

# Photologic® Slotted Optical Switch



OPB615, OPB616, OPB617, OPB618 Series

OPB625, OPB626, OPB627, OPB628 Series

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



## 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, wire 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.

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

# Photologic® Slotted Optical Switch

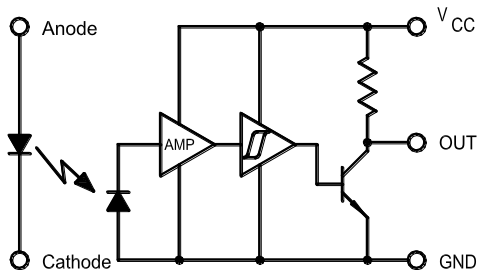


OPB615, OPB616, OPB617, OPB618 Series

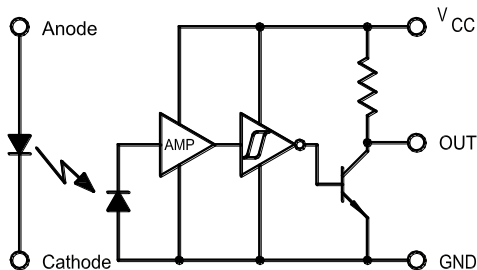
OPB625, OPB626, OPB627, OPB628 Series

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

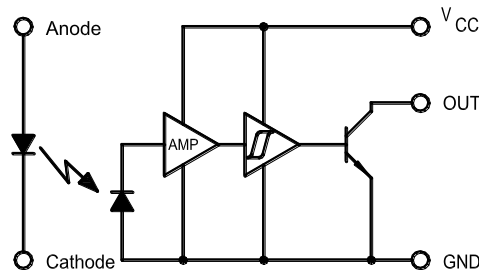
**OPB615/625/665N Buffered 10K Pull-Up**



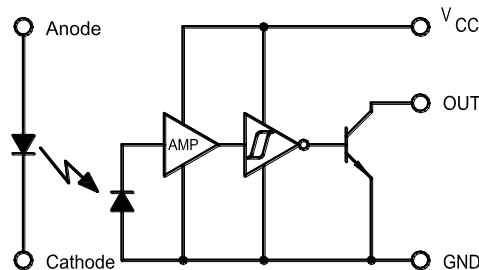
Photologic with Pull-Up-Resistor Inverted Output



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



Photologic with Open Collector Inverted Output



**OPB615, OPB616, OPB617, OPB618**



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

DIMENSIONS ARE IN: [ MILLIMETERS]  
INCHES

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® Slotted Optical Switch



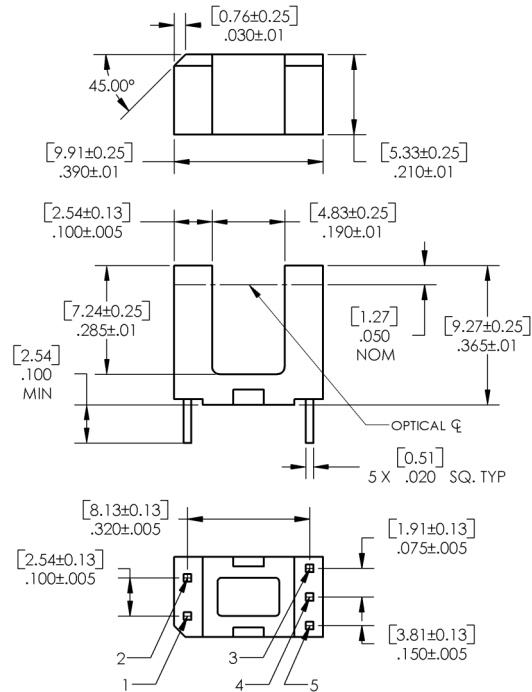
OPB615, OPB616, OPB617, OPB618 Series

OPB625, OPB626, OPB627, OPB628 Series

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

## OPB625, OPB626, OPB627, OPB628

Pin Color/Number	Description
1	Anode
2	Cathode
3	Vcc
4	Output
5	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](http://www.optekinc.com) | [www.ttelectronics.com](http://www.ttelectronics.com)



