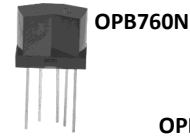


# Photologic® Reflective Object Sensor

OPB760N, OPB760T, OPB761N, OPB763T

OPB770TZ, OPB771TZ, OPB773TZ



## Features:

- Choice of mounting configurations
- Choice of four output configurations
- .040" (10.160 mm) PCBoard mount (N and T series)
- 12" (304.800 mm) AWG 26 wires (TZ series)

## Description:

The **OPB760N**, **OPB760T**-and **OPB770T** series of reflective assemblies feature Photologic® output. The electrical output can be specified as either TTL Totem-Pole or TTL Open-Collector, either of which can be supplied with inverter or buffer output polarity.

**OPB760N** and **OPB760T** series devices are designed for PCBoard mounting and have 0.04" (10 mm) long leads.

**OPB760T** and **OPB770T** series devices are designed for remote mounting with two mounting tabs.

**OPB770TZ** series devices have 12" (305 mm) long, UL approved 26 AWG wires.

All devices in this series offer the added stability of a built-in hysteresis amplifier.

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

## Applications:

- Non-contact Photologic® reflective object sensor
- Assembly line automation
- Machine automation
- Machine safety
- End of travel sensor
- Door sensor

Ordering Information				
Part Number	LED Peak Wavelength	Sensor Photologic®	Reflection Distance (Inch) Min / Max	Mounting
OPB760N	890 nm	Totem-Pole	0.080" / 0.220"	PCBoard .040" (10.160 mm) leads
OPB761N		Open Collector		
OPB762N <b>Obsolete</b>		Inv-Totem-Pole		
OPB763N <b>Obsolete</b>		Inv-Open Collector		
OPB760T		Totem-Pole		
OPB761T <b>Obsolete</b>		Open Collector		
OPB762T <b>Obsolete</b>		Inv-Totem-Pole		
OPB763T		Inv-Open Collector		
OPB770NZ <b>Obsolete</b>		Totem-Pole		12" (304.800 mm) 26 AWG wire
OPB771NZ <b>Obsolete</b>		Open Collector		
OPB772NZ <b>Obsolete</b>		Inv-Totem-Pole		
OPB773NZ <b>Obsolete</b>		Inv-Open Collector		
OPB770TZ		Totem-Pole		
OPB771TZ		Open Collector		
OPB772TZ <b>Obsolete</b>		Inv-Totem-Pole		
OPB773TZ		Inv-Open Collector		



### General Note

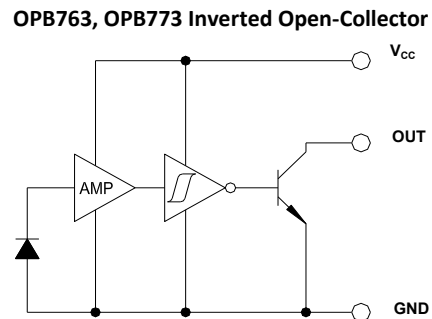
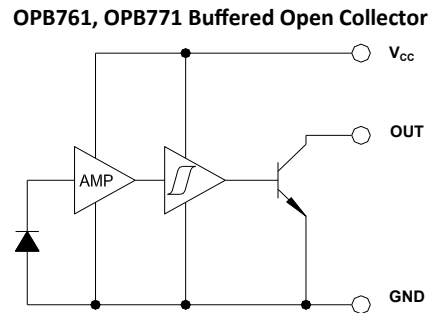
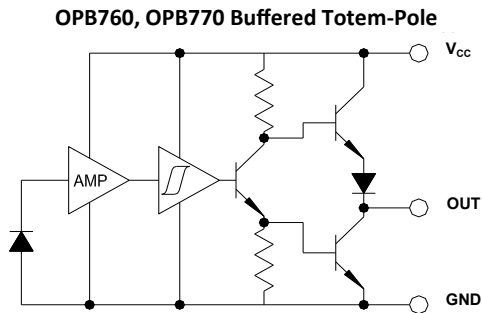
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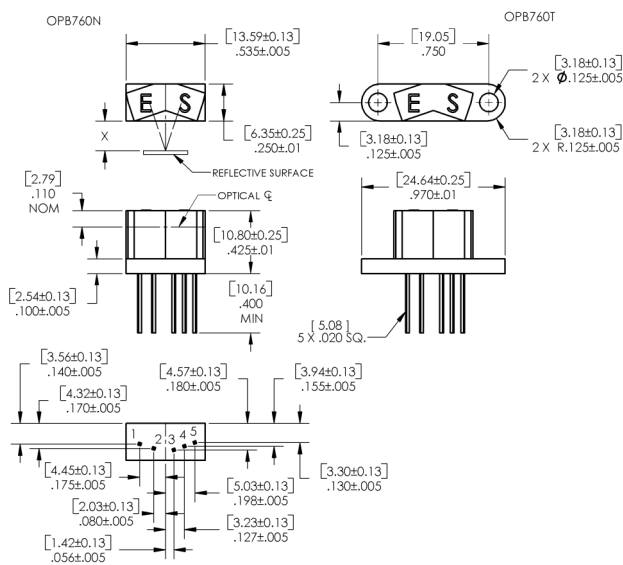
# Photologic® Reflective Object Sensor

