

Driver Amplifiers for SAR ADCs, Single-Ended Input

Analog-to-Digital Converters							Driver Amplifiers								
Part Number	Max Throughput (MSPS)	Bipolar/ Unipolar Supplies	ENOB		Input Channels	Input Range (V p-p)	Signal Frequency 0 kHz to 20 kHz			Signal Frequency 0 kHz to 100 kHz			Signal Frequency (>100 kHz)		
			Bits	Max Input Signal Frequency for Highest ENOB (kHz)			Supply Current (<2 mA)	Supply Voltage (≤5 V)	Supply Voltage (>5 V)	Low Bias Current (≤100 pA)	Supply Current (<2 mA)	Supply Voltage (≤5 V)	Supply Voltage (>5 V)	Supply Voltage (>5 V)	
16 Bits															
AD7985 ¹	2.5	Unipolar	14.4	80	1	2.5 to 5	ADA4610 ADA4075 ADA4084	AD8655/AD8656 AD8615/AD8616/AD8618	ADA4627 ADA4610 ADA4075	ADA4627 ADA4610 AD8655/AD8656	ADA4841	ADA4841 ADA4897 AD8027	ADA4841 ADA4899 AD8021		
AD7983	1.33	Unipolar	14.9	20	1	3 to 5									
AD7980	1	Unipolar	14.9	50	1	3 to 5									
AD7671	1	Bipolar	14.7	300	1	2.5 to 3.4									
AD7655	1	Unipolar	14	50	4	5									
AD7988-5	0.5	Unipolar	14.9	50	1	2.5 to 5									
AD7682/ AD7689	0.25	Unipolar	15.2	30	4/8	2.5 to 4									
AD7610	0.25	Bipolar	15.2	50	1	±2.5 to ±10									
AD7685 ²	0.25	Unipolar	15.2	50	1	2.5 to 5									
AD7988-1 ³	0.1	Unipolar	14.9	30	1	2.5 to 5									
12 Bits															
AD7276	3	Unipolar	11	1000	1	3.6	ADA4084 AD8622/AD8624 AD8657	AD8655/AD8656 AD8615/AD8616/AD8618 ADA4528	ADA4627 ADA4075 ADA4084	ADA4627 ADA4610 AD8601/AD8602/AD8604	ADA4841 AD8031	ADA4897 ADA4841 AD8031	ADA4841 ADA4899 ADA4857	ADA4899 ADA4857 AD8027	
AD7266 ⁴	2	Unipolar	11.3	1000	12	2.5 to 5					ADA4841 AD8031/AD8032	ADA4896 ADA4897 ADA4841 ADA4891		ADA4896 ADA4897 ADA4841 AD8031/AD8032	ADA4896 ADA4897 ADA4899
AD7298	1	Unipolar	11.5	100	8	2.5									
AD7091R ⁵	1	Unipolar	11.3	10	1	2.5 to 5									
AD7490	1	Unipolar	11.4	60	16	2.5 to 5									
AD7476 ⁶	1	Unipolar	11.3	200	1	2.5 to 5									
AD7928	1	Unipolar	11.3	200	8	2.5 to 5									
AD7923	0.2	Unipolar	11.3	30	4	2.5 to 5									

Learn more about designing with SAR ADCs and driver amplifiers using Circuits from the Lab® reference circuits: www.analog.com/circuits.

¹CN-0260 Circuit Note, Oversampled SAR ADC with PGA Achieving Greater than 125 dB Dynamic Range: www.analog.com/CN0260

²CN-0194 Circuit Note, Galvanically Isolated, 2-Channel, 16-Bit, Simultaneous Sampling, Daisy-Chain Data Acquisition System: www.analog.com/CN0194

³CN-0255 Circuit Note, A Complete Single-Supply, 16-Bit, 100 kSPS PulSAR ADC System Dissipates 8 mW: www.analog.com/CN0255

⁴CN-0187 Circuit Note, Crest Factor, Peak, and RMS RF Power Measurement Circuit Optimized for High Speed, Low Power, and Single 3.3 V Supply: www.analog.com/CN0187

⁵CN-0247 Circuit Note, 12-Bit, 1 MSPS SAR ADC and Driver with Total Power Dissipation Less than 5 mW: www.analog.com/CN0247

⁶CN-0165 Circuit Note, Power-Off Protected Data Acquisition Signal Chain Using Fault-Protected CMOS Switches: www.analog.com/CN0165

Other resources:

