

Comlinear[®] CLC2005

Dual, Low Cost, Single Supply Rail-to-Rail Amplifier



FEATURES

- 260MHz bandwidth at $G = 1$
- 90MHz bandwidth at $G = 2$
- Output voltage range: 0.036V to 4.953V
- Input voltage range: -0.3V to 3.8V
- 145V/ μ s slew rate
- 55mA output current
- 85mA short circuit output current
- 4.2mA supply current
- Fully specified at 2.7V and 5V supplies
- Pb-free SOIC-8 package

APPLICATIONS

- Twisted pair driver
- High capacitive load driver
- Set-top boxes
- Portable media players
- ADC buffer
- Active filters
- Cable drivers
- Imaging applications

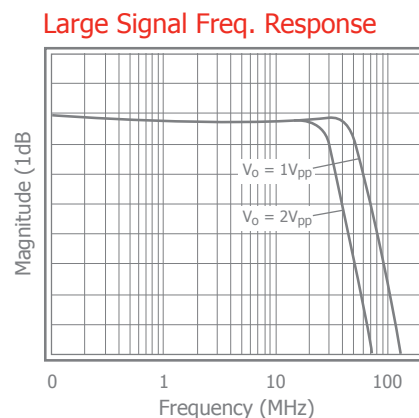
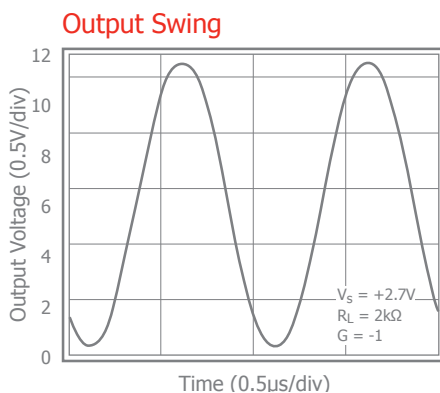
General Description

The *Comlinear* CLC2005 is a dual, low cost, voltage feedback amplifier. This amplifier is designed to operate from 2.5V to 5.5V supplies. The input voltage range extends 300mV below the negative rail and 1.2V below the positive rail.

The CLC2005 offers superior dynamic performance with a 260MHz small signal bandwidth and 145V/ μ s slew rate. The combination of low power, high output current drive, and rail-to-rail performance make the CLC2005 well suited for battery-powered applications.

The combination of low cost and high performance make the CLC2005 suitable for high volume applications in both consumer and industrial applications such as set-top boxes, portable media players, and scanners.

Typical Performance



Ordering Information

Part Number	Package	Pb-Free	Operating Temperature Range	Packaging Method
CLC2005ISO8X	SOIC-8	Yes	-40°C to +85°C	Reel
CLC2005ISO8	SOIC-8	Yes	-40°C to +85°C	Rail

Moisture sensitivity level for all parts is MSL-1.

Electrical Characteristics

$T_A = 25^\circ\text{C}$, $V_S = 5\text{V}$, $R_L = 2\text{k}\Omega$ to $V_S/2$, $G = 2$; unless otherwise noted.

Parameter	Conditions	Min	Typ	Max	Units
Frequency Domain Response					
-3dB Bandwidth	$G = +1$, $V_{OUT} = 0.05V_{pp}$		260		MHz
-3dB Bandwidth	$G = +2$, $V_{OUT} = 0.2V_{pp}$		90		MHz
Large Signal Bandwidth	$G = +2$, $V_{OUT} = 2V_{pp}$		40		MHz
Gain Bandwidth Product			90		MHz
Time Domain Response					
Rise and Fall Time	$V_{OUT} = 0.2\text{V}$ step		3.6		ns
Settling Time to 0.1%	$V_{OUT} = 2\text{V}$ step		40		ns
Overshoot	$V_{OUT} = 0.2\text{V}$ step		7		%
Slew Rate	5V step, $G = -1$		145		V/ μs
Distortion/Noise Response					
2nd Harmonic Distortion	$2V_{pp}$, 5MHz		-71		dBc
3rd Harmonic Distortion	$2V_{pp}$, 5MHz		-78		dBc
THD	$2V_{pp}$, 5MHz		70		dB
Input Voltage Noise	> 1MHz		16		nV/ $\sqrt{\text{Hz}}$
Input Current Noise	> 1MHz		1.3		pA/Hz
Crosstalk	Channel-to-Channel 10MHz		-62		dB
DC Performance					
Input Offset Voltage ⁽¹⁾		-8	1.4	8	mV
Average Drift			10		$\mu\text{V}/^\circ\text{C}$
Input Offset Current ⁽¹⁾		-0.8	0.1	0.8	μA
Input Bias Current ⁽¹⁾		-8	3	8	μA
Average Drift			7		nA/ $^\circ\text{C}$
Power Supply Rejection Ratio ⁽¹⁾	DC	52	57		dB
Open-Loop Gain ⁽¹⁾	$V_{OUT} = V_S/2$	68	78		dB
Supply Current ⁽¹⁾	Per Channel		4.2	5.2	mA
Input Characteristics					
Input Resistance	Non-Inverting		4.3		M Ω
Input Capacitance			1.8		pF
Common Mode Input Range			-0.3 to 3.8		V
Common Mode Rejection Ratio ⁽¹⁾	DC, $V_{CM} = 0\text{V}$ to $V_S - 1.5$	72	87		dB
Output Characteristics					
Output Voltage Swing	$R_L = 150\Omega$	0.3	0.12 to 4.8	4.625	V
	$R_L = 2\text{k}\Omega$		0.036 to 4.953		V
Output Current			± 55		mA
Short-Circuit Output Current	$V_{OUT} = V_S/2$		± 85		mA

NOTES:

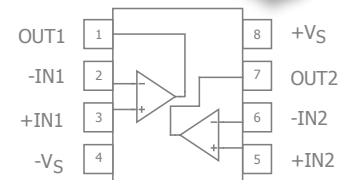
1) 100% tested at 25°C

Refer to the data sheet for complete product specifications

Available Package

CLC2005 SOIC-8

(not actual size)



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

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