

New Products and Solutions

Winter 2022

Overview

Our powerful suite of products and solutions adds value across the entire signal chain. In this Winter 2022 edition of the New Products and Solutions guide, you will find select new product innovations including analog-to-digital converters, amplifiers, interface and isolation, power, processors and microcontrollers, RF and microwave, security, sensors and MEMS, 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	Data Center	Energy	Healthcare	Industrial Automation	Instrumentation and Measurement
Amplifiers	ADL8142		●			●						
	MAX34427/ MAX34417						●	●				
ADCs	AD4130-8						●			●	●	●
	ADE9430								●		●	●
Interface and Isolation	ADN4620 family		●	●							●	●
Power	LT8350			●		●					●	
	LT8376			●							●	
	LTC910x family	●			●	●					●	
	LTM4660	●	●			●		●				●
	MAX25240/ MAX25239			●								
Precision: Signal Chain Platforms	Precision current sensing			●							●	
	Precision medium bandwidth								●		●	●
Processors and Microcontrollers	MAX78002	●			●		●				●	
RF and Microwave	ADL8106ACEZ	●	●			●						●
	CN0511					●						●
Security	MAX66250/ MAX66301	●					●			●		
Sensors and MEMS	ADXL367			●			●			●	●	
Switches and Multiplexers	ADG1634L	●				●					●	●



Precision Current Sensing Signal Chain Platform

Our precision current sensing signal chain platform offers an accurate, robust, and industry-proven current measurement solution that can be adopted in all environments to measure current in low, medium, or high power applications. This high bandwidth, shunt-based current sensing signal chain offers a fast response time and excellent DC and AC precision in the presence of input PWM voltages. This signal chain improves motor control performance in robotics applications, with a compact simultaneous sampling design that allows robot size and weight reduction to drive energy efficiencies and new use cases.

Features and Benefits

- ▶ Wide input bandwidth for precise control of a motor and faster fault detection
- ▶ Improved common-mode step response to increase robot stability and predictability
- ▶ Low distortion lowers torque ripple for more precise robot operation

Learn more about our precision current sensing signal chain platform at analog.com/precisioncurrentsensing.

Parts in Signal Chain

- ▶ AD8418A
- ▶ AD4683
- ▶ AD4000
- ▶ ADR4533
- ▶ ADR4550

Applications

- ▶ Industrial automation
- ▶ Automotive



Precision Medium Bandwidth Signal Chain Platform

Our precision medium bandwidth signal chain platform is comprised of numerous signal chains that demand accuracy across signal bandwidths from DC to 500 kHz, with sampling rates up to 4 MSPS. This precision medium bandwidth signal chain is ideal for system designs that monitor important assets in factories and installations. The signal chain provides high quality digital data from highly sensitive IEPE sensors, which can be utilized to gain deeper insights into the machine baseline and operational health enabling improved manufacturing efficiency and reduced downtime. The IEPE precision signal chain also provides a fast track for prototyping a system and is supported by open-source SW to provide useable data out of the box to start the machine learning journey.

Features and Benefits

- ▶ Detects asset anomalies and health changes early and continuously
- ▶ Provides input protection and sensor bias adjustment
- ▶ Supports plug and play sensors and sensor cables with the same acquisition channel

Learn more about precision medium bandwidth signal chain platform solutions at analog.com/precisioncurrentsensing.

