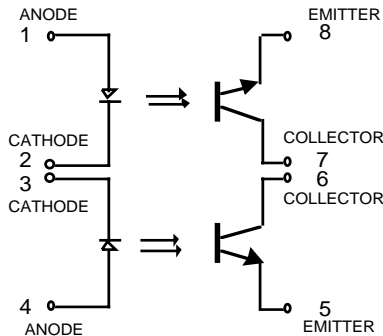


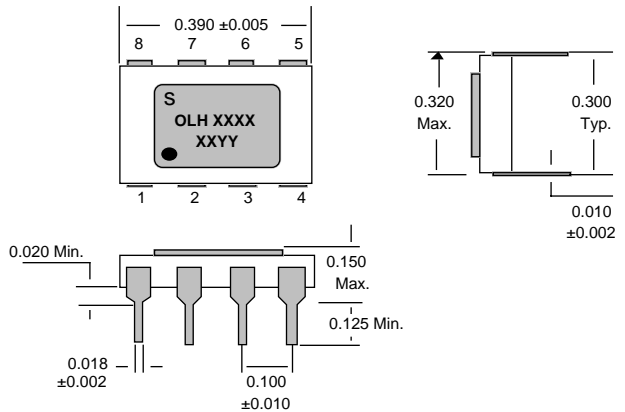


# ISO LINK

## OLH2047/2048/2049 Hermetic Phototransistor Optocoupler



SCHEMATIC



PACKAGE OUTLINE

### Features

- ◆ Current transfer ratio guaranteed over  $-55^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$  ambient temp. range
- ◆ 2500 V electrical isolation
- ◆ Standard 8-pin DIP configuration
- ◆ High current transfer ratio at low input current
- ◆ Two isolated channels per package
- ◆ 100% hi-rel screenings are offered

### Description

The OLH 2047/48/49 are dual channel hermetic, 8-pin DIP optocouplers designed especially for hi-rel applications requiring optical isolation with high current transfer ratio and low saturation  $V_{ce}$ . Each channel of optocoupler consists of a light emitting diode and a NPN silicon phototransistor mounted and coupled in an 8-pin hermetically sealed DIP package. The pin out configuration is similar to MCT6, and ILD1/2/5 plastic optocouplers.

Hi-rel screening and special CTR selections are available. Contact factory.

#### NOTES:

1. Measured between pins 1,2,3 and 4 shorted together and pins 5, 6, 7 and 8 shorted together.  $T_A = 25^{\circ}\text{C}$  and duration = 1 second.
2. Derate linearly at  $3.0 \text{ mW} / ^{\circ}\text{C}$  above  $25^{\circ}\text{C}$
3. Values applies for  $P_w \leq 1\mu\text{S}$ ,  $\text{PRR} \leq 300 \text{ pps}$ .

# Absolute Maximum Ratings

Coupled	
Input to Output Isolation Voltage	± 2500Vdc
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	40mA
Peak Forward Current	1 A
Reverse Voltage	2.0 V
Power Dissipation	70 mW
Output Detector	
Collector - Emitter Voltage	40 V
Emitter - Base Voltage	7 V
Collector - Base Voltage	45 V
Continous Collector Current	50 mA
Power Dissipation	300 mW <sup>2</sup>

## ELECTRICAL CHARACTERISTIC ( T<sub>A</sub> = 25 °C , Unless Otherwise Specified )

Parameter	Symbol	2047			2048			2049			Units	Test Conditions	Fig.	Note
		Min	Typ.	Max	Min	Typ.	Max	Min	Typ.	Max				
On-State Collector Current	I <sub>C(ON)</sub>	0.5			1.0	5.0	2.0		10	mA	I <sub>F</sub> = 1 mA, V <sub>CE</sub> = 5.0V	2,3		
		0.7			1.4		2.8			mA	I <sub>F</sub> = 2 mA, V <sub>CE</sub> = 5.0V, T <sub>A</sub> = -55°C			
		0.5			1.0		2.0			mA	I <sub>F</sub> = 2 mA, V <sub>CE</sub> = 5.0V, T <sub>A</sub> = 100°C			
Saturation Voltage	V <sub>CE(SAT)</sub>			0.3						V	I <sub>F</sub> = 2mA, I <sub>C</sub> =0.5mA			
						0.3				V	I <sub>F</sub> = 2mA, I <sub>C</sub> =1.0mA			
									0.3	V	I <sub>F</sub> = 2mA, I <sub>C</sub> =2.0mA			
Breakdown Voltage Collector to Emitter Emitter to Collector	BV <sub>CEO</sub>	40			40			40		V	I <sub>CE</sub> = 1 mA			
	BV <sub>ECO</sub>	6			6			6		V	I <sub>CB</sub> = 100 μA			
Off-State Leakage Current Collector to Emitter	I <sub>CE(OFF)</sub>			100			100		100	nA	V <sub>CE</sub> = 20V			
				100			100		100	μA	V <sub>CE</sub> = 20V, T <sub>A</sub> =100 °C			
Input Forward Voltage	V <sub>F</sub>	1.0		1.7	1.0		1.7	1.0	1.7	V	I <sub>F</sub> = 10mA, T <sub>A</sub> = -55°C	1		
		0.8		1.5	0.8		1.5	0.8	1.5	V	I <sub>F</sub> = 10mA	1		
		0.7		1.3	0.7		1.3	0.7	1.3	V	I <sub>F</sub> = 10mA, T <sub>A</sub> = 100°C	1		
Input Reverse Current	I <sub>R</sub>			100			100		100	μA	V <sub>R</sub> = 2.0V			
Input to Output Resistance	R <sub>I-O</sub>	10 <sup>11</sup>			10 <sup>11</sup>			10 <sup>11</sup>		Ω	V <sub>I-O</sub> = ±1000Vdc			
Input to Output Capacitance	C <sub>I-O</sub>			5			5		5	pF	V <sub>I-O</sub> = 0V, f = 1 MHz		1	
Ch to Ch leakage Current	I <sub>CC</sub>		<1		<1		<1			nA	RH ≤ 45%, 500 VDC		1	
Rise Time	t <sub>r</sub>		10	20	10	20	15	25		μS	V <sub>CC</sub> = 10V, R <sub>L</sub> = 100 Ω	4		
Fall Time	t <sub>f</sub>		10	20	10	20	15	25		μS	I <sub>F</sub> = 5mA			