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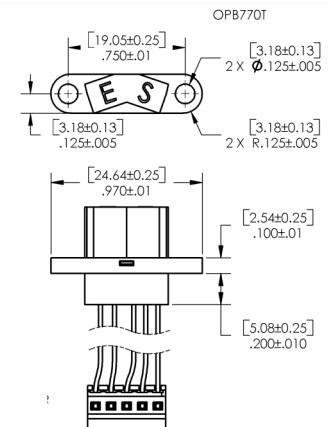


## OPB760 (N and T Series)



X = 0.08" [2.0 mm] to 0.22" [5.6 mm]

## OPB770TZ Series



DIMENSIONS ARE IN: [MILLIMETERS] INCHES

Pin#	Description	Pin#	Description
1	Cathode	3	Ground
2	Anode	4	Output
		5	V <sub>CC</sub>

Color/Pin#	Description	Color/Pin#	Description
Red-4	Anode	White-1	V <sub>CC</sub>
Black-5	Cathode	Blue-2	Output
		Green-3	Ground

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## Electrical Specifications

### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Supply Voltage, $V_{CC}$ (not to exceed 3 seconds)	10 V
Storage Temperature Range	$-40^\circ\text{C}$ to $+85^\circ\text{C}$
Operating Temperature Range	$-40^\circ\text{C}$ to $+70^\circ\text{C}$
Lead Soldering Temperature (1/16" inch (1.6 mm) from case for 5 seconds with soldering iron) <sup>(1)</sup>	260° C
Input Diode Power Dissipation <sup>(2)</sup>	100 mW
Output Photologic® Power Dissipation <sup>(3)</sup>	200 mW
Total Device Power Dissipation <sup>(4)</sup>	300 mW
Voltage at Output Lead (Open Collector Output)	35 V
Diode Forward DC Current	40 mA
Diode Reverse DC Voltage	3 V

### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
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#### Input Diode

$V_F$	Forward Voltage	-	-	1.8	V	$I_F = 40\text{ mA}$ , $T_A = 25^\circ\text{C}$
$I_R$	Reverse Current	-	-	100	$\mu\text{A}$	$V_R = 2.0\text{ V}$ , $T_A = 25^\circ\text{C}$

#### Output Photologic® Sensor

$V_{CC}$	Operating DC Supply Voltage	4.75	-	5.25	V	
$I_{CCL}$	Low Level Supply Current: Buffered Totem-Pole Output <sup>(5)(6)</sup>	-	-	10	mA	$V_{CC} = 5.25\text{ V}$ , $I_F = 0\text{ mA}$ (output open)
	Buffered Open-Collector Output <sup>(5)(6)</sup>	-	-	10	mA	
	Inverted Open-Collector Output <sup>(5)</sup>	-	-	10	mA	$V_{CC} = 5.25\text{ V}$ , $I_F = 25\text{ mA}$ (output open)
$I_{CCH}$	High Level Supply Current: Buffered Totem-Pole Output <sup>(5)(6)</sup>	-	-	10	mA	$V_{CC} = 5.25\text{ V}$ , $I_F = 25\text{ mA}$ (output open)
	Buffered Open-Collector Output <sup>(5)</sup>	-	-	10	mA	
	Inverted Open-Collector Output <sup>(5)(6)</sup>	-	-	10	mA	$V_{CC} = 5.25\text{ V}$ , $I_F = 0\text{ mA}$ (output open)
$I_{OH}$	High Level Output Current: Buffered Open-Collector Output	-	-	100	$\mu\text{A}$	$V_{CC} = 4.5\text{ V}$ , $I_F = 25\text{ mA}$ , $V_{OH} = 30\text{ V}$ , $T_A = 25^\circ\text{C}$
		-	-	100	$\mu\text{A}$	
	Inverted Open-Collector Output	-	-	100	$\mu\text{A}$	$V_{CC} = 4.5\text{ V}$ , $I_F = 0\text{ mA}$ , $V_{OH} = 30\text{ V}$ , $T_A = 25^\circ\text{C}$

#### 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) Derate linearly 4.44 mW/° C above 25° C.
- (4) Derate linearly 6.66 mW/° C above 25° C. Normal application would be with light source blocked, simulated by  $I_F = 0\text{ mA}$ .
- (5) Tested at  $d = 0.080''$  (mm) from a 90% diffuse white test surface.
- (6) Normal application would be with light source blocked, simulated by  $I_F = 0\text{ mA}$ .
- (7) All parameters tested using pulse technique.

