想像を超える可能性を
AHEAD OF WHAT'S POSSIBLE™

オートメーション・コントローラ設計向け
製品およびシグナル・チェーン・ソリューション

アナログ・デバイセズのオートメーション・コントローラ・セグメントの概要

アナログ・デバイセズは、産業用高精度信号計測ソリューションのリーディング・サプライヤです。これらのソリューションは、化学および医薬品、炭化水素（石油およびガス）、環境（廃水および処理）、オートモーティブなど、幅広い産業の処理および製造プラント、機械の PLC、DCS システムのオートメーション・コントローラ・モジュールに組み込まれています。定評のある産業用アプリケーションのシステム知識と、高性能、低消費電力、高集積が特長の包括的な製品ポートフォリオを有するアナログ・デバイセズは、オートメーション・コントローラの設計エンジニアにとって重要なパートナーです。

主な課題とシステムの考慮事項

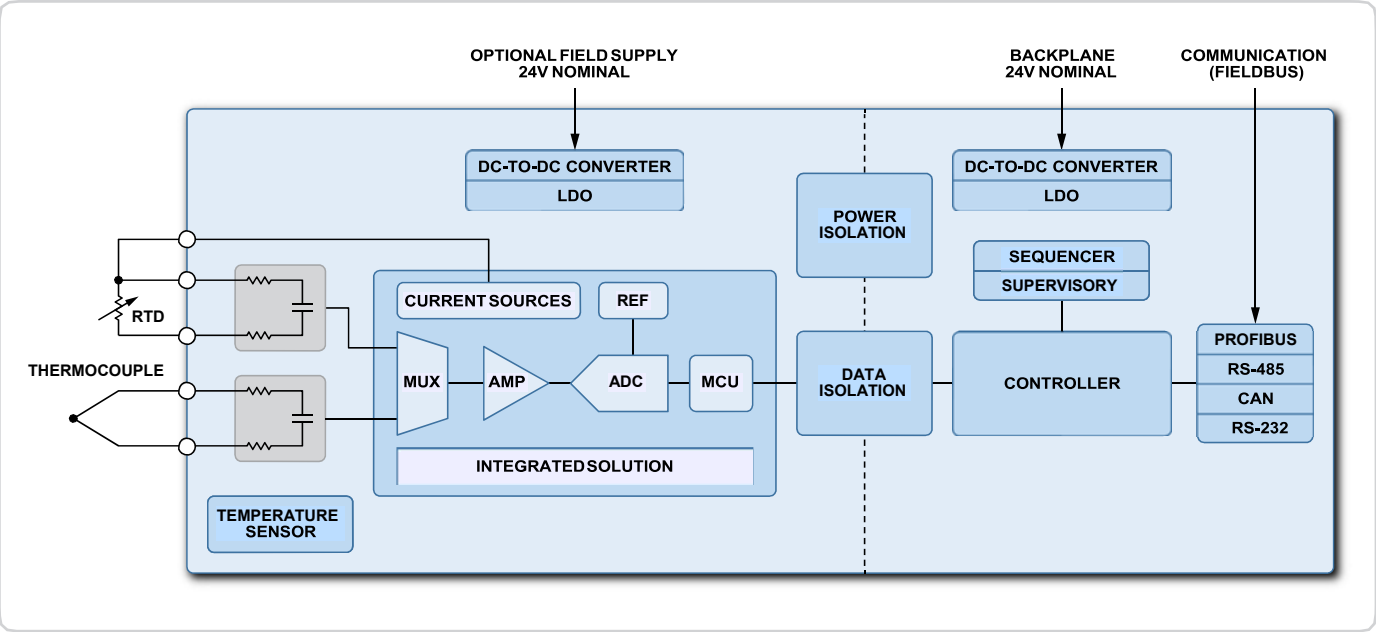
- 高可用性システム
- 高信頼性、供給期間の延長、組み立ておよび製造コストの削減
- I/O チャンネル密度の向上とモジュール・ハウジングの小型化により、消費電力の低減と熱および電力効率の向上を実現する、より小型で集積化されたソリューションに対するニーズが増大
- 機能安全の向上に対するエンド・マーケットのニーズの増大

アナログ・デバイセズを選ぶ理由

- アナログ・デバイセズは、長年にわたって産業市場のニーズに対応してきた、高精度コンバータおよびシグナル・プロセッサ技術のリーダー
- アナログ・デバイセズは、現在および将来の産業市場のニーズに対応するため、中核技術およびアプリケーション固有の製品に継続的に投資
- 幅広いモジュール入出力で最も効率的な高精度計測機能を備えた、クラス最高のシグナル・チェーン・ソリューション
- 深いシステム知識とオートメーション・コントローラの設計サイクルを支えてきた長年の実績
- 長い製品ライフサイクル、高い信頼性、納期の順守

オートメーション・コントローラ・アプリケーション

- アナログ入力温度モジュール
- アナログ入力絶縁モジュール
- アナログ入力チャンネル間絶縁モジュール
- アナログ出力絶縁モジュール
- アナログ出力チャンネル間絶縁モジュール



アナログ入力（温度モジュール）Analog Input: Temperature Module

Part Number	Description	Key Features and Benefits	
マルチプレクサ/スイッチ / Multiplexer / Switch			
ADG5208 / 5209	High voltage latch-up proof, 8:1 (5208) / 4:1 (5209) Multiplexer	• 8 kV I/O port to supplies • 2.9 pF off source capacitance • 34 pF off drain capacitance	• 0.4 pC charge injection • Low on resistance: 160 Ω typical • ±9 V to ±22 V dual-supply operation
ADG5408 / 5409	High voltage latch-up proof, 8:1 (5408) / 4:1 (5409) Multiplexer	• 8 kV HBM ESD rating • Low on resistance (13.5 Ω)	• ±9 V to ±22 V dual supply operation
電流源回路部（基準電圧とアンプ） / Current Source Block (Reference and Amp)			
ADR3450	Micro-Power, High-Accuracy 5.0V Voltage Reference	• Initial accuracy: ±0.1% (maximum) • Maximum temperature coefficient: 8 ppm/°C • Operating temperature range: −40°C to +125°C • Output current: +10 mA source/−3 mA sink	• Low quiescent current: 100 µA (maximum) • Low dropout voltage: 250 mV at 2 mA • Output noise (0.1 Hz to 10 Hz): <10 µV p-p at 1.2 V (typical) • 6-lead SOT-23 package
ADR550	High Precision Shunt Mode Voltage Reference (5.0 V)	• Ultracompact SC70 and SOT-23-3 packages • Temperature coefficient: 40 ppm/°C maximum) • Initial accuracy: ±0.2%	• Low output voltage noise: 14 µV p-p @ 2.5 V output • No external capacitor required • Operating current range: 50 µA to 15 mA
AD8541/2	General-Purpose CMOS Single Rail-to-Rail Amplifier	• Single-supply operation: 2.7 V to 5.5 V • Low supply current: 45 µA/amplifier • Wide bandwidth: 1 MHz • No phase reversal	• Low input currents: 4 pA • Unity gain stable • Rail-to-rail input and output
ADA4505	10µA, RRIO, Zero Input Crossover Distortion Single Op Amp	• PSRR: 100 dB minimum • CMRR: 105 dB typical • Very low supply current: 10 µA per amplifier max.	• Rail-to-rail input and output • 3 mV offset voltage maximum • Very low input bias current: 0.5 pA typ.
ADC ドライブ・アンプ / ADC Drive Amplifier			
ADA4940	Ultralow Power, Low Distortion ADC Driver	• Small signal bandwidth: 260 MHz • Extremely low harmonic distortion • −122 dB THD at 50 kHz • −96 dB THD at 1 MHz • Low input voltage noise: 3.9 nV/√Hz • Very low power consumption: 6.25 mW (5 V supply) • 0.35 mV maximum offset voltage	• Externally adjustable gain • Differential-to-differential or single-to-differential operation • Balanced outputs • Settling time to 0.1%: 34 ns • Output voltage swing from −VS + 0.1 V to +VS − 0.1 V • Adjustable output common-mode voltage
ADA4522	Single 55 V, EMI Enhanced, Zero-Drift, Ultralow Noise, Rail-to-Rail Output Operational Amplifiers	• Low offset voltage: 5 µV maximum • Extremely low offset voltage drift: 22 nV/°C maximum • Low voltage noise density: 5.8 nV/√Hz typical • 117 nV p-p typical from 0.1 Hz to 10 Hz • Low input bias current: 50 pA typical • Unity-gain crossover: 3 MHz typical	• Wide range of operating voltages • Single-supply operation: 4.5 V to 55 V • Dual-supply operation: ±2.25 V to ±27.5 V • Integrated EMI filters • Unity-gain stable

基準電圧源 / ADC Reference			
ADR4520/ADR4525/ ADR4530/ADR4533/ ADR4540/ADR4550	Ultralow noise, 2 ppm/°C, high accuracy voltage reference (2.048 V/2.50 V/3.00 V/ 3.30 V/4.096 V/5.00 V)	• Initial accuracy: 0.02% max • Temperature coefficient: 2 ppm/°C max • Output noise (0.1 Hz to 10 Hz): 1.25 µV p-p @ VOUT of 2.5 V	• Supply range: 3 V to 15 V • Temperature range: −40°C to +125°C • 8-lead SOIC package
集積型 AD コンバータ / Integrated Solutiion - ADC			
AD7124	8-Channel, Low Noise, Low Power, 24-Bit, Sigma-Delta ADC with PGA and Reference	• Low power: 24 nV rms at 1.17 SPS, gain = 128 • Mid power: 20 nV rms at 2.34 SPS, gain= 128 • Full power: 23 nV rms at 9.4 SPS, gain= 128 • Up to 22 noise free bits in all power modes (gain = 1) • Full power: 9.38 SPS to 19,200 SPS • Mid power: 2.34 SPS to 4800 SPS • Low power: 1.17 SPS to 2400 SPS • Rail-to-rail analog inputs for gains > 1 • Simultaneous 50 Hz/60 Hz rejection at 25 SPS	• Diagnostic functions (which aid safe integrity level) • Crosspoint multiplexed analog inputs • 8 differential/15 pseudo differential inputs • Programmable gain (1 to 128) • Band gap reference w/15 ppm/°C drift max. • Matched programmable excitation currents • Internal clock oscillator • On-chip bias voltage generator • Low-side power switch
AD7175 / AD7176	24-Bit, 250 kSPS, Sigma-Delta ADC with 20 µs Settling and True Rail-to-Rail Buffers (AD7175)	• Fast and flexible output rate: 5 SPS to 250 kSPS • Ch.can data rate of 50 kSPS/ch. (20 µs settling) • Performance specifications • 17.2 noise free bits at 250 kSPS • 20 noise free bits at 2.5 kSPS • 24 noise free bits at 20 SPS • INL: ±1 ppm of FSR • 85dB rejection of 50Hz and 60Hz with 50ms settling • User configurable input channels • 2 fully differential channels or 4 single-ended channels	• Crosspoint multiplexer • On-chip 2.5 V reference (±2 ppm/°C drift) • True rail-to-rail analog and reference input buffers • Internal or external clock • Power: AVDD1 = 5 V, AVDD2 = IOVDD = 2 V to 5 V • Split supply with AVDD1/AVSS at ±2.5 V • ADC current: 8.4 mA • Temperature range: −40°C to +105°C
AD7177	32-Bit, 10 kSPS, Sigma-Delta ADC with 100 µs Settling and True Rail-to-Rail Buffers	• 32-bit data output • Fast and flexible output rate: 5 SPS to 10 kSPS • Ch. scan data rate of 10 kSPS/ch (100 µs settling) • 19.1 noise free bits at 10 kSPS • 20.2 noise free bits at 2.5 kSPS • 24.6 noise free bits at 5 SPS • INL: ±1 ppm of FSR	• User configurable input channels • 2 fully differential channels or 4 single-ended channels • Crosspoint multiplexer • On-chip 2.5 V reference (±2 ppm/°C drift) • True rail-to-rail analog and reference input buffers • 85 dB filter rejection of 50 Hz and 60 Hz with 50 ms settling
温度センサー / Temperature Sensor			
ADT7320	±0.25°C, 16-Bit Digital SPI Temp. Sensor	• ±0.20°C from −10°C to +85°C • ±0.25°C from −20°C to +105°C • 16-bit resolution: 0.0078°C • Ultralow temperature drift: 0.0073°C • No temperature calibration/correction required by user • No linearity correction required • Power saving 1 sample per second (SPS) mode	• 700 µW typical at 3.3 V in normal mode • 7 µW typical at 3.3 V in shutdown mode • Operating temperature from −40°C to +150°C • Critical overtemperature indicator • Overtemperature/undertemperature interrupt • 4 × 4 mm LFCSP package
ADT7410	±0.5°C, 16-Bit Digital I2C Temp. Sensor	• ±0.20°C from −10°C to +85°C at 3.0 V • ±0.25°C from −20°C to +105°C at 2.7 V to 3.3 V • 16-bit resolution: 0.0078°C • Ultralow temperature drift: 0.0073°C • NIST traceable or equivalent • Fast first temperature conversion on power-up of 6 ms	• Easy implementation • No temperature calibration/correction required by user • No linearity correction required • Low power • Power-saving 1 sample per second (SPS) mode • 700 µW typical at 3.3 V in normal mode • 7 µW typical at 3.3 V in shutdown mode

