Slotted Optical Switch

OPB852A1-3, OPB853A1-3

Features:

- Inexpensive opaque plastic housing
- Choice of transistor (OPB852) or photodarlington (OPB853) output
- 0.125” (3.18 mm) slot width
- 0.290” (7.37 mm) lead spacing
- Apertured for high resolution



Description:

Slotted optical switches in the OPB852, and OPB853 series consist of an infrared emitting diode and a NPN silicon phototransistor or photodarlington, mounted on opposite sides of a 0.125” (3.175 mm) wide slot. The OPB852A, OPB852B and OPB852C have phototransistor output, while the OPB853A, OPB853B and OPB853C have photodarlington output.

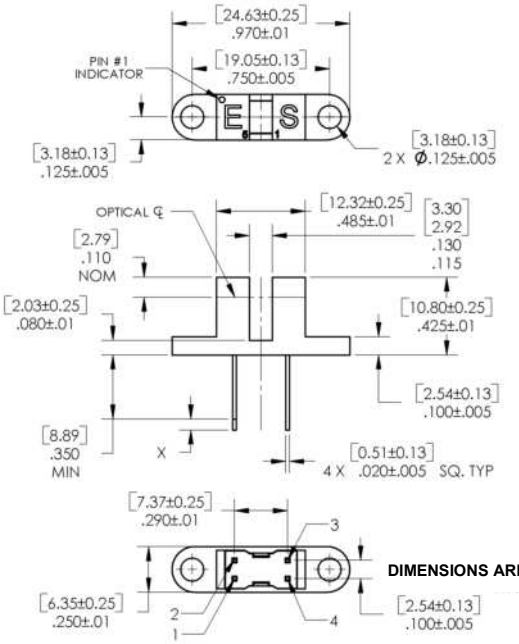
On each of these devices, the emitter has a molded-in aperture of 0.050” x 0.050” (1.270 mm x 1.270 mm) and the phototransistor (OPB852) or photodarlington (OPB853) has a molded-in aperture of 0.010” x 0.050” (0.254 mm x 1.270 mm).

Phototransistor or photodarlington switching occurs when an opaque object passes through the slot.

Applications:

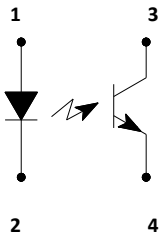
- Non-contact interruptive object sensing
- Assembly line automation
- Machine automation
- Equipment security
- Machine safety

Part Number	LED Peak Wavelength	Sensor	Slot Width/ Depth	Aperture Emitter/ Sensor	Lead Length / Spacing
OPB852A1	890 nm	Transistor	0.120" / 0.315”	0.05" / 0.01"	0.425" / 0.290"
OPB852A2					
OPB852A3					
OPB853A1		Darlington			
OPB853A2					
OPB853A3					

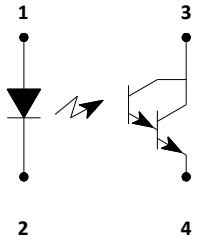


DIMENSIONS ARE IN: [MILLIMETERS] INCHES

OPB852



OPB853



Pin #	Description
1	Anode
2	Cathode
3	Collector
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]	260° C(1)

Input Diode

Forward DC Current	40 mA
Peak Forward Current (1 µs pulse width, 300 pps)	3 A
Reverse DC Voltage	2 V
Power Dissipation	100 mW(2)

Output Phototransistor

Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Power Dissipation	100 mW(2)

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode (see OP140 for additional information—OPB852A_, OP245 for additional information—OPB853A)						
V_F	Forward Voltage	-	-	1.7	V	I_F = 20 mA
I_R	Reverse Current	-	-	100	µA	V_R = 2 V
Output Phototransistor (see OP550 for additional information—OPB852A_, OP565 for additional information—OPB853A)						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage					
	OPB852A1, OPB852A2, OPB852A3	30	-	-	V	I_C = 1 mA
	OPB853A1, OPB853A2, OPB853A3	15	-	-	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
Combined						
$V_{CE(SAT)}$	Saturation Voltage					
	OPB852A1, OPB852A2	-	-	0.4	V	I_C = 500 µA, I_F = 20 mA
	OPB852A3	-	-	0.4	V	I_C = 1.8 mA, I_F = 20 mA
	OPB853A1, OPB853A2, OPB853A3	-	-	1.0	V	I_C = 1.8 mA, I_F = 10 mA
$I_{C(ON)}$	On-State Collector Current					
	OPB852A1	1.0	-	-	mA	V_{CE} = 5 V, I_F = 20 mA
	OPB852A2	2.0	-	-	mA	V_{CE} = 5 V, I_F = 20 mA
	OPB852A3	4.0	-	-	mA	V_{CE} = 5 V, I_F = 20 mA
	OPB853A1	2.5	-	-	mA	V_{CE} = 1.5 V, I_F = 5 mA
	OPB853A2	5.0	-	-	mA	V_{CE} = 1.5 V, I_F = 5 mA
	OPB853A3	10.0	-	-	mA	V_{CE} = 1.5 V, I_F = 5 mA

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) Methanol and isopropanol are recommended as cleaning agents. Housings are soluble in chlorinated hydrocarbons and ketones. Highly activated, water soluble fluxes may attack housings in some situations.

