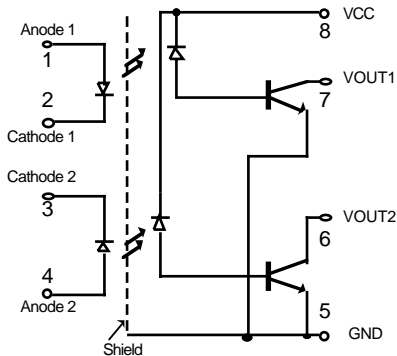




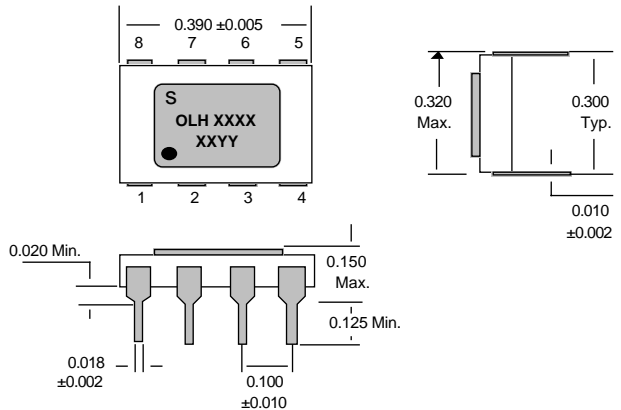
ISO LINK

OLH5530 / 5531

Hermetic High Speed Transistor Dual Channel Optocoupler



SCHMATIC



PACKAGE OUTLINE

Features

- ◆ *Dual Channel, Rugged, reliable hermetic DIP package*
- ◆ *Performance guaranteed over full military temperature range*
- ◆ *High isolation voltage, 3000 Vdc*
- ◆ *High Speed: 400 kbits/s typ.*
- ◆ *Open collector output*
- ◆ *Very high Common Mode Transient Immunity >10000 V/μs at Vcm = 350 V*
- ◆ *Radiation tolerant design*

Description

The OLH5530 and 5531 are dual channel hermetic 8-pin DIP optocouplers for wide bandwidth analog applications as well as for interfacing TTL to LSTTL or CMOS. The OLH5531 product is a 100% hi-rel screened version of the OLH5530.

Each unit consists of an AlGaAs LED optically coupled to an integrated photodiode-transistor detector. The separate photodiode and transistor configuration improves speed performance significantly over that of phototransistors.

These products are functionally compatible to 6N135, 6N136, 4N55 and HCPL5530/5531 optocouplers but with better common mode transient immunity. Special CTR selection is available upon request.

The performance of these products under radiation environment is significantly improved over standard phototransistors. Test data is presented in Application Note 1003.

NOTES:

1. Measured between pins 1, 2, 3, 4 shorted together and pins 5, 6, 7, 8 shorted together.
2. Current transfer ratio is defined as the ratio of output collector current, I_c, to the forward LED current, I_F, times 100%.

Absolute Maximum Ratings

Coupled	
Input to Output Isolation Voltage	± 3000Vdc
Storage Temperature Range	-65°C to +150°C
Operating Temperature Range	-55°C to +125°C
Lead Solder Temperature (1.6mm below seating plane)	260°C for 10 s
Input Diode	
Average Input Current	20 mA
Peak Input Current (≤ 1 ms duration)	40 mA
Reverse Voltage	3.0 V
Input Power Dissipation	36 mW
Output Detector	
Average Output Current	8 mA
Peak Output Current	16 mA
Supply Voltage, V _{cc}	-0.5 V to 18 V
Output Voltage, V _{out}	-0.5 V to 18 V
Power Dissipation	50 mW

ELECTRICAL CHARACTERISTIC (T_A = - 55 °C to +125 °C, Unless Otherwise Specified)