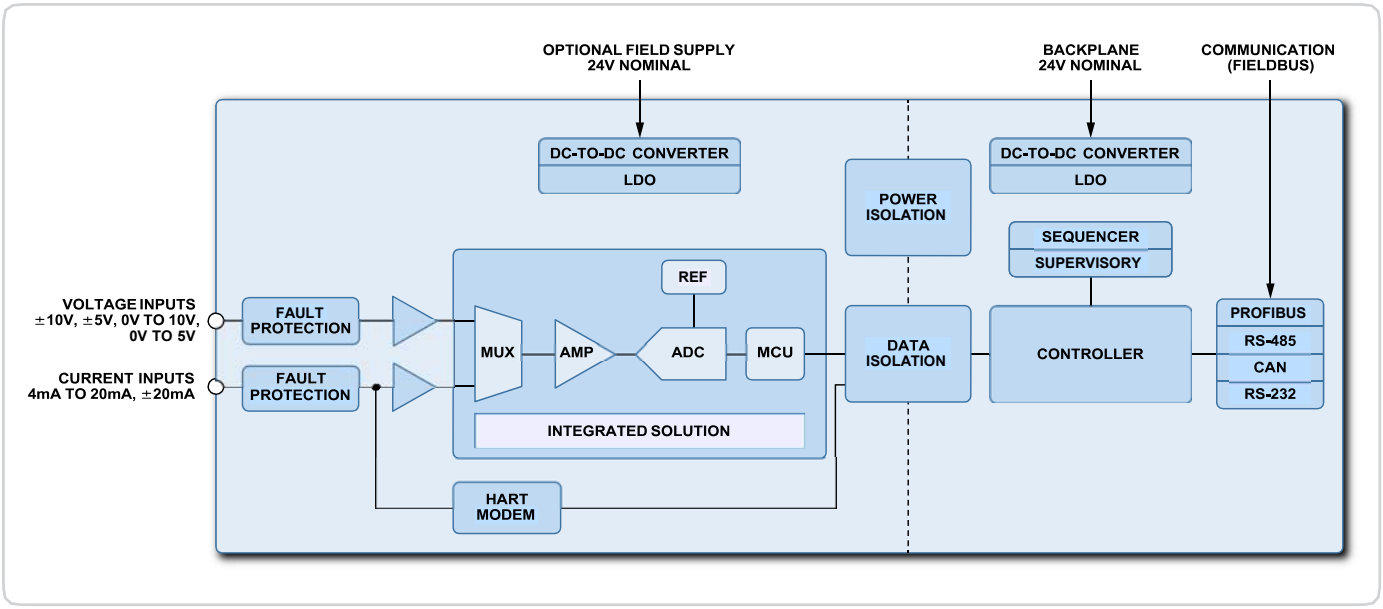
マイコン集積ソリューション / Integrated Solution – Microcontroller			
ADuCM361	Low power percision andlog microcontroller, ARM Cortex™-M3 with single Σ-Δ ADCs	• Analog performance • Dual PGA and 24-bit, 4 kSPS ADCs • 12 multiplexed analog inputs • 12-bit DAC • Digital performance • 32-bit ARM Cortex-M3 processor • 128 kB flash, 8 kB SRAM	• Power consumption only 1 mA with core operating at 500 kHz (both ADCs on, input buffers off, PGA gain of 4, one SPI port on, and all timers on) • Package and temperature • 48-lead LFCSP (7 mm × 7 mm) • –40°C to +125°C
ADuC7061	Low power, precision analog microcontroller, ARM7TDMI® with single Σ-Δ ADCs	• Dual 24-bit 8 kSPS Σ-Δ ADCs • 8 multiplexed analog inputs • Single 14-bit DAC • ARM7TDMI 16-/32-bit RISC controller	• 32 kB flash and 4 kB SRAM • UART, SPI, GPIO, PWM • Nominal supply 2.5 V • Temperature range: –40°C to +125°C
アイソレーション電源 / Power Isolation			
ADuM3471	Quad-channel data with isolated switching regulators	• Integrated transformer driver • Regulated adjustable output: 3.3 V to 24 V • 2 W output power	• Quad dc-to-25 Mbps (NRZ) signal isolation channels • 20-lead SSOP package • Temperature range: –40°C to +105°C
ADP1621	Constant frequency, current mode step-up dc-to-dc controller	• 92% efficiency (no sense resistor required) • ±1.0% initial accuracy • Capable of high supply input voltage (> 5.5 V) with an external NPN or a resistor	• Programmable operating frequency (100 kHz to 1.5 MHz) with one resistor • Synchronizable to external clock
ADuM3190	2.5 kV rms isolated error amplifier	• Stable over time and temperature • 0.5% initial accuracy • 1% accuracy over the full temperature range • Bandwidth: 400 kHz	• Low power operation: < 7 mA total • Wide supply voltage range: 3 V to 20 V • Temperature range: –40°C to +125°C • 16-lead QSOP package
アイソレーション / Isolation			
ADuM140/141/142 D	Robust, Quad Channel Isolator W/ Input Disable	High common-mode transient immunity: 100 kV/µs High robustness to radiated and conducted noise Low propagation delay 13 ns maximum for 5 V operation 15 ns maximum for 1.8 V operation 150 Mbps maximum guaranteed data rate	Low dynamic power consumption 1.8 V to 5 V level translation High temperature operation: 125°C Fail-safe high or low options 16-lead, RoHS compliant, SOIC package ADuM140E1/ADuM141E1/ADuM142E1 pin-compatible with ADuM1400/ADuM1401/ADuM1402
ADuM140/141/142 E	Robust, Quad Channel Isolator W/ Output Enable	• High common-mode transient immunity: 100 kV/µs • High robustness to radiated and conducted noise • Low propagation delay • 13 ns maximum for 5 V operation • 15 ns maximum for 1.8 V operation • 150 Mbps maximum guaranteed data rate	• Low dynamic power consumption • 1.8 V to 5 V level translation • High temperature operation: 125°C • Fail-safe high or low options • 16-lead, RoHS compliant, SOIC package • ADuM140D1/ADuM141D1/ADuM142D1 pin-compatible with ADuM1400/ADuM1401/ADuM1402
DC/DC コンバータ / DC / DC Converter			
ADP2441	36 V, 1 A, synchronous step-down dc-to-dc regulator	• Wide input voltage range: 4.5 V to 36 V • Adjustable output down to 0.6 V • High efficiency up to 94% • ±1% output voltage accuracy	• Adjustable frequency 300 kHz to 1 MHz • Soft start with tracking, power-good pin, and overcurrent limit protection
ADP2442	36 V,1 A, Synchronous, Step-Down, DC-to-DC Regulator with External Clock Synchronization	• Wide input voltage range of 4.5 V to 36 V • Low minimum on time of 50 ns • Maximum load current of 1 A • High efficiency of up to 94% • Adjustable output down to 0.6 V • ±1% output voltage accuracy • Adjustable switching frequency of 300 kHz to 1 MHz	• External synchronization from 300 kHz to 1 MHz • Pulse skip mode or Forced fixed frequency mode • Precision enable input pin • Open-drain power good • Reference similar product ADP2441 with programmable soft-start and tracking.
ADP1621	Constant frequency, current mode step-up dc-to-dc controller	• 92% efficiency (no sense resistor required) • ±1.0% initial accuracy • Capable of high supply input voltage (> 5.5 V) with an external NPN or a resistor	• Programmable operating frequency (100 kHz to 1.5 MHz) with one resistor • Synchronizable to external clock
ADP5050/ADP5051/ ADP5052/ADP5053	Integrated power solution with quad buck regulators	• Wide input voltage range: 4.5 V to 15 V • I2C Interface (ADP5050, ADP5051) • 200 mA LDO regulator (ADP5050, ADP5052) • Watchdog timer and reset (ADP5051, ADP5053)	• 250 kHz to 1.4 MHz adj. switching frequency • Two programmable 1.2 A/2.5 A/4 A sync buck regulators with low-side FET driver • Two 1.2 A sync buck regulators

リニア・レギュレータ / LDO			
ADP7182	-200mA, negative voltage input, Low Noise	• Low Noise: 18 µV RMS • Power supply rejection ratio (PSRR): 66 dB at 10 KHz at VOUT=-3V • Positive or Negative Enable Logic • Stable with small 2.2µF ceramic output capacitor • Input voltage range: -2.7 V to -28 V • Maximum output current: -200 mA	• Low dropout voltage: 185 mV @ -200 mA load • Initial accuracy: ±1% • Accuracy over line, load, and temperature: +2% maximum/−3% minimum
ADP7102/7104/7105	20 V, 300 / 500 mA, Low Noise, CMOS LDO	• Input voltage range: 3.3 V to 20 V Maximum output current: 300 mA (ADP7102), 500 mA (ADP7104/5) Low noise: 15 µV rms for fixed output versions PSRR performance of 60 dB at 10 kHz, VOUT = 3.3 V	• Reverse current protection • Low dropout voltage: • 200 mV at 300 mA load (ADP7102), 350 mV at 500mA load (ADP7105) • Initial accuracy: ±0.8%
ADP7112 / 7118	20 V, 200 mA, Low Noise, CMOS LDO	• Low noise: 11 µV rms independent of fixed output voltage • PSRR of 88 dB at 10 kHz, 68 dB at 100 kHz, 50 dB at 1 MHz, VOUT ≤ 5 V, VIN = 7 V • Input voltage range: 2.7 V to 20 V • Maximum output current: 200 mA • Initial accuracy: ±0.8% • Accuracy over line, load, and temperature ±1.8%, TJ = −40°C to +125°C	• Low dropout voltage: 200 mV (typical) at a 200 mA load, VOUT = 5 V • User programmable soft start • Low quiescent current, IGND = 50 µA (typical) with no load • 1x1.2, 6-ld WLCSP (ADP7112) 2x2, 6-ld LFCSP / 8ld-SOIC / 5ld-TSOT (ADP7118)
ADP7142	40 V, 200 mA, Low Noise, CMOS LDO	• Low Noise: 11 µVRMS independent of fixed output • PSRR of 88 dB @ 10 KHz, 68 dB @ 100 KHz, 50 dB @ 1 MHz, VOUT ≤5V, VIN = 7V • Input voltage range: 2.7 V to 40 V • Maximum output current: 200 mA • Initial accuracy: ±0.8% • Accuracy over line, load, and temperature ±1.1%, TJ = −40°C to +85°C ±1.8%, TJ = −40°C to +125°C	• Low dropout voltage: 200 mV @ 200 mA load, VOUT = 5V • User programmable Soft Start (LFCSP and SOIC only) • Low Quiescent Current, IGND = 50 µA with no load • Low shutdown current: 1.8 µA @ VIN = 5 V, 3.0 µA @ VIN = 40 V • Stable with small 2.2µF ceramic output capacitor
コントローラ / Controller			
ADSP-BF504/504F	Low Cost Blackfin with Optimized Peripheral Set for Industrial and General Purpose Applications	• 400 MHz (800 MMACS) Blackfin® core • 2 UART, 2 SPI, 2 SPORT, and CAN interfaces for communications	• 32 MB executable flash (ADSP-BF504F/ADSP-BF506F) • True 12-bit, dual SAR ADC (ADSP-BF506F)
インターフェース/通信 / Interface / Communication			
ADM1486	5 V, High Speed (30 Mbps), Low Power, Half Duplex RS-485 PROFIBUS Transceiver	• 30 Mbps Data Rate • 2.1 V Minimum Differential Output with 54 Ω Termination • Low Power 0.8 mA ICC	• 0.5 ns Skew Driver and Receiver • Driver Propagation Delay: 11 ns • Receiver Propagation Delay: 12 ns • High Impedance Outputs with Drivers Disabled or Power Off
ADM2485 / 2486	2.5 kV Signal Isolated, High Speed, Half Duplex RS-485 PROFIBUS Transceiver w/ Transformer Driver	• 20 Mbps data rate (ADM2486) • 5 V or 3 V operation (VDD1) • High common-mode transient immunity: >25 kV/µs • Isolated DE status output	• Receiver open-circuit, fail-safe design • 50 nodes on bus • Operating temperature range: −40°C to +85°C • Wide body, 16-lead SOIC package
ADM2482E	2.5 kV Signal Isolated, ESD Protected, Full/Half Duplex RS-485 Transceiver w/ Transformer Driver (16 Mbps)	• ±15 kV ESD protection on RS485 input/output pins • Data rate: 16 Mbps • 5 V or 3.3 V operation (VDD1) • 256 nodes on bus	• True fail-safe receiver inputs • Operating temperature range: −40°C to +85°C • Wide-body, 16-lead SOIC package
ADM2490E	5 kV Signal Isolated, High Speed (16 Mbps), ESD Protected, Full Duplex RS-485 Transceiver	• ±8 kV ESD protection on RS-485 input/output pins • 16 Mbps data rate • Suitable for 5 V or 3 V operation (VDD1) • High common-mode transient immunity: >25 kV/µs • Receiver has open-circuit, fail-safe design	• 32 nodes on the bus • Thermal shutdown protection • Operating temperature range: −40°C to +105°C • Wide body, 16-lead SOIC package
ADM2587E	2.5 kV Signal and Power Isolated, ±15 kV ESD Protected, Full/Half Duplex RS-485 Transceiver (500kbps)	• isoPower™ integrated isolated DC/DC converter • ±15 kV ESD protection on RS485 input/output pins • ADM2587E data rate: 500 kbps • 5 V or 3.3V operation	• Connect up to 256 nodes on one bus • Open- and short-circuit, fail-safe receiver inputs • High common-mode transient immunity: >25 kV/µs • Thermal shutdown protection

