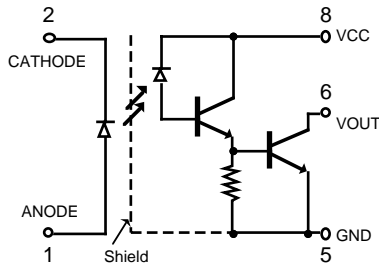
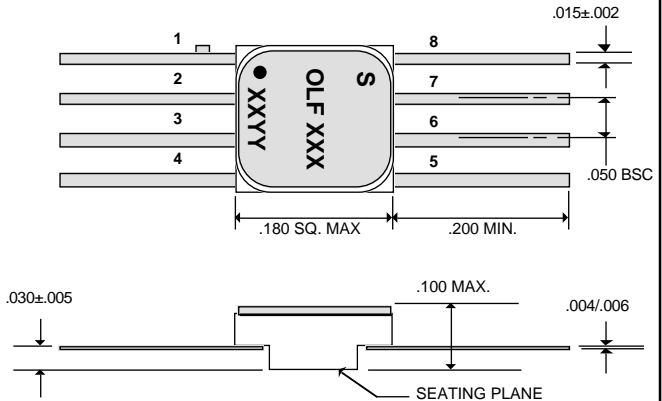




ISO LINK



SCHEMATIC



PACKAGE OUTLINE

Features

- ◆ **Hermetic SMT package**
- ◆ **Electrical parameters guaranteed over -55°C to +125°C ambient temp. range**
- ◆ **1000 Vdc electrical isolation**
- ◆ **Low input current, 0.5 mA**
- ◆ **Low output Vsat, 0.1 V typical**
- ◆ **High current transfer ratio**
- ◆ **Similar to industry standard parts 6N138 / 6N139 in plastic and 6N140 in hermetic DIP packages.**
- ◆ **Radiation tolerant**
- ◆ **100% hi-rel screenings are offered**

Description

The OLF400 has high current transfer ratio at very low input currents making it ideal for applications such as MOS, CMOS, and low power logic interfacing or RS232C data transmission systems. Each OLF400 has a light emitting diode and an integrated photodiode-darlington detector IC mounted and coupled in a custom 8-pin hermetic flat pack package providing 1000 Vdc electrical isolation between input and output. The darlington detector has an integrated base-emitter resistor for superior high temperature performance. The split darlington design permits lower output saturation voltage and higher switching speed operation than possible with conventional photodarlington design. The internal shield provides excellent common-mode immunity performance.

NOTES:

1. Measured between pins 1, 2, 3 and 4 shorted together and pins 5, 6, 7 and 8 shorted together. TA = 25°C and duration = 1 second.
2. Current transfer ratio is defined as the ratio of output collector current, IC to the forward LED current, IF, times 100%.

Absolute Maximum Ratings

Coupled	
Input to Output Isolation Voltage	± 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	40 mA
Supply Voltage, Vcc	-0.5 V to 20 V
Output Voltage, Vout	-0.5 V to 20 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	300			%	I _F =0.5 mA, V _O =0.4v, V _{CC} =4.5v	2	2
		300			%	I _F =1.6 mA, V _O =0.4v, V _{CC} =4.5v		
		200			%	I _F =5.0 mA, V _O =0.4v, V _{CC} =4.5v		
Logic Low Output Voltage	V _{OL}		.1	.4	V	I _F =0.5 mA, I _{OL} =1.5mA, V _{CC} =4.5v		
			.2	.4	V	I _F =5mA, I _{OL} =10mA, V _{CC} =4.5v		
Logic High Output Current	I _{OH}		.005	250	μA	I _F =0mA, V _O =V _{CC} =18v		
Logic Low Supply Current	I _{CCL}		0.6	2.0	mA	I _F =1.6mA, V _{CC} =18v		
Logic High Supply Current	I _{CCH}		.01	40	μA	I _F =0mA, V _{CC} =18v		
Input Forward Voltage	V _F		1.65	2.0	V	I _F =1.6mA		
Input Reverse Breakdown Voltage	B _{VR}	3			V	I _R =10 μA	1	
Input to Output Leakage Current	I _{I-O}			1.0	μA	Relative Humidity ≤ 50%, T _A = 25°C, V _{I-O} = 1000 Vdc		1
Propagation Delay Time Logic High to Low	t _{PHL}		26	100	μS	I _F =0.5mA, R _L =4.7 KΩ, V _{CC} =5v	3,4,5	
Propagation Delay Time Logic Low to High	t _{PLH}		2	10	μS	I _F =5mA, R _L =680 Ω, T _A =25°C		
			28	60	μS	I _F =0.5mA, R _L =4.7 KΩ, T _A =25°C		
			10	30	μS	I _F =5mA, R _L =680 Ω, T _A =25°C		
Common Mode Transient immunity								
Logic High Level	CMH	500	≥2K		V/μS	I _F =0mA, V _{CC} =5.0v, T _A =25°C		
Logic Low Level	CML	500	≥2K		V/μS	I _F =1.6mA, R _L =1.5KΩ, V _{CM} =50v		