Parts in Signal Chain

- ▶ AD7768-1
- ▶ ADG5421F
- ▶ LT3092
- ▶ LTC2606
- ▶ AD8605
- ▶ ADA4945-1
- ▶ ADA4807-1
- ▶ ADR4540

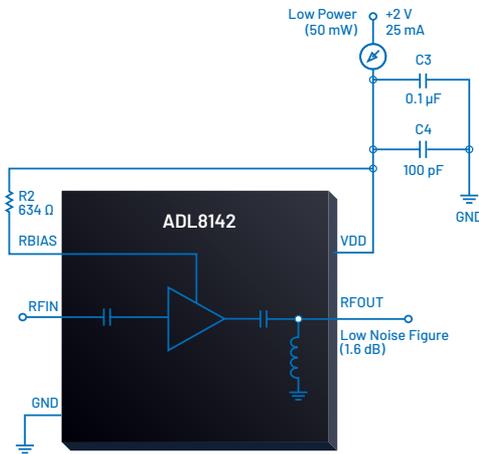
Applications

- ▶ Industrial automation
- ▶ Instrumentation and measurement
- ▶ Energy

Amplifiers

ADL8142: GaAs, pHEMT, MMIC, Low Noise Amplifier, 23 GHz to 31 GHz

The ADL8142 is a gallium arsenide (GaAs), monolithic microwave integrated circuit (MMIC), pseudomorphic high electron mobility transistor (pHEMT), low noise wideband amplifier that operates from 23 GHz to 31 GHz. The ADL8142 also features inputs and outputs that are AC-coupled and internally matched to 50 Ω, making it ideal for high capacity microwave radio applications.



Features and Benefits

- ▶ Low power operation supports large on-orbit arrays
- ▶ Self-biased with single positive supply in small (2 mm × 2 mm) package

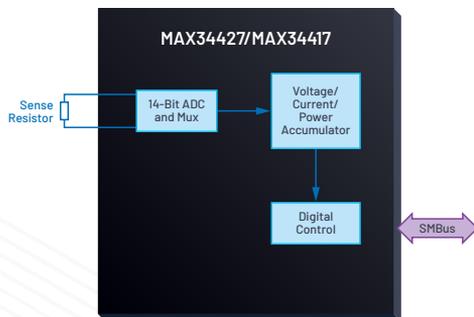
Applications

- ▶ Aerospace and defense
- ▶ Communications



MAX34427/MAX34417: SMBus Dual/Quad Dynamic Range Power Accumulators

The MAX34427/MAX34417 power accumulators are specialized current, voltage, and power monitors used to determine the power consumption of systems. Both devices have a very wide dynamic range (20,000:1) that allows for the accurate measurement of power in such systems. Both devices are configured and monitored with a standard I²C/SMBus serial interface. The unidirectional current sensor offers precision high-side operation with a low full-scale sense voltage.



Features and Benefits

- ▶ Low sense voltage (down to 5 μV) enables smaller, less expensive resistors
- ▶ Highly accurate power measurement of <3.5% error
- ▶ Multiple channels simultaneously monitor additional rails

Applications

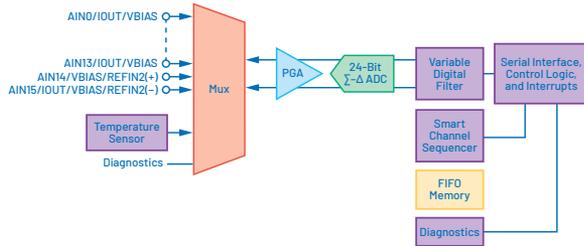
- ▶ Consumer
- ▶ Data center



Analog-to-Digital Converters

AD4130-8: 32 μ A, Ultra Low Power, 24-Bit Sigma-Delta ADC with Integrated PGA and FIFO

The AD4130-8 is an ultra low power, high precision, measurement solution for low bandwidth battery-operated applications. The fully integrated AFE includes a multiplexer for up to 16 single-ended or 8 differential inputs, a programmable gain amplifier (PGA), a 24-bit sigma-delta analog-to-digital controller (ADC), an on-chip reference and oscillator, selectable filter options, a smart sequencer, sensor biasing and excitation options, diagnostics, and newly added features to improve the battery-operated lifetime (more than 5 years on a coin cell) and automated duty cycling.



Features and Benefits

- ▶ 5-year lifetime on a coin cell battery
- ▶ Small WLCSP package (3.6 mm × 2.74 mm) reduces board space
- ▶ Autonomous measurements minimize the workload of the power system
- ▶ 10× lower power than AD7124

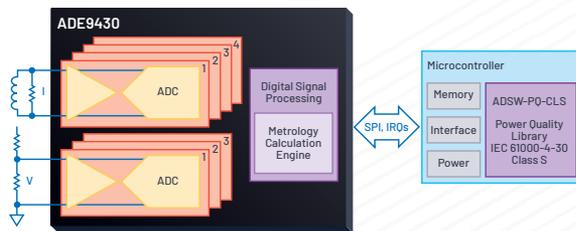
Applications

- ▶ Industrial automation
- ▶ Instrumentation and measurement
- ▶ Healthcare
- ▶ Consumer