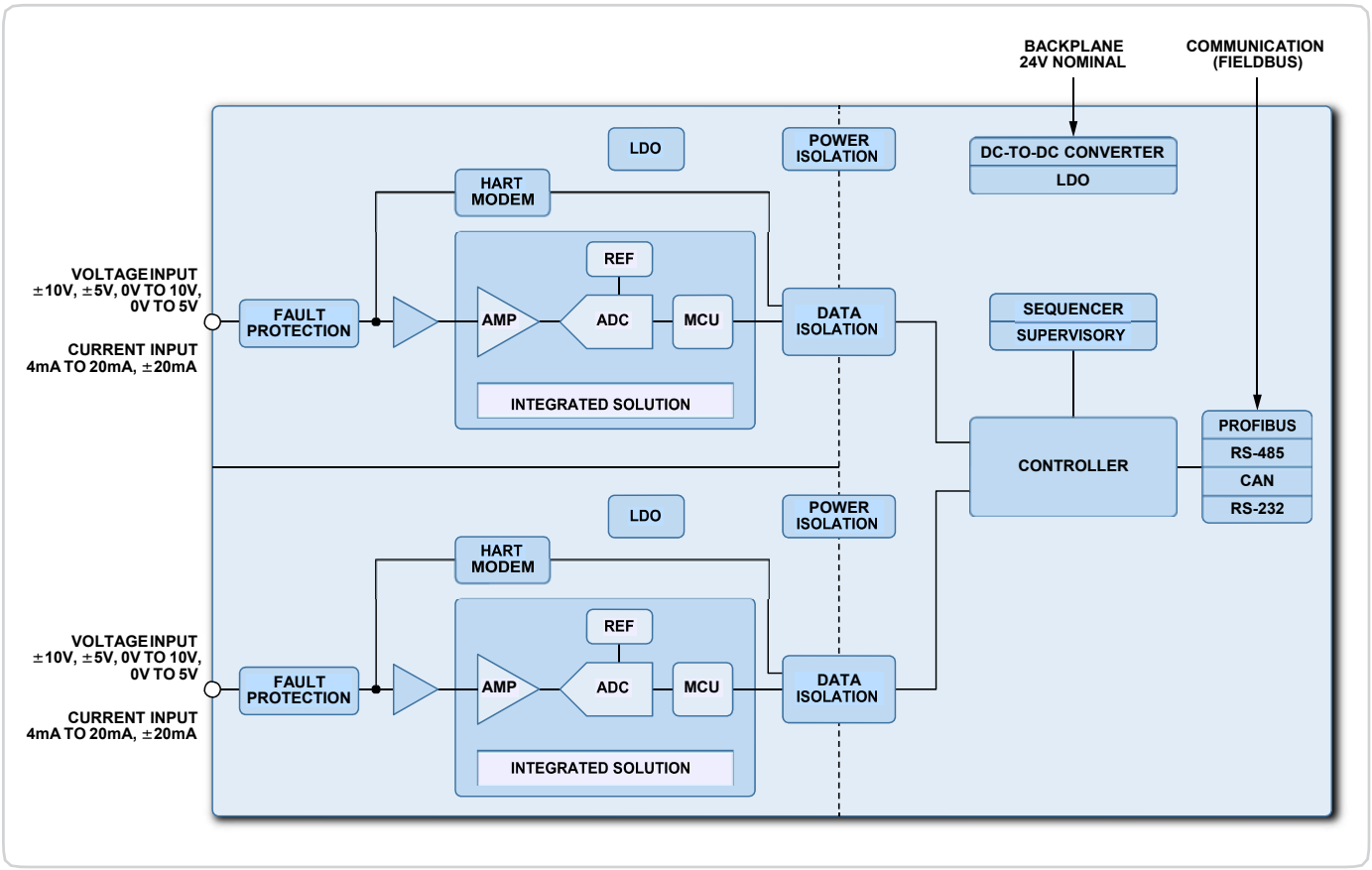
ADM3051	High Speed Industrial CAN Transceiver with Bus Protection for 24 V Systems	• High speed data rates up to 1 Mbps • Short-circuit protection on bus pins • Slope control for reduced EMI	• Unpowered nodes do not disturb the bus • Temperature range: −40°C to +125°C
ADM3052	5 kV rms isolated CAN transceiver with integrated high voltage, bus side, linear regulator	• High speed data rates up to 1 Mbps • Fully isolated digital interface • Integrated V+ linear regulator • Bus side powered by V+ and V−	• Short-circuit protection on bus pins • Integrated bus miswire protection • Unpowered nodes do not disturb the bus
ADM3053	2.5 kV rms signal and power isolated CAN transceiver with integrated isolated dc-to-dc converter	• High speed data rates up to 1 Mbps • Fully isolated power and data • Short-circuit protection on bus pins	• Slope control for reduced EMI • Unpowered nodes do not disturb the bus
ADM3054	5 kV rms signal isolated high speed CAN transceiver with bus protection	• High speed data rates up to 1 Mbps • Fully isolated digital interface • Short-circuit protection on bus pins	• Unpowered nodes do not disturb the bus • Able to detect loss of power on bus side • Temperature range: −40°C to +125°C
ADM3101E	±15 kV ESD protected, 3.3 V single-channel RS-232 line driver/receiver	• 460 kbps data rate • Single-channel RS-232 line driver/receiver	• 0.1 µF charge pump capacitors
ADM3251E / 3252E	Isolated Single/Dual Channel RS-232 Line Driver/Receiver	• 460 kbps data rate • Fully isolated power and data	• 15 kV ESD protection on RIN and TOUT pins
ADM3232E	±15 kV ESD Protected, 3.3 V, RS-232 Line Driver/Receiver	• Data rate: 460 kbps • 2 Tx and 2 Rx • Meets EIA-232E specifications • 0.1 µF charge pump capacitors	• ESD protection to IEC1000-4-2 (801.2) on TTL/CMOS and RS-232 I/Os • Contact discharge: ±8 kV • Air gap discharge: ±15 kV
ADM3311E	3-V, RS-232 Serial Port Driver-Receiver	• Green Idle power-saving mode • Single 2.7 V to 3.6 V power supply • 0.1 µF to 1 µF charge pump capacitors • Low EMI • Low power shutdown: 20 nA • Full RS-232 compliance • 460 kb/s data rate	• One receiver active in shutdown (ADM3307E/ADM3311E/ADM3312E/ADM3315E) • Two receivers active in shutdown (ADM3310E) • ESD >15 kV IEC 1000-4-2 on RS-232 I/Os • ESD >15 kV IEC 1000-4-2 on CMOS and RS-232 I/Os (ADM3307E)
電源シーケンサ/電圧検出 / Sequencer / Supervisory			
ADM1185	Quad Voltage Monitor and Sequencer	• Powered from 2.7 V to 5.5 V on the VCC pin • Logical core with internal timeouts provides power supply sequencing and fault protection • 4 inputs can be programmed to monitor different voltage levels with resistor dividers	• Monitors 4 supplies via 0.8% accurate comparators • 3 open-drain enable outputs • Open-drain power-good output (PWRGD) • 10-lead MSOP
ADM8323	Supervisory Circuit with Windowed Watchdog, Manual Reset, and Active-Low Push-Pull Reset Output	• Windowed watchdog, 8 timeout options • 26 reset threshold options • 2.5 V to 5 V in 100 mV increments • 4 reset timeout options • 1 ms, 20 ms, 140 ms, and 1120 ms (minimum) • Manual reset input	• Open-Drain or Push-Pull RESET outputs • Low power consumption • Specified over wide temp. range (-40°C to 125°C) • 5-lead SOT-23 package
ADM6306	Multiple Input Programmable Supervisory Ics	• Adj. input threshold voltage options: 0.4 V and 1.23 V • Pre-trimmed VCC threshold options (ADM6306) • Increments between 2.5 V and 5 V • Manual reset input (ADM6306) • 4 factory programmed reset timeout delays 1 ms, 20 ms, 140 ms, and 1.12 sec (minimum)	• Reset output stage: active low, open drain • Low power consumption: 5 µA typical • Power supply glitch immunity • 5-lead SOT-23 package • Temperature range: −40°C to +125°C
ADM6326	Ultralow Power, 3-Lead, SOT-23, Microprocessor Reset Circuit, Active-Low Push-Pull Output, 0.5 µA Supply Current	• Ultralow supply current 1 µA max. (ADM6326/6328) • Accurate monitoring of 2.5 V, 3 V, 3.3 V, and 5 V • Reset thresholds of 2.2 V to 4.63 V • Glitch immunity from negative-going VCC transients • Power-on reset pulse width of 100 ms min. • 2 reset output options	• Push-pull RESET (ADM6326/ADM6346) • Open-drain RESET (ADM6328/ADM6348) • Power-on reset pulse width of 100 ms min. • Operating temperature range of −40°C to +85°C • 3-lead SOT-23 package

インターフェース IC、LDO、DC/DC コンバータ、シーケンサ・電圧検出 IC は、他にも製品がございます。詳しくは Web をご参照下さい。

アナログ入力モジュール



アナログ入力モジュール：チャンネル間絶縁



Part Number	Description	Key Feaures and Benefits	
入力段保護 / Fault Protection			
ADG5462F	User Defined Fault Protection and Detection,10 Ω Ron, Quad Channel Protector	• User defined secondary supplies set overvoltage level • Overvoltage protection up to −55 V and +55 V • Power-off protection up to −55 V and +55 V • Overvoltage detection on source pins • Minimum secondary supply level: 4.5 V single-supply • Interrupt flag indicates fault status	• Low on resistance: 10 Ω typical • On-resistance flatness: 0.5 Ω maximum • 4 kV human body model (HBM) ESD rating • Latch-up immune under any circumstance • ±5 V to ±22 V dual supply operation • Fully specified at ±15 V, ±20 V, +12 V, and +36 V
入力段アンプ / Amplifier			
AD8226	Wide Supply Range, Rail-to-Rail Output Instrumentation Amplifier	• Gain set with 1 external resistor • Gain range: 1 to 1000 • Input voltage goes below ground • Inputs protected beyond supplies • Very wide power supply range • 2.2 V to 36 V or ±1.35 V to ±18 V supply	• Bandwidth (G = 1): 1.5 MHz • CMRR (G = 1): 90 dB minimum for BR models • Input noise: 22 nV/√Hz • Typical supply current: 350 µA • Specified temperature: −40°C to +125°C
AD8421	3 nV /√Hz, Low Power Instrumentation Amplifier	• 2.3 mA maximum supply current • 3.2 nV/√Hz maximum input voltage noise at 1 kHz • 200 fA/√Hz current noise at 1 kHz • 10 MHz bandwidth (G = 1) • 2 MHz bandwidth (G = 100) • 0.6 µs settling time to 0.001% (G = 10) • 80 dB CMRR to 20 kHz (G = 1)	• 35 V/µs slew rate • High precision dc performance • 94 dB CMRR minimum (G = 1) • 0.2 µV/°C maximum input offset voltage drift • 1 ppm/°C maximum gain drift (G = 1) • 500 pA maximum input bias current
AD8422	High Performance, Low Power, Rail-to-Rail Precision Instrumentation Amplifier	• 330 µA maximum quiescent current • Rail-to-rail output • Low noise and distortion • 8 nV/√Hz maximum input voltage noise at 1 kHz • 0.15 µV p-p RTI noise (G = 100) • 0.5 ppm nonlinearity with 2 kΩ load (G = 1) • 80 dB minimum CMRR at 10 kHz (G = 1) • 2.2 MHz bandwidth (G = 1)	• 150 dB minimum CMRR (G = 1000) • 0.04% maximum gain error (G = 1000) • 0.3 µV/°C maximum input offset drift • 0.5 nA maximum input bias current • 4.6 V to 36 V or ±2.3 V to ±18 V dual supply • Input overvoltage protection: • Gain range: 1 to 1000
ADA4522	Single 55 V, EMI Enhanced, Zero-Drift, Ultralow Noise, Rail-to-Rail Output Operational Amplifiers	• Low offset voltage: 5 µV maximum • Extremely low offset voltage drift: 22 nV/°C maximum • Low voltage noise density: • 5.8 nV/√Hz typical • 117 nV p-p typical from 0.1 Hz to 10 Hz • Low input bias current: 50 pA typical • Unity-gain crossover: 3 MHz typical	• Single-supply operation: input voltage range includes ground and rail-to-rail output • Wide range of operating voltages • Single-supply operation: 4.5 V to 55 V • Dual-supply operation: ±2.25 V to ±27.5 V • Integrated EMI filters • Unity-gain stable
ADA4096-2/4	30V, micropower, overvoltage protection, RRIO, dual/quad OPAMPs	• Input overvoltage protection, 32V above and below the supply rails • No phase reversal for input voltage up to ±32V beyond the power supply	• Single-supply operation: 3V to 30V • Rail-to-Rail input and output swing • Unity gain bandwidth: 800kHz typ @VSY=±15V
マルチプレクサ・スイッチ / Multiplexer / Switch			
ADG5208 / 5209	High voltage latch-up proof, 8:1 (5208) / 4:1 (5209) Multiplexer	• 8 kV I/O port to supplies • 2.9 pF off source capacitance • 34 pF off drain capacitance	• 0.4 pC charge injection • Low on resistance: 160 Ω typical • ±9 V to ±22 V dual-supply operation
ADG5408 / 5409	High voltage latch-up proof, 8:1 (5408) / 4:1 (5409) Multiplexer	• 8 kV HBM ESD rating • Low on resistance (13.5 Ω)	• ±9 V to ±22 V dual supply operation
ADC ドライブ・アンプ / ADC Drive Amplifier			
AD8275	G=0.2, level translation, 16-bit ADC driver	• Translates ±10V to +4V • Drives 16bit SAR ADCs • High CMRR: 96dB • Low gain drift: 1ppm/°C	• Low offset drift: 2.5mV//°C • Rail-to-Rail output • 8-lead MSOP package
AD8475	Precision, selectable gain, full differential funnel amp	• Attenuate and level shift: G=0.4x, 0.8x • Fully differential or single-ended input/output • Rail-to-Rail output	• Suited for driving 18-bit converter up to 4MSPS • 10 nV/√Hz output noise • Low gain drift: 1ppm/°C

ADA4610	Low Noise, Precision, Rail-to-Rail Output, JFET Single Op Amp	• Low offset voltage B grade: 0.4 mV max (ADA4610-1/-2) A grade: 1 mV max • Low offset voltage drift B grade: 4 µV/°C max (ADA4610-1/-2) A grade: 8 µV/°C max (SOIC, MSOP, LFCSP) • Low input bias current: 5 pA typical • Dual-supply operation: ±5 V to ±15 V	• Low voltage noise: 0.45 µV p-p at 0.1 Hz to 10 Hz • Voltage noise density: 7.30 nV/√Hz at f = 1 kHz • Low total harmonic distortion (THD) + noise: 0.00025% • No phase reversal • Rail-to-rail output • Unity-gain stable

