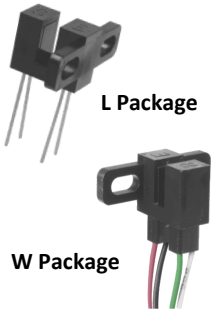
THE DATASHEET OF

OPB840W11Z

Slotted Optical Switch

OPB830 and OPB840 (L and W)



Features:

- 0.125” (3.18 mm) wide slot
- Choice of electrical output parameters
- Choice of aperture
- Choice of opaque or IR transmissive shell material
- Side mount configuration
- Choice of lead spacing (L Series)
- 24” [610 mm] 26 AWG wire leads (W Series)

Description:

OPB830 and OPB840 series provide the design engineer with the flexibility of a custom device from a standard product line. The L Series offers a choice of PCBoard mount lead spacing, while the W Series offers 24” (610mm) 26AWG wire leads.

Building from a standard housing that utilizes a .375” (9.5 mm) wide slot, a user can specify the electrical output parameters, choice of aperture, discrete shell material, side mount configuration, and a choice of lead spacing (for the L Series) or 24” [610 mm] UL approved 26 AWG wire leads (W Series).

Housings are made from an opaque grade of injection-molded plastic that minimizes the assembly’s sensitivity to visible and near-infrared ambient radiation. Discrete shells (exposed on the parallel faces inside the device throat) are made of either IR transmissive plastic (for applications where aperture contamination may occur) or of opaque plastic with aperture openings (for maximum protection against ambient light).

Switching of the phototransistor occurs whenever an opaque object passes through the slot and interrupts the beam.

Applications:

- Non-contact interruptive object sensing
- Assembly line automation
- Machine automation
- Equipment security
- Machine safety

General Note
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Part Number Guide — OPB8XX

OPB 8 X X L X X

Optek Assembly

Phototransistor Output Family

Discrete Shell Material:
3 — Side mount IR transmissive Plastic discrete shell
4 — Side mount opaque Plastic discrete shell

Electrical Specification Variations:
0 = Electrical Parameter A - (0.320" lead spacing)
1 = Electrical Parameter B - (0.320" lead spacing)
2 = Electrical Parameter C - (0.320" lead spacing)
5 = Electrical Parameter A - (0.220" lead spacing)
6 = Electrical Parameter B - (0.220" lead spacing)
7 = Electrical Parameter C - (0.220" lead spacing)

Notes:
- Assemblies with dual 0.010" apertures are currently available with electrical parameter "A" only.

Sensor Aperture:
1 — 0.010" (0.25 mm)
5 — 0.050" (1.27 mm)

Emitter Aperture:
1 — 0.010" (0.25 mm)
5 — 0.050" (1.27 mm)

Mounting configurations:
L — Solder lead termination

Part Number Guide — OPB8XX

OPB 8 X X W X X Z

Optek Assembly

Phototransistor Output Family

Discrete Shell Material:
3 — Side mount IR transmissive Plastic discrete shell
4 — Side mount opaque Plastic discrete shell

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0 = Electrical Parameter A
1 = Electrical Parameter B
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Notes:
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Sensor Aperture:
1 — 0.010" (0.25 mm)
5 — 0.050" (1.27 mm)

Emitter Aperture:
1 — 0.010" (0.25 mm)
5 — 0.050" (1.27 mm)

Mounting configurations:
W — Wire termination
- Parts ending with "Z" meet RoHS requirements
- Wires = 26 AWG—24" Long

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Electrical Specifications

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Storage and Operating Temperature L Series[1] W Series[1]	 -40° C to +85°C -40° C to +80°C
Lead Soldering Temperature [1/16 inch (1.6mm) from the case for 5 sec. with soldering iron][2]	260°C

Input Diode

Forward DC Current	50 mA
Peak Forward Current (1 µs pulse width, 300 pps)	1 A
Reverse DC Voltage	2 V
Power Dissipation[1]	100 mW

Output Phototransistor

Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Collector DC Current	30 mA
Power Dissipation[1]	100 mW

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode LED (See OP240 for additional information—for reference only)						
V_F	Forward Voltage	-	-	1.7	V	I_F = 20 mA
I_R	Reverse Current	-	-	100	µA	V_R = 2 V
Output Transistor (See OP550 for additional information—for reference only)						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30	-	-	V	I_C = 1 mA
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5	-	-	V	I_E = 100 µA
I_{CEO}	Collector-Emitter Dark Current	-	-	100	nA	V_{CE} = 10 V

