

# 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:

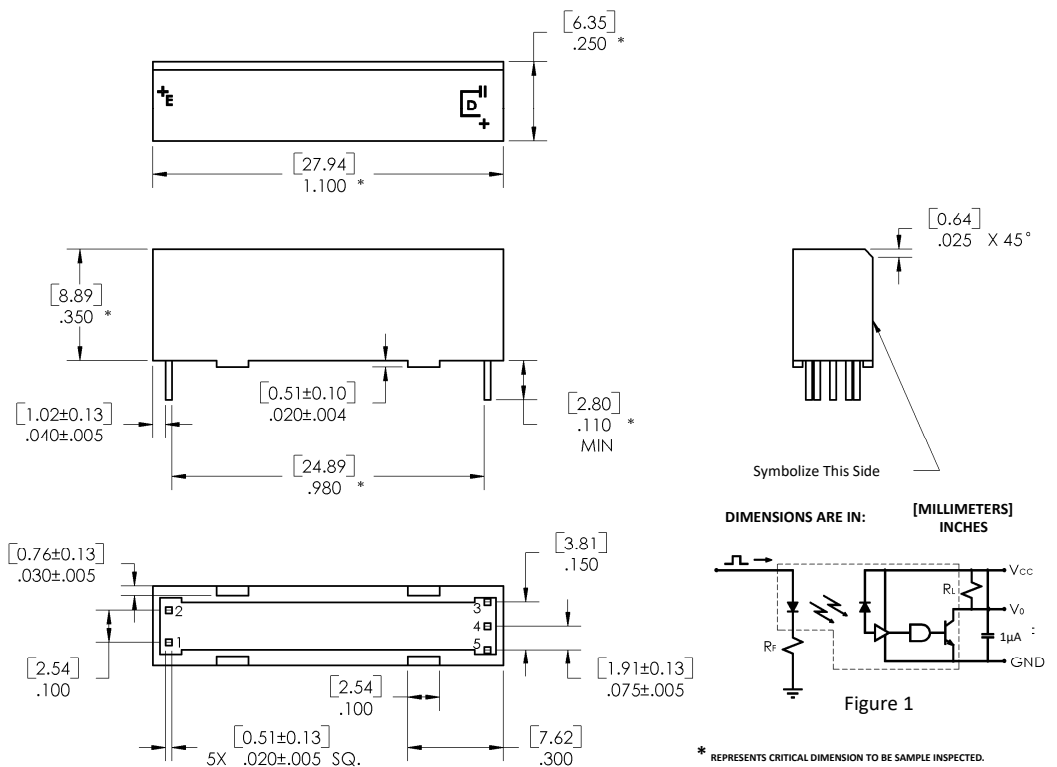
The **OPI1266** is a high voltage isolator that consists of a GaAlAs LED with a peak wavelength of 890 nm, which is coupled with a unique integrated circuit detector. Photons are collected in the detector by a photodiode and amplified by a high-gain linear amplifier that drives a Schottky clamped open 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.

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### 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) <sup>(3)</sup>	260° C
<b>Input Diode</b>	
Continuous Forward Current	50 mA
Peak Forward Current (1 $\mu\text{s}$ pulse width, 300 pps)	3.0 A
Reverse Voltage	2.0 V
Power Dissipation <sup>(1)</sup>	100 mW
<b>Output IC</b>	
Maximum Supply Voltage	7 V
Power Dissipation <sup>(1)</sup>	100 mW

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>Input Diode</b> (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	$\mu\text{A}$	$V_R = 2.0\text{ V}$
<b>Output IC</b> ( $V_{CC} = 4.75\text{ V}$ to $5.25\text{ V}$ ) (See OPL550 for additional information—for reference only.)						
$I_{OH}$	High Level Output Current	-	-	100	$\mu\text{A}$	$I_F = 0.0\text{ mA}$ , $V_{OH} = 5.25\text{ V}$
$V_{OL}$	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		$I_F = 13.5\text{ mA}$ , $I_{OL} = 2.6\text{ mA}$ , $V_{CC} = 5.25\text{ V}$
<b>Coupled Characteristics</b> ( $V_{CC} = 5\text{ V}$ )						
$C_{IO}$	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		
$\Delta T_P$	Difference in Propagation Delays	-500	-	500	ns	See Figure 1
$I_{ISO}$	Isolation Leakage Current <sup>(4)</sup>	-	-	20	$\mu\text{A}$	$V_{ISO} = 19.2\text{ kV dc}$ (input and output leads shorted)