基準電圧源 / Reference			
ADR4520/ADR4525/ ADR4530/ADR4533/ ADR4540/ADR4550	Ultralow noise, 2 ppm/°C, high accuracy voltage reference (2.048 V/2.50 V/3.00 V/ 3.30 V/4.096 V/5.00 V)	• Initial accuracy: 0.02% max • Temperature coefficient: 2 ppm/°C max • Output noise (0.1 Hz to 10 Hz): 1.25 µV p-p @ VOUT of 2.5 V	• Supply range: 3 V to 15 V • Temperature range: −40°C to +125°C • 8-lead SOIC package
ユニバーサル I/O / Universal I/O			
AD5592R	8 Channel, 12-Bit, Configurable ADC/DAC with on-chip Reference, SPI interface	• 8-channel, configurable ADC/DAC/GPIO • Configurable as any combination of 8 × 12-bit DAC channels 8 × 12-bit ADC channels 8 × general-purpose digital input/output pins	• Integrated temperature sensor • SPI interface • 16-ball, 2 mm × 2 mm WLCSP • 16-lead, 3 mm × 3 mm LFCSP • 16-lead TSSOP
AD コンバータ / ADC			
AD7685	16 / 14 bit, 250kSPS PulSAR® ADC	• Throughput: 250 kSPS • Pseudo differential analog input range: 0 V to VREF with VREF up to VDD	• INL: ±2 LSB max • SINAD: 93.5 dB @ 20 kHz • Supply range: 2.3 V to 5.5 V
AD7643	18bit 1.2MSPS PulSAR	• Throughput: 1.25 MSPS • INL: ±2 LSB typ, ±3 LSB max; ±8 ppm of full scale • Dynamic range: 95.5 dB • SNR: 93.5 dB typical @ 20 kHz (VREF = 2.5 V)	• THD: −112 dB typical @ 20 kHz (VREF = 2.5 V) • 2.048 V internal reference: typ drift 10 ppm/°C; TEMP output • Differential input range: ±VREF (VREF up to 2.5 V)
集積型 AD コンバータ / Integrated Solution - ADC			
AD7124	8-Channel, Low Noise, Low Power, 24-Bit, Sigma-Delta ADC with PGA and Reference	• Low power: 24 nV rms at 1.17 SPS, gain = 128 • Mid power: 20 nV rms at 2.34 SPS, gain= 128 • Full power: 23 nV rms at 9.4 SPS, gain= 128 • Up to 22 noise free bits in all power modes (gain = 1) • Full power: 9.38 SPS to 19,200 SPS • Mid power: 2.34 SPS to 4800 SPS • Low power: 1.17 SPS to 2400 SPS • Rail-to-rail inputs for gains > 1 • Simultaneous 50 Hz/60 Hz rejection at 25 SPS	• Diagnostic functions (which aid safe integrity level) • Crosspoint multiplexed analog inputs • 8 differential/15 pseudo differential inputs • Programmable gain (1 to 128) • Band gap reference w/15 ppm/°C drift max. • Matched programmable excitation currents • Internal clock oscillator • On-chip bias voltage generator • Low-side power switch
AD7175 / AD7176	24-Bit, 250 kSPS, Sigma-Delta ADC with 20 µs Settling and True Rail-to-Rail Buffers (AD7175)	• Fast and flexible output rate: 5 SPS to 250 kSPS • Ch.can data rate of 50 kSPS/ch. (20 µs settling) • Performance specifications • 17.2 noise free bits at 250 kSPS • 20 noise free bits at 2.5 kSPS • 24 noise free bits at 20 SPS • INL: ±1 ppm of FSR • 85dB rejection of 50Hz and 60Hz with 50ms settling • User configurable input channels • 2 fully differential channels or 4 single-ended channels	• Crosspoint multiplexer • On-chip 2.5 V reference (±2 ppm/°C drift) • True rail-to-rail analog and reference input buffers • Internal or external clock • Power: AVDD1 = 5 V, AVDD2 = IOVDD = 2 V to 5 V • Split supply with AVDD1/AVSS at ±2.5 V • ADC current: 8.4 mA • Temperature range: −40°C to +105°C
HART モデム / HART modem			
AD5700/-1	Low power HART® modem	• HART compliant fully integrated FSK modem • On-chip oscillator (AD5700-1) • 4 mm × 4 mm, 24-lead LFCSP	• 1.71 V to 5.5 V power supply • Buffered HART output • Temperature range: −40°C to +125°C

アイソレーション電源 / Power Isolation			
ADuM3471	Quad-channel data with isolated switching regulators	• Integrated transformer driver • Regulated adjustable output: 3.3 V to 24 V • 2 W output power	• Quad dc-to-25 Mbps (NRZ) signal isolation channels • 20-lead SSOP package • Temperature range: −40°C to +105°C
ADP1621	Constant frequency, current mode step-up dc-to-dc controller	• 92% efficiency (no sense resistor required) • ±1.0% initial accuracy • Capable of high supply input voltage (> 5.5 V) with an external NPN or a resistor	• Programmable operating frequency (100 kHz to 1.5 MHz) with one resistor • Synchronizable to external clock
ADuM3190	2.5 kV rms isolated error amplifier	• Stable over time and temperature • 0.5% initial accuracy • 1% accuracy over the full temperature range • Bandwidth: 400 kHz	• Low power operation: < 7 mA total • Wide supply voltage range: 3 V to 20 V • Temperature range: −40°C to +125°C • 16-lead QSOP package
アイソレーション / Isolation			
ADuM140/141/142 D	Robust, Quad Channel Isolator W/ Input Disable	• High common-mode transient immunity: 100 kV/µs • High robustness to radiated and conducted noise • Low propagation delay • 13 ns maximum for 5 V operation • 15 ns maximum for 1.8 V operation • 150 Mbps maximum guaranteed data rate	• Low dynamic power consumption • 1.8 V to 5 V level translation • High temperature operation: 125°C • Fail-safe high or low options • 16-lead, RoHS compliant, SOIC package • ADuM140E1/ADuM141E1/ADuM142E1 pin-compatible with ADuM1400 / ADuM1401 / ADuM1402
ADuM140/141/142 E	Robust, Quad Channel Isolator W/ Output Enable	• High common-mode transient immunity: 100 kV/µs • High robustness to radiated and conducted noise • Low propagation delay • 13 ns maximum for 5 V operation • 15 ns maximum for 1.8 V operation • 150 Mbps maximum guaranteed data rate	• Low dynamic power consumption • 1.8 V to 5 V level translation • High temperature operation: 125°C • Fail-safe high or low options • 16-lead, RoHS compliant, SOIC package • ADuM140D1/ADuM141D1/ADuM142D1 pin-compatible with ADuM1400/ADuM1401/ADuM1402
集積 DC / DC コンバータ / DC / DC Converter			
ADP2441	36 V, 1 A, synchronous step-down dc-to-dc regulator	• Wide input voltage range: 4.5 V to 36 V • Adjustable output down to 0.6 V • High efficiency up to 94% • ±1% output voltage accuracy	• Adjustable frequency 300 kHz to 1 MHz • Soft start with tracking, power-good pin, and overcurrent limit protection
ADP2442	36 V,1 A, Synchronous, Step-Down, DC-to-DC Regulator with External Clock Synchronization	• Wide input voltage range of 4.5 V to 36 V • Low minimum on time of 50ns ns • Maximum load current of 1 A • High efficiency of up to 94% • Adjustable output down to 0.6 V • ±1% output voltage accuracy • Adjustable switching frequency of 300 kHz to 1 MHz	• External synchronization from 300 kHz to 1 MHz • Pulse skip mode or Forced fixed frequency mode • Precision enable input pin • Open-drain power good • Reference similar product ADP2441 with programmable soft-start and tracking.
ADP1621	Constant frequency, current mode step-up dc-to-dc controller	• 92% efficiency (no sense resistor required) • ±1.0% initial accuracy • Capable of high supply input voltage (> 5.5 V) with an external NPN or a resistor	• Programmable operating frequency (100 kHz to 1.5 MHz) with one resistor • Synchronizable to external clock
ADP5050/ADP5051/ ADP5052/ADP5053	Integrated power solution with quad buck regulators	• Wide input voltage range: 4.5 V to 15 V • I2C Interface (ADP5050, ADP5051) • 200 mA LDO regulator (ADP5050, ADP5052) • Watchdog timer and reset (ADP5051, ADP5053)	• 250 kHz to 1.4 MHz adj. switching frequency • Two programmable 1.2 A/2.5 A/4 A sync buck regulators with low-side FET driver • Two 1.2 A sync buck regulators

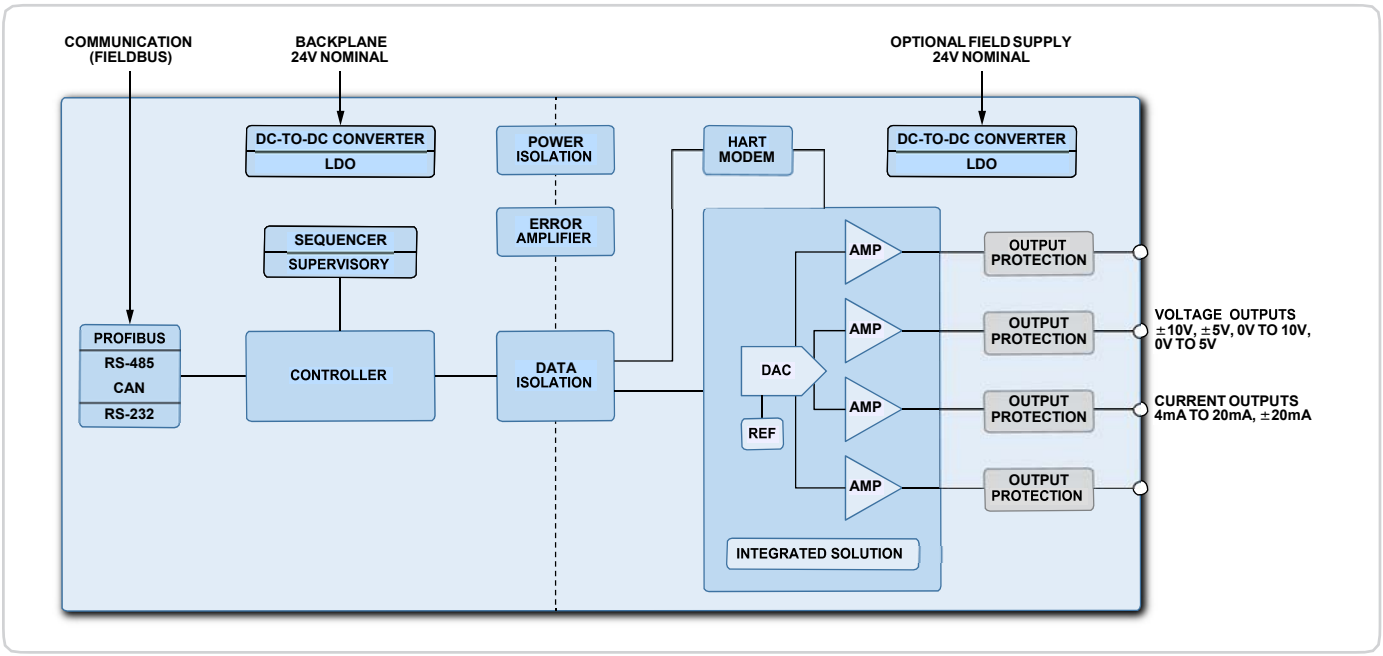
リニア・レギュレータ / LDO			
ADP7182	-200mA, negative voltage input, Low Noise	• Low Noise: 18 µV RMS • Power supply rejection ratio (PSRR): 66 dB at 10 KHz at VOUT=-3V • Positive or Negative Enable Logic • Stable with small 2.2µF ceramic output capacitor • Input voltage range: -2.7 V to -28 V • Maximum output current: -200 mA	• Low dropout voltage: 185 mV @ -200 mA load • Initial accuracy: ±1% • Accuracy over line, load, and temperature: +2% maximum/−3% minimum
ADP7102/7104/7105	20 V, 300 / 500 mA, Low Noise, CMOS LDO	• Input voltage range: 3.3 V to 20 V • Maximum output current: 300 mA (ADP7102), 500 mA (ADP7104/5) • Low noise: 15 µV rms for fixed output versions • PSRR performance of 60 dB at 10 kHz, VOUT = 3.3 V	• Reverse current protection • Low dropout voltage: • 200 mV at 300 mA load (ADP7102), 350 mV at 500mA load (ADP7105) • Initial accuracy: ±0.8%
ADP7112 / 7118	20 V, 200 mA, Low Noise, CMOS LDO	• Low noise: 11 µV rms independent of fixed output voltage • PSRR of 88 dB at 10 kHz, 68 dB at 100 kHz, 50 dB at 1 MHz, VOUT ≤ 5 V, VIN = 7 V • Input voltage range: 2.7 V to 20 V • Maximum output current: 200 mA • Initial accuracy: ±0.8% • Accuracy over line, load, and temperature ±1.8%, TJ = −40°C to +125°C	• Low dropout voltage: 200 mV (typical) at a 200 mA load, VOUT = 5 V • User programmable soft start • Low quiescent current, IGND = 50 µA (typical) with no load • 1x1.2, 6-ld WLCSP (ADP7112) 2x2, 6-ld LFCSP / 8ld-SOIC / 5ld-TSOT (ADP7118)
ADP7142	40 V, 200 mA, Low Noise, CMOS LDO	• Low Noise: 11 µVRMS independent of fixed output • PSRR of 88 dB @ 10 KHz, 68 dB @ 100 KHz, 50 dB @ 1 MHz, VOUT ≤5V, VIN = 7V • Input voltage range: 2.7 V to 40 V • Maximum output current: 200 mA • Initial accuracy: ±0.8% • Accuracy over line, load, and temperature ±1.1%, TJ = −40°C to +85°C ±1.8%, TJ = −40°C to +125°C	• Low dropout voltage: 200 mV @ 200 mA load, VOUT = 5V • User programmable Soft Start (LFCSP and SOIC only) • Low Quiescent Current, IGND = 50 µA with no load • Low shutdown current: 1.8 µA @ VIN = 5 V, 3.0 µA @ VIN = 40 V • Stable with small 2.2µF ceramic output capacitor
コントローラ / Controller			
ADSP-BF504/504F	Low Cost Blackfin with Optimized Peripheral Set for Industrial and General Purpose Applications	• 400 MHz (800 MMACS) Blackfin® core • 2 UART, 2 SPI, 2 SPORT, and CAN interfaces for communications	• 32 MB executable flash (ADSP-BF504F/ADSP-BF506F) • True 12-bit, dual SAR ADC (ADSP-BF506F)
インターフェース/通信 / Interface / Communication			
ADM1486	5 V, High Speed (30 Mbps), Low Power, Half Duplex RS-485 PROFIBUS Transceiver	• 30 Mbps Data Rate • 2.1 V Minimum Differential Output with 54 Ω Termination • Low Power 0.8 mA ICC	• 0.5 ns Skew Driver and Receiver • Driver Propagation Delay: 11 ns • Receiver Propagation Delay: 12 ns • High Impedance Outputs with Drivers Disabled or Power Off
ADM2485 / 2486	2.5 kV Signal Isolated, High Speed, Half Duplex RS-485 PROFIBUS Transceiver w/ Transformer Driver	• 20 Mbps data rate (ADM2486) • 5 V or 3 V operation (VDD1) • High common-mode transient immunity: >25 kV/µs • Isolated DE status output	• Receiver open-circuit, fail-safe design • 50 nodes on bus • Operating temperature range: −40°C to +85°C • Wide body, 16-lead SOIC package