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# Photologic® Reflective Object Sensor

OPB760N, OPB760T, OPB761N, OPB763T

OPB770TZ, OPB771TZ, OPB773TZ



## Electrical Specifications

**Electrical Characteristics** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
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**Output Photologic® Sensor** (continued)

$I_{F(+)}$	LED Positive-Going Threshold Current <sup>(2)</sup>	-	-	25	mA	$V_{CC} = 5\text{ V}, T_A = 25^\circ\text{C}$
$I_{F(+)} / I_{F(-)}$	Hysteresis <sup>(2)</sup>	1.1	-	2.0	-	$V_{CC} = 5\text{ V}$
$I_{OS}$	Short Circuit Output Current: Buffered Totem-Pole Output <sup>(1)</sup>	-15	-	-100	mA	$I_F = 25\text{ mA}, V_{CC} = 5.25\text{ V}, \text{Output} = \text{GRD}$
$V_{OL}$	Low Level Output Voltage: Buffered Totem-Pole Output <sup>(1)(4)</sup>	-	-	0.4	V	$V_{CC} = 4.5\text{ V}, I_{OL} = 12.8\text{ mA}, I_F = 0\text{ mA}$ or $I_F = 30\text{ mA}$
	Buffered Open-Collector Output <sup>(1)(4)</sup>	-	-	0.4	V	
	Inverted Open-Collector Output <sup>(1)(4)</sup>	-	-	0.4	V	$V_{CC} = 4.5\text{ V}, I_{OL} = 12.8\text{ mA}, I_F = 25\text{ mA}$
$V_{OH}$	High Level Output Voltage: Buffered Totem-Pole Output <sup>(1)</sup>	2.4	-	-	V	$V_{CC} = 4.5\text{ V}, I_{OH} = -800\ \mu\text{A}, I_F = 25\text{ mA}$
	Inverted Open-Collector Output <sup>(3)</sup>	2.4	-	-	V	$V_{CC} = 4.5\text{ V}, I_{OH} = -800\ \mu\text{A}, I_F = 30\text{ mA}$

**Notes:**

- (1) Tested at  $d = 0.080''$  (mm) from a 90% diffuse white test surface.
- (2) Tested at  $d = 0.080''$  (mm),  $0.150''$  (mm) and  $0.220''$  (mm) from a 90% diffuse white test surface. Reference: Eastman Kodak, Catalog #E 152 7795.
- (3) Tested at  $d = 0.080''$  (mm),  $0.150''$  (mm) and  $0.220''$  (mm) from a 5% diffuse black test surface.
- (4) Normal application would be with light source blocked, simulated by  $I_F = 0\text{ mA}$ .
- (5) OPB760N through OPB761N series devices are terminated with  $0.20''$  (mm) square leads designed for printed PCBoard mounting.
- (6) OPB760T through OPB763T series devices are terminated with  $0.020''$  (mm) square leads designed for printed PCBoard mounting.
- (7) OPB770TZ through OPB773TZ series are terminated with  $12''$  (mm) of 7-strand 26 AWG UL1429 insulated wire on each terminal. A standard AMP No. 640442-5 connector has been attached to the lead wires to ease connection to wire harnesses.
- (8) All parameters tested using pulse technique.

