

High Voltage Isolator

OPI1266



Features:

- TTL compatible output
- 16 kV dc isolation
- 500 kbits/s transfer rate
- $t_{PHL} - t_{PLH} \leq 500$ ns
- Creepage path: 0.970" (24.64 mm)
- Air path: 0.970" (24.64 mm)
- UL recognized file No. E58730*



Description:

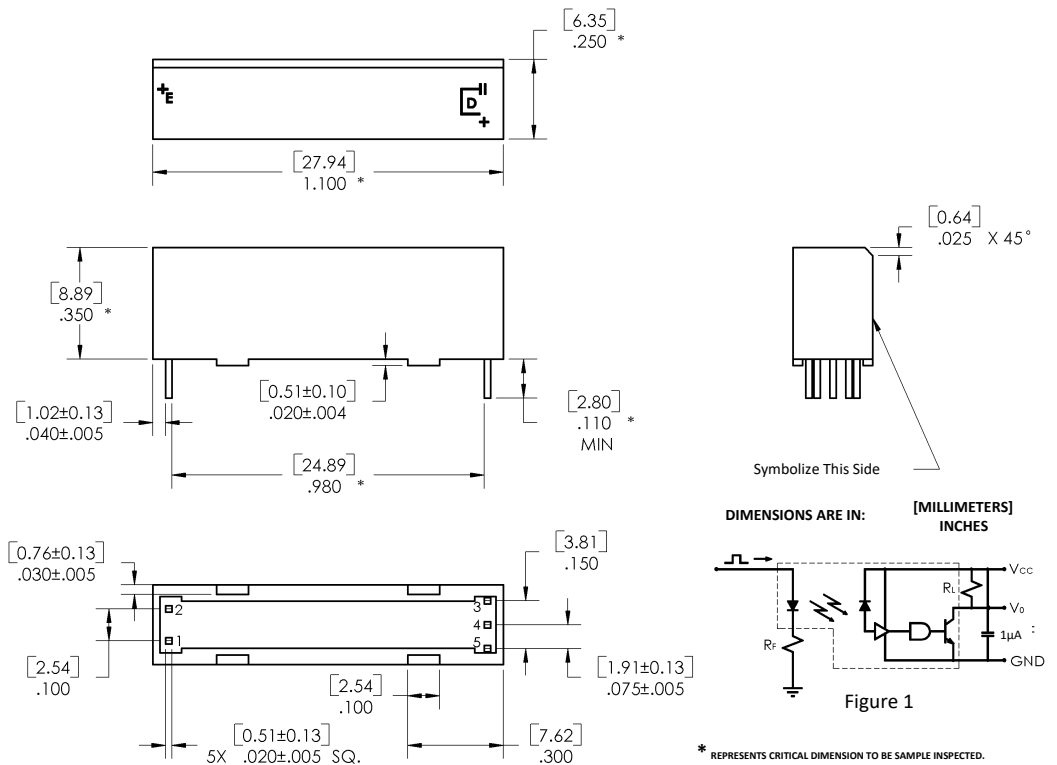
The **OPI1266** is a high voltage isolator that consists of a GaAlAs LED with a peak wavelength of 890 nm, which is coupled with a unique integrated circuit detector. Photons are collected in the detector by a photodiode and amplified by a high-gain linear amplifier that drives a Schottky clamped open collector output transistor. The circuit is temperature, current and voltage compensated. Propagation delay times are matched within 500 nanoseconds over the entire temperature range for timing purposes ($\Delta T_p = t_{PHL} - t_{PLH}$). *UL recognition is for 15kV dc. This design produces maximum DC and AC current isolation between the input and output, while providing TTL/LSTTL circuit compatibility.

Applications:

- Data transmission for High voltage isolation
- PCBoard power system isolation
- Industrial equipment power isolation
- Medical equipment power isolation
- Office equipment

| Ordering Information | | | | | | | |
|----------------------|---------------------|--------------------|--------------------------|------------------------------|----------------------|------------------|-----------------------|
| Part Number | LED Peak Wavelength | Sensor Photologic® | Isolation Voltage (,000) | t_{PLH} / t_{PHL} Max (ns) | I_F (mA) Typ / Max | V_{CE} (V) Max | Lead Length / Spacing |
| OPI1266 | 890 nm | Open Collector | 16 | 500 / 500 | 13.5 / 50 | 7.0 | 0.12" / 0.98" |

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



RoHS

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.