ADM2482E	2.5 kV Signal Isolated, ESD Protected, Full/Half Duplex RS-485 Transceiver w/ Transformer Driver (16 Mbps)	• ±15 kV ESD protection on RS485 input/output pins • Data rate: 16 Mbps • 5 V or 3.3 V operation (VDD1) • 256 nodes on bus	• True fail-safe receiver inputs • Operating temperature range: −40°C to +85°C • Wide-body, 16-lead SOIC package
ADM2490E	5 kV Signal Isolated, High Speed (16 Mbps), ESD Protected, Full Duplex RS-485 Transceiver	• ±8 kV ESD protection on RS-485 input/output pins • 16 Mbps data rate • Suitable for 5 V or 3 V operation (VDD1) • High common-mode transient immunity: >25 kV/µs • Receiver has open-circuit, fail-safe design	• 32 nodes on the bus • Thermal shutdown protection • Operating temperature range: −40°C to +105°C • Wide body, 16-lead SOIC package
ADM2587E	2.5 kV Signal and Power Isolated, ±15 kV ESD Protected, Full/Half Duplex RS-485 Transceiver (500kbps)	• isoPower™ integrated isolated DC/DC converter • ±15 kV ESD protection on RS485 input/output pins • ADM2587E data rate: 500 kbps • 5 V or 3.3V operation	• Connect up to 256 nodes on one bus • Open- and short-circuit, fail-safe receiver inputs • High common-mode transient immunity: >25 kV/µs • Thermal shutdown protection
ADM3051	High Speed Industrial CAN Transceiver with Bus Protection for 24 V Systems	• High speed data rates up to 1 Mbps • Short-circuit protection on bus pins • Slope control for reduced EMI	• Unpowered nodes do not disturb the bus • Temperature range: −40°C to +125°C
ADM3052	5 kV rms isolated CAN transceiver with integrated high voltage, bus side, linear regulator	• High speed data rates up to 1 Mbps • Fully isolated digital interface • Integrated V+ linear regulator • Bus side powered by V+ and V−	• Short-circuit protection on bus pins • Integrated bus miswire protection • Unpowered nodes do not disturb the bus
ADM3053	2.5 kV rms signal and power isolated CAN transceiver with integrated isolated dc-to-dc converter	• High speed data rates up to 1 Mbps • Fully isolated power and data • Short-circuit protection on bus pins	• Slope control for reduced EMI • Unpowered nodes do not disturb the bus
ADM3054	5 kV rms signal isolated high speed CAN transceiver with bus protection	• High speed data rates up to 1 Mbps • Fully isolated digital interface • Short-circuit protection on bus pins	• Unpowered nodes do not disturb the bus • Able to detect loss of power on bus side • Temperature range: −40°C to +125°C
ADM3101E	±15 kV ESD protected, 3.3 V single-channel RS-232 line driver/receiver	• 460 kbps data rate • Single-channel RS-232 line driver / receiver	• 0.1 µF charge pump capacitors
ADM3251E / 3252E	Isolated Single/Dual Channel RS-232 Line Driver/Receiver	• 460 kbps data rate • Fully isolated power and data	• 15 kV ESD protection on RIN and TOUT pins
ADM3232E	±15 kV ESD Protected, 3.3 V, RS-232 Line Driver/Receiver	• Data rate: 460 kbps • 2 Tx and 2 Rx • Meets EIA-232E specifications • 0.1 µF charge pump capacitors	• ESD protection to IEC1000-4-2 (801.2) on TTL/CMOS and RS-232 I/Os • Contact discharge: ±8 kV • Air gap discharge: ±15 kV
ADM3311E	3-V, RS-232 Serial Port Driver-Receiver	• Green Idle power-saving mode • Single 2.7 V to 3.6 V power supply • 0.1 µF to 1 µF charge pump capacitors • Low EMI • Low power shutdown: 20 nA • Full RS-232 compliance • 460 kb/s data rate	• One receiver active in shutdown (ADM3307E / ADM3311E / ADM3312E / ADM3315E) • Two receivers active in shutdown (ADM3310E) • ESD >15 kV IEC 1000-4-2 on RS-232 I/Os • ESD >15 kV IEC 1000-4-2 on CMOS and RS-232 I/Os (ADM3307E)
電源シーケンサ/電圧検出 / Sequencer / Supervisory			
ADM1185	Quad Voltage Monitor and Sequencer	• Powered from 2.7 V to 5.5 V on the VCC pin • Logical core with internal timeouts provides power supply sequencing and fault protection • 4 inputs can be programmed to monitor different voltage levels with resistor dividers	• Monitors 4 supplies via 0.8% accurate comparators • 3 open-drain enable outputs • Open-drain power-good output (PWRGD) • 10-lead MSOP
ADM8323	Supervisory Circuit with Windowed Watchdog, Manual Reset, and Active-Low Push-Pull Reset Output	• Windowed watchdog, 8 timeout options • 26 reset threshold options • 2.5 V to 5 V in 100 mV increments • 4 reset timeout options • 1 ms, 20 ms, 140 ms, and 1120 ms min • Manual reset input	• Open-Drain or Push-Pull RESET outputs • Low power consumption • Specified over wide temp. range (-40°C to 125°C) • 5-lead SOT-23 package

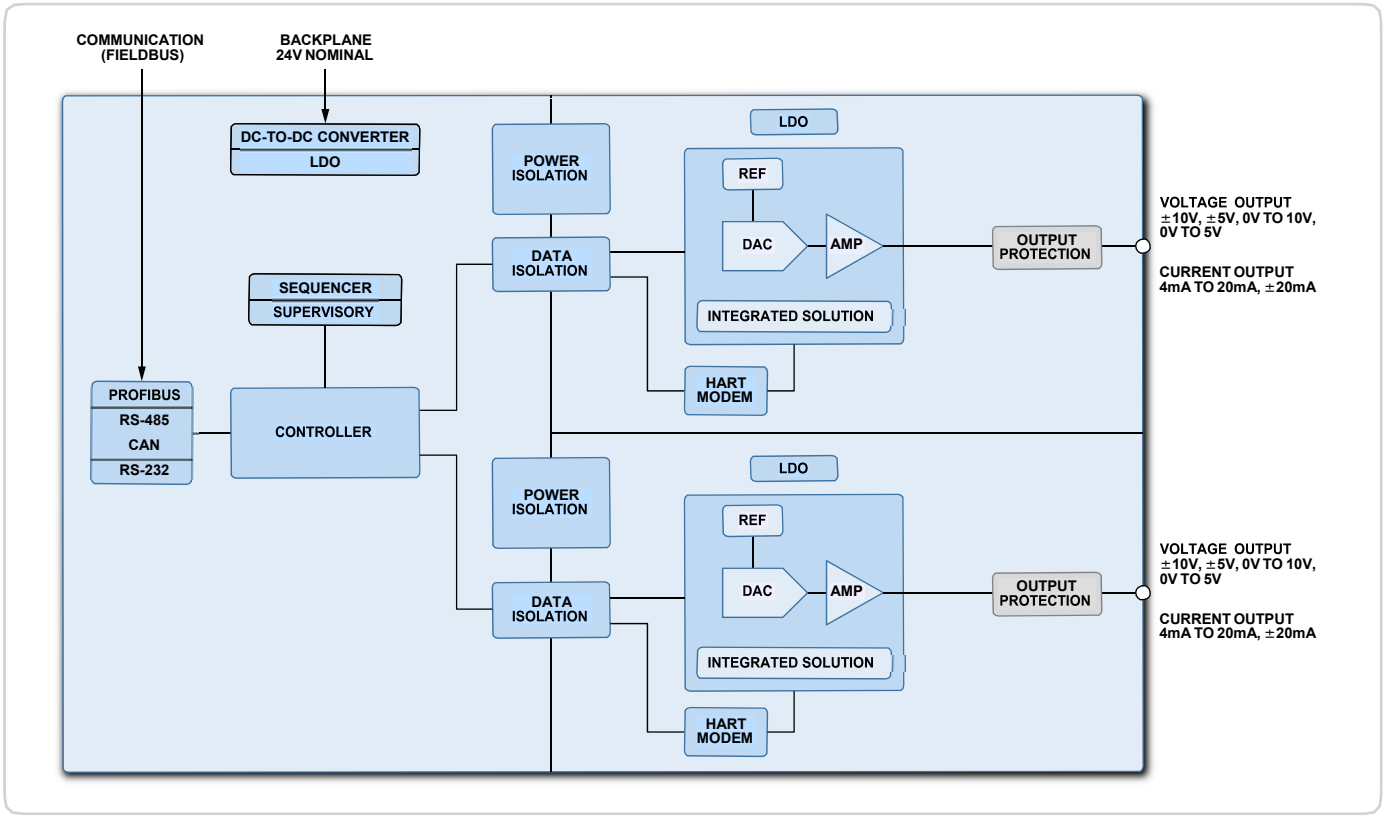
ADM6306	Multiple Input Programmable Supervisory ICs	• Adj. input threshold voltage options: 0.4 V and 1.23 V • Pre-trimmed VCC threshold options (ADM6306) • Increments between 2.5 V and 5 V • Manual reset input (ADM6306) • 4 factory programmed reset timeout delays 1 ms, 20 ms, 140 ms, and 1.12 sec min	• Reset output stage: active low, open drain • Low power consumption: 5 µA typical • Power supply glitch immunity • 5-lead SOT-23 package • Temperature range: −40°C to +125°C
ADM6326	Ultralow Power, 3-Lead, SOT-23, Microprocessor Reset Circuit, Active-Low Push-Pull Output, 0.5 µA Supply Current	• Ultralow supply current 1 µA max. (ADM6326/6328) • Accurate monitoring of 2.5 V, 3 V, 3.3 V, and 5 V • Reset thresholds of 2.2 V to 4.63 V • Glitch immunity from negative-going VCC transients • Power-on reset pulse width of 100 ms min. • 2 reset output options	• Push-pull RESET (ADM6326/ADM6346) • Open-drain RESET (ADM6328/ADM6348) • Power-on reset pulse width of 100 ms min. • Operating temperature range of −40°C to +85°C • 3-lead SOT-23 package

インターフェース IC、LDO、DC/DC コンバータ、シーケンサ・電圧検出 IC は、他にも製品がございます。詳しくは Web をご参照下さい。

アナログ出力モジュール



アナログ出力モジュール：チャンネル間絶縁



Part Number	Description	Key Feaures and Benefits	
HART モデム / HART modem			
AD5700/-1	Low power HART® modem	• HART compliant fully integrated FSK modem • On-chip oscillator (AD5700-1) • 4 mm × 4 mm, 24-lead LFCSP	• 1.71 V to 5.5 V power supply • Buffered HART output • Temperature range: −40°C to +125°C
ユニバーサル I/O / Universal I/O			
AD5592R	8 Channel, 12-Bit, Configurable ADC/DAC with on-chip Reference, SPI interface	• 8-channel, configurable ADC/DAC/GPIO • Configurable as any combination of 8 × 12-bit DAC channels 8 × 12-bit ADC channels 8 × general-purpose digital input/output pins	• Integrated temperature sensor • SPI interface • 16-ball, 2 mm × 2 mm WLCSP • 16-lead, 3 mm × 3 mm LFCSP • 16-lead TSSOP
DA コンバータ / DAC			
AD5681R / AD5683R / AD5687R / AD5689R / AD5686R / AD5684R	Single/dual/quad, 16-/12-bit nano DAC+™ with 2 ppm/°C on-chip reference	• Single (AD5683R / AD5681R), dual (AD5689R / AD5687R), or quad (AD5686R / AD5684R) • 12-/16-bit resolution • INL: ±2 LSB maximum @ 16 bits • On-chip 2.5 V, 5 ppm/°C max reference • Total unadjusted error (TUE): ±0.1% of FSR max (±0.06% FSR for single)	• Offset error: ±1.5 mV max • 1.8 V logic compatibility • 8-lead LFCSP (2 mm × 2 mm) or MSOP (single) • 16-lead LFCSP (3 mm × 3 mm) or TSSOP (dual/quad)
アンプ/ 4-20mA 出力アンプ / Amplifier / 4-20mA driver			
ADA4077-1/-2/-4	30V, 4 MHz, 7 nV/√Hz, Low Offset and Drift, High Precision Amplifier	• Low offset voltage: B-Grade: 25 µV max (SOIC) A-Grade: 50 µV max (SOIC) A-Grade: 120 µV max (MSOP) • Low offset voltage drift: B-Grade: 0.25 µV/°C max (SOIC) A-Grade: 0.55 µV/°C max (SOIC) A-Grade: 1.2 µV/°C max (MSOP)	• Low input bias current: <1.0 nA max. • Low voltage noise density: 7 nV/√Hz typ at f = 1 kHz • CMRR, PSRR, and Avo >120 dB min • Low supply current: 400 µA per amplifier typ • Wide Bandwidth: 4 MHz typ • Dual-supply operation: ±2.5 V to ±15 V • Unity gain stable • No phase reversal
ADA4177-1 / -2 / -4	OVP and EMI Protected, Precision, Low Noise and Bias Current Single Op Amp	• Low offset voltage: 60 µV maximum at 25°C (8-lead and 14-lead SOIC) • Low offset voltage drift: 1 µV/°C maximum (8-lead and 14-lead SOIC) • Low input bias current: 1 nA maximum at 25°C • Low voltage noise density: 8 nV/√Hz typical at 1 kHz	• Input overvoltage protection to 32 V above and below the supply voltage rail • Integrated EMI filter • 70 dB typical rejection at 1000 MHz • 90 dB typical rejection at 2400 MHz • Rail-to-rail output swing • Low supply current: 500 µA typical per mplifier
基準電圧源 / Reference			
ADR4520/ADR4525/ ADR4530/ADR4533/ ADR4540/ADR4550	Ultralow noise, 2 ppm/°C, high accuracy voltage reference (2.048 V/2.50 V/3.00 V/ 3.30 V/4.096 V/5.00 V)	• Initial accuracy: 0.02% max • Temperature coefficient: 2 ppm/°C max • Output noise (0.1 Hz to 10 Hz): 1.25 µV p-p @ VOUT of 2.5 V	• Supply range: 3 V to 15 V • Temperature range: –40°C to +125°C • 8-lead SOIC package
集積ソリューション / Integrated Solution			
AD5750/AD5751/ AD5748/AD5749	Industrial current/voltage output driver with programmable ranges	• Standard industrial voltage and current output ranges (including ±20 mA) • Current output only version available (AD5749) • ±0.1% FSR max total unadjusted error (TUE) on voltage outputs • ±0.1% FSR max total unadjusted error (TUE) on current outputs	• 60 V/55 V loop compliance (AD5751, AD5749) • On-chip diagnostics • Temperature range: –40°C to +105°C • 32-lead LFCSP package (5 mm × 5 mm)
AD5735 / AD5737 / AD5757 / AD5755-1 / AD5755	Quad-channel,16-bit, 4 mA to 20 mA and voltage output DAC, dynamic power control, HART connectivity	• Dynamic power control for thermal management • 16-bit (AD5755-1, AD5755) and 12-bit (AD5735) options • Quad channel • Standard industrial voltage and current output ranges • ±0.04% FSR max total unadjusted error (TUE) on voltage outputs	• ±0.05% FSR max total unadjusted error (TUE) on current outputs • Current output only versions available (AD5757/AD5737) • User programmable offset and gain • On-chip diagnostics • On-chip reference (±10 ppm/°C maximum) • −40°C to +105°C temperature range • 64-lead LFCSP package (9 mm × 9 mm)
AD5422/AD5412	Single-channel, 12-/16-bit, current source and voltage output DAC, HART connectivity	• 16-bit (AD5422) and 12-bit (AD5412) options • Standard industrial voltage and current output ranges • ±0.1% FSR max total unadjusted error (TUE) on voltage outputs • ±0.15% FSR max total unadjusted error (TUE) on current outputs	• Current output only versions available (AD5420/AD5410) • On-chip reference (±10 ppm/°C maximum) • Optional regulated DVCC output • 40-lead LFCSP package (6 mm × 6 mm)

