Overview

Analog Devices is a leading global, high performance analog technology company dedicated to solving the toughest engineering challenges. We enable our customers to interpret the world around us by intelligently bridging the physical and digital with unmatched technologies that sense, measure, power, connect, and interpret. Our powerful suite of products and solutions adds value across the entire signal chain. In this Summer 2020 edition of the New Products and Solutions guide, you will find select new product innovations including ADCs, DACs, amplifiers, isolation, power management, RF and microwave, and optical sensing for use across a wide range of markets and applications. You can also stay up-to-date on the latest news from ADI by subscribing to one of our email newsletters.

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Products by Market

Large blue circles indicate the primary markets and the small blue circles indicate the secondary markets.

<table>
<thead>
<tr>
<th>Product Category</th>
<th>Part Number</th>
<th>General-Purpose*</th>
<th>Aerospace and Defense</th>
<th>Automotive</th>
<th>Building and Infrastructure</th>
<th>Communications</th>
<th>Consumer</th>
<th>Energy</th>
<th>Healthcare</th>
<th>Industrial Automation</th>
<th>Instrumentation and Measurement</th>
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</thead>
<tbody>
<tr>
<td>ADC</td>
<td>AD7134</td>
<td>●</td>
<td>●</td>
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<td>Isolation</td>
<td>ADM2867E/ADM2561E</td>
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<td>Optical Sensing</td>
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<td>Power</td>
<td>LTM4691</td>
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<tr>
<td>RF and Microwave</td>
<td>ADL6012</td>
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<tr>
<td></td>
<td>HMC8412</td>
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<td></td>
<td>LTC5597</td>
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</table>

*Intended for use in a broad range of markets.
Analog-to-Digital Converter

**AD7134: 24-Bit, 4-Channel Simultaneous Sampling 1.5 MSPS Precision Alias-Free ADC**

Based on the continuous-time sigma-delta (CTSD) modulation scheme, the AD7134 removes the traditionally required switched capacitor circuitry sampling preceding the sigma-delta modulator, which leads to a relaxation of the ADC input driving requirement. The CTSD architecture also inherently rejects signals around the ADC aliasing frequency band, giving the device its inherent antialiasing capability and removing the need for a complex external antialiasing filter.

**Features and Benefits**
- Alias-free to eliminate external filter and improve phase matching
- Easy-drive resistive input reduces requirements on ADC driver
- New synchronization features simplify digital interface designs in multidevice distributed systems

**Applications**
- Electrical test and measurement
- Audio test
- 3-phase power quality analysis
- Control and hardware in loop verification

AD7134 evaluation board

8 mm × 8 mm, 56-lead LFCSP
Digital-to-Analog Converter

AD5413: 14-Bit Voltage and Current Output DAC with HART Connectivity

The AD5413 is a single-channel, 14-bit voltage and current output, digital-to-analog converter (DAC) that operates within a power supply range from a −33 V minimum on the AVSS pin to a +33 V maximum on the AVDD1 pin. The CHART pin enables a highway addressable remote transducer (HART) signal to be ac-coupled on the current output.

Features and Benefits
► High accuracy with 14-bit resolution
► Guaranteed over full industrial temperature range with no field calibration needed
► Meets IEC 61000–4-x robustness requirements and includes improved diagnostics

Applications
► Process control
► Actuator control
► HART network connectivity
► Programmable logic controller (PLC) and distributed control systems (DCS)

AD5413 evaluation board 5 mm × 5 mm, 32-lead LFCSFP
Isolation

ADM2867E/ADM2561E: Signal and Power Isolated RS-485 Transceiver with ±15 kV IEC ESD

These devices pass radiated emissions testing to the EN 55032 Class B standard with margin on a 2-layer PCB using two small external 0402 ferrites on isolated power and ground pins. They feature an integrated, low EMI, isolated dc-to-dc converter, which eliminates the need for an external isolated power supply.

- **ADM2867E**: 5 kV rms, full duplex
- **ADM2561E**: 3 kV rms, half duplex

Features and Benefits

- Low radiated emissions meet EMC compliance
- Simplified PCB layout and small SOIC form factor
- Includes smart features that reduce end system install and debug time

Applications

- HVAC networks
- Industrial field buses
- Building automation
- Utility networks and energy meters

ADM2867E evaluation board

28-lead, fine pitch SOIC_W
Power Management

**LTM4691: Low V_{IN}, High Efficiency, Dual 2 A Step-Down DC-to-DC µModule Regulator**

The LTM4691 is a complete dual 2 A, output switch-mode, dc-to-dc power supply in a tiny 3 mm × 4 mm × 1.18 mm LGA package. Included in the package are the switching controller, power FETs, inductors, and all supporting components. Operating over an input voltage range of 2.25 V to 3.6 V, the LTM4691 supports two outputs with programmable output voltage range from 0.5 V to 2.5 V set by external resistors.

