

COMLINEAR[®] CLC3800, CLC3801, CLC3802

Triple, Standard Definition Video Amplifiers



FEATURES

- Integrated 4th-order, 8MHz filters
- Integrated 6, 9, or 12dB video drivers
- 8.8mA total supply current
- 0.05%/0.02° differential gain/phase error
- DC coupled inputs
- AC or DC coupled outputs
- DC-coupled outputs remove the need for AC-coupling capacitors
- Each channel can drive 2V_{pp} into 1 or 2 video loads (150Ω or 75Ω)
- 0.1% THD
- Operates from 3V to 7V supplies
- Pb-free SOIC-8 or DFN-8 packages

APPLICATIONS

- Cable or satellite set-top-box (STB)
- Portable DVD players
- DVD players
- Portable media players with video out
- Video on demand
- Personal video recorders

General Description

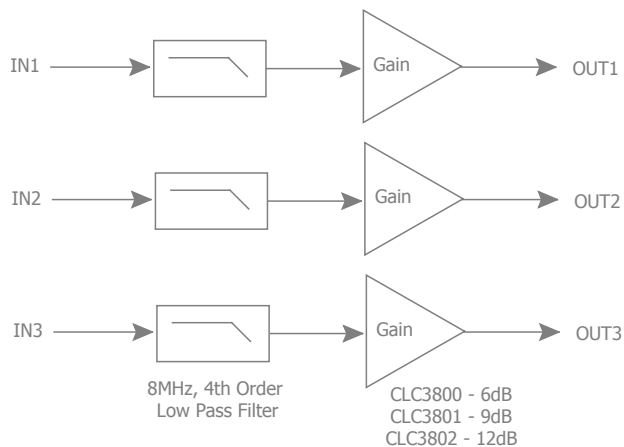
The CLC3800 (6dB), CLC3801 (9dB), and CLC3802 (12dB) are triple low cost video amplifiers capable of driving 2V_{pp} into 1 (150Ω) or 2 (75Ω) video loads. The CLC3800, CLC3801, and CLC3802 feature integrated 8MHz, 4th-order low pass filters designed to cleanly pass standard definition video signals while filtering out noise and other unwanted signals, resulting in a crisper, cleaner video signal. The 4th-order filters provide improved image quality when compared to 2nd-order passive filtering solutions.

The CLC3800 video amplifier offers a fixed gain of 6dB. This integrated gain compensates for the voltage drop inherent in properly terminated video loads; ensuring a 1V_{pp} video signal is present at the load. If additional gain is required, the CLC3801 video amplifier offers a fixed gain of 9dB and the CLC3802 offers 12dB.

All three video amplifiers can be driven by DC-coupled signals. Their outputs can drive either AC- or DC-coupled loads.

These video amplifiers operate from 3V to 7V supplies and consume 8.8mA of supply current, making them well suited for battery powered devices.

Functional Block Diagram



Ordering Information

Part Number	Gain	Package	Pb-Free	RoHS Compliant	Operating Temperature Range	Packaging Method
CLC3800ISO8X	6dB	SOIC-8	Yes	Yes	-40°C to +125°C	Reel
CLC3801ISO8X	9dB	SOIC-8	Yes	Yes	-40°C to +125°C	Reel
CLC3802ISO8X†	12dB	SOIC-8	Yes	Yes	-40°C to +125°C	Reel
CLC3800ILP8X*	6dB	DFN-8	Yes	Yes	-40°C to +125°C	Reel
CLC3801ILP8X*	9dB	DFN-8	Yes	Yes	-40°C to +125°C	Reel
CLC3802ILP8X*	12dB	DFN-8	Yes	Yes	-40°C to +125°C	Reel

†Preliminary, contact CADEKA for availability. *Future product offering.
Moisture sensitivity level for all parts is MSL-1.

Electrical Characteristics at 3V

$T_A = 25^\circ\text{C}$, $V_S = +3\text{V}$, input is DC-coupled, input source resistance = 37.5Ω , $R_L = 150\Omega$ thru a $220\mu\text{F}$ AC-coupling capacitor, $V_{IN} = 1V_{pp}$; unless otherwise noted.

Parameter	Conditions	Min	Typ	Max	Units
Frequency Domain Response					
-1dB Bandwidth			7.6		MHz
-3dB Bandwidth			8.5		MHz
Stopband Attenuation	$f = 27\text{MHz}$		48		dB
Differential Gain			0.05		%
Differential Phase			0.02		°
Distortion/Noise Response					
Total Harmonic Distortion	$V_{OUT} = 2V_{pp}$, 1MHz		0.1		%
Crosstalk	at 1MHz		60		dBc
Signal to Noise Ratio	100kHz to 4.2MHz		68		dB
DC Performance					
Gain ⁽¹⁾	CLC3800, each channel	5.7	6.0	6.3	dB
	CLC3801, each channel	8.6	9.0	9.4	dB
	CLC3802, each channel	TBD	12.0	TBD	dB
Power Supply Rejection Ratio	DC		52		dB
Supply Current ⁽¹⁾	Total all channels		8.8	14.5	mA
Input Characteristics					
Input Voltage Range			1.4		V_{pp}

Electrical Characteristics at 5V

Same conditions as above with $V_S = +5\text{V}$

Parameter	Conditions	Min	Typ	Max	Units
Frequency Domain Response					
-1dB Bandwidth			7.7		MHz
-3dB Bandwidth			8.6		MHz
Stopband Attenuation	$f = 27\text{MHz}$		48		dB
Differential Gain			0.1		%
Differential Phase			0.02		°
Distortion/Noise Response					
Total Harmonic Distortion	$V_{OUT} = 2V_{pp}$, 1MHz		0.1		%
Crosstalk	at 1MHz		61		dBc
Signal to Noise Ratio	100kHz to 4.2MHz		73		dB
DC Performance					
Gain ⁽¹⁾	CLC3800, each channel	5.7	6.0	6.3	dB
	CLC3801, each channel	8.6	9.0	9.4	dB
	CLC3802, each channel	TBD	12.0	TBD	dB
Power Supply Rejection Ratio	DC		53		dB
Supply Current ⁽¹⁾	Total all channels		9.5	15	mA
Input Characteristics					
Input Voltage Range			1.4		V_{pp}

Notes:

1. 100% tested at 25°C .

Refer to the data sheet for complete product specifications.

For additional information regarding our products, please visit CADEKA at: cadeka.com

CADEKA Headquarters Loveland, Colorado

T: 970.663.5452

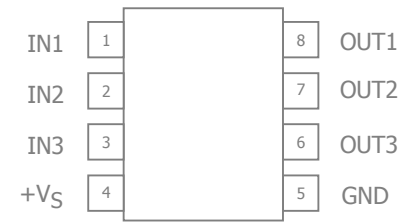
T: 877.663.5452 (toll free)

CADEKA, the CADEKA logo design, COMLINEAR, the COMLINEAR logo design, and ARCTIC are trademarks or registered trademarks of CADEKA Microcircuits LLC. All other brand and product names may be trademarks of their respective companies.

Copyright ©2007-2008 by CADEKA Microcircuits LLC. All rights reserved.

Available Packages

SOIC Pin Configuration



DFN Pin Configuration

