## Slotted Optical Switch OPB855

## Features:

- Low profile 0.27 " ( 6.858 mm ) overall height
- Printed PCBoard mounting
- 0.205 " ( 5.21 mm ) wide and $0.150(3.81 \mathrm{~mm})$ deep slot
- 0.380 " ( 9.65 mm ) lead spacing
- Opaque plastic housing


## Description:

The OPB855 slotted optical switch consists of an infrared emitting diode and a NPN silicon phototransistor, mounted on opposite sides of a 0.205 " ( 5.21 mm ) wide slot in an inexpensive plastic housing. Switching of the phototransistor occurs whenever an opaque object passes through the slot.

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


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Absolute Maximum Ratings ( $\mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C}$ unless otherwise noted)

| Storage \& Operating Temperature Range | $-40^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}$ |
| :--- | ---: |
| Lead Soldering Temperature [1/16 inch (1.6mm) from the case for 5 sec . with soldering iron] ${ }^{(1)}$ | $260^{\circ} \mathrm{C}$ |

Input Diode (See OP140 for additional information)

| Forward DC Current | 50 mA |
| :--- | ---: |
| Peak Forward Current $(1 \mu$ s pulse width, 300 pps$)$ | 3 A |
| Reverse DC Voltage | 2 V |
| Power Dissipation $^{(2)}$ | 100 mW |

Output Phototransistor (See OP550 for additional information)

| Collector-Emitter Voltage | 30 V |
| :--- | ---: |
| Emitter-Collector Voltage | 5 V |
| Collector DC Current | 30 mA |
| Power Dissipation ${ }^{(2)}$ | 100 mW |

Electrical Characteristics ( $\mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C}$ unless otherwise noted)

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | Input Diode


| $\mathrm{V}_{\mathrm{F}}$ | Forward Voltage | - | - | 1.5 | V | $\mathrm{I}_{\mathrm{F}}=40 \mathrm{~mA}$ |
| :--- | :--- | :---: | :---: | :---: | :---: | :---: |
| $\mathrm{I}_{\mathrm{R}}$ | Reverse Current | - | - | 100 | $\mu \mathrm{~A}$ | $\mathrm{~V}_{\mathrm{R}}=2 \mathrm{~V}$ |

## Output Phototransistor

| $\mathrm{V}_{\text {(BR)CEO }}$ | Collector-Emitter Breakdown Voltage | 30 | - | - | V | $\mathrm{I}_{\mathrm{C}}=1 \mathrm{~mA}$ |
| :---: | :--- | :---: | :---: | :---: | :---: | :--- |
| $\mathrm{~V}_{\text {(BR)ECO }}$ | Emitter-Collector Breakdown Voltage | 5 | - | - | V | $\mathrm{I}_{\mathrm{E}}=100 \mu \mathrm{~A}$ |
| $\mathrm{I}_{\mathrm{CEO}}$ | Collector-Emitter Dark Current | - | - | 100 | nA | $\mathrm{V}_{\mathrm{CE}}=10 \mathrm{~V}, \mathrm{I}_{\mathrm{F}}=0, \mathrm{E}_{\mathrm{E}}=0$ |

## Combined

| $\mathrm{V}_{\text {CE(SAT) }}$ | Collector-Emitter Saturation Voltage | - | - | 0.4 | V | $\mathrm{I}_{\mathrm{C}}=400 \mu \mathrm{~A}, \mathrm{I}_{\mathrm{F}}=20 \mathrm{~mA}$ |
| :---: | :--- | :---: | :---: | :---: | :---: | :--- |
| $\mathrm{I}_{\mathrm{C}(\mathrm{ON})}$ | On-State Collector Current | 500 | - | - | $\mu \mathrm{A}$ | $\mathrm{V}_{\mathrm{CE}}=5 \mathrm{~V}, \mathrm{I}_{\mathrm{F}}=20 \mathrm{~mA}$ |

Notes:
(1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
(2) Derate linearly $1.67 \mathrm{~mW} /{ }^{\circ} \mathrm{C}$ above $25^{\circ} \mathrm{C}$..
(3) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones.
(4) All parameters were tested using pulse technique.

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