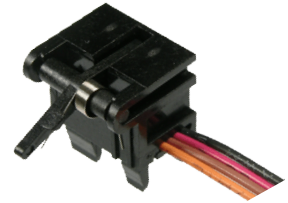


Slotted Optical Flag Switch

OPB850-1Z



Features:

- Snap into printed circuit board mounting
- Transistor output
- Mechanical switch replacement
- Four 18" (457 mm) #26 AWG, UL rated wires for electrical connections

Description:

Each **OPB850-1Z** has an Rbe phototransistor coupled with an 890 nm gallium arsenide infrared emitting diode in a molded plastic housing. An actuated lever arm flag interrupts the light beam, which switches the transistor output between states that can readily drive logic gates.

These devices are designed to replace conventional mechanical limit switches where long life and reliability are critical. The switches are designed to easily snap mount into a 0.036 inch (0.914 mm) 20 gage thick material with a rectangular opening of 0.315" x 0.472" (8.0 mm x 12.0 mm).

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

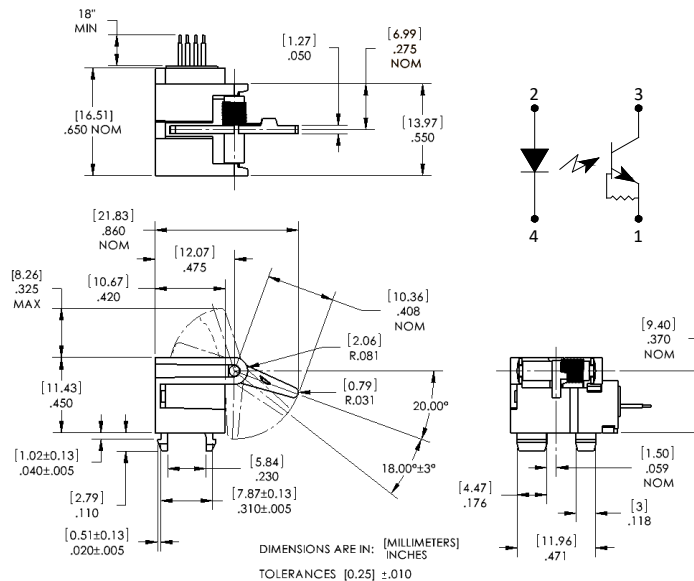
For application information, refer to Application Bulletins 248 and 213.

Applications:

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

Pin # / Color	Description
1-Black	Emitter
2-Red	Anode
3-Brown	Collector
4-Orange	Cathode

Ordering Information		
Part Number	Wavelength	Description
OPB850-1Z	890 nm	Slotted Optical Flag Switch 18" (457 mm) UL rated wires



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

Operating Temperature Range	-20° C to +75° C
Storage 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]	260° C
Input Diode	
Reverse Voltage	5 V
Continuous Forward Current	50 mA
Peak Forward Current (10 μs pulse width, 300 pps)	1 A
Power Dissipation	75 mW
Output Phototransistor	
Collector-Emitter Voltage	24 V
Emitter-Collector Voltage	5 V
Collector DC Current	20 mA
Power Dissipation	100 mW

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage	-	1.2	1.6	V	$I_F = 20\text{ mA}$
I_R	Reverse Current	-	-	-	μA	$V_R = 2\text{ V}$
Output Phototransistor						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	24	-	-	V	$I_C = 100\text{ }\mu\text{A}$, $E_E = 0$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	0.4	-	-	V	$I_E = 100\text{ }\mu\text{A}$, $E_E = 0$
I_{CEO}	Collector-Emitter Dark Current	-	-	100	nA	$V_{CE} = 10\text{ V}$, $E_E = 0$
Coupled						
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage ⁽¹⁾	-	-	0.40	V	$I_C = 500\text{ }\mu\text{A}$, $I_F = 20\text{ mA}$
$I_{C(ON)}$	On-State Collector Current ⁽¹⁾	0.5	2	-	mA	$V_{CE} = 10\text{ V}$, $I_F = 20\text{ mA}$
$I_{C(OFF)}$	Off-State Collector Current ⁽²⁾	-	-	10	μA	$V_{CE} = 10\text{ V}$, $I_F = 20\text{ mA}$

Notes:

- (1) ON ($I_{C(ON)}$) electrical condition corresponds to the switch point at about 41° angular displacement of the arm.
- (2) OFF ($I_{C(OFF)}$) electrical condition corresponds to the mechanical arm position at rest.
- (3) From the rest position to the switch point, lever torque measured at the end of the arm is 1.5 grams maximum.
- (4) Wires are #26 AWG, UL rated.

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