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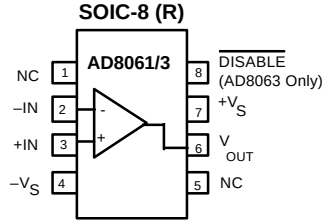
Low Cost, 275MHz Rail-to Rail Amplifiers

Advanced Data AD8061/62/63/64

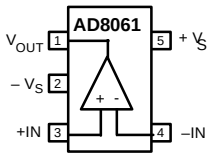
FEATURES
Low Cost
Single (AD8061)
Dual (AD8062)
Single with Disable (AD8063)
Quad (AD8064)
Rail-to-rail Output swing
High Speed
275MHz, –3 dB Bandwidth (G = +1)
900V/ms Slew Rate
Operates on 2.7V to 12V Supplies
Excellent Video Specs (R_L = 150Ω, G = +2)
Gain Flatness 0.1 dB to 30MHz
0.01% Differential Gain Error
0.05° Differential Phase Error
Low Power
7.2mA/Amplifier Typ Supply Current
AD8063 300µA when disabled
Small Packaging
AD8061 Available in SOIC-8 and SOT23-5
AD8062 Available in SOIC-8 and µSOIC
AD8063 Available in SOIC-8
AD8064 Available in SOIC-14 and TSSOP

CONNECTION DIAGRAMS
(TOP VIEW)

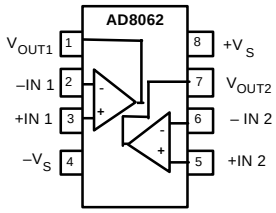
SOIC-8 (R)



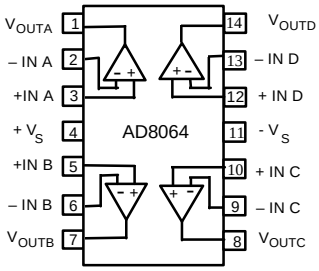
SOT-23-5 (RT)



SOIC-8 (R) and µSOIC (RM)



TSSOP-14 (RU-14)



APPLICATIONS
Imaging
Photodiode Pre-amp
Professional Cameras
Hand Sets
DVD / CD
Filters
A-to-D Driver

PRODUCT DESCRIPTION
The AD8061, AD8062, AD8063, and AD8064 are rail-to-rail out voltage feedback amplifiers offering ease of use and low cost. They have bandwidth and slew rate typically found in current feedback amplifiers. All have a wide input voltage range and output voltage swing making them easy to use on single supplies as low as 2.7V.

Despite being low cost, the AD8061, AD8062, AD8063, and AD8064 provide excellent overall performance. For video applications their differential gain and phase errors are 0.01% and 0.052° into a 150Ω load, along with 0.1dB flatness out to 30MHz. Additionally, they offer wide bandwidth to 275MHz along with 900V/µs slew rate.

The AD8061, AD8062, AD8063, and AD8064 offer low power of 7.2mA/amplifier, while being capable of delivering up to 85mA of load current. The AD8063 has a power down disable feature that reduces the supply current to 300µA. These features make the AD8063 ideal for portable and battery powered applications where size and power is critical.

Model	Operating Temperature Range	Package
AD8061AR	-40 to +85°C	8 Lead SOIC
AD8061ART	-40 to +85°C	5 Lead SOT23-5
AD8062AR	-40 to +85°C	8 Lead SOIC
AD8062ARM	-40 to +85°C	8 Lead µSOIC
AD8063AR	-40 to +85°C	8 Lead SOIC
AD8064AR	-40 to +85°C	14 Lead SOIC
AD8064ARU	-40 to +85°C	14 Lead TSSOP

Rev A 5/21/98

SPECIFICATIONS (@T_A = +25°C, V_S = +/-5V, R_L = 100Ω, R_F = 0Ω, Gain =+1, unless otherwise noted)

		AD8061/62/63/64			
Parameter	Conditions	Min	Typ	Max	Units
DYNAMIC PERFORMANCE					
–3 dB Bandwidth	G =+1, V_o= 0.2Vp-p		275		MHz
	G =-1,+2, V_o= 0.2Vp-p		115		MHz
	G =+1, V_o= 2Vp-p		TBD		MHz
Bandwidth for 0.1 dB Flatness	V_o= 0.2Vp-p,		30		MHz
Slew Rate	G =+1, V_o= 2V Step , R_L = 2kΩ		750		V/µs
	G =+1, V_o= 4V Step , R_L = 2kΩ		900		V/µs
Settling Time to 0.1%	G = +2, V_o = 2V Step		14		ns
NOISE/HARMONIC PERFORMANCE					
Total Harmonic Distortion	f_C = 5 MHz, V_o = 2V p-p, R_L = 1kΩ		-80		dBc
	f_C = 20 MHz, V_o = 2V p-p, R_L = 1kΩ		-50		dBc
Crosstalk, Output to Output	f = 5 MHz, G = +2		-60		dB
Input Voltage Noise	f = 100 kHz		8.5		nV/√Hz
Input Current Noise	f = 100 kHz		1		pA/√Hz
Differential Gain Error	NTSC, G = +2, R_L = 150 Ω		0.01		%
Differential Phase Error	NTSC, G = +2, R_L = 150 Ω		0.05		Degree
Third Order Intercept	f = 10 MHz		TBD		dBM
SFDR	F = 5 MHz		TBD		dB
DC PERFORMANCE					
Input Offset Voltage			1	6	mV
	T_{min} - T_{max}		TBD		mV
Input Offset Voltage Drift			3.5		µV/°C
Input Bias Current			0.1	1	µA
	T_{min} - T_{max}		TBD		µA
Input Offset Current			0.3		±µA
Open Loop Gain	V_o = ±2.5 V, R_L = 150Ω		88		dB
	V_o = ±2.5 V, R_L = 2kΩ		TBD		dB
INPUT CHARACTERISTICS					
Input Resistance			10		MΩ
Input Capacitance	+Input		2		pF
Input Common-Mode Voltage Range	R_L = 1kΩ		-5.3 to 3.2		V
Common-Mode Rejection Ratio	V_{CM} = ±2.5V		80		dB
OUTPUT CHARACTERISTICS					
Output Voltage Swing	R_L = 150 Ω		4.5 to -4.5		V
	R_L = 2kΩ		4.9 to -4.9		V
Output Current	V_o = +/- 4 V		85		mA
Capacitive Load Drive	30% over shoot		520		pF
POWER DOWN DISABLE					
Turn-on Time			TBD		ns
Turn-off Time			TBD		ns
Input Voltage - Disabled			TBD		V
Input Voltage - Enabled			TBD		V
POWER SUPPLY					
Operating Range		2.7	10	12	V
Quiescent Current per Amplifier			7.2		mA
Supply Current when Disabled			0.3		mA
Power Supply Rejection Ratio			-80		dB