SPECIFICATION: +5V

At T_A = −40°C to +85°C, +V_{CC} = +5V, V_{REF} = +5V, f_{SAMPLE} = 200kHz, and f_{CLK} = 16 • f_{SAMPLE} = 3.2MHz, unless otherwise noted.

PARAMETER	CONDITIONS	ADS7844E, N			ADS7844EB, NB			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
ANALOG INPUT								
Full-Scale Input Span	Positive Input - Negative Input	0		V_{REF}	∗		∗	V
Absolute Input Range	Positive Input	−0.2		+V_{CC} +0.2	∗		∗	V
	Negative Input	−0.2		+1.25	∗		∗	V
Capacitance			25			∗		pF
Leakage Current			±1			∗		µA
SYSTEM PERFORMANCE								
Resolution			12			∗		Bits
No Missing Codes		12			∗			Bits
Integral Linearity Error				±2			±1	LSB[(1)]
Differential Linearity Error			±0.8			±0.5	±1	LSB
Offset Error				±3			∗	LSB
Offset Error Match			0.15	1.0		∗	∗	LSB
Gain Error				±4			±3	LSB
Gain Error Match			0.1	1.0		∗	∗	LSB
Noise			30			∗		µVrms
Power Supply Rejection			70			∗		dB
SAMPLING DYNAMICS								
Conversion Time				12			∗	Clk Cycles
Acquisition Time		3			∗			Clk Cycles
Throughput Rate				200			∗	kHz
Multiplexer Settling Time			500			∗		ns
Aperture Delay			30			∗		ns
Aperture Jitter			100			∗		ps
DYNAMIC CHARACTERISTICS								
Total Harmonic Distortion[(2)]	V_{IN} = 5V_{PP} at 10kHz		−76			−78		dB
Signal-to-(Noise + Distortion)	V_{IN} = 5V_{PP} at 10kHz		71			72		dB
Spurious Free Dynamic Range	V_{IN} = 5V_{PP} at 10kHz		76			78		dB
Channel-to-Channel Isolation	V_{IN} = 5V_{PP} at 50kHz		120			∗		dB
REFERENCE INPUT								
Range		0.1		+V_{CC}	∗		∗	V
Resistance	DCLK Static		5			∗		GΩ
Input Current			45	100		∗	∗	µA
	f_{SAMPLE} = 12.5kHz		2.5			∗		µA
	DCLK Static		0.001	3		∗	∗	µA
DIGITAL INPUT/OUTPUT								
Logic Family			CMOS			∗		
Logic Levels								
V_{IH}	| I_{IH} | ≤ +5µA	3.0		5.5	∗		∗	V
V_{IL}	| I_{IL} | ≤ +5µA	−0.3		+0.8	∗		∗	V
V_{OH}	I_{OH} = −250µA	3.5			∗			V
V_{OL}	I_{OL} = 250µA			0.4			∗	V
Data Format			Straight Binary			∗		
POWER SUPPLY REQUIREMENTS								
+V_{CC}	Specified Performance	4.75		5.25	∗		∗	V
Quiescent Current			550	900			∗	µA
	f_{SAMPLE} = 12.5kHz		300			∗		µA
	Power-Down Mode[(3)], $\overline{CS}$ = +V_{CC}			3			∗	µA
Power Dissipation				4.5			∗	mW
TEMPERATURE RANGE								
Specified Performance		−40		+85	∗		∗	°C

∗ Same specifications as ADS7844E, ADS7844N.

NOTE: (1) LSB means Least Significant Bit. With V_{REF} equal to +5.0V, one LSB is 1.22mV. (2) First five harmonics of the test frequency. (3) Auto power-down mode (PD1 = PD0 = 0) active or $\overline{SHDN}$ = GND.

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