

COMLINEAR® CLC1605, CLC3605

Single and Triple, 1.5GHz Amplifiers



FEATURES

- 0.1dB gain flatness to 120MHz
- 0.01%/0.01° differential gain/phase
- 1.2GHz -3dB bandwidth at G = 2
- 700MHz large signal bandwidth
- 2,500V/μs slew rate
- 3.7nV/√Hz input voltage noise
- 120mA output current
- Triple offers disable
- Fully specified at 5V and ±5V supplies
- CLC1605: Pb-free SOT23-5
- CLC3605: Pb-free SOIC-16

APPLICATIONS

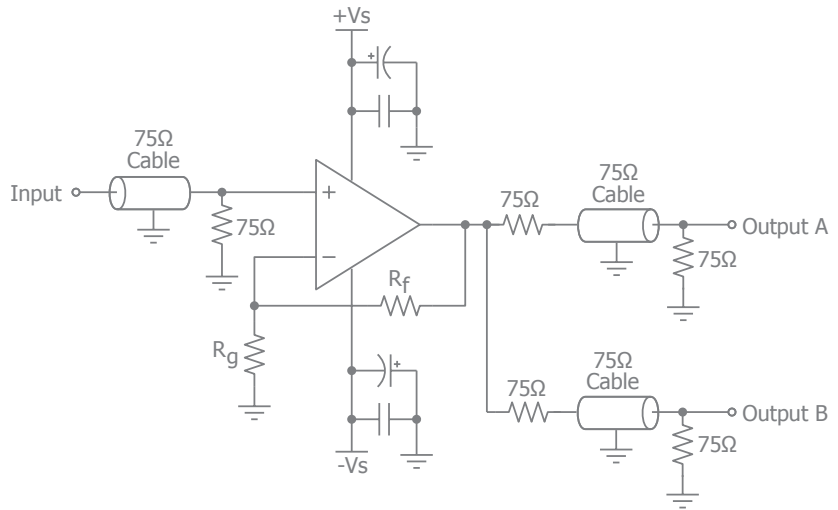
- RGB video line drivers
- High definition video driver
- Video switchers and routers
- ADC buffer
- Active filters
- High-speed instrumentation
- Wide dynamic range IF amp
- Radar/communication receivers

General Description

The COMLINEAR CLC1605 (single) and CLC3605 (triple) are high-performance, current feedback amplifiers that provide 1.5GHz unity gain bandwidth, ±0.1dB gain flatness to 120MHz, and 2,500V/μs slew rate. This high performance exceeds the requirements of high-definition television (HDTV) and other multimedia applications. These COMLINEAR high-performance amplifiers also provide ample output current to drive multiple video loads.

The COMLINEAR CLC1605 and CLC3605 are designed to operate from ±5V or +5V supplies. The CLC3605 offers a fast enable/disable feature to save power. While disabled, the outputs are in a high-impedance state to allow for multiplexing applications. The combination of high-speed, low-power, and excellent video performance make these amplifiers well suited for use in many general purpose, high-speed applications including high-definition video, imaging applications, and radar/communications receivers.

Typical Application - Driving Dual Video Loads



COMLINEAR CLC1605, CLC3605 Single and Triple, 1.5GHz Amplifiers Rev 1C

Ordering Information

Part Number	Package	Pb-Free	RoHS Compliant	Operating Temperature Range	Packaging Method
CLC1605IST6X	SOT23-5	Yes	Yes	-40°C to +85°C	Reel
CLC3605ISO16X	SOIC-16	Yes	Yes	-40°C to +85°C	Reel
CLC3605ISO16	SOIC-16	Yes	Yes	-40°C to +85°C	Rail

Moisture sensitivity level for all parts is MSL-1.

Electrical Characteristics

$T_A = 25^\circ\text{C}$, $V_S = \pm 5\text{V}$, $R_f = R_g = 330\Omega$, $R_L = 150\Omega$ to GND, $G = 2$; unless otherwise noted.