Notes:
(1) Derate linearly 1.67 mW/° C above 25° C for L Series.
(2) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
(3) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones.
(4) The W Series includes wire terminations of 24" (610 mm) 7-strand, 26 AWG UL insulated wire on each terminal. Each device incorporates a wire strain relief at the housing surface. The insulation functions and colors are: anode (red), cathode (black), phototransistor collector (white) and phototransistor emitter (green).
(5) 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
Combined						
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage Parameter A (OPB830L,OPB840L) (OPB835L, OPB845L) (OPB830W,OPB840W) (OPB835W, OPB845W)	-	-	0.4	V	I_C = 400 µA, I_F = 20 mA
	Parameter B (OPB831L,OPB841L) (OPB836L,OPB846L) (OPB831W,OPB841W) (OPB836W,OPB846W)	-	-	0.4	V	I_C = 800 µA, I_F = 10 mA
	Parameter C (OPB832L,OPB842L) (OPB837L,OPB847L) (OPB832W,OPB842W) (OPB837W,OPB847W)	-	-	0.6	V	I_C = 1800 µA, I_F = 20 mA
$I_{C(ON)}$	On-State Collector Current Parameter A (OPB830L,OPB840L) (OPB835L, OPB845L) (OPB830W,OPB840W) (OPB835W, OPB845W)	0.625	-	-	mA	V_{CE} = 10 V, I_F = 20 mA
	Parameter B (OPB831L,OPB841L) (OPB836L,OPB846L) (OPB831W,OPB841W) (OPB836W,OPB846W)	1.250	-	-	mA	V_{CE} = 5 V, I_F = 10 mA
	Parameter C (OPB832L,OPB842L) (OPB837L,OPB847L) (OPB832W,OPB842W) (OPB837W,OPB847W)	2.250	-	-	mA	V_{CE} = .6 V, I_F = 20 mA

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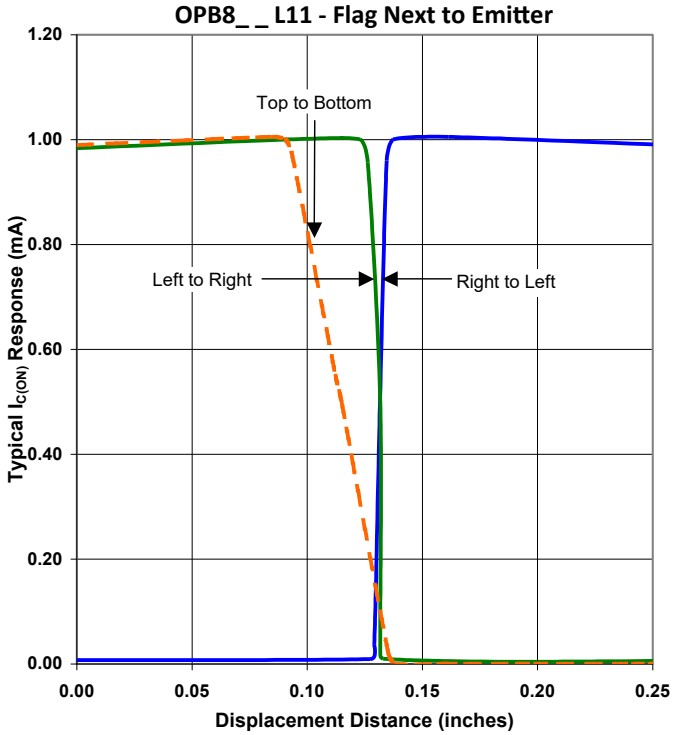

