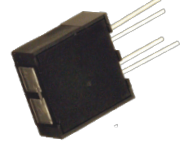


Long Distance Reflective Switch

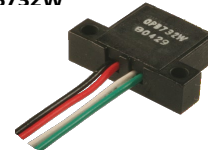
OPB732, OPB732WZ



OPB732



OPB732WZ



Features:

- Printed circuit board mounting (OPB732)
- With mounting tabs (OPB732WZ)
- 24" (610 mm) #26 AWG UL rated length wire (OPB732WZ)
- Non-contact infrared switch
- Up to 1" or more reflective distance depending on circuitry

Description:

OPB732 uses an Infrared LED and Phototransistor in a reflective switch configuration. The assembly is offered with either printed circuit board through hole pins (**OPB732**) or 24" (610 mm), 26 AWG UL rated wires (**OPB732WZ**), and uses an opaque housing to reduce the sensor's ambient light sensitivity. The emitter and sensor are protected by a clear window, providing a device that can operate in a dusty environment. The phototransistor can be configured as a Common Collector or Common Emitter device.

While an object is in the reflective path of the device, light from the LED will be reflected back to the housing irradiating the surface (base) of the phototransistor. When Infrared light strikes the phototransistor, the transistor becomes forward biased and is considered to be in the "ON" state, providing an $I_{C(ON)}$ current proportional to the light striking the phototransistor. With the Infrared light from the LED not being reflected to the phototransistor, the phototransistor turns "OFF," minimizing the $I_{C(ON)}$ current.

For application information, refer to Application Bulletins 248 and 213.

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

Applications:

- Non-contact reflective object sensor
- Assembly line automation
- Machine automation
- Equipment security
- Door sensor
- Machine safety
- End of travel sensor

Ordering Information		
Part Number	LED Peak Wavelength	Lead Length / Spacing
OPB732	850 nm	0.150" / see diagram
OPB732WZ		24" / #26 AWG UL rated wire



RoHS

General Note

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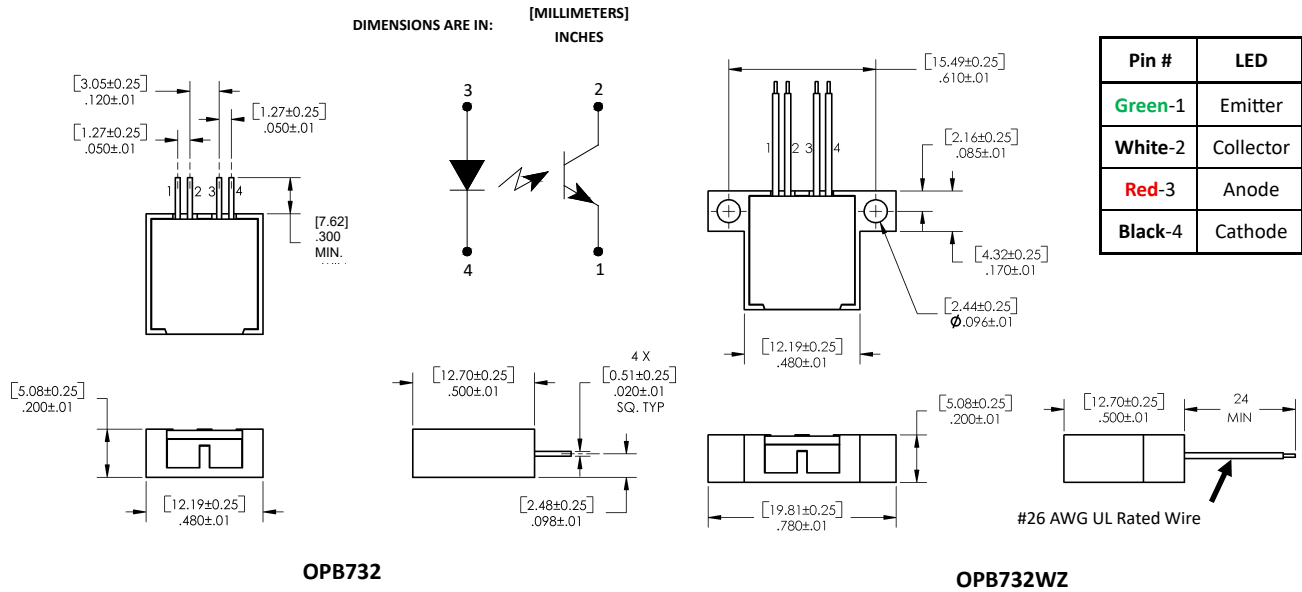
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Long Distance Reflective Switch

