

# High Voltage Isolator

## OPI1266

**Features:**

- TTL compatible output
- 16 KV 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:**

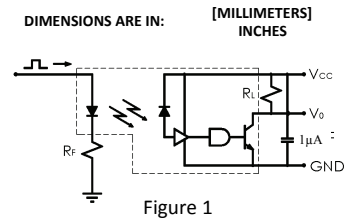
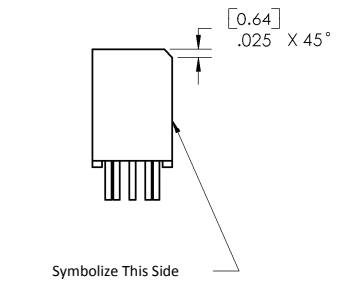
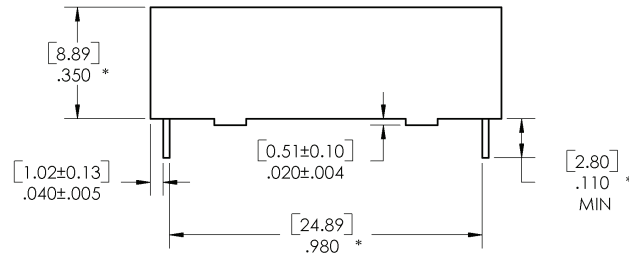
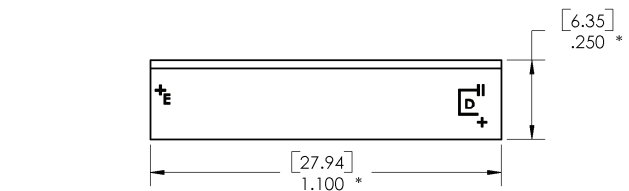
The **OPI1266** is a high voltage isolator that consists of a GaAlAs LED with a peak wavelength of 890 nm, which is coupled with a unique integrated circuit detector. Photons are collected in the detector by a photodiode and amplified by a high-gain linear amplifier that drives a Schottky clamped open 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 3500 V rms at 60 Hz. 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	Vcc
4	Output
5	Ground



\* REPRESENTS CRITICAL DIMENSION TO BE SAMPLE INSPECTED.

**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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## OPI1266

### 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 <sup>(1)(2)</sup>	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)

