



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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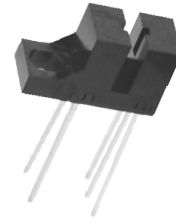
Photologic® Slotted Optical Switch



OPB120A, OPB120B, OPB121A, OPB121B,
OPB122A, OPB122B, OPB123A, OPB123B

Features:

- Choice of output configuration
- Printed circuit board mounting
- Opaque plastic housing
- Low profile
- 0.080" (2.03 mm) wide slot
- 0.275" (6.99 mm) lead spacing



Description:

The **OPB120** through **OPB123** devices consist of an infrared emitting diode and a Photologic® sensor (which is a monolithic integrated circuit that incorporates a linear amplifier and a Schmitt Trigger). The **OPB120** series have an LED and Photologic® sensor mounted on opposite sides of a 0.080" (2.03 mm) wide gap of an opaque housing. The OPB12_A series have a molded 0.040" (1.02 mm) wide apertures located over both the emitter and the Photologic® sensor. The OPB12_B series have a molded 0.040" (1.016 mm) wide apertures located over the emitter and 0.010" (0.254 mm) over the Photologic® sensor. All devices in this series have the added stability utilizing hysteresis built into the amplification circuitry.

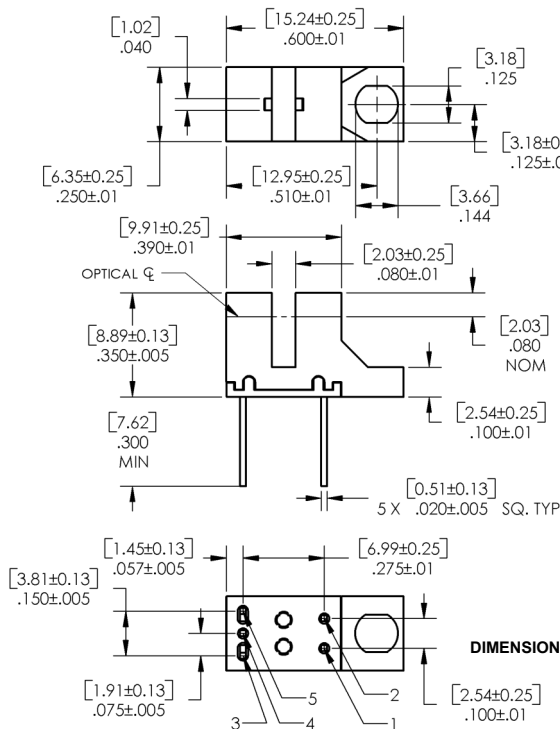
The electrical output can be specified as either buffered Totem-Pole (**OPB 120A, OPB120B**), buffered Open-Collector (**OPB121A, OPB121B**), Inverted Totem-Pole (**OPB122A, OPB122B**), or Inverted Open-Collector (**OPB123A, OPB123B**).

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
- Object sensing

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



Ordering Information		
Part Number	Sensor Photologic®	Aperture Emitter/Sensor
OPB120A	Totem-Pole	0.04" / 0.04"
OPB120B		0.04" / 0.01"
OPB121A	Open-Collector	0.04" / 0.04"
OPB121B		0.04" / 0.01"
OPB122A	Inverted Totem-Pole	0.04" / 0.04"
OPB122B		0.04" / 0.01"
OPB123A	Inverted Open-Collector	0.04" / 0.04"
OPB123B		0.04" / 0.01"



