

Digital-to-Analog Converters (Continued)

Multiple DACs, Voltage Output

Mfr.'s Type		Resolution in Bits	Settling Time (µs Typ.)	Linearity Error (LSB @ TA = +25°C)	Bus Interface Bits†	Reference Voltage Int./Ext. (M)‡	Comments
PDIP	SOIC						
AD7226KN	—	8	3.000	±2.000	8, µP	2-12.5 V, Ext.	CMOS, No User Trims, Specified with Single or Dual Supplies 4 Channel Digital Potentiometer 4 Channel Digital Potentiometer CMOS, MDAC, Byte Load, Double Buffered CMOS, MDAC, Byte Load, Double Buffered Faster Interface, 12 V and 15 V AD7245
AD8403AN10	—	8	25.000	±1.500	Serial	Ext.	
AD8403AN100	AD8403AR100	8	25.000	±1.500	Serial	Ext.	
AD7237JN	—	12	5.000	±1.000	8, µP	Ext. (M)	
AD7237KN	—	12	5.000	±1/2	8, µP	Ext. (M)	
AD7245AAN	—	12	10.000 Max.	±1.000	12, µP	5 V, Int.	

Multiple DACs, Current Output

AD7528JN	—	8	0.180	±1.000	8, µP	Ext. (M)	CMOS, +5 V to +15 V Operation, TTL Compatible at VDD = +5 V CMOS, +12 V to +15 V Operation, TTL Compatible at VDD = 12 V to 15 V Single +5 V Supply, Separate References CMOS, Byte Load, Double Buffered CMOS, Double Buffered Inputs, Byte Load
AD7628JN	—	8	0.350	±1/2	8, µP	Ext. (M)	
—	AD7568BS*	12	0.200	±1/2	Serial, µP	Ext. (M)	
AD7537JN	—	12	1.500 Max.	±1.000	8, µP	Ext. (M)	
DAC8248FP	—	12	1.000 Max.	±1.000	8, µP	Ext. (M)	

*PQFP package type. †This column lists the data format for the bus with "µP" indicating microprocessor capability — i.e., for a 12-bit converter 8/12, µP indicates that the data can be formatted for an 8-bit bus or can be in parallel (12 bits) and is microprocessor compatible. ‡Ext. indicates external reference with the range of voltages listed where applicable. Ext. (M) indicates external reference with multiplying capability. Int. indicates reference is internal. A voltage value is given if the reference is pinned out.

Digital Potentiometers

Mfr.'s Type		No. of Potentiometers	Resolution in Bits	Nominal Resistance (kΩ Typ.)	DNL, Differential Linearity Error, LSB Max. TA=+Operating Range	Bus Interface Bits	Input Voltage Range	VDD Supply Voltage	Comments
PDIP	SOIC								
AD8400AN1	AD8400AR1	1	1 in 256	1	1	Serial, µP	0 to VDD	3 V to +5 V	Digitally Controlled Potentiometer Digitally Controlled Potentiometer Digitally Controlled Potentiometer Digitally Controlled Potentiometer Quad Digitally Controlled Potentiometer Quad Digitally Controlled Potentiometer Quad Digitally Controlled Potentiometer
—	AD8400AR10	1	1 in 256	10	1	Serial, µP	0 to VDD	3 V to +5 V	
AD8400AN50	AD8400AR50	1	1 in 256	50	1	Serial, µP	0 to VDD	3 V to +5 V	
AD8400AN100	—	1	1 in 256	100	1	Serial, µP	0 to VDD	3 V to +5 V	
AD8403AN1	AD8403AR1	4	1 in 256	1	1	Serial, µP	0 to VDD	3 V to +5 V	
AD8403AN50	—	4	1 in 256	50	1	Serial, µP	0 to VDD	3 V to +5 V	
AD8403AN100	—	4	1 in 256	100	1	Serial, µP	0 to VDD	3 V to +5 V	

Analog Switches and Multiplexers

Analog Devices offers a complete line of monolithic analog multiplexers and switches which are well suited for a wide range of applications including data acquisition, process control, instrumentation, video systems and telephone systems. Solid-state analog multiplexers and switches provide the ability to control and select a specified transmission path for an analog signal. In selecting analog multiplexers and switches attention must be paid to several key specifications which affect system performance, including ON Resistance (Ron) and Analog Input Leakage Current (Isoff).

