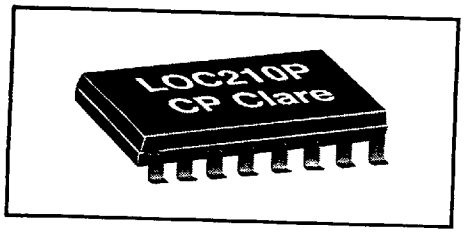
Linear Optocoupler
P/N LOC210P



DESCRIPTION

CP Clare's LOC210P Dual Linear Optocouplers feature two LOC110 products combined in one SOIC package. Each independent section features an infra-red LED optically coupled with two phototransistors. One input phototransistor is used to generate a control signal that provides a servo mechanism to the LED drive current thus compensating for the LED's nonlinear time and temperature characteristics. The other (output) phototransistor provides an output signal that is linear with respect to the servo LED current.

FEATURES

- Small 16 Pin SOIC package (PCMCIA Compatible)
- Couples analog and digital signals
- Wide bandwidth (>200KHz)
- High gain stability
- Low input / output capacitance
- Low power consumption
- 5000 V_{RMS} input/output isolation available
- 0.01% servo linearity
- THD 87 dB Typical
- UL registration pending
- BSI certification to BS415:1990 pending
- BSI certification to BS EN60950: 1992 (BS7002: 1992) pending
- BABT: Complies with EN41003; 1993

APPLICATIONS

- Digital telephone isolation
- Power supply feedback voltage sensor
- Medical sensor isolation
- Audio signal interfacing
- Isolate process control transducers
- Modem transformer replacement with no insertion loss

RATINGS (@ 25°C)

Parameter	Min	Typ	Max	Units
Input Power Dissipation	-	-	150 [1]	mW
Input Control Current	-	-	50	mA
Peak (10mSec)	-	-	1	A
Total Package Dissipation	-	-	800 [2]	mW
Isolation Voltage [3]				
Input to Output	3750	-	-	V_{RMS}
"G" Suffix (Optional)	5000	-	-	V_{RMS}
Operational Temperature	-40	-	85	°C
Storage Temperature	-40	-	125	°C
Soldering Temperature	-	-	260	°C

1 Derate Linearly 1.33 mW/°C
2 Derate Linearly 6.67 mW/°C
3 2 Second Duration

For additional LOC Series information ask for our LOC110 Application Note No. 15001.

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Input Characteristics @ 25°C[1]

PARAMETERS	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
LED Current to Operate		I_F	2	-	-	mA
LED Voltage Drop	I_F=10mA	V_F	0.9	1.2	1.4	V
Input / Output Capacitance		$C_{I/O}$	-	3	-	pF
Reverse LED Current	V_R=5V	I_R	-	-	10	µA
Reverse LED Voltage		V_R	-	-	5	V
Forward LED Current		I_F	2	-	50	mA

Coupler/Detector Characteristics @ 25°C[1]

PARAMETERS	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Dark Currents	I_F=0mA, V_{CC}=15V	I_D	-	1	25	nA
K1, Servo Gain	I_F=2mA-10mA, V_{CC}=15V	K1	0.004	-	.030	-
K2, Forward Gain (I_1/I_F)	I_F=2mA-10mA, V_{CC}=15V	K2	0.004	-	.030	-
K3, Transfer Gain (K_2/K_1)	I_F=2mA-10mA, V_{CC}=15V	K3	0.733	-	1.072	-
ΔK3, Transfer Gain Linearity (non-servoed)	I_F=2-10mA	K3	-	-	1.0	%
K3 Temperature Coefficient	I_F=10mA, V_{det}=-5	ΔK3/ΔT	-	0.005	-	%/°C
Common Mode Rejection Ratio	V=20Vp-p, R_L=2K F=100Hz	CMRR	-	130	-	dB
Input/Output Isolation		I/O	3750	-	-	V_{RMS}
"G" Suffix Optional			5000	-	-	
Total Harmonic Distortion	F_O=350Hz, 0dBm	THD	-96	-87	-80	dB
Frequency Response	Photoconductive Operation	BW (-3dB)		200		KHz
	Photovoltaic Operation	BW (-3dB)		40		KHz

**1 All parameters above are for each optocoupler.*

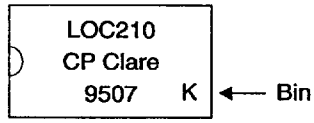
K3 Sorted Bins

Bin 1	=	0.733	-	0.886
Bin 2	=	0.887	-	1.072

Part Number Information

The LOC210P is shipped in antistatic tubes (50 pieces each) or tape/reel (1000 pieces each). Each container has only 1 bin combination which will be branded on each part with the appropriate bin letter K, L, M or N in the lower right corner. Suffix representation is described in the "Bin Matrix".

