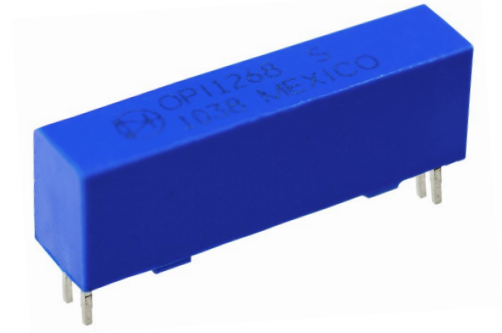


High Voltage / High Speed Opto-Isolator

OPI1268S



Features:

- 20kV dc Isolation
- 2 Mbit/s transfer rate
- $t_{PHL}-t_{PLH} \leq 50$ ns typical
- Creepage path: 24 mm
- TTL Compatible
- 6 Axis / 10G_{RMS} load rating

Certifications:

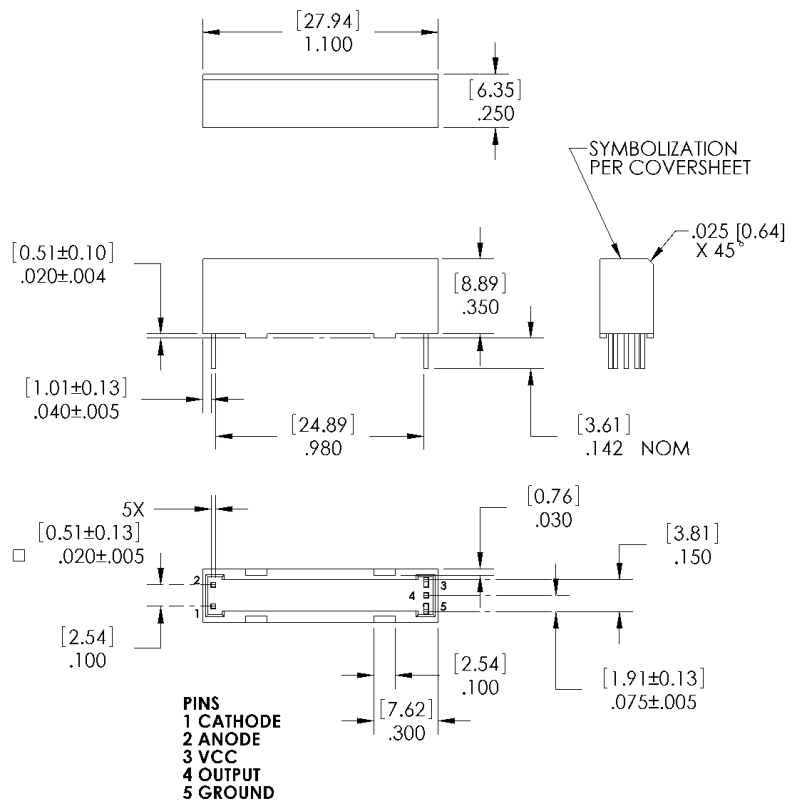
- UL File E58730
- Vde File 40031798
- EN 60079-0:2012/A11:2013
EN60079-11:2012 (IEC 60079-11:2011 Edition 6)
- IP65 Rated
- ATEX Certification Exia IIc Ga

Description:

The **OPI1268S** 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 photologic device 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:

- Transportation Systems
- PC Board Power Systems
- Hybrid Vehicle Systems
- Medical Systems
- Control Systems



NOTE:

1. DIMENSIONS ARE $\pm .010$ [.25] UNLESS OTHERWISE NOTED.
2. DIMENSIONS ARE IN INCHES [MM].



Pb-Free
(RoHS)

Ordering Information								
Part Number	LED Peak Wavelength	Sensor Photologic®	Isolation Voltage (kV)DC	t_{PLH} / t_{PHL} Max (ns)	I_F (mA) Typ / Max	V_{CE} (V) Max	Lead Length (mm)	Lead Spacing (mm)
OPI1268S	850 nm	Open Collector	20	100	10 / 50	18	3.6	2.0

