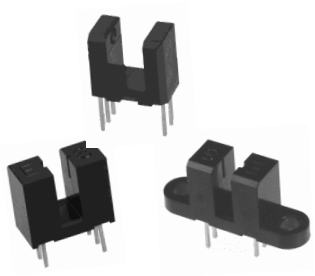
# Photologic® Slotted Optical Switch

## OPB615, OPB616, OPB617, OPB618 Series
## OPB625, OPB626, OPB627, OPB628 Series
## OPB665, OPB666, OPB667, OPB668 (N and TSeries)



### Features:
- Non-contact switching
- PCBoard mounting
- Enhanced signal to noise ratio
- Choice of four Logical output options

### Description:
Each OPB615, OPB625 and OPB665 series slotted optical switch consists of an 890 nm, infrared Light Emitting Diode (LED) and a monolithic integrated circuit that incorporates a photodiode, a linear amplifier and a Schmitt trigger on a single silicon chip. OPB655 offers two mounting options—no tabs (N) or two tabs (T).

All devices in this series exhibit performance over supply voltages ranging from 4.5 V to 16.0 V, and may be specified as Buffered or Inverted with 10 Kw Pull-up or Open Collector output. Devices are also TTI/LST TL compatible and can drive up to 10 TTL loads.

Custom electrical, wre and 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 | Package Style | Sensor Photologic® | Aperture Emitter / Sensor | Slot Width / Depth | Lead Length / Spacing |
|---|---|---|---|---|---|
| OPB615 | N | 10K Pull-up | None | 0.150" / 0.240" | 0.100" (min) / 0.275" |
| OPB616 | | Open Collector | | | |
| OPB617 | | Inv-10K Pull-up | | | |
| OPB618 | | Inv-Open Collector | | | |
| OPB625 | | 10K Pull-up | None | 0.190" / 0.285" | 0.100" (min) / 0.320" |
| OPB626 | | Open Collector | | | |
| OPB627 | | Inv-10K Pull-up | | | |
| OPB628 | | Inv-Open Collector | | | |
| OPB665N | | 10K Pull-up | 0.05"/ 0.01" | 0.125" / 0.345" | |
| OPB666N | | Open Collector | | | |
| OPB667N | | Inv-10K Pull-Up | | | |
| OPB668N | | Inv-Open Collector | | | |
| OPB665T | T | 10K Pull-up | | | |
| OPB666T | | Open Collector | | | |
| OPB667T | | Inv-10K Pull-up | | | |
| OPB668T | | 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.

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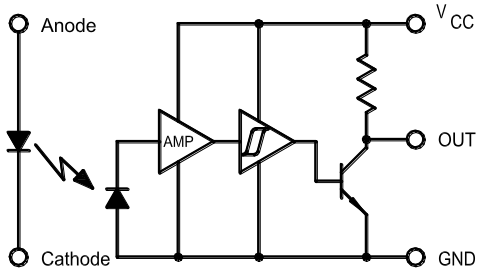
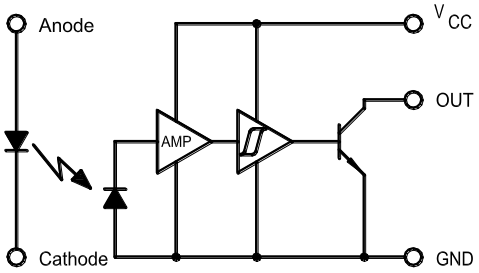
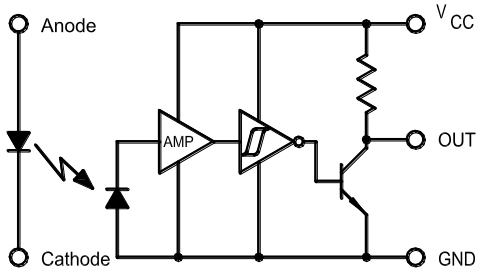
**OPB615/625/665N Buffered 10K Pull-Up**