Example:



Bin Matrix

Suffix	Bin	
	*Top Pole Optocoupler**	*Bottom Pole Optocoupler**
K	1	1
L	1	2
M	2	1
N	2	2

** Top Pole Optocoupler: Pins 1, 2, 3, 4, 13 & 14*
Bottom Pole Optocoupler: Pins 7 - 12

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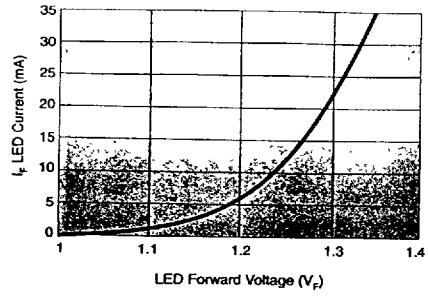
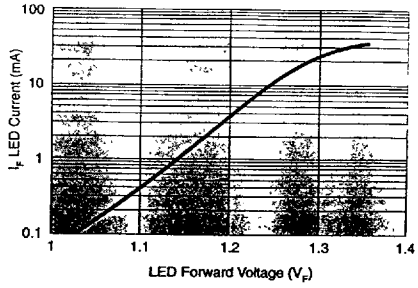
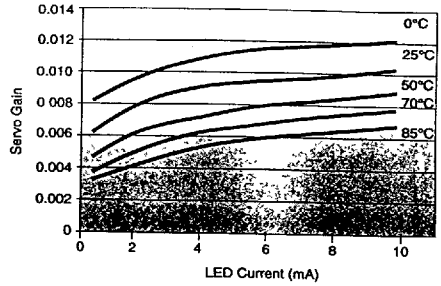
1) LED Forward Current (I_F) vs. Forward Voltage (V_F)



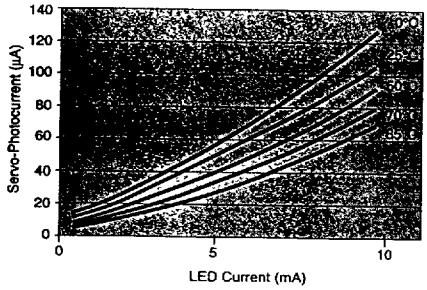
2) LED Forward Current (I_F) vs. Forward Voltage (V_F)



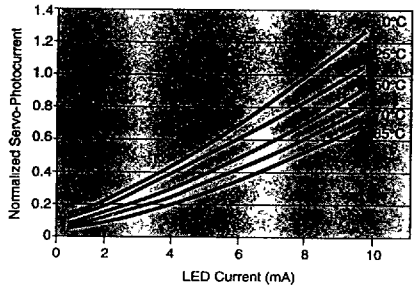
3) Servo Gain vs. LED Current & Temperature



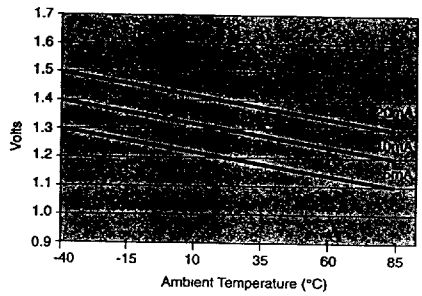
4) Servo-Photocurrent vs. LED Current & Temperature



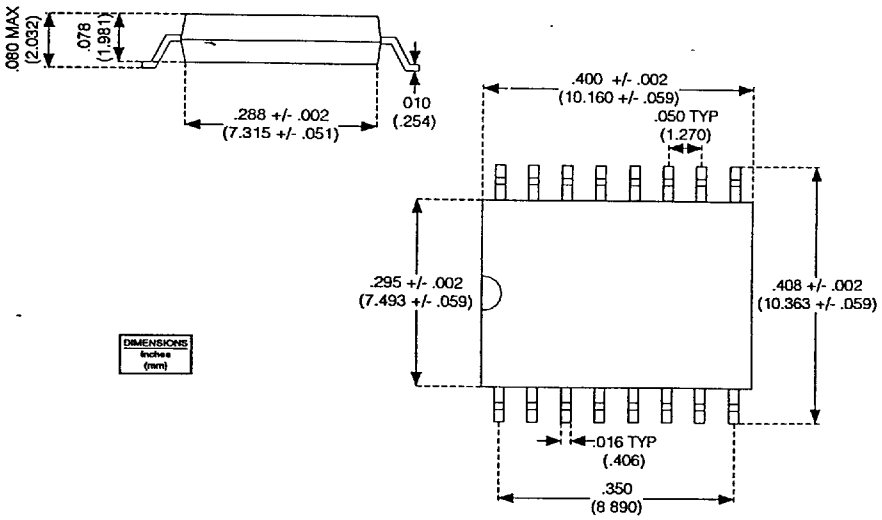
5) Normalized Servo-Photocurrent vs. LED Current & Temperature



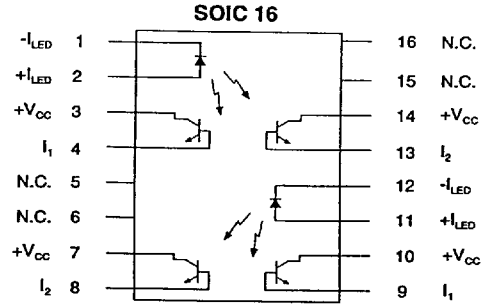
6) Typical Forward Voltage vs. Temperature V_F



MECHANICAL DIMENSIONS



PACKAGE PINOUT



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CP Clare Corporation assumes no liability as a result of the use of said specifications.