General Note
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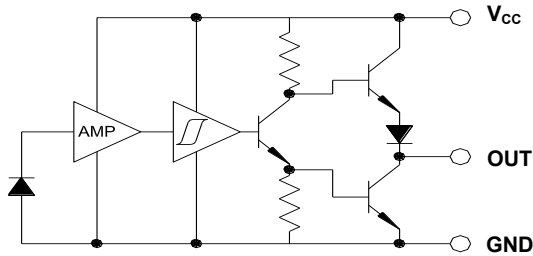
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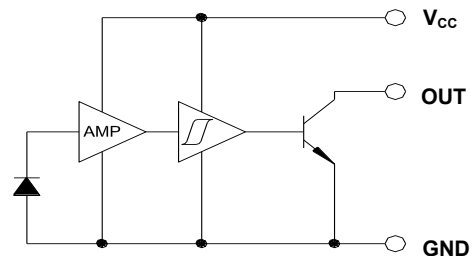


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OPB122A, OPB122B, OPB123A, OPB123B

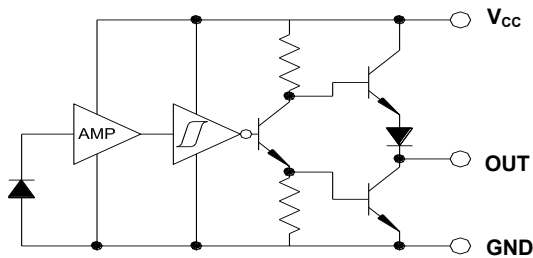
OPB120 Buffered Totem-Pole



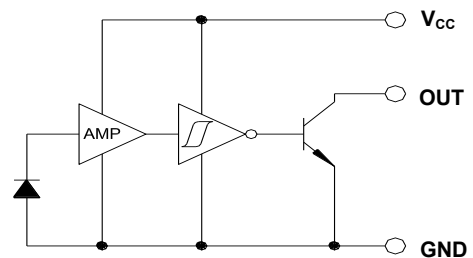
OPB121 Buffered Open-Collector



OPB122 Inverted Totem-Pole



OPB123 Inverted Open-Collector



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Electrical Specifications

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)	
Supply Voltage (not to exceed 3 seconds)	10 V
Storage Temperature	-40°C to $+85^\circ\text{C}$
Operating Temperature	-40°C to $+70^\circ\text{C}$
Lead Soldering Temperature (1/16" (1.6 mm) from case for 5 seconds with soldering iron) ⁽¹⁾	260° C
Input Infrared Diode	
Input Diode Power Dissipation ⁽²⁾	100 mW
Output Photologic® Power Dissipation ⁽⁴⁾	200 mW
Total Device Power Dissipation ⁽⁵⁾	300 mW
Output Photologic®	
Voltage at Output Lead (Open Collector Output - OPB121, OPB122, OPB123)	35 V
Forward D.C. Current	40 mA
Reverse D.C. Current	2 V

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
- (2) Derate linearly 2.22 mW/°C above 25°C
- (3) Normal application would be with light source blocked, simulated by $I_F = 0$.
- (4) Derate linearly 4.44 mW/°C above 25°C
- (5) Derate linearly 6.66 mW/°C above 25°C
- (6) Applies to Totem Pole configurations (OPB120A, OPB120B) only.
- (7) All parameters tested using pulse technique.

