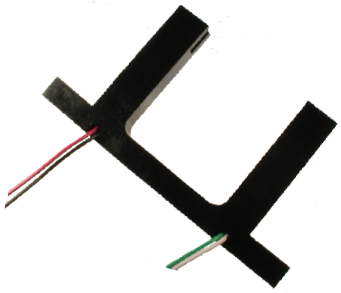
Slotted Optical Switch

OPB819Z



Features:

- Non-contact switching
- 24” (609 mm) long wire leads
- 1.25” (31.75 mm) wide slot, 1.38” (35.05 mm) deep slot

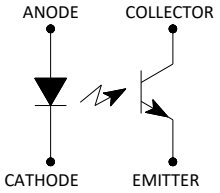
Description:

The OPB819Z slotted switch consists of an infrared emitting diode and an NPN silicon phototransistor mounted in an opaque housing with clear windows for dust protection. Switching of the phototransistor occurs whenever an opaque object passes through the slot.

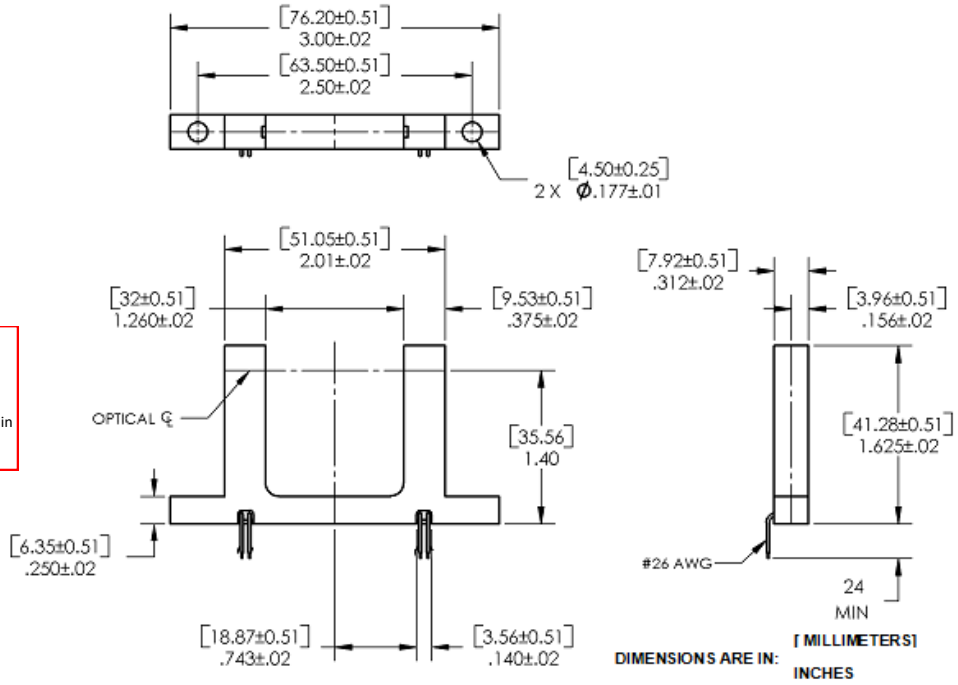
The OPB819Z has an 1.38” (35.05 mm) deep and 1.25” (31.75 mm) wide slot allowing for a longer reach of the optical center line from the mounting plane. The switch housing is designed to use the lens of each component as the optical aperture resulting in an equivalent aperture diameter of 0.06” (1.52 mm).

Applications:

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



Color	Description	Color	Description
Red	Anode	White	Collector
Black	Cathode	Green	Emitter



CONTAINS POLYSULFONE

To avoid stress cracking, we suggest using ND Industries’ **Vibra-Tite** for thread-locking. **Vibra-Tite** evaporates fast without causing structural failure in OPTEK’s molded plastics.

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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Electrical Specifications

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

Storage & Operating Temperature Range	-40° C to +85° 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	2 V
Power Dissipation(2)	100 mW

Output Phototransistor

Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Collector DC Current	30 mA
Power Dissipation(2)	100 mW

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage	-	-	1.8	V	I_F = 20 mA
I_R	Reverse Current	-	-	100	µA	V_R = 2.0 V
Output Phototransistor						
$V_{(BR)(CEO)}$	Collector-Emitter Breakdown Voltage	30	-	-	V	I_C = 100 µA, I_F = 0, E_E = 0
$V_{(BR)(ECO)}$	Emitter-Collector Breakdown Voltage	5	-	-	V	I_E = 100 µA, I_F = 0, E_E = 0
I_{CEO}	Collector-Emitter Leakage Current	-	-	100	nA	V_{CE} = 10 V, I_F = 0, E_E = 0
Coupled						
$I_{C(ON)}$	On-State Collector Current	0.5	-	12.0	mA	V_{CE} = 5 V, I_F = 40 mA
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	-	-	0.4	V	I_C = 250 µA, I_F = 40 mA

Notes:

(1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
(2) Derate linearly 1.67 mW/°C above 25° C.
(3) All parameters tested using pulse techniques.
(4) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones. Spray and wipe. Do not submerge.
(5) Polarity is denoted by color the wires: LED (Anode—Red, Cathode—Black); Phototransistor (Collector—White, Emitter—Green).

