

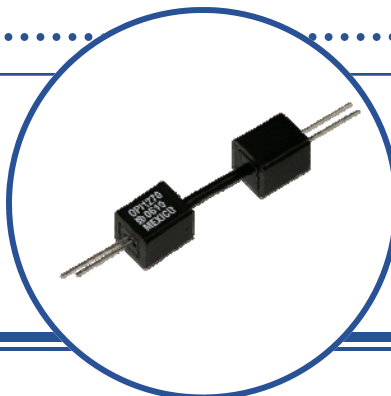
# Axial Fiber Optic Isolator

## OPI1270 Series



### Features:

- Opaque plastic housings
- High noise immunity
- Visible Red LED with Phototransistor Output
- 0.05" (1.27 mm) lead spacing
- Data Transfer through plastic fiber optic cable
- Isolation voltage 15 KV (OPI1270-032), Longer versions higher



### Description:

Each **OPI1270** consists of a visible Red LED and a Phototransistor 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 OPI1270 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 **OPI1270**. Conforms to UL 1577 (File # E58730).

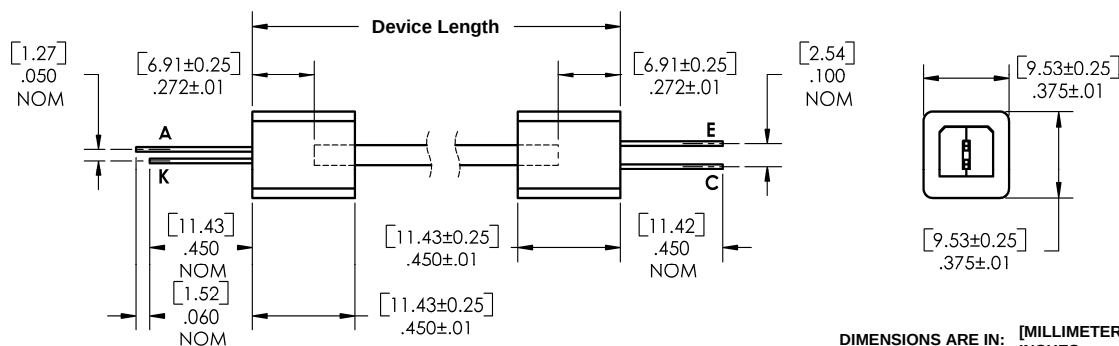
Custom electrical, wire and cabling and connectors are available. Contact your local representative or OPTEK for more information.

### Applications:

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

### Ordering Information

| Part Number | Isolation Distance $\pm 2$ mm | Device Length $\pm 2$ mm | LED Peak Wavelength | Lead Length     |
|-------------|-------------------------------|--------------------------|---------------------|-----------------|
| OPI1270-018 | 0.71" [18 mm]                 | 1.26" [32.0 mm]          | 645 nm              | 0.45" [11.4 mm] |
| OPI1270-026 | 1.02" [26 mm]                 | 1.57" [40.0 mm]          |                     |                 |
| OPI1270-032 | 1.26" [32 mm]                 | 1.80" [45.8 mm]          |                     |                 |
| OPI1270-040 | 1.57" [40 mm]                 | 2.12" [53.8 mm]          |                     |                 |
| OPI1270-066 | 2.60" [66 mm]                 | 3.15" [80.0 mm]          |                     |                 |
| OPI1270-080 | 3.15" [80 mm]                 | 3.69" [93.8 mm]          |                     |                 |



DIMENSIONS ARE IN: [MILLIMETERS]  
INCHES

| Pin # | LED     | Pin # | Transistor |
|-------|---------|-------|------------|
| 1     | Anode   | 3     | Emitter    |
| 2     | Cathode | 4     | Collector  |



RoHS

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

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

|                                                                                             |                                            |
|---------------------------------------------------------------------------------------------|--------------------------------------------|
| Storage Temperature Range (note 4)                                                          | $-40^\circ\text{C}$ to $+80^\circ\text{C}$ |
| Operating Temperature Range (note 4)                                                        | $-20^\circ\text{C}$ to $+75^\circ\text{C}$ |
| Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron] | $260^\circ\text{C}^{(1)}$                  |
| Power Dissipation <sup>(2)</sup>                                                            | 100 mW                                     |