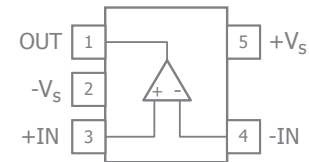
Parameter	Conditions	Min	Typ	Max	Units
Frequency Domain Response					
-3dB Bandwidth	$G = +1$, $R_f = 499\Omega$, $V_{OUT} = 0.5V_{pp}$		1500		MHz
-3dB Bandwidth	$G = +2$, $V_{OUT} = 0.5V_{pp}$		1200		MHz
Large Signal Bandwidth	$G = +2$, $V_{OUT} = 1V_{pp}$		700		MHz
0.1dB Gain Flatness	$G = +2$, $V_{OUT} = 2V_{pp}$		120		MHz
Time Domain Response					
Rise and Fall Time	$V_{OUT} = 1\text{V}$ step; (10% to 90%)		0.65		ns
Overshoot	$V_{OUT} = 0.2\text{V}$ step		1		%
Slew Rate	$V_{OUT} = 1\text{V}$ step		2500		V/ μs
Distortion/Noise Response					
2nd Harmonic Distortion	$V_{OUT} = 1V_{pp}$, 5MHz		-73		dBc
3rd Harmonic Distortion	$V_{OUT} = 1V_{pp}$, 5MHz		-85		dBc
Total Harmonic Distortion	$V_{OUT} = 1V_{pp}$, 5MHz, $R_L = 150\Omega$		72		dBc
Differential Gain	NTSC (3.58MHz), AC-coupled, $R_L = 150\Omega$		0.01		%
Differential Phase	NTSC (3.58MHz), AC-coupled, $R_L = 150\Omega$		0.01		$^\circ$
Third Order Intercept	$V_{OUT} = 2V_{pp}$, 10MHz		42		dBm
Spurious Free Dynamic Range	$V_{OUT} = 1V_{pp}$, 5MHz		73		dBc
Input Voltage Noise	> 1MHz		3.7		nV/ $\sqrt{\text{Hz}}$
Input Current Noise	> 1MHz, Inverting		20		pA/ $\sqrt{\text{Hz}}$
	> 1MHz, Non-Inverting		30		pA/ $\sqrt{\text{Hz}}$
Crosstalk	Channel-to-Channel 5MHz		60		dB
DC Performance					
Input Offset Voltage		-10	0	10	mV
Input Bias Current	Non-Inverting	-40	19	40	μA
	Inverting	-35	6	35	μA
Power Supply Rejection Ratio	DC	40	60		dB
Supply Current	Per Channel		12	18	mA
Disable Supply Current	Per Channel, CLC3605		0.1	0.3	mA
Input Characteristics					
Common Mode Input Range			± 4.0		V
Common Mode Rejection Ratio	DC	40	55		dB
Output Characteristics					
Output Voltage Swing	$R_L = 150\Omega$	± 3.0	± 3.8		V
Output Current			± 280		mA

Note:
Refer to the data sheet for complete product specifications.

Available Packages

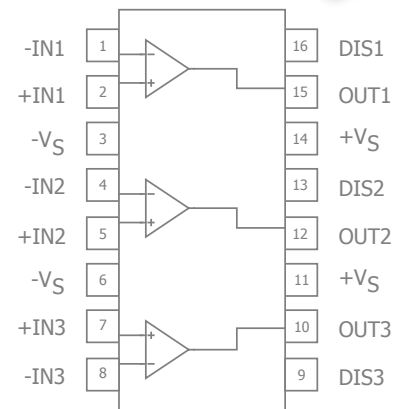
CLC1605 SOT23-5

(not actual size)



CLC3605 SOIC-16

(not actual size)



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

CADEKA Headquarters Loveland, Colorado

T: 970.663.5452

T: 877.663.5415 (toll free)

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