More about ADCs: www.analog.com/ADC

More about amplifiers: www.analog.com/amplifiers-linears

ADC driver website: www.analog.com/adcdriers



Driver Amplifiers for SAR ADCs, Differential Input

Analog-to-Digital Converters							Driver Amplifiers										
Part Number	Max Throughput (MSPS)	Bipolar/Unipolar Supplies	ENOB		Input Channels	Input Range (V p-p)	Signal Frequency 0 kHz to 20 kHz				Signal Frequency 0 kHz to 100 kHz			Signal Frequency (>100 kHz)			
			Bits	Max Input Signal Frequency for Highest ENOB (kHz)			Supply Current (<2 mA)	Supply Voltage (≤5 V)	Supply Voltage (>5 V)	Low Bias Current (≤100 pA)	Fully Differential	Supply Current (<2 mA)	Supply Voltage (≤5 V)	Supply Voltage (>5 V)	Fully Differential	Supply Voltage (>5 V)	Fully Differential
18 Bits																	
AD7986	2	Unipolar	15.6	100	1	4	ADA4610 ADA4075 ADA4084	ADA4841 ADA4896/ADA4897 AD8027	ADA4627 ADA4610 ADA4075	ADA4627 ADA4610	ADA4941 ADA4932	ADA4841	ADA4841 ADA4896 ADA4897 AD8027	ADA4841 ADA4899 ADA4857	ADA4932		
AD7984	1.33	Unipolar	16	20	1	3 to 5					ADA4941 ADA4932 AD8475	ADA4841 ADA4940		ADA4932 ADA4940			
AD7982 ^{1,2}	1	Unipolar	15.8	10	1	2.5 to 5					ADA4941 ADA4932						
AD7691 ³	0.25	Unipolar	16.6	25	1	2.5 to 5											
16 Bits																	
AD7626 ⁴	10	Unipolar	14.8	500	1	4	ADA4610 ADA4075 ADA4084	AD8655/AD8656 AD8615/AD8616/AD8618	ADA4627 ADA4610 ADA4075	ADA4627 ADA4610 AD8655/AD8656	ADA4932 AD8275 AD8475	ADA4841	ADA4841 ADA4896 ADA4897 AD8027	ADA4841 ADA4899 ADA4857	ADA4932 AD8475	ADA4899 ADA4857 AD8027	ADA4932
AD7693	0.5	Unipolar	15.7	20	1	5					ADA4932 AD8275 AD8475	ADA4841		ADA4932 AD8475			
AD7688	0.5	Unipolar	15.5	30	1	5											
12 Bits																	
AD7266 ⁵	2	Unipolar	11.3	1000	6	2.5 to 5	ADA4084 AD8622/AD8624 AD8657	AD8655/AD8656 AD8615/AD8616/AD8618 ADA4528	ADA4627 ADA4075 ADA4084	ADA4627 ADA4610 AD8601/AD8602/AD8604	ADA4932 AD8275 AD8475	ADA4841 AD8031/AD8032	ADA4841 ADA4896 ADA4897 ADA4891	ADA4841 ADA4899 ADA4857	ADA4932 AD8475	ADA4896 ADA4897 ADA4899	ADA4932 AD8475

Learn more about designing with SAR ADCs and driver amplifiers using Circuits from the Lab reference circuits: www.analog.com/circuits.

¹CN-0237 Circuit Note, *Ultralow Power, 18-Bit, Differential PulSAR ADC Driver*: www.analog.com/CN0237

²CN-0180 Circuit Note, *Precision, Low Power, Single-Supply, Fully Integrated Differential ADC Driver for Industrial-Level Signals*: www.analog.com/CN0180

³CN-0261 Circuit Note, *Optimizing AC Performance in an 18-Bit, 250 kSPS, PulSAR Measurement Circuit*: www.analog.com/CN0261

⁴CN-0105 Circuit Note, *Single-Ended-to-Differential High Speed Drive Circuit for 16-Bit, 10 MSPS AD7626 ADC*: www.analog.com/CN0105

⁵CN-0187 Circuit Note, *Crest Factor, Peak, and RMS RF Power Measurement Circuit Optimized for High Speed, Low Power, and Single 3.3 V Supply*: www.analog.com/CN0187

Design tool:

Download the free ADI DiffAmpCalc™ for designing differential amplifier circuits: www.analog.com/diffampcalc
(Automate time-consuming calculations to determine gain, termination resistors, power dissipation, noise output, and input common-mode voltage range)

Other resources:

More about ADCs: www.analog.com/ADC

More about amplifiers: www.analog.com/amplifiers-linears

ADC driver website: www.analog.com/adcdriers