ADE9430: High Performance, Polyphase Energy, and Class S Power Quality Monitoring IC

The ADE9430 is a highly accurate, fully integrated, polyphase energy, and power quality monitoring device. Superior analog performance and a digital signal processing (DSP) core enable accurate energy monitoring over a wide dynamic range. An integrated high end reference ensures low drift over temperature with a combined drift of less than ± 25 ppm/ $^{\circ}$ C maximum for the entire channel including a PGA and an ADC.



Features and Benefits

- ▶ Precertified for the Class S power quality standard
- ▶ Companion software library for the host MCU included
- ▶ Allows scaling to a 3-phase system with current transformers

Applications

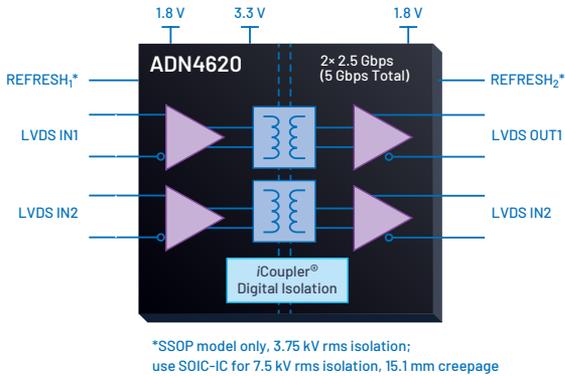
- ▶ Energy
- ▶ Industrial automation
- ▶ Instrumentation and measurement



Interface and Isolation

ADN4620 Family: 3.75 kV rms, Dual LVDS 2.5 Gigabit Isolators

The **ADN4620** family of gigabit isolators protect gigabit bandwidth AFEs from EMC transients with ADI trusted safety and data integrity. This product meets safety requirements for CAT II 1000 V rms, even with high measurement channel density.



Family of Products Include

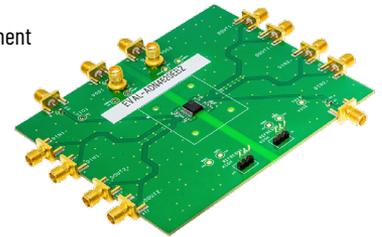
- ▶ **ADN4620:** 3.75 kV rms dual LVDS 2 Gbps isolator (0 reverse channels)
- ▶ **ADN4621:** 3.75 kV rms dual LVDS 2 Gbps isolator (1 reverse channel)

Features and Benefits

- ▶ 5 Gbps total bandwidth through 2-channel isolator offers short-reach fiber replacement
- ▶ <1 ps ultralow jitter and <40 ps skew for precise timing and accurate measurement/isolation of ADC clocks
- ▶ LVDS compliant inputs and outputs as a drop-in solution minimizes design time

Applications

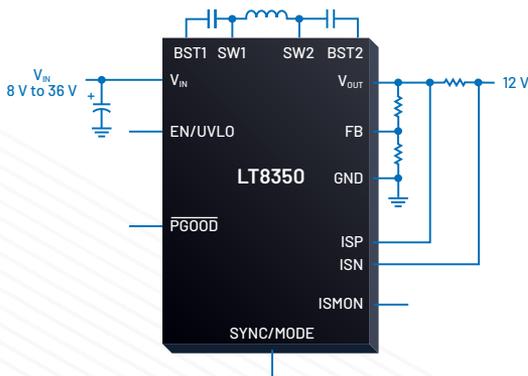
- ▶ Instrumentation and measurement
- ▶ Aerospace and defense
- ▶ Industrial automation
- ▶ Automotive



Power

LT8350: 40 V_{IN}, 18 V_{OUT}, 6A Synchronous Buck-Boost Silent Switcher Device

The **LT8350** is a monolithic 4-switch synchronous buck-boost converter with Silent Switcher architecture to make a simple, reliable, and highly efficient high current power supply. It meets the toughest EMI standards up to VHF/UHF range while delivering high efficiency at high switching frequency.