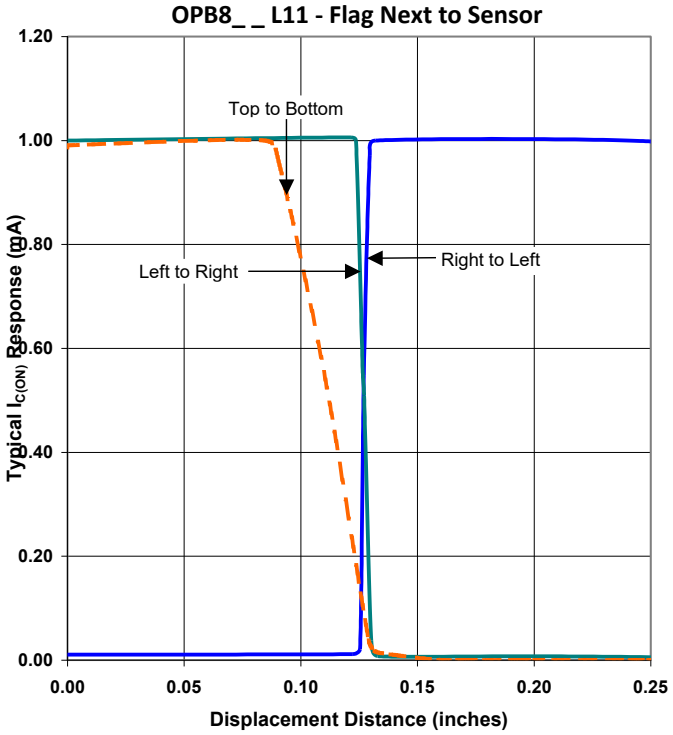

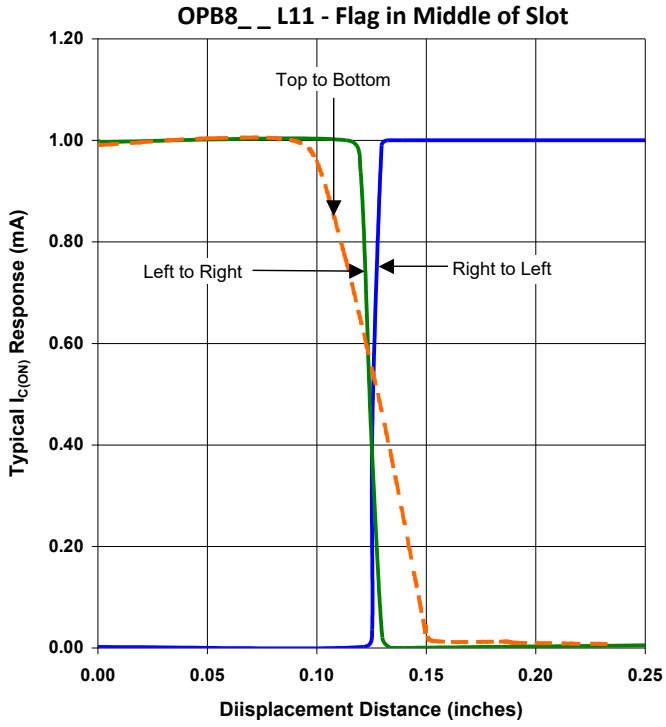

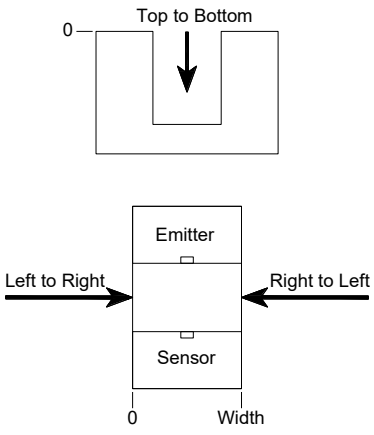

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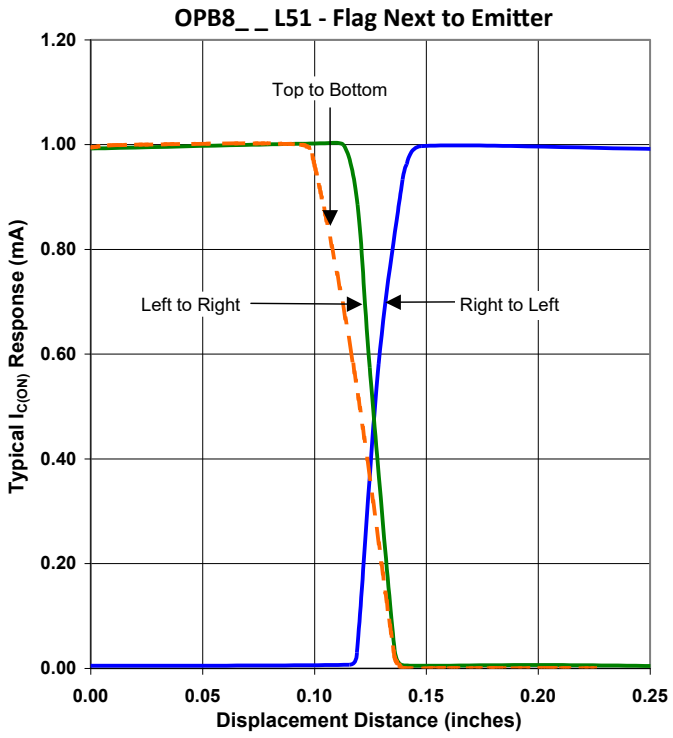

