

COMLINEAR[®] CLC3800, CLC3801, CLC3802

Triple, Standard Definition Video Amplifiers



FEATURES

- Integrated 4th-order, 8MHz filters
- Integrated 6, 9, or 12dB video drivers
- <10mA total supply current
- 0.3%/0.2° 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

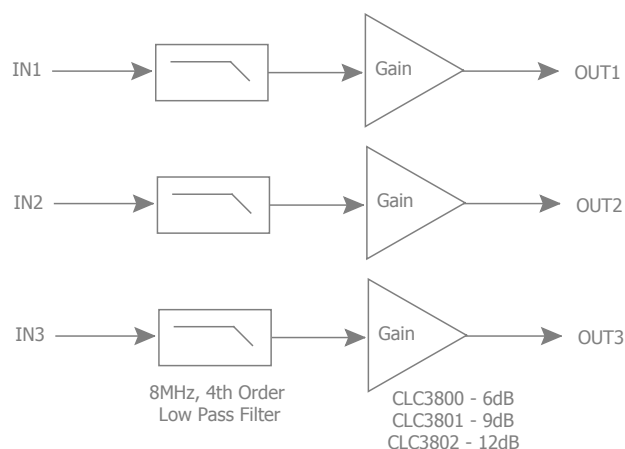
The CLC3800 (6dB), CLC3801 (9dB), and CLC3802 (12dB) are triple low cost video amplifiers capable of driving 2V_{pp} into 1 (150Ω) or 2 (75Ω) video loads. The CLC3800, CLC3801, and CLC3802 feature integrated 8MHz, 4th-order low pass filters designed to cleanly pass standard definition video signals while 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 <10mA of supply current, making them well suited for battery powered devices.

Functional Block Diagram



Ordering Information

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

†Sampling now. †† 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	$f = 27\text{MHz}$		55		dB
Differential Gain			0.34		%
Differential Phase			0.2		°
Distortion/Noise Response					
Total Harmonic Distortion	$V_{OUT} = 2V_{pp}$, 1MHz		0.1		%
Crosstalk	at 1MHz		TBD		dBc
Signal to Noise Ratio	100kHz to 4.2MHz		72		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 ⁽¹⁾	DC	44.5	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			7.6		MHz
-3dB Bandwidth			8.5		MHz
Stopband Attenuation	$f = 27\text{MHz}$		55		dB
Differential Gain			0.34		%
Differential Phase			0.2		°
Distortion/Noise Response					
Total Harmonic Distortion	$V_{OUT} = 2V_{pp}$, 1MHz		0.1		%
Crosstalk	at 1MHz		TBD		dBc
Signal to Noise Ratio	100kHz to 4.2MHz		72		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 ⁽¹⁾	DC	44.5	52		dB
Supply Current ⁽¹⁾	Total all channels		8.8	14.5	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

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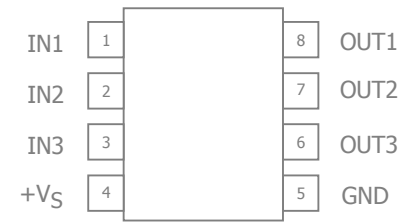
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Available Packages

SOIC Pin Configuration



DFN Pin Configuration