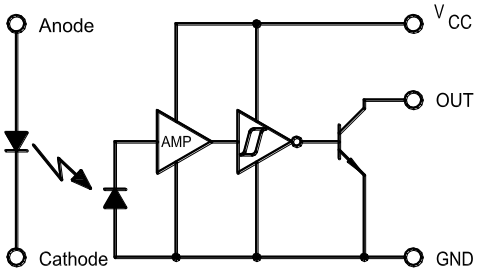

**OPB 616/626/666N Buffered Open-Collector**



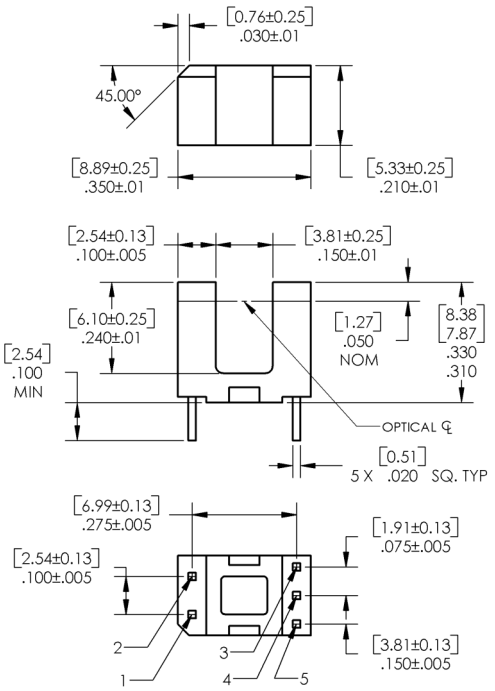

Photologic with Pull-Up-Resistor Inverted Output




Photologic with Open Collector InvertedOutput




**OPB615, OPB616, OPB617, OPB618**




| Pin Color/ Number | Description |
|---|---|
| 1 | Anode |
| 2 | Cathode |
| 3 | Vcc |
| 4 | Output |
| 5 | Ground |

**DIMENSIONS ARE IN:** **[ MILLIMETERS]**
**INCHES**



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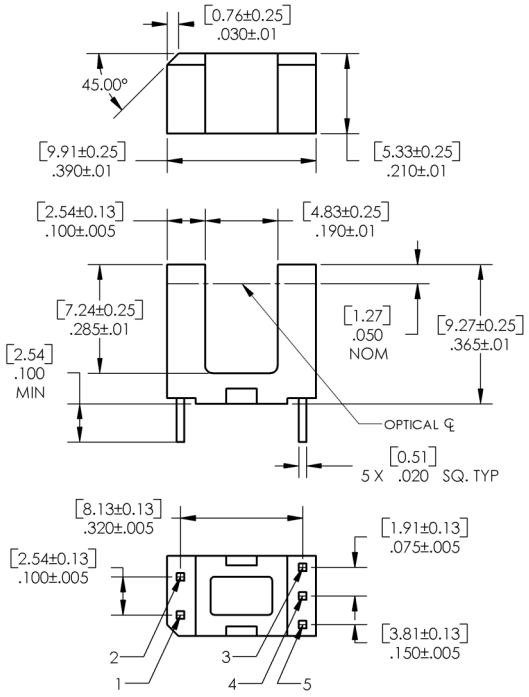
**OPB625, OPB626, OPB627, OPB628**

| Pin Color/ Number | Description |
|---|---|
| 1 | Anode |
| 2 | Cathode |
| 3 | Vcc |
| 4 | Output |
| 5 | Ground |







