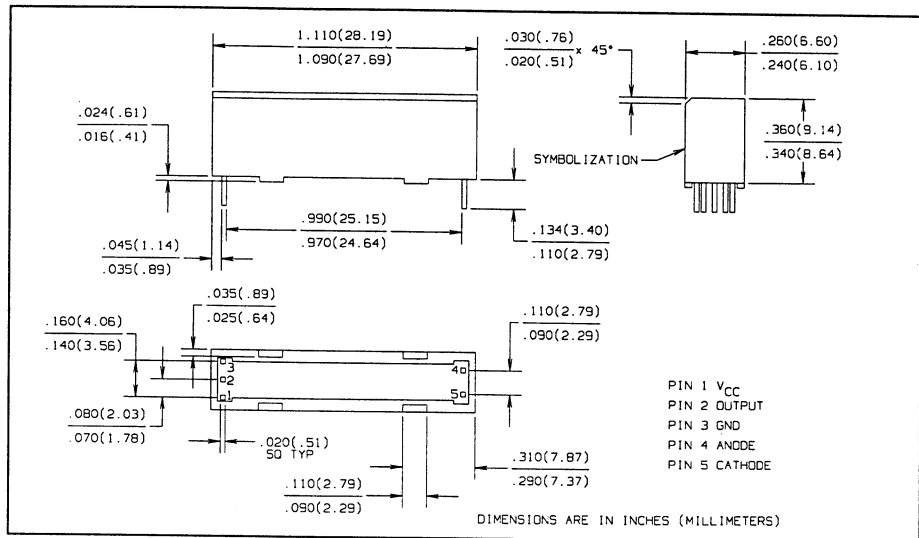
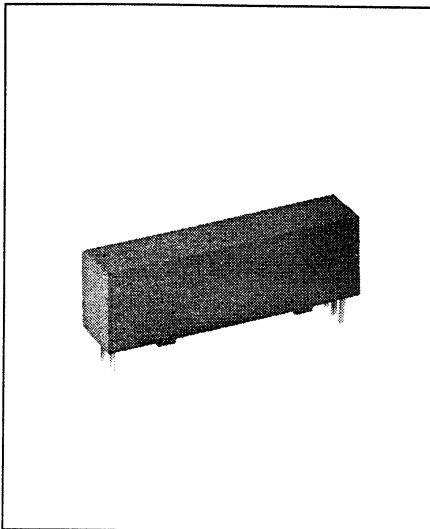


# High Speed, Very High Voltage Isolator Type OPI1266



## Features

- TTL compatible output
- 16kV Isolation
- 500 kbits/s transfer rate
- Creepage path: 0.970" (24.64 mm)
- Air path: 0.970" (24.64 mm)
- t<sub>PHL</sub>-t<sub>PLH</sub> ≤ 500ns
- UL recognized File No. E58730<sup>(4)</sup>

## Description

The OPI1266 consists of a GaAlAs LED 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. This design produces maximum DC and AC current isolation between input and output while providing TTL/LSTTL circuit compatibility. Propagation delay times are matched within 500ns over the entire temperature range for timing purposes.<sup>(2)</sup>

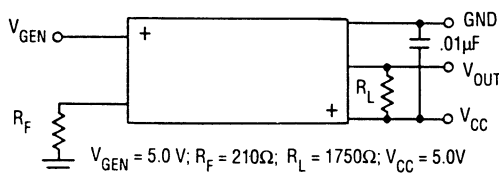


FIG. 1

## Absolute Maximum Ratings (T<sub>A</sub> = 25° C unless otherwise noted)

Input-to-Output Isolation Voltage	16 kVDC <sup>(3)(4)</sup>
Operating Temperature Range	-40° C to +70° C
Storage Temperature Range	-40° C to +85° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron]	260° C <sup>(1)</sup>

## Input Diode

Forward DC Current	50 mA
Reverse Voltage	2.0 V
Peak Forward Current (1 µs pulse width, 300 pps)	3.0 A
Power Dissipation	100 mW

## Output IC

Maximum Supply Voltage	7.0 V
Power Dissipation	100 mW

## Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 sec max. when flow soldering.
- (2)  $\Delta T_P = t_{PHL} - t_{PLH}$ .
- (3) Measured with input and output leads shorted. Typical input/output capacitance is 0.05 pF.
- (4) UL recognition is for 5833 VAC, for 1 minute.

