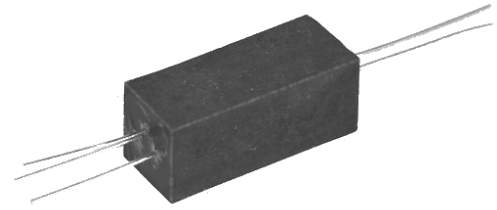


Photologic® Optically Coupled Isolator

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.

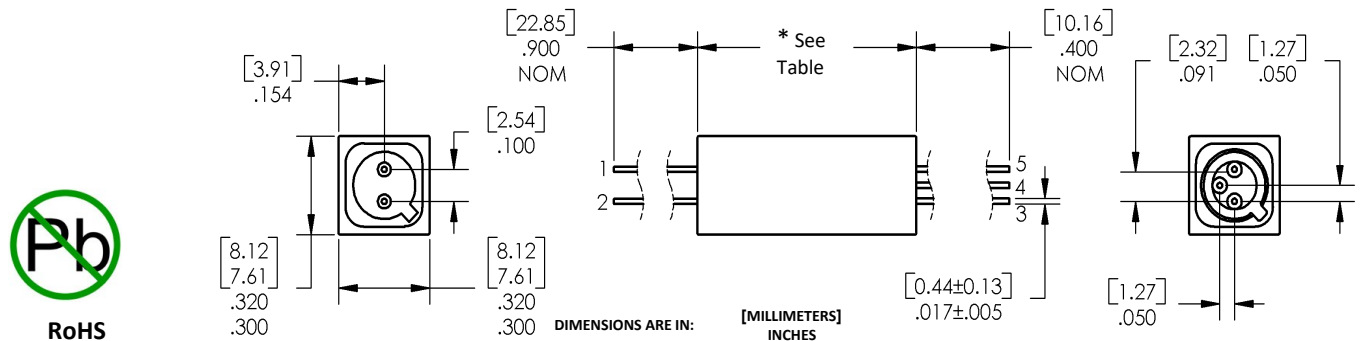
*UL recognition is for 15 kV dc to 100° C.

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 (μs) | I_F (mA) Typ / Max | V_{CE} (Volts) Max | Lead Length / Spacing | Length |
| OPI125 Obsolete | 890 nm | Totem Pole | 15 | 5 / 5 | 7.5 / 25 | 35.0 | 0.40" / 0.75" | 0.75" [19 mm] |
| OPI126 | 935 nm | Open Collector | | | | | | |
| OPI128 | 890 nm | Inverted Open Collector | | | | | | |

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

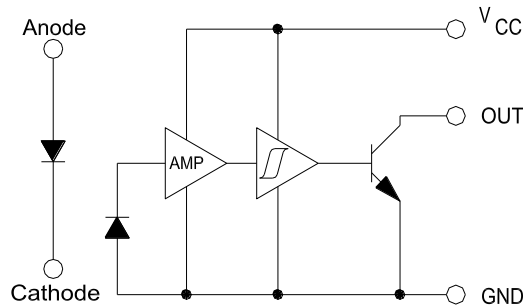


General Note

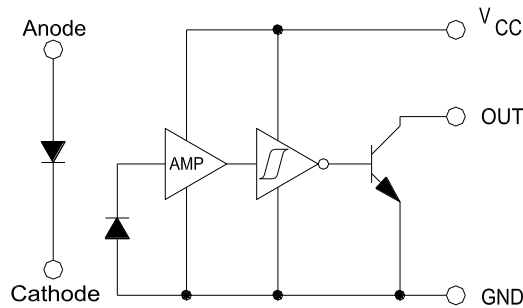
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OPI126 - Open Collector Output



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 ⁽¹⁾⁽²⁾ | ± 15 kVDC |
| Lead Soldering Temperature (1/16" (1.6 mm) from case for 5 seconds with soldering iron) ⁽³⁾ | 260° C |
| Input Diode | |
| Forward DC Current | 25 mA |
| Reverse DC Voltage | 2 V |
| Power Dissipation ⁽⁴⁾ | 200 mW |
| Output Photosensor | |
| Output Photologic® Power Dissipation ⁽⁵⁾ | 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_A = -40° C to +85° C unless otherwise noted)

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

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