



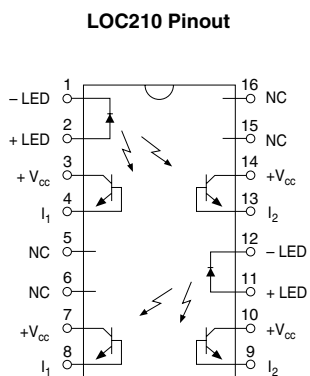
Features

- 16 Pin SOIC Package (PCMCIA Compatible)
- Couples Analog and Digital Signals
- Wide Bandwidth (>200kHz)
- High Gain Stability
- Low Input/Output Capacitance
- Low Power Consumption
- 0.01% Servo Linearity
- THD 87dB Typical
- Machine Insertable, Wave Solderable
- Surface Mount and Tape Reel Versions Available
- VDE Compatible

Applications

- Modem Transformer Replacement With No Insertion Loss
- Digital Telephone Isolation
- Power Supply Feedback Voltage/Current
- Medical Sensor Isolation
- Audio Signal Interfacing
- Isolation of Process Control Transducers

Pin Configuration



Description

The LOC210 Dual Linear Optocoupler features an infrared LED optically coupled with two phototransistors. One feedback (input) phototransistor is used to generate a control signal that provides a servomechanism to the LED drive current, thus compensating for the LEDs nonlinear time and temperature characteristics. The other (output) phototransistor provides an output signal that is linear with respect to the servo LED current. The product features wide bandwidth, high input to output isolation and excellent servo linearity.

Approvals

- UL Recognized: File Number E76270
- CSA Certified: File Number LR 43639-10
- BSI Certified:
 - BS EN 60950:1992 (BS7002:1992) Certificate #:7344
 - BS EN 41003:1993 Certificate #:7344

Ordering Information

Part #	Description
LOC210P	16 Pin Flatpack (50/Tube)
LOC210PTR	16 Pin Flatpack (1000/Reel)

K3 Sorted Bins

Bin 1 = 0.773 - 0.886
Bin 2 = 0.887 - 1.072

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, and 14

**Bottom Pole Optocouplers: Pins 7 through 12

Part Number Information

The LOC210 are shipped in anti-static tubes (50 pieces each) or tape/reel (1,000 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 hand corner. Suffix representation is described in the "Bin Matrix".

Absolute Maximum Ratings (@ 25° C)

Parameter	Min	Typ	Max	Units
Input Power Dissipation	-	-	150 ¹	mW
Input Control Current	-	-	100	mA
Peak (10ms)	-	-	1	A
Total Package Dissipation	-	-	800 ²	mW
Isolation Voltage Input to Output SOIC Package	3750	-	-	V _{RMS}
Operational Temperature	-40		+85	°C
Storage Temperature	-40	-	+125	°C
Soldering Temperature (10 Seconds Max)	-	-	+220	°C
Flatpack Package	-	-	+260	°C

¹ Derate Linearly 1.33 mW/°C
² Derate Linearly 6.67 mW/°C

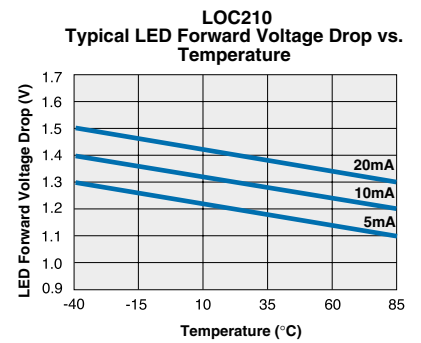
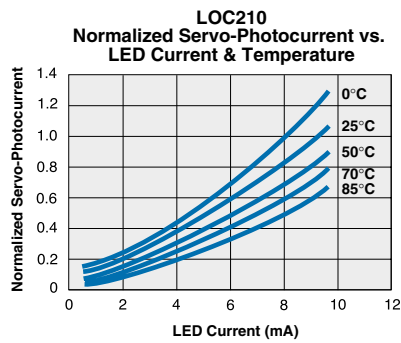
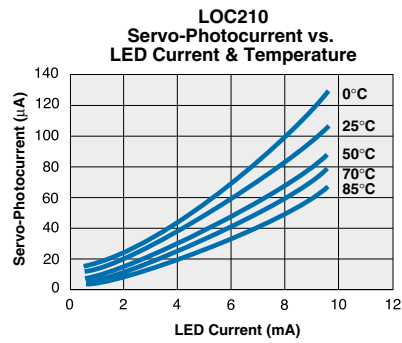
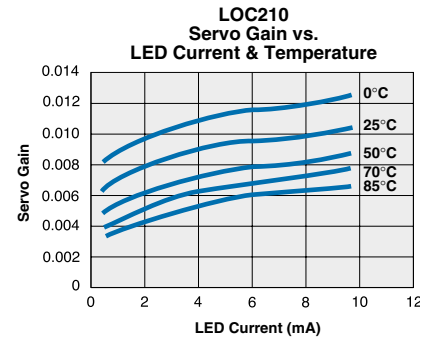
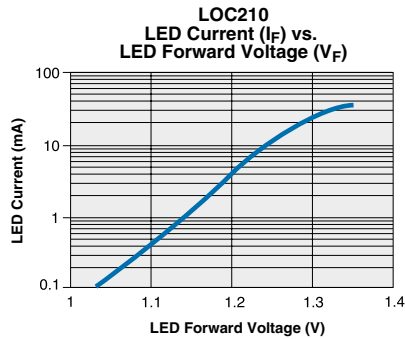
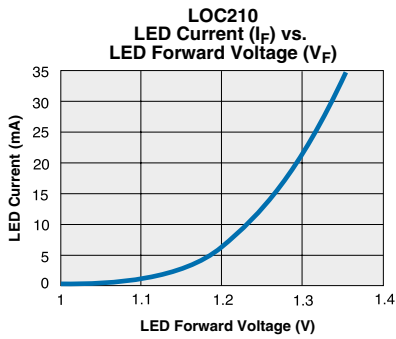
Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of this data sheet is not implied. Exposure of the device to the absolute maximum ratings for an extended period may degrade the device and effect its reliability.

