

# COMLINEAR® CLC1606

## 1.3GHz Current Feedback Amplifier



### FEATURES

- 1.2GHz -3dB bandwidth at G=2
- 3,300V/μs slew rate
- 0.01%/0.01° differential gain/phase error
- 7.5mA supply current
- 875MHz large signal bandwidth
- -68dBc THD at 10MHz
- 120mA output current (easily drives three video loads)
- Fully specified at 5V and ±5V supplies
- CLC1606: Pb-free SOT23-5
- CLC1606: Pb-free SOIC-8

### APPLICATIONS

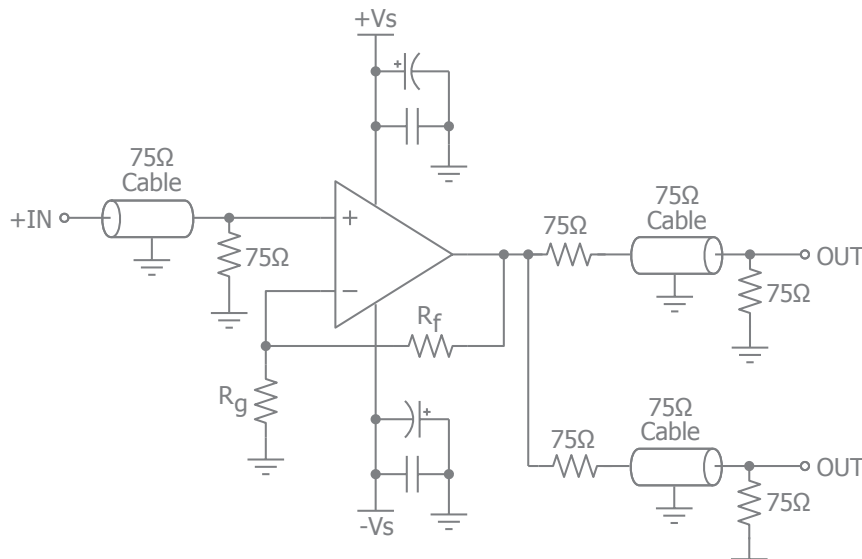
- RGB video line drivers
- High definition video driver
- Video switchers and routers
- ADC buffer
- Active filters
- High-speed instrumentation
- Wide dynamic range IF amp

### General Description

The COMLINEAR CLC1606 is a high-performance, current feedback amplifier with superior bandwidth and video specifications. The CLC1606 provides 1.3GHz unity gain bandwidth, ±0.1dB gain flatness to 150MHz, and provides 3,300V/μs slew rate exceeding the requirements of high-definition television (HDTV) and other multimedia applications. The COMLINEAR CLC1606 high-performance amplifier also provide ample output current to drive multiple video loads.

The COMLINEAR CLC1606 is designed to operate from ±5V or +5V supplies. It consumes only 7.5mA of supply current. The combination of high-speed and excellent video performance make the CLC1606 well suited for use in many general purpose, high-speed applications including standard definition and high definition video. Data communications applications benefit from the CLC1606's total harmonic distortion of -68dBc at 10MHz and fast settling time to 0.1%.

### Typical Application - Driving Dual Video Loads



### Ordering Information

Part Number	Package	Pb-Free	RoHS Compliant	Operating Temperature Range	Packaging Method
CLC1606IST5X	SOT23-5	Yes	Yes	-40°C to +85°C	Reel
CLC1606ISO8	SOIC-8	Yes	Yes	-40°C to +85°C	Rail
CLC1606ISO8X	SOIC-8	Yes	Yes	-40°C to +85°C	Reel

Moisture sensitivity level for all parts is MSL-1.

## Electrical Characteristics

$T_A = 25^\circ\text{C}$ ,  $V_S = \pm 5\text{V}$ ,  $R_f = R_g = 270\Omega$ ,  $R_L = 150\Omega$  to GND,  $G = 2$ ; unless otherwise noted.

Parameter	Conditions	Min	Typ	Max	Units
<b>Frequency Domain Response</b>					
-3dB Bandwidth	$G = +1$ , $R_f = 390\Omega$ , $V_{OUT} = 0.5V_{pp}$		1300		MHz
-3dB Bandwidth	$G = +2$ , $V_{OUT} = 0.5V_{pp}$		1200		MHz
Large Signal Bandwidth	$G = +2$ , $V_{OUT} = 2V_{pp}$		875		MHz
0.1dB Gain Flatness	$G = +2$ , $V_{OUT} = 2V_{pp}$		150		MHz
<b>Time Domain Response</b>					
Rise and Fall Time	$V_{OUT} = 1\text{V}$ step; (10% to 90%)		0.5		ns
Overshoot	$V_{OUT} = 0.2\text{V}$ step		1		%
Slew Rate	$V_{OUT} = 1\text{V}$ step		3300		V/ $\mu\text{s}$
<b>Distortion/Noise Response</b>					
2nd Harmonic Distortion	$V_{OUT} = 2V_{pp}$ , 5MHz		-71		dBc
3rd Harmonic Distortion	$V_{OUT} = 2V_{pp}$ , 5MHz		-71		dBc
Total Harmonic Distortion	$V_{OUT} = 2V_{pp}$ , 5MHz, $R_L = 150\Omega$		68		dBc
Differential Gain	NTSC (3.58MHz), DC-coupled, $R_L = 150\Omega$		0.01		%
Differential Phase	NTSC (3.58MHz), DC-coupled, $R_L = 150\Omega$		0.01		°
Third Order Intercept	$V_{OUT} = 2V_{pp}$ , 10MHz		39		dBm
Input Voltage Noise	> 1MHz		3		nV/ $\sqrt{\text{Hz}}$
Input Current Noise	> 1MHz, Inverting		20		pA/ $\sqrt{\text{Hz}}$
	> 1MHz, Non-Inverting		30		pA/ $\sqrt{\text{Hz}}$
<b>DC Performance</b>					
Input Offset Voltage		-10	0.5	10	mV
Input Bias Current	Non-Inverting	-45	3	45	$\mu\text{A}$
	Inverting	-50	7	50	$\mu\text{A}$
Power Supply Rejection Ratio	DC	40	50		dB
Supply Current	Per Channel		7.5	9.5	mA
<b>Input Characteristics</b>					
Common Mode Input Range			$\pm 4.0$		V
Common Mode Rejection Ratio	DC	40	50		dB
<b>Output Characteristics</b>					
Output Voltage Swing	$R_L = 150\Omega$	$\pm 3.0$	$\pm 3.7$		V
Output Current			$\pm 280$		mA

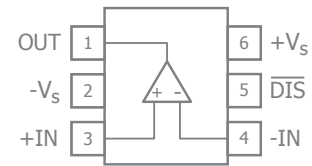
**Note:**

Refer to the data sheet for complete product specifications.

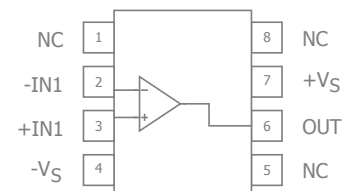
## Available Packages

### CLC1606 SOT23-6

(not actual size)



### CLC1606 SOIC-8



For additional information regarding our products, please visit CADEKA at: [cadeka.com](http://cadeka.com)

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