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Electrical Characteristics (T _A = 25° C unless otherwise noted)						
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode (see OP240 for additional information)						
V _F	Forward Voltage	-	-	1.7	V	I _F = 20 mA, T _A = 25° C
I _R	Reverse Current	-	-	100	μA	V _R = 2 V, T _A = 25° C
Output Photologic® Sensor (see OPL560 for additional information)						
V _{CC}	Operating D.C. Supply Voltage	4.75	-	5.25	V	
I _{CCL}	Low Level Supply Current: Buffered Totem-Pole Output Buffered Open-Collector Output	-	-	15	mA	V _{CC} = 5.25 V, I _F = 0 mA ⁽¹⁾
	Inverted Totem-Pole Output Inverted Open-Collector Output	-	-	15	mA	V _{CC} = 5.25 V, I _F = 20 mA
I _{CCH}	High Level Supply Current: Buffered Totem-Pole Output Buffered Open-Collector Output	-	-	15	mA	V _{CC} = 5.25 V, I _F = 20 mA
	Inverted Totem-Pole Output Inverted Open-Collector Output	-	-	15	mA	V _{CC} = 5.25 V, I _F = 0 mA ⁽¹⁾
V _{OL}	Low Level Output Voltage: Buffered Totem-Pole Output Buffered Open-Collector Output	-	-	0.4	V	V _{CC} = 4.75 V, I _{OL} = 12.8 mA, I _F = 0 mA ⁽¹⁾
	Inverted Totem-Pole Output Inverted Open-Collector Output	-	-	0.4	V	V _{CC} = 4.75 V, I _{OL} = 12.8 mA, I _F = 20 mA
V _{OH}	High Level Output Voltage: Buffered Totem-Pole Output	2.4	-	-	V	V _{CC} = 4.75 V, I _{OH} = -800 μA, I _F = 20 mA
	Inverted Totem-Pole Output	2.4	-	-	V	V _{CC} = 4.75 V, I _{OH} = -800 μA, I _F = 0 mA ⁽¹⁾
I _{OH}	High Level Output Voltage: Buffered Open-Collector Output	-	-	100	μA	V _{CC} = 4.75 V, V _{OH} = 30 V, I _F = 25 mA, T _A = 25° C
	Inverted Open-Collector Output	-	-	100	μA	V _{CC} = 4.75 V, V _{OH} = 30 V, I _F = 0 mA, T _A = 25° C
I _F (+)	LED Positive-Going Threshold Current	-	-	15	mA	V _{CC} = 5 V, T _A = 25° C
I _F (+)/I _F (-)	Hysteresis	-	2	-	-	V _{CC} = 5 V

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Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
I_{OS}	Short Circuit Output Current: Buffered Totem-Pole Output	-20	-	-100	mA	$V_{CC} = 5.25\text{ V}$, $I_F = 20\text{ mA}^{(2)}$ Output = GND
	Inverted Totem-Pole Output	-20	-	-100	mA	$V_{CC} = 5.25\text{ V}$, $I_F = 0\text{ mA}^{(2)}$ Output = GND
t_r, t_f	Output Rise Time, Output Fall Time	-	70	-	ns	$V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$ $I_F = 0$ or 20 mA
t_{PLH}, t_{PHL}	Propagation Delay Low-High & High-Low	-	5	-	μs	$R_L = 8\text{ TTL Loads (Totem-Pole)}$ $R_L = 360\ \Omega$ (Open-Collector)

