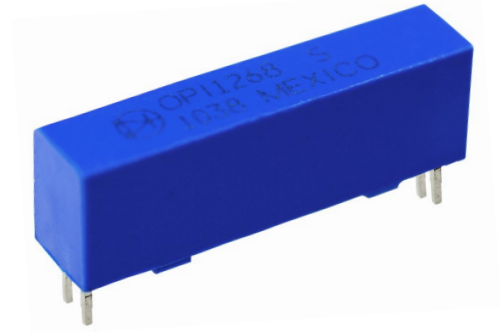


# High Voltage / High Speed Opto-Isolator

## 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<sub>RMS</sub> load rating

### Certifications:

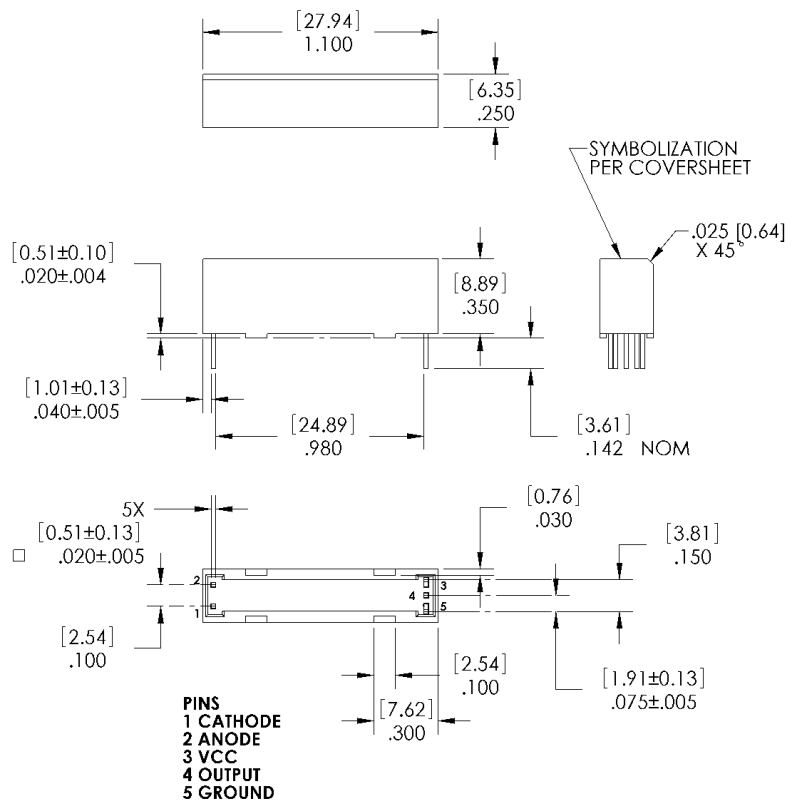
- UL File E58730
- Vde File 40031798
- EN 60079-0:2012/A11:2013  
EN60079-11:2012 (IEC 60079-11:2011 Edition 6)
- IP65 Rated
- ATEX Certification Exia IIc Ga

### 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].

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



**Pb-Free**  
(RoHS)

#### 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 <sup>(2)</sup>	20 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	30 mA
Peak Forward current (1 $\mu\text{s}$ pulse width, 300 pps)	3.0 A
Reverse Voltage	3.0 V
Power Dissipation <sup>(1)</sup>	100 mW
<b>Output IC</b>	
Maximum Supply Voltage	7 V
Power Dissipation <sup>(4)</sup>	40 mW
Maximum Output Voltage	18 V
Maximum Output Current	25 mA

### 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	-	1.4	1.8	V	$I_F = 20\text{ mA}$
$I_R$	Reverse Current	-	0.1	100	$\mu\text{A}$	$V_R = 2.0\text{ V}$
<b>Output IC (<math>V_{CC} = 4.5\text{ V}</math> to <math>5.25\text{ V}</math>) (See OPL550 for additional information—for reference only.)</b>						
$I_{OH}$	High Level Output Current	-	0.20	25	$\mu\text{A}$	$I_F = 0.0\text{ mA}$ , $V_{OH} = 18.0\text{ V}$ , $V_{CC} = 5.25\text{ V}$
$V_{OL}$	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		$I_F = 10.0\text{ mA}$ , $V_{CC} = 5.25\text{ V}$
<b>Coupled Characteristics (<math>V_{CC} = 5\text{ V}</math>, <math>I_F = 30\text{ mA}</math>, <math>R_L = 560\Omega</math>)</b>						
$C_{IO}$	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 <sup>(5)</sup>	-	-	20	$\mu\text{A}$	$V_{ISO} = 19.2\text{ kV dc}$
$I_{F+}$	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/ $\mu\text{s}$	

