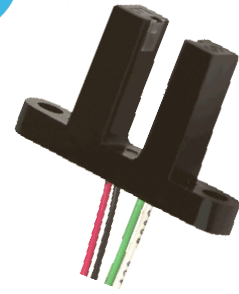


Slotted Optical Switch

OPB816Z



Features:

- 0.200" (5.1 mm) wide gap, 0.610" (15.5 mm) deep slot
- Wire length 24" (609 mm) minimum, #26 AWG UL rated wire
- Dust protection
- Two mounting tabs

Description:

The OPB816Z 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.

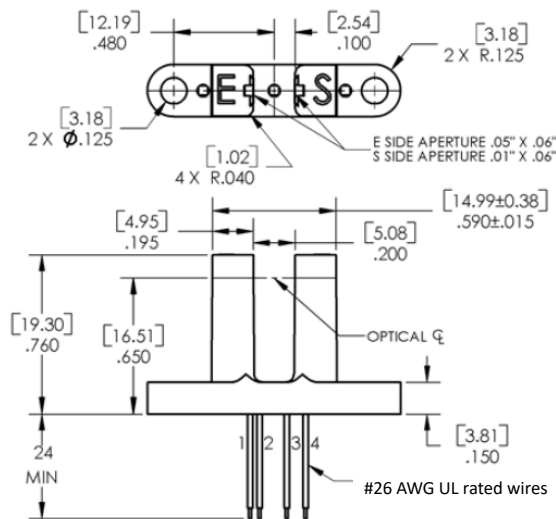
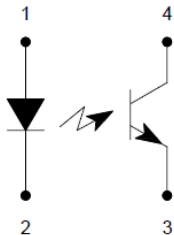
The OPB816Z has an 0.61" (15.5 mm) deep slot allowing for a longer reach of the optical center line from the mounting plane. The phototransistor internal apertures are 0.010" x 0.06" (0.25 mm x 1.52 mm) on the sensor side ("S"), and 0.05" x 0.06" (1.27 mm x 1.52 mm) on the emitter side ("E").

Applications:

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

Ordering Information

Part Number	LED Peak Wavelength	Sensor	Slot Width / Depth	Aperture Width	Lead Length
OPB816Z	890 nm	Transistor	0.200" / 0.610"	.05" / .01"	24" / #26 AWG



Wire Color	Description
Red	Anode
Black	Cathode
Green	Emitter
White	Collector



RoHS

General Note

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Electrical Specifications

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

Storage & Operating Temperature Range	-40° C to +85° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from the case for 5 sec. with soldering iron] ^(1, 4)	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 ($T_A = 25^\circ\text{C}$ unless otherwise noted) ⁽³⁾

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage	1.0	-	1.8	V	$I_F = 20\text{ mA}$
I_R	Reverse Current	-	-	100	μA	$V_R = 2\text{ V}$
Output Phototransistor						
$V_{(BR)(CEO)}$	Collector-Emitter Breakdown Voltage	30	-	-	V	$I_C = 1\text{ mA}, I_F = 0, E_E = 0$
$V_{(BR)(ECO)}$	Emitter-Collector Breakdown Voltage	5	-	-	V	$I_E = 100\text{ }\mu\text{A}, I_F = 0, E_E = 0$
I_{CEO}	Collector-Emitter Leakage Current	-	-	100	nA	$V_{CE} = 10\text{ V}, I_F = 0, E_E = 0$
Coupled						
$I_{C(ON)}$	On-State Collector Current	1.0	-	10.0	mA	$V_{CE} = 5\text{ V}, I_F = 20\text{ mA}$
$V_{CE(SAT)}$	Collector-Emitter	-	-	0.4	V	$I_C = 100\text{ }\mu\text{A}, I_F = 20\text{ mA}$

Notes:

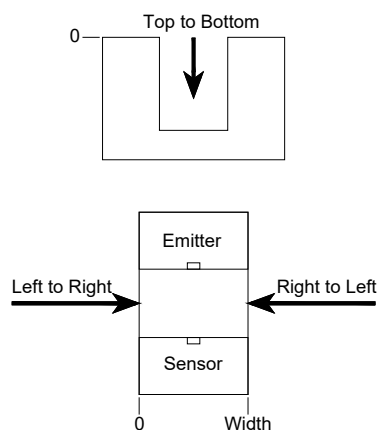
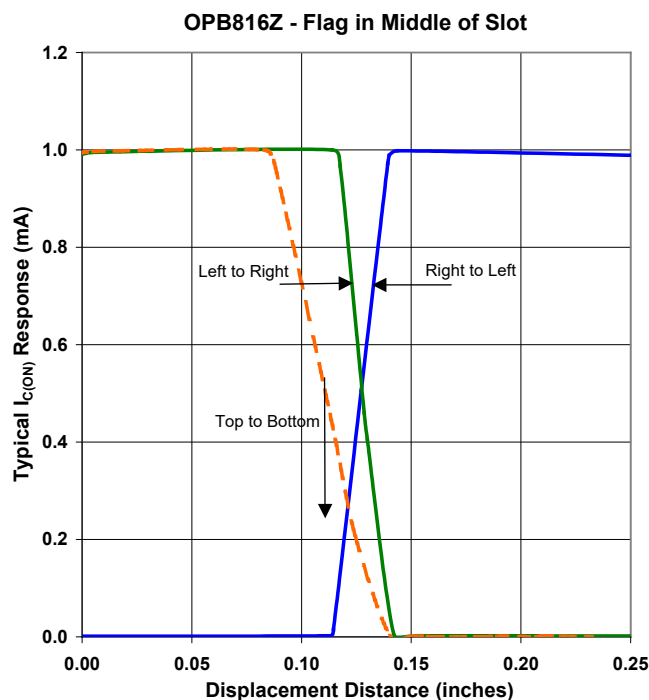
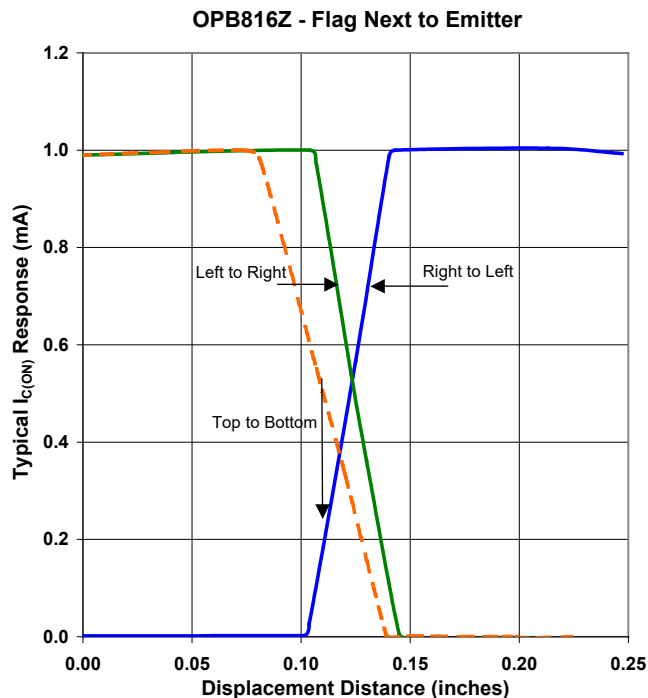
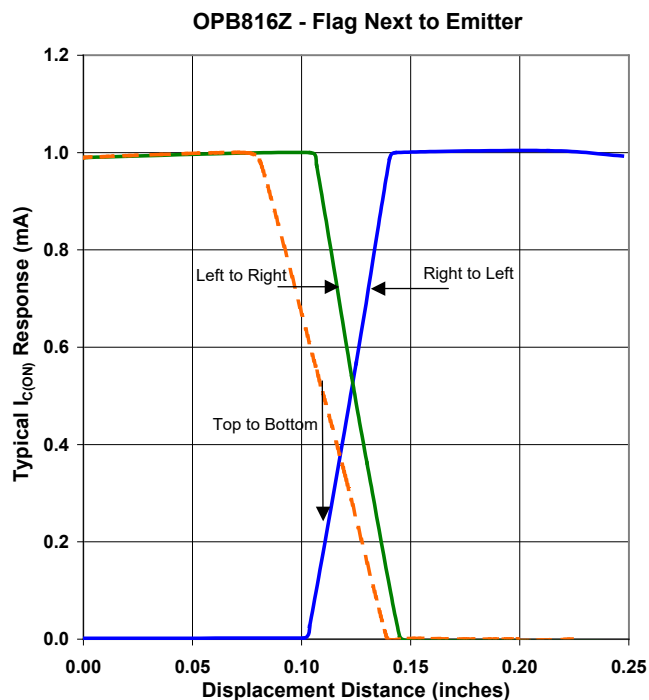
- (1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
- (2) Derate linearly 1.33 mW/° C above 25° C.
- (3) All parameters are tested using pulse techniques.
- (4) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones.
- (5) Clear dust protection over emitter and sensor apertures.