OPB732, OPB732WZ



Packaging



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Electrical Specifications

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

Storage Temperature	-40° C to +100° C
Operating Temperature	-40° C to +85° C
Lead Soldering Temperature (1/16" (1.6 mm) from case for 5 seconds with soldering iron) ^(2,3)	260° C
LED	
Forward Current	50 mA
Peak Forward current (2 μs pulse width, 0.1% Duty Cycle)	1 A
Reverse DC Voltage	3 V
Power Dissipation ⁽⁵⁾	100 mW
Output Phototransistor	
Collector-Emitter Voltage	30 V
Collector DC Current	50 mA
Power Dissipation ⁽⁵⁾	100 mW

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted) ⁽¹⁾

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input LED						
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	$I_C = 100\text{ }\mu\text{A}$, $E_E = 0\text{ mw/cm}^2$
I_{CEO}	Collector-Emitter Dark Current	-	-	100	nA	$V_{CE} = 10\text{ V}$, $E_E = 0\text{ mw/cm}^2$
Coupled						
$V_{CE(SAT)}$ ⁽⁴⁾	Collector-Emitter Saturation Voltage	-	-	0.4	V	$I_C = 250\text{ }\mu\text{A}$, $I_F = 30\text{ mA}$
$I_{C(ON)}$ ⁽⁴⁾	On-State Collector Current	0.25	-	-	mA	$V_{CE} = 1\text{ V}$, $I_F = 30\text{ mA}$
I_{CX}	Cross Talk	-	-	50	μA	$V_{CE} = 5\text{ V}$, $I_F = 30\text{ mA}$, No reflective surface

Notes:

- (1) All parameters tested using pulse technique.
- (2) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
- (3) Methanol or isopropyl are recommended as cleaning agents. The plastic housing is soluble in chlorinated hydrocarbons and ketones.
- (4) Distance = 1" (from front of package to a 90% diffuse reflective white card)
- (5) Derate linearly 1.33 mW/° C

