

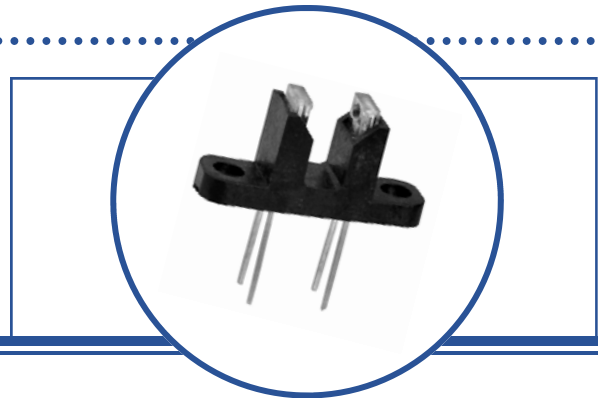
# Slotted Optical Switch

## OPB825, OPB825A, OPB825B, OPB825R



### Features:

- Non-contact switching
- Fast switching speed
- 0.160" (4.06 mm) wide slot
- 0.300" (7.62 mm) lead spacing
- OPB825R—Optimized for ticket dispensers



### Description:

Each **OPB825**, **OPB825A** and **OPB825B** have an infrared LED, while the **OPB825R** has a Red LED. All devices have a NPN silicon phototransistor mounted in a low-cost black plastic housing on opposite sides of a 0.160" (4.064 mm) wide slot.

**OPB825** and **OPB825R** have no mounting tabs and is intended for direct insertion into PCBoards or dual-in-line sockets. **OPB825A** has one mounting tab on the phototransistor side, while **OPB825B** has mounting tabs on both sides (two tabs).

Phototransistor switching takes place whenever an opaque object passes through the slot.

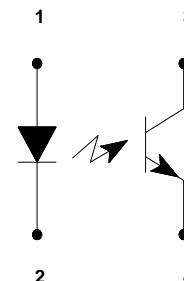
Custom electrical, wire and cabling and connectors are available. Contact your local representative or OPTEK for more information.

### Applications:

- Non-contact interruptive object sensing
- Assembly line automation
- Machine automation
- Equipment security
- Machine safety
- Ticket Sensing

Ordering Information	
Part Number	Description
<b>OPB825</b>	Slotted Switch (no tabs) IR-LED
<b>OPB825A</b>	Slotted Switch (one tab) IR-LED
<b>OPB825B</b>	Slotted Switch (two tabs) IR-LED
<b>OPB825R</b>	Slotted Switch (no tabs) Red-LED

Pin #	Description	Pin #	Description
1	Anode	3	Collector
2	Cathode	4	Emitter



**RoHS**

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

# Slotted Optical Switch

## OPB825, OPB825A, OPB825B, OPB825R

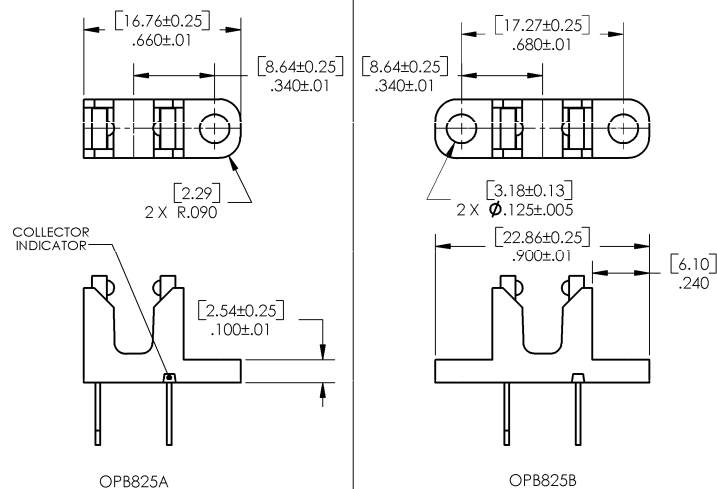
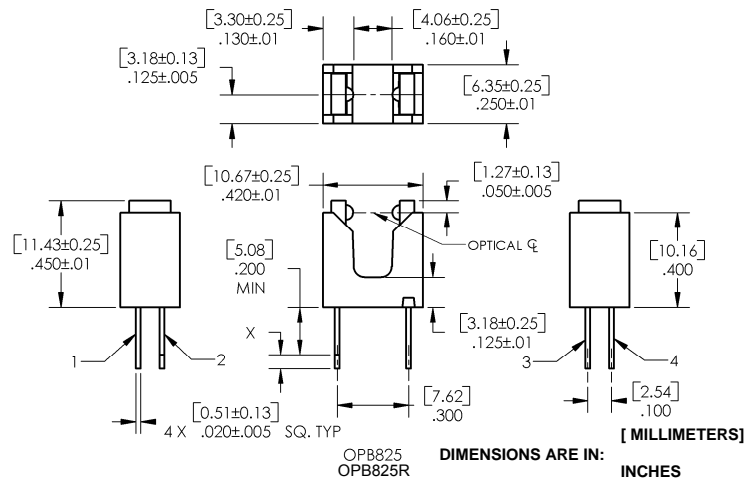


### Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise noted)

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

Input Diode	OPB825—A—B	OPB825R
Forward DC Current	50 mA	40 mA
Peak Forward Current (1 $\mu\text{s}$ pulse width, 300 pps)	3 A	-
Reverse DC Voltage	2 V	2 V
Power Dissipation <sup>(2)</sup>	100 mW	100 mW

Output Phototransistor	OPB825—A—B	OPB825R
Collector-Emitter Voltage	30 V	24 V
Emitter-Collector Voltage	5 V	0.4 V
Collector DC Current	30 mA	30 mA
Power Dissipation <sup>(2)</sup>	100 mW	100 mW



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**OPB825, OPB825A, OPB825B**

**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)

$V_F$	Forward Voltage	-	-	1.6	V	$I_F = 20\text{ mA}$
$I_R$	Reverse Current	-	-	100	$\mu\text{A}$	$V_R = 2\text{ V}$

**Output Phototransistor** (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	$V_{CE} = 10\text{ V}, I_F = 0, E_E = 0$

**Combined**

$V_{CE(SAT)}$	Collector-Emitter Saturation	-	-	0.4	V	$I_C = 250\ \mu\text{A}, I_F = 20\text{ mA}$
$I_{C(ON)}$	On-State Collector Current	1.0	-	45.0	mA	$I_F = 20\text{ mA}, V_{CE} = 10\text{ V}$

**OPB825R**

**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 OVLAS6CB8 for additional information)

$V_F$	Forward Voltage	-	2.3	2.6	V	$I_F = 20\text{ mA}$
$I_R$	Reverse Current	-	-	100	$\mu\text{A}$	$V_R = 5\text{ V}$

**Output Phototransistor** (See OP750 for additional information)

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	24	-	-	V	$I_E = 100\ \mu\text{A}, E_E = 0$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	0.4	-	-	V	$I_E = 100\ \mu\text{A}, E_E = 0$
$I_{CEO}$	Collector Dark Current	-	-	100	nA	$V_{CE} = 10\text{ V}, I_F = 0, E_E = 0$