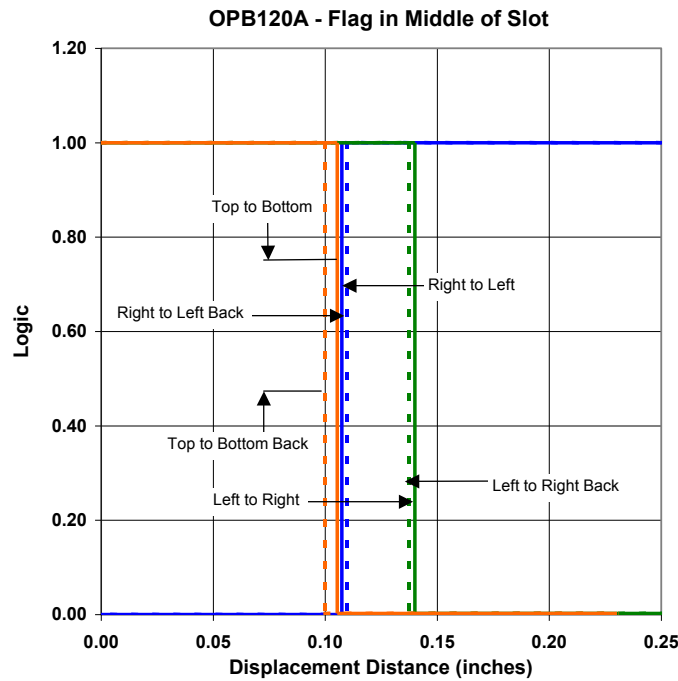
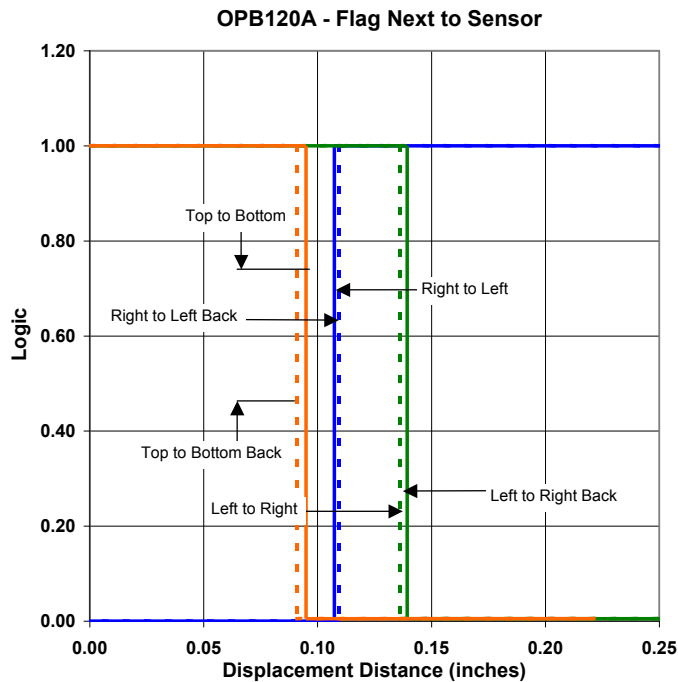
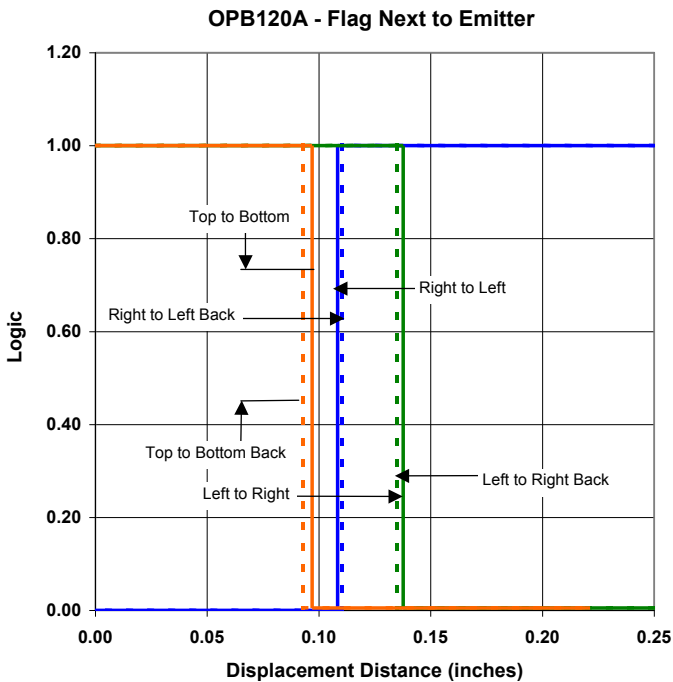
Notes:

- (1) Normal application would be with light source blocked, simulated by $I_F = 00$.
- (2) Applies to Totem Pole configurations (OPB120A, OPB120B) only.

