High Voltage Isolator

OPI1268

TT Electronics

Features:

- TTL compatible output
- 16 kV dc isolation
- 2Mbit/s
- t_{PHL}-t_{PLH} ≤ 500 ns
- Creepage path: 0.970" (24.64 mm)
- Air path: 0.970" (24.64 mm)
- UL recognized file No. E58730
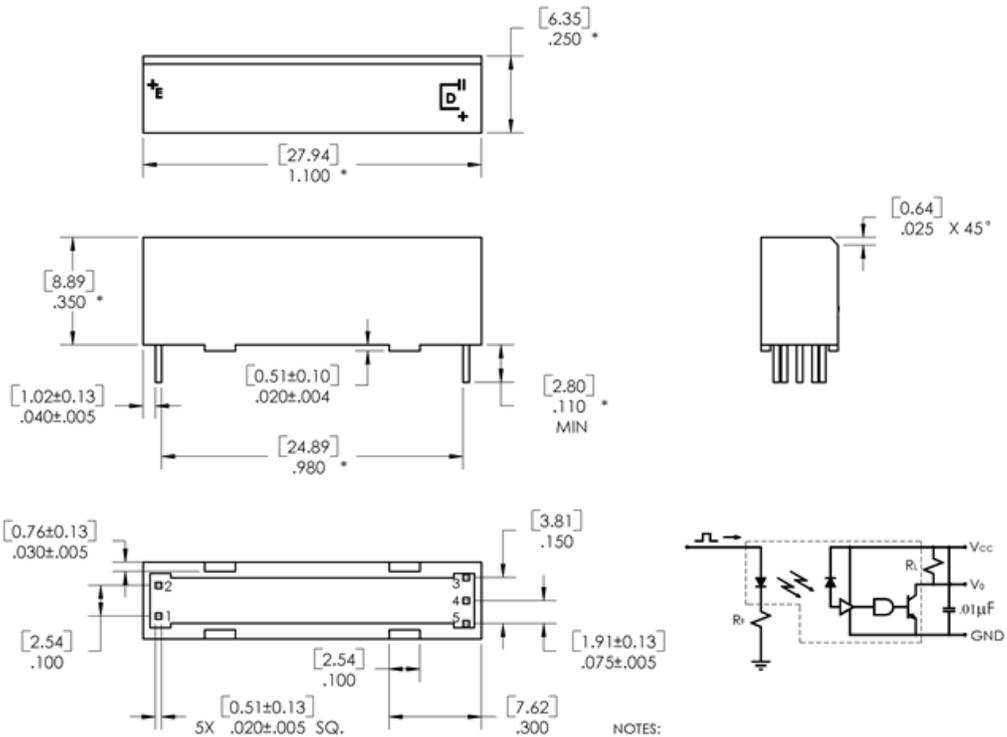
Description:

The **OPI1268** is a high voltage isolator with a digital output that is capable of high speed data transmission. The input of the OPI1268 consists of a high-efficiency GaAlAs LED with a peak wavelength of 850 nm, which is optically coupled to the output optical IC. A photodiode in the output IC detects the incoming modulated light and converts it to a proportionate current. This current is fed into a high-gain linear amplifier which is temperature, current and voltage compensated. The result is a highly stable digital output with an open collector inverter configuration. This device produces DC and AC voltage isolation between the input and output circuitry while providing TTL signal integrity.

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 kVDC	t_{PLH} / t_{PHL} Max (ns)	I_F (mA) Typ / Max	V_{CE} (V) Max	Lead Length / Spacing
OPI1268	850 nm	Open Collector	16	100 / 200	10 / 50	18	0.12" / 0.98"

Pin	Function
1	Cathode
2	Anode
3	Vcc
4	Output
5	Ground

Pb-Free
(RoHS)