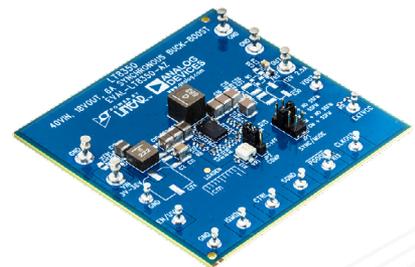


Features and Benefits

- ▶ High current capability up to 6 A at regulated output voltage
- ▶ Reliable noise-free operation in buck only or boost only modes

Applications

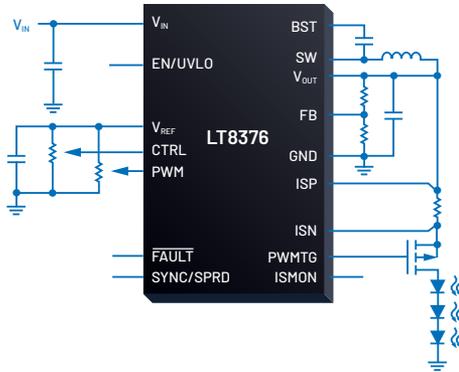
- ▶ Automotive
- ▶ Industrial automation
- ▶ Communications



Power (Continued)

LT8376: 60 V, 3 A Synchronous Step-Down LED Driver with Silent Switcher Technology

The **LT8376** is a single LED driver with Silent Switcher technology that supports high voltage LED strings. It has the capability to significantly reduce EMI and achieve high dimming ratios without increasing BOM count or hampering efficiency.



Features and Benefits

- ▶ High voltage capability up to 60 V to drive high voltage LED strings
- ▶ Silent Switcher architecture combined with SSFM meets stringent automotive EMI standards
- ▶ High dimming ratio up to 100,000:1 for extreme ambient light conditions

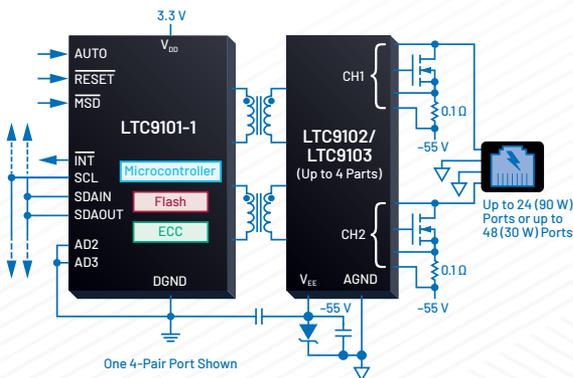
Applications

- ▶ Automotive
- ▶ Industrial automation



LTC910x Family: 48-Port IEEE 802.3bt (PoE 2) PSE Controller Chipset

The **LTC9101-1**, **LTC9102**, and **LTC9103** chipset is a 48-port power sourcing equipment (PSE) controller designed for use in IEEE 802.3 at Type 2 and IEEE 802.3bt Type 3 and 4 compliant PoE systems. This chipset delivers lowest-in-industry heat dissipation by utilizing low $R_{DS(ON)}$ external MOSFETs and 0.1 Ω sense resistance per power channel. A transformer-isolated communication protocol replaces expensive opto-couplers and complex isolated 3.3 V supply, resulting in significant BOM cost savings.



Family of Products

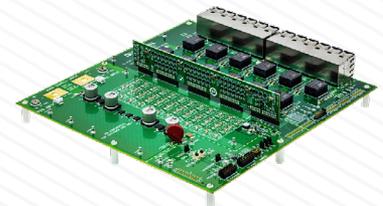
- ▶ LTC9101-1: 48-Port IEEE 802.3bt (PoE 2) PSE digital controller
- ▶ LTC9102: 12-channel PSE analog controller to pair with LTC9101
- ▶ LTC9103: 8-channel PSE analog controller to pair with LTC9101

Features and Benefits

- ▶ Provides a software-defined analog front end to simplify implementation and extend performance
- ▶ System thermal dissipation is reduced, simplifying thermal management
- ▶ Manages large surges with -20 V to +80 V abs max ratings and improved hot swap loop