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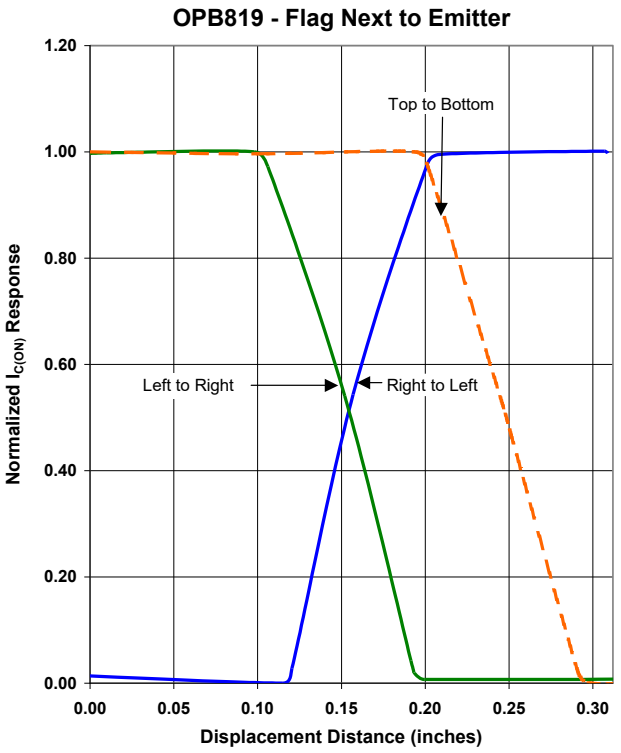
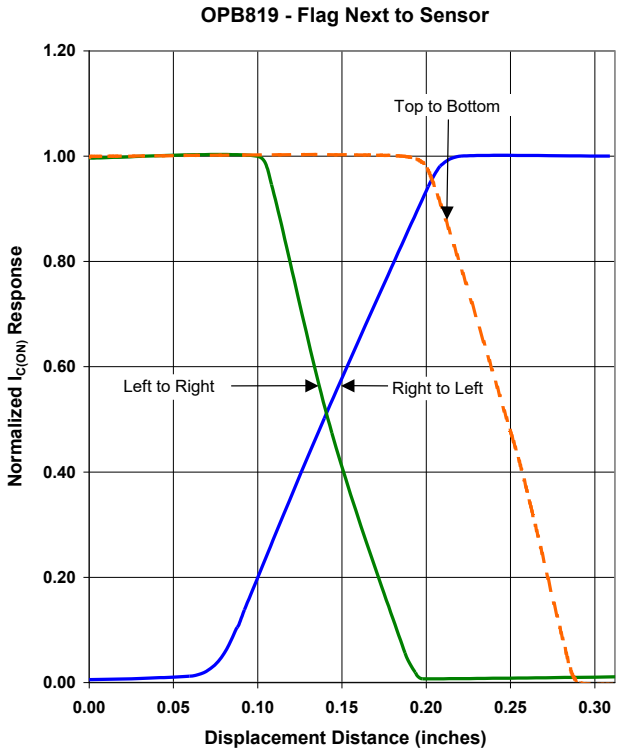
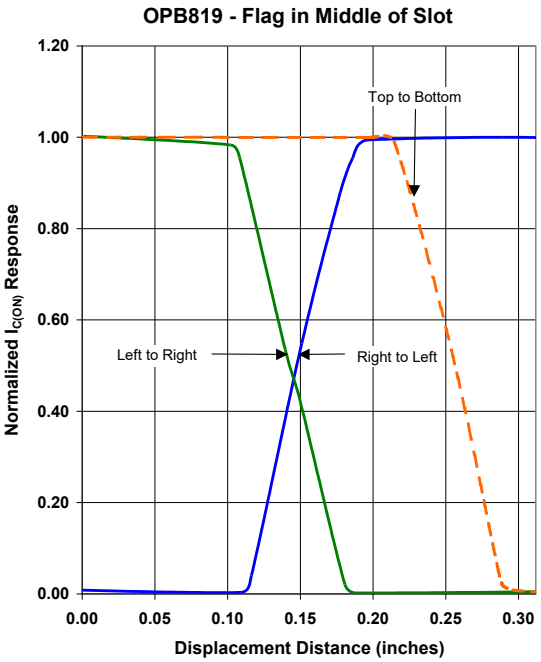
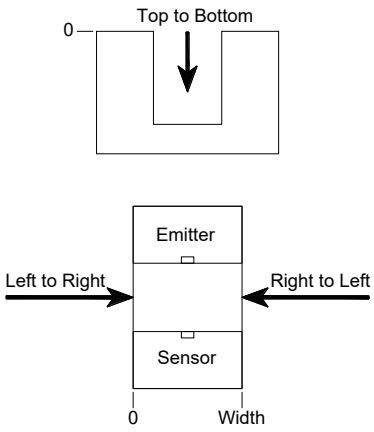
Performance









Ordering Information					
Part Number	LED Peak Wavelength	Sensor	Slot Width / Depth	Aperture Emitter/Sensor	Lead Length / Spacing
OPB819Z	890 nm	Transistor	1.26" / 1.38"	None	24" / 26 AWG Wire