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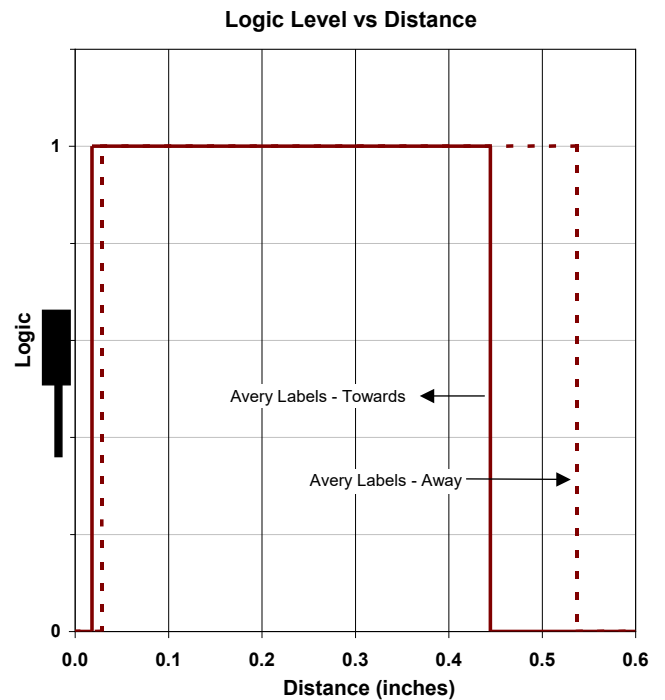
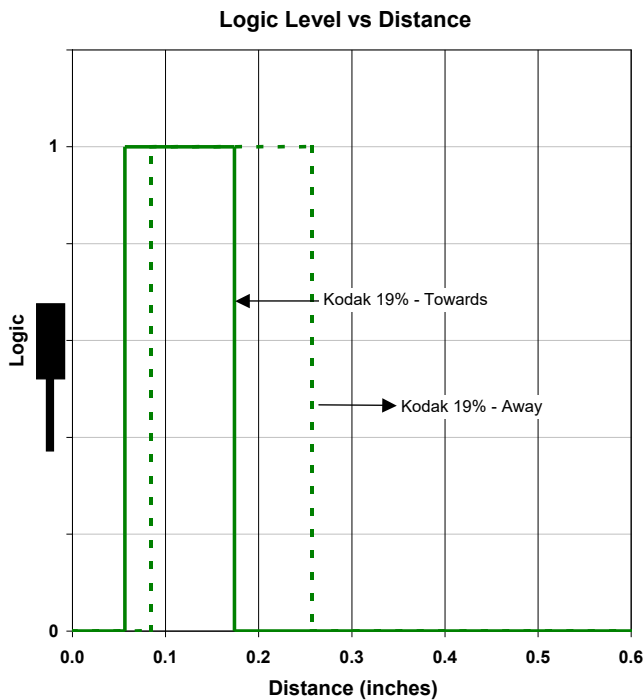
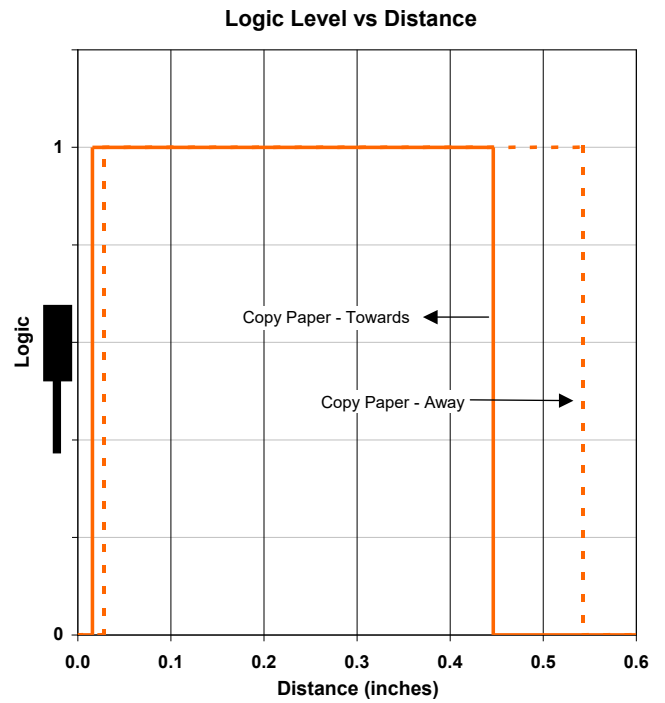
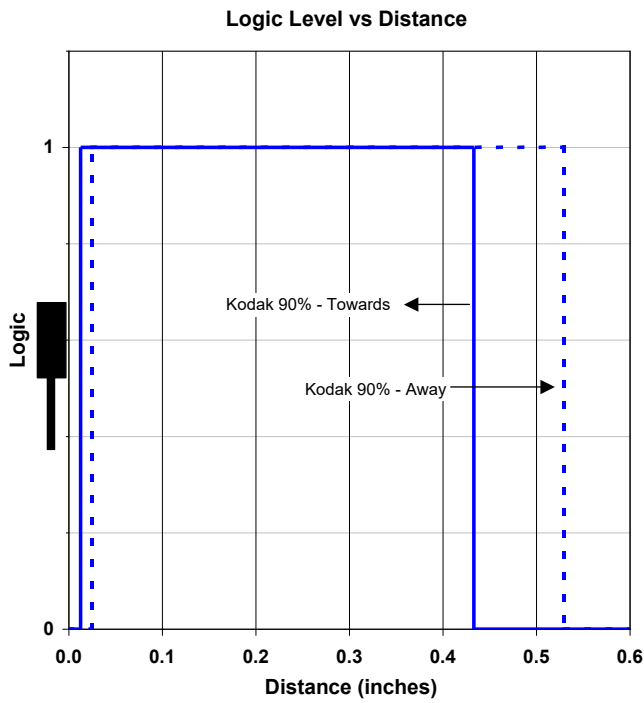
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## Performance



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