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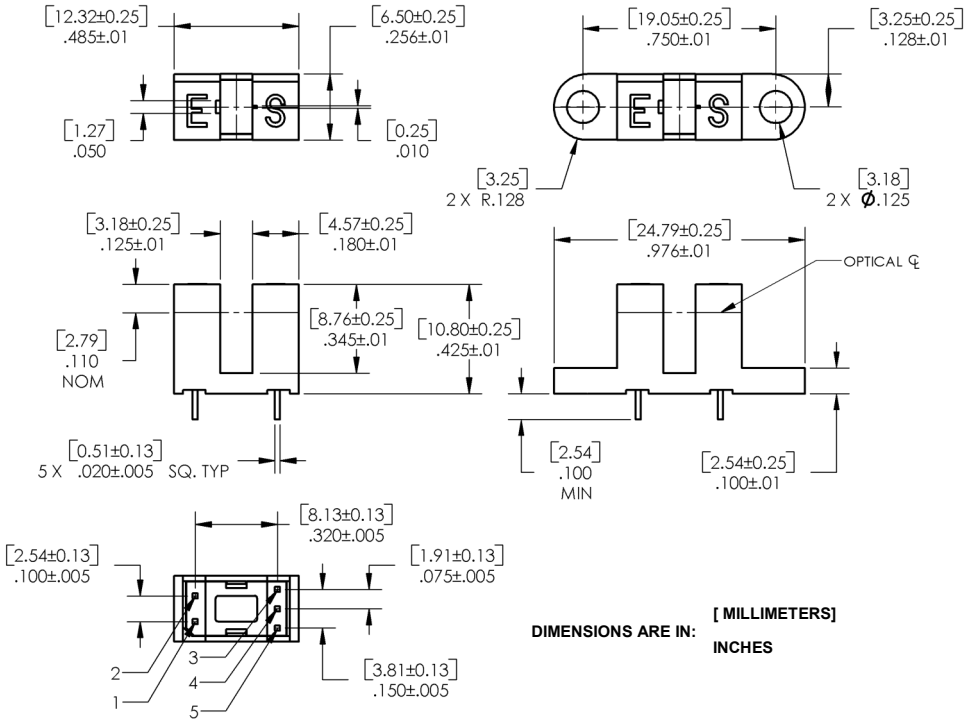
**OPB665, OPB666, OPB667, OPB668 (N and T)**

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**INCHES**

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| **Absolute Maximum Ratings** ($T_A$ = 25° 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 | |
| Forward DC Current | 50 mA |
| Peak Forward Current (1 µs pulse width, 300 pps) | 3 A |
| Reverse DC Voltage | 3 V |
| 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(5) | Vcc |
| Low Level Output Current (sinking) | 16 mA |
| Power Dissipation(3) | 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 2.50 mW/° C above 25° C.
(4) Normal application would be with light source blocked, simulated by $I_F$ = 0 mA.
(5) Open Collector devices = 30 volts

**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 | | 4.5 | - | 16 | V | |
| $I_{F(+)}$ | LED Positive-Going Threshold Current | OPB615-618<br>OPB625-628<br>OPB665-668 | 0.1<br>0.1<br>0.1 | 0.55<br>0.6<br>1.6 | 3<br>3<br>10 | mA | $V_{CC}$ = 5 V |
| $I_{F(+)}/I_{F(-)}$ | Hysteresis | | 1.05 | 1.20 | 1.90 | | $V_{CC}$ = 5 V |



