# Wide Gap Optical Sensor **OPB856Z**



#### Features:

- Designed for Industrial applications
- Threaded housing (M12 X 1 TH), Nut included
- Molded connectors mates with Molex 03-06-2023 plug.
- · Emitter (White) and Senor (Black) housing color coded



### **Description:**

The **OPB856** emitter and sensor pair that consists of an LED (935 nm) and a Phototransistor designed to operate efficiently with each other. They are mounted in a threaded (M12x1TH) color-coded housing. The LED (white) and the Phototransistor (black) are designed to easily panel mount in through a 0.4724" (12.0 mm) hole. A 12 mm nut is included for each housing. Both components is designed to electrically mate with a Molex (03-06-2023) connector.

The OPB856 pair are designed to operate with separation distances between the LED and Phototransistor up to 12" (30.48 cm).

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

**Optical Pair** 

Part Number

**OPB856Z** 

### **Applications:**

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



DIMENSIONS ARE IN INCHES AND [MILLIMETERS].

**Ordering Information** 

Sensor

Transistor

LED Peak

Wavelength

935 nm

	Housing	LED - White	Sensor - Black		Whi	te Housing	Black Housing		
$\frown$	Plug	MOLEX 03-06-2023	MOLEX 03-06-2023	ſ	Pin #	LED	Pin #	Phototransistor	
Pb	Pin for Plug	Male MOLEX 02-06-6122	Female	ſ	1	Anode	1	Emitter	
			MOLEX 02-06-7104		2	Cathode	2	Collector	
RoHS	OPTEK reserve	es the right to make change	es at any time in order to impro	ove c	lesign and	to supply the best pr	oduct possi	ble.	

**Connector Type** 

Use Molex 03-06-2023



Absolute Maximum Ratings (T <sub>A</sub> =25 °C unless otherwise noted)	
Storage & Operating Temperature Range	-40°C to +85°C
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron]	260°C
Input Diode (See OP165 for additional information)	
Continuous Forward DC Current	40 mA
Reverse Voltage	2 V
Power Dissipation <sup>(1)</sup>	100 mW
Output Phototransistor (See OP505 for additional information)	
Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Power Dissipation <sup>(1)</sup>	100 mW

# Electrical Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

PARAMETER	MIN	ТҮР	MAX	UNITS	TEST CONDITIONS			
Input Diode (See OP9999 for additional information)								
Forward Voltage		-	1.7	V	I <sub>F</sub> = 20 mA			
Reverse Current		-	100	μA	$V_R = 2 V$			
Output Phototransistor (See OP9999 for additional information)								
Collector-Emitter Breakdown Voltage	30	-	-	V	$I_{\rm C} = 100 \ \mu A$			
Emitter-Collector Breakdown Voltage	5	-	-	V	I <sub>E</sub> = 100 μA			
Collector Dark Current		-	100	nA	$V_{CE} = 10 \text{ V}, I_F = 0, E_E = 0$			
	PARAMETER e (See OP9999 for additional information) Forward Voltage Reverse Current ototransistor (See OP9999 for additional Collector-Emitter Breakdown Voltage Emitter-Collector Breakdown Voltage Collector Dark Current	PARAMETERMINe (See OP9999 for additional information)Forward Voltage-Forward VoltageReverse Currentototransistor (See OP9999 for additionalCollector-Emitter Breakdown Voltage30-Emitter-Collector Breakdown Voltage5-Collector Dark Current	PARAMETERMINTYPG(See OP9999 for additional information)Forward VoltageReverse Currentototransistor (See OP9999 for additional information)Collector-Emitter Breakdown Voltage30-Emitter-Collector Breakdown Voltage5-Collector Dark Current	PARAMETERMINTYPMAXGeoep9999 for additional information1.7Forward Voltage100Reverse Current100ototransistor (See OP9999 for additional information)Collector-Emitter Breakdown Voltage30Emitter-Collector Breakdown Voltage5Collector Dark Current100	PARAMETERMINTYPMAXUNITSGese OP9999 for additional information			

Combined

$I_{C(ON)}$ On-State Collector Current <sup>(3)</sup> 1.8 mA $V_{CE} = 5 V$ , $I_F = 20 mA$ , $d = 2"$ (50.8 m	m) <sup>(2)</sup>
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Notes:

(1) Derate linearly 1.67 mW/  $^{\circ}\!C$  above 25  $^{\circ}$  C..

(2) Distance between lenses along the optical axis is "d".

(3) All parameters tested using pulse technique.

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.





# Normalized Collector Current vs. Distance between Emitter and Sensor

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