ANALOG DEVICES

High Speed, Low Power Dual Operational Amplifier

AD826

FEATURES

High Speed:
- 50 MHz Unity Gain Bandwidth
- 350 V/μs Slew Rate
- 70 ns Settling Time to 0.01%

Low Power:
- 7.5 mA Max Power Supply Current Per Amp

Easy to Use:
- Drives Unlimited Capacitive Loads
- 50 mA Min Output Current Per Amplifier
- Specified for +5 V, ±5 V and ±15 V Operation
- 2.0 V p-p Output Swing into a 150 Ω Load (V_S = +5 V)

Good Video Performance
- Differential Gain & Phase Error of 0.07% & 0.11°

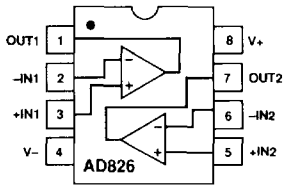
Excellent DC Performance:
- 2.0 mV Max Input Offset Voltage

APPLICATIONS

Unity Gain ADC/DAC Buffer
Cable Drivers
8- and 10-Bit Data Acquisition Systems
Video Line Driver
Active Filters

CONNECTION DIAGRAM

8-Pin Plastic Mini-DIP and SO Package



PRODUCT DESCRIPTION

The AD826 is a dual, high speed voltage feedback op amp. It is ideal for use in applications which require unity gain stability and high output drive capability, such as buffering and cable driving. The 50 MHz bandwidth and 350 V/μs slew rate make the AD826 useful in many high speed applications including: video, CATV, copiers, LCDs, image scanners and fax machines.

The AD826 features high output current drive capability of 50 mA min per amp, and is able to drive unlimited capacitive loads. With a low power supply current of 15 mA max for both amplifiers, the AD826 is a true general purpose operational amplifier.

The AD826 is ideal for power sensitive applications such as video cameras and portable instrumentation. The AD826 can operate from a single +5 V supply, while still achieving 25 MHz of bandwidth. Furthermore the AD826 is fully specified from a single +5 V to ±15 V power supplies.

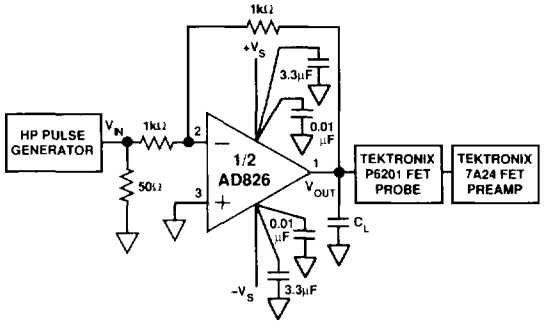
The AD826 excels as an ADC/DAC buffer or active filter in data acquisition systems and achieves a settling time of 70 ns to 0.01%, with a low input offset voltage of 2 mV max. The AD826 is available in small 8-pin plastic mini-DIP and SO packages.

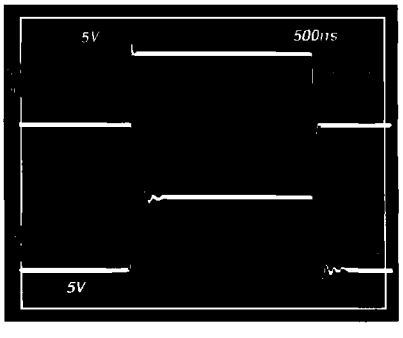
10

ORDERING GUIDE

Model	Temperature Range	Package Description	Package Option*
AD826AN	40° C to +85°C	8-Pin Plastic DIP	N-8
AD826AR	40°C to +85°C	8-Pin Plastic SOIC	R-8
AD826AR-REEL	40°C to +85°C	8-Pin Plastic SOIC	R-8

*For outline information see Package Information section.