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

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|---|---|---|---|---|---|---|
| Output Photologic® Sensor | | | | | | |
| $I_{CCH}$ | High Level Supply Current:<br>Buffer, 10k Pull-up OPB615, 625, 665<br>Buffer, Open-Collector OPB616, 626, 666 | -<br>- | 5<br>5 | 12<br>12 | mA | NO LOAD on Output[3] |
| | Inverted, 10k Pull-up OPB617, 627, 667<br>Inverted, Open-Collector OPB618, 628, 668 | -<br>- | 4<br>4 | 12<br>12 | mA | NO LOAD on Output<br>$I_F$ = 0 mA |
| $I_{CCL}$ | Low Level Supply Current:<br>Buffer, 10k Pull-up OPB615, 625, 665<br>Buffer, Open-Collector OPB616, 626, 666 | -<br>- | 5.5<br>4.0 | 12<br>12 | mA | NO LOAD on Output<br>$I_F$ = 0 mA |
| | Inverted, 10k Pull-up OPB617, 627, 667<br>Inverted, Open-Collector OPB618, 628, 668 | -<br>- | 6.5<br>5.0 | 12<br>12 | mA | NO LOAD on Output[3] |
| $V_{OH}$ | High Level Output Voltage:<br>Buffer, 10k Pull-up OPB615, 625, 665<br>Buffer, Open-Collector OPB616, 626, 666 | $V_{CC}$-1.5 | -<br>- | -<br>- | V | $I_{OH}$ = 100 µA[3] |
| | Inverter, 10k Pull-up OPB617, 627, 667<br>Inverter, Open-Collector OPB618, 628, 668 | $V_{CC}$-1.5 | -<br>- | -<br>- | V | $I_{OH}$ = 100 µA[1]<br>$I_F$ = 0 mA |
| $I_{OH}$ | High Level Output Voltage:<br>Buffer, Open-Collector OPB616, 626, 666 | - | - | 100 | µA | $V_{OH}$ = 30 V[3] |
| | Inverter, Open-Collector OPB618, 628, 668 | - | - | 100 | µA | $I_F$ = 0 mA, $V_{OH}$ = 30 V[1] |
| $V_{OL}$ | Low Level Output Voltage:<br>Buffer, 10k Pull-up OPB615, 625, 665<br>Buffer, Open-Collector OPB616, 626, 666 | - | - | 0.4 | V | $I_{OL}$ = 16 mA, Vcc = 4.5 V[3][1] |
| | Inverter, 10k Pull-up OPB617, 627, 667<br>Inverter, Open-Collector OPB618, 628, 668 | - | - | 0.4 | V | $I_{OL}$ = 16 mA, $I_F$ = 0 mA |
| $t_r$, $t_f$ | Output Rise Time, Output Fall Time | | 30 | | ns | f = 10 kHz,<br>$R_L$ = 300 Ω, DC = 50%[3] |
| $t_{PLH}$ | Propagation Delay, Low-High<br>Buffer, 10k Pull-up OPB615, 625, 665<br>Buffer, Open-collector OPB616, 626, 666 | | 0.6 | | µs | |
| | Inverter, 10k Pull-up OPB617, 627, 667<br>Inverter, Open-Collector OPB618, 628, 668 | | 3.0 | | µs | |
| $t_{PHL}$ | Propagation Delay, High-Low<br>Buffer, 10k Pull-up OPB615, 625, 665<br>Buffer, Open-collector OPB616, 626, 666 | | 3.0 | | µs | |
| | Inverter, 10k Pull-up OPB617, 627, 667<br>Inverter, Open-Collector OPB618, 628, 668 | | 0.6 | | µs | |
| Data Rate | | - | 100 | - | kHz | $R_L$ = 300 Ω, DC = 50%[4] |




