

New Products and Solutions

Spring 2022

Overview

Our powerful suite of products and solutions adds value across the entire signal chain. In this Spring 2022 edition of the New Products and Solutions guide, you will find select new product innovations including analog-to-digital converters, digital-to-analog converters, RF and microwave technology, sensors and MEMS technology, power management, processors and DSP, and switches and multiplexers for use across a wide range of markets and applications.

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Products by Market

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

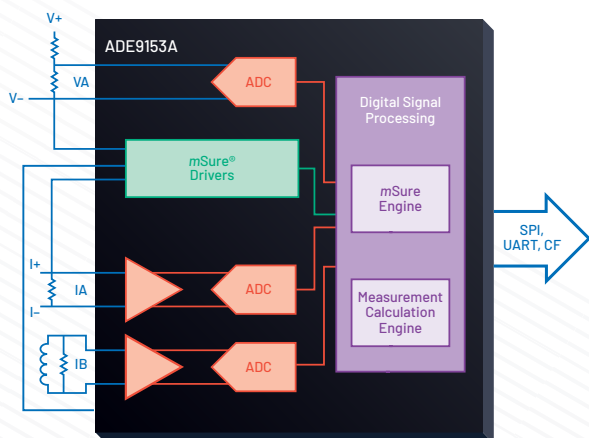
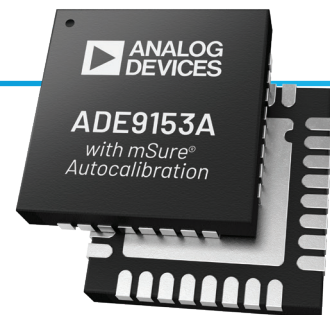
Product Category	Part Number	General-Purpose	ADEF	Automotive	Building and Infrastructure	Comms	Consumer	Energy	Healthcare	Industrial Automation	Instrumentation and Measurement
ADC	ADE9153A			•	•	•		•			
DAC	CN0531	•								•	•
	LTC2688	•				•				•	•
Power Management	LTC3337	•					•			•	
	LTC7804		•	•					•		•
	LTM4693	•				•			•	•	
Processor and DSP	ADSW4000				•					•	
RF and Microwave	ADPA1107	•	•								
	CN0417		•			•					•
Sensors and MEMS	ADA4570			•						•	
Switches and Multiplexers	ADG7421F	•	•							•	•

Analog-to-Digital Converters

ADE9153A: Energy Metering IC with Autocalibration

The ADE9153A is a high accuracy energy metering IC for single-phase, shunt-based metering applications. The mSure® self-calibration feature allows a meter to calibrate its current and voltage channels without using an external reference meter. mSure self-calibration supports Class 1 and Class 2 meters. For standards-based metering, customers should verify traceability requirements for their app.

ADE9153A was released in 2018 and now has expanded broad market appeal outside of the utility metering market.

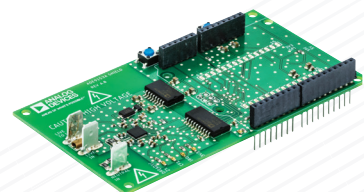


Features and Benefits

- ▶ Extensive metrology feature set supports active and reactive energy standards and power quality measurements
- ▶ Self-calibration enables accuracy within 1% without expensive test equipment
- ▶ Three high performance ADCs with wide dynamic range (88 dB signal-to-noise ratio)

Applications

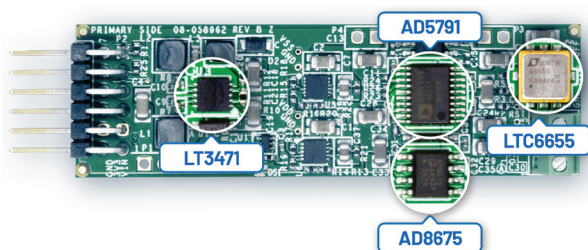
- ▶ Energy
- ▶ Building and Infrastructure
- ▶ Automotive
- ▶ Communication



Digital-to-Analog Converters

CN0531 Reference Design: Programmable 20-Bit, Linear, Precision, Bipolar ± 5 V DC Voltage Source

The most demanding test and measurement applications require single digit, part per million temperature drift, sub-ppm linearity, and low, predictable noise performance. This CN0531 design provides a very stable and precise programmable 20-bit voltage source that generates a precision DC voltage. This is a critical component of scientific instrumentation and measurement equipment, automated test equipment, factory automation and control, chemical analysis, and many other high precision applications.



Features and Benefits

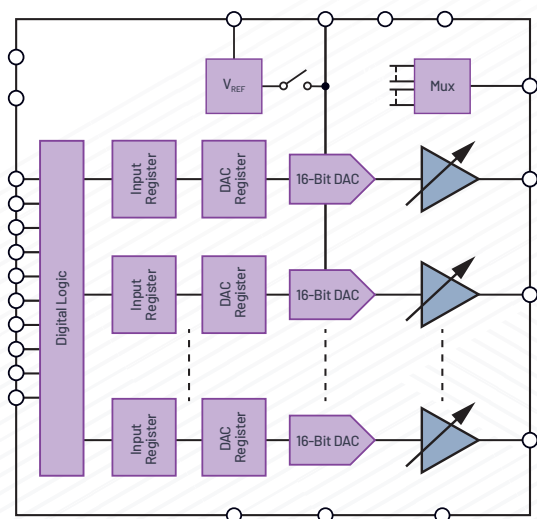
- ▶ Highly accurate 20-bit programmable, ± 5 V DC signal generator to easily and accurately control the precision system output
- ▶ On-board, highly accurate and stable 5 V precision reference ensures high precision and accuracy of the 20-bit system, without expensive external equipment
- ▶ ± 1 LSB integral nonlinearity (INL), ± 1 LSB differential nonlinearity (DNL), with power supplies included for exceptionally low noise removes the need to worry about noisy power supplies, providing signal integrity across the entire output range

Applications

- ▶ Instrumentation and Measurement
- ▶ General Purpose
- ▶ Industrial Automation

LTC2688: 16-Channel, 16-Bit Voltage Output SoftSpan DAC

LTC2688 is a 16-channel, 16-bit, ± 15 V, small form factor digital-to-analog converter (DAC) with an integrated precision reference converter. This product is ideal for automatic test equipment, DAC-per-pin programmers, data acquisition systems, and closed-loop servo-control.

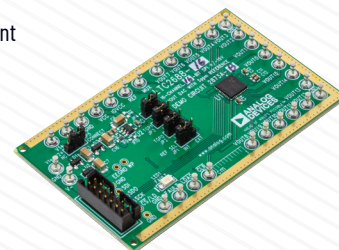


Features and Benefits

- ▶ Highly compact 16-channel software programmable bipolar voltage DAC improves overall system flexibility
- ▶ Monitor mux that allows the user to sense DAC voltages and DAC output currents to reduce calibration time and system complexity
- ▶ A/B toggle with sinusoidal dither targets the specific requirements of Mach-Zehnder modulator (MZM) technologies and biasing topologies

Applications

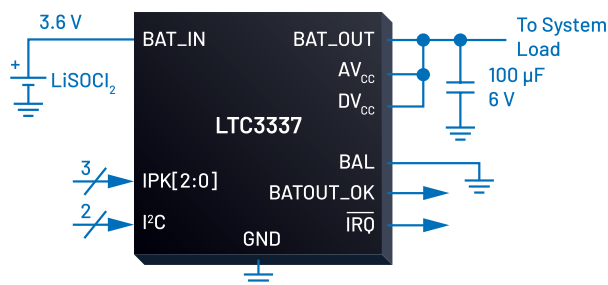
- ▶ Communications
- ▶ Instrumentation and Measurement
- ▶ Industrial Automation
- ▶ General Purpose



Power Management

LTC3337: Primary Battery SOH Monitor with Precision Coulomb Counter

The LTC3337 is the lowest I_Q SOH (state of health) monitor and coulomb counter with infinite dynamic range. It is accurate across all load profiles and measures all important state of health variables (Q, V, Z, T). The LTC3337 is battery-friendly by presenting the battery with a load profile that allows it to deliver its maximum capacity, independent of the actual load.



