

Comlinear® CLC1005, CLC1015, CLC2005

Low Cost, +2.7V to 5.5V, 260MHz Rail-to-Rail Amplifiers



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

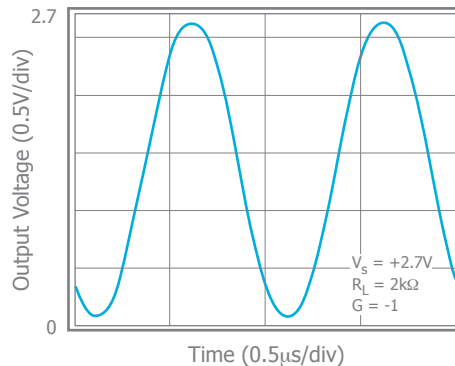
The COMLINEAR CLC1005 (single), CLC1015 (single with disable), and CLC2005 (dual) are low cost, voltage feedback amplifiers. These amplifiers are designed to operate on +2.7V to +5V, or ± 2.5 V supplies. The input voltage range extends 300mV below the negative rail and 1.2V below the positive rail.

The CLC1005, CLC1015, and CLC2005 offer 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 these amplifiers well suited for battery-powered communication/computing systems.

The combination of low cost and high performance make the CLC1005, CLC1015, and CLC2005 suitable for high volume applications in both consumer and industrial applications such as wireless phones, scanners, and color copiers.

Typical Performance

Output Swing



Ordering Information

Part Number	Package	Pb-Free	RoHS Compliant	Operating Temperature Range	Packaging Method
CLC1005ISO8X*	SOIC-8	Yes	Yes	-40°C to +85°C	Reel
CLC1005IST5X*	SOT23-5	Yes	Yes	-40°C to +85°C	Reel
CLC1015ISO8X*	SOIC-8	Yes	Yes	-40°C to +85°C	Reel
CLC1015IST6X*	SOT23-6	Yes	Yes	-40°C to +85°C	Reel
CLC2005ISO8	SOIC-8	Yes	Yes	-40°C to +85°C	Rail
CLC2005ISO8X	SOIC-8	Yes	Yes	-40°C to +85°C	Reel
CLC2005IMP8X*	MSOP-8	Yes	Yes	-40°C to +85°C	Reel

Moisture sensitivity level for all parts is MSL-1. *Advance Information, contact CADEKA for availability.

Electrical Characteristics

T_A = 25°C, V_S = 5V, R_L = 2kΩ 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} = 0.2V step		3.6		ns
Settling Time to 0.1%	V _{OUT} = 2V step		40		ns
Overshoot	V _{OUT} = 0.2V 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/√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		μV/°C
Input Offset Current ⁽¹⁾		-0.8	0.1	0.8	μA
Input Bias Current ⁽¹⁾		-8	3	8	μA
Average Drift			7		nA/°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		MΩ
Input Capacitance			1.8		pF
Common Mode Input Range			-0.3 to 3.8		V
Common Mode Rejection Ratio ⁽¹⁾	DC, V _{CM} = 0V to V _S - 1.5	72	87		dB
Output Characteristics					
Output Voltage Swing	R _L = 150Ω	0.3	0.12 to 4.8	4.625	V
	R _L = 2kΩ		0.036 to 4.953		V
Output Current			±55		mA
Short-Circuit Output Current	V _{OUT} = V _S /2		±85		mA

NOTES:

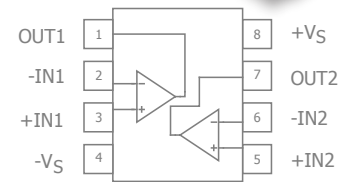
1) 100% tested at 25°C

Refer to the data sheet for complete product specifications

Available Package

CLC2005 SOIC-8

(not actual size)



Comlinear CLC1005, CLC1015, CLC2005 Low Cost, +2.7V to 5.5V, 260MHz Rail-to-Rail Amps Rev 2B

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

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