AMERICAN MICROSYSTEMS, INC.

DAC/ADC

ADC08R04

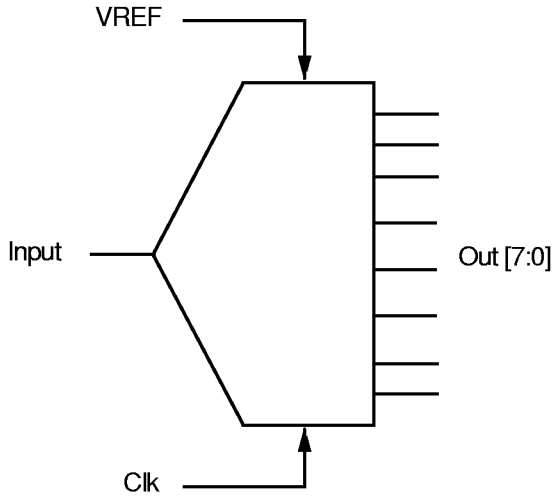
+4.5V to +5.5V, 8-Bit 100 MSPS Flash ADC

AMI 0.6 micron CMOS

Features

- The converter has been realized as a single 8-Bit Flash ADC.
- The converter is operated by one single power supply.
- Guaranteed monotonic by design.
- Large voltage reference range.
- Small layout area (2750 mil^2).
- Speeds greater than 100 MSPS are possible with increased bias current.

Functional Block Diagram



Notes: AVDD (power)
AVSS (ground)
IBIAS (bias current input)
VREF (reference voltage input)
VIN (analog input)
CLK (clock input)
D[7:0] (digital output)

General Description

The ADC08R04 is a single, 8-bit, fully decoded, flash ADC. The part operates from a single +4.5 V to +5.5 V supply. The converter is capable of word rates of 100 MSPS. The maximum clock rate is 100 MHz.

Applications

- Measurement circuits
- High-speed data conversion
- High-speed LAN/WAN
- Image processing

Product Highlights

- Single supply operation. This converter operates from a single +4.5 V to +5.5 V supply.
- Small layout area.
- No trimming required or additional support circuitry.

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Electrical Characteristics

PARAMETER	TEMP	MIN	TYP	MAX	UNITS
RESOLUTION			8		Bits
DC ACCURACY					
Differential Linearity	+25°C			+/- 0.5	LSB
Integral Linearity	+25°C			+/- 1.0	LSB
No Missing Codes	Full		Guaranteed		LSB
ANALOG INPUT					
Input Bias Current		24.0	30.0	36.0	uA
Input Resistance			100.0		meg Ohm
Input Capacitance			TBD		pF
Large Signal Bandwidth			TBD		Hz
Input Slew Rate			TBD		V/ms
REFERENCE INPUT					
Reference Ladder Resistance	+25°C		5.0		k Ohm
Reference Input Bandwidth	+25°C		TBD		MHz
DYNAMIC PERFORMANCE					
AC LINEARITY					
Effective Number of Bits (ENOB)			8		Bits
Conversion Rate				100	MSPS
Output Delay				10	ns
Output Rise Time	+25°C		TBD		ns
Output Fall Time	+25°C		TBD		ns
Signal-to-Noise and Distortion Ratio (S/N+D)					
f_{IN} = X.X MHz			TBD		dB
f_{IN} = X.X MHz			TBD		dB
f_{IN} = X.X MHz			TBD		dB
Total Harmonic Distortion (THD)					
f_{IN} = X.X MHz			TBD		dB
f_{IN} = X.X MHz			TBD		dB
f_{IN} = X.X MHz			TBD		dB
Spurious Free Dynamic Range			TBD		dB
POWER SUPPLY					
Operating Voltage					
V_{DD}		4.5	5	5.5	Volts
V_{REF}		2.0		5.0	V
Operating Current		25.6		41.6	m A
I_{DD}					
POWER CONSUMPTION				210	mW
Operating Mode					

Absolute Maximum Ratings

PARAMETERS		
Supply Voltage V_{DD}	-0.3 to 6.0	V
Analog Input Voltage	5.5	V
Reference Input Voltage	5.5	V
Digital Output Current	TBD	mA
Storage Temperature Range	-55 to 125	°C

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