

COMLINEAR® CLC3800, CLC3801

Triple, Standard Definition Video Amplifiers



FEATURES

- Integrated 4th-order, 8MHz filters
- Integrated 6 or 9dB video drivers
- 8.8mA total supply current
- 0.08%/0.04° 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, 2, or 3 video loads (150Ω, 75Ω or 50Ω)
- 0.1% THD
- Operates from 3V to 7V supplies
- Pb-free SOIC-8 package

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

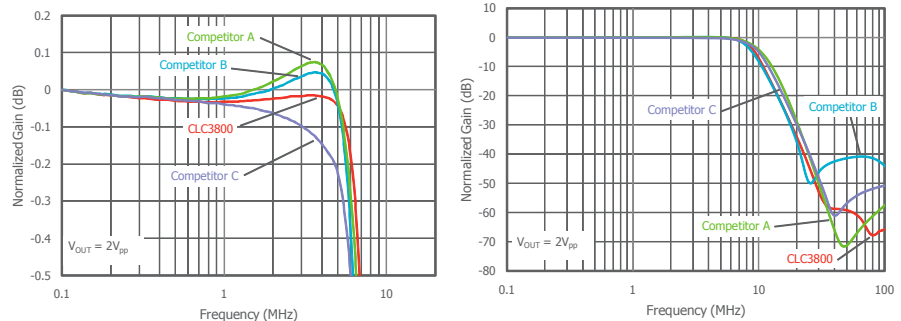
The CLC3800 (6dB) and CLC3801 (9dB) are triple low cost video amplifiers capable of driving 2V_{pp} into 1 (150Ω), 2 (75Ω), or 3 (50Ω) video loads. The CLC3800 and CLC3801 feature integrated 8MHz, 4th-order low pass filters designed to cleanly pass standard definition video signals while filtering out 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.

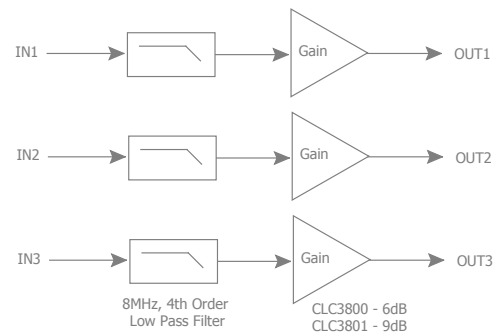
All three video amplifiers can be driven by DC-coupled signals. Their outputs can drive either AC- or DC-coupled loads.

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

Competitive Comparison Plots (continued in data sheet)



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 |
| CLC3800ILP8X* | 6dB | DFN-8 | Yes | Yes | -40°C to +125°C | Reel |

*Future product offering. †Not recommended for new design. 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 | | | 0.62 | | % |
| Differential Phase | | | 0.13 | | $^\circ$ |
| Distortion/Noise Response | | | | | |
| Total Harmonic Distortion | $V_{OUT} = 2V_{pp}$, 1MHz | | 0.1 | | % |
| Crosstalk | at 1MHz | | 58 | | dBc |
| Signal to Noise Ratio | 100kHz to 4.2MHz | | 77 | | 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 |
| Power Supply Rejection Ratio | DC | | 52 | | dB |
| Supply Current ⁽¹⁾ | Total all channels | | 8.8 | 15 | mA |
| Input Characteristics | | | | | |
| Input Voltage Range | | | 0 to 1.25 | | 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 | | | 0.08 | | % |
| Differential Phase | | | 0.04 | | $^\circ$ |
| Distortion/Noise Response | | | | | |
| Total Harmonic Distortion | $V_{OUT} = 2V_{pp}$, 1MHz | | 0.1 | | % |
| Crosstalk | at 1MHz | | 58 | | dBc |
| Signal to Noise Ratio | 100kHz to 4.2MHz | | 77 | | 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 |
| Power Supply Rejection Ratio | DC | | 53 | | dB |
| Supply Current ⁽¹⁾ | Total all channels | | 9.5 | 15 | mA |
| Input Characteristics | | | | | |
| Input Voltage Range | | | 0 to 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

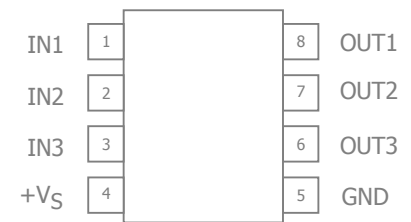
T: 877.663.5452 (toll free)

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

Copyright ©2008-2010 by CADEKA Microcircuits LLC. All rights reserved.

Available Packages

SOIC Pin Configuration



DFN Pin Configuration