Driving a Large Capacitive Load

AD826—SPECIFICATIONS (@ T_A = +25°C, unless otherwise noted)

Parameter	Conditions	V_S	Min	Typ	Max	Units
DYNAMIC PERFORMANCE						
Unity Gain Bandwidth		±5 V	30	35		MHz
		±15 V	45	50		MHz
		0, +5 V	25	29		MHz
Bandwidth for 0.1 dB Flatness	Gain = +1	±5 V	10	20		MHz
		±15 V	25	55		MHz
		0, +5 V	10	20		MHz
Full Power Bandwidth	V_{OUT} = 5 V p-p, R_{LOAD} = 500 Ω	±5 V		15.9		MHz
	V_{OUT} = 20 V p-p, R_{LOAD} = 1 kΩ	±15 V		5.6		MHz
Slew Rate	R_{LOAD} = 1 kΩ	±5 V	200	250		V/µs
	Gain = 1	±15 V	300	350		V/µs
		0, +5 V	150	200		V/µs
Settling Time to 0.1%	−2.5 V to +2.5 V	±5 V, ±15 V		45		ns
to 0.01%	2.5 V to +2.5 V	±5 V, ±15 V		70		ns
NOISE/HARMONIC PERFORMANCE						
Total Harmonic Distortion	F_C = 1 MHz	±15 V		78		dB
Input Voltage Noise	f = 10 kHz	±5 V, ±15 V		15		nV/√Hz
Input Current Noise	f = 10 kHz	±5 V, ±15 V		1.5		pA/√Hz
Differential Gain Error	NTSC	±15 V		0.07	0.1	%
(R_L = 150 Ω)	Gain = +2	±5 V		0.12	0.15	%
		0, +5 V		0.15		%
Differential Phase Error	NTSC	±15 V		0.11	0.15	Degrees
(R_L = 150 Ω)	Gain = +2	±5 V		0.12	0.15	Degrees
		0, +5 V		0.15		Degrees
DC PERFORMANCE						
Input Offset Voltage		±5 V to ±15 V		0.5	2	mV
Offset Drift				10		µV/°C
Input Bias Current		±5 V, ±15 V		3.3	6.6	µA
Input Offset Current		±5 V, ±15 V		25	200	nA
Offset Current Drift				0.3		nA/°C
Open-Loop Gain	V_{OUT} = ±2.5 V	±5 V				
	R_{LOAD} = 500 Ω		2	4		V/mV
	R_{LOAD} = 150 Ω		1.5	3		V/mV
	V_{OUT} = ±10 V	±15 V				
	R_{LOAD} = 1 kΩ		3.5	6		V/mV
	V_{OUT} = +7.5 V	±15 V				
	R_{LOAD} = 150 Ω (50 mA Output)		2	4		V/mV
INPUT CHARACTERISTICS						
Input Resistance				300		kΩ
Input Capacitance				1.5		pF
Input Common-Mode Voltage Range		±5 V	+3.8	+4.3		V
			2.7	3.4		V
		±15 V	+13	+14.3		V
			12	13.4		V
		0, +5 V	+3.8	+4.3		V
			+1.2	+0.9		V
Common-Mode Rejection Ratio	V_{CM} = ±2.5 V, T_{MIN}–T_{MAX}	+5 V	80	100		dB
	V_{CM} = +12 V	±15 V	86	120		dB
OUTPUT CHARACTERISTICS						
Output Voltage Swing	R_{LOAD} = 500 Ω	±5 V	3.3	3.8		±V
	R_{LOAD} = 150 Ω	±5 V	3.2	3.6		±V
	R_{LOAD} = 1 kΩ	±15 V	13.3	13.7		±V
	R_{LOAD} = 500 Ω	±15 V	12.8	13.4		±V
	R_{LOAD} = 500 Ω	0, +5 V	+1.5, +3.5			V
Output Current		±15 V	50			mA
		±5 V	50			mA
		0, +5 V	30			mA
Short-Circuit Current		±15 V		90		mA
Output Resistance	Open Loop			8		Ω
POWER SUPPLY						
Operating Range	Dual Supply		±2.5		±18	V
	Single Supply		+5		+36	V
Quiescent Current/Amplifier		±5 V		6.6	7.5	mA
Power Supply Rejection Ratio	V_S = ±5 V to ±15 V, T_{MIN} to T_{MAX}		75	86		dB

Specifications subject to change without notice.