#### Notes:

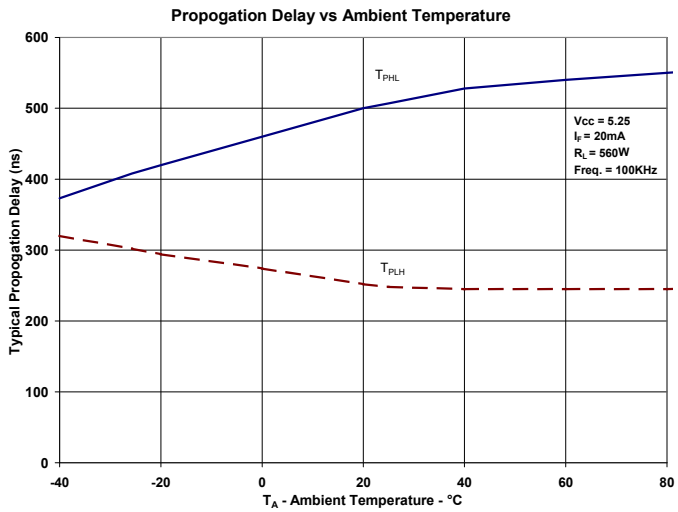
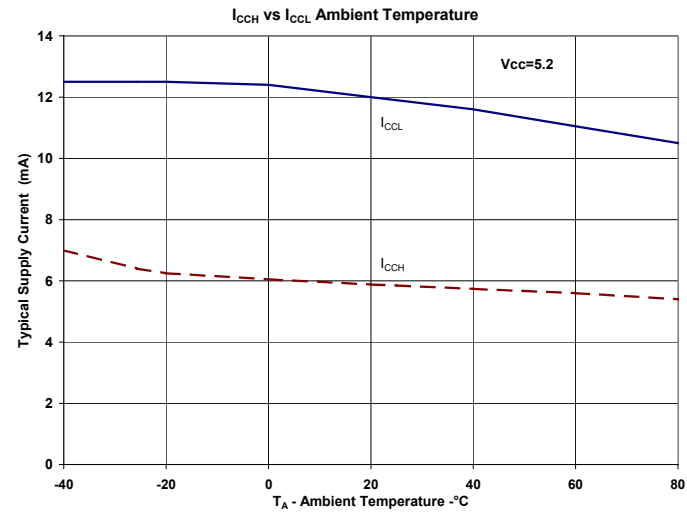
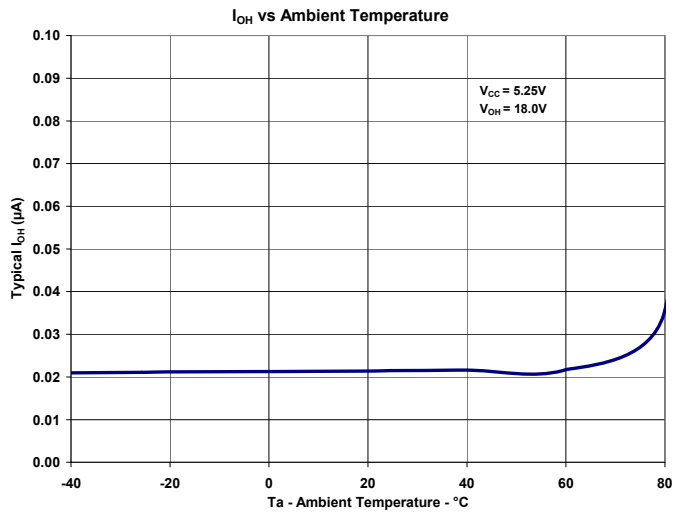
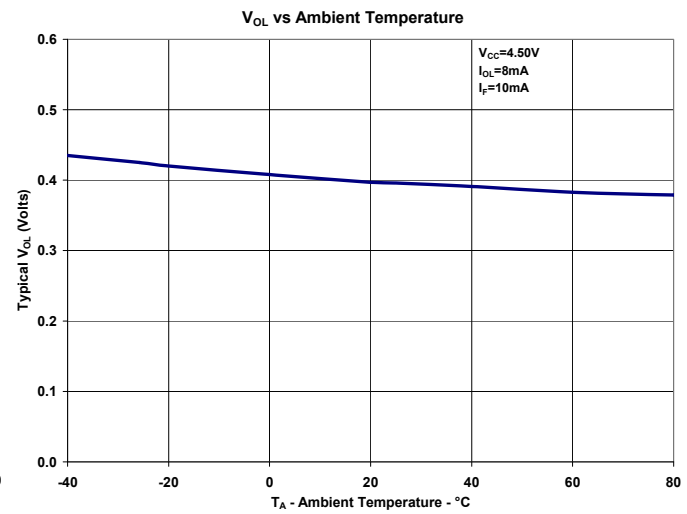
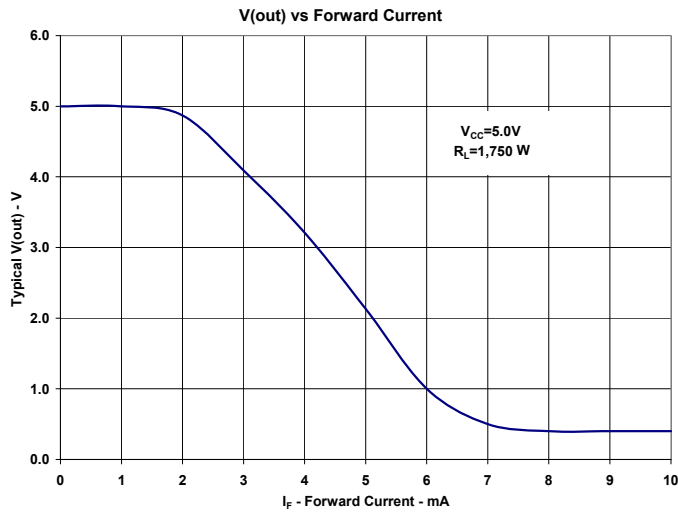
- Derate linearly 1.33 W/°C above 25° C.
- UL recognition is for 15 kV dc for one minute.
- RMA flux is recommended. The duration can be extended to 10 seconds maximum when flow soldering. Refer to Application note 260 for recommended wave solder profile.
- Measured with input and output leads shorted.

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