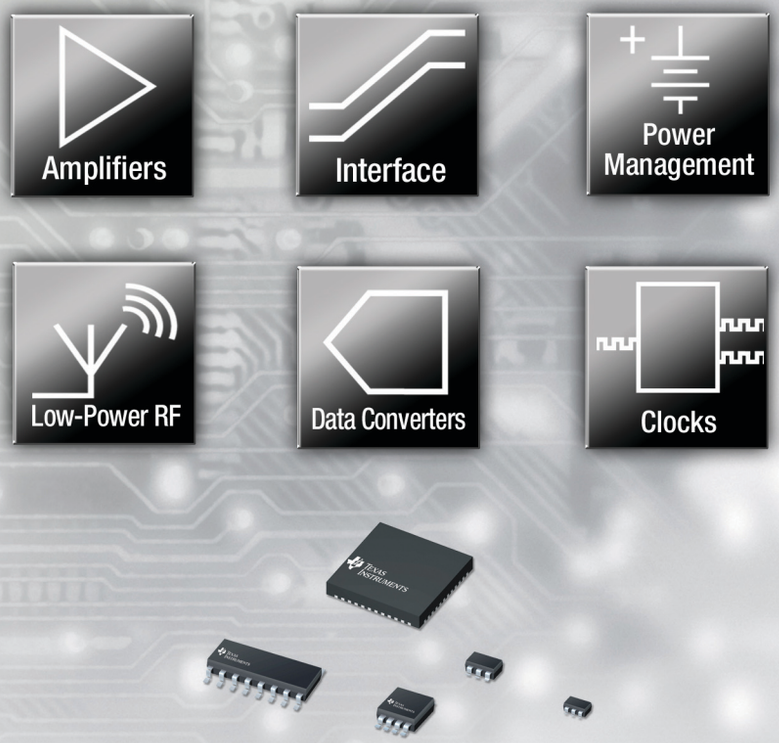
Signal Chain and Power Management Featured Product Guide

Texas Instruments

Amplifiers, Data Converters, Power Management, Temperature Sensors, Clocks, Low-Power RF, Interface and References



3Q 2008

Overview

Texas Instruments offers a comprehensive high-performance analog portfolio from amplifiers and data converters to power management, interface and low-power RF devices. Whether you need faster speed, higher precision, lower power or smaller size, TI has analog ICs to differentiate your design. At Texas Instruments, we know we only succeed when we help you succeed. That's why TI offers you high-performance analog products, application knowledge and technical support to help you win in the marketplace. **That's High-Performance Analog >>Your Way™**