Parameter	Symbol	Min	Typ.	Max	Units	Test Conditions	Fig.	Note
Current Transfer Ratio	CTR	12	25		%	I _F = 16 mA, V _O = 0.4V, V _{CC} = 4.5 V	2	2
Logic High Output Current	I _{OH}		30	250	μA	I _{F1} = 100 μA, I _{F2} = 20 mA, V _O = V _{CC} = 18V		
Logic Low Supply Current	I _{CCL}		70	500	μA	I _{F1} = I _{F2} = 16 mA, V _{CC} = 18V		
Logic High Supply Current	I _{CCH}		.2	20	μA	I _{F1} = 0mA, I _{F2} = 16 mA, V _{CC} = 18V		
Input Forward Voltage	V _F		1.75	2.5	V	I _F = 10 mA	1	
Input Reverse Breakdown Voltage	B _{VR}	3			V	I _R = 10 μA		
Input Leakage Current to output input	I _{I-O} I _{I-I}		0.5	1.0	μA nA	V _{I-O} = 3000 Vdc, R _H ≤ 45% V _{I-I} = 500 Vdc, T _A = 25°C, t = 1s		1
Propagation Delay Time, Logic High to Low	t _{PHL}		0.3	1.0	μS	I _F = 16mA, R _L = 8.2 kΩ, V _{CC} = 5V, C _L = 50 pF	3,4	
Logic Low to High	t _{PLH}		0.8	3.0	μS	I _F = 16mA, R _L = 8.2 kΩ, V _{CC} = 5V, C _L = 50 pF	3,4	
Common Mode Transient Immunity								
Logic High Level	CM _H	5	>10		K _V /μs	I _F = 0, R _L = 8.2 kΩ, V _{CM} = 350Vp-p T _A = 25°C		
Logic Low Level	CM _L	5	>10		K _V /μs	I _F = 16 mA, R _L = 8.2 kΩ, V _{CM} = 350V p-p, T _A = 25°C		

TYPICAL PERFORMANCE CURVES

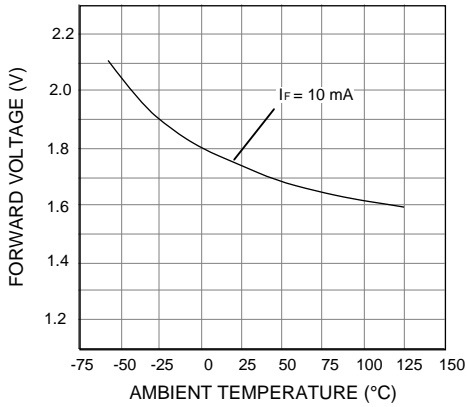


Fig. 1 - LED Forward Characteristics

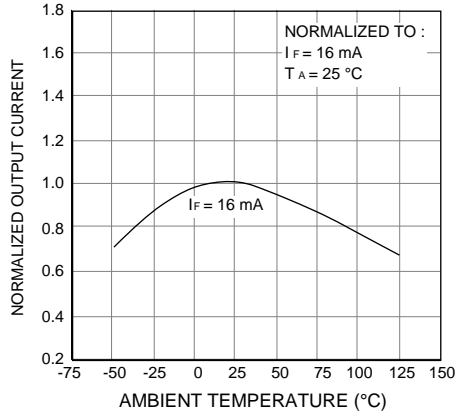


Fig. 2 - Normalized Output Current vs. I_F vs. Temperature

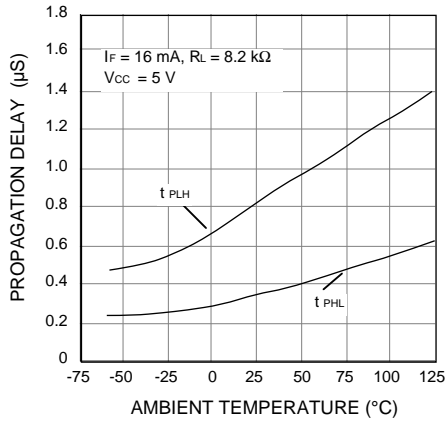


Fig. 3 - Propagation Delay vs. Temperature

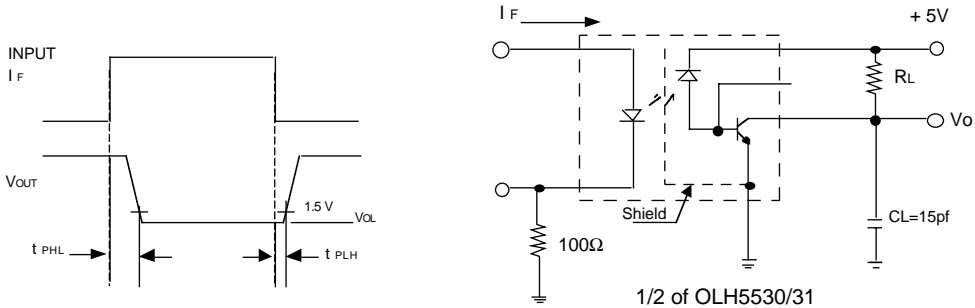


Fig. 4 - Switching Test Circuit