High Voltage Isolator

OPI1268

TT Electronics

Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

Storage Temperature	-40° C to +100° C
Operating Temperature	-40° C to +100° C
Input-to-Output Isolation Voltage[2]	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	30 mA
Peak Forward current (1 μs pulse width, 300 pps)	3.0 A
Reverse Voltage	3.0 V
Power Dissipation[1]	100 mW
Output IC	
Maximum Supply Voltage	7 V
Power Dissipation[4]	40 mW
Maximum Output Voltage	18 V
Maximum Output Current	25 mA

Electrical Characteristics (T_A = 0° C to 70° C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage	-	1.3	1.6	V	I_F = 20 mA
I_R	Reverse Current	-	0.1	100	μA	V_R = 2.0 V
Output IC (V_{CC} = 4.5 V to 5.25 V) (See OPL550 for additional information—for reference only.)						
I_{OH}	High Level Output Current	-	0.20	10	μA	I_F = 0.0 mA, V_{OH} = 18.0 V, Vcc = 5.25 V
V_{OL}	Low Level Output Voltage	-	0.44	0.55	V	I_F = 10.0 mA, I_{OL} = 8.0 mA, Vcc = 4.5 V
I_{CCH}	High Level Supply Current	-	4.2	7	mA	I_F = 0, Vcc = 5.25V
I_{CCL}	Low Level Supply Current	-	6.7	10		I_F = 10.0 mA, Vcc = 5.25 V
Coupled Characteristics (V_{CC} = 5 V)						
C_{IO}	Coupling Capacitance	-	-	2	pF	Input and output leads shorted.
t_{PLH}	Propagation Delay to Low Output Level	-	-	200	ns	Vcc=5V, I_F=30mA, R_L=560Ω
t_{PHL}	Propagation Delay to High Output Level	-	-	100		
I_{ISO}	Isolation Leakage Current[5]	-	-	20	μA	VISO = 19.2kV dc
I_F+	LED Positive Going Threshold Current	0.8	1.7	5.0	mA	V_{CC} = 5V, I_{OL} = 8.0mA