アイソレーション電源 / Power Isolation			
ADuM3471	Quad-channel data with isolated switching regulators	• Integrated transformer driver • Regulated adjustable output: 3.3 V to 24 V • 2 W output power	• Quad dc-to-25 Mbps (NRZ) signal isolation channels • 20-lead SSOP package • Temperature range: −40°C to +105°C
ADP1621	Constant frequency, current mode step-up dc-to-dc controller	• 92% efficiency (no sense resistor required) • ±1.0% initial accuracy • Capable of high supply input voltage (> 5.5 V) with an external NPN or a resistor	• Programmable operating frequency (100 kHz to 1.5 MHz) with one resistor • Synchronizable to external clock
ADuM3190	2.5 kV rms isolated error amplifier	• Stable over time and temperature • 0.5% initial accuracy • 1% accuracy over the full temperature range • Bandwidth: 400 kHz	• Low power operation: < 7 mA total • Wide supply voltage range: 3 V to 20 V • Temperature range: −40°C to +125°C • 16-lead QSOP package
アイソレーション / Isolation			
ADuM140/141/142 D	Robust, Quad Channel Isolator W/ Input Disable	• High common-mode transient immunity: 100 kV/µs • High robustness to radiated and conducted noise • Low propagation delay • 13 ns maximum for 5 V operation • 15 ns maximum for 1.8 V operation • 150 Mbps maximum guaranteed data rate	• Low dynamic power consumption • 1.8 V to 5 V level translation • High temperature operation: 125°C • Fail-safe high or low options • 16-lead, RoHS compliant, SOIC package • ADuM140E1/ADuM141E1/ADuM142E1 pin-compatible with ADuM1400 / ADuM1401 / ADuM1402
ADuM140/141/142 E	Robust, Quad Channel Isolator W/ Output Enable	• High common-mode transient immunity: 100 kV/µs • High robustness to radiated and conducted noise • Low propagation delay • 13 ns maximum for 5 V operation • 15 ns maximum for 1.8 V operation • 150 Mbps maximum guaranteed data rate	• Low dynamic power consumption • 1.8 V to 5 V level translation • High temperature operation: 125°C • Fail-safe high or low options • 16-lead, RoHS compliant, SOIC package • ADuM140D1/ADuM141D1/ADuM142D1 pin-compatible with ADuM1400/ADuM1401/ADuM1402
DC / DC コンバータ / DC / DC Converter			
ADP2441	36 V, 1 A, synchronous step-down dc-to-dc regulator	• Wide input voltage range: 4.5 V to 36 V • Adjustable output down to 0.6 V • High efficiency up to 94% • ±1% output voltage accuracy	• Adjustable frequency 300 kHz to 1 MHz • Soft start with tracking, power-good pin, and overcurrent limit protection
ADP2442	36 V,1 A, Synchronous, Step-Down, DC-to-DC Regulator with External Clock Synchronization	• Wide input voltage range of 4.5 V to 36 V • Low minimum on time of 50 ns • Maximum load current of 1 A • High efficiency of up to 94% • Adjustable output down to 0.6 V • ±1% output voltage accuracy • Adjustable switching frequency of 300 kHz to 1 MHz	• External synchronization from 300 kHz to 1 MHz • Pulse skip mode or Forced fixed frequency mode • Precision enable input pin • Open-drain power good • Reference similar product ADP2441 with programmable soft-start and tracking.
ADP1621	Constant frequency, current mode step-up dc-to-dc controller	• 92% efficiency (no sense resistor required) • ±1.0% initial accuracy • Capable of high supply input voltage (> 5.5 V) with an external NPN or a resistor	• Programmable operating frequency (100 kHz to 1.5 MHz) with one resistor • Synchronizable to external clock
ADP5050/ADP5051/ ADP5052/ADP5053	Integrated power solution with quad buck regulators	• Wide input voltage range: 4.5 V to 15 V • I2C Interface (ADP5050, ADP5051) • 200 mA LDO regulator (ADP5050, ADP5052) • Watchdog timer and reset (ADP5051, ADP5053)	• 250 kHz to 1.4 MHz adj. switching frequency • Two programmable 1.2 A/2.5 A/4 A sync buck regulators with low-side FET driver • Two 1.2 A sync buck regulators
リニア・レギュレータ / LDO			
ADP7182	-200mA, negative voltage input, Low Noise	• Low Noise: 18 µV RMS • Power supply rejection ratio (PSRR): 66 dB at 10 KHz at VOUT=-3V • Positive or Negative Enable Logic • Stable with small 2.2µF ceramic output capacitor • Input voltage range: -2.7 V to -28 V • Maximum output current: -200 mA	• Low dropout voltage: 185 mV @ -200 mA load • Initial accuracy: ±1% • Accuracy over line, load, and temperature: +2% maximum/−3% minimum

ADP7102/7104/7105	20 V, 300 / 500 mA, Low Noise, CMOS LDO	• Input voltage range: 3.3 V to 20 V Maximum output current: 300 mA (ADP7102), 500 mA (ADP7104/5) Low noise: 15 µV rms for fixed output versions PSRR performance of 60 dB at 10 kHz, VOUT = 3.3 V	• Reverse current protection • Low dropout voltage: • 200 mV at 300 mA load (ADP7102), 350 mV at 500mA load (ADP7105) • Initial accuracy: ±0.8%
ADP7112 / 7118	20 V, 200 mA, Low Noise, CMOS LDO	• Low noise: 11 µV rms independent of fixed output voltage • PSRR of 88 dB at 10 kHz, 68 dB at 100 kHz, 50 dB at 1 MHz, VOUT ≤ 5 V, VIN = 7 V • Input voltage range: 2.7 V to 20 V • Maximum output current: 200 mA • Initial accuracy: ±0.8% • Accuracy over line, load, and temperature ±1.8%, TJ = −40°C to +125°C	• Low dropout voltage: 200 mV (typical) at a 200 mA load, VOUT = 5 V • User programmable soft start • Low quiescent current, IGND = 50 µA (typical) with no load • 1x1.2, 6-ld WLCSP (ADP7112) 2x2, 6-ld LFCSP / 8ld-SOIC / 5ld-TSOT (ADP7118)
ADP7142	40 V, 200 mA, Low Noise, CMOS LDO	• Low Noise: 11 µVRMS independent of fixed output • PSRR of 88 dB @ 10 KHz, 68 dB @ 100 KHz, 50 dB @ 1 MHz, VOUT ≤5V, VIN = 7V • Input voltage range: 2.7 V to 40 V • Maximum output current: 200 mA • Initial accuracy: ±0.8% • Accuracy over line, load, and temperature ±1.1%, TJ = −40°C to +85°C ±1.8%, TJ = −40°C to +125°C	• Low dropout voltage: 200 mV @ 200 mA load, VOUT = 5V • User programmable Soft Start (LFCSP and SOIC only) • Low Quiescent Current, IGND = 50 µA with no load • Low shutdown current: 1.8 µA @ VIN = 5 V, 3.0 µA @ VIN = 40 V • Stable with small 2.2µF ceramic output capacitor
インターフェース通信 / Interface / Communication			
ADM1486	5 V, High Speed (30 Mbps), Low Power, Half Duplex RS-485 PROFIBUS Transceiver	• 30 Mbps Data Rate • 2.1 V Minimum Differential Output with 54 Ω Termination • Low Power 0.8 mA ICC	• 0.5 ns Skew Driver and Receiver • Driver Propagation Delay: 11 ns • Receiver Propagation Delay: 12 ns • High Impedance Outputs with Drivers Disabled or Power Off
ADM2485 / 2486	2.5 kV Signal Isolated, High Speed, Half Duplex RS-485 PROFIBUS Transceiver w/ Transformer Driver	• 20 Mbps data rate (ADM2486) • 5 V or 3 V operation (VDD1) • High common-mode transient immunity: >25 kV/µs • Isolated DE status output	• Receiver open-circuit, fail-safe design • 50 nodes on bus • Operating temperature range: −40°C to +85°C • Wide body, 16-lead SOIC package
ADM2482E	2.5 kV Signal Isolated, ESD Protected, Full/Half Duplex RS-485 Transceiver w/ Transformer Driver (16 Mbps)	• ±15 kV ESD protection on RS485 input/output pins • Data rate: 16 Mbps • 5 V or 3.3 V operation (VDD1) • 256 nodes on bus	• True fail-safe receiver inputs • Operating temperature range: −40°C to +85°C • Wide-body, 16-lead SOIC package
ADM2490E	5 kV Signal Isolated, High Speed (16 Mbps), ESD Protected, Full Duplex RS-485 Transceiver	• ±8 kV ESD protection on RS-485 input/output pins • 16 Mbps data rate • Suitable for 5 V or 3 V operation (VDD1) • High common-mode transient immunity: >25 kV/µs • Receiver has open-circuit, fail-safe design	• 32 nodes on the bus • Thermal shutdown protection • Operating temperature range: −40°C to +105°C • Wide body, 16-lead SOIC package
ADM2587E	2.5 kV Signal and Power Isolated, ±15 kV ESD Protected, Full/Half Duplex RS-485 Transceiver (500kbps)	• isoPower™ integrated isolated DC/DC converter • ±15 kV ESD protection on RS485 input/output pins • ADM2587E data rate: 500 kbps • 5 V or 3.3V operation	• Connect up to 256 nodes on one bus • Open- and short-circuit, fail-safe receiver inputs • High common-mode transient immunity: >25 kV/µs • Thermal shutdown protection
ADM3051	High Speed Industrial CAN Transceiver with Bus Protection for 24 V Systems	• High speed data rates up to 1 Mbps • Short-circuit protection on bus pins • Slope control for reduced EMI	• Unpowered nodes do not disturb the bus • Temperature range: −40°C to +125°C
ADM3052	5 kV rms isolated CAN transceiver with integrated high voltage, bus side, linear regulator	• High speed data rates up to 1 Mbps • Fully isolated digital interface • Integrated V+ linear regulator • Bus side powered by V+ and V−	• Short-circuit protection on bus pins • Integrated bus miswire protection • Unpowered nodes do not disturb the bus
ADM3053	2.5 kV rms signal and power isolated CAN transceiver with integrated isolated dc-to-dc converter	• High speed data rates up to 1 Mbps • Fully isolated power and data • Short-circuit protection on bus pins	• Slope control for reduced EMI • Unpowered nodes do not disturb the bus
ADM3054	5 kV rms signal isolated high speed CAN transceiver with bus protection	• High speed data rates up to 1 Mbps • Fully isolated digital interface • Short-circuit protection on bus pins	• Unpowered nodes do not disturb the bus • Able to detect loss of power on bus side • Temperature range: −40°C to +125°C