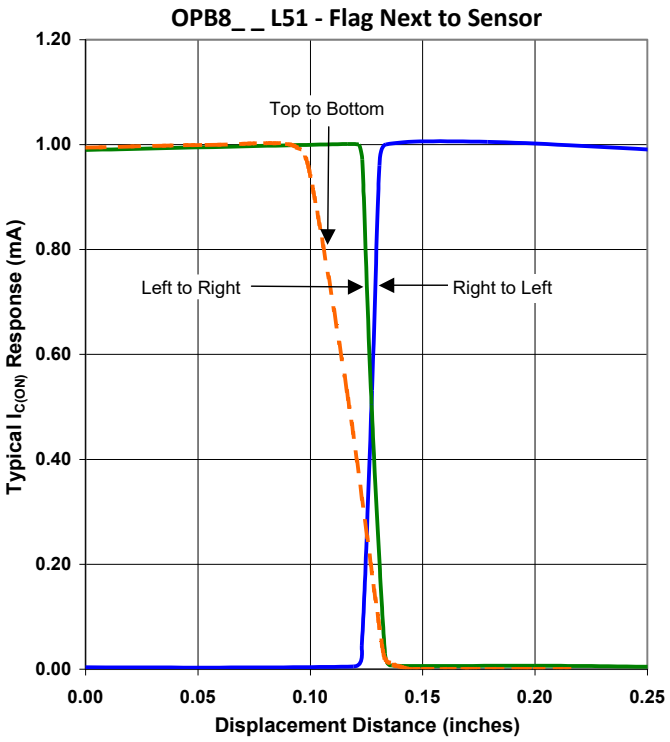

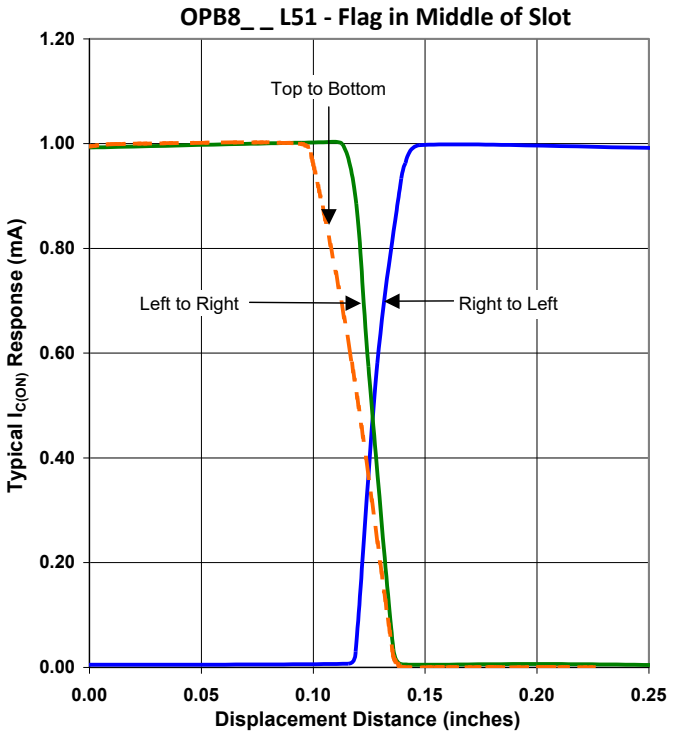

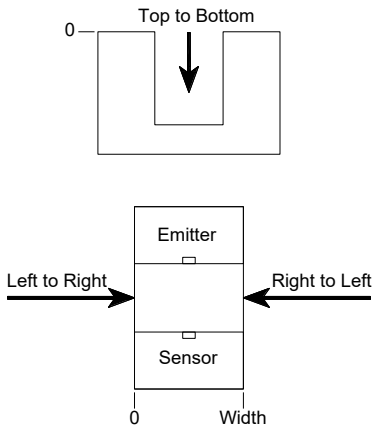

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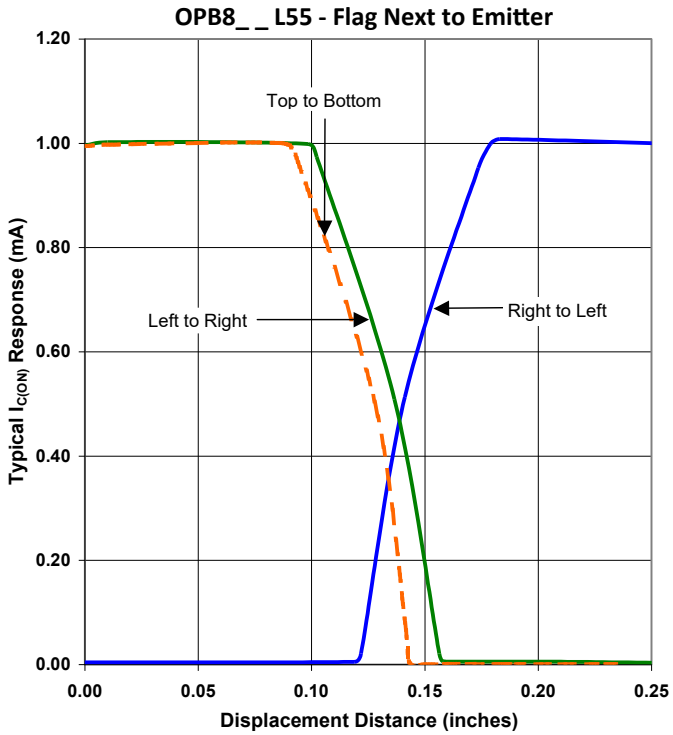