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

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|--------|-----------|-----|-----|-----|-------|-----------------|
|--------|-----------|-----|-----|-----|-------|-----------------|

#### LED (See OVLAS6CB8 for additional information)

|       |                            |     |   |     |               |                      |
|-------|----------------------------|-----|---|-----|---------------|----------------------|
| $V_F$ | On-State Collector Current | 1.2 | - | 2.3 | V             | $I_F = 20\text{ mA}$ |
| $I_R$ | Collector-Dark Current     | -   | - | 80  | $\mu\text{A}$ | $V_R = 3.0\text{ V}$ |

#### SENSOR—Phototransistor (See OP506 for additional information)

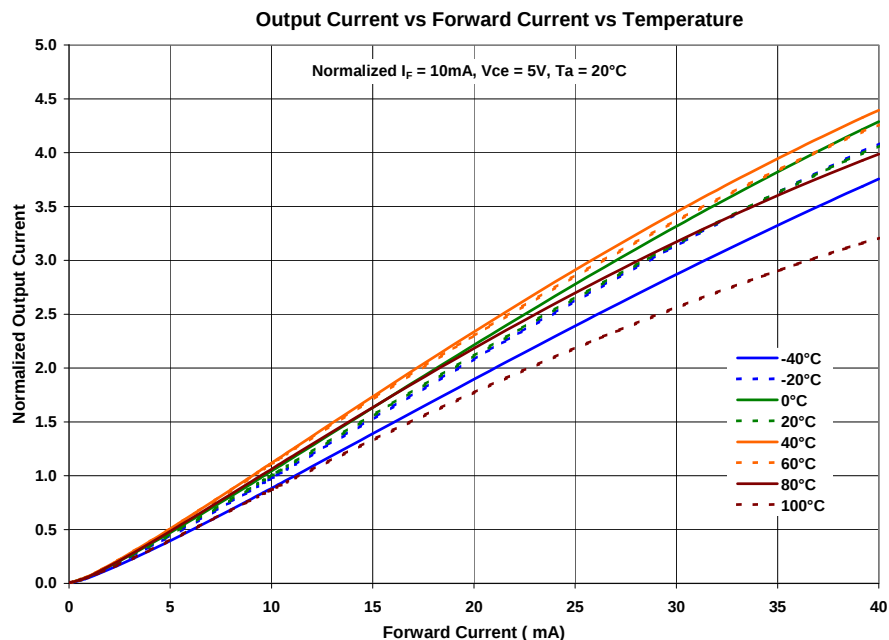
|               |                                     |     |   |    |    |                                         |
|---------------|-------------------------------------|-----|---|----|----|-----------------------------------------|
| $I_{CEO}$     | Collector Dark Current              | -   | - | 50 | nA | $V_{CE} = 10\text{ V}, E_E = 0$         |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | 33  | - | -  | V  | $I_C = 100\text{ }\mu\text{A}, E_E = 0$ |
| $V_{(BR)ECO}$ | Emitter-Collector Breakdown Voltage | 5.5 | - | -  | V  | $I_E = 100\text{ }\mu\text{A}, E_E = 0$ |

#### COUPLED

|                 |  |      |   |     |               |                                                                               |
|-----------------|--|------|---|-----|---------------|-------------------------------------------------------------------------------|
| $I_{C(ON)}$     |  | 0.36 | - | -   | mA            | $V_{CE} = 5\text{ V}, I_F = 10\text{ mA}$                                     |
| $I_{ISO}^{(3)}$ |  | -    | - | 1.0 | $\mu\text{A}$ | $I @ 7\text{ KV RMS}, 25^\circ\text{C}, \text{Test Duration} = 2\text{ sec.}$ |

#### Notes:

1. RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering. A maximum 20 grams force may be applied to the leads when soldering.
2. Derate linearly 1.33 mW/ $^\circ\text{C}$  above  $25^\circ\text{C}$ .
3. Isolation voltage testing is required.
4. 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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