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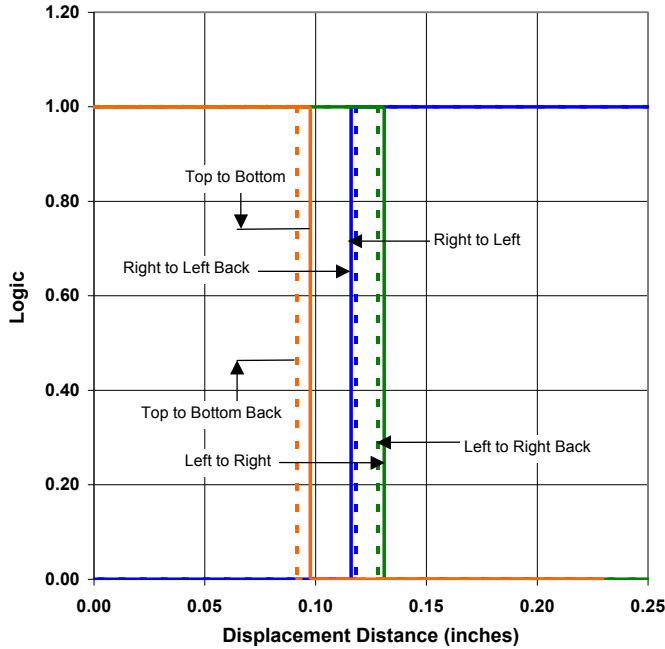
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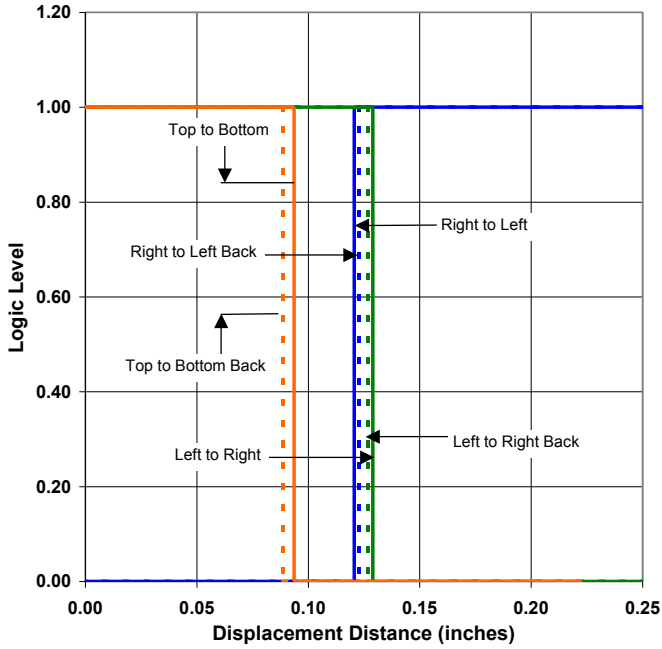


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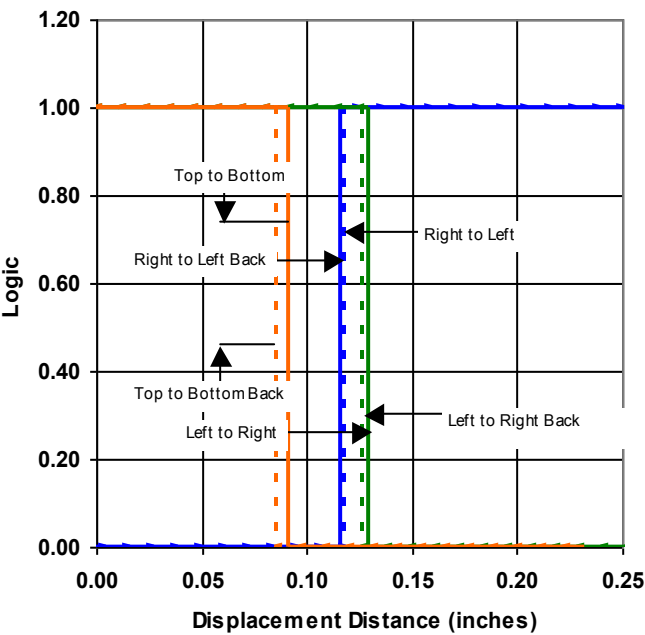
OPB120B - Flag Next to Emitter



OPB120B - Flag Next to Sensor



OPB120B - Flag in Middle of Slot



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