(4) All parameters tested using pulse technique.

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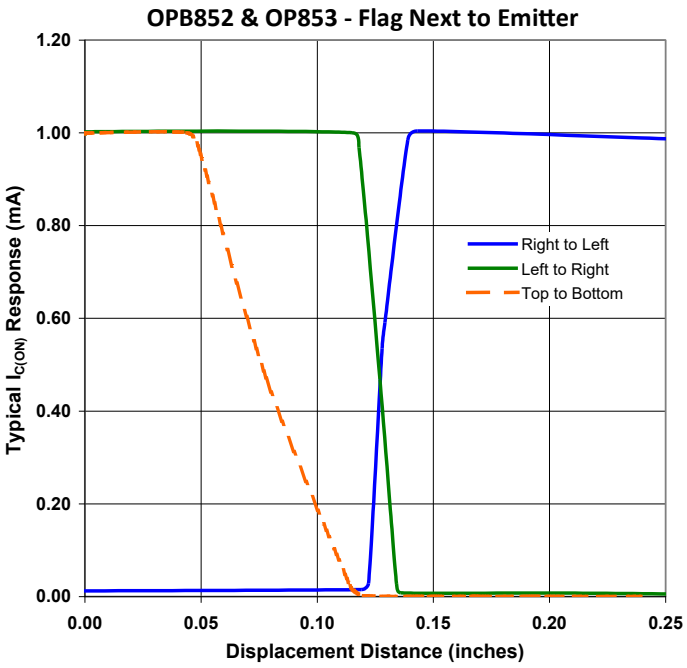
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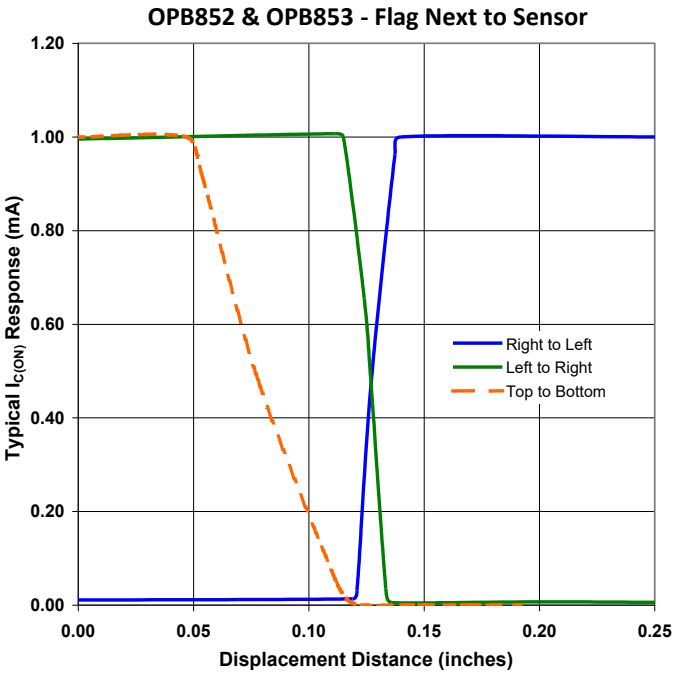
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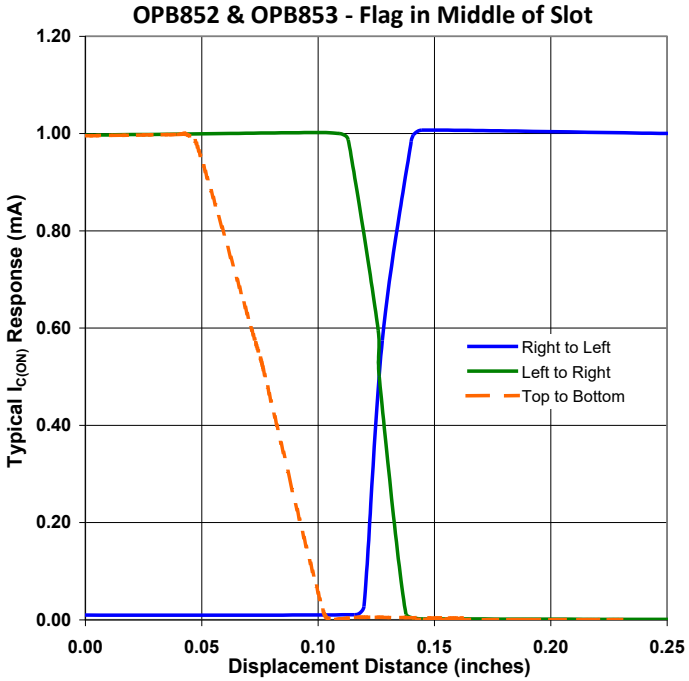
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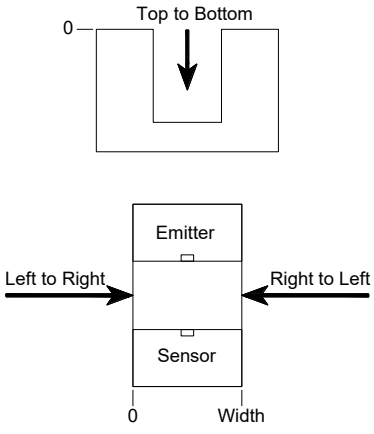
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Performance









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