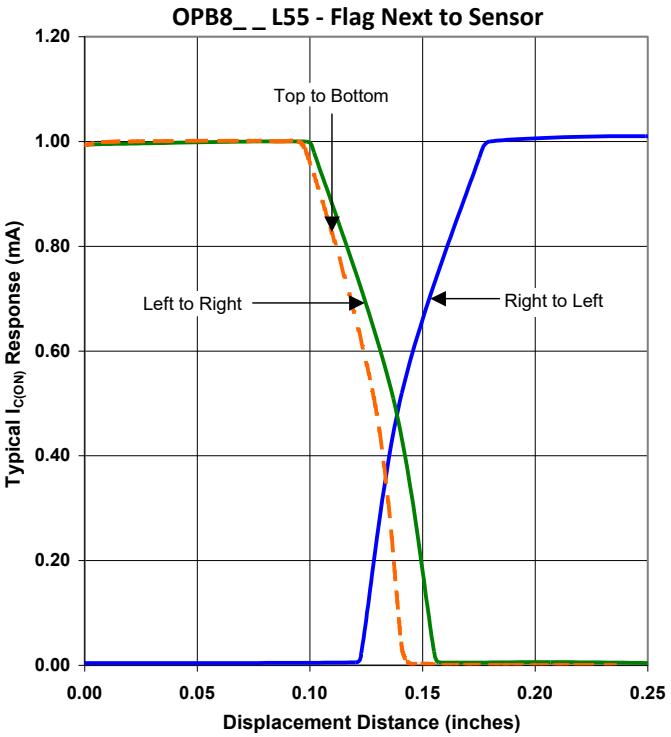

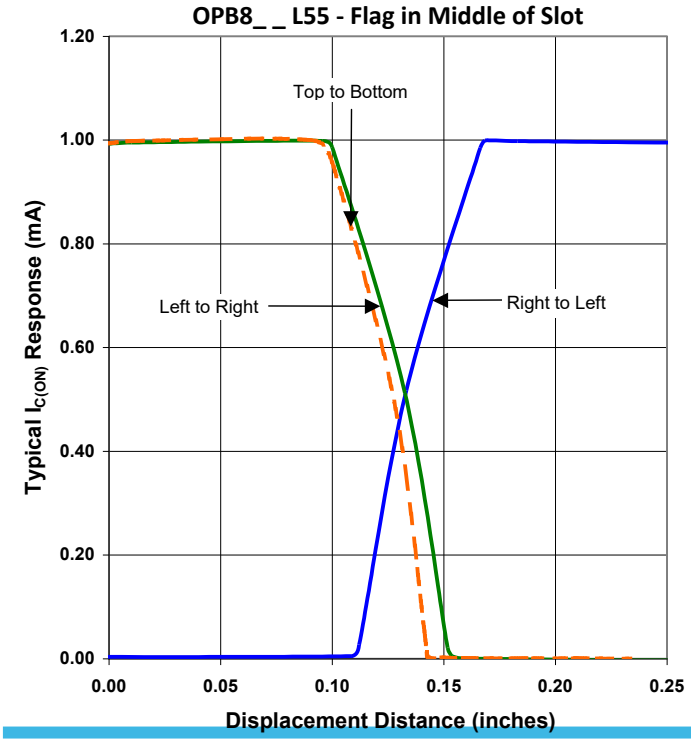

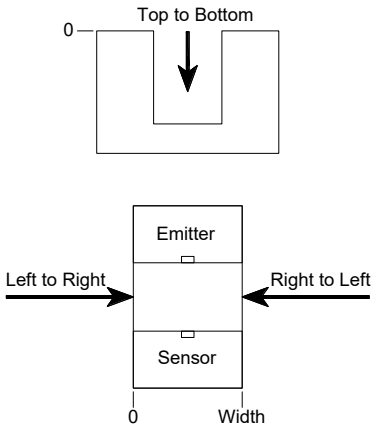

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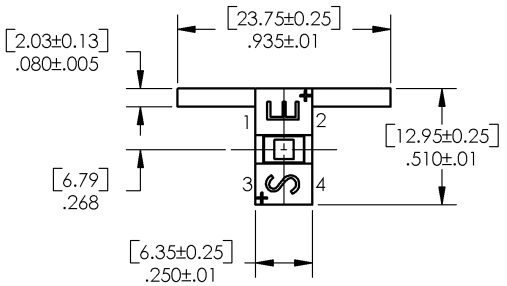
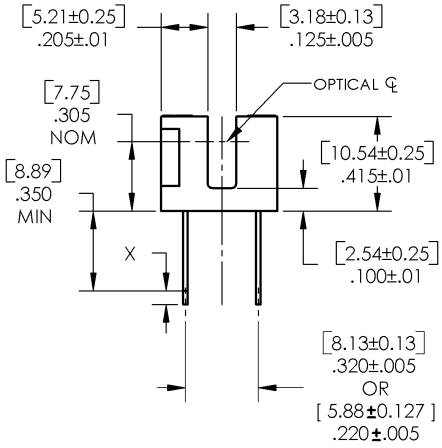
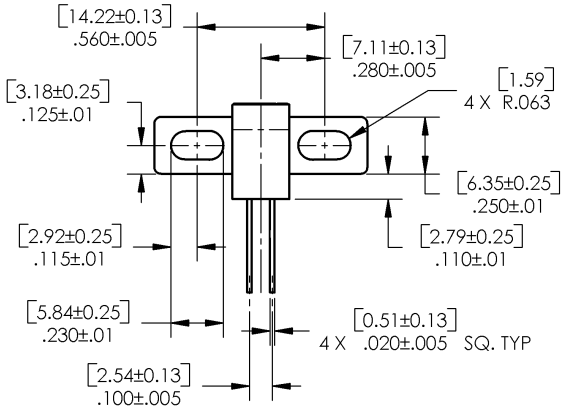
Packaging

OPB830/840L Series