# Photologic® Slotted Optical Switch



OPB615, OPB616, OPB617, OPB618 Series

OPB625, OPB626, OPB627, OPB628 Series

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

Absolute Maximum Ratings (T <sub>A</sub> = 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) <sup>(1)</sup>	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 <sup>(2)</sup>	100 mW
Output Photologic®	
Supply Voltage, V <sub>CC</sub>	18 V
Duration of Output Short to V <sub>CC</sub>	1 second
Voltage at Output <sup>(5)</sup>	V <sub>CC</sub>
Low Level Output Current (sinking)	16 mA
Power Dissipation <sup>(3)</sup>	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<sub>F</sub> = 0 mA.
- (5) Open Collector devices = 30 volts

Electrical Characteristics (T <sub>A</sub> = 25° C unless otherwise noted)							
SYMBOL	PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode							
V <sub>F</sub>	Forward Voltage		-	-	1.6	V	I <sub>F</sub> = 10 mA
I <sub>R</sub>	Reverse Current		-	-	100	μA	V <sub>R</sub> = 3 V
Output Photologic® Sensor							
V <sub>CC</sub>	Operating DC Supply Voltage		4.5	-	16	V	
I <sub>F(+)</sub>	LED Positive-Going Threshold Current	OPB615-618	0.1	0.55	3	mA	V <sub>CC</sub> = 5 V
		OPB625-628	0.1	0.6	3		
		OPB665-668	0.1	1.6	10		
I <sub>F(+)</sub> /I <sub>F(-)</sub>	Hysteresis		1.05	1.20	1.90		V <sub>CC</sub> = 5 V

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](http://www.optekinc.com) | [www.ttelectronics.com](http://www.ttelectronics.com)

# Photologic® Slotted Optical Switch



OPB615, OPB616, OPB617, OPB618 Series

OPB625, OPB626, OPB627, OPB628 Series

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

Electrical Characteristics (T <sub>A</sub> = 25° C unless otherwise noted)							
SYMBOL	PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITIONS
Output Photologic® Sensor							
I <sub>CCH</sub>	High Level Supply Current: Buffer, 10k Pull-up		-	5	12	mA	NO LOAD on Output <sup>(3)</sup>
	Buffer, Open-Collector		-	5	12		
I <sub>CCH</sub>	Inverted, 10k Pull-up		-	4	12	mA	NO LOAD on Output I <sub>F</sub> = 0 mA
	Inverted, Open-Collector		-	4	12		
I <sub>CCL</sub>	Low Level Supply Current: Buffer, 10k Pull-up		-	5.5	12	mA	NO LOAD on Output I <sub>F</sub> = 0 mA
	Buffer, Open-Collector		-	4.0	12		
I <sub>CCL</sub>	Inverted, 10k Pull-up		-	6.5	12	mA	NO LOAD on Output <sup>(3)</sup>
	Inverted, Open-Collector		-	5.0	12		
V <sub>OH</sub>	High Level Output Voltage: Buffer, 10k Pull-up		V <sub>CC</sub> - 1.5	-	-	V	I <sub>OH</sub> = 100 μA <sup>(3)</sup>
	Buffer, Open-Collector		-	-	-		
V <sub>OH</sub>	Inverter, 10k Pull-up		V <sub>CC</sub> - 1.5	-	-	V	I <sub>OH</sub> = 100 μA <sup>(1)</sup> I <sub>F</sub> = 0 mA
	Inverter, Open-Collector		-	-	-		
I <sub>OH</sub>	High Level Output Voltage: Buffer, Open-Collector		-	-	100	μA	V <sub>OH</sub> = 30 V <sup>(3)</sup>
	Inverter, Open-Collector		-	-	100		
V <sub>OL</sub>	Low Level Output Voltage: Buffer, 10k Pull-up		-	-	0.4	V	I <sub>OL</sub> = 16 mA, V <sub>CC</sub> = 4.5 V <sup>(3)(1)</sup>
	Buffer, Open-Collector		-	-	0.4		
V <sub>OL</sub>	Inverter, 10k Pull-up		-	-	0.4	V	I <sub>OL</sub> = 16 mA, I <sub>F</sub> = 0 mA
	Inverter, Open-Collector		-	-	0.4		
t <sub>r</sub> , t <sub>f</sub>	Output Rise Time, Output Fall Time			30		ns	f = 10 kHz, R <sub>L</sub> = 300 Ω, DC = 50% <sup>(3)</sup>
t <sub>PLH</sub>	Propagation Delay, Low-High Buffer, 10k Pull-up			0.6		μs	
	Buffer, Open-collector						
t <sub>PLH</sub>	Inverter, 10k Pull-up			3.0		μs	
	Inverter, Open-Collector						
t <sub>PHL</sub>	Propagation Delay, High-Low Buffer, 10k Pull-up			3.0		μs	
	Buffer, Open-collector						
t <sub>PHL</sub>	Inverter, 10k Pull-up			0.6		μs	
	Inverter, Open-Collector						
Data Rate				100		kHz	R <sub>L</sub> = 300 Ω, DC = 50% <sup>(4)</sup>

