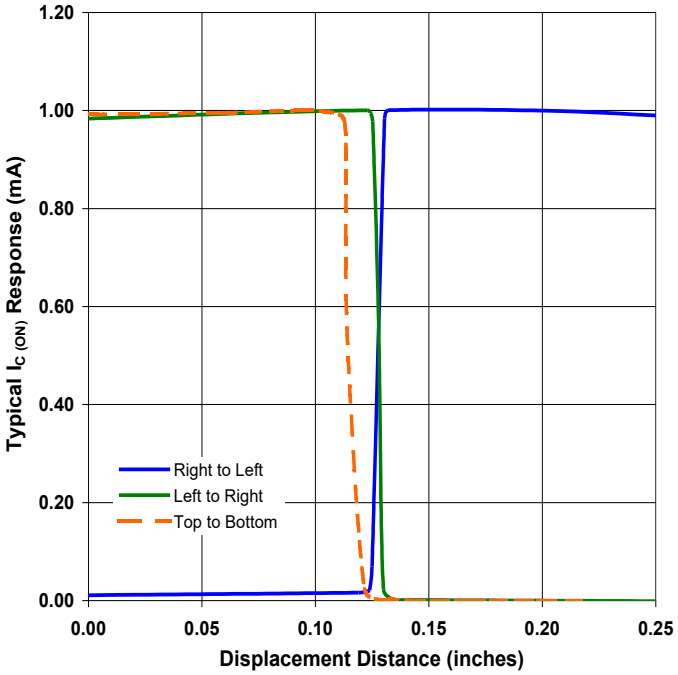
OPB827 thru OPB829 (B, D) - Flag Next to Emitter

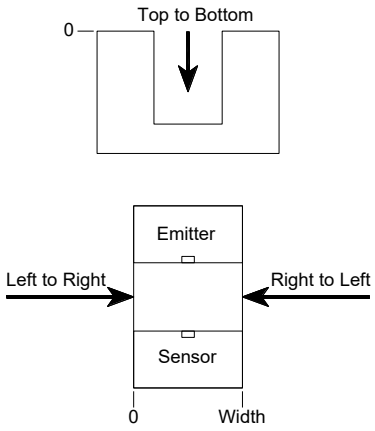


OPB827 thru OPB829 (B, D) - Flag Next to Sensor



OPB827 thru OPB829 (B, D) - Flag Next to Sensor





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