Features and Benefits

- ▶ Infinite dynamic range is accurate across all load profiles.
- ▶ Ultralow quiescent current of 100 nA gives longer battery run times, helpful in remote locations where access is minimal or difficult
- ▶ Allows battery to run at maximum capacity by presenting the battery an optimized load profile

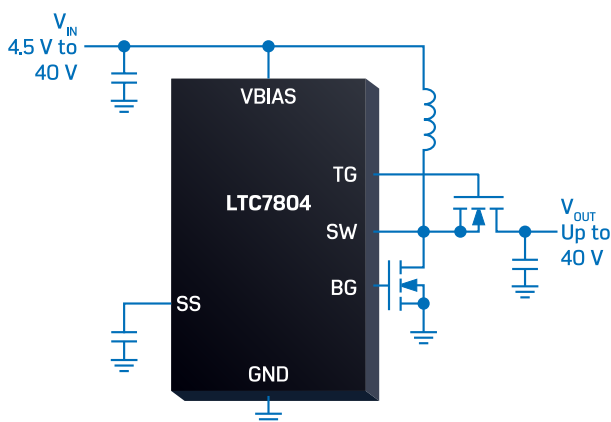
Applications

- ▶ General Purpose
- ▶ Consumer
- ▶ Industrial Automation



LTC7804: Low I_Q Synchronous Boost Controller

The LTC7804 is a 40 V, low I_Q , 3 MHz synchronous boost controller can deliver up to 10 A with 97% efficiency, which reduces power loss, increases efficiency, and minimizes board space. The LTC7804 is a high performance synchronous boost DC-to-DC switching regulator controller.



Features and Benefits

- ▶ 100% duty cycle and PassThru™ mode eliminates switching loss in preboost applications
- ▶ Spread spectrum frequency modulation reduces EMI
- ▶ Synchronous boost results in higher current and efficiency results in a smaller solution size

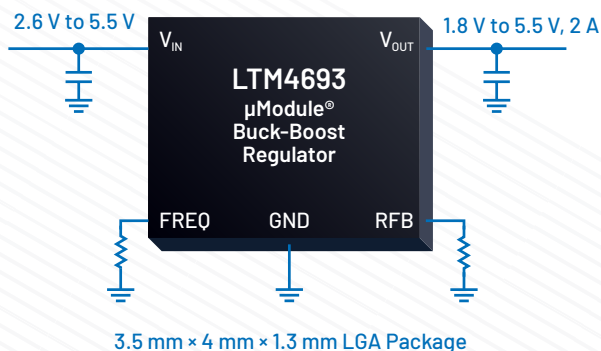
Applications

- ▶ Automotive
- ▶ Instrumentation and Measurement
- ▶ Healthcare
- ▶ Aerospace and Defense



LTM4693: Ultrathin Low V_{IN} , 2 A Buck-Boost μ Module Regulator

The LTM4693 has a 3.5 mm $\times$ 4 mm $\times$ 1.25 mm LGA package that allows customers to minimize the solution size where space is critical for space constrained applications such as optical modules.



Features and Benefits

- ▶ 2 A buck-boost μ Module regulator in 3.5 mm $\times$ 4 mm package fits into small spaces
- ▶ 1.13 mm package height fits into applications that have height restrictions

Applications

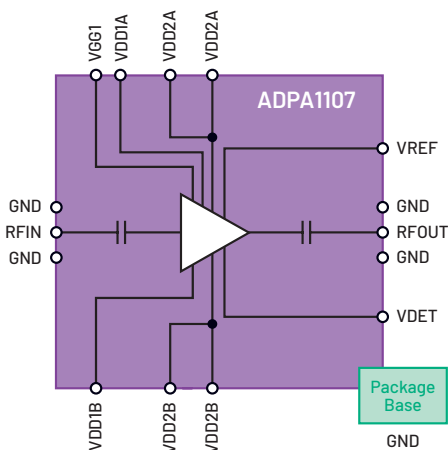
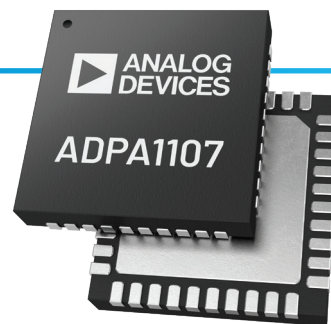
- ▶ Communications
- ▶ Industrial Automation
- ▶ Healthcare
- ▶ General Purpose



RF and Microwave

ADPA1107: 35 W, 4.8 GHz to 6.0 GHz, GaN Power Amplifier

The ADPA1107 is a gallium nitride (GaN), broadband power amplifier, delivering 40 W with more than 55% power added efficiency (PAE) across a bandwidth of 4.8 GHz to 6.0 GHz. The ADPA1107 is ideal for pulsed applications such as wireless infrastructure, radar, public mobile radio, and general-purpose amplification. The ADPA1107 is housed in a 6 mm × 6 mm, 40-lead LFCSP surface-mount package.

