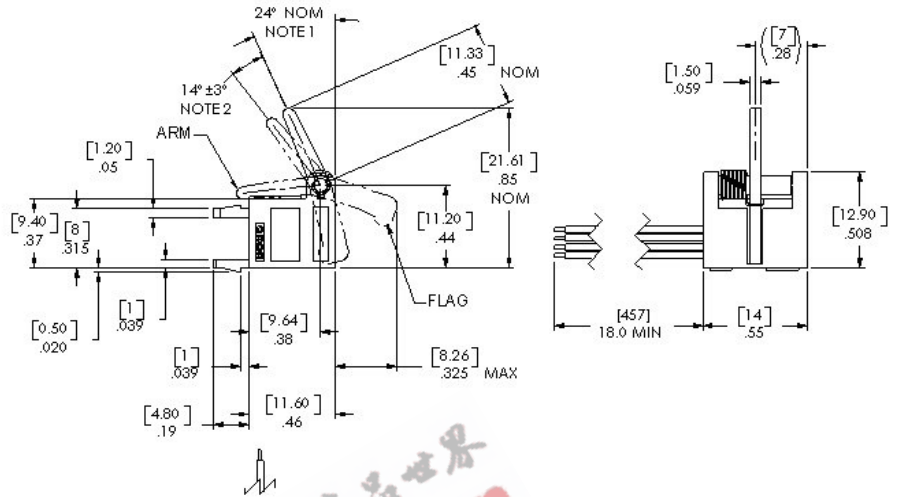
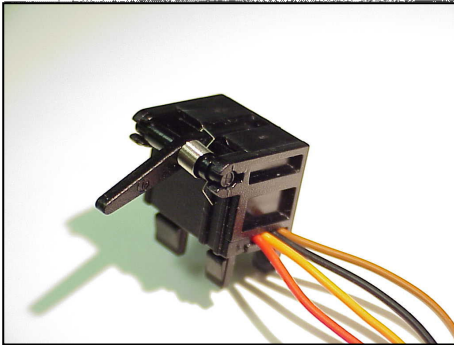


# Slotted Optical Switch Type OPB850A



### Features

- Snap mounting
- Mechanical switch replacement
- Four wires for electrical connections

### Description

The OPB850A consists of an NPN phototransistor coupled with a gallium arsenide 940 nm infrared emitting diode in a molded plastic housing. A lever arm actuated flag interrupts the light beam switching the transistor output between states that can readily drive logic gates.

The OPB850A is designed to replace conventional mechanical limit switches where long life and reliability are critical. This switch is designed to easily snap mount into a 0.036 inch (.91 mm) (20 ga) thick material with a rectangular opening of 0.315 X 0.472 inch (8 X 12 mm).

Contact your local representative or Optek for more information.

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or email us at [sensors@optekinc.com](mailto:sensors@optekinc.com)

### Absolute Maximum Ratings (T<sub>A</sub> = 25° C unless otherwise noted)

Storage Temperature Range	.....	-40° C to +85° C
Operating Temperature Range	.....	-20° C to +75° C

### Input Diode

Reverse Voltage	.....	5.0 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	.....	30 V
Emitter-Collector Voltage	.....	5.0 V
Collector DC Current	.....	20 mA
Power Dissipation	.....	100 mW

### NOTES:

- (1) "Off" (I<sub>coff</sub>) electrical condition corresponds to the mechanical arm position at rest.
- (2) "On" (I<sub>con</sub>) corresponds to the switch point about 14° angular displacement of the arm. As shown in figure 1.
- (3) From the rest position to the switch point, lever torque measured at the end of the arm is 1.5 grams max.
- (4) Wires are 26 AWG, UL rated. The unterminated ends are stripped and tinned 0.150 inch (3.81 mm) nominally.

**Precautions:** Exposure of the plastic body to chlorinated hydrocarbons and ketones such as thread lock and instant adhesive products will degrade the plastic body. Cleaning agents methanol and isopropanol are recommended. Spray or wipe do not submerge.

# Type OPB850A

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>Input Diode</b>						
$V_F$	Forward Voltage		1.2	1.6	V	$I_F = 20\text{ mA}$
$I_R$	Reverse Current			100	$\mu\text{A}$	$V_R = 2\text{ V}$
<b>Output Phototransistor</b>						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30			V	$I_C = 100\ \mu\text{A}, I_F = 0, E_o = 0$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0			V	$I_E = 100\ \mu\text{A}, I_F = 0, E_o = 0$
$I_{CEO}$	Collector-Emitter Dark Current			100	nA	$V_{CE} = 10\text{ V}, I_F = 0, E_o = 0$
<b>Coupled</b>						
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage			0.4	V	$I_C = 250\ \mu\text{A}, I_F = 20\text{ mA}^{(2)}$
$I_{C(ON)}$	On-State Collector Current	0.50	2.0		mA	$V_{CE} = 5\text{ V}, I_F = 20\text{ mA}^{(2)}$
$I_{C(OFF)}$	Off-State Collector Current			10	$\mu\text{A}$	$V_{CE} = 5\text{ V}, I_F = 20\text{ mA}^{(1)}$

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