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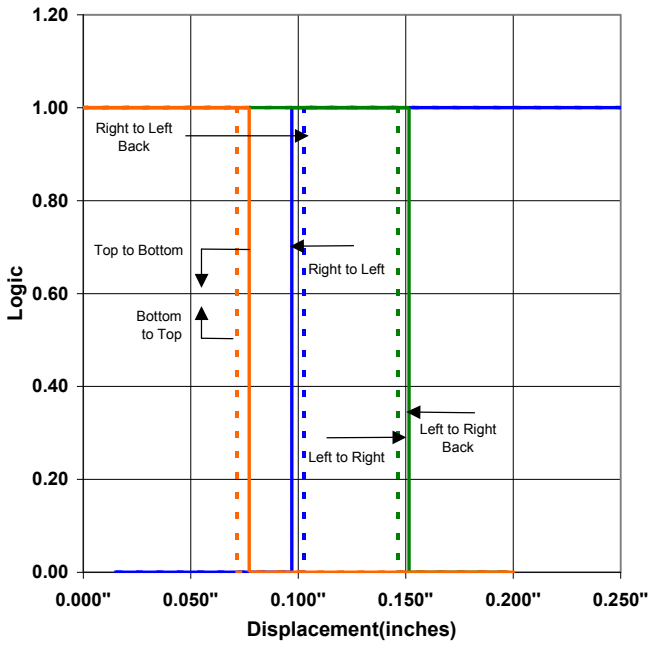
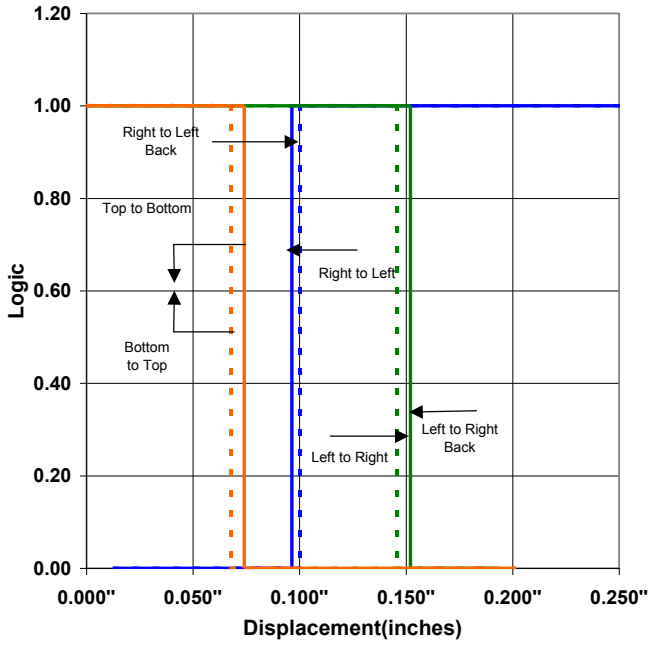
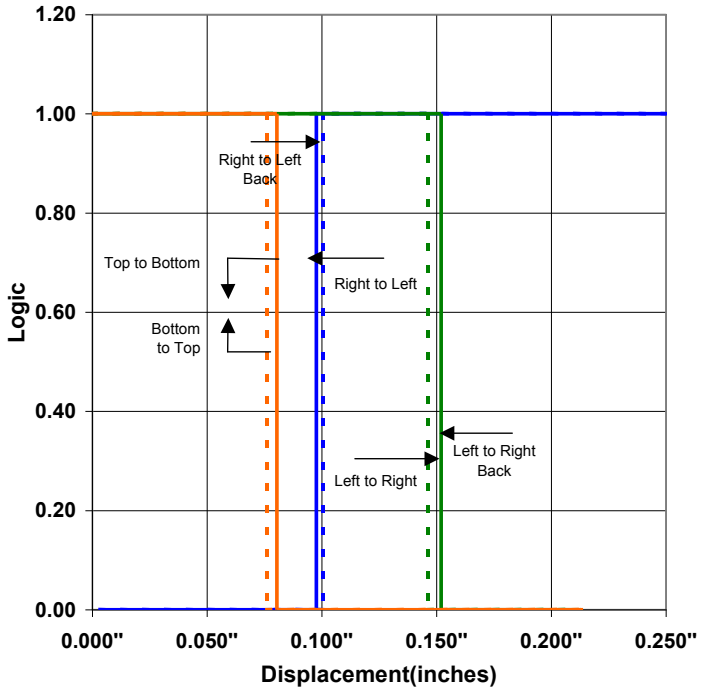
**OPB615 - Flag next to Emitter**

