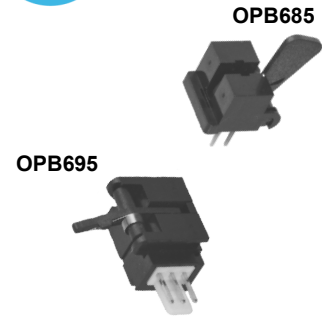


Photologic® Optical Flag Switch

OPB685-3, OPB686, OPB687, OPB695,
OPB696, OPB697, OPB698 Series



Features:

- Photologic® output
- Four output options
- Mechanical switch replacement
- Printed circuit board mounting (OPB685-3)
- 2.5mm, 3-pin connector mates with Molex connector 5051 series housing and 4809 series terminal for OPB695 Series

Description:

Each **OPB685-3** and **OPB695** series flag switch consists of an infrared emitting diode and a monolithic integrated circuit that incorporates a photodiode, a linear amplifier and a Schmitt trigger. A lever arm actuated flag interrupts the light beam, which switches the output between states that can readily drive logic gates.

The **OPB695** series is designed to easily snap mount into a 0.037" ± 0.001" (0.940 mm ± 0.025 mm) thick material with a rectangular opening of 0.320" ± 0.003" x 0.472" (8.13 mm x 11.99 mm) minimum. Insertion into the punched side of metal is recommended.

Devices in these series feature TTL/LSTTL compatible logic level output that can drive up to 10 TTL loads over a voltage range from 4.5 V to 16 V.

Customized lever arms and spring torques can be designed for specific applications for each of the devices.

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

Applications:

- Mechanical switch replacement
- Speed indication (tachometer)
- Mechanical limit indication
- Edge sensing

| Ordering Information | | | | |
|----------------------|---------------------|---------------------|-------------------------|--|
| Part Number | LED Peak Wavelength | Sensor Photologic® | Flag Travel Degrees Max | Lead Length / Spacing or Connector |
| OPB685-3 | 890 nm | 10K Pull-Up | 59° | Mates with 3 Pin—Molex 5051 (22-01-1032) Housing & 4809 (08-70-0069) Terminals |
| OPB686 | | Open Collector | | |
| OPB687 | | Inv. 10K Pull-Up | | |
| OPB695AZ | | 10K Pull-Up | 70° | |
| OPB696AZ | | Open Collector | | |
| OPB697AZ | | Inv. 10K Pull-Up | | |
| OPB698CZ | | Inv. Open 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.

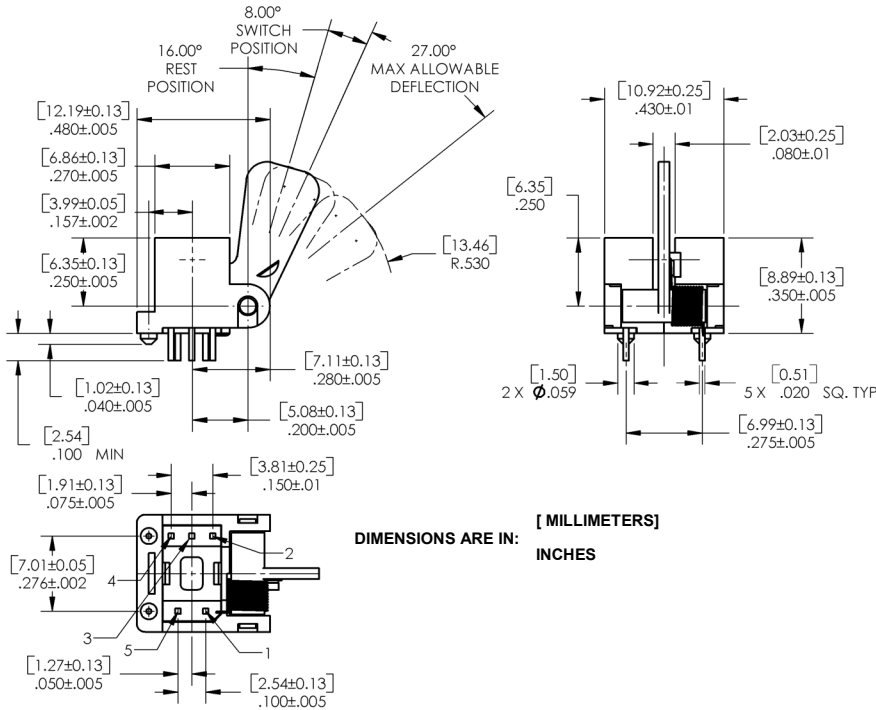
OPTEK Technology, Inc.
1645 Wallace Drive, Carrollton, TX 75006 | Ph: +1 972 323 2200
www.optekinc.com | www.ttelectronics.com