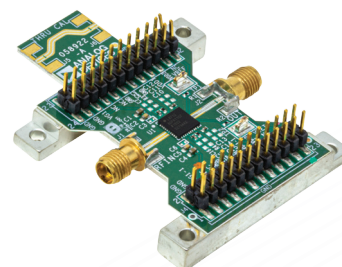


Features and Benefits

- ▶ 35 W output power to meet the demands of phased arrays in a compact surface-mount package
- ▶ 55% PAE for less power consumption
- ▶ High power gain and excellent flatness to reduce component count

Applications

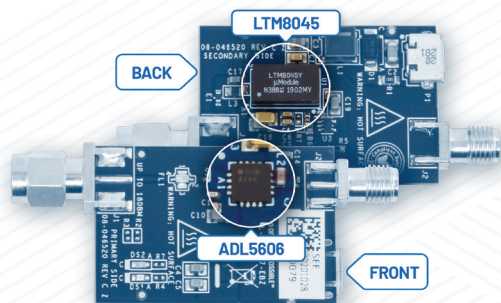
- ▶ Aerospace and Defense
- ▶ General Purpose



Solutions—RF and Microwave

CN0417 Reference Design: USB-Powered, 2.4 GHz RF Power Amplifier

The CN0417 circuit is a small USB-powered RF power amplifier optimized for 2400 MHz operation. The amplifier typically provides 20 dB of gain through its RF band of operation, boosting signals for various communication protocols such as ISM, MC-GSM, W-CDMA, TD-SCDMA, and LTE. It requires 5 V USB supply for normal operation. The input and output, both populated with edge mounted SMA connectors, are DC blocked and matched to 50 Ω for ease of use.



Features and Benefits

- ▶ Amplifier provides 20 dB of gain through its RF band of operation boosting signals for various communication protocols such as ISM, MC-GSM, W-CDMA, TD-SCDMA, and LTE
- ▶ The input and output are DC blocked and matched to 50 Ω for ease of use
- ▶ Small USB-powered RF power amplifier optimized for 2400 MHz operation to increase the magnitude of power of transmitted signals

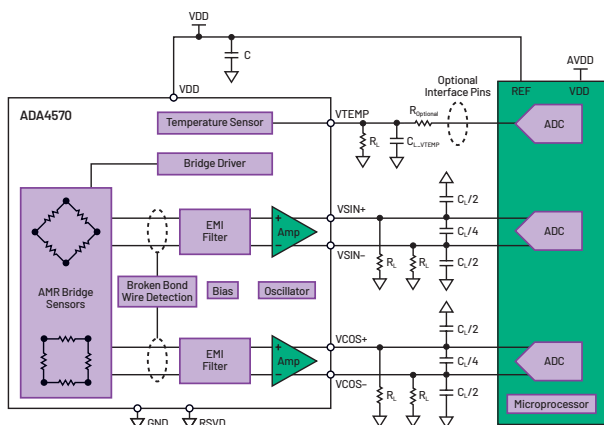
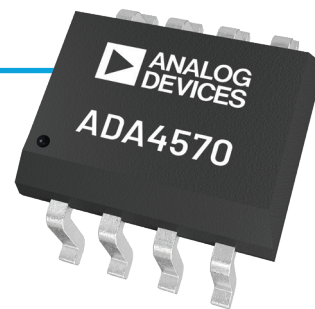
Applications

- ▶ Instrumentation and Measurement
- ▶ Communications
- ▶ Aerospace and Defense

Sensors and MEMS

ADA4570: Integrated AMR Angle Sensor and Signal Conditioner with Differential Outputs

The ADA4570 is an anisotropic magnetoresistive (AMR) sensor with integrated signal conditioning amplifiers and ADC drivers. It produces four analog outputs that indicate the angular position of the surrounding magnetic field. The ADA4570 consists of two die within one package, an AMR sensor, and a fixed gain instrumentation amplifier. It delivers clean and amplified differential cosine and sine output signals related to the angle of a rotating magnetic field. The output voltage range is radiometric to the supply voltage.



