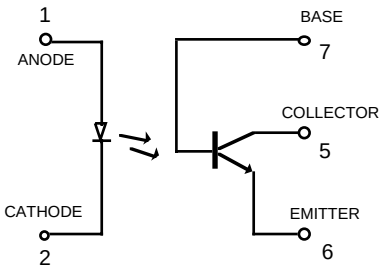
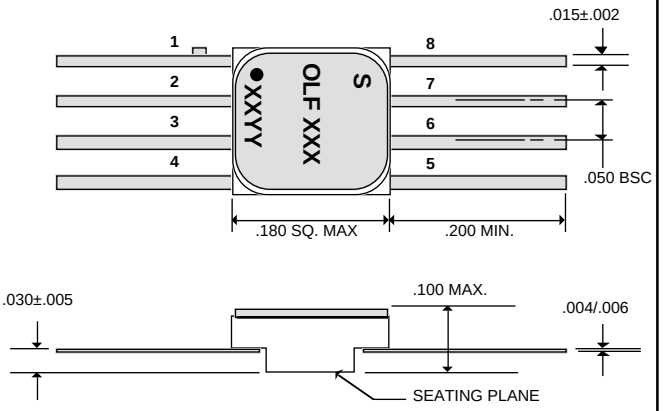
ISO LINK

OLF249

Radiation Tolerant **Phototransistor**
Hermetic Surface Mount **Optocoupler**



SCHEMATIC



PACKAGE OUTLINE

Features

- *Hermetic SMT package*
- *Compliant surface mounting leads*
- *High current transfer ratio*
- *Small package size*
- *High reliability and rugged construction*
- *Hi-rel screening available*
- *Radiation tolerant*

Description

The OLF249 consists of a light emitting diode optically coupled to a NPN silicon phototransistor mounted in a 8-pin hermetic surface mount flat pack package. The leads can be formed to provide compliant solder connections to the mounting substrate. Electrical parameters are similar to the JEDEC registered 4N49 optocoupler but with much better CTR degradation characteristics due to radiation exposure

Special electrical parametric selections are availabe on request.

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. Derate linearly to 125°C free-air temperature at 0.67 mA / °C above 65°C.
3. For pulse width ≤ 1 µS, pulse repetition rate ≤ 300 pps.
4. Derate linearly to 125°C free-air temperature at 3.0 mW / °C above 25 °C

Absolute Maximum Ratings

Coupled	
Input to Output Isolation Voltage[1]	± 1000 Vdc
Storage Temperature Range	-65 °C to + 150 °C
Operation Temperature Range	-55 °C to + 125 °C
Mounting Temperature Range (10 seconds max.)	240 °C
Input Diode	
Average Input Current[2]	40 mA
Peak Forward Current[3]	1 A
Reverse Voltage	2.0 V
Output Detector	
Collector - Emitter Voltage	40 V
Emitter - Base Voltage	7 V
Collector - Base Voltage	45 V
Continuous Collector Current	50 mA
Power Dissipation[4]	300 mW

ELECTRICAL CHARACTERISTIC (T_A = 25 °C, Unless Otherwise Specified)

Parameter	Symbol	Min	Max	Units	Test Conditions	Fig.	Note
On-State Collector Current	$I_{C(ON)}$	2.0	12	mA	I_F = 1 mA, V_{CE} = 5.0V	2,3	
		2.8		mA	I_F = 2 mA, V_{CE} = 5.0V, T_A = -55°C		
		2.0		mA	I_F = 2 mA, V_{CE} = 5.0V, T_A = 100°C		
On-State Coll.-Base Current	$I_{CB(ON)}$	30		µA	I_F = 10 mA, V_{CB} = 5.0V		
Saturation Voltage	$V_{CE(SAT)}$		0.3	V	I_F = 2mA, I_C =2.0mA		
Breakdown Voltage							
Collector to Emitter	B_{VCEO}	40		V	I_{CE} = 1 mA		
Collector to Base	B_{VCBO}	45		V	I_{CB} = 100 µA		
Emitter to Base	B_{VEBO}	7		V	I_{EB} = 100 µA		
Off-State Leakage Current							
Collector to Emitter	$I_{CE(OFF)}$		100	nA	V_{CE} = 20V		
			100	µA	V_{CE} = 20V, TA =100 °C		
Collector to Base	$I_{CB(OFF)}$		10	nA	V_{CB} = 20V		
Input Forward Voltage	V_F	1.8	2.2	V	I_F = 10mA, TA = -55°C	1	
		1.4	1.8	V	I_F = 10mA	1	
		1.2	1.6	V	I_F = 10mA, TA = 100°C	1	
Input Reverse Current	I_R		100	µA	V_R = 2.0V		
Input to Output Resistance	r_{I-O}	10^{11}		Ω	V_{I-O} = ±1000Vdc		1
Input to Output Capacitance	c_{I-O}		5	pF	V_{I-O} = 0V, f = 1 MHz		1
Rise Time	t_r		25	µS	V_{CC} = 10V, RL = 100 Ω	4	
Fall Time	t_f		25	µS	I_F = 5mA		