## Schematics

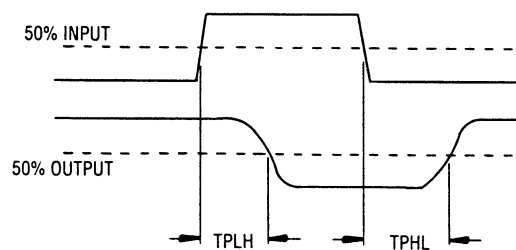


FIG. 2

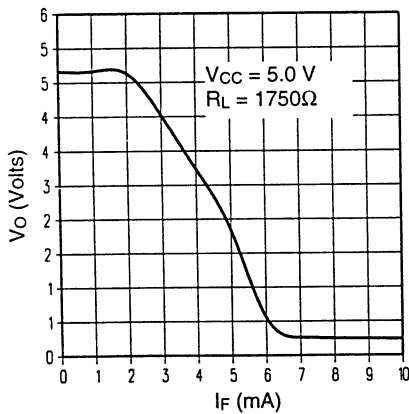
# Type OPI1266

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

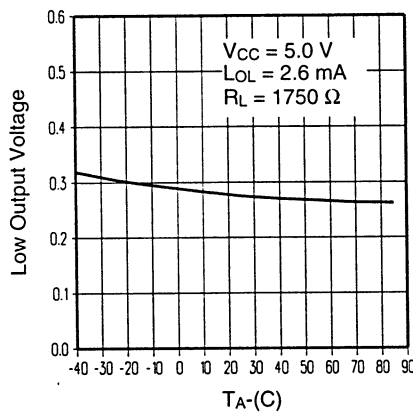
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>Input Diode</b>						
$V_F$	Forward Voltage			1.8	V	$I_F = 20\text{ mA}$
$I_R$	Reverse Current			100	$\mu\text{A}$	$V_R = 2.0\text{ V}$
<b>Output <math>I_C</math> (<math>V_{CC} = 4.75\text{ V}</math> to <math>5.25\text{ V}</math>)</b>						
$I_{OH}$	High Level Output Current			100	$\mu\text{A}$	$I_F = 0, V_{OUT} = 5.5\text{ V}$
$V_{OL}$	Low Level Output Voltage			0.6	V	$I_F = 13.5\text{ mA}, I_{OL} = 2.6\text{ mA}$
$I_{CCH}$	High Level Supply Current			15	mA	$I_F = 0$
$I_{CCL}$	Low Level Supply Current			18	mA	$I_F = 13.5\text{ mA}$
<b>Coupled (<math>V_{CC} = 5.0\text{ V}</math>)</b>						
$C_{IO}$	Coupling Capacitance			2.0	pF	Input & Output Leads Shorted
$t_{PLH}$	Propagation Delay to Low Output Level			800	ns	See Figures 1 & 2
$t_{PHL}$	Propagation Delay to High Output Level			800	ns	See Figures 1 & 2
$\Delta TP^{(2)}$	Difference in Propagation Delays	-500		500	ns	
$I_{ISO}$	Isolation Leakage			1.0	$\mu\text{A}$	@ 7 kV RMS Input & Output Leads Shorted

## TYPICAL PERFORMANCE CURVES

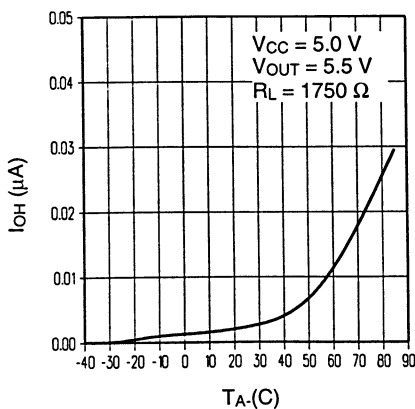
$V_{OUT}$  vs  $I_F$



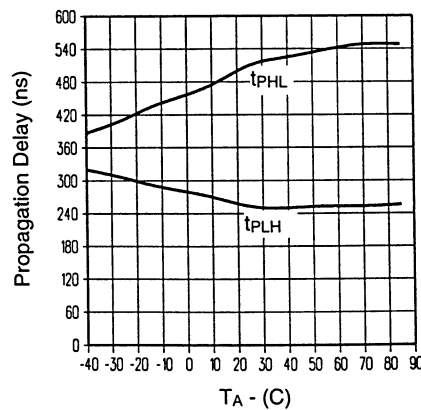
$V_{OL}$  vs  $T_A$



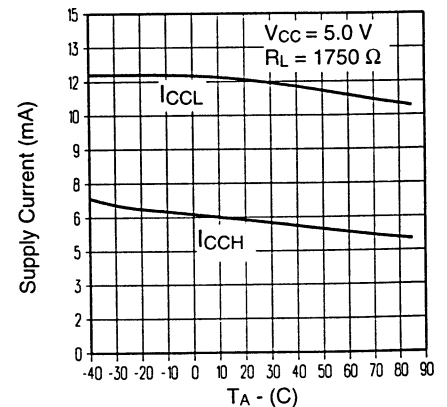
$I_{OH}$  vs  $T_A$



Propagation Delay vs Temperature



$I_{CCH}$  vs  $I_{CCL}$  Ambient Temperature



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COUPLED  
ISOLATORS

Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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