Photologic® Optical Flag Switch

OPB685-3, OPB686, OPB687, OPB695,
OPB696, OPB697, OPB698 Series



OPB685-3, OPB686, OPB687,



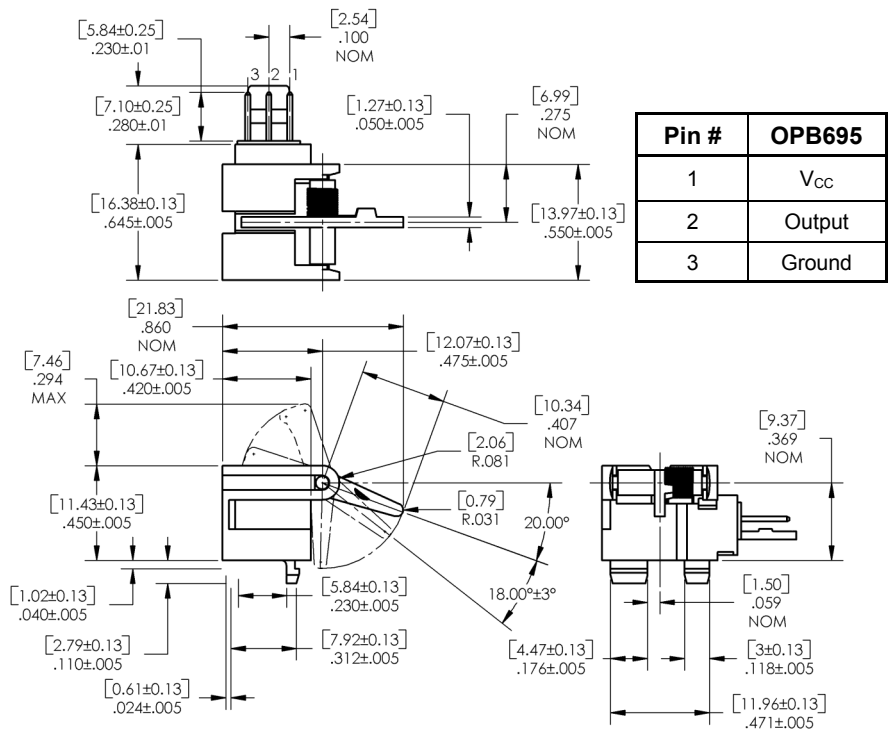
| Pin # | Description |
|-------|-----------------|
| 1 | Anode |
| 5 | Cathode |
| 2 | Ground |
| 3 | Output |
| 4 | V _{CC} |

DIMENSIONS ARE IN: [MILLIMETERS] INCHES

OP695, OPB696, OPB697, OPB698

| Part Number | Max. Torque (Grams) |
|-------------|---------------------|
| OPB685-3 | 3.0 |
| OPB686 | 1.5 |
| OPB687 | 1.5 |
| OPB695 | 1.5 |
| OPB696 | 1.5 |
| OPB697 | 1.5 |
| OPB698 | 1.5 |

Torque is measured at the end of the arm from the resting position of the switching point of the flag



| Pin # | OPB695 |
|-------|-----------------|
| 1 | V _{CC} |
| 2 | Output |
| 3 | Ground |

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.

OPTEK Technology, Inc.
1645 Wallace Drive, Carrollton, TX 75006 | Ph: +1 972 323 2200
www.optekinc.com | www.ttelectronics.com

Photologic® Optical Flag Switch

OPB685-3, OPB686, OPB687, OPB695,
OPB696, OPB697, OPB698 Series



| Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted) | |
|--|-----------------|
| Storage & Operating Temperature Range | -40°C to +100°C |
| Lead Soldering Temperature [1/16 inch (1.6mm) from the case for 5 sec. with soldering iron] ⁽¹⁾ | 260°C |
| Input Diode | |
| Reverse Voltage | 2.0 V |
| Continuous Forward Current | 50 mA |
| Peak Forward Current | 3.0 A |
| Total Device Power Dissipation ⁽²⁾ | 100 mW |
| Output Photologic® | |
| Supply Voltage, V_{CC} | 18 V |
| Duration of Output Short to V_{CC} | 1 second |
| Voltage at Output | 30 V |
| Low Level Output Current (sinking) | 16 mA |
| Power Dissipation ^{(3) (4)} | 240 mW |

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
- (2) Derate linearly 1.33 mW/°C above 25° C.
- (3) Derate linearly 2.00 mW/°C above 25° C (OPB680, OPB680-20, OPB690Z).
- (4) Derate linearly 2.50 mW/°C above 25° C (OPB685-3, OPB686, OPB687, OPB695, OPB696, OPB697, OPB698).

