

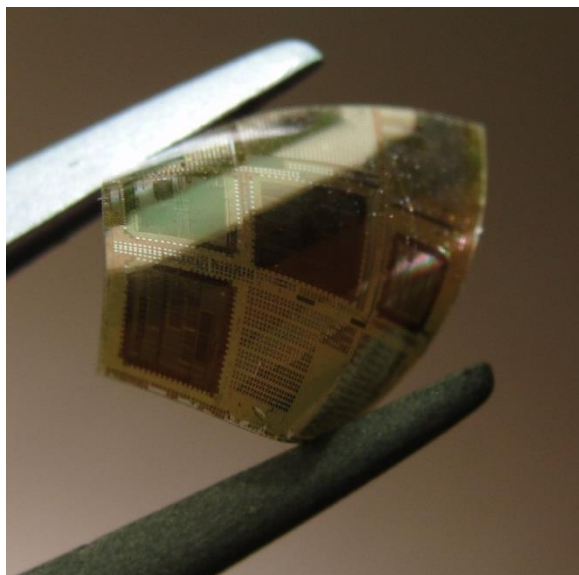
FleX-ADC™ Analog-to-Digital Converter

8-channel, 8-bit SAR ADC with I²C Interface

Preliminary

Overview

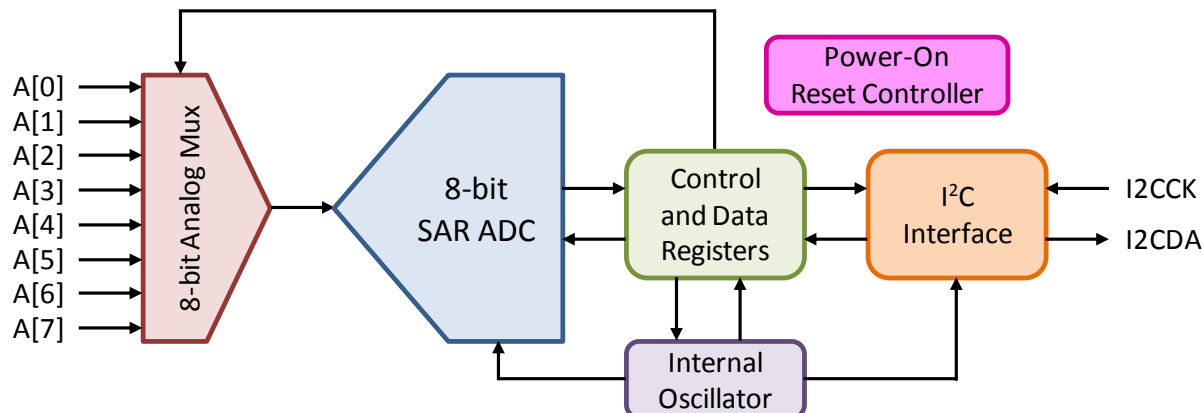
The FleX-ADC is the industry's first physically flexible analog-to-digital converter (ADC) in an ultra-thin, flexible form factor. This FleX-ADC is fabricated in the TowerJazz CS18 180nm PD-SOI CMOS process and converted to a flexible form factor using the American Semiconductor FleX™ Silicon-on-Polymer process. FleX Silicon-on-Polymer is demonstrated in the figure at right. Initial testing supports applications with 5mm radius of curvatures and is not considered the limit of the device capability. The 8-bit successive approximation FleX-ADC has 8 analog input channels and operates at 2.5V. Control and data communication is supported through a 2-wire I²C compatible interface. The FleX-ADC polymer substrates are customizable based on application requirements with standard polymer thicknesses of 14um or 50um.



Features

Operating Voltage	2.5V
Analog Input Channels	8
Resolution	8 bits
Operating Frequency	1MHz
Internal Oscillator	Yes; 1MHz
Conversion rate	100ksps
Communication	2-wire I ² C™
Conversion Modes	Single, Continuous, Scan
Channel Select	User Configurable