ALL TYPICAL @ T_A = 25°C

TYPICAL PERFORMANCE CURVES

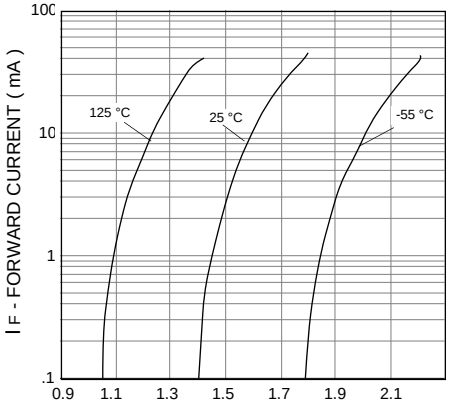


Fig. 1 - Diode Forward Characteristics

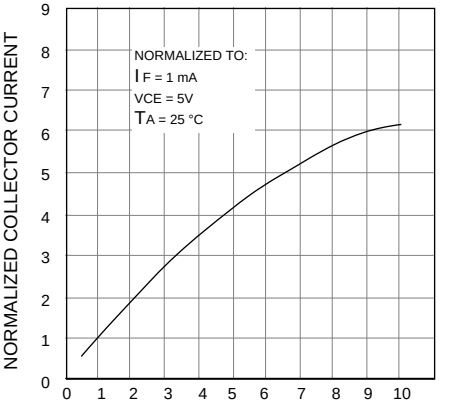


Fig. 2 - Normalized Ic vs. I F

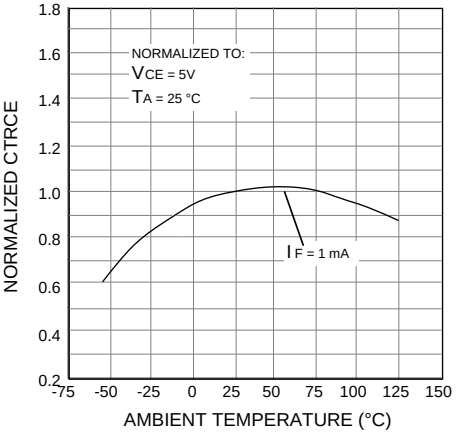


Fig. 3 - Normalized CTR vs. Temperature

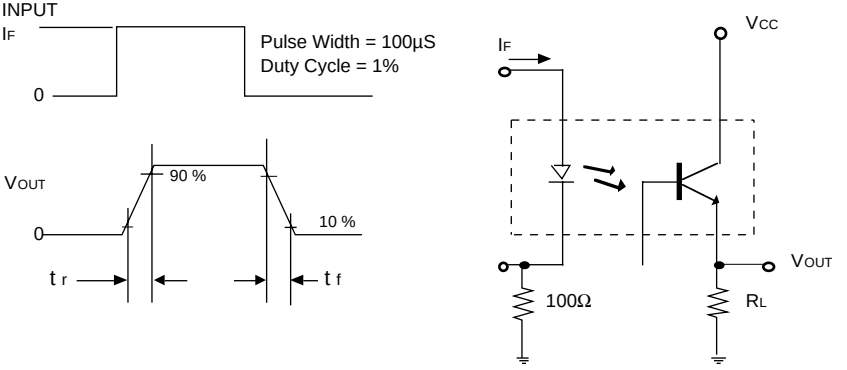


Fig. 4 - Switching Test Circuit