Analog Switches

Mfr.'s Type		Function	Analog Input Leakage Current (nA Max.)	ON Resistance (Ohms Max.)	Latched	Comments
PDIP	SOIC					
ADG417BN	—	Single SPST	±0.10	25	No	Single Switch Precision Quad SPDT Analog Switch DI LC2MOS Quad DI LC2MOS Quad LC2MOS Quad High Speed LC2MOS Quad LC2MOS Quad Quad Analog Switch
ADG333ABN	—	Quad SPDT	±0.25	45	No	
ADG431BN	—	Quad SPST	±0.25	24	No	
ADG432BN	—	Quad SPST	±0.25	24	No	
ADG201HSJN	—	Quad SPST	1.00	50	No	
ADG201AKN	—	Quad SPST	2.00	90	No	
ADG212AKN	ADG212AKR	Quad SPST	5.00	115	No	
SW06GP	—	Quad SPST JFET	60.00	175	No	

Multiplexers

ADG408BN	ADG408BR	8:1 Mux	±0.50	100	No	LC2MOS 8 Channel Analog Multiplexer Fault Protected Superior Second Source to DG509A With Overvoltage and Power Supply Loss Protection LC2MOS 16 Channel Analog Multiplier Fully Buffered Analog Inputs and Outputs
ADG508FBN	—	8:1 Mux	1.00	300	No	
ADG509AKN	—	Diff. 4:1	1.00	300	No	
MUX08FP	—	8:1 JFET Mux	2.00	400	No	
ADG406BN	—	16:1 Mux	±20.00	80	No	
—	AD8180AR	750 MHz Buffered 2:1 Mux	—	—	No	

Isolation Amplifiers

AD202/AD204 Miniature Input Isolation Amplifier

AD202 — Single-Channel, AD204 — Multi-Channel.

Mfr.'s Type	Peak Volt Iso (V pk)	Gain Range (V/V)	Gain Nonlin. (% Max.)	Freq. Resp. (kHz)
AD202JN	1000	1-100	±0.050	2.0
AD202KN	2000	1-100	±0.025	2.0
AD202KY	2000	1-100	±0.025	2.0
AD204KY	2000	1-100	±0.025	5.0

AD210 Precision, 3-Port Input and Output Isolation Amplifier

Input, output power ports. Isolated Power: ±15 V at 5 mA.

AD210AN	3500	1-100	±0.025	20.0
AD210BN	2500	1-100	±0.012	20.0
AD210JN	1500	1-100	±0.012	20.0

Sample/Track-and-Hold Amplifiers

A sample/track-and-hold amplifier (SHA/THA) is a device that samples an analog input signal then holds the instantaneous value upon the command of a logic control signal. This device is basically an analog memory where a capacitor serves as the storage element.

Popular applications utilizing the sample-and-hold function include data acquisition in which the SHA is used to capture the last instantaneous sampled analog input voltage prior to a conversion and hold this sample with minimal degradation during the conversion process. SHAs/THAs are also popular in signal processing applications using ADCs with a subranging or successive approximation architecture.

Significant improvement in dynamic performance can be made by placing fast SHAs with low aperture jitter ahead of flash ADCs. SHAs are also useful in applications including D/A deglitchers, simultaneous sampling systems, peak detectors, pulse stretchers, delay lines and data distribution systems.

Mfr.'s Type	Nonlinearity (% FS Max.)	Acquisition Time (to 0.01%)	Aperture Time (ns Typ.)	Aperture Jitter Typ.	Droop Rate (µV/µs Max.)
AD585AQ	0.300	3.0 µs max.	35	0.5 ns	1 mV/ms
AD684JQ*	±0.003	1.0 µs max.	–25	50.0 ps	1
AD781JN	±0.003	700.0 ns max.	–25	50.0 ps	1
AD783JQ	±0.005 typ.	375.0 ns max.	15	20.0 ps	1 µV/µs
AD783JR	±0.005 typ.	375.0 ns max.	15	20.0 ps	1 µV/µs

*Quad Function.

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