Operational Amplifiers

Device	Product Description	Key Specifications	Smallest Package
Wide Supply	**Common Applications: Industrial, Test and Measurement, Optical Networking, Data Acquisition**		
OPA827	Very low noise, high-precision, JFET op amp features excellent AC characteristics and wide bandwidth for transimpedance and medical applications	±4V to ±18V, 114dB (min) CMRR, 4nV/√Hz V_{NOISE}, 150µV (max) V_{OS}, 22MHz GBW, 28V/µs slew rate	SO
OPA211	Low voltage noise, wide bandwidth and wide output swing, ideal as a loop filter amp in PLL applications and precision data acquisition	±2.25V to ±18V, 1.1nV/√Hz V_{NOISE}, 80MHz GBW, 125µV V_{OS} (max), RRO, 3.6mA I_Q	SON
OPA145	Low power, precision, JFET-input, wide input range and RRO, ideal for portable precision acquisition systems	±2.25V to ±18V, 500µA I_Q (max), 10pA I_{BIAS} (max), 1µV/°C drift, RRO, input voltage range includes V–	SOT23
Low Power	**Common Applications: Portable Devices, Industrial, Signal Conditioning**		
OPA2369	1µA zero-crossover input offers excellent CMRR over entire input range for single-supply, portable designs	1.8V to 5.5V, 1µA I_Q (max), 12kHz GBW, 0.75mV V_{OS} (max), RRIO	SC70
OPA333	Lowest power, zero-drift amplifier for low-voltage sensor signal conditioning and portable pressure sensing applications	1.8V to 5.5V, 25µA I_Q (max), 350kHz GBW, 10µV (max) V_{OS}, RRIO	SC70
OPA376	eTrim™ and ultra-low noise brings precision performance to single-supply applications	2.2V to 5.5V, 7.5nV/√Hz V_{NOISE}, 25µV V_{OS} (max), 950µA I_Q, RRIO	SC70
Wide Bandwidth	**Common Applications: Communications, Data Acquisition, Medical Imaging, Test and Measurement**		
OPA656	FET-input amplifier with very wide bandwidth and unity gain stable voltage feedback delivers high dynamic range for ADC buffering and transimpedance applications	±6V or ±12V, 500MHz BW, 290V/µs slew rate, 7nV/√Hz input V_{NOISE}, 2pA I_{BIAS}, ±70mA I_{OUT}, HD_2=74dBc and HD_3=100dBc at 5MHz	SOT23
THS4631	FET-input amplifier with wide supply voltage simultaneously delivers wideband transimpedance gain and large output signal swings for extremely low-level input signals	±5V to ±15V, 210MHz GBW, 10000V/µs slew rate, 7nV/√Hz input V_{NOISE}, 100pA I_{BIAS}, ±95mA I_{OUT}, HD_2=76dBc and HD_3=94dBc at 5MHz	MSOP
VCA824	Wideband voltage-controlled VGA with linear gain adjustment for >40dB with user settable max gain to provide differential-to-single-ended conversion with continuous gain	±4V to ±6V, 710MHz small-signal BW at G = +2V/V and 3120MHz 4Vpp BW at G = +10V/V, 2500V/µs slew rate, 2V/V to 40V/V (max) gain range	MSOP
THS4509	Fully differential amplifier also provides single ended to differential conversion to reduce even order harmonics while driving data acquisition systems at high frequencies	+3V to +5.25V, 2GHz BW, 6600V/µs slew rate, 1.9 nV/√Hz input V_{NOISE}, HD_2=75dBc and HD_3=80dBc at 100MHz	QFN

Instrumentation Amplifiers

Device	Product Description	Key Specifications	Smallest Package
Low Power	**Common Applications: Portable Devices, Low Power Test and Measurement, Weigh Scales, Data Acquisition**		
INA116	Ultra-low input bias current instrumentation amplifier ideal for measuring low voltages in very high impedance applications	3fA (typ) input bias current, 2mV (max) V_{OS}, 84dB (G = 10) CMR, 1mA I_Q, ±40V over-voltage protection	SOIC
INA122	Single-supply, micropower instrumentation amplifier with extremely low operating current ideal for portable instrumentation	2.2V to 36V, 60µA (typ) I_Q, 83dB (min) CMRR, 250µV (max) V_{OS}, 3µV/°C (max) offset drift 60nV/√Hz, 25nA (max) I_{BIAS}, –40°C to +85°C	SOIC
INA333	Low-power, precision instrumentation amplifier offering excellent accuracy with a versatile 3-op-amp design and small size	1.8V to 5.5V, 75µA (max) I_Q, 20µV (max) V_{OS}, 0.05µV/°C drift, 50nV/√Hz noise, –40°C to +125°C	MSOP
V_{OS}<1mV, CMR >100dB	**Common Applications: Instrumentation, Sensing and Control, Precision Test and Measurement**		
INA326	Zero-drift instrumentation amp with excellent offset and RRIO, designed to simplify single-supply instrumentation and measurement applications	2.7V to 5.5V, 100µV (max) V_{OS}, 100dB (min) CMRR, 0.4µV/°C (max) offset drift, 0.8µVp-p, –40°C to +85°C	MSOP
INA129	Low power and excellent accuracy are ideal for high-precision, battery operated systems	±2.25V to ±18V, 50µV (max) V_{OS}, 120dB (min) CMRR, 700µA I_Q, 0.5µV/°C (max) offset drift	SOIC
LOG114	Single-supply, high-speed, precision log amp for measuring low-level, wide dynamic range current in control loops and control systems	5V, 0.2% (0.017dB) