Microsemi 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 our customers’ success by working in collaboration with them 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 °C to 225 °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
Leading-Edge Analog Mixed-Signal ASICs

<table>
<thead>
<tr>
<th>Process</th>
<th>1 μm DI 0.6 μm BiCMOS Rad-tolerant</th>
<th>1 μm SOI Extreme Temp.</th>
<th>0.35 μm HVCMOS AEC-Q100, Grade 0</th>
<th>180nm HVCMOS AECQ100, Grade 0</th>
<th>130nm BCD AECQ100, Grade 0</th>
<th>55/65nm (on roadmap)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Voltage</td>
<td>200 V</td>
<td>90 V</td>
<td>45 V</td>
<td>40 V</td>
<td>85 V</td>
<td>12 V</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>−55 °C to 125 °C</td>
<td>−55 °C to 225 °C</td>
<td>−40 °C to 175 °C</td>
<td>−40 °C to 175 °C</td>
<td>−40 °C to 150 °C</td>
<td>−40 °C to 125 °C</td>
</tr>
<tr>
<td>Gate Density Gates/mm²</td>
<td>2.5K</td>
<td>2.5K</td>
<td>28K</td>
<td>125K</td>
<td>220K</td>
<td>1M</td>
</tr>
<tr>
<td>Metal Layers</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Memory Type</td>
<td>ROM, RAM, DPRAM, OTP</td>
<td>ROM, RAM, DPRAM, OTP</td>
<td>ROM, RAM, DPRAM, OTP, EEPROM</td>
<td>ROM, RAM, DPRAM, OTP, NVRAM</td>
<td>ROM, RAM, SRAM, OTP, MTP, FLASH</td>
<td>ROM, RAM, SRAM, OTP, FLASH</td>
</tr>
</tbody>
</table>

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, I2C, 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
Microsemi is continually adding new products to its industry-leading portfolio.

For the most recent updates to our product line and for detailed information and specifications, please call, email, or visit our website.

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To stay up to date about Microsemi’s ASIC solution products, email sales.support@microsemi.com or visit our Design Services Website: https://www.microsemi.com/product-directory/services/1043-mixed-signal-asic-design-services

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs, power management products; timing and synchronization devices and precise time solutions, setting the world’s standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions, security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, California and has approximately 4,800 employees globally. Learn more at www.microsemi.com.