Applications

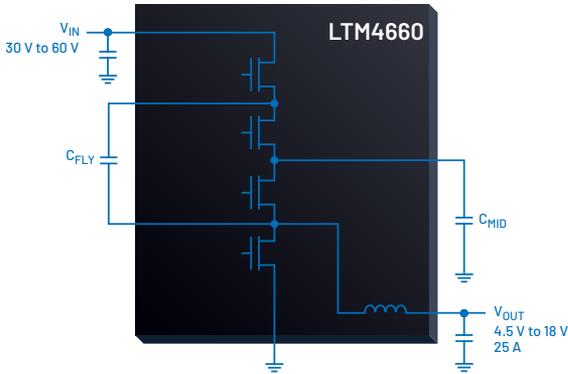
- ▶ Communications
- ▶ General-purpose
- ▶ Building and infrastructure
- ▶ Industrial automation



Power (Continued)

LTM4660: 60 V, 300 W Hybrid Step-Down μ Module Bus Converter

The LTM4660 is a 300 W μ Module nonisolated bus converter that creates bus voltages, such as 12 V or 5 V from 48 V_{IN} or 54 V_{IN}. This unique hybrid architecture makes the LTM4660 a smaller and more efficient product than conventional bus converter modules.



Features and Benefits

- ▶ 97.3% peak conversion efficiency saves power loss of a system
- ▶ 50% smaller than the industrial standard bus converter modules
- ▶ CISPR 22 Class-B compliant

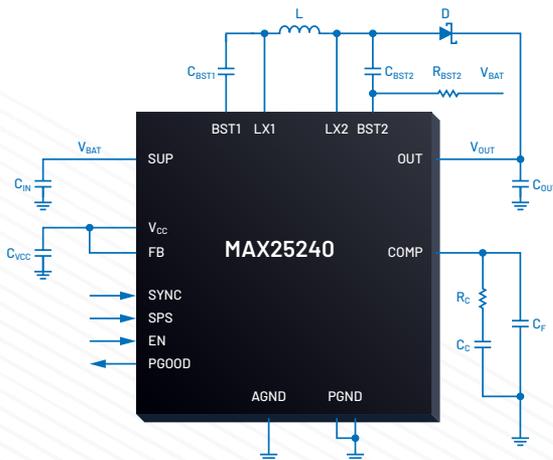
Applications

- ▶ Data center
- ▶ Communications
- ▶ Instrumentation and measurement
- ▶ Aerospace and defense
- ▶ General-purpose



MAX25240/MAX25239: Automotive 2 V to 36 V, 4 A and 6 A Buck-Boost Converters

The MAX25239/MAX25240 are small, synchronous, buck-boost converters with integrated H-bridge switches. These ICs provide a fixed-output regulation voltage and an externally adjustable output voltage range of 3 V to 20 V with an input voltage above, below, or equal to the output regulation voltage.



- ▶ V_{IN} range: 2 V to 36 V (42 V max)
- ▶ V_{OUT} range: 3 V to 20 V
- ▶ F_{SW}: 2.1 MHz/400 kHz/200 kHz options

Family of Products

- ▶ MAX25240: 6 A buck-boost converters
- ▶ MAX25239: 4 A buck-boost converters

Features and Benefits

- ▶ Integrated 4 A and 6 A H-bridge switches for power conversion
- ▶ SYNC input and spread-spectrum frequency modulation minimize EMI interference
- ▶ High 2.1 MHz switching frequency reduces power consumption

Applications

- ▶ Automotive



Processors and Microcontrollers

MAX78002: Artificial Intelligence Microcontroller with Low Power Convolutional Neural Network Accelerator

The **MAX78002** is a new breed of AI microcontroller that enables neural networks to execute at ultra low power and live at the edge of the IoT. This device combines the most energy-efficient AI processing with ADI's proven ultra low power microcontrollers. Our hardware-based CNN accelerator enables battery-powered applications to execute AI inferences while expending only millijoules of energy.

