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
AD8403AN10	—	8	25.000	±1.500	Serial	Ext.	4 Channel Digital Potentiometer
AD8403AN100	AD8403AR100	8	25.000	±1.500	Serial	Ext.	4 Channel Digital Potentiometer
AD7237JN	—	12	5.000	±1.000	8, µP	Ext. (M)	CMOS, MDAC, Byte Load, Double Buffered
AD7237KN	—	12	5.000	±½	8, µP	Ext. (M)	CMOS, MDAC, Byte Load, Double Buffered
AD7245AAN	—	12	10.000 Max.	±1.000	12, µP	5 V, Int.	Faster Interface, 12 V and 15 V AD7245

Multiple DACs, Current Output

AD7528JN	—	8	0.180	±1.000	8, µP	Ext. (M)	CMOS, +5 V to +15 V Operation, TTL Compatible at V_{DD} = +5 V
AD7628KN	—	8	0.350	±½	8, µP	Ext. (M)	CMOS, +12 V to +15 V Operation, TTL Compatible at V_{DD} = 12 V to 15 V
—	AD7568BS*	12	0.200	±½	Serial, µP	Ext. (M)	Single +5 V Supply, Separate References
AD7537JN	—	12	1.500 Max.	±1.000	8, µP	Ext. (M)	CMOS, Byte Load, Double Buffered
DAC8248FP	—	12	1.000 Max.	±1.000	8, µP	Ext. (M)	CMOS, Double Buffered Inputs, Byte Load

*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	V_{DD} Supply Voltage	Comments
PDIP	SOIC								
AD8400AN1	AD8400AR1	1	1 in 256	1	1	Serial, µP	0 to V_{DD}	3 V to +5 V	Digitally Controlled Potentiometer
—	AD8400AR10	1	1 in 256	10	1	Serial, µP	0 to V_{DD}	3 V to +5 V	Digitally Controlled Potentiometer
AD8400AN50	AD8400AR50	1	1 in 256	50	1	Serial, µP	0 to V_{DD}	3 V to +5 V	Digitally Controlled Potentiometer
AD8400AN100	—	1	1 in 256	100	1	Serial, µP	0 to V_{DD}	3 V to +5 V	Digitally Controlled Potentiometer
AD8403AN1	AD8403AR1	4	1 in 256	1	1	Serial, µP	0 to V_{DD}	3 V to +5 V	Quad Digitally Controlled Potentiometer
AD8403AN50	—	4	1 in 256	50	1	Serial, µP	0 to V_{DD}	3 V to +5 V	Quad Digitally Controlled Potentiometer
AD8403AN100	—	4	1 in 256	100	1	Serial, µP	0 to V_{DD}	3 V to +5 V	Quad Digitally Controlled Potentiometer

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
ADG333ABN	—	Quad SPDT	±0.25	45	No	Precision Quad SPDT Analog Switch
ADG431BN	—	Quad SPST	±0.25	24	No	DI LC2MOS Quad
ADG432BN	—	Quad SPST	±0.25	24	No	DI LC2MOS Quad
ADG201HSJN	—	Quad SPST	1.00	50	No	LC2MOS Quad High Speed
ADG201AKN	—	Quad SPST	2.00	90	No	LC2MOS Quad
ADG212AKN	ADG212AKR	Quad SPST	5.00	115	No	LC2MOS Quad
SW06GP	—	Quad SPST JFET	60.00	175	No	Quad Analog Switch

Multiplexers

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

13

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.