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Typical Performance



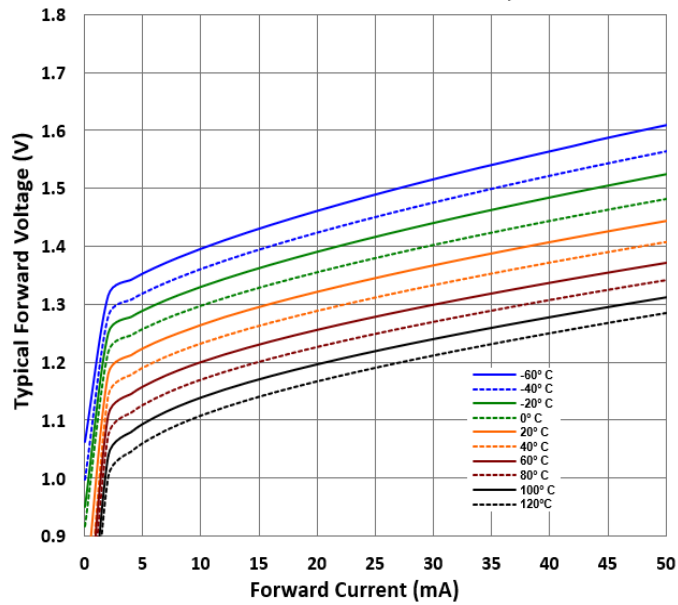
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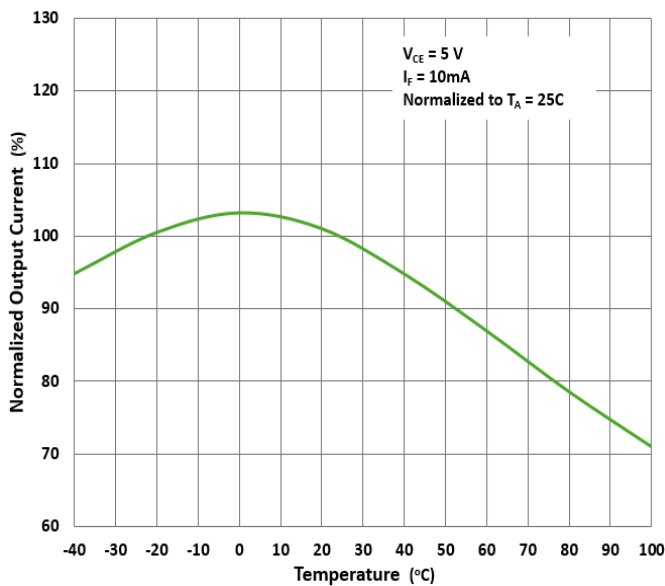
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Typical Performance

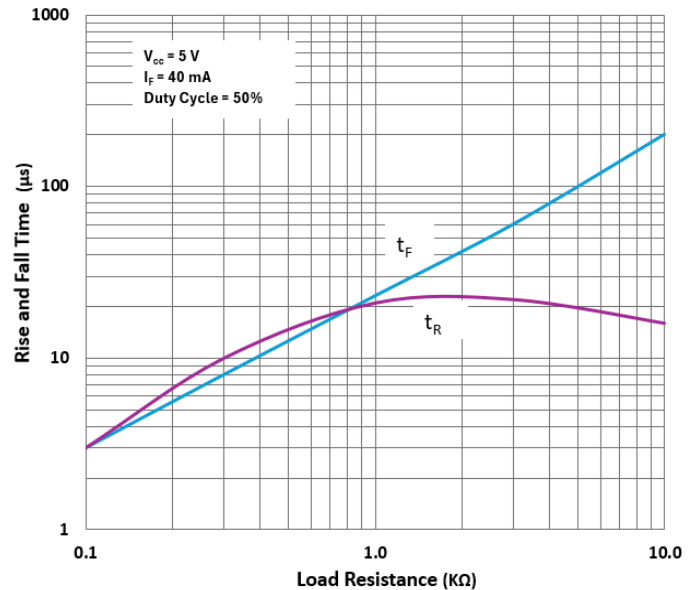
890nm LED Forward Voltage vs I_F vs Temp



Output Current vs Temperature



Transistor Output - Rise and Fall Time



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