ALL TYPICAL @ T<sub>A</sub> = 25°C

# TYPICAL PERFORMANCE CURVES

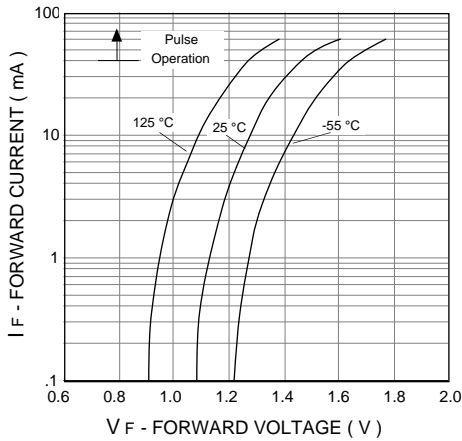


Fig. 1 - Diode Forward Characteristics

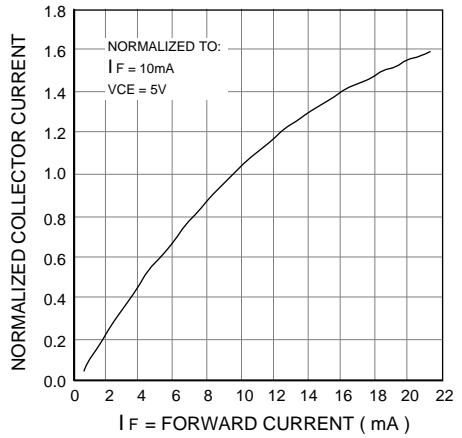


Fig. 2 - Normalized  $I_c$  vs.  $I_F$

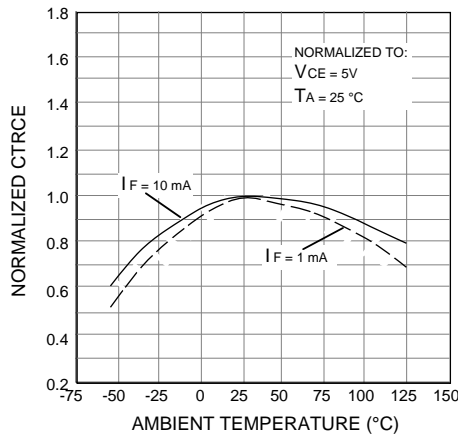


Fig. 3 - Normalized CTR vs. Temperature

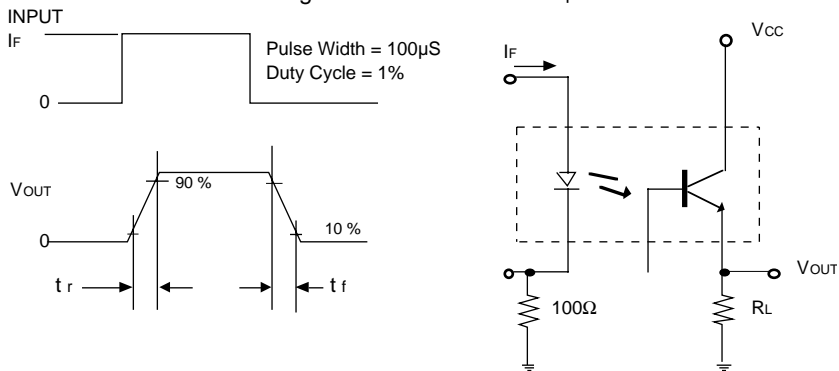


Fig. 4 - Switching Test Circuit