

SAR ADC IP Portfolio

Cutting-edge semiconductor innovation with CSEM

For over 40 years, CSEM has been at the forefront of semiconductor design, delivering high-performance System-on-Chip (SoC) and ASIC design solutions. Our expertise in Analog-to-Digital Converter (ADC) technology spans process nodes from 22 nm to 180 nm, including TSMC and GlobalFoundries designs. Engineered for precision, efficiency, and reliability, our IP portfolio is trusted by clients, industry leaders, and foundries worldwide. Whether you are looking for tailored optimizations, our customizable IPs ensure seamless integration into your next-generation developments. Partner with CSEM and push the boundaries of what is possible.

Portfolio overview

Feature	Description
CMOS processes	Available from 22 nm to 180 nm (TSMC and GF)
Effective Number of Bits (ENOB)	Available from 8 b to 14 b
Sampling rate	Up to 100 MS/s
Operating temperature range	-40°C to 125°C
Designs	Silicon-proven designs
Architecture	Highly digital, enabling power vs sample rate scaling
Integrated solutions	Built-in references and biasing
Signal bandwidth	Up to 50 MHz

Use-cases and applications



Low latency industrial designs



High bandwidth communication



CMOS imagers



Consumer products

ADC specifications

Process node	Signal bandwidth	ENOB	Power supply Ana / IO [V]	Power cons. [mW]	Area [mm ²]
22	40 MHz	10	1 / 0.8	0.8	0.1
22	24 MHz	8	0.9	0.29	0.06
22	5.0 MHz	12	1/0.8	0.8	0.1
22	1.25 MHz	13.5	1/0.8	0.8	0.1
55	500 KHz	10.2	1.8/1.2	0.1	0.175
55	400 KHz	10.8	0.9	0.025	0.27
130	1.0 MHz	9	1.5	0.435	0.16
180	1.0 MHz	9.2	1.8	0.27	0.086
180	400 KHz	10	1.8	0.135	0.012
180	2 MHz	8.8	1.8	0.18	0.066

Versatile ADC IP solutions to meet your needs

CSEM, offers a broad portfolio of high-performance SAR ADC IPs. If the specifications you require are not listed below, contact us—we can develop custom SAR ADC solutions tailored to your exact needs.

Why choose CSEM's SAR ADC portfolio?

- **High Accuracy:** Our advanced design techniques that minimize noise and distortion, ensuring a precise digital representation of your analog signals.
- **Ultra-low-power consumption:** Optimized for energy efficiency, our SAR ADCs reduce power consumption, extending battery life in portable and IoT applications.
- **Fast conversion rates:** Engineered to handle high-speed signals with precision, delivering reliable performance in time-sensitive applications.
- **Customizable solutions:** Whether for consumer electronics, automotive, or industrial use, our IPs can be tailored to meet your exact specifications.

Leverage CSEM's proven SAR ADC IP portfolio to accelerate your next design—partner with us for innovation that delivers.