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® Slotted Optical Switch



OPB615, OPB616, OPB617, OPB618 Series

OPB625, OPB626, OPB627, OPB628 Series

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

**OPB615 - Flag next to Emitter**



**OPB615 - Flag next to Sensor**



**OPB615 - Flag in Middle of Slot**



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](http://www.optekinc.com) | [www.ttelectronics.com](http://www.ttelectronics.com)

# Photologic<sup>®</sup> Slotted Optical Switch



OPB615, OPB616, OPB617, OPB618 Series

OPB625, OPB626, OPB627, OPB628 Series

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

**OPB625 - Flag Next to Emitter**



**OPB625 - Flag Next to Sensor**



**OPB625 - Flag in Middle of Slot**



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® Slotted Optical Switch



OPB615, OPB616, OPB617, OPB618 Series

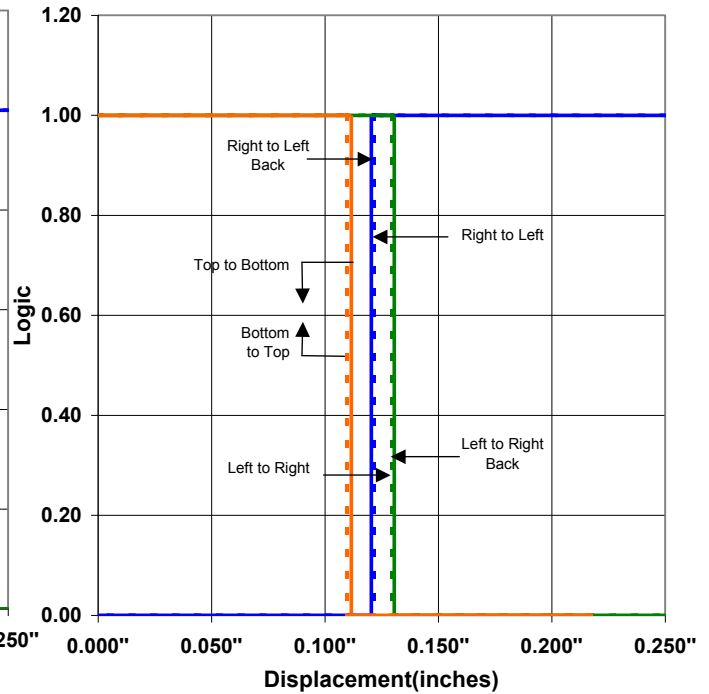
OPB625, OPB626, OPB627, OPB628 Series

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

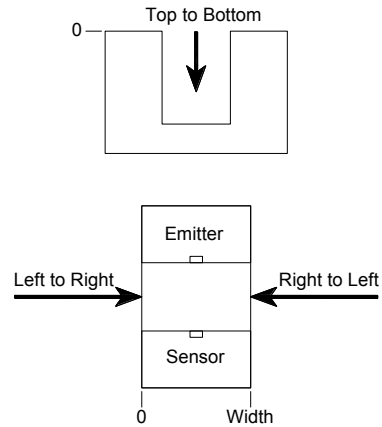
**OPB665 - Flag next to Emitter**



**OPB665 - Flag next to Sensor**



**OPB665 - Flag in Middle of Slot**



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 «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.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- 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

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.