Slotted Optical Switch

OPB825, OPB825A



Features:

- Non-contact switching
- Fast switching speed
- 0.160” (4.06 mm) wide slot
- 0.300” (7.62 mm) lead spacing

Description:

Each OPB825 and OPB825A have an infrared 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 has no mounting tabs and is intended for direct insertion into printed circuit boards or dual-in-line sockets. OPB825A has one mounting tab on the phototransistor side.
Phototransistor switching takes place whenever an opaque object passes through the slot.

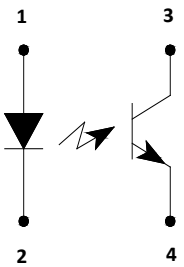
For application information, refer to Application Bulletins 248 and 213.

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

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



RoHS

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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 (1.6 mm) from the case for 5 sec. with soldering iron] (1, 4)	260° C
Input Diode	**OPB825—A**
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	**OPB825—A**
Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Collector DC Current	30 mA
Power Dissipation (2)	100 mW

OPB825, OPB825A

Electrical Characteristics (T_A = 25° C unless otherwise noted) (3)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage	1.0	-	1.6	V	I_F = 20 mA
I_R	Reverse Current	-	-	100	µA	V_R = 2 V
Output Phototransistor						
$V_{(BR)CEO}$	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	-	-	mA	I_F = 20 mA, V_{CE} = 10 V

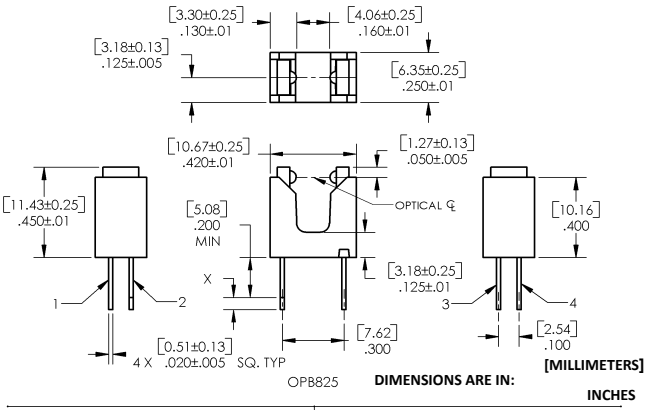
Notes:
(1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
(2) Derate linearly 1.33 mW/° C above 25° C.
(3) All parameters tested using pulse techniques.
(4) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones.
(5) Simulates optical path blocked with thick paper.

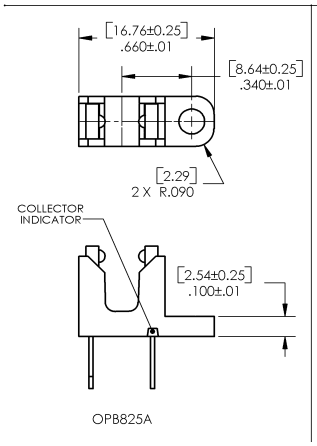
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Packaging