General Note

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

Storage Temperature	-50° C to +100° C
Operating Temperature	-50° C to +100° C
Input-to-Output Isolation Voltage ⁽²⁾	20 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 ($T_A = 0^\circ\text{C}$ to 70°C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage	-	1.4	1.8	V	$I_F = 20\text{ mA}$
I_R	Reverse Current	-	0.1	100	μA	$V_R = 2.0\text{ V}$
Output IC ($V_{CC} = 4.5\text{ V}$ to 5.25 V) (See OPL550 for additional information—for reference only.)						
I_{OH}	High Level Output Current	-	0.20	25	μA	$I_F = 0.0\text{ mA}$, $V_{OH} = 18.0\text{ V}$, $V_{CC} = 5.25\text{ V}$
V_{OL}	Low Level Output Voltage	-	0.35	0.55	V	$I_F = 10.0\text{ mA}$, $I_{OL} = 8.0\text{ mA}$, $V_{CC} = 4.5\text{ V}$
I_{CCH}	High Level Supply Current	-	5.5	7	mA	$I_F = 0$, $V_{CC} = 5.25\text{ V}$
I_{CCL}	Low Level Supply Current	-	7.5	10		$I_F = 10.0\text{ mA}$, $V_{CC} = 5.25\text{ V}$
Coupled Characteristics ($V_{CC} = 5\text{ V}$, $I_F = 30\text{ mA}$, $R_L = 560\Omega$)						
C_{IO}	Coupling Capacitance	-	-	2	pF	Input and output leads shorted.
t_{PLH}	Propagation Delay to Low Output Level	-	50	100	ns	See Figure 1
t_{PHL}	Propagation Delay to High Output Level	-	50	100		
I_{ISO}	Isolation Leakage Current ⁽⁵⁾	-	-	20	μA	$V_{ISO} = 19.2\text{ kV dc}$
I_{F+}	LED Positive Going Threshold Current	0.8	1.7	5.0	mA	$V_{CC} = 5\text{ V}$, $I_{OL} = 8.0\text{ mA}$
dv/dt	Voltage Spike Immunity		30		kV/ μs	

Notes:

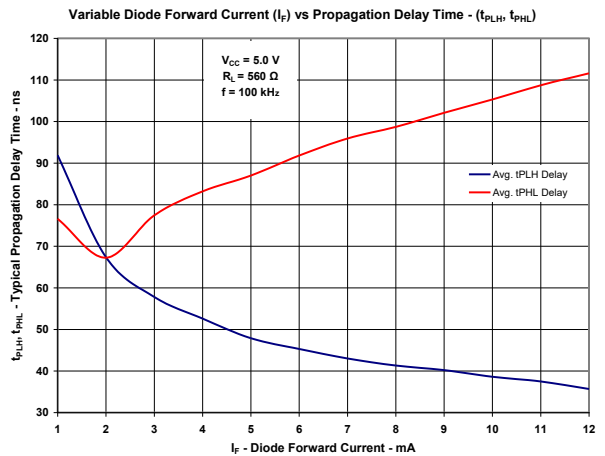
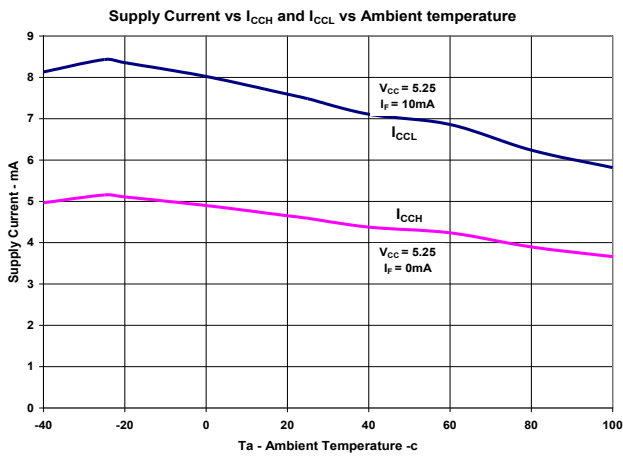
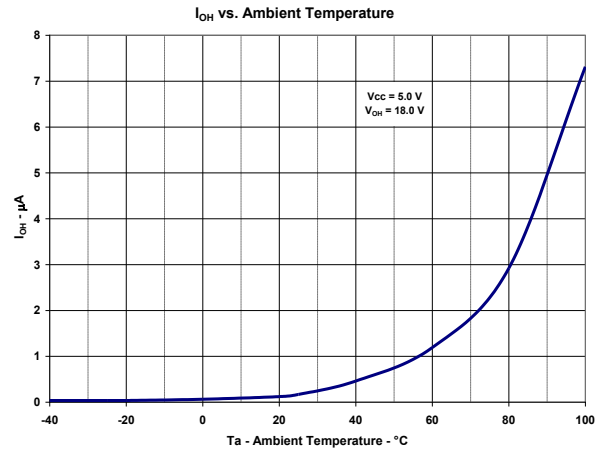
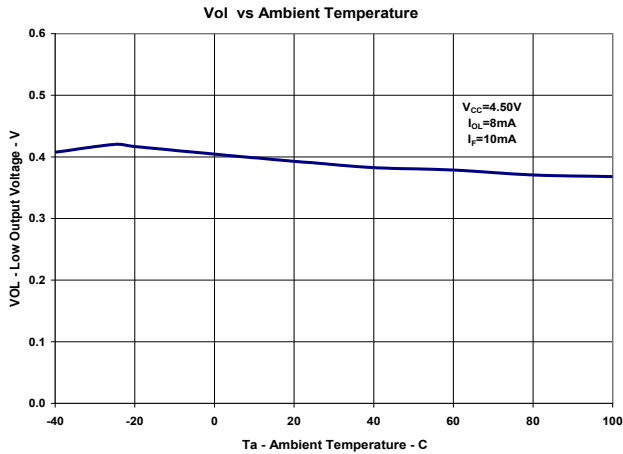
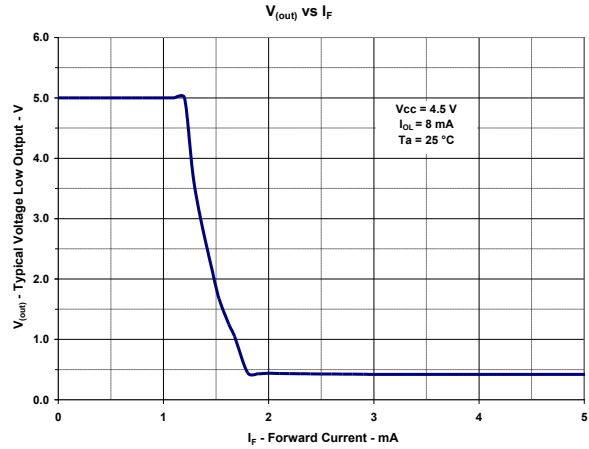
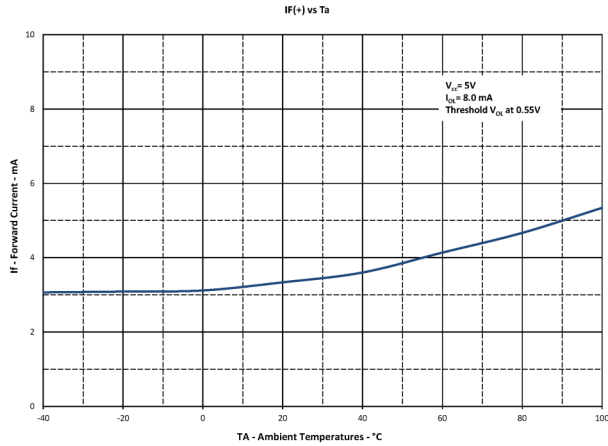
- (1) Derate LED linearly 1.33 mW/°C above 25°C.
- (2) UL recognition is for 16kV dc for one minute.
- (3) RMA flux is recommended. The duration can be extended to 10 seconds maximum when flow soldering.
- (4) Derate linearly 0.54m W/°C.
- (5) Measured with input leads shorted together and output leads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

