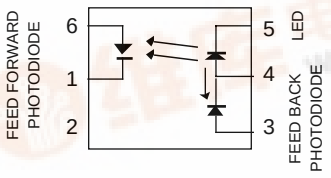
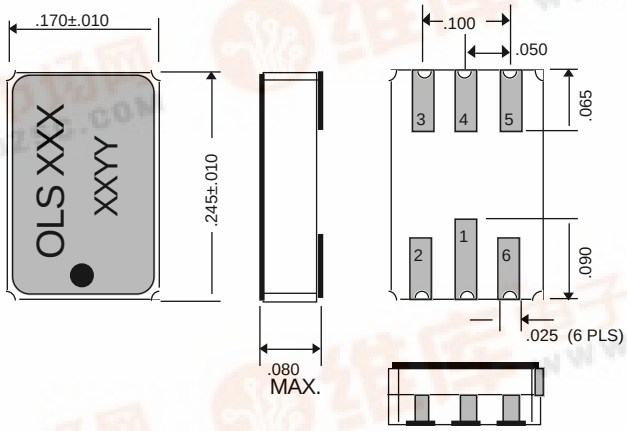
ISO LINK

OLS700
Hermetic Surface Mount Isolinear Optocoupler



SCHEMATIC



PACKAGE OUTLINE

Features

- *Electrical parameters guaranteed over 55°C to +125°C ambient temp. range*
- *1000 Vdc electrical isolation*
- *High reliability and rugged construction*
- *Matched photodiodes*
- *Excellent linearity*
- *100% hi-rel screenings are offered*

Description

The OLS700 optocoupler consists of one LED optically coupled to two matched photodiode detectors. Photodiode detectors are used for excellent linearity.

The photodiode on the input side acts as a feedback device permitting an external feedback loop to ensure constant LED light output. A similar matching photodiode on the output side is used to drive an output circuit that is electrically isolated from the input. A fixed relationship is thus maintained between input and output.

Each OLS700 is mounted and coupled in a custom hermetic surface mount LCC ceramic package providing 1000 Vdc electrical isolation between input and output.

Device mounting is achieved with reflow soldering or conductive epoxies.

NOTES:
1. Measured between pins 1, 2 and 6 shorted together and pins 3, 4, and 5 shorted together. T_A =25 °C and duration = 1 second.

Absolute Maximum Ratings

Coupled	
Input to Output Isolation Voltage[1]	± 1000Vdc
Storage Temperature Range	-65°C to +150°C
Operation Temperature Range	-40°C to +85°C
Mounting Temperature Range (3 minutes max.)	240°C
Total Power Dissipation	250mW
Input Diode	
Average Input Current	60mA
Peak Forward Current (≤ 1mS duration)	100mA
Reverse Voltage	3.0V
Power Dissipation	100mW
Output Detector	
Reverse Voltage	30V
Forward voltage	.3V

ELECTRICAL CHARACTERISTIC (T_A = 25 °C)

Parameter	Symbol	Min	Typ.	Max	Units	Test Conditions	Fig.	Note
LED Emitter								
Forward Voltage	VF		1.3	1.6	V	IF = 10 mA		
Reverse Current	IR			10	µA	VR = 3 V		
Photodiode Detector								
Dark Current	ID		1	25	nA	VR = 15 V, IF = 0 mA		
Open Circuit Voltage	VOC		500		mV	IF = 10 mA		

ELECTRICAL CHARACTERISTIC (T_A = 25 °C)

Parameter	Symbol	Min	Typ.	Max	Units	Test Conditions	Fig.	Note
Coupled Characteristics								
K1, Servo Current Gain (IP1/ IF)	K1	.0020	.0030	.0080		IF = 10 mA, Vdet = -15 V		
Servo Current	IP1		30		μA	IF = 10 mA, Vdet = -15 V		
K2, Forward Current Gain (IP2/ IF)	K2	.0020	.0030	.0080		IF = 10 mA, Vdet = -15 V		
Forward Current	IP2		30		μA	IF = 10 mA, Vdet = -15 V		
K3, Transfer Gain (K2 / K1)	K3	0.75	1.00	1.25		IF = 10 mA, Vdet = -15 V		
Frequency Response (-3db)	BW		200		KHz	IF = 10 mA ± 4 mA, RL = 50Ω		
Phase Response@200KHz			-45		Deg.	IF = 10 mA ± 4 mA, RL = 50Ω		
Rise Time	tr		2		μs	IF = 10 mA ± 4 mA, RL = 50Ω		
Fall Time	tf		2		μs	IF = 10 mA ± 4 mA, RL = 50Ω		
Input-Output Capacitance	Cio		1.5		pF	f = 1 MHz		
Insulation Resistance	Rio		10		GΩ	Vio = 500 VDC		
Withstand Test Voltage	WTV	1000			VDC	RH ≤ 50%, Iio ≤ 1 μA, 1 sec.		