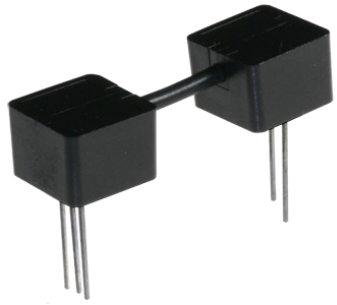
Fiber Optic Isolator—Photologic® Sensor

OPI1290 Series

Features:

- Opaque plastic housings
- High noise immunity
- IR LED with Phototransistor Output
- 0.05” (1.27 mm) lead spacing
- Data Transfer through plastic fiber cable
- Isolation voltage 15 KV (OPI1290-032), Longer versions higher



Description:

Each **OPI1290** consists of a IR LED and a Photologic® Totem-Pole output sensor, which are housed in separate opaque molded plastic housings and coupled by plastic fiber optic cable. The heavy-duty opaque housing shields the optical signal from dust, making this series of devices ideal for dust contaminated environments.

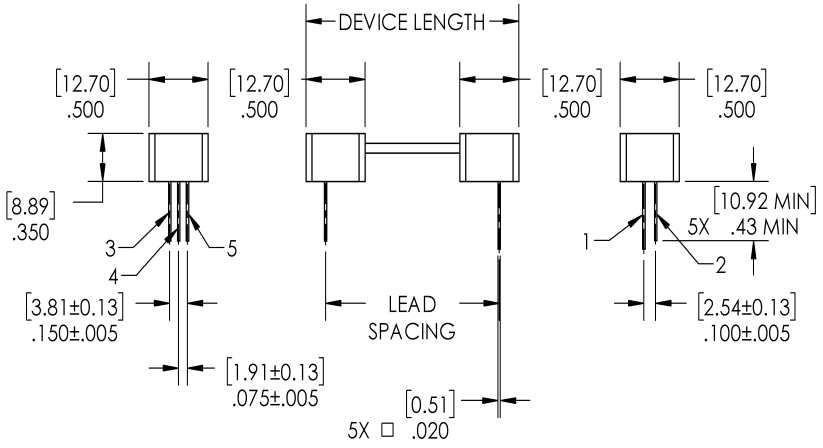
The **OPI1290** series are designed for applications that require high voltage isolation between input and output or signal communication over short distances. Depending on the length of the fiber optic cable, the emitter does not have to be optically in-line with the sensor. The isolation voltage is greater than 10 K volts per inch (Isolation distance between components) for all versions of the **OPI1290**.

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

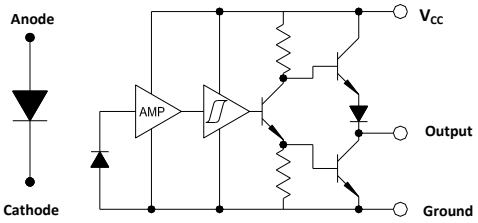
Applications:

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

Ordering Information					
Part Number	Lead Spacing ±.08” [2]	Device Length ±.08” [2]	Creepage ±.08” [2]	LED Peak Wavelength	LED Length
OPI1290-032	1.42” [36.1]	1.76” [44.7]	1.40” [35.6]	890 nm	0.43” [11 mm]
OPI1290-066	2.78” [70.6]	3.11” [79.0]	2.76” [70.1]		
OPI1290-080	3.30” [83.8]	3.65” [92.7]	3.28” [83.3]		



PIN #	FUNCTION
1	Anode
2	Cathode
3	V_{CC}
4	Output
5	Ground



Tolerances are ± .010” [.25] unless otherwise stated dimensions are in inches [millimeters]

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Electrical Specifications

Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

Storage Temperature Range (note 3)	-40° C to +80° C
Operating Temperature Range (note 3)	-20° C to +75° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron]	260° C(1)
Power Dissipation (2)	100 mW

Electrical Characteristics (T_A = 25° C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
LED (See OP240 for additional electrical information)						
V_F	On-State Collector Current	1.2	-	2.3	V	I_F = 20 mA
I_R	Collector-Dark Current	-	-	80	µA	V_R = 3.0V
Photologic® Sensor - (See OP550 for additional information)						
V_{CC}	Operating Supply Voltage	4.5	-	16	V	-
	Peak-to-Peak V_{CC} Ripple Necessary to Cause False Triggering of Output	-	-	2	V	V_{CC} = 5 V DC, f = DC to 50 MHz
I_{CC}	Supply Current(4)	-	8	15	mA	E_E = 0 or 3 mW/cm^2, V_{CC} = 5.5 V
$E_{eT(+)}$	Positive-Going Threshold Irradiance(2)	.25	-	2.4	mW/cm^2	V_{CC} = 5 V, T_A = 25° C
$E_{eT(+)}/E_{eT(-)}$	Hysteresis Ratio	1.50	2	2.5	-	-
V_{OH}	Operating Supply Voltage	2.1	-	-	V	I_{OH} = -1 µA, E_E = 1 mW/cm^2
V_{OL}	Low Level Output Voltage	-	0.25	0.4	V	V_{CC} = 4.5 V, I_{OL} = 12.8 mA, E_E = 0
I_{OS}	Short Circuit Output Current	-20	-55	-100	mA	V_{CC} = 5.5 V, Output = GND, E_E = 3 mW/cm^2
I_{OH}	High Level Output Current(2)	-	1	100	µA	V_{CC} = 4.5 V, V_{OH} = 30 V, E_E = 3 mW/cm^2
T_R & T_F	Output Rise & Fall Time	-	25	70	ns	V_{CC} = 5 V, T_A = 25° C, E_E = 0 or 3 mW/cm^2, f = 10 kHz, DC = 50% RL = 8 TTL loads
$tpE_{eT}(+)$	Propagation Delay Positive–Going	-	2.5	5.0	µs	V_{CC} = 5 V, T_A = 25° C, E_E = 0 or 3 mW/cm^2, R_L = 8 TTL loads, f = 10 kHz, DC = 50%
$tpE_{eT}(-)$	Propagation Delay Negative–Going	-	2.5	5.0	µs	V_{CC} = 5 V, T_A = 25° C, E_E = 0 or 3 mW/cm^2, R_L = 360 Ω, f = 10 kHz, DC = 50%
t_{PLH}, T_{PHL}	Propagation Delay (Low-High/High-Low)	-	5.0	-	µs	DC = 50%, R_L = 10 TTL Loads

Notes:
(1) Derate linearly 2.5 mW/° C above 25° C for all devices in the OPL550, OPL551, OPL560, OPL561, OPL562 and OPL563 series.
(2) Irradiance measurements are made with λi = 935 nm.
(3) Storage and Operating temperature values are based on the plastic optical interface temperature ratings. Please reference UL1577 and UL file AVLVZ.E89328

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