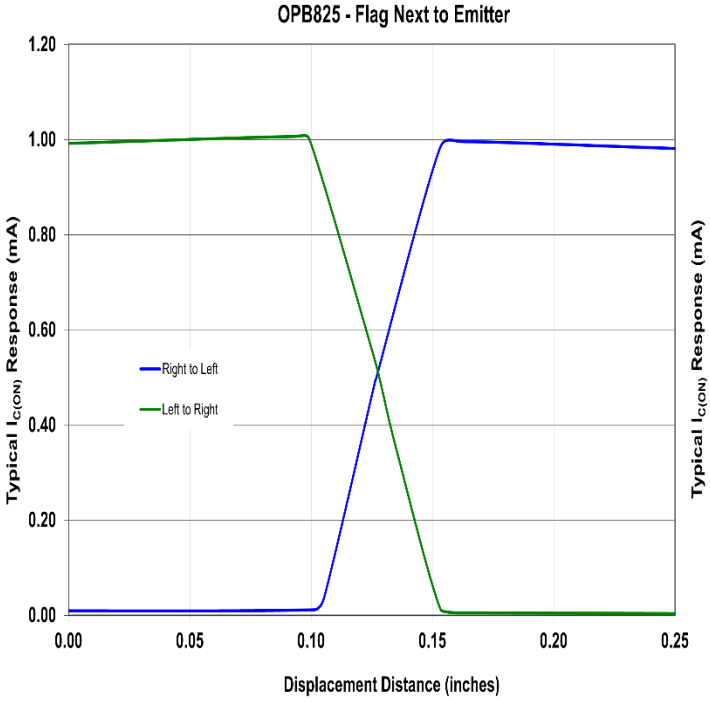


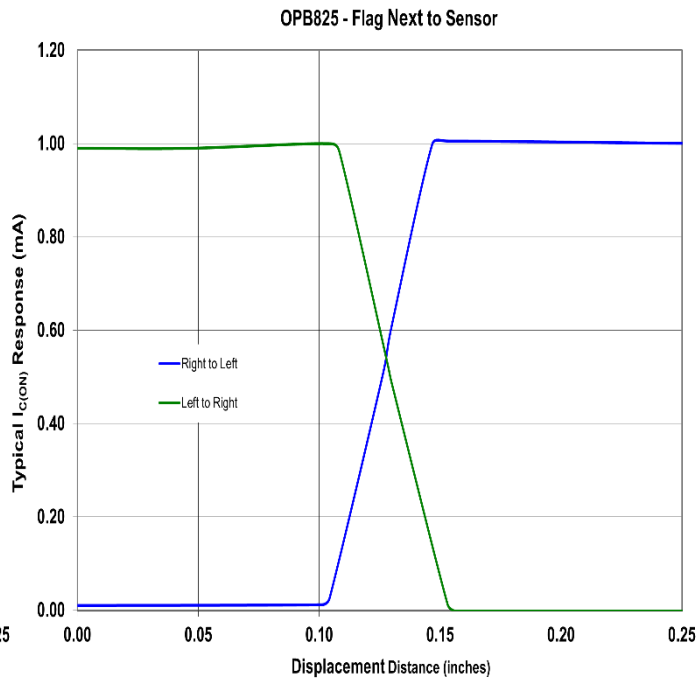


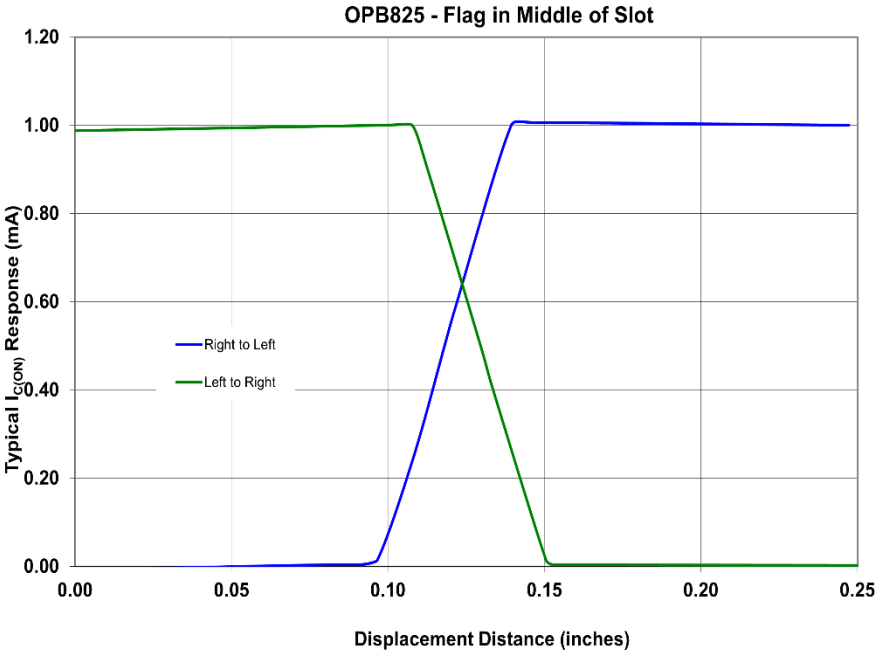
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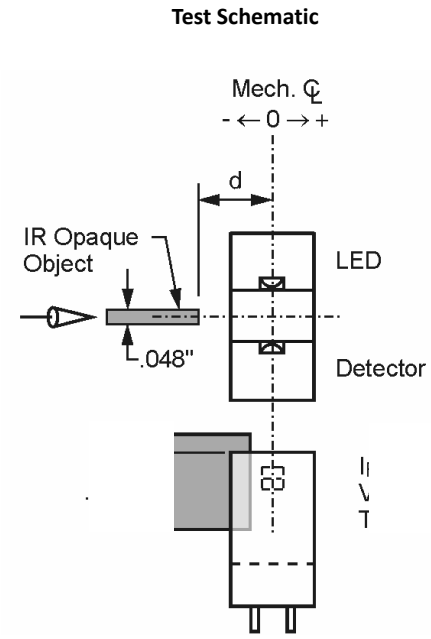
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Typical Performance









