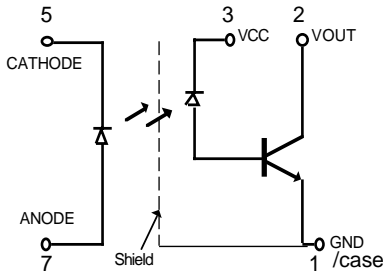


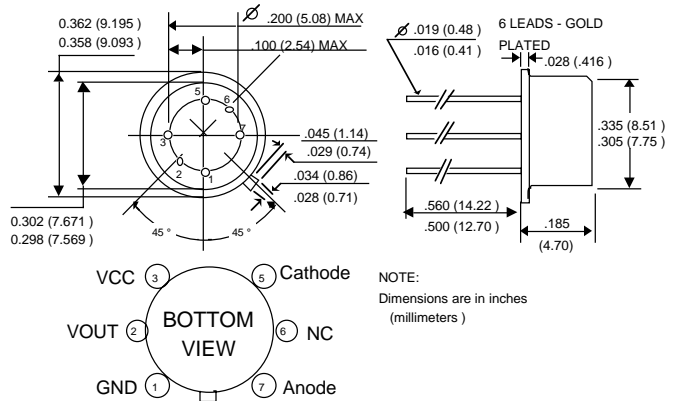


# ISO LINK

## OLH300 High Speed Hermetic Optocoupler



SCHMATIC



PACKAGE OUTLINE

### Features

- ◆ Electrical parameters guaranteed over -55°C to +125°C ambient temp. range
- ◆ 1000 Vdc electrical isolation
- ◆ High-Speed, 1 Mbit/s typical
- ◆ Open collector output
- ◆ 300 Khz bandwidth
- ◆ TO - 5 hermetic package
- ◆ Similar to 6N135/136, 4N55
- ◆ Radiation tolerant
- ◆ 100% hi-rel screening are offered

### Description

The OLH 300 is suitable for interfacing TTL to LSTTL, TTL or CMOS as well as wide bandwidth analog applications. Each OLH 300 has a light emitting diode and an integrated photo-diode transistor detector mounted and coupled in a ceramic substrate inside a hermetic TO-5 package providing 1000 Vdc electrical isolation between input and output. The integrated photo-diode transistor improves switching speed by orders of magnitude as compared to standard photo transistors, by reducing the base to collector capacitance. The internal shield provides excellent common-mode immunity performance.

NOTES:

1. Measured between pins 1,2 and 3 shorted together and pins 5,6 and 7 shorted together.  $T_A = 25^\circ\text{C}$  and duration = 1 second.
2. Current transfer ratio is define as the ratio of output collector current,  $I_C$  to the forward LED current,  $I_F$  times 100%

## Absolute Maximum Ratings

Couple	
Input to Output Isolation Voltage <sup>1</sup>	± 1000 Vdc
Storage Temperature Range	-65°C to +150°C
Operation Temperature Range	-55°C to +125°C
Lead Temperature 1.6 mm from case for 10 sec.	240°C
Input Diode	
Average Input Current	20 mA
Peak Forward Current (≤ 1mS duration )	40 mA
Reverse Voltage	5.0 V
Power Dissipation	36 mW
Output Detector	
Average Output Current	8 mA
Peak Output Current	16 mA
Supply Voltage, V <sub>cc</sub>	-0.5 V to 18 V
Output Voltage, V <sub>out</sub>	-0.5 V to 18 V
Power Dissipation	50 mW