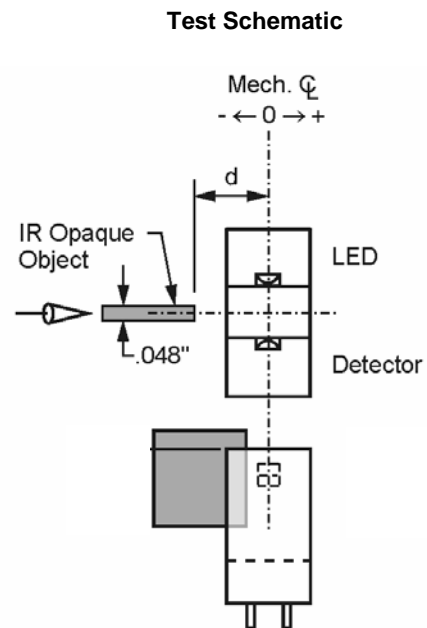
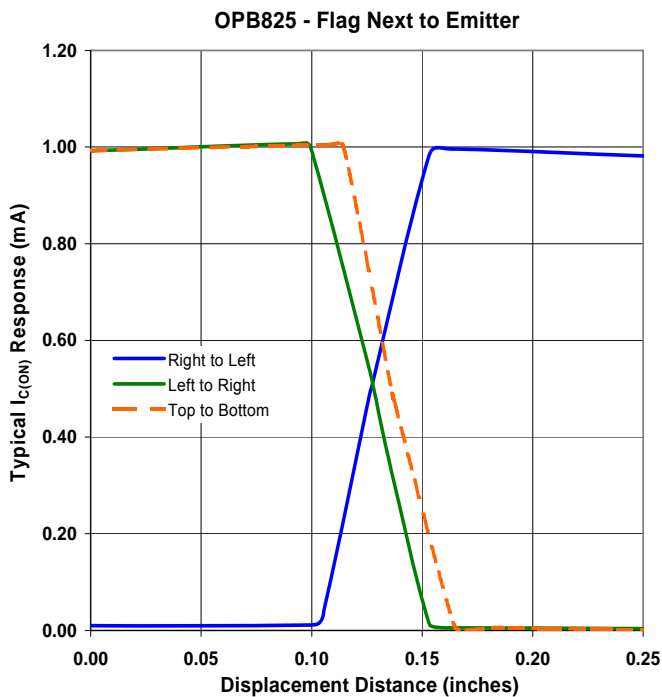
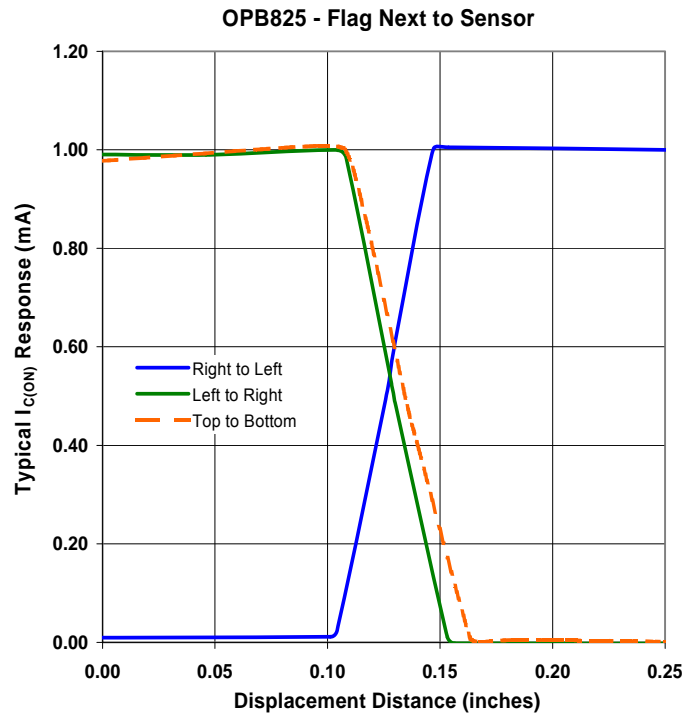
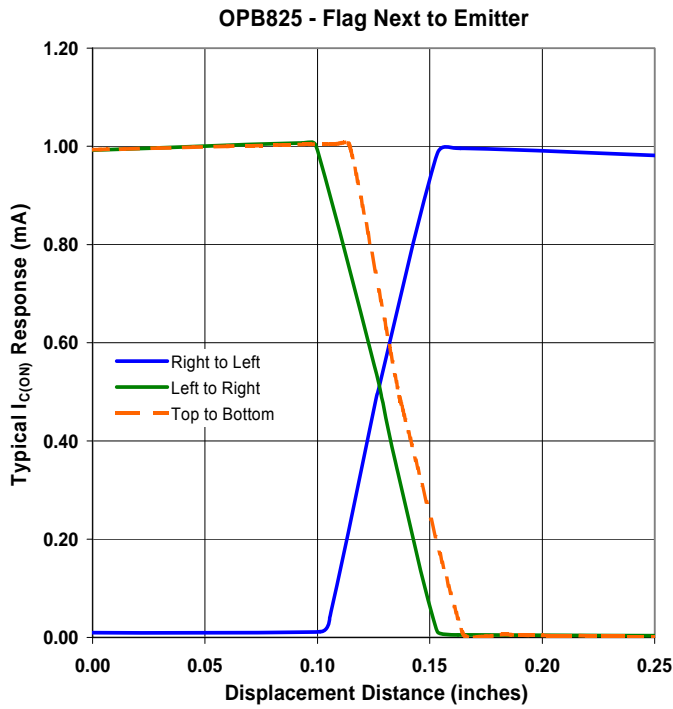
**Combined**

$I_{C(OFF)}$	OFF-State Collector Current	-	-	0.5	mA	$I_F = 0.80\text{ mA}, V_{CE} = 5.0\text{ V}$
$I_{C(ON)}$	On-State Collector Current	2.5	-	16.0	mA	$I_F = 8.00\text{ mA}, V_{CE} = 0.5\text{ V}$

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
- (2) Derate linearly 1.67 mW/ $^\circ\text{C}$  above 25  $^\circ\text{C}$ .
- (3) All parameters tested using pulse techniques.
- (4) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones.
- (5) Simulates optical path blocked with thick paper

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