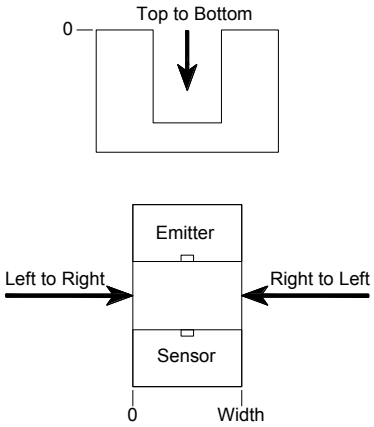



**OPB615 - Flag next to Sensor**




**OPB615 - Flag in Middle of Slot**



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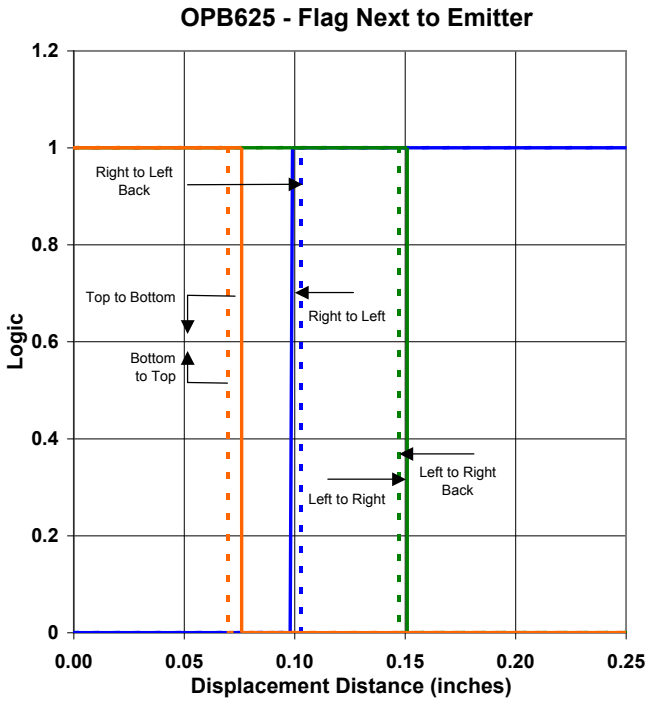


