

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 Sensor (Black) housing color coded

Description:

The **OPB856Z** emitter and sensor pair 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 are designed to electrically mate with a Molex (03-06-2023) connector.

The OPB856Z pair are designed to operate with separation distances between the LED and Phototransistor up to 12" (30.48 cm).

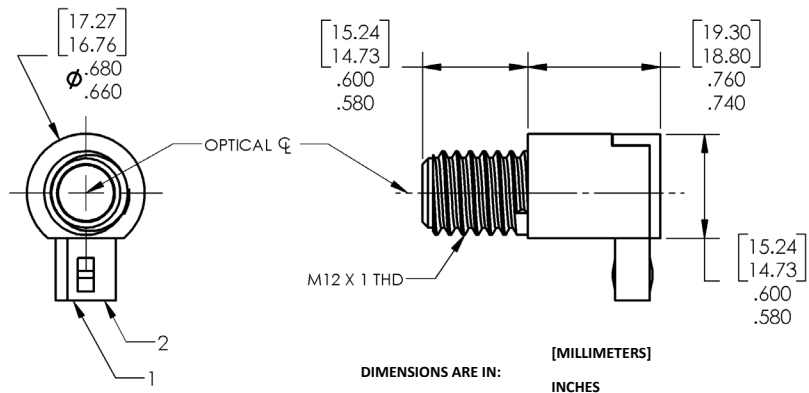
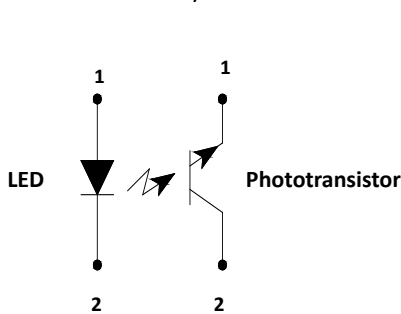
For Custom electrical, wire and cabling and connectors are available. Contact your local representative or OPTEK for more information.

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

Applications:

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

Ordering Information			
Optical Pair Part Number	LED Peak Wavelength	Sensor	Connector Type
OPB856Z	935 nm	Transistor	Use Molex 03-06-2023



Housing	LED - White	Sensor - Black
Plug	MOLEX 03-06-2023	MOLEX 03-06-2023
Pin for Plug	Male MOLEX 02-06-6122	Female MOLEX 02-06-7104

White Housing		Black Housing	
Pin #	LED	Pin #	Phototransistor
1	Anode	1	Emitter
2	Cathode	2	Collector



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

Storage & Operating Temperature Range	-40° C to +85° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron]	260° C
Input Diode	
Continuous Forward DC Current	40 mA
Reverse Voltage	2 V
Power Dissipation ⁽¹⁾	100 mW
Output Phototransistor	
Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Power Dissipation ⁽¹⁾	100 mW

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage	1.0	-	1.7	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	$I_C = 100\text{ }\mu\text{A}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5	-	-	V	$I_E = 100\text{ }\mu\text{A}$
I_{CEO}	Collector Dark Current	-	-	100	nA	$V_{CE} = 10\text{ V}, I_F = 0, E_E = 0$
Combined						
$I_{C(ON)}^{(2, 3)}$	On-State Collector Current	1.8	-	-	mA	$V_{CE} = 5\text{ V}, I_F = 20\text{ mA}, d = 2'' (50.8\text{ mm})$

Notes:

- (1) Derate linearly 1.33 mW/° C above 25° C.
- (2) Distance between lenses along the optical axis is "d".
- (3) All parameters tested using pulse technique.

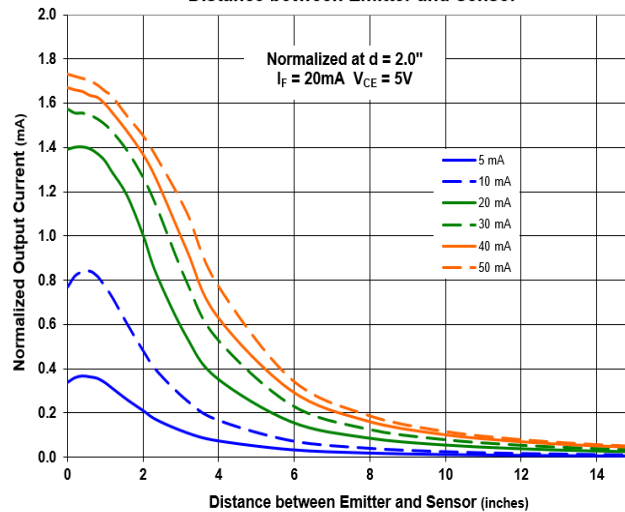
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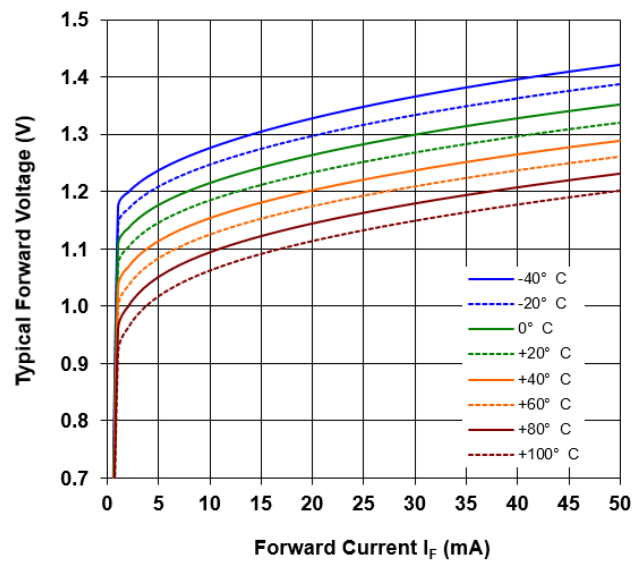
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Typical Performance

Normalized Collector Current vs.
Distance between Emitter and Sensor



LED Forward Current vs Forward Voltage vs Temp



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