#### Notes:

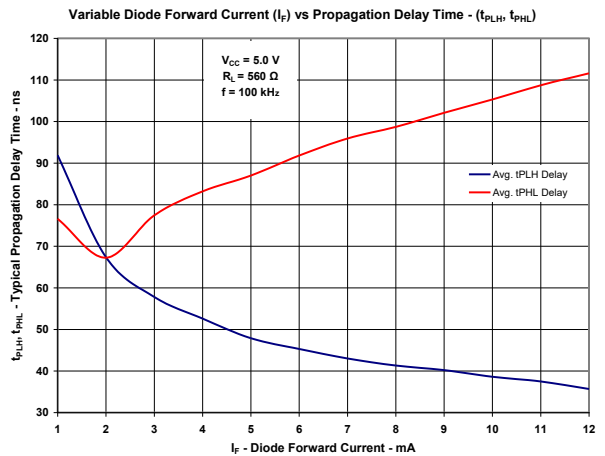
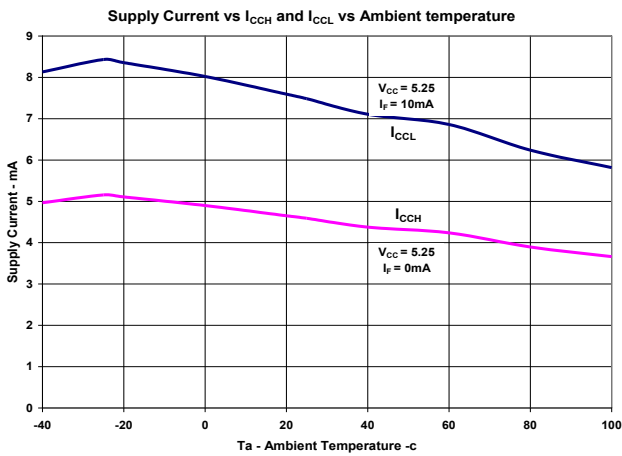
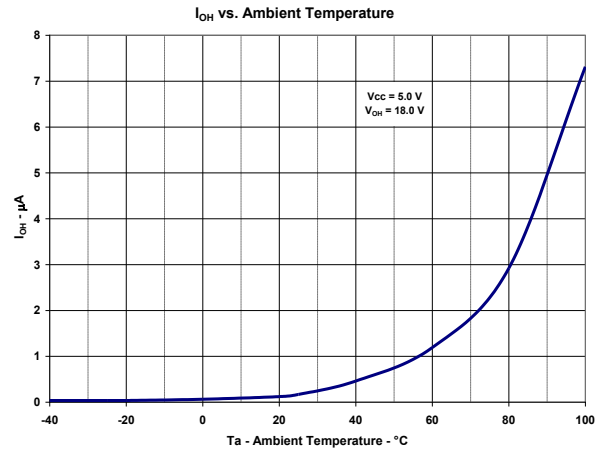
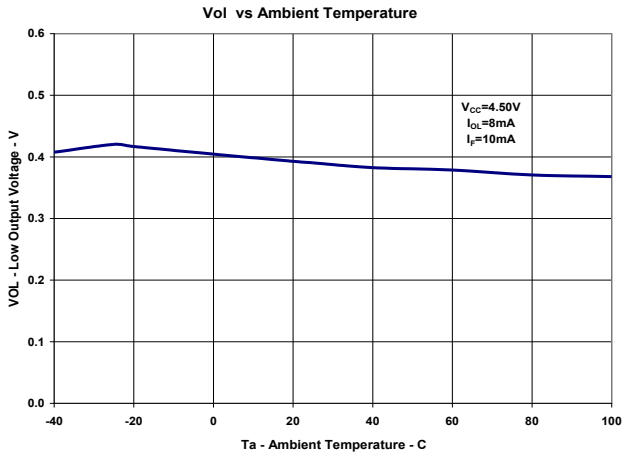
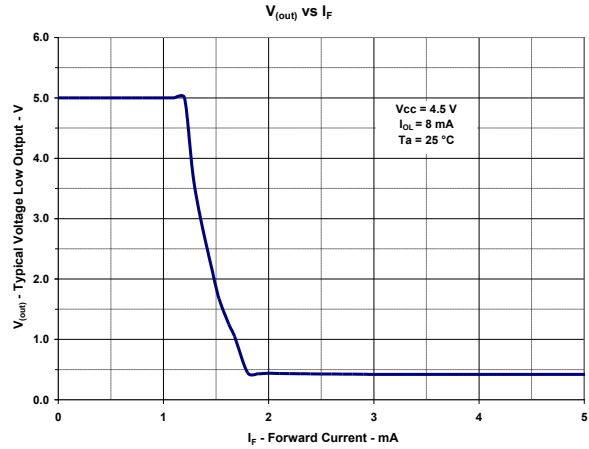
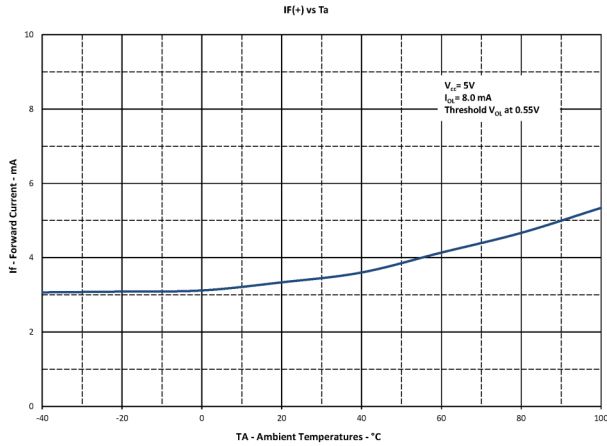
- Derate LED linearly 1.33 mW/ $^\circ\text{C}$  above  $25^\circ\text{C}$ .
- UL recognition is for 16kV dc for one minute.
- RMA flux is recommended. The duration can be extended to 10 seconds maximum when flow soldering.
- Derate linearly 0.54m W/ $^\circ\text{C}$ .
- Measured with input leads shorted 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:  $V_{CC} = 5.0V$ ,  $I_F = 30mA$ ,  $R_L = 560 \text{ Ohms}$