Block Diagram



Physical Specifications

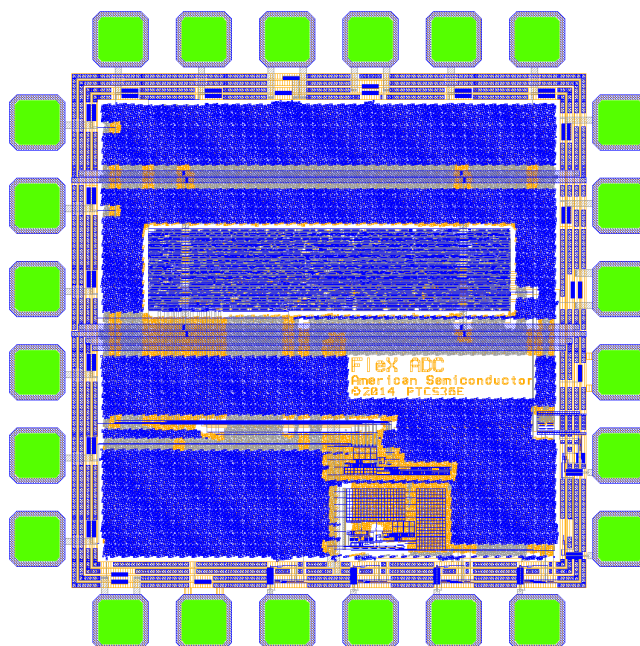
Die Size	2.4mm X 2.4mm
Pin Count	24
Pad Opening	160um X 160um
Pad Pitch	300um
Thickness	24-60um; based on polymer
Flexible	Yes
Conformal	Yes
Mass	0.23mg

Process Details

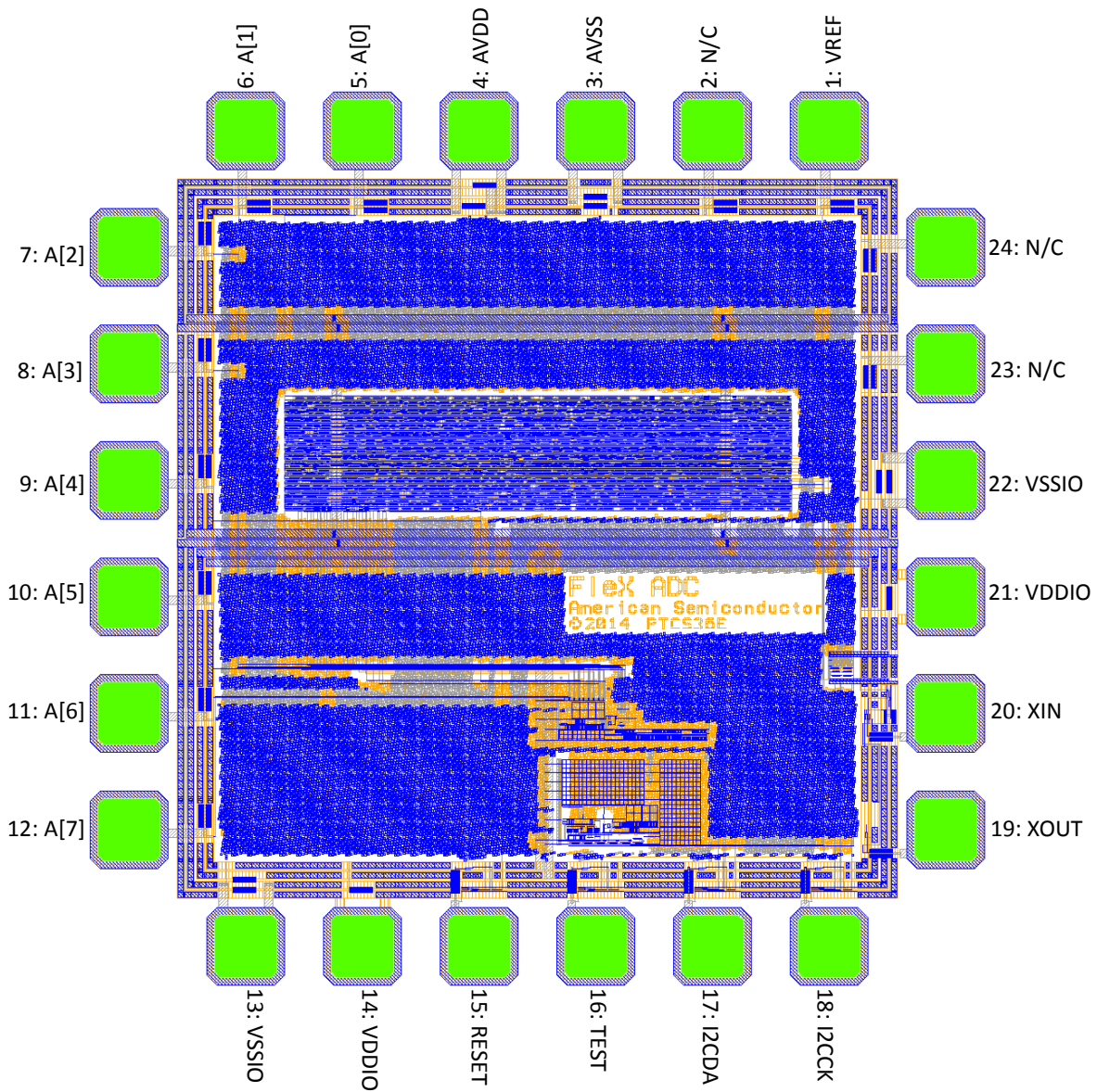
Technology	TowerJazz 180nm PD-SOI
Interconnect	4-level Aluminum
Flexibility	FleX Silicon-on-Polymer