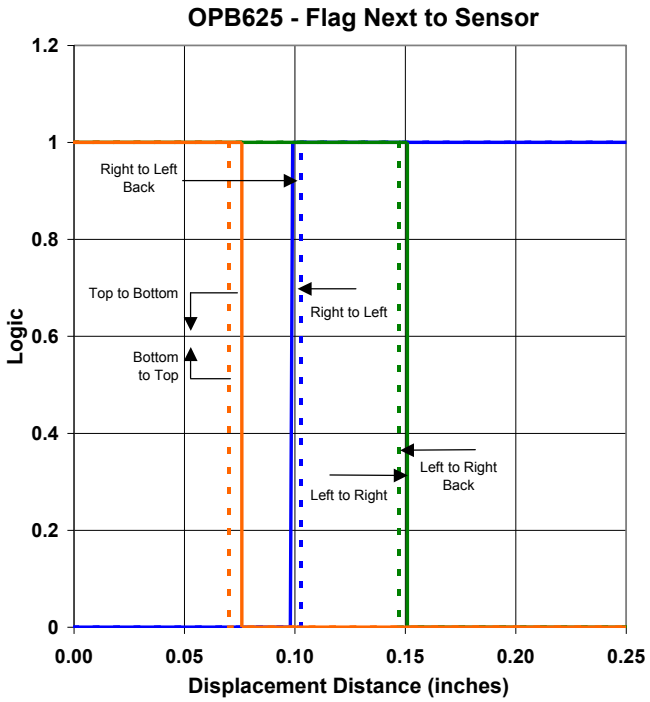


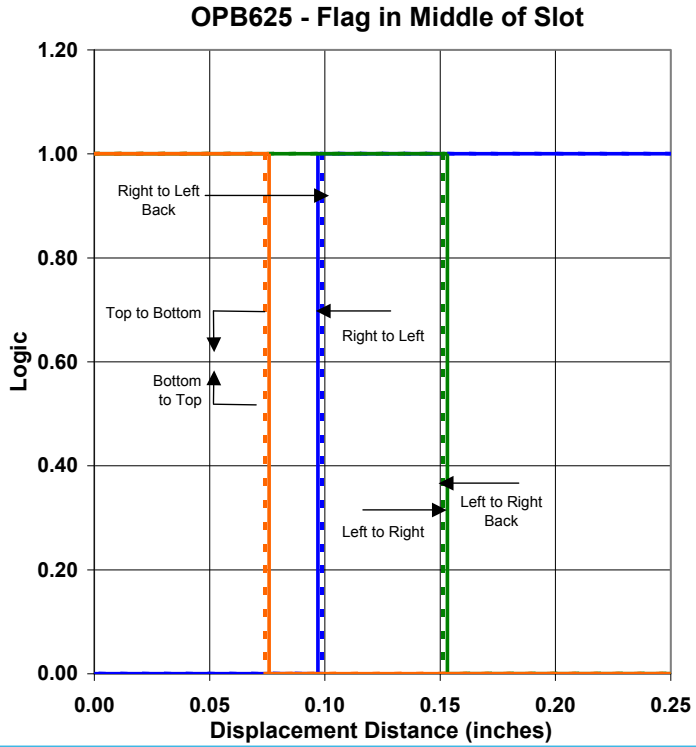


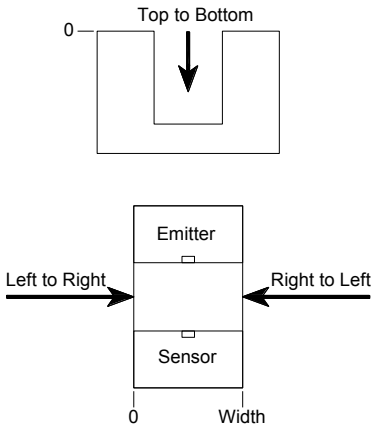




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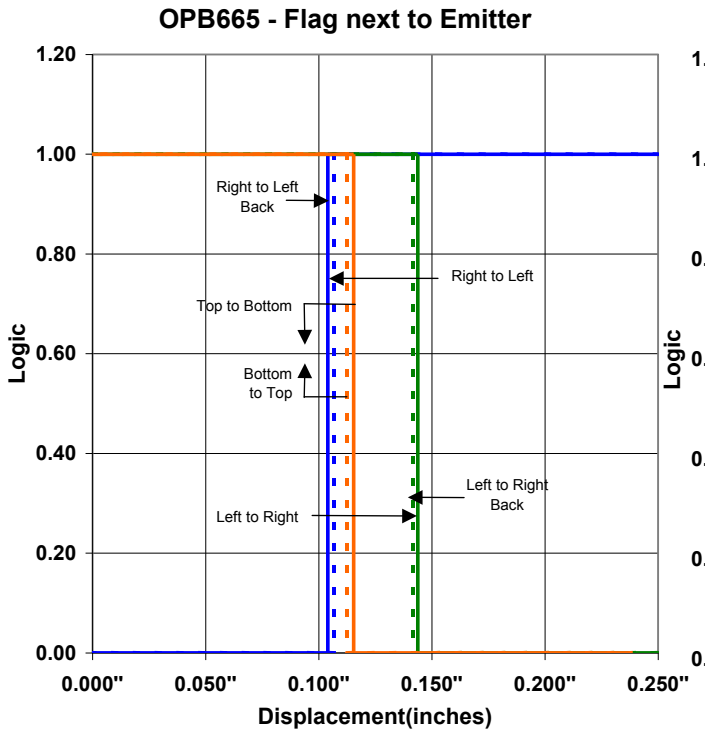