Notes:
(1)   Derate LED linearly 1.33 mW/°C above 25°C.
(2)   UL recognition is for 16kV dc for one minute.
(3)   RMA flux is recommended. The duration can be extended to 10 seconds maximum when flow soldering.
(4)   Derate linearly 0.54m W/°C above 25°C.
(5)   Measured with input leads shorted together and output leads shorted together in air with a maximum relative humidity of 50%.
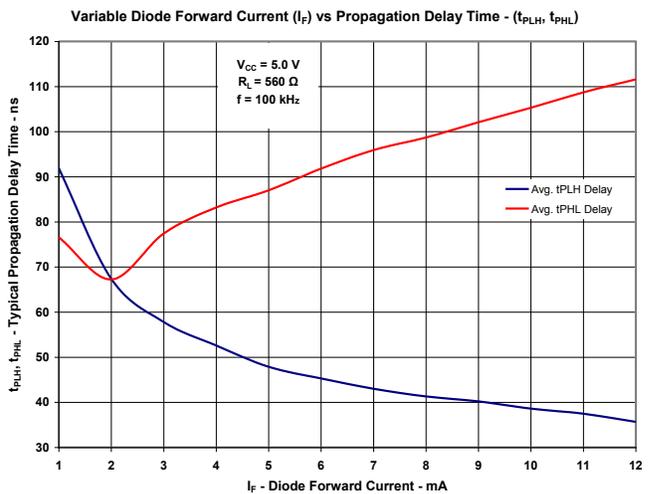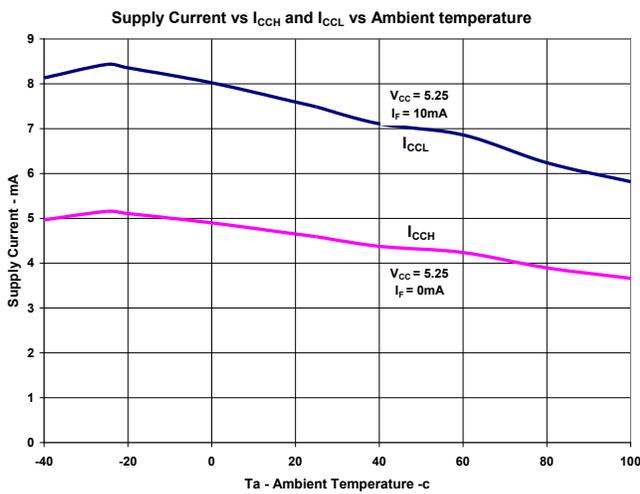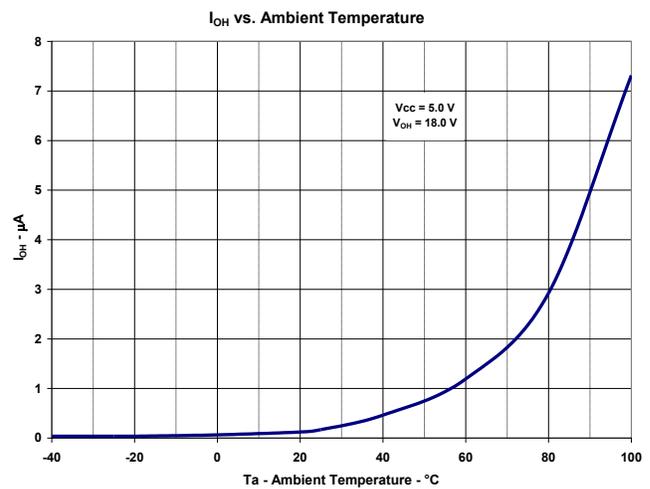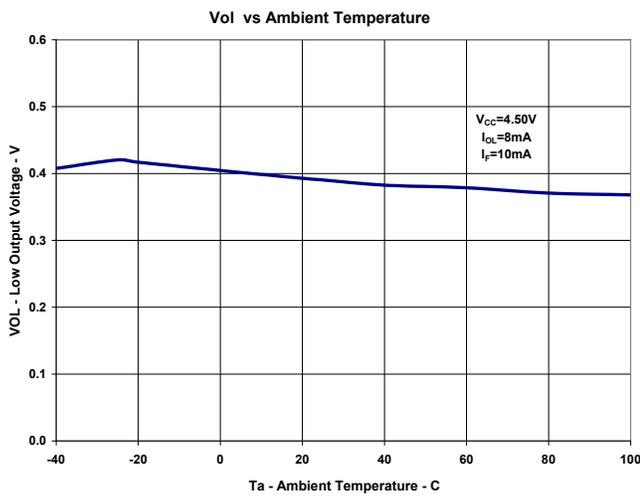
High Voltage Isolator

OPI1268

IF(+) vs Ta

V_{CC} = 5.0 V
I_{OL} = 8.0 mA

$V_{(out)}$ vs I_F

Vcc = 4.5 V
I_{OL} = 8 mA
Ta = 25 °C

Vol vs Ambient Temperature

V_{CC}=4.50V
I_{OL}=8mA
I_F=10mA

I_{OH} vs. Ambient Temperature

Vcc = 5.0 V
V_{OH} = 18.0 V

Supply Current vs I_{CCH} and I_{CCL} vs Ambient temperature

V_{CC} = 5.25
I_F = 10mA

I_{CCL}

I_{CCH}

V_{CC} = 5.25
I_F = 0mA

Variable Diode Forward Current (I_F) vs Propagation Delay Time - (t_{PLH}, t_{PHL})