Pin List

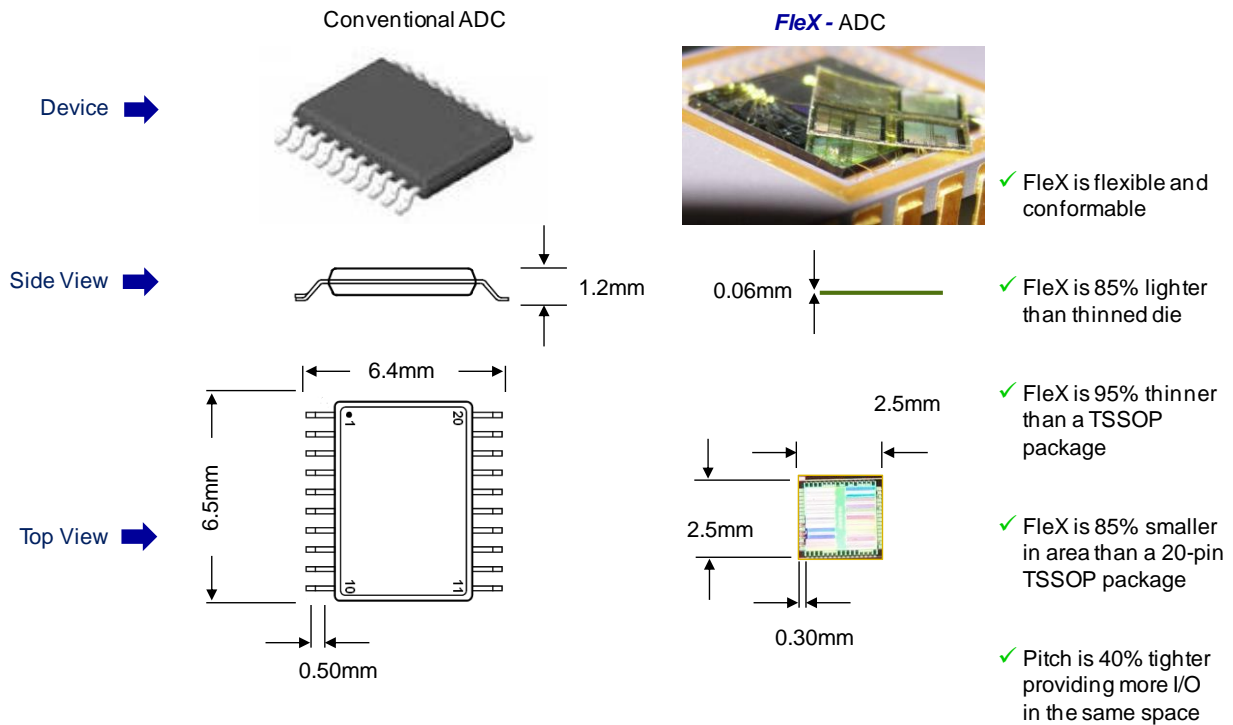
Pin Name	Function
A[7:0]	Analog Inputs [7:0]
AVDD	Analog Power
AVSS	Analog Ground
I2CCK	I ² C Clock Input
I2CDA	I ² C Data Input/Output
RESET	Reset Input
TEST	Alternate Test Output
VDDIO	Digital and I/O Power
VREF	Analog Voltage Reference
VSSIO	Digital and I/O Ground
XIN	Crystal / Clock Input
XOUT	Crystal Output
N/C	No Connect



Pin Diagram



Form Factor Comparison



Demonstration Samples

Samples will be available for customer evaluation in 2014.

Contact Info

Email: sales@americansemi.com
 Phone: 208.336.2773

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