### ELECTRICAL CHARACTERISTIC ( T<sub>A</sub> = - 55 °C to +125 °C, Unless Otherwise Specified )

Parameter	Symbol	Min	Typ.	Max	Units	Test Conditions	Fig.	Note
Current Transfer Ratio	CTR	20	45		%	I <sub>F</sub> =10 mA, V <sub>O</sub> =0.4 V, V <sub>CC</sub> =4.5 V,	2	2
Logic Low Output Voltage	VOL		.25	0.4	V	I <sub>F</sub> =10 mA, I <sub>O</sub> <sub>L</sub> =1.5mA, V <sub>CC</sub> =4.5V		
Logic High Output Current	I <sub>OH</sub>		.05	100	μA	I <sub>F</sub> =0mA, V <sub>O</sub> =V <sub>CC</sub> =15V		
Supply Current								
Logic Hi	I <sub>CCL</sub>		40	200	μA	I <sub>F</sub> =10mA, V <sub>CC</sub> =15V, V <sub>O</sub> =open		
Logic Low	I <sub>CCH</sub>		.05	10	μA	I <sub>F</sub> =0mA, V <sub>CC</sub> =15V, V <sub>O</sub> =open		
Input Forward Voltage	V <sub>F</sub>		1.7	2.5	V	I <sub>F</sub> =10 mA		
Temperature Coefficient of input diode Forward Voltage	$\frac{\Delta V_F}{\Delta T_A}$		- 2.3		$\frac{mV}{^\circ C}$	I <sub>F</sub> =5 mA	1	
Input Reverse Breakdown Voltage	B <sub>VR</sub>	3			V	I <sub>R</sub> =10 μA		
Input to Output Leakage Current	I <sub>I-O</sub>			1.0	μA	Relative Humidity ≤ 50%, T <sub>A</sub> = 25°C, V <sub>I-O</sub> = 1000 Vdc		1
Propagation Delay Time Logic High to Low	t <sub>PHL</sub>		0.3	1.0	μS	I <sub>F</sub> =10 mA, V <sub>CC</sub> = 5V, R <sub>L</sub> =4.1 KΩ,	3,4	
Propagation Delay Time Logic Low to High	t <sub>PLH</sub>		0.5	2.0	μS	I <sub>F</sub> =10 mA, V <sub>CC</sub> = 5V, R <sub>L</sub> =4.1 KΩ,	3,4	

# TYPICAL PERFORMANCE CURVES

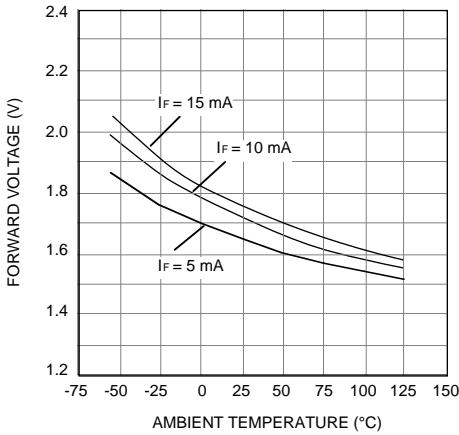


Fig. 1 - LED Forward Characteristics

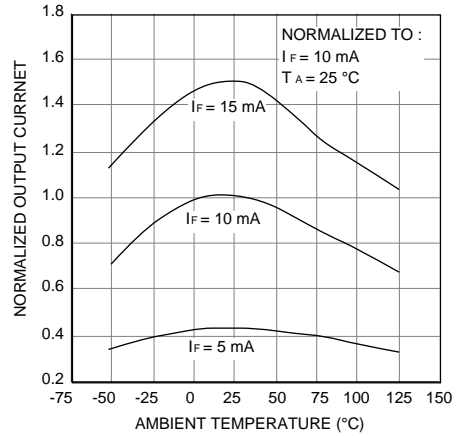


Fig. 2 - Normalized Output Current vs.  $f$  vs. Temperature

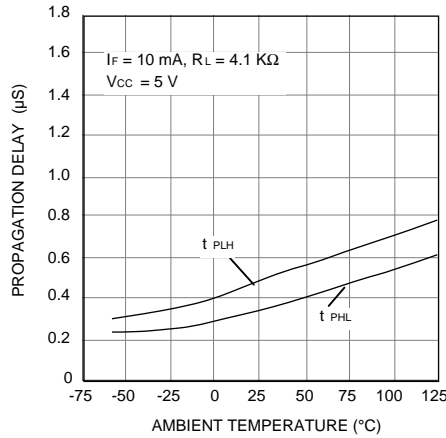


Fig. 3 - Propagation Delay vs. Temperature

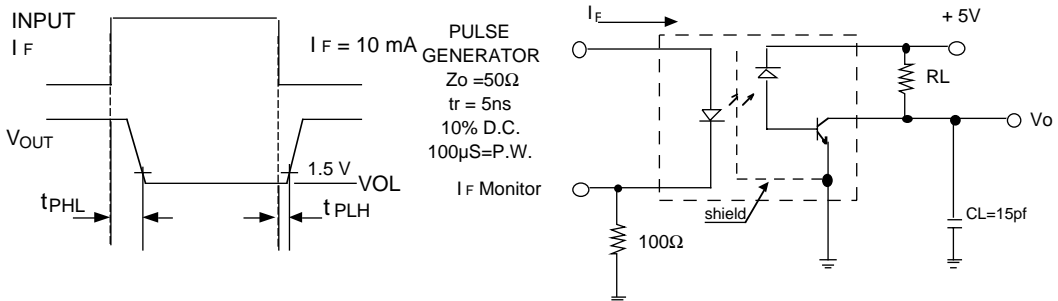


Fig. 4 - Switching Test Circuit