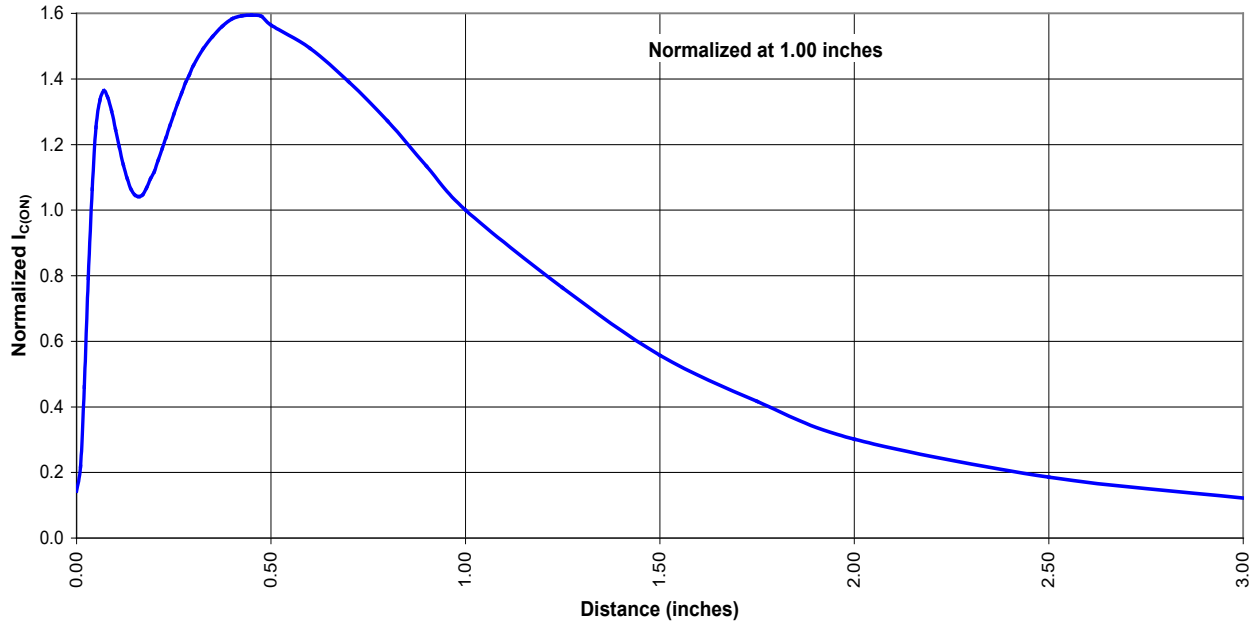
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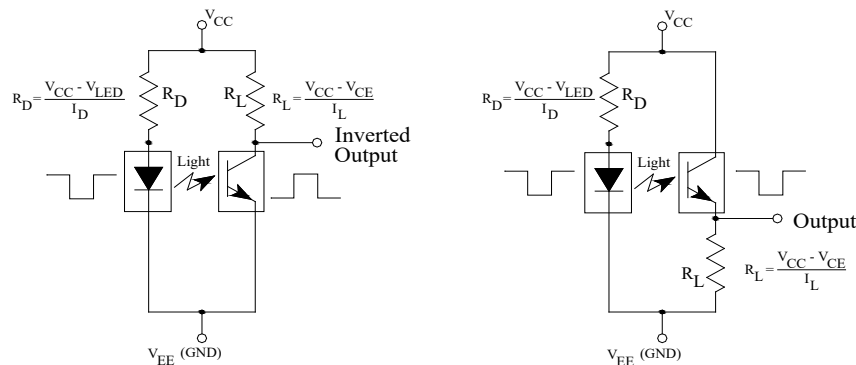
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Typical Performance

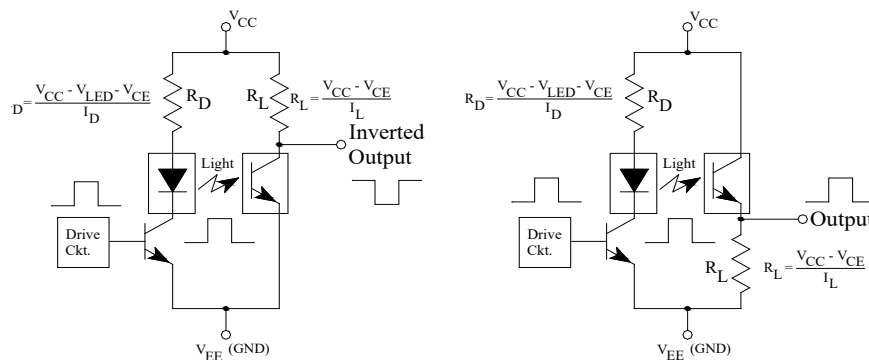
$I_{C(ON)}$ vs Distance ($I_F = 30 \text{ mA}$)