Electrical Specifications

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

| | |
|--|------------------|
| Storage Temperature | -40° C to +85° C |
| Operating Temperature | -40° C to +70° C |
| Input-to-Output Isolation Voltage | 16 kVDC |
| Lead Soldering Temperature (1/16" (1.6 mm) from case for 5 seconds with soldering iron) ⁽³⁾ | 260° C |
| Input Diode | |
| Continuous Forward Current | 50 mA |
| Peak Forward Current (1 μs pulse width, 300 pps) | 3.0 A |
| Reverse Voltage | 2.0 V |
| Power Dissipation ⁽¹⁾ | 100 mW |
| Output IC | |
| Maximum Supply Voltage | 7 V |
| Power Dissipation ⁽¹⁾ | 100 mW |

Electrical Characteristics ($T_A = 0^\circ\text{C}$ to 70°C unless otherwise noted)

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|--|--|------|-----|------|---------------|--|
| Input Diode (See OP240 for additional information—for reference only.) | | | | | | |
| V_F | Forward Voltage | - | 1.2 | 1.8 | V | $I_F = 20\text{ mA}$ |
| I_R | Reverse Current | - | - | 100 | μA | $V_R = 2.0\text{ V}$ |
| Output IC ($V_{CC} = 4.75\text{ V}$ to 5.25 V) (See OPL550 for additional information—for reference only.) | | | | | | |
| I_{OH} | High Level Output Current | - | - | 100 | μA | $I_F = 0.0\text{ mA}$, $V_{OH} = 5.25\text{ V}$ |
| V_{OL} | Low Level Output Voltage | - | - | 0.60 | V | $I_F = 13.5\text{ mA}$, $I_{OL} = 2.6\text{ mA}$ |
| I_{CCH} | High Level Supply Current | 2.5 | - | 15 | mA | $I_F = 0$, $V_{CC} = 5.25\text{ V}$ |
| I_{CCL} | Low Level Supply Current | - | - | 18 | | $I_F = 13.5\text{ mA}$, $I_{OL} = 2.6\text{ mA}$, $V_{CC} = 5.25\text{ V}$ |
| Coupled Characteristics ($V_{CC} = 5\text{ V}$) | | | | | | |
| C_{IO} | Coupling Capacitance | - | - | 2 | pF | Input and output leads shorted. |
| t_{PLH} | Propagation Delay to Low Output Level | - | - | 800 | ns | See Figure 1 |
| t_{PHL} | Propagation Delay to High Output Level | - | - | 800 | | |
| ΔT_P | Difference in Propagation Delays | -500 | - | 500 | ns | See Figure 1 |
| I_{ISO} | Isolation Leakage Current ⁽⁴⁾ | - | - | 20 | μA | $V_{ISO} = 19.2\text{ kV dc}$ (input and output leads shorted) |

Notes:

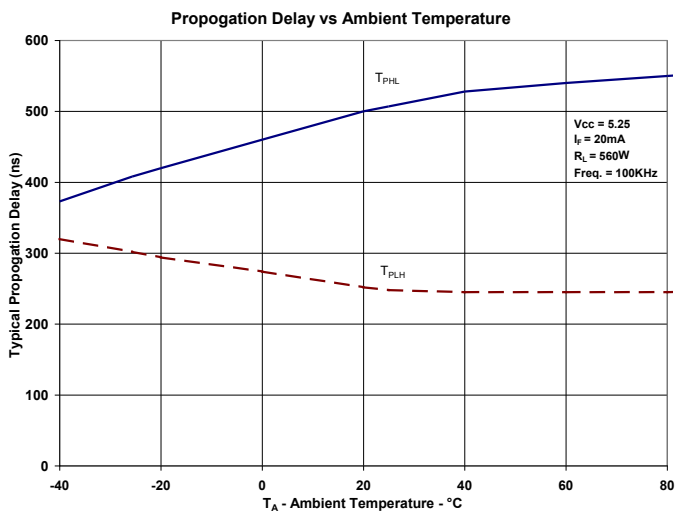
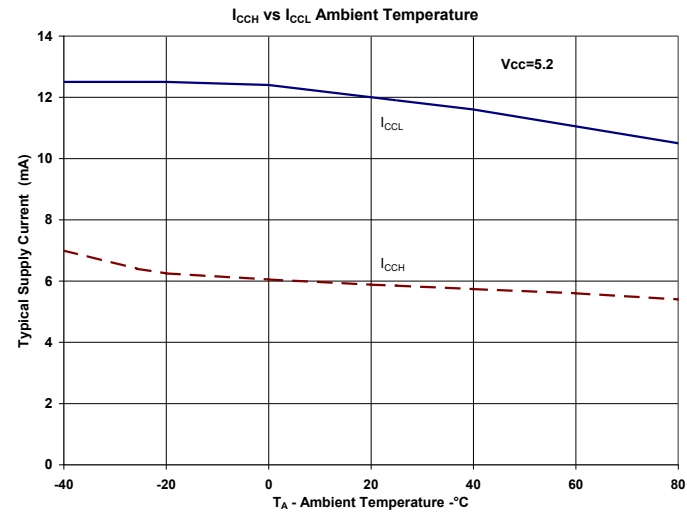
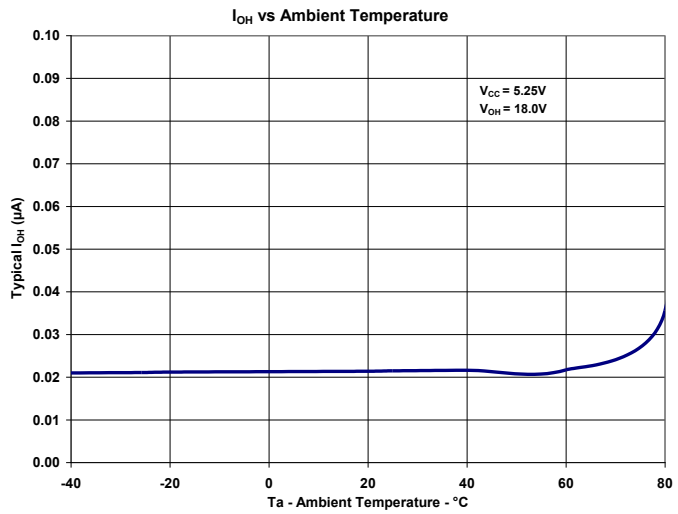
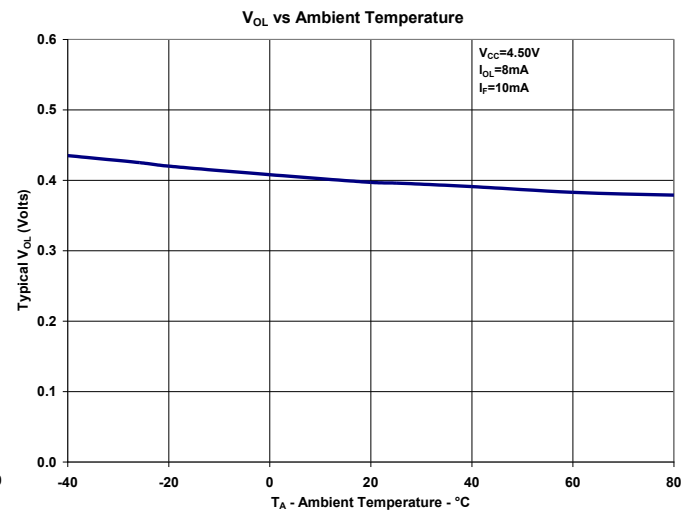
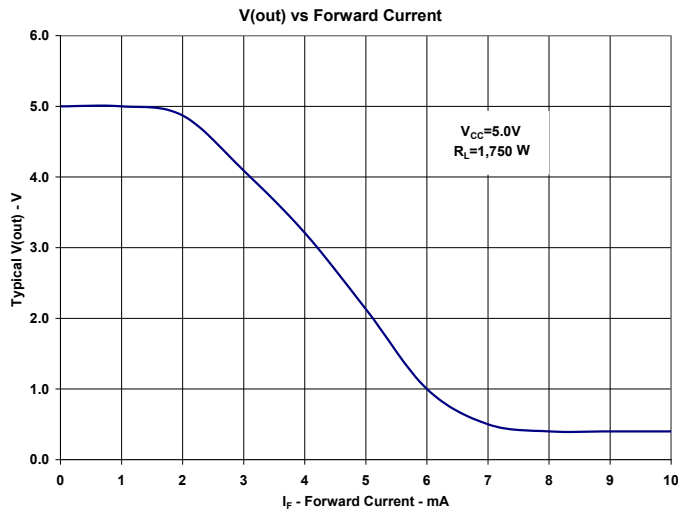
- (1) Derate linearly 1.33 W/°C above 25° C.
- (2) UL recognition is for 15 kV dc for one minute.
- (3) RMA flux is recommended.
- (4) Measured with input and output leads shorted.

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