

# Comlinear™ CLC2000

## High Output Current Dual Amplifier



### FEATURES

- 9.4V<sub>pp</sub> output drive into R<sub>L</sub>=25Ω
- Using both amplifiers, 18.8V<sub>pp</sub> differential output drive into R<sub>L</sub>=25Ω
- ±200mA @ V<sub>O</sub>=9.4V<sub>pp</sub>
- 0.009%/0.06° differential gain/phase error
- 250MHz -3dB bandwidth at G = 2
- 510MHz -3dB bandwidth at G = 1
- 210V/μs slew rate
- 4.5nV/√Hz input voltage noise
- 2.7pA/√Hz input current noise
- 7mA supply current
- Fully specified at 5V and 12V supplies
- Pb-free SOIC-8 package

### APPLICATIONS

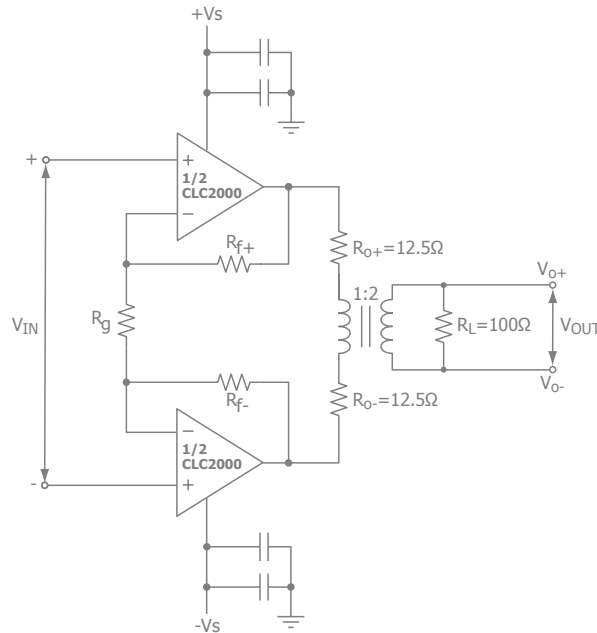
- ADSL PCI modem cards
- ADSL external modems
- Cable drivers
- Video line driver
- Twisted pair driver/receiver

### General Description

The *Comlinear* CLC2000 is a dual voltage feedback amplifier that offers ±200mA of output current at 9.4V<sub>pp</sub>. The CLC2000 is capable of driving signals to within 1V of the power rails. When connected as a differential line driver, the dual amplifier drives signals up to 18.8V<sub>pp</sub> into a 25Ω load, which supports the peak upstream power levels for upstream full-rate ADSL applications.

The *Comlinear* CLC2000 can operate from single or dual supplies from 5V to 12V. It consumes only 7mA of supply current per channel. The combination of wide bandwidth, low noise, low distortion, and high output current capability makes the CLC2000 ideally suited for Customer Premise ADSL or video line driving applications.

### Typical Application - ADSL Application



### Ordering Information

Part Number	Package	Pb-Free	Operating Temperature Range	Packaging Method
CLC2000ISO8X	SOIC-8	Yes	-40°C to +85°C	Reel
CLC2000ISO8	SOIC-8	Yes	-40°C to +85°C	Rail

Moisture sensitivity level for all parts is MSL-1.

## Electrical Characteristics

$T_A = 25^\circ\text{C}$ ,  $V_S = 12\text{V}$ ,  $R_f = 510\Omega$ ,  $R_L = 100\Omega$  to  $V_S/2$ ,  $G = 2$ ; unless otherwise noted.

Parameter	Conditions	Min	Typ	Max	Units
<b>Frequency Domain Response</b>					
-3dB Bandwidth	$G = +1$ , $R_f = 0$ , $V_{OUT} = 0.2V_{pp}$		510		MHz
-3dB Bandwidth	$G = +2$ , $V_{OUT} = 0.2V_{pp}$		250		MHz
Large Signal Bandwidth	$G = +2$ , $V_{OUT} = 4V_{pp}$		35		MHz
0.1dB Gain Flatness	$G = +2$ , $V_{OUT} = 0.2V_{pp}$		32		MHz
<b>Time Domain Response</b>					
Rise and Fall Time	$V_{OUT} = 4\text{V}$ step; (10% to 90%)		13.3		ns
Overshoot	$V_{OUT} = 0.2\text{V}$ step		2		%
Slew Rate	$V_{OUT} = 4\text{V}$ step		210		V/ $\mu\text{s}$
<b>Distortion/Noise Response</b>					
2nd Harmonic Distortion	$8.4V_{pp}$ , 100kHz, $R_L = 25\Omega$		-63		dBc
	$8.4V_{pp}$ , 1MHz, $R_L = 100\Omega$		-82		dBc
3rd Harmonic Distortion	$8.4V_{pp}$ , 100MHz, $R_L = 25\Omega$		-63		dBc
	$8.4V_{pp}$ , 1MHz, $R_L = 100\Omega$		-83		dBc
Differential Gain	NTSC (3.58MHz), DC-coupled, $R_L = 150\Omega$		0.009		%
Differential Phase	NTSC (3.58MHz), DC-coupled, $R_L = 150\Omega$		0.06		°
Input Voltage Noise	> 1MHz		4.5		nV/ $\sqrt{\text{Hz}}$
Input Current Noise	> 1MHz		2.7		pA/ $\sqrt{\text{Hz}}$
Crosstalk	Channel-to-Channel 5MHz		-62		dB
<b>DC Performance</b>					
Input Offset Voltage		-6	0.3	6	mV
Input Offset Current		-2	0.2	2	$\mu\text{A}$
Input Bias Current			10	20	$\mu\text{A}$
Power Supply Rejection Ratio	DC	73	81		dB
Open-Loop Gain	$R_L = 25\Omega$		76		dB
Supply Current	Per Channel		7	12	mA
<b>Input Characteristics</b>					
Common Mode Input Range			0.6 to 11.4		V
Common Mode Rejection Ratio	DC	70	79		dB
<b>Output Characteristics</b>					
Output Voltage Swing	$R_L = 25\Omega$	1.5	1.2 to 10.8	10.5	V
	$R_L = 1\text{k}\Omega$		0.8 to 11.2		V
Short-Circuit Output Current	$V_{OUT} = V_S/2$		1000		mA

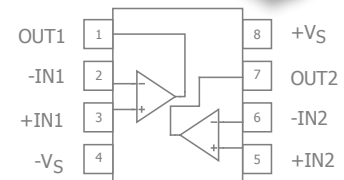
**Note:**

Refer to the data sheet for complete product specifications.

## Available Package

### CLC2000 SOIC-8

(not actual size)



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