DC—Drive Circuit for LED & Phototransistor



Pulsed—Drive Circuit for LED & Phototransistor

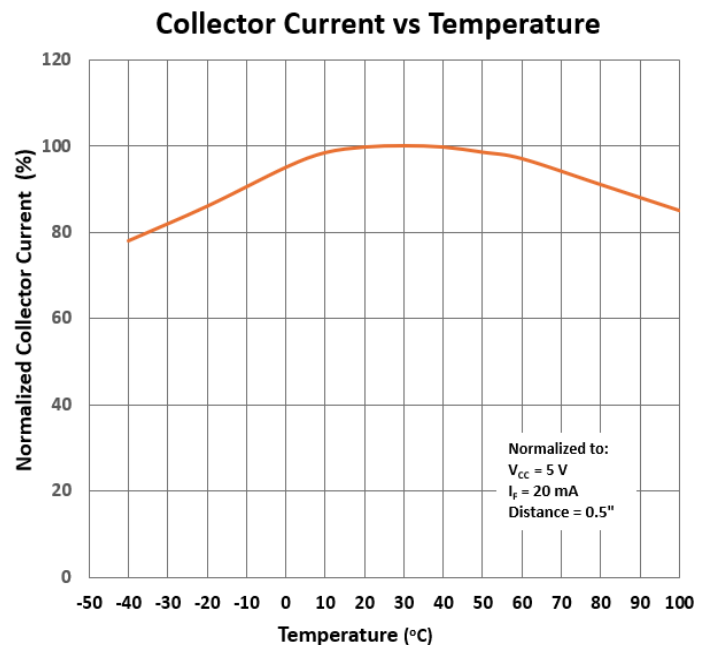
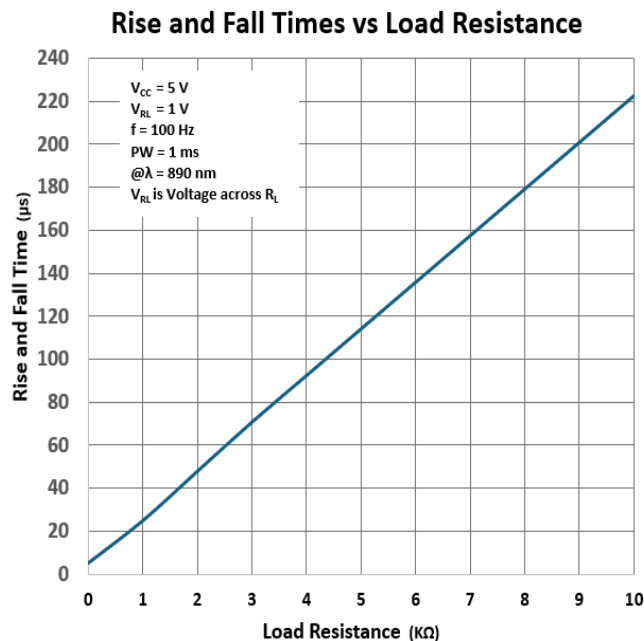
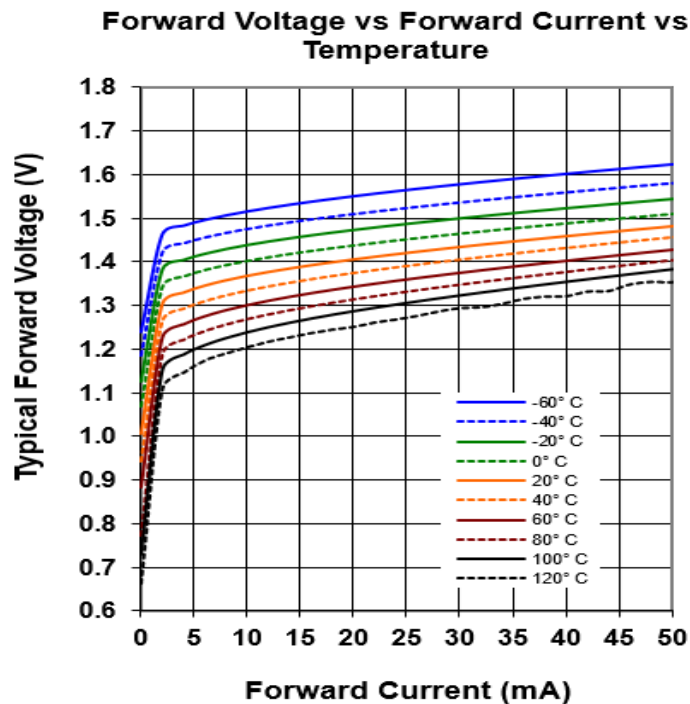


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Typical Performance



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