**Features and Benefits**
- Thin 1.18 mm LGA package is 25% smaller than competition
- Includes switching controller, power FETs, inductors, and all supporting components

**Applications**
- Telecom, networking, and industrial equipment
- Point-of-load regulation
- FPGA, ASIC core supplies

**LTM4691 evaluation board (DC2910A)**
RF and Microwave

ADL6012: 2 GHz to 67 GHz, 500 MHz Bandwidth Envelope Detector

The ADL6012 is a versatile, broadband envelope detector that operates from 2 GHz to 67 GHz. The combination of a wide, 500 MHz envelope bandwidth and a fast, 0.6 ns rise time makes the device suitable for a wide range of applications, including wideband envelope tracking, transmitter local oscillator (LO) leakage corrections, and high resolution pulse (radar) detection. The response of the ADL6012 is stable over a wide frequency range and features excellent temperature stability.

Features and Benefits

► Suitable for fast pulse and wideband envelope detection
► Enables accurate measurement and minimizes calibration requirements
► Integrated solution with small footprint

Applications

► Envelope tracking
► Microwave point-to-point links
► Microwave instrumentation
► Military radios

ADL6012 evaluation board

3 mm × 2 mm, 10-lead LFCSP
The HMC8412 is a gallium arsenide (GaAs), monolithic microwave integrated circuit (MMIC), pseudomorphic high electron mobility transistor (pHEMT), low noise wideband amplifier that operates from 0.4 GHz to 11 GHz. The part provides a typical gain of 15.5 dB, a 1.4 dB typical noise figure, and a typical output third-order intercept (OIP3) of ≤33 dBm, requiring only 60 mA from a 5 V drain supply voltage.

**Features and Benefits**
- 0.4 GHz to 11 GHz operation for robust instrumentation and communications
- Improves overall system noise and linearity
- Compact 2 mm × 2 mm package

**Applications**
- Test instrumentation
- Telecommunications
- Military radar and communication electronic warfare
- Aerospace
RF and Microwave

LTC5597: 100 MHz to 70 GHz Linear-in-dB RMS Power Detector

The LTC5597 is a high accuracy rms power detector that provides a very wide RF input bandwidth, from 100 MHz up to 70 GHz with 35 dB dynamic range. This makes the device suitable for a wide range of RF and microwave applications, such as point-to-point microwave links, instrumentation, and power control applications. The dc output voltage of the detector is an accurate representation of the average signal power applied to the RF input.

Features and Benefits

► Compact, high performance solution enables accurate power measurement
► Ability to measure signals down to –37 dBm
► Minimizes the need for calibration

Applications

► Point-to-point microwave links
► Satcom
► Instrumentation and measurement equipment
► Military radios

LTC5597 evaluation board

2 mm × 2 mm plastic, 8-lead DFN
Smoke Detection Reference Design


<table>
<thead>
<tr>
<th>3 Out of 5 Deaths</th>
<th>23% of Deaths</th>
<th>83% Less Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attributable to Properties Without Working Smoke Alarms</td>
<td>Where Smoke Alarms Present but Disabled Due to False Alarms</td>
<td>To Escape a Fire Than in the 1970s Due to Advances in Synthetic Building Materials</td>
</tr>
</tbody>
</table>

Benefits of Smoke Detection Solutions from ADI

- Space-saving integrated module—photodiode, AFE, and LEDs
- On-chip calibration reduces factory end-of-line calibration requirements
- Reduces power dissipation
- Particle size estimation using two LEDs reduces false alarms
- Enables UL 217-compliant detectors

ADPD188BI

An integrated smoke-to-bits sensor incorporating dual wavelength LEDs, a photodiode, and an AFE. The ADPD188BI has better smoke differentiation and fewer nuisance alarms due to its dual wavelength, wide dynamic range, and high SNR. It is engineered to meet the latest regulatory requirements such as UL 217 and EN 54/EN 14604.

Small Size, Easy to Mount, Designed for UL Listing

EVAL-CHAMBER/EVAL-CHAMBER-10/28800X

The patented ADI Smoke Chamber is designed for a controlled optical environment with maximum airflow. The background response of the chamber uses a small percentage of available dynamic range and provides self-diagnostic capability. It is engineered to meet the latest regulatory requirements. There are two evaluation models available, the EVAL-CHAMBER (2 pieces) and EVAL-CHAMBER-10 (10 pieces). The production version is the Accumold 28800X and is available from Accumold and Arrow.
UL Tested Smoke Detection Reference Design (CN-0537): Reduce Risk, Lower Development Cost, and Accelerate Time to Market

Features and Benefits

The **CN-0537** reference design plus related software is designed and tested to meet UL 217 8th edition and similar smoke/fire detection standards. To address the needs of different customers, a number of solution offerings are available, which are summarized in the table below:

<table>
<thead>
<tr>
<th>Solution Options</th>
<th>Description</th>
<th>Includes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hardware</strong></td>
<td></td>
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</tr>
<tr>
<td>EVAL-CN0537-ARDZ</td>
<td>Smoke detector reference design hardware for prototyping and solution evaluation. A tested and verified UL 217 smoke detection algorithm is embedded as part of the installer for evaluation.</td>
<td>Hardware</td>
</tr>
<tr>
<td>EVAL-ADICUP3029</td>
<td></td>
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<tr>
<td><strong>Software</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Data</strong></td>
<td>CN-0537 source code (excl. detection algorithm) plus over 1000+ sample fire/smoke datasets taken at certified UL 217 facilities for algorithm development.</td>
<td>Data</td>
</tr>
<tr>
<td>EVAL-CN0537-DATA</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Algorithm</strong></td>
<td>Full source code and UL 217 8th edition tested and verified algorithm, associated project files, CN-0537 source code and over 1000+ sample fire/smoke datasets to accelerate system development.</td>
<td>Software</td>
</tr>
<tr>
<td>EVAL-CN0537-ALGO</td>
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</tbody>
</table>

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<tr>
<th>Support</th>
</tr>
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<tbody>
<tr>
<td>10 hours of phone support</td>
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</table>

**CN-0537 evaluation board**
## Additional New Products

<table>
<thead>
<tr>
<th>Product Category</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amplifiers</strong></td>
<td>ADA4523-1</td>
<td>36 V, low noise, zero-drift op amp</td>
</tr>
<tr>
<td></td>
<td>ADPA7006</td>
<td>18 GHz to 44 GHz, GaAs, pHEMT, MMIC, 1/2 W power amplifier</td>
</tr>
<tr>
<td></td>
<td>LTC2065</td>
<td>Quad 2 µA supply current, low I&lt;sub&gt;b&lt;/sub&gt;, zero-drift op amplifier</td>
</tr>
<tr>
<td><strong>Analog-to-Digital Converters</strong></td>
<td>AD9002</td>
<td>Max&lt;sub&gt;E&lt;/sub&gt; quad, 18-bit, 12 GSPS RF DAC and dual, 12-bit, 6 GSPS RF ADC</td>
</tr>
<tr>
<td><strong>Digital-to-Analog Converters</strong></td>
<td>AD5673AR/AD5677R</td>
<td>16-channel, 12-bit/18-bit nanoDAC+ with 2 ppm/°C voltage ref TC</td>
</tr>
<tr>
<td><strong>Interface and Isolation</strong></td>
<td>ADPM263E</td>
<td>3 kV rms full duplex 500 kbps signal and power isolated RS-485 transceiver</td>
</tr>
<tr>
<td></td>
<td>ADPM281E</td>
<td>5.7 kV rms 500 kbps half-duplex signal and power isolated RS-485 transceiver</td>
</tr>
<tr>
<td></td>
<td>ADPM283E</td>
<td>5.7 kV rms 500 kbps full-duplex signal and power isolated RS-485 transceiver</td>
</tr>
<tr>
<td><strong>MEMS and Sensors</strong></td>
<td>CN-0532</td>
<td>IEPE-compatible interface for wideband MEMS accelerometer sensors</td>
</tr>
<tr>
<td><strong>Optical Communications</strong></td>
<td>ADP040D/ADP0401</td>
<td>(SPI/I2C) multimodal sensor front end</td>
</tr>
<tr>
<td><strong>Power Management</strong></td>
<td>AD5056</td>
<td>Triple buck regulator integrated power solution</td>
</tr>
<tr>
<td></td>
<td>CN-0508</td>
<td>75 W, single-output benchtop power supply</td>
</tr>
<tr>
<td></td>
<td>LTC7803</td>
<td>40 V low I&lt;sub&gt;b&lt;/sub&gt;, 100% duty cycle, synchronous step-down controller</td>
</tr>
<tr>
<td><strong>Power Monitor and Control</strong></td>
<td>LTC4863</td>
<td>Ultrathin 1.5 A µModule thermoelectric cooler (TEC) regulator</td>
</tr>
<tr>
<td><strong>Processors and Microcontrollers</strong></td>
<td>ADSP-21566/ADSP-21567/ADSP-21569</td>
<td>(400 MHz/800 MHz/1 GHz) SHARC&lt;sup&gt;®&lt;/sup&gt; DSP</td>
</tr>
<tr>
<td><strong>Switches and Multiplexers</strong></td>
<td>ADG1414D</td>
<td>SPI, 1.5 GΩ R&lt;sub&gt;ON&lt;/sub&gt;, ±15 V/±5 V/+12 V, octal SPST switch</td>
</tr>
</tbody>
</table>

## Design Resources

### EngineerZone<sup>®</sup> Online Support Community
Engage with the Analog Devices technology experts in our online support community. Ask your tough design questions, browse our rich knowledge base, or read about new technologies in one of our blogs.

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