Features and Benefits

- ▶ Hardware CNN accelerator conserves battery energy and provides timely results
- ▶ Highly integrated SoC for efficient system control in a compact size

Applications

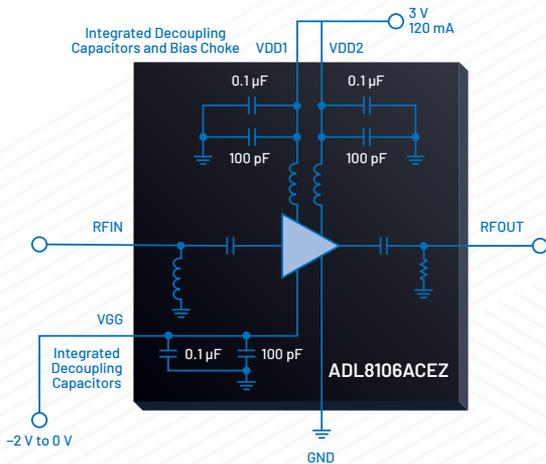
- ▶ General-purpose
- ▶ Building and infrastructure
- ▶ Consumer
- ▶ Industrial automation



RF and Microwave

ADL8106ACEZ: GaAs, pHEMT, Low Noise Amplifier, 20 GHz to 54 GHz

The **ADL8106ACEZ** is a gallium arsenide (GaAs), pseudomorphic high electron mobility transfer (pHEMT), monolithic microwave integrated circuit (MMIC), wideband low noise amplifier that operates from 20 GHz to 54 GHz. The ADL8106ACEZ provides a gain of 21.5 dB, an output power for 1 dB compression (OP1dB) of 14 dBm, and a typical output third-order intercept (OIP3) of 21.5 dBm at 30 GHz to 44 GHz. The ADL8106ACEZ requires 120 mA from a 3 V supply voltage (VDD) and features inputs and outputs that are internally matched to 50 Ω , facilitating integration into multichip modules (MCMs).



Features and Benefits

- ▶ 20 GHz to 54 GHz bandwidth in a small form factor
- ▶ 3.0 dB low noise figure and 21.5 dBm high linearity meet demanding requirements

Applications

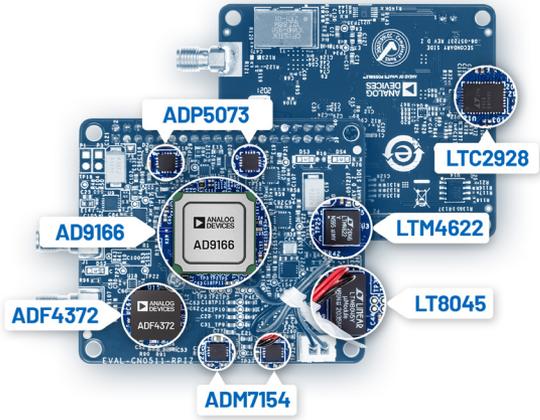
- ▶ General-purpose
- ▶ Aerospace and defense
- ▶ Instrumentation and measurement
- ▶ Communications



RF and Microwave (Continued)

CN0511: DC to 5.5 GHz Signal Generator with ± 0.5 dB Calibrated Output Power

The **CN0511** solution provides a wideband programmable signal generator from DC to 5.5 GHz. The output amplitude has been software calibrated across the entire operating range to be within ± 0.5 dB of the programmed output power. Along with fast frequency hopping capabilities, this lower cost instrument connects directly to a Raspberry Pi and requires no additional inputs or equipment to function.



Features and Benefits

- ▶ Wideband DC to 5.5 GHz sine wave output
- ▶ Amplitude calibrated across the entire frequency range
- ▶ Onboard clocking and power generation out of the box

Applications

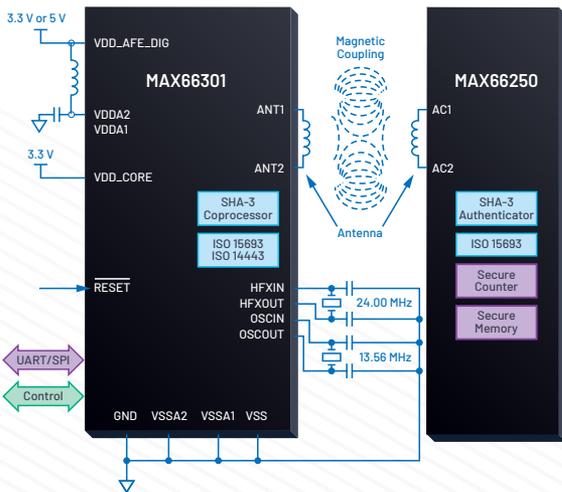
- ▶ Instrumentation and measurement
- ▶ Communications



