

Technology

- UMC 0.18
- 1.8V/3.3V supply
- Temp range: -40 .. 125°C
- No external components
- Radiation Hard: 100kRad TID, LET up to 60 MeV.cm²/mg

Deliverables

- Datasheet
- Real number model (VerilogAMS-wreal)
- Encrypted Spectre netlist
- Integration guidelines

Status

- Design

13 bit, 1MSps Rad Hardened ADC

Specifications

The table below lists the most important specifications. The ADC is designed to operate with a myriad of input configuration: single-ended, differential, multiplexed, ... More specific information on the ADC or signal conditioning blocks (instrumentation amps, PGA) at the ADC input is available on request.

Spec	Unit	Min	Typ	Max	Comment
Area	mm ²	-	-	0.425	(includes sample and hold)
Temperature	°C	-20	-	110	Optimal performance (relaxed performance in -40...125°C range)
Supply adc core	V	1.8	1.9	1.98	
Supply S&H	V	2.97	3.3	3.63	
Current consumption	mA	-	-	6.5	Mainly from 1.8V supply
Input range	Vptp	-1.25	-	1.25	Input of sample and hold. 2.5V differential peak to peak
Input Clock Frequency	MHz	-	-	120	
Sample rate	MHz	-	-	1	
Conversion time	us	-	1	-	
Resolution	bit	-	13	-	
INL (differential) (single ended)	LSB (13b)	0.47 1.04	1.12 1.24	1.54 5.51	INL for single ended operation is degraded due to S/H
DNL	LSB (13b)	-	-	0.5	
SNR (differential) (single ended mode)	dB	71.6 69.9	74.0 73.4	74.23 76.3	
SNDR (differential) (single ended mode)	dB	69.4 60.1	71.9 67.9	72.4 69.97	
ENOB (differential) (single ended mode)	Bit	11.2 9.7	11.6 11.0	11.8 11.3	Figures for a full scale input @80KHz in -40...125C range
RMS noise	LSB (13b)	0.53	0.6	0.7	

Our service and support

Our service models include:

- Single-use, multi-use, one-time buy-off licensing models for our IP-cores according to IP model agreed with the European Space Agency
- Customization or porting of IP-cores to the customers target technology
- Custom development of analog, mixed-signal and high-voltage IP-cores
- Custom ASIC turnkey solutions

In all of these models, we are committed to provide pro-active support from idea to product. We always work closely together with our customers to come to the most optimal solutions for their systems.

About ICsense

ICsense is an ISO 9001:2008 certified IC design house offering analog, mixed-signal and high-voltage IC design services and ASIC turnkey solutions for the automotive, medical, industrial and consumer market.

ICsense provides best-in-class IC design from consultancy and building block/IP design up to complete mixed-signal ASICs or SoCs. Our philosophy is to deliver highly complex, innovative circuits at minimal risks through engineering excellence and close cooperation with our customers.

More information on www.icsense.com

Contact

ICsense® NV
Gaston Geenslaan 9 - 3001 Leuven - Belgium
Tel: +32(0)16 589 700
Fax: +32(0)16 589 720
Email: sales@icsense.com