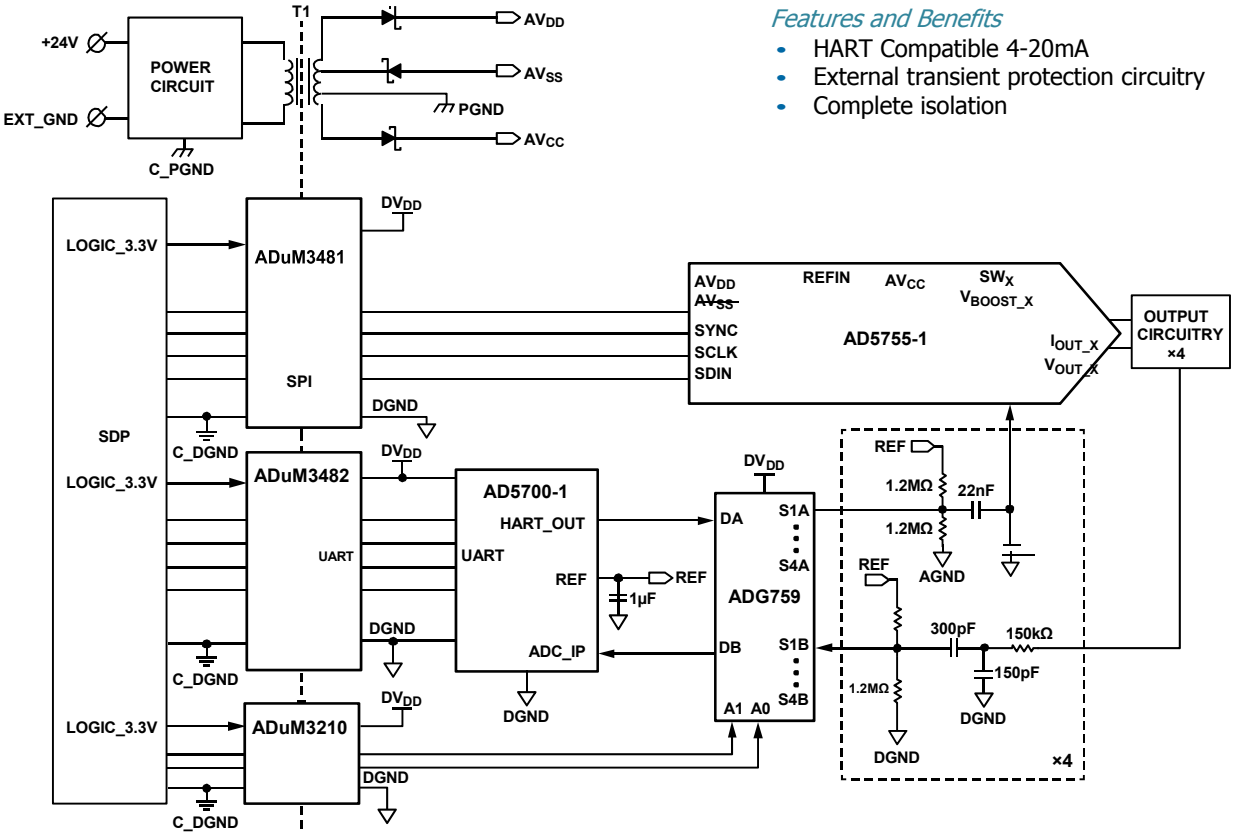
ADM3101E	±15 kV ESD protected, 3.3 V single-channel RS-232 line driver/receiver	• 460 kbps data rate • Single-channel RS-232 line driver/receiver	• 0.1 µF charge pump capacitors
ADM3251E / 3252E	Isolated Single/Dual Channel RS-232 Line Driver/Receiver	• 460 kbps data rate • Fully isolated power and data	• 15 kV ESD protection on RIN and TOUT pins
ADM3232E	±15 kV ESD Protected, 3.3 V, RS-232 Line Driver/Receiver	• Data rate: 460 kbps • 2 Tx and 2 Rx • Meets EIA-232E specifications • 0.1 µF charge pump capacitors	• ESD protection to IEC1000-4-2 (801.2) on TTL/CMOS and RS-232 I/Os • Contact discharge: ±8 kV • Air gap discharge: ±15 kV
ADM3311E	3-V, RS-232 Serial Port Driver-Receiver	• Green Idle power-saving mode • Single 2.7 V to 3.6 V power supply • 0.1 µF to 1 µF charge pump capacitors • Low EMI • Low power shutdown: 20 nA • Full RS-232 compliance • 460 kb/s data rate	• One receiver active in shutdown (ADM3307E/ADM3311E/ADM3312E/ADM3315E) • Two receivers active in shutdown (ADM3310E) • ESD >15 kV IEC 1000-4-2 on RS-232 I/Os • ESD >15 kV IEC 1000-4-2 on CMOS and RS-232 I/Os (ADM3307E)
電源シーケンサ/電圧検出 / Sequencer / Supervisory			
ADM1185	Quad Voltage Monitor and Sequencer	• Powered from 2.7 V to 5.5 V on the VCC pin • Logical core with internal timeouts provides power supply sequencing and fault protection • 4 inputs can be programmed to monitor different voltage levels with resistor dividers	• Monitors 4 supplies via 0.8% accurate comparators • 3 open-drain enable outputs • Open-drain power-good output (PWRGD) • 10-lead MSOP
ADM8323	Supervisory Circuit with Windowed Watchdog, Manual Reset, and Active-Low Push-Pull Reset Output	• Windowed watchdog, 8 timeout options • 26 reset threshold options • 2.5 V to 5 V in 100 mV increments • 4 reset timeout options • 1 ms, 20 ms, 140 ms, and 1120 ms (minimum) • Manual reset input	• Open-Drain or Push-Pull RESET outputs • Low power consumption • Specified over wide temp. range (-40°C to 125°C) • 5-lead SOT-23 package
ADM6306	Multiple Input Programmable Supervisory ICs	• Adj. input threshold voltage options: 0.4 V and 1.23 V • Pre-trimmed VCC threshold options (ADM6306) • Increments between 2.5 V and 5 V • Manual reset input (ADM6306) • 4 factory programmed reset timeout delays 1 ms, 20 ms, 140 ms, and 1.12 sec (minimum)	• Reset output stage: active low, open drain • Low power consumption: 5 µA typical • Power supply glitch immunity • 5-lead SOT-23 package • Temperature range: −40°C to +125°C
ADM6326	Ultralow Power, 3-Lead, SOT-23, Microprocessor Reset Circuit, Active-Low Push-Pull Output, 0.5 µA Supply Current	• Ultralow supply current 1 µA max. (ADM6326/6328) • Accurate monitoring of 2.5 V, 3 V, 3.3 V, and 5 V • Reset thresholds of 2.2 V to 4.63 V • Glitch immunity from negative-going VCC transients • Power-on reset pulse width of 100 ms min. • 2 reset output options	• Push-pull RESET (ADM6326/ADM6346) • Open-drain RESET (ADM6328/ADM6348) • Power-on reset pulse width of 100 ms min. • Operating temperature range of −40°C to +85°C • 3-lead SOT-23 package

インターフェース IC、LDO、DC/DC コンバータ、シーケンサ・電圧検出 IC は、他にも製品がございます。詳しくは Web をご参照下さい。

リファレンス設計 Circuits from the Lab®

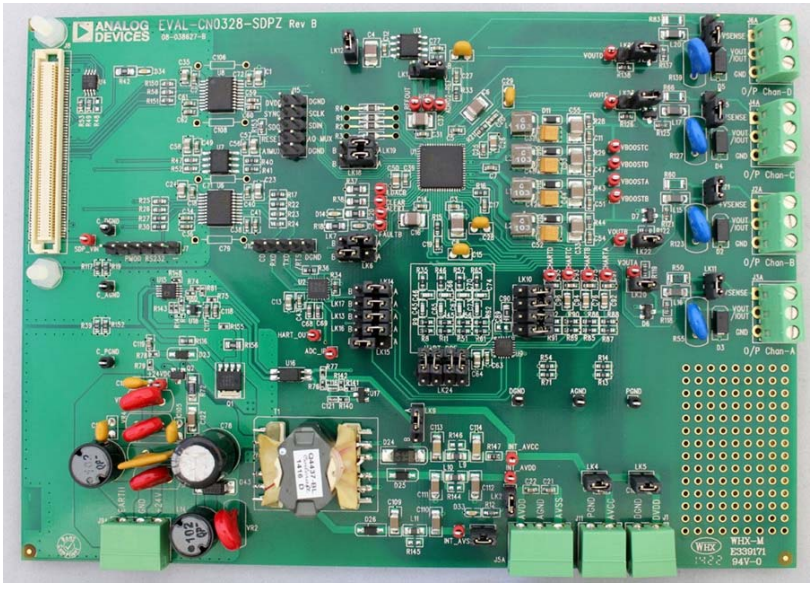
リファレンス設計 Circuits from the Lab®にあるアナログ・デバイセズの回路は、アナログ・デバイセズの技術およびアプリケーションの専門家によって設計、テストされており、性能と機能の両方が保証されています。複数の開発プラットフォームでの評価と迅速なプロトタイピングを可能にする低価格ハードウェアが提供されます。詳細な技術資料と設計ファイルも用意されているため、アプリケーションの理解が容易になり、システムへの組込みにおける問題を最小限に抑えることができます。

CN0328：Completely Isolated 4-Channel Multiplexed HART Analog Output Circuit



Features and Benefits

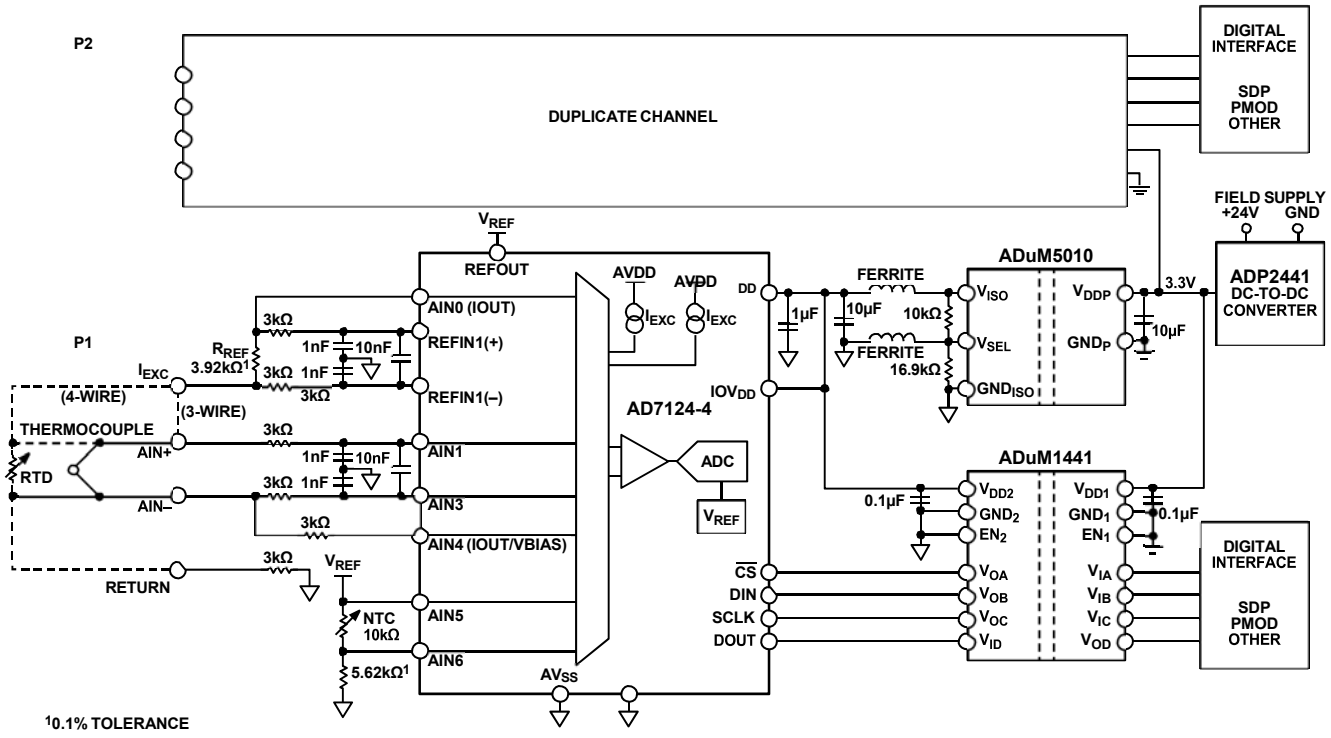
- HART Compatible 4-20mA
- External transient protection circuitry
- Complete isolation

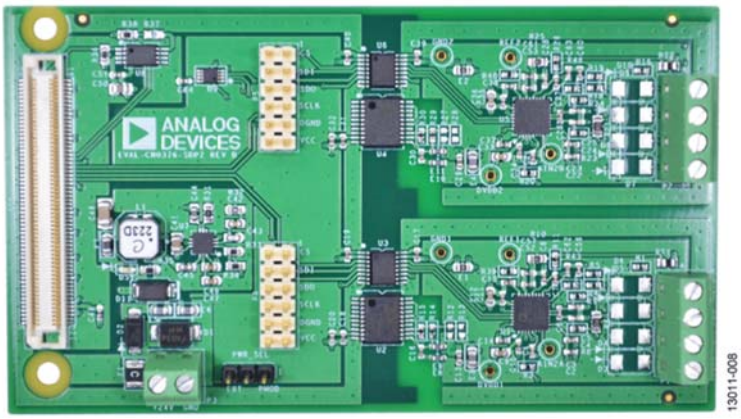


CN0328 circuit diagram

詳しくは http://www.analog.com/jp/cn0328 をご覧ください。

CN0376: Channel to Channel Isolated Temperature Input (Thermocouple / RTD) module for PLC / DCS Applications





CN0376 circuit diagram
詳しくは http://www.analog.com/jp/cn0376 をご覧ください。

Features and Benefits

- Flexibility of ADC input channels allows the user to configure the circuit for Thermocouple with CJC or RTD input
- Low EMI emissions
- Connects directly up to the ADC driver boards for modular evaluation experience

オートメーション・コントローラ向けリファレンス設計

アナログ入力（温度モジュール）Analog Input: Temperature Module

Reference Ciruit No.	Circuit Title	Inputs	Parts Used	Interface Type	Description & Benefits
CN0206	Thermocouple Temperature Measurement System with Less Than 500 µA Current Drain	• Thermocouple (T) • Thermistor for cold junction	AD7793 ADP3336	SDP	• Typical temperature range of –200°C to +400°C • T-type thermocouple measurement system • Low power 500 µA max • Single-chip solution with programmable gain and cold junction compensation • High performance and accuracy
CN0214	USB - Based Thermocouple Temperature Measurement System Using ADUC7061 (ARM7)	• Thermocouple (T) • RTD for cold junction	ADUC7061 ADP120 OP193 ADP3333	USB	• Typical temperature range of -200 C to +400 C • T-type thermocouple measurement system • Single chip solution with an ARM 7 processing core • Cold junction compensation using an RTD
CN0221	USB - Based, Thermocouple Temperature Measurement System Using ADUCM360 (Cortex - M3)	• Thermocouple (T) • RTD for cold junction	ADUCM360 ADP1720	USB	• Typical temperature range of -200 C to +400 C • Precision Cortex M3 analog microcontroller with 24-bit Σ-Δ ADC • T-type thermocouple measurement system with cold junction compensation • Single chip solution
CN0271	Thermocouple Temperature Measurement System with Amplifier - Based Cold Junction Compensation	• Thermocouple (K) • AD8495 (cold junction)	AD8495 AD8476 AD7790 ADR441	SDP	• Typical temperature range of -200 C to +1200 C • K-type thermocouple measurement system • 16-bit ADC, Low temperature drift • Integrated cold junction compensation
CN0300	12-Bit, 4-20mA Loop-Powered Thermocouple Measurement System Using ARM Cortex-M3	• Thermocouple (T) • RTD for cold junction	ADUCM360 ADP1720	USB-SWB / UART-EMUZ	• T-type thermocouple measurement system, to loop powered 4-20mA output • Typical temperature range of -200 C to +400 C • Single chip solution using a Cortex processing core • Cold junction compensation
CN0319	14-Bit, 4-20 mA, Loop Powered, Thermocouple Temperature Measurement System Using ARM Cortex-M3	• Thermocouple (T) • RTD for cold junction	ADUCM360 OP193 ADR3412 ADP1720	4-20mA	• T-type thermocouple measurement system, to loop powered 4-20mA output • Typical temperature range of -200 C to +400 C • Higher resolution than CN0300 • Single chip solution using a Cortex processing core • Cold junction compensation
CN0354	Low Power Multichannel Thermocouple Measurement System with Cold Junction Compensation	• Thermocouple (K for AD8495) • AD8495 (cold junction)	AD8495 ADG1609 AD7787 ADM8829	PMOD	• Quad channel thermocouple inputs • Low Power less than 8mW • CJ compensation 0-50°C • The error is less than 2°C, over a measurement range of –25°C to +400°C • Nonlinearity correction algorithim reduces the error to less than 0.5°C over a 900°C measurement range • Noise free resolution is less than 0.1°C

