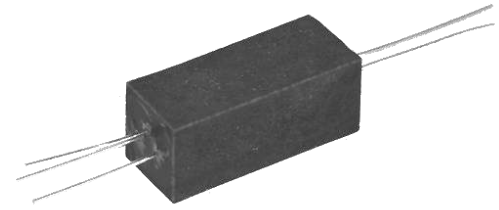


# Photologic® Optically Coupled Isolator

OPI126, OPI128

Obsolete (OPI125)



## Features:

- Multiple output options
- 15 kV dc input-to-output isolation voltage
- Direct TTL/STTL interface
- High noise immunity
- Data rates to 250 KBit/s
- Hermetically sealed
- UL File No. E 58730\*

## Description:

Each **OPI126** and **OPI128** consists of an optically coupled isolator with a gallium arsenide infrared emitting diode coupled to a monolithic integrated circuit. This circuit incorporates a photodiode, a linear amplifier and a Schmitt trigger on a single silicon chip. For maximum long-term stability, both the diode and the Photologic® sensor are hermetically sealed in separate packages and then mounted in a high dielectric plastic housing.

These devices feature TTL/LSTTL compatible logic level output that can drive up to 8 TTL loads directly without additional circuitry. Also featured are medium-speed data rates to 250 KBit/s, with typical rise and fall times of 70 nanoseconds.

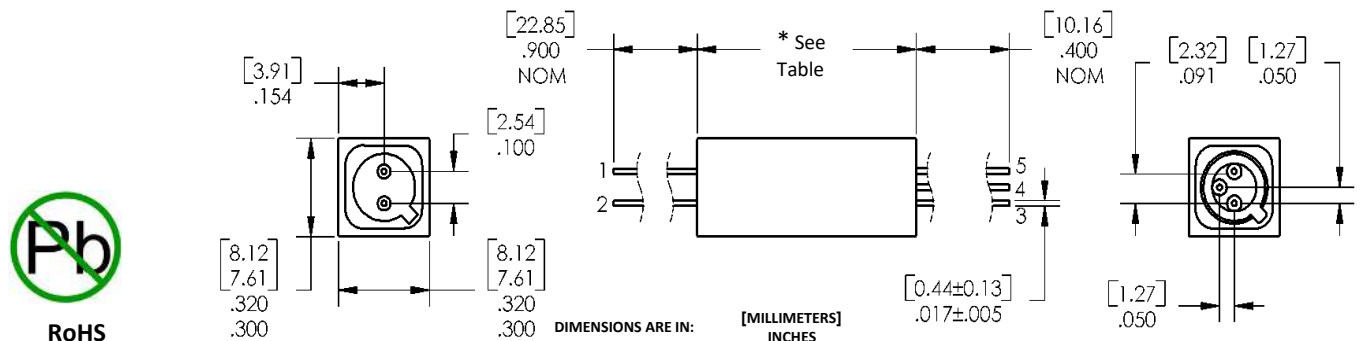
\*UL recognition is for 15 kV dc to 100° C.

## Applications:

- High voltage isolation between input and output
- Electrical isolation in dirty environments
- Industrial equipment
- Medical equipment
- Office equipment

Ordering Information								
Part Number	LED Peak Wavelength	Sensor Photologic®	Isolation Voltage (,000)	$t_{PLH} / t_{PHL}$ Typ ( $\mu$ s)	$I_F$ (mA) Typ / Max	$V_{CE}$ (Volts) Max	Lead Length / Spacing	Length
<b>OPI125</b> Obsolete	890 nm	Totem Pole	15	5 / 5	7.5 / 25	35.0	0.40" / 0.75"	0.75" [19 mm]
<b>OPI126</b>	935 nm	Open Collector						
<b>OPI128</b>	890 nm	Inverted Open Collector						

Pin #	LED	Pin #	Photologic®
1	Anode	3	Output
2	Cathode	4	$V_{CC}$
		5	Ground



## General Note

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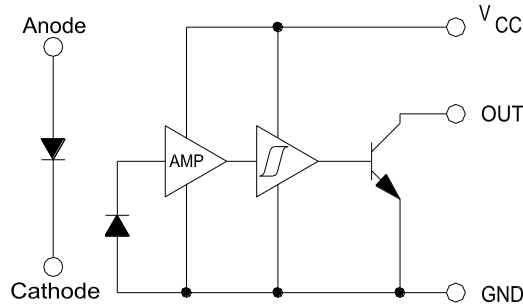
# Photologic® Optically Coupled Isolator