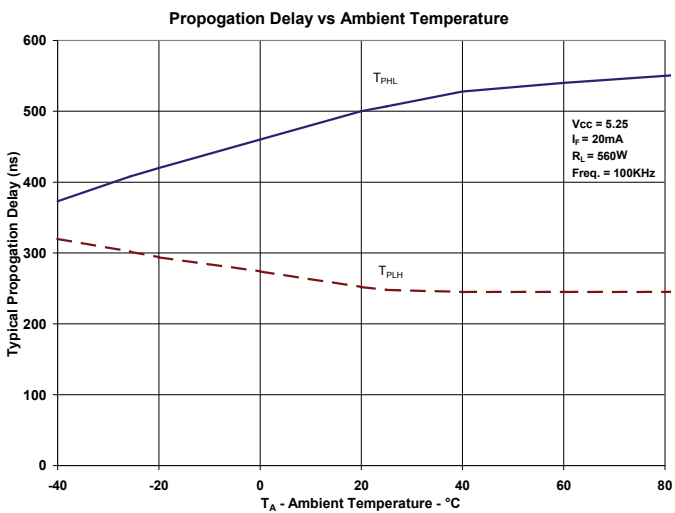
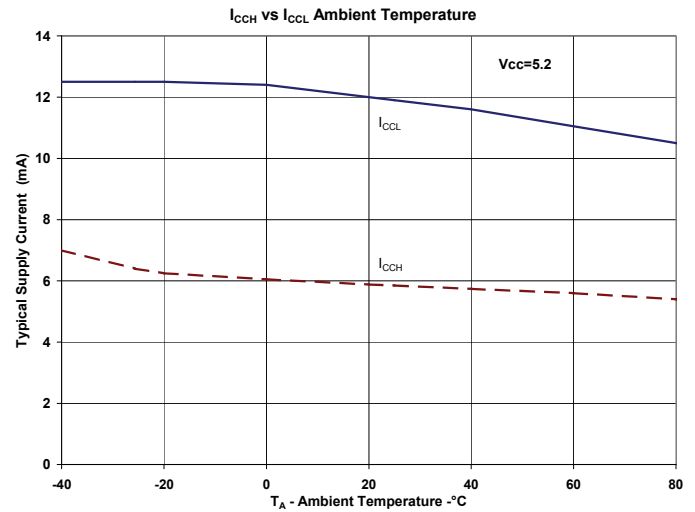
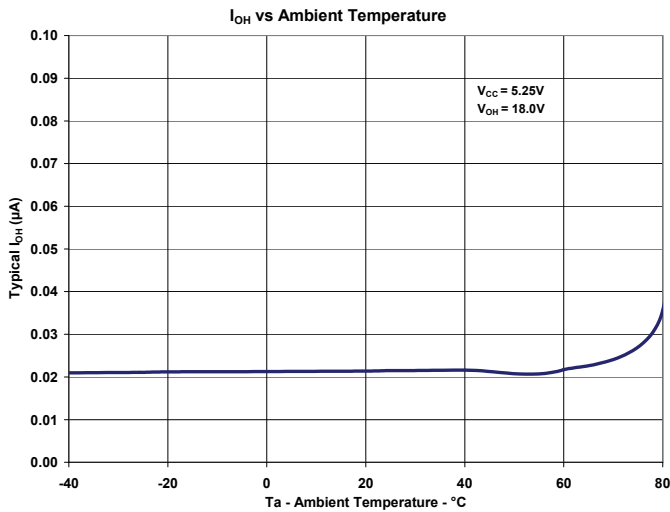
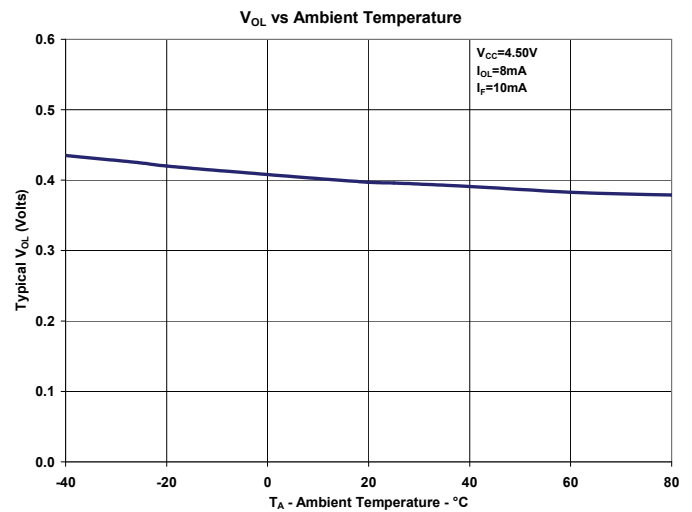
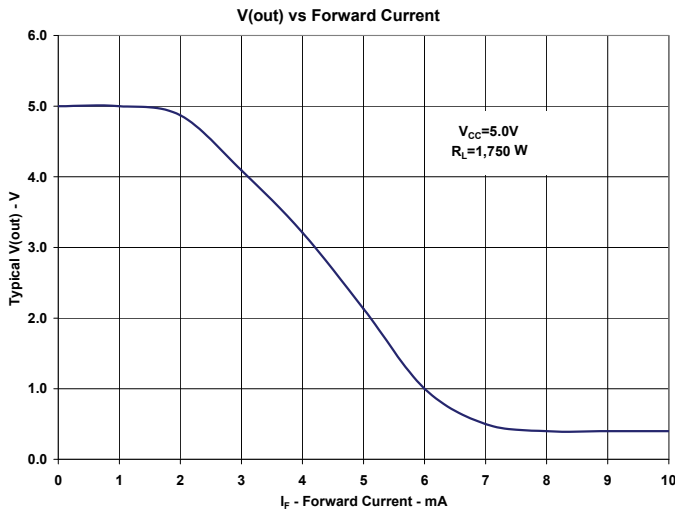
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>Input Diode</b> (See OP240 for additional information—for reference only.)						
$V_F$	Forward Voltage	-	1.2	1.8	V	$I_F = 20\text{ mA}$
$I_R$	Reverse Current	-	-	100	$\mu\text{A}$	$V_R = 2.0\text{ V}$
<b>Output IC</b> ( $V_{CC} = 4.75\text{ V}$ to $5.25\text{ V}$ ) (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		
$\Delta T_P^{(4)}$	Difference in Propagation Delays	-500	-	500	ns	See Figure 1
$I_{ISO}$	Isolation Leakage Current	-	-	1	$\mu\text{A}$	VISO = @ 7kV RMS (input and output leads shorted)

#### Notes:

- (1) Derate linearly 1.33 W/°C above 25°C
- (2) UL registered under E58730.
- (3) RMA flux is recommended. The duration can be extended to 10 seconds maximum when flow soldering.
- (4) Measured with input and output leads shorted. Typical input/output capacitance is 0.05 pF.

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