ALL TYPICAL @ T_A = 25°C

TYPICAL PERFORMANCE CURVES

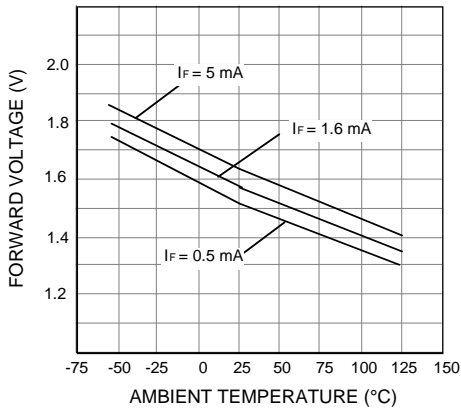


Fig. 1 - LED Forward Characteristics

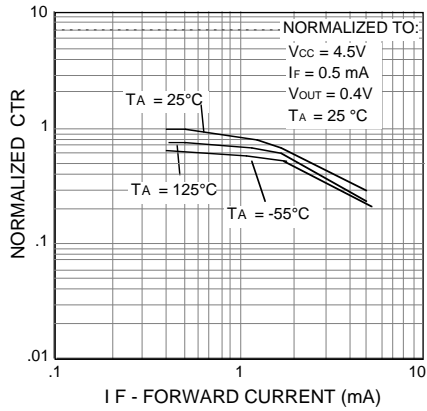


Fig. 2 - Normalized CTR vs. Input Diode Forward Current.

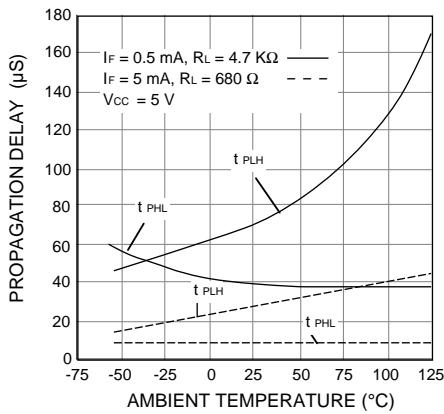


Fig. 3 - Propagation Delay vs. Temperature

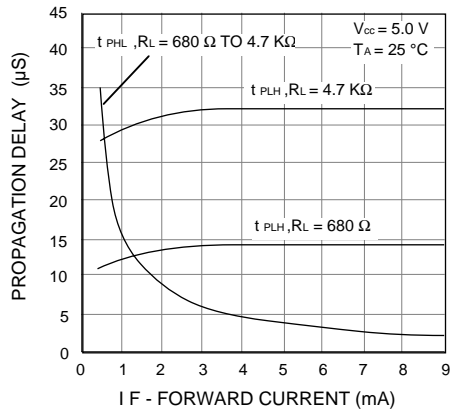


Fig. 4 - Propagation Delay vs. Input Diode Current

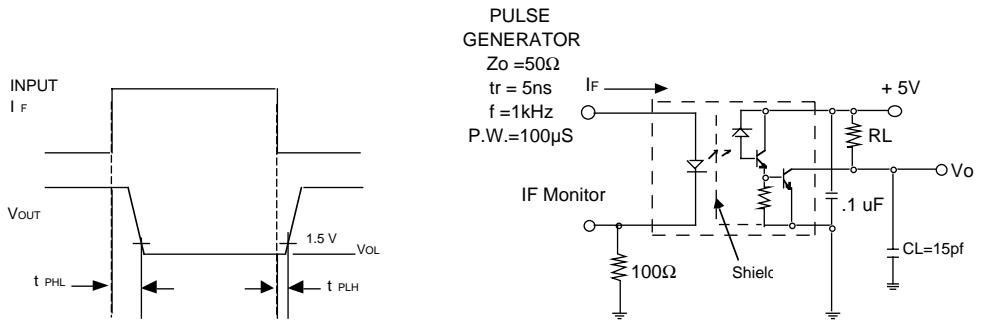


Fig. 5 - Switching Test Circuit