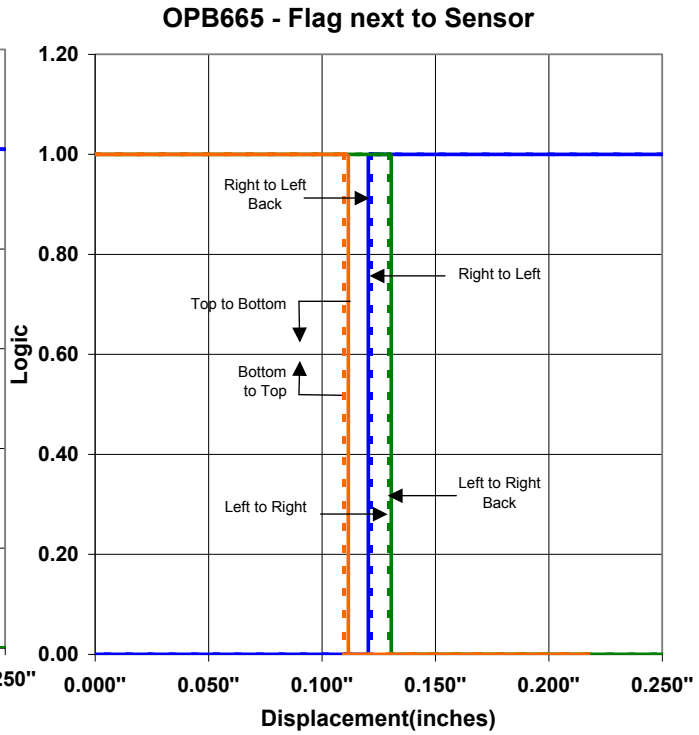


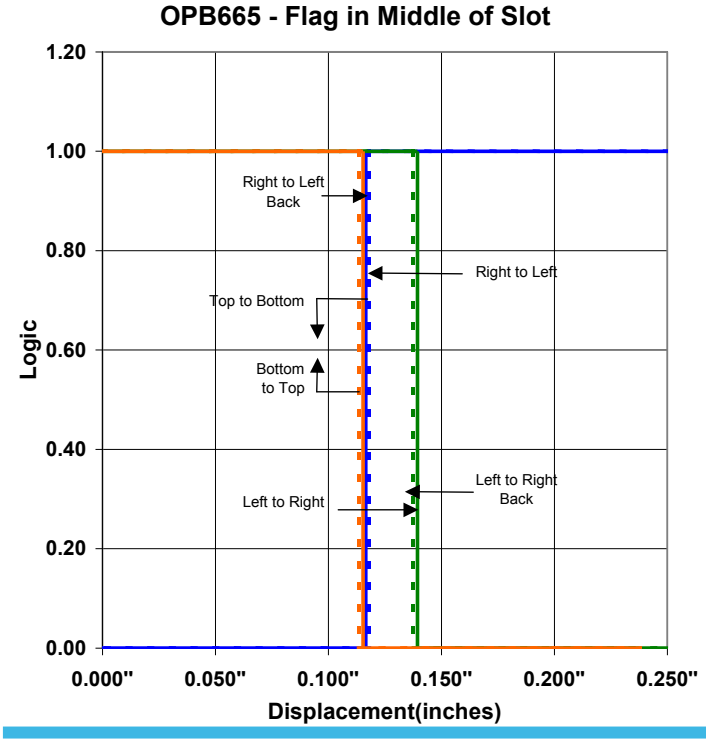


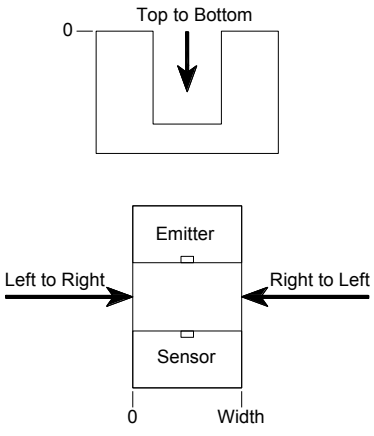




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Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

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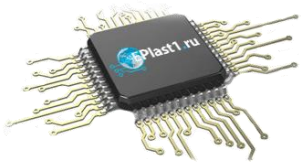
- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.




**Как с нами связаться**

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**Факс:** 8 (812) 320-02-42
**Электронная почта:** org@eplast1.ru
**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.