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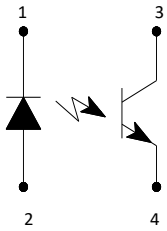
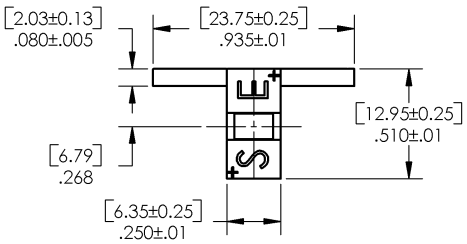
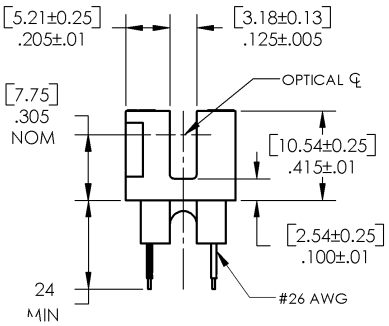
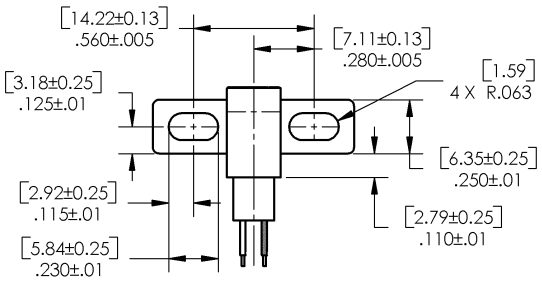


Pin # / Color	Description
1 / Black	Cathode
2 / Red	Anode
3 / White	Collector
4 / Green	Emitter

OPB830/840W Series







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