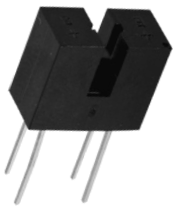
Slotted Optical Switch

OPB847, OPB848

Features:

- Non-contact switching
- Apertured for high resolution
- Hermetically sealed components



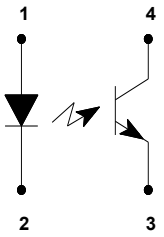
Description:

The OPB847 and OPB848 consists of a gallium aluminum arsenide LED and a silicon phototransistor, which is soldered into a printed PCBoard and mounted in a high-temperature plastic housing on opposite sides of a 0.100 inch (2.540 mm) wide slot. Both device types have a .025 (0.635mm) inch by .060 inch (1.524 mm) aperture in front of the phototransistor for high resolution positioning sensing. Phototransistor switching takes place when an opaque object passes through the slot.

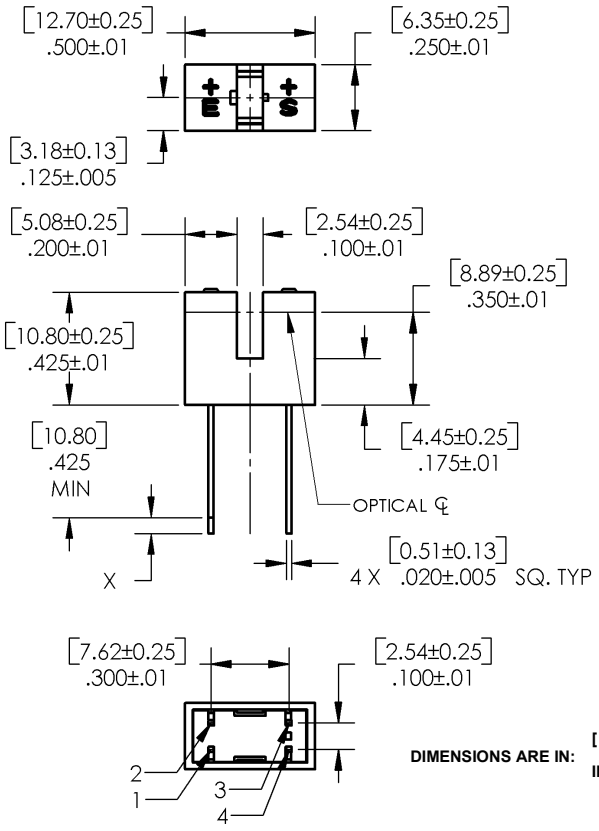
Applications:

- 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
OPB847	890 nm	Transistor	0.100" / 0.250"	0.025" / 0.025"	0.425" / 0.300"
OPB848					



Pin #	Description
1	Anode
2	Cathode
3	Emitter
4	Collector



RoHS

General Note
TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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Electrical Specifications

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

Operating and Storage Temperature Range	-40° C to +85° C
Lead Soldering Temperature [1/16 inch (1.6mm) from the case for 5 sec. with soldering iron]	240° C

Input Diode

Forward DC Current	50 mA
Reverse Voltage	2.0 V
Power Dissipation[2]	100 mW

Output Phototransistor

Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	7 V
Power Dissipation[2]	100 mW

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage[4]	1.00	1.35	1.70	V	I_F = 20 mA
		1.20	1.55	1.90		I_F = 20 mA, T_A = -55° C
		1.80	1.20	1.60		I_F = 20 mA, T_A = 100° C
I_R	Reverse Current	-	0.10	100	µA	V_R = 2 V
Output Phototransistor						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30	110	-	V	I_C = 100 µA, I_F = 0
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5	10	-	V	I_E = 100 µA, I_F = 0
I_{CEO}	Collector-Emitter Dark Current	-	0.20	100	nA	V_{CE} = 10 V, I_F = 0
		-	10	100	µA	V_{CE} = 10 V, I_F = 0, T_A = 100° C

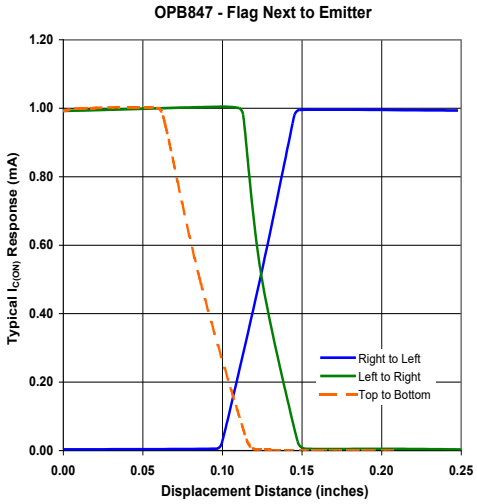
Notes:
(1) Duration can be extended to 10 seconds maximum when flow soldering.
(2) Derate linearly 1.00 mW/° C above 25° C.
(3) Methanol and isopropanol are recommended as cleaning agents.
(4) Measurement is taken during the last 500 µs of a single 1.0 ms test pulse. Heating due to increased pulse rate or pulse width can cause change in measurement results.

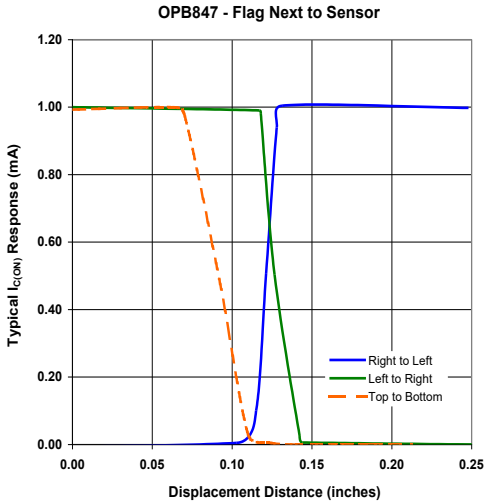
Electrical Characteristics (T_A = 25° C unless otherwise noted)

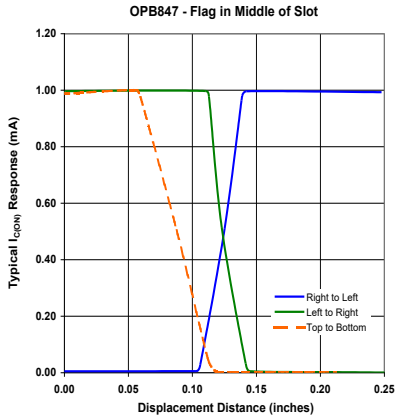
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Combined						
$I_{C(ON)}$	On-State Collector Current [1] OPB847 OPB848	 4.0 1.0	 - -	 - -	mA	 V_{CE} = 10 V, I_F = 20 mA V_{CE} = 10 V, I_F = 20 mA
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage OPB847 OPB848		 0.30 0.30	 0.40 0.40	V	 I_C = 2 mA, I_F = 20 mA I_C = 500 µA, I_F = 20 mA
t_r	Output Rise Time OPB847 OPB848		 12 8	 20 15	µs	V_{CC} = 10 V, I_F = 20 mA, R_L = 1000Ω
t_f	Output Fall Time OPB847 OPB848		 12 8	 20 15		

Notes:

(1) Measurement is taken during the last 500 µs of a single 1.0 ms test pulse. Heating due to increased pulse rate or pulse width can cause change in measurement results.







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