Features and Benefits

- ▶ Best angular accuracy to reduce torque ripple; improves NVH, which improves motor commutation efficiency and smoothness
- ▶ Lowest phase delay enables fast closed-loop control and high dynamic applications
- ▶ Lowest noise improves reliability while reducing size and weight

Applications

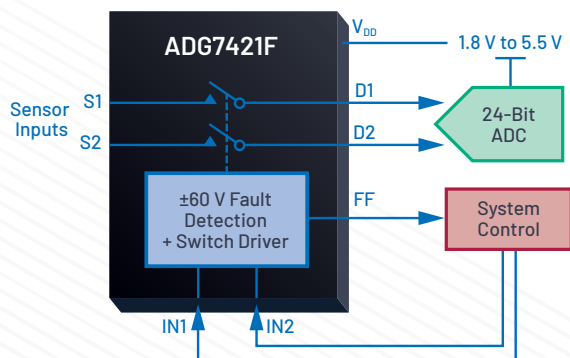
- ▶ Automotive
- ▶ Industrial Automation



Switches and Multiplexers

ADG7421F: Low Voltage Fault Protection and Detection, 12 Ω R_{ON} , Dual SPST Switch

The ADG7421F is a low voltage, dual single-pole/single-throw (SPST), low on-resistance switch that features overvoltage protection (± 60 V), power-off protection, and overvoltage detection on input pins. This solution provides significant space saving to traditional solutions

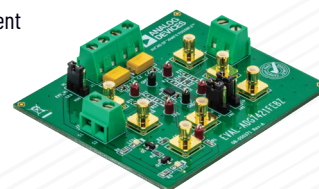


Features and Benefits

- ▶ Up to ± 60 V overvoltage protection/detection and power-off protection for low voltage (± 1.8 V to 5 V) applications such as thermocouple and RTD temperature measurement systems
- ▶ Smallest analog I/O protection and detection solution in 3 mm $\times$ 3 mm LFCSP package to save space and allow for higher channel density
- ▶ Low switch on-resistance and on-resistance flatness suitable for high precision measurement signal chains

Applications

- ▶ Instrumentation and Measurement
- ▶ Industrial Automation
- ▶ Aerospace and Defense
- ▶ General Purpose





Solutions—Intelligent Buildings and People Counting Technology

ADSW4000: ADI EagleEye PeopleCount Algorithm

ADI EagleEye (ADSW4000) technology enables a complete end-to-end, edge-based hardware and software technology solution for occupancy monitoring in buildings. This data can provide the insight needed to improve asset and people management, social distancing, security, employee engagement, space utilization, labor productivity, and energy efficiency.

The combination of the EagleEye proprietary algorithm and advanced Blackfin® processor enables people counting functionality for internal spaces like office buildings, restaurants, and other public buildings such as museums and retail. Knowing how space is used can help optimize the use and safety of buildings. Combining area occupancy insights with other monitoring data such as air quality, HVAC, or lighting can optimize the efficiency and use of buildings.

By analyzing data at the sensor edge, security and privacy is guaranteed. The people counting solution via hardware and software building blocks can be seamlessly integrated into any end intelligent building system and software platform design.

Learn more about ADI EagleEye people counting technology.

Features and Benefits

- ▶ Optimize room management and capacity levels
- ▶ Determine room occupancy and distance between people
- ▶ Better overall comfort in the environment: control HVAC based on the number of people in a room, adjust sound systems based on the placement of people

Integrated Circuits

- ▶ ADSW4000
- ▶ Blackfin® DSP (ADSPBF707BBCZ4-EGE DSP)

Applications

- ▶ Building and Infrastructure: Intelligent buildings, occupancy analytics, and building management systems for indoor building such as offices, restaurants, museums, retail, and cinemas

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