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 dc (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**. **OPI1270-032**, **OPI1270-040** and **OPI1270-080** conform to UL 1577 (File # E58730).

Part

Number

OPI1270-018

OPI1270-026

OPI1270-032

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



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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Ordering Information

Minimum

Isolation

9.7 kV

12.8 kV

15.1 kV

Device

Length ±2mm

1.26" [32.0 mm]

1.57" [40.0 mm]

1.80" [45.8 mm]

Lead Length

0.45"

[11.4 mm]

Isolation Distance

±2mm

0.71" [18 mm]

1.02" [26 mm]

1.26" [32 mm]

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Electrical Specifications

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

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

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

SYMBOL	PARAMETER	MIN	ТҮР	MAX	UNITS	TEST CONDITIONS	
LED							
V _F	Forward Voltage	1.2	-	2.3	V	I _F = 20 mA	
I _R	Reverse Current	-	-	80	μA	V _R = 3.0 V	
SENSOR—Phototransistor							
I _{CEO}	Collector Dark Current	-	-	50	nA	$V_{CE} = 10 V, E_E = 0$	
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	33	-	-	V	Ι _c = 100 μA, Ε _E = 0	
V _{(BR)ECO}	Emitter-Collector Breakdown Voltage	5.5	-	-	V	I _E = 100 μA, E _E = 0	

COUPLED

I _{C(ON)}	On-State Collector Current	0.36	-	-	mA	V _{CE} = 5 V, I _F = 10 mA
I _{ISO}	Isolation Current ⁽³⁾	-	-	1.0	μA	I @ 18 kV dc, Test Duration = 1 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/° C above 25° C.

3. UL recognition is for 15 kV dc for one minute.

Output Current vs Forward Current vs Temperature 5.0 Normalized $I_F = 10mA$, Vce = 5V, Ta = 20°C 4.5 4.0 t Current 3.5 3.0 1ndtnO malized -40°C 2.0 0°C ş - 20°C 1.5 40°C - - 60°C 1.0 - - - 100°C 0.5 0.0 10 15 20 25 30 35 40 0 Forward Current (mA)

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Revision	Change Description	ECN	Date	Approved
	Original release	хххххх	10/26/05	Brian Smith
А	Used Word document in Specs\SPECS to write data sheet. Replaced DIMENSIONS statement on package drawing but did not put new date or issue number on data sheet.	N/A	03/14/06 07/06/06	Brian Smith
A.1	Fixed header part number to OPI1270 and Photo	N/A	1/2/07	Bob Procsal
A.2	Added part numbers –018, -026, -066 and redefined device length	N/A	18/07/07	Trevor Schelps
A.3	Changed Storage and Operating Temperature & added note 4 Changed Isolation voltage for –032 to 15kV	N/A	14/08/07	Trevor Schelps
A.4	Changed Vf to 1.2V min. to 2.3V max. on page 2 added: Conforms to UL 1577 (File # E58730) on page 1	N/A	09/24/07	Trevor Schelps
A.5	Modified Mechanical drawing "Device Length"	N/A	12/19/07	Walter Garcia
В	Add ±2mm to "Isolation Distance" and "Device Length".	N/A	9/20/10	Trevor Schelp
С	Removed reference to UL 1577 (File #E58730)	N/A	01/27/2015	
C.1	Reinstated reference to UL1577 (File #E58730)	N/A	4/9/15	Cosmin Suciu
C.2	Added specific part numbers that are UL certified (OPI1270-032, OPI1270-040, and OPI1270-080)	N/A	5/4/2015	Cosmin Suciu
C.3	Corrected part number in datasheet title	N/A	06/27/2015	Mark Miller
E	Changed OPB1270-032, OPB1270-040 and OPB1207-080 to OPI1270-032, OPI1270-040, and OPI1270-080.	N/A	4/18/2019	Brooke Combs
F	Changed peak wavelength from 645 nm to 660 nm	061674	5/4/2022	Don Cook
G	Added Minimum Isolation Voltage. Removed LED Wavelength information	TDB	3/22/24	Timothy Bauer

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