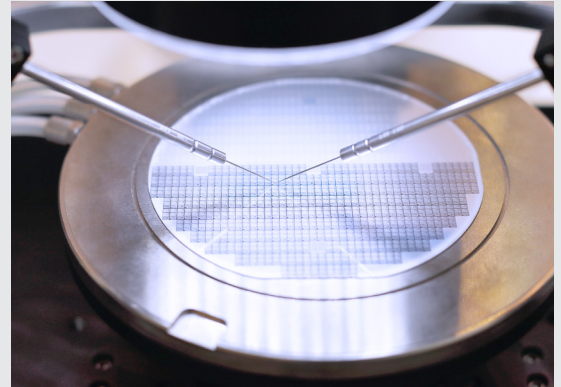


# Leading-Edge Analog Mixed-Signal ASICs

## ASIC Solutions

### Summary

Microchip offers custom integrated circuit designs of analog mixed-signal solutions for leading aerospace, avionics, defense, industrial and automotive companies, and is a leading Application-Specific Integrated Circuit (ASIC) manufacturer of analog embedded systems. Our custom solutions include IC chips requiring high voltages, radiation tolerance, a focus on safety standards and tolerance to harsh environments. Our fabless model ensures maximum flexibility in process selections, allowing for optimized designs and cost-effective solutions. Our experienced teams are dedicated to your success by working in collaboration with you throughout all stages of design and production.



### Reliable, Proven Application-Specific Integrated Circuit Development and Manufacturing

- Fully custom ASIC design flow
- Full supply services, from specification to production
- Custom Specific Standard Product (CSSP)
- System integration and packaging optimization

### Benefits to Customers

- IP investment protection
- Board space optimization
- Power optimization
- Overall application cost reduction
- Reliability improvement
- Obsolescence management
- Product differentiation from standard products

### Experienced Team

- System architects
- Analog, digital, firmware, layout, packaging, test and product engineers
- Program managers

### Safety, Quality and Reliability

- Safety-critical applications: Automotive ISO 26262, Avionics DO-254
- Radiation tolerance: TID, SEL/SEU, ELDRS, prompt dose, neutron
- High-reliability, stringent-temperature:  $-55^{\circ}\text{C}$  to  $225^{\circ}\text{C}$
- Standards/certifications/classifications: AS9100, ISO 9001, MIL-PRF-38535, QML-V, QML-Q, ITAR, EAR

### Packaging Solutions

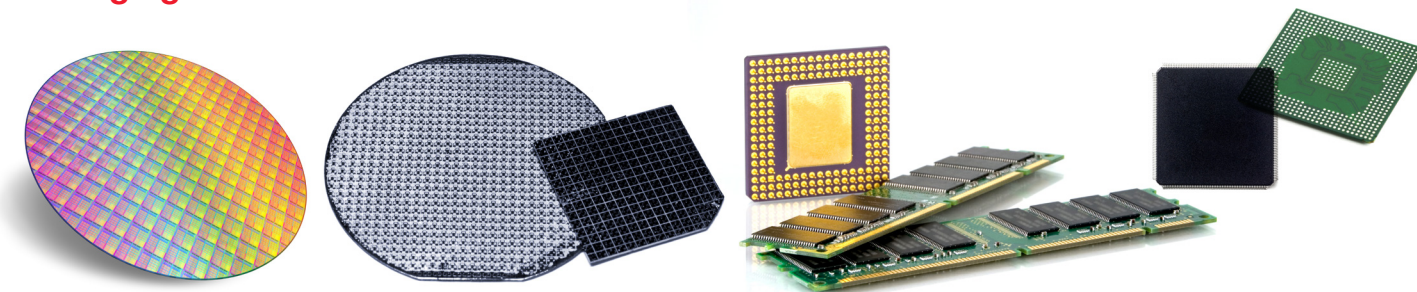
- Flip chip multi-layer stack up
- Bump die and WLCSP
- Plastic encapsulated
- Multi Chip Module (MCM)
- Hermetic high reliability

Process	1 $\mu\text{m}$ DI 0.6 $\mu\text{m}$ BiCMOS Rad-tolerant	1 $\mu\text{m}$ SOI Extreme Temp.	0.35 $\mu\text{m}$ HVMOS AEC-Q100, Grade 0	180 nm HVMOS AECQ100, Grade 0	130 nm BCD AECQ100, Grade 0	55/65 nm (on roadmap)
Max. Voltage	200V	90V	45V	40V	85V	12V
Temperature Range	-55°C to 125°C	-55°C to 225°C	-40°C to 175°C	-40°C to 175°C	-40°C to 150°C	-40°C to 125°C
Gate Density Gates/mm <sup>2</sup>	2.5K	2.5K	28K	125K	220K	1M
Metal Layers	3	3	4	6	8	8
Memory Type	ROM, RAM, DPRAM, OTP	ROM, RAM, DPRAM, OTP	ROM, RAM, DPRAM, OTP, EEPROM	ROM, RAM, DPRAM, OTP, NVRAM	ROM, RAM, SRAM, OTP, MTP, FLASH	ROM, RAM, SRAM, OTP, FLASH

## Existing/Available IP

Signal Conditioning and Converters	PGA, AFE, demodulators, peak detectors ADCs SAR, Sigma-Delta HV analog muxes, analog filters
Digital Integration and Signal Processing	Digital filters Compiled memories Processors: 32-bit RISC and peripherals DSP functions
Interfaces and Protections	SPI, I <sup>2</sup> C, JTAG, SENT, PWM, PSi5 ESD protection cells up to 4kV Reverse battery protections
Drivers and Actuation	High-voltage drivers Line protectors and current limiters Motor drivers and pre-drivers
Power Management	Switching regulators, linear regulators E-Fuse protection devices Charge pumps, thermal protection
Clock Management	RC, VCO oscillators, PLLs LC tank exciter, sleep-mode timer

## Packaging



For more information, please visit [www.microsemi.com](http://www.microsemi.com)

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