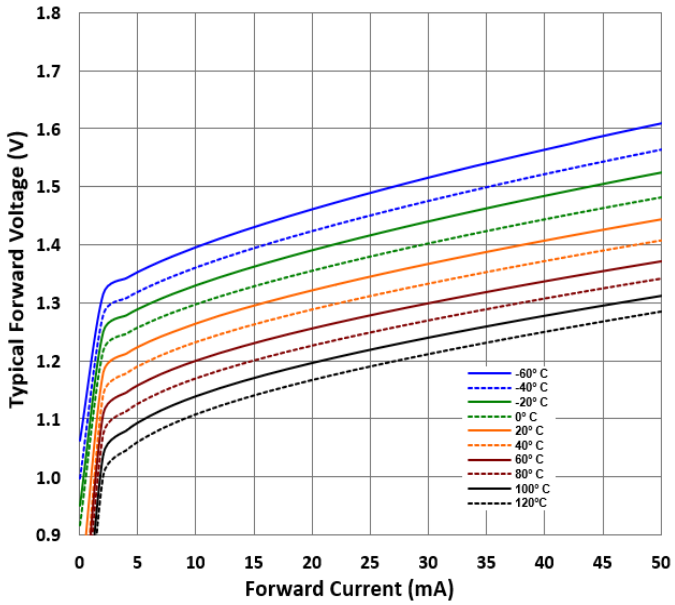
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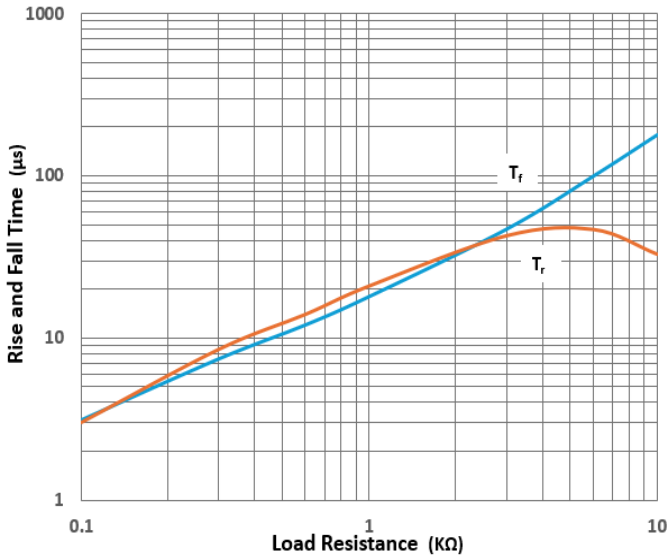
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Typical Performance

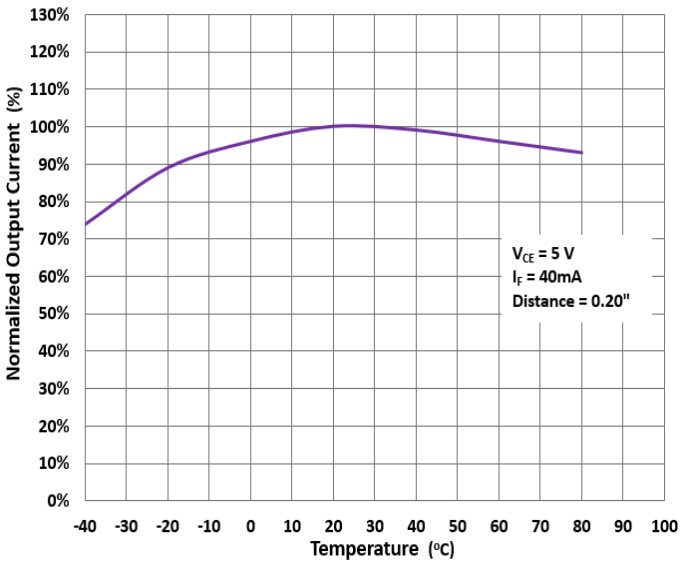
890nm LED Forward Voltage vs I_F vs Temp



Rise and Fall time vs Load Resistance



Collector Current vs Temperature



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