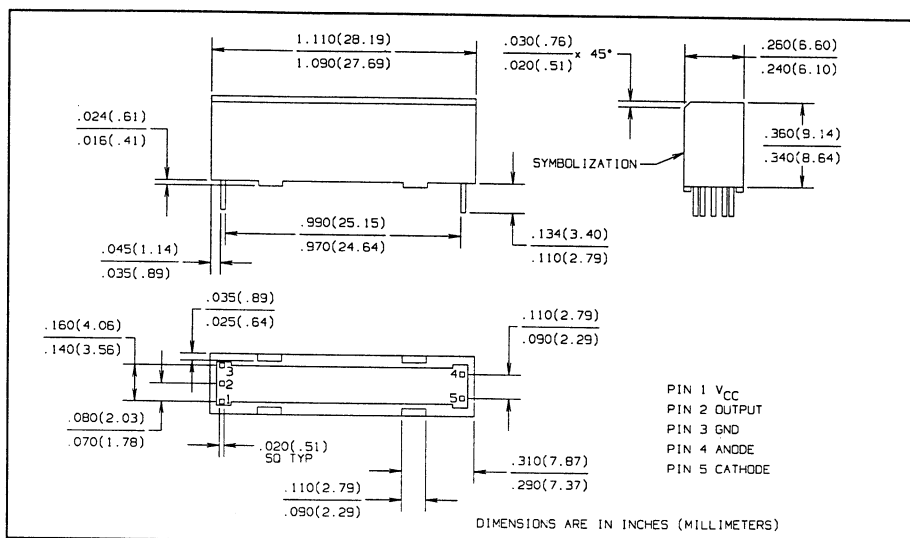
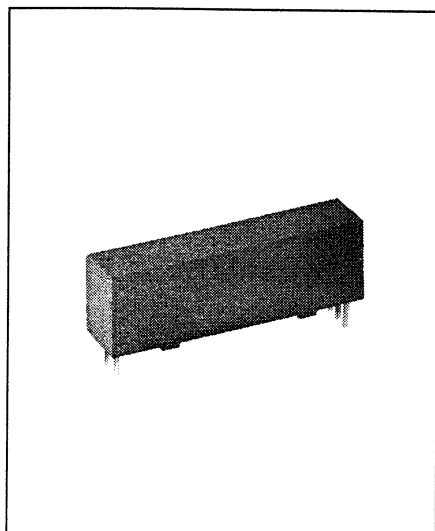


High Speed, Very High Voltage Isolator Type OPI1266



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)
- $t_{PHL}-t_{PLH} \leq 500ns$
- UL recognized File No. E58730⁽⁴⁾

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.⁽²⁾

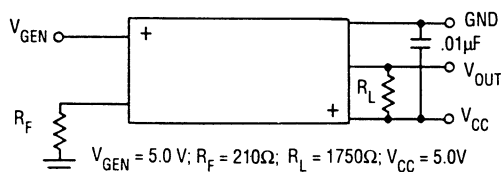


FIG. 1

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

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

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

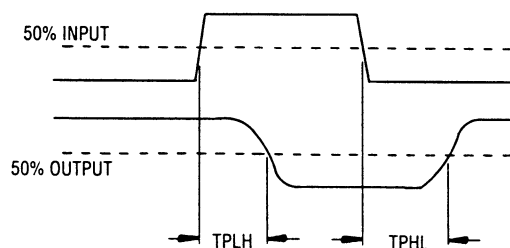


FIG. 2

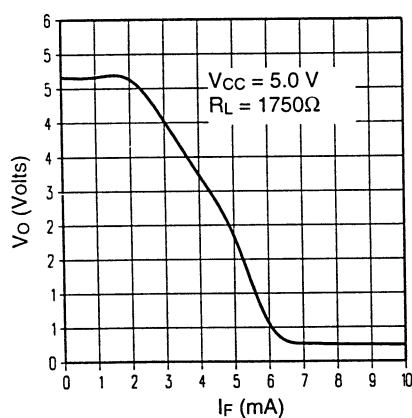
Type OPI1266

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

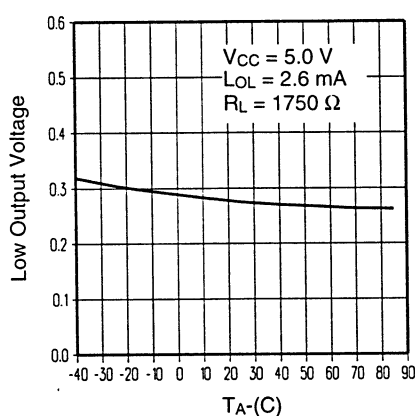
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage			1.8	V	$I_F = 20\text{ mA}$
I_R	Reverse Current			100	μA	$V_R = 2.0\text{ V}$
Output Ic ($V_{CC} = 4.75\text{ V}$ to 5.25 V)						
I_{OH}	High Level Output Current			100	μA	$I_F = 0, V_{OUT} = 5.5\text{ V}$
V_{OL}	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	$I_F = 13.5\text{ mA}$
Coupled ($V_{CC} = 5.0\text{ V}$)						
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	μA	@ 7 kV RMS Input & Output Leads Shorted

TYPICAL PERFORMANCE CURVES

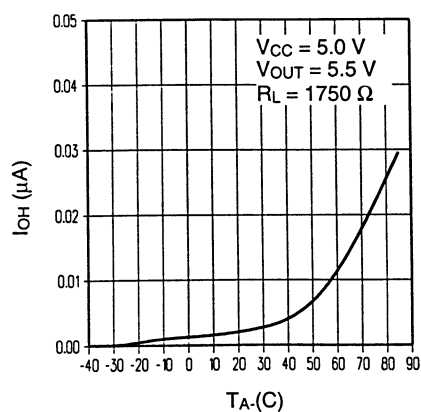
V_{OUT} vs I_F



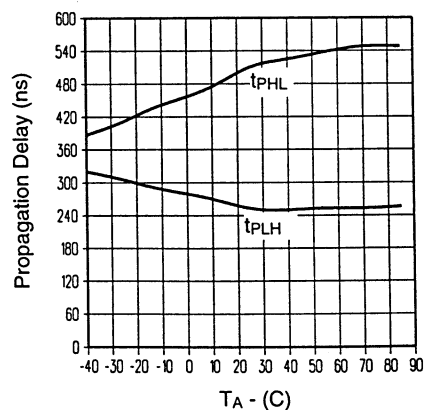
V_{OL} vs T_A



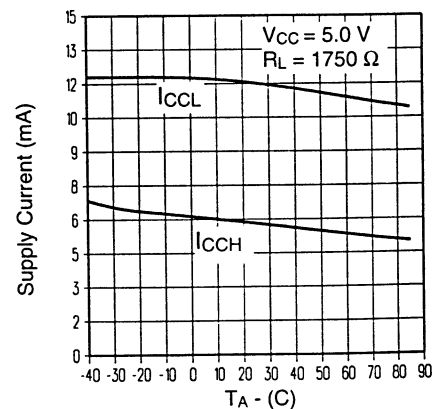
I_{OH} vs T_A



Propagation Delay vs Temperature



I_{CCH} vs I_{CCL} Ambient Temperature



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

Optek Technology, Inc. 1215 W. Crosby Road Carrollton, Texas 75006 (972)323-2200 Fax (972)323-2396