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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:

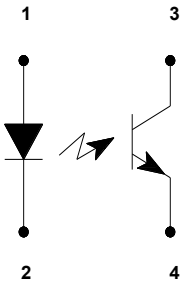
Each OPB825, OPB825A and OPB825B have an infrared LED, while the OPB825R has a Red LED. All devices have a NPN silicon phototransistor mounted in a low-cost black plastic housing on opposite sides of a 0.160” (4.064 mm) wide slot. OPB825 and OPB825R have no mounting tabs and is intended for direct insertion 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.

Applications:

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

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

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



RoHS

General Note
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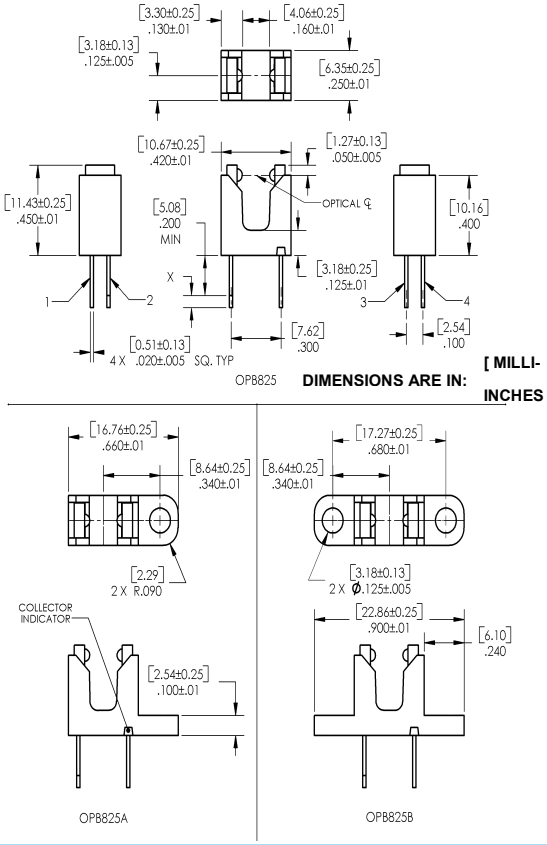
Electrical Specifications

Absolute Maximum Ratings (T_A=25°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][1]	260° C

Input Diode	**OPB825—A—B**	**OPB825R**
Forward DC Current	50 mA	40 mA
Peak Forward Current (1 µs pulse width, 300 pps)	3 A	-
Reverse DC Voltage	2 V	2 V
Power Dissipation[2]	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[2]	100 mW	100 mW



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OPB825, OPB825A, OPB825B

Electrical Characteristics (T_A = 25°C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode (See OP240 for additional information)						
V_F	Forward Voltage	-	-	1.6	V	I_F = 20 mA
I_R	Reverse Current	-	-	100	µA	V_R = 2 V
Output Phototransistor (See OP550 for additional information)						
$V_{(BR)CEO}$	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 Dark Current	-	-	100	nA	V_{CE} = 10 V, I_F = 0, E_E = 0
Combined						
$V_{CE(SAT)}$	Collector-Emitter Saturation	-	-	0.4	V	I_C = 250 µA, I_F = 20 mA
$I_{C(ON)}$	On-State Collector Current	1.0	-	45.0	mA	I_F = 20 mA, V_{CE} = 10 V

OPB825R

Electrical Characteristics (T_A = 25°C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode (See OVLAS6CB8 for additional information)						
V_F	Forward Voltage	-	2.3	2.6	V	I_F = 20 mA
I_R	Reverse Current	-	-	100	µA	V_R = 5 V
Output Phototransistor (See OP750 for additional information)						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	24	-	-	V	I_E = 100 µA, E_E = 0
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	0.4	-	-	V	I_E = 100 µA, E_E = 0
I_{CEO}	Collector Dark Current	-	-	100	nA	V_{CE} = 10 V, I_F = 0, E_E = 0
Combined						
$I_{C(OFF)}$	OFF-State Collector Current	-	-	0.5	mA	I_F = 0.80 mA, V_{CE} = 5.0 V
$I_{C(ON)}$	On-State Collector Current	2.5	-	16.0	mA	I_F = 8.00 mA, V_{CE} = 0.5 V

Notes:

(1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
(2) Derate linearly 1.67 mW/°C above 25 ° 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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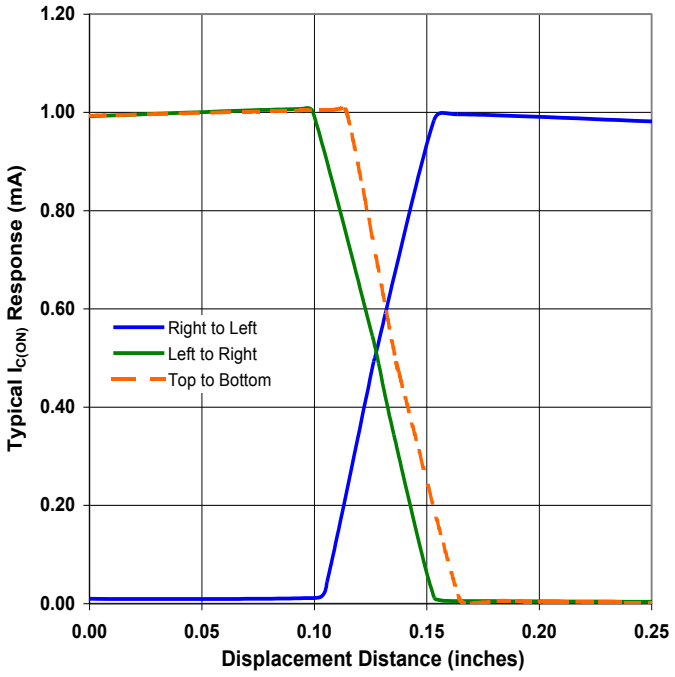
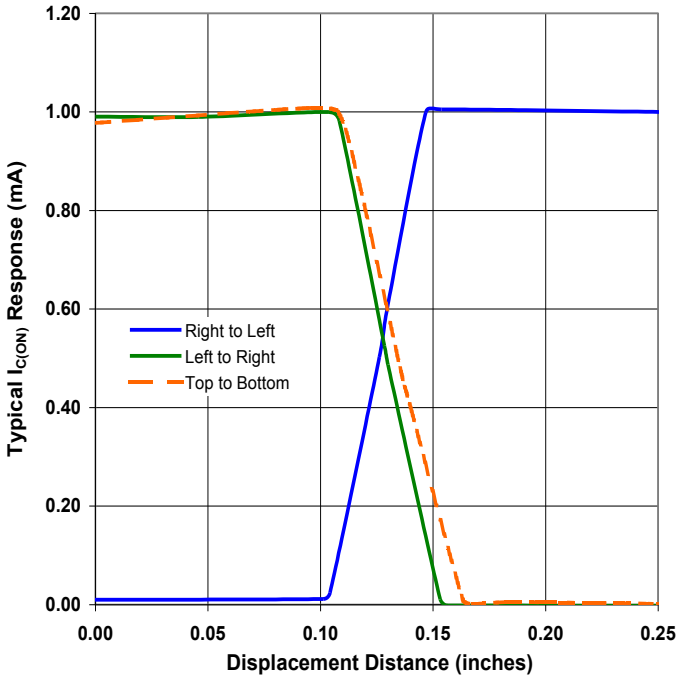
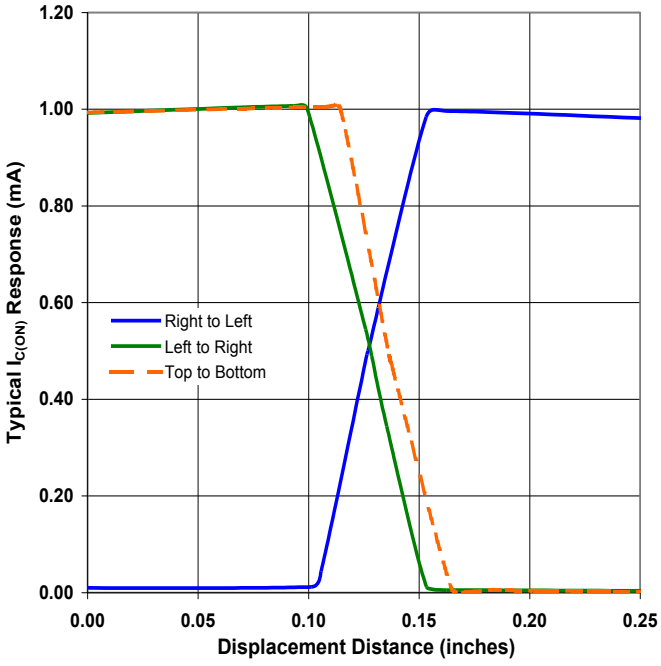
OPB825 - Flag Next to Emitter



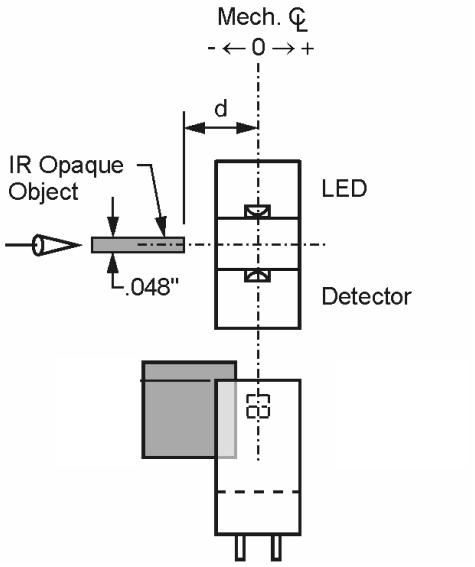
OPB825 - Flag Next to Sensor



OPB825 - Flag Next to Emitter



Test Schematic



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