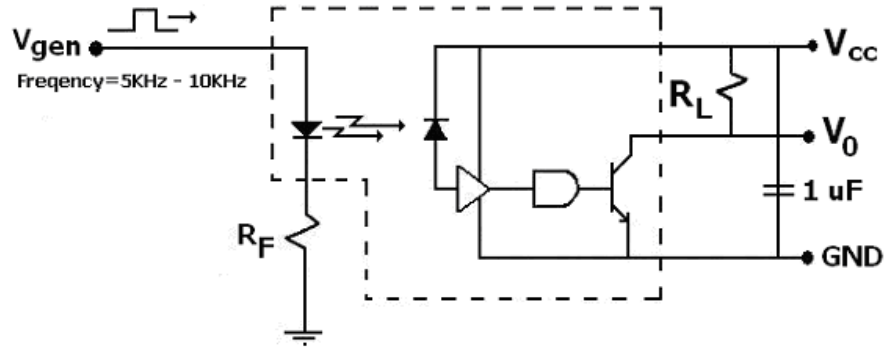
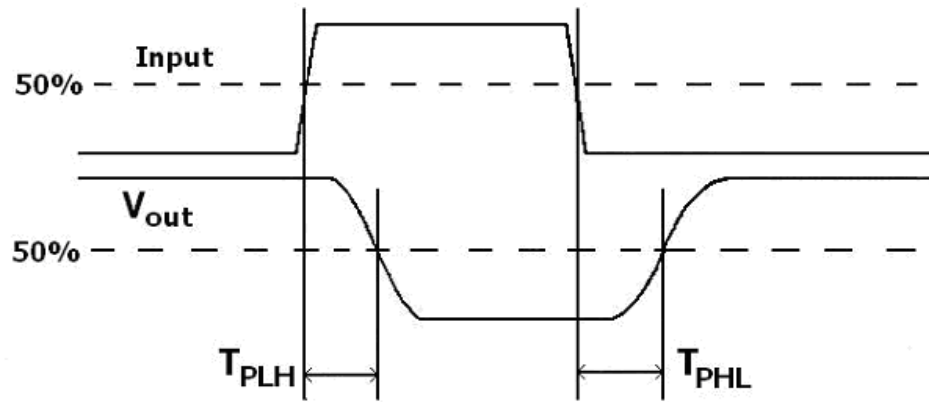


Figure 1



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- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
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- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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