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.

OPTEK Technology, Inc.
1645 Wallace Drive, Carrollton, TX 75006 | Ph: +1 972 323 2200
www.optekinc.com | www.ttelectronics.com

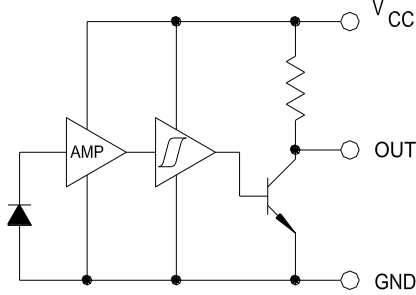
Photologic® Optical Flag Switch

OPB685-3, OPB686, OPB687, OPB695,
OPB696, OPB697, OPB698 Series

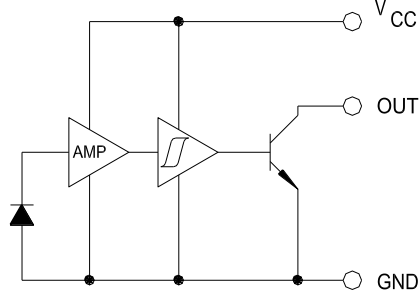


OPB685-3 and OPB695 Series

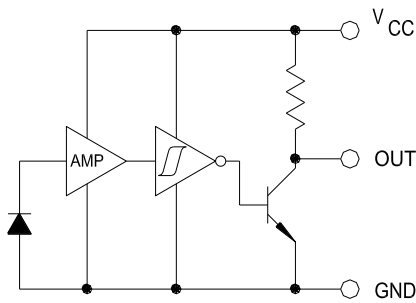
OPB685-3, OPB695 Buffered 10K Pull-Up



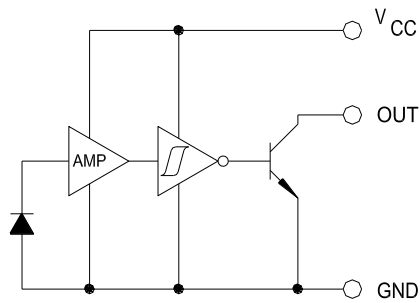
OPB686, OPB696 Buffered Open-Collector



OPB687, OPB697 Inverted 10K Pull-Up



OPB698 Inverted Open-Collector



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.

OPTEK Technology, Inc.
1645 Wallace Drive, Carrollton, TX 75006 | Ph: +1 972 323 2200
www.optekinc.com | www.ttelectronics.com