OPI126, OPI128

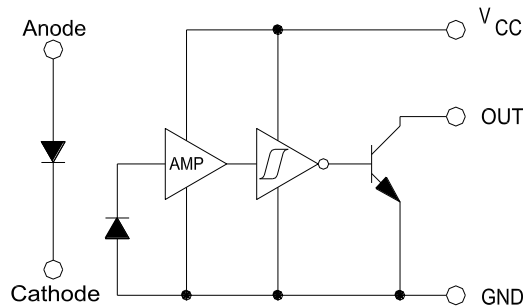
Obsolete (OPI125)



## OPI126 - Open Collector Output



## OPI128 - Inverted Open Collector Output



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

Storage Temperature	-55° C to +100° C
Operating Temperature	-55° C to +100° C
Supply Voltage, $V_{CC}$ (not to exceed 3 seconds)	+10 V
Input-to-Output Isolation Voltage <sup>(1)(2)</sup>	± 15 kVDC
Lead Soldering Temperature (1/16" (1.6 mm) from case for 5 seconds with soldering iron) <sup>(3)</sup>	260° C
<b>Input Diode</b>	
Forward DC Current	25 mA
Reverse DC Voltage	2 V
Power Dissipation <sup>(4)</sup>	200 mW
<b>Output Photosensor</b>	
Output Photologic® Power Dissipation <sup>(5)</sup>	120 mW
Duration of Output Short to $V_{CC}$ (OPI126, OPI128)	1.00 second
Voltage at Output Lead (OPI126, OPI128)	35 V

#### Notes:

- (1) Measured with input and output leads shorted.
- (2) UL recognition is for 15 kV dc for one minute.
- (3) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
- (4) Derate linearly 1.33 mW/° C above 25° C.
- (5) Derate linearly 3.40 mW/° C above 90° C.

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# Photologic® Optically Coupled Isolator

OPI126, OPI128

Obsolete (OPI125)



## Electrical Characteristics (T<sub>A</sub> = -40° C to +85° C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>Diode Input</b> (See OP130 and OP230 for additional information - for reference only)						
V <sub>F</sub>	Forward Voltage	-	-	1.5	V	I <sub>F</sub> = 10 mA, T <sub>A</sub> = 25° C
I <sub>R</sub>	Reverse Current	-	-	100	μA	V <sub>R</sub> = 2 V, T <sub>A</sub> = 25° C
I <sub>F</sub> (+)	LED Positive-Going threshold Current	-	-	7.5	mA	V <sub>CC</sub> = 5 V, T <sub>A</sub> = 25° C
I <sub>F</sub> (+)/I <sub>F</sub> (-)	Hysteresis Ratio	-	2.0	-	-	-
<b>Photologic® Output</b> (See OP800 and OP801 for additional information - for reference only)						
V <sub>CC</sub>	Operating Supply Voltage	4.5	-	5.5	V	-
I <sub>CC</sub>	Supply Current	-	-	20	mA	V <sub>CC</sub> = 5.5 V, I <sub>F</sub> = 0 or 7.5 mA
V <sub>OL</sub>	Low Level Output Voltage OPI126 OPI128	- -	- -	0.40 0.40	V	V <sub>CC</sub> = 4.5 V, I <sub>OL</sub> = 13 mA, I <sub>F</sub> = 0 mA V <sub>CC</sub> = 4.5 V, I <sub>OL</sub> = 13 mA, I <sub>F</sub> = 7.5 mA
I <sub>OH</sub>	High Level Output Current OPI126 OPI128	- -	- -	100 100	μA	V <sub>CC</sub> = 4.5 V, V <sub>OH</sub> = 30 V, I <sub>F</sub> = 7.5 mA V <sub>CC</sub> = 4.5 V, V <sub>OH</sub> = 30 V, I <sub>F</sub> = 0 mA
t <sub>r</sub> , t <sub>f</sub>	Output Rise Time, Output Fall Time OPI126, OPI128	-	100	-	ns	V <sub>CC</sub> = 5 V, T <sub>A</sub> = 25° C, I <sub>F</sub> = 0 or 10 mA, f = 10 kHz, D.C. = 50 %, R <sub>L</sub> = 360 Ω
t <sub>PLH</sub> , t <sub>PHL</sub>	Propagation Delay, Low-High, High-Low OPI126, OPI128	-	5	-	μs	V <sub>CC</sub> = 5 V, T <sub>A</sub> = 25° C, I <sub>F</sub> = 0 or 10 mA, f = 10 kHz, D.C. = 50 %, R <sub>L</sub> = 360 Ω

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