CN0376	Channel to Channel Isolated Temperature Input (Thermocouple / RTD) module for PLC / DCS Applications	• RTD or Thermocouple	AD7124 ADUM1441 ADUM5010 ADP2441	SDP	• Flexibility of ADC input channels allows the user to configure the circuit for Thermocouple with CJC or RTD input. • Low EMI emissions • Connects directly up to the ADC driver boards for modular evaluation experience.
CN0381	Completely Integrated 4-Wire RTD Measurement System Using a Low Power, Precision, 24-Bit, Sigma-Delta ADC	• RTD	AD7124-4 ADP1720	SDP	Overall 4-wire system accuracy is better than ±1°C over a temperature range of −50°C to +200°C
CN0384	Completely Integrated Thermocouple Measurement System using a Low Power, Precision, 24-Bit, Sigma-Delta ADC	• Thermocouple (T) • RTD for cold junction	AD7124-4 ADP1720	SDP	Overall system accuracy of ±1°C over a measurement temperature range of −50°C to +200°C

オートメーション・コントローラ向けリファレンス設計（続き）

アナログ入力モジュール Analog Input Module

Reference Ciruit No.	Circuit Title	Inputs	Parts Used	Interface Type	Description & Benefits
CN0209	Fully Programmable Universal Analog Front End for Process Control Applications	• ±10V • 4-20mA • Thermocouple + RTD	AD7193 ADUM1400 ADT7310 AD8676 AD8275 ADG1414	SDP	• Complete analog front end for process control • Quickly switch between multiple inputs • Universal Analog Input • Inputs include voltage, current, and temperature
CN0225	High Impedance, High CMR, ±10V Analog Front End Signal Conditioner for Industrial Process Control and Automation	• ±10V	AD8295 AD8275 AD7687 ADR431	SDP	• Analog front end for ±10V • High common mode rejection • Accepts typically large Industry level voltages
CN0251	24-Bit, 4.7 Hz, 4-Channel Analog Data Acquisiton System	• ±10V • ±100mV	AD8475 AD7190 ADR444 ADUM5401	SDP	• Multichannel input with wide dynamic range • Quickly switch between multple inputs • Industrial input signal levels accepted • In-amp allows for high common mode voltages • Programmable gain
CN0254	16-Bit, 250 kSPS 8-Channel, Single Supply, Isolated Data Acquisition System	• ±10V	AD7689 ADUM3471 AD8618 AD8608 ADR364	SDP	• 8-channel for multple inputs • Industrial input signal levels accepted • Power and signals completely separated from controller • 2500 Vrms isolation provided • System powered from a single 5V
CN0269	18-Bit, 1.33 MSPS, 16-Channel Data Acquisition System	• ±10V	AD8475 AD7984 ADA4898 ADG1207 ADG1436	SDP	• Improve the overall system reliability and efficiency • Optimized signal chain for data aquisition • Multi-channel - 8 differential or 16 pseudo channels • Fast sampling ADC of 1.33 MSPS at 18-bits
CN0314	Configurable 4-20 mA Loop Powered Transmitter/Receiver using a Micropower Instrumentation Amplifier	• 0-5V • 0-10V	AD8237 AD8420 ADR02 ADR4550	Analog I/O	• Transmitter / Receiver board for 4-20mA systems • Have simple switch to go between transmit and receive • Gain and scaling jumpers for different input types • Connects directly up to the ADC driver boards for modular evaluation experience.
CN0325	PLC and DCS Universal Analog Input Using Either 4-Pin or 6-Pin Terminal Block	• Voltage • Current • Thermocouple + RTD	AD7795 ADUM3471 ADT7310	SDP	• Single Channel analog front end for process control • Over-voltage protection • Universal Analog input (Voltage, Current, Thermocouple, RTD) • Single Channel
CN0364	PLC / DCS Quad Channel Voltage and Current Input with HART Compatibility	• Voltage • Current	AD7173-8 AD5700-1 ADUM3151 ADUM5211	SDP	• Quad-channel analog input front end for process control • HART receiver compatible • Isolated from the processng unit
CN0376	Channel to Channel Isolated Temperature Input (Thermocouple / RTD) module for PLC / DCS Applications	• RTD or Thermocouple	AD7124 ADUM1441 ADUM5010 ADP2441	SDP	• Flexibility of ADC input channels allows the user to configure the circuit for Thermocouple with CJC or RTD input. • Low EMI emissions • Connects directly up to the ADC driver boards for modular evaluation experience.

アナログ出力モジュール Analog Output Module

Reference Ciruit No.	Circuit Title	Outputs	Parts Used	Interface Type	Description & Benefits
CN0229	4-channel, Flexible, Configurable, Voltage and Current output circuit for I/O Card and PLC application.	• 4-20mA • 0-24mA • ±10V • 0-5V	AD5750-2 AD5686R ADUM1301 ADUM5401	SDP	• PLC output driver • Programmable output range • Completely isolated from the reset of system • 4 output channels
CN0233	16-bit Isolated Industrial Voltage and Current Output DAC with Isolated DC-to-DC Supplies	• Voltage • Current	AD54122 ADUM3471-1 ADR445	SDP	• Capable of programmable ranges from 4-20mA, 0-20mA, 0-5V, 0-10V, ±5V, ±10V • Digital isolators with an integrated PWM controller • Eliminates the need for a separate isolated DC-to-DC converter.
CN0267	Complete 4 mA to 20 mA Loop Powered Field Instrument with HART Interface	• 4-20mA HART	ADUCM360 AD5421 AD5700	HART	• Standard 4-20mA loop interface for communicating measured values from sensors to a controller. • HART communication
CN0270	Complete 4 mA to 20 mA HART Solution	• 4-20mA HART	AD5420 AD5700 OP184	PMOD	• HART-compatible 4-20mA solution
CN0314	Configurable 4-20 mA Loop Powered Transmitter/Receiver using a Micropower Instrumentation Amplifier	• 4-20mA	AD8237 AD8420 ADR02 ADR4550	Analog I/O	• Transmitter / Receiver board for 4-20mA systems • Have simple switch to go between transmit and receive • Gain and scaling jumpers for different input types • Connects directly up to the ADC driver boards for modular evaluation experience.
CN0328	Completely Isolated 4-Channel Multiplexed HART Analog Output Circuit	• 0-5V • HART	AD5755-1 AD5700 ADUM3482 ADCMP356	SDP	• HART-compatible 4-20mA solution • External transient protection circuitry
CN0382	Isolated 4 mA to 20 mA/HART Temperature and Pressure Industrial Transmitter Using a Low Power, Precision, 24-Bit, Sigma-Delta ADC	• 4-20mA HART	AD7124 AD5421 AD5700 ADUM1441 ADG5433	HART	• Standard 4-20mA loop interface for communicating measured values from sensors to a controller. • HART communication • Utilized a 24-bit Σ-Δ converter overall system precision, reliability, and efficiency.

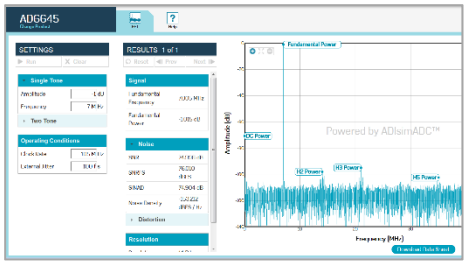
オンラインツールと設計支援

オートメーション・コントローラの課題への対応を支援する、アナログ・デバイセズが提供する製品、シグナル・チェーン・ソリューションおよび技術の詳細については、http://www.analog.com/jp/applications/markets/process-control-and-industrial-automation.html を参照してください。また、アナログ・デバイセズは、お客様の製品選定や回路設計を容易にする、無料の設計ツールや計算ツールを提供しています。詳細については、デザインセンターにある設計／計算ツールを参照してください。
http://www.analog.com/jp/design-center/design-tools-and-calculators.html

Virtual Eval ツール（仮想評価ツール、ベータ版）

http://beta-tools.analog.com/virtualeval/

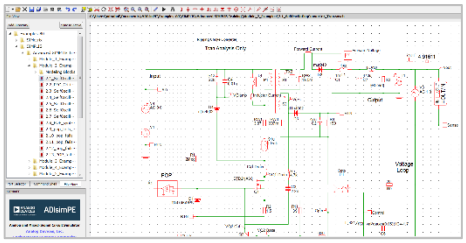
Virtual Eval は ADC と DAC の製品評価を支援するウェブ・アプリケーションです。アナログ・デバイセズのサーバ上にある詳細なモデルを使用して、重要な部品の性能特性をわずか数秒でシミュレートします。
使用時は、入力トーンや外部ジッタなどの動作条件のほか、ゲインやデジタル・ダウンコンバージョンといったデバイス機能を設定してください。ノイズ、歪み、分解能、FFT、タイミング図、周波数応答プロット、その他さまざまな性能特性を確認することができます。



ADIsimPE™ リニア／ミックスド・シグナル回路シミュレータ - パーソナル・エディション

http://www.analog.com/jp/design-center/interactive-design-tools/adisimpe.html

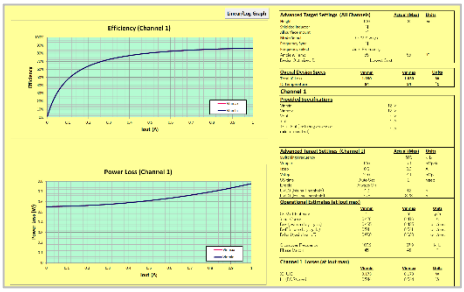
ADIsimPE は SIMetrix/SIMPLIS にアナログ・デバイセズのライブラリ等を追加した、パーソナル版回路シミュレータです。SIMetrix モードは、一般的な SPICE 回路シミュレーションや、線形回路に適しています。SIMPLIS（SIMulation Piecewise-Linear System）モードは、標準的な SPICE に対して大幅に向上した堅牢性、速度、精度でスイッチング回路動作のシミュレーションを実行します。特にスイッチング電源や PLL、A/D コンバータや D/A コンバータなどのアプリケーションに適しています。



ADIsimPower™ 電圧レギュレータ設計ツール

http://www.analog.com/jp/design-center/interactive-design-tools/adisimpower.html

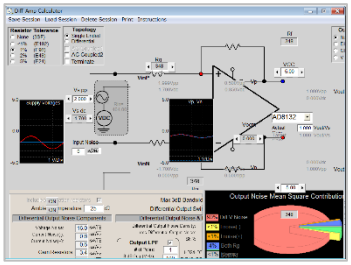
ADIsimPower 電圧レギュレータ設計ツールは、特定のアプリケーション要件から、300 以上のパワー・マネジメント製品と 10 以上の異なるトポロジーからソリューションを比較します。各ソリューションは、
期待される性能を比較することができるよう、IC、外部コンポーネント、および動作状態などの情報を含みます。



ADI DiffAmpCalc™ 差動アンプ設計ツール

http://www.analog.com/jp/design-center/interactive-design-tools/adi-diffampcalc.html

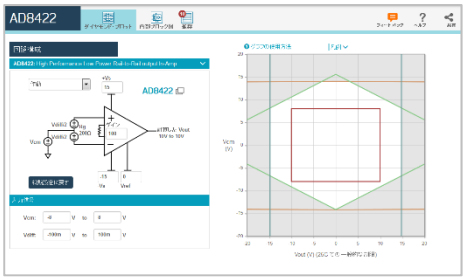
ADI DiffAmpCalc™を使えば、これまで何時間もかかかっていた差動アンプの設計時間を数分に短縮します。 このツールは、ダウンロードすることですぐ使用することができ、インタラクティブなユーザー・インターフェースで簡単に使用できます。



オンライン計装アンプ用ダイヤモンド・プロット・ツール

http://www.analog.com/designtools/jp/diamond/#difL=-0.1&difR=0.1&difSl=-0.1&gain=100&l=-8&pr=AD8422&r=8&sl=-8&tab=1&ty=1&vn=-15&vp=15&vr=0

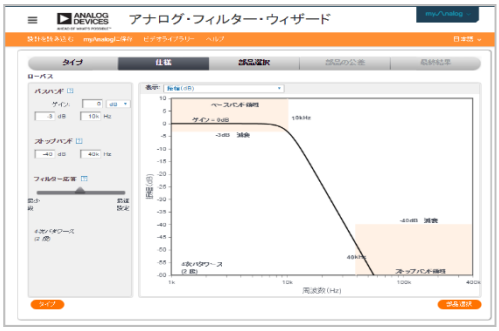
計装アンプのデータシートには、通常、出力スイングと入力同相電圧のグラフ（1 つまたは複数のバリエーション）が記載されています。これは一般にダイヤモンド・プロットと呼ばれ、内部および外部のヘッドルームの限界を示す総合的なグラフです。ダイヤモンド・プロットは、回路に関する基本情報が十分にあれば、さまざまな電源電圧、ゲイン、基準ピン電圧でダイヤモンド・プロットを調整することができます。



オンラインアナログフィルター・ウィザード

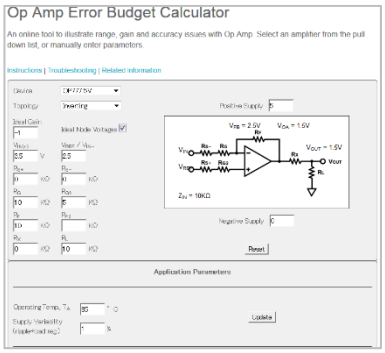
http://www.analog.com/designtools/jp/filterwizard/

直感的なユーザー・インターフェース、使いやすいチュートリアルとヘルプにより、フィルタ設計プロセスを簡素化します。



その他

- 計装アンプ誤差バジェット・カリキュレータ
- オペアンプ誤差バジェット・カリキュレータ
- 消費電力とダイ温度
- 電圧リファレンス・ウィザード



Circuits from the Lab®リファレンス・デザイン

Circuits from the Lab®リファレンス・デザインは、アナログ・デバイセズの熟練エンジニアが、さまざまな分野の最終製品を目指して作り込んだ基板、レイアウトも含む全ての設計情報、ソフトウェアなどはもちろん、性能評価リポートも含んだソリューションです。*www.analog.com/circuits*

Circuits from the Lab Reference Designs

オンライン・サポート・コミュニティ（英語）

アナログ・デバイセズのオンライン・サポート・コミュニティで製品事業部の技術者に相談ができます。難しい設計上の問題 についてのお問合せ、FAQ の参照などにご利用いただけます。*ez.analog.com*

EngineerZone™

アナログ・デバイセズ株式会社

本　　社　〒105-6891　東京都港区海岸 1-16-1　ニューピア竹芝サウスタワービル 10F
大 阪 営 業 所　〒532-0003　大阪府大阪市淀川区宮原 3-5-36　新大阪トラストタワー10F
名 古 屋 営 業 所　〒451-6040　愛知県名古屋市西区牛島町 6-1　名古屋ルーセントタワー40F

Printed in Japan　BR12083-2-7/16

www.analog.com/jp

ANALOG DEVICES
想像を超える可能性を
AHEAD OF WHAT'S POSSIBLE™