Security

MAX66250/MAX66301: NFC Secure Authenticator Tag and Reader

The **MAX66250/MAX66301** NFC secure authenticators and coprocessors provide a complete contactless security solution. These products feature the latest SHA-3 challenge-and-response cryptographic algorithm coupled with NFC ISO 15693 interface to authenticate and protect against security attacks and prevent counterfeits.



Family of Products

- ▶ MAX66250: ISO 15693, SHA3-256, 256-bit user EEPROM secure authenticator tag
- ▶ MAX66301: DeepCover® secure authenticator with SHA-3 and RFID coprocessor reader

Features and Benefits

- ▶ SHA-3 challenge-and-response cryptographic algorithm securely authenticates peripherals
- ▶ ISO 15693 interface supports greater communication distance for passive NFC tags

Applications

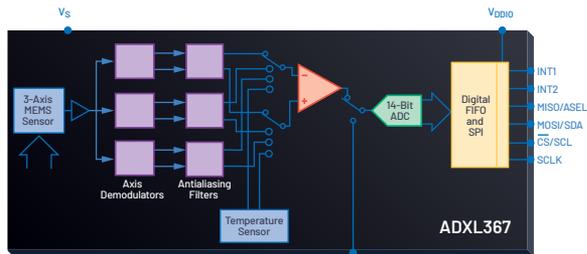
- ▶ Healthcare
- ▶ General-purpose
- ▶ Instrumentation and measurement



Sensors and MEMS

ADXL367: Nanopower, 3-Axis, $\pm 2\text{ g}/\pm 4\text{ g}/\pm 8\text{ g}$ Digital Output MEMS Accelerometer

The **ADXL367** is an ultra low power, 3-axis microelectromechanical systems (MEMS) accelerometer that consumes only 0.89 μA at a 100 Hz output data rate and 180 nA when in motion-triggered wake-up mode. Unlike accelerometers that use power duty cycling to achieve low power consumption, the ADXL367 does not alias input signals by under sampling, but samples the full bandwidth of the sensor at all data rates.



Features and Benefits

- ▶ True system-level power reduction with single-cell battery operation
- ▶ Integrated power saving digital features including motion activation
- ▶ Small 2.2 mm \times 2.3 mm package

Applications

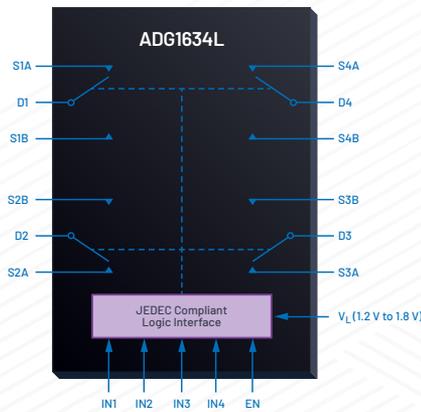
- ▶ Healthcare
- ▶ Consumer
- ▶ Industrial automation
- ▶ Automotive



Switches and Multiplexers

ADG1634L: 4.7 Ω R_{ON} , Quad SPDT Switch with 1.2 V and 1.8 V JEDEC Logic Compliance

The **ADG1634L** is a monolithic industrial CMOS (iCMOS[®]) analog switch comprising four independently selectable single-pole, double-throw (SPDT) switches, respectively. All channels exhibit break-before-make switching action that prevents momentary shorting when switching channels. The ultralow on resistance and on-resistance flatness of the switch make it an ideal solution for data acquisition and gain switching applications, where low distortion is critical



Note: Switches shown for a one input logic.

Features and Benefits

- ▶ JEDEC standard compliant logic interface eliminates the need for level translators
- ▶ Up to 360 mA continuous current replaces relays
- ▶ Small 4 mm² LFCS package

Applications

- ▶ Communications
- ▶ Instrumentation and measurement
- ▶ Industrial automation
- ▶ General-purpose



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