V_{CC} = 5.0 V
R_L = 560 Ω
f = 100 kHz

— Avg. tPLH Delay
— Avg. tPHL Delay

dV/dT

OPI1268 dV/dT Emitter
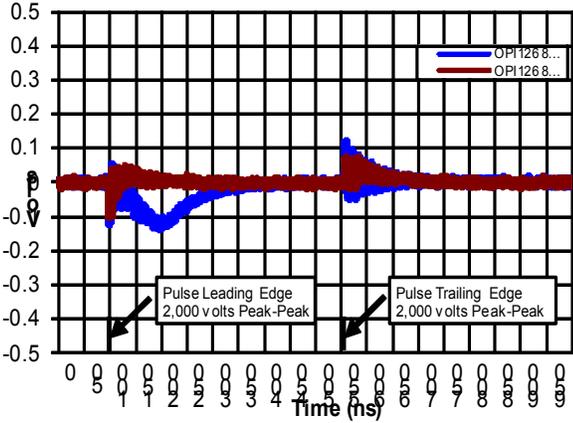
OPI1268 dV/dT Sensor
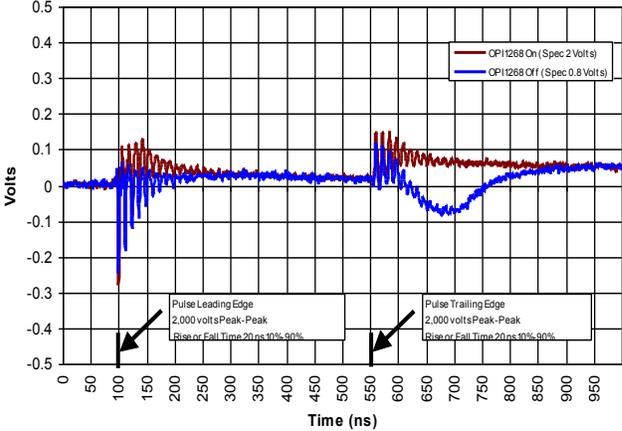
Issue	Change Description	Approval	Date
	Initial Release of OPI1266 (July 1996).		July 1996
A	OPI1268 (from PDF Catalog)		07/04
A.1	Combined OPI1266 and OPI1268 and put in new format. Inserted new package drawing.	Trevor Schelp	05/17/07
A.2	Added Note 3 on page 2	Bob Procsal	08/21/07
A.3	Updated Table on page 3	Trevor Schelp	10/01/07
A.4	Separated OPI1266 form the OPI1268	Trevor Schelp	11/27/07
A.5	Reversed tPHL & tPLH times, Removed reference to Input Diode	Trevor Schelp	05/07/2008
B	Change .01µF to 1.0µF on Figure 1. Change Peak Forward Current from 50 mA to 30 mA.	Trevor Schelp	11/11/10
C	Change "2 Mbd transfer rate" to 2MBit/s.	Trevor Schelp	11/23/10
D	Add the UL certification E58730	Cosmin Suciu	4/9/15
E	Page 2 Note 1: added "m" to 1.33m W… Page 2 added Note 4: Derate linearly 0.54m W/°C above 25°C Removed (1) on "Input-to-Output Isolation Voltage"	Tom Osborne	
F	Deleted asterisk		

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for High Speed Optocouplers *category:*

Click to view products by TT Electronics *manufacturer:*

Other Similar products are found below :

TLP558(F) JAN4N24 610737H HCPL2630M HCPL2731SM PS9817A-1-F3-AX TLP2766A(LF4,E EL816S2(C)(TU)-F TLP281-4 TLP290(V4GBTP,SE(T PS9121-F3-AX PS9123-F3-AX TLP5774H(TP4,E TLP5771H(TP,E HCPL2531S HCPL2631SD HCPL-4661-500E TLP118(TPL,E) TLP521-2XGB TLP621-2XGB 4N46-300E JANTXV4N24U SFH6318T 6N135-300E TIL198 TLP2309(TPL,E) TLP2355(TPL,E TLP2391(E(T TLP521-4GR TLP521-4XGB TLP621-4X TLP621XSM IS281-4GB IS2805-4 IS181GR ICPL2631 ICPL2630 ICPL2531 ICPL2601 TLP2301(E(T TLP714(F) TLP754(F) FOD260LSDV ACPL-M50L-000E ACPL-M21L-500E ACPL-064L-500E PS2501-1XSM PS2505-1 PS2913-1-F3-AX PS9821-2-F3-AX