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Typical Performance Curves



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CIRCUIT VALUES

Condition #1: $V_{CC} = 5.0V$, $I_F = 30mA$, $R_L = 560\ \Omega$

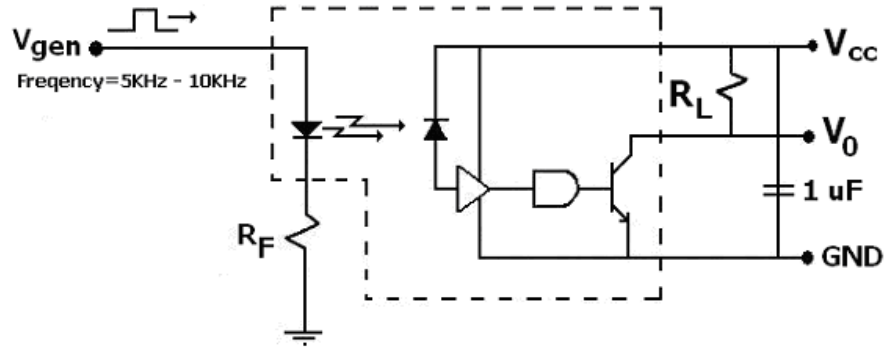
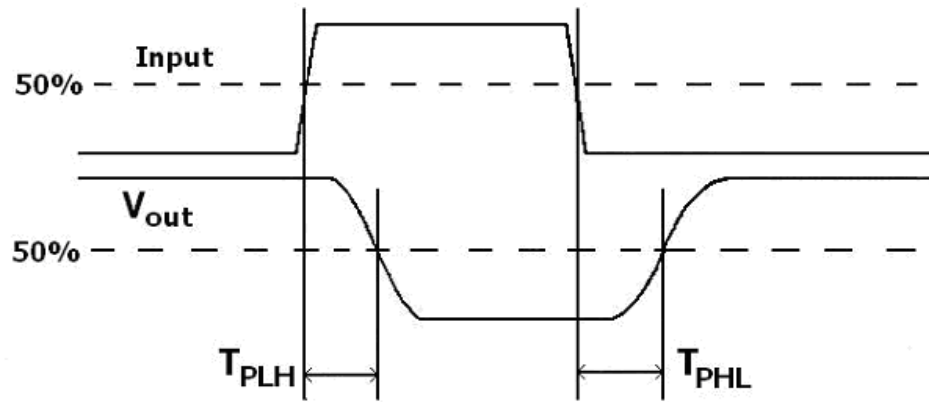


Figure 1



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