Electrical Characteristics

Parameter	Conditions	Symbol	Min	Typ	Max	Units
Input Characteristics @ 25°C¹						
LED Voltage Drop	I _F =2-10mA	V _F	0.9	1.2	1.4	V
Reverse LED Current	V _R =5V	I _R	-	-	10	µA
Reverse LED Voltage	-	V _R	-	-	5	V
Forward LED Current	-	I _F	-	-	100	mA
Coupler/Detector Characteristics @ 25°C¹						
Dark Current	I _F =0mA, V _{CC} =15V	I _D	-	1	25	nA
K1, Servo Gain (I ₁ /I _F)	I _F =2-10mA, V _{CC} =15V	K1	0.004	0.007	0.030	-
K2, Forward Gain (I ₂ /I _F)	I _F =2-10mA, V _{CC} =15V	K2	0.004	0.007	0.030	-
K3, Transfer Gain (K ₂ /K ₁)	I _F =2-10mA, V _{CC} =15V	K3	0.733	-	1.072	-
ΔK3, Transfer Gain Linearity (non-servoed)	I _F =2-10mA	ΔK3	-	-	1.0	%
K3 Temperature Coefficient	I _F =2-10mA, V _{det} =-5V	ΔK3/ΔT	-	0.005	-	%/°C
Common Mode Rejection Ratio	V=20V _{p-p} , R _L =2KΩ, F=100Hz	CMRR	-	130	-	dB
Total Harmonic Distortion	F ₀ =350Hz, 0dBm	THD	-96	-87	-80	dB
Frequency Response	Photoconductive Operation	BW (-3dB)	-	200	-	kHz
	Photovoltaic Operation	BW (-3dB)	-	40	-	kHz
Input/Output Capacitance	-	C _{I/O}	-	3	-	pF
Input/Output Isolation SOIC Package	-	V _{I/O}	3750	-	-	V _{RMS}

¹ All parameters above are for each optocoupler.

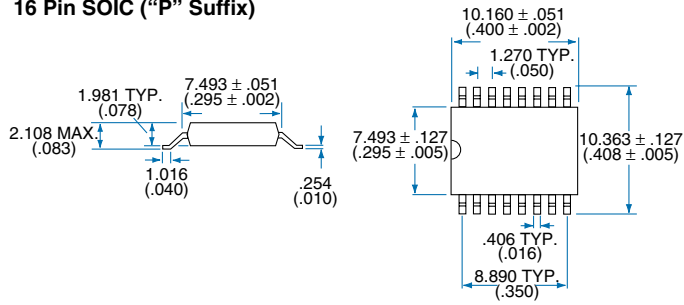
PERFORMANCE DATA*



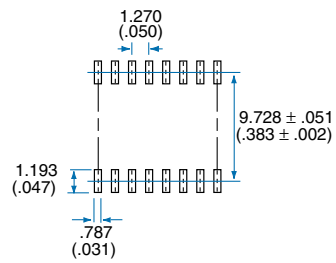
* The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

MECHANICAL DATA

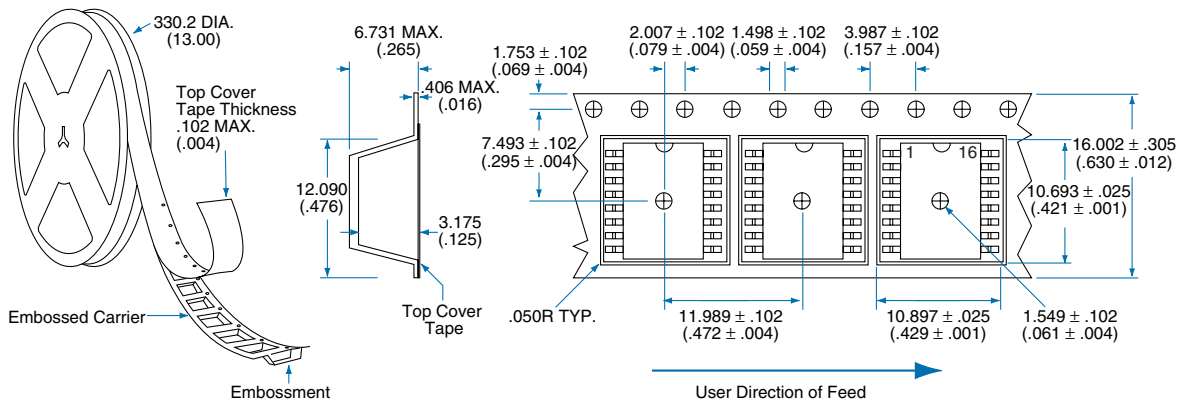
16 Pin SOIC ("P" Suffix)



PC Board Pattern (Top View)



Tape and Reel Packaging for 16 Pin SOIC Package



Dimensions
mm
(inches)



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