Photologic® Optical Flag Switch

OPB685-3, OPB686, OPB687, OPB695,
OPB696, OPB697, OPB698 Series



| Electrical Characteristics (T _A = 25° C unless otherwise noted) | | | | | | | |
|--|---|-----------------|------|------|-------|------------------------|--|
| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS | |
| Input Diode | | | | | | | |
| V _F | Forward Voltage | - | - | 1.6 | V | I _F = 10 mA | |
| I _R | Reverse Current | - | - | 100 | μA | V _R = 3 V | |
| Output Photologic® Sensor | | | | | | | |
| V _{CC} | Operating DC Supply Voltage | | | | | | |
| | OPB685-3 Series | 4.5 | - | 16.0 | V | | |
| | OPB695-698A | 4.5 | 5.0 | 8.0 | | | |
| | OPB695-698B | 8.0 | 12.0 | 13.5 | | | |
| OPB695-698C | 13.5 | 15.0 | 16.0 | | | | |
| I _{CC} | Operating DC Supply Current OPB695-698A/B/C | - | 20 | 30 | mA | | |
| I _{CCL} | Low Level Supply Current: Buffered 10k Pull-Up | OPB685-3 | - | 5.5 | 12 | mA | V _{CC} = 16 V, I _F = 0 mA (no load on output) |
| | Buffered Open-Collector | OPB686 | - | 4.0 | 12 | | |
| | Inverted 10k Pull-Up | OPB687 | - | 6.5 | 12 | | |
| I _{CCH} | High Level Supply Current: Buffered 10k Pull-Up | OPB685-3 | - | 5.0 | 12 | mA | V _{CC} = 16 V, I _F = 10 mA (no load on output) |
| | Buffered Open-Collector | OPB686 | - | 5.0 | 12 | | |
| | Inverted 10k Pull-Up | OPB687 | - | 4.0 | 12 | | |
| V _{OL} | Low Level Output Voltage ⁽¹⁾ : Buffered 10k Pull-Up | OPB685-3 | - | - | 0.4 | V | V _{CC} = 4.5 V, I _{OL} = 16 mA, I _F = 0 V _{CC} = 4.5 V to 8 V, I _{OL} = 16 mA V _{CC} = 8.5 V to 13 V, I _{OL} = 16 mA V _{CC} = 13.5 V to 16 V, I _{OL} = 16 mA |
| | Buffered Open-Collector | OPB686 | - | - | 0.4 | | |
| | | OPB695 | - | - | 0.4 | | |
| | | OPB696A/B/C | - | - | 0.4 | | |
| | Inverted 10k Pull-Up ⁽²⁾ | OPB685-3 | - | - | 0.4 | V | V _{CC} = 4.5 V, I _{OL} = 16 mA, I _F = 0 V _{CC} = 4.5 V to 8 V, I _{OL} = 16 mA V _{CC} = 8.5 V to 13 V, I _{OL} = 16 mA V _{CC} = 13.5 V to 16 V, I _{OL} = 16 mA |
| | Inverted Open-Collector | OPB686 | - | - | 0.4 | | |
| | OPB695 | - | - | 0.4 | | | |
| | OPB696A/B/C | - | - | 0.4 | | | |
| V _{OH} | High Level Output Voltage ⁽²⁾ : Buffered 10k Pull-Up | V _{CC} | - | - | - | V | I _{OH} = 100 μA, I _F = 10 mA |
| | Inverted 10k Pull-Up ⁽¹⁾ Inverted Open-Collector | V _{CC} | - | - | - | V | I _{OH} = 100 μA, I _F = 0 mA |
| I _{OH} | High Level Output Current ⁽²⁾ : Buffered Open-Collector | OPB686 | - | - | 100 | μA | V _{CC} = 16 V, I _F = 10 mA, V _{CH} = 30 V V _{CC} = 4.5 V to 8 V, V _{OH} = 30 V V _{CC} = 8.5 V to 13 V, V _{OH} = 30 V V _{CC} = 13.5 V to 16 V, V _{OH} = 30 V |
| | | OPB696A | - | - | 100 | | |
| | | OPB696B | - | - | 100 | | |
| | | OPB696C | - | - | 100 | | |
| | Inverted 10k Pull-Up ⁽¹⁾ | OPB698A | - | - | 100 | μA | V _{CC} = 4.5 V to 8 V, V _{OH} = 30 V ⁽¹⁾ V _{CC} = 8.5 V to 13 V, V _{OH} = 30 V ⁽¹⁾ V _{CC} = 13.5 V to 16 V, V _{OH} = 30 V ⁽¹⁾ |
| | OPB698B | - | - | 100 | | | |
| | OPB698C | - | - | 100 | | | |

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.

OPTEK Technology, Inc.
1645 Wallace Drive, Carrollton, TX 75006 | Ph: +1 972 323 2200
www.optekinc.com | www.ttelectronics.com

Photologic® Optical Flag Switch

OPB685-3, OPB686, OPB687, OPB695,
OPB696, OPB697, OPB698 Series



| Electrical Characteristics (T _A = 25° C unless otherwise noted) | | | | | | |
|--|---|-----|--------|-----|-------|--|
| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
| Output Photologic® Sensor (continued) | | | | | | |
| I _{F(+)} | LED Positive-Going Threshold Current OPB685-3—687 | 0.1 | 1.8 | 10 | mA | V _{CC} = 5 V |
| I _{F(+)} /I _{F(-)} | Hysteresis OPB685-3 | 1.0 | 1.2 | 1.6 | mA | V _{CC} = 5 V |
| t _r ,t _f | Rise Time, Fall Time | - | 30 | - | ns | |
| t _{PLH} ,t _{PHL} | Propagation Delay Low-High & High-Low: Buffer, 10k Pull-Up OPB685-3 | - | 1 (LH) | - | μs | V _{CC} = 5 V, I _F = 0 or 10 mA R _L = 300 Ω, DC = 50% f = 10 kHz |
| | Buffer, Open-Collector OPB686 | - | 2 (HL) | - | μs | |
| | Inverter, 10k Pull-Up OPB687 | - | 2 (LH) | - | μs | |

Notes:

- (1) Test requires lever arm in “blocked” position.
- (2) Test requires lever arm in “unblocked” position

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.

OPTEK Technology, Inc.
1645 Wallace Drive, Carrollton, TX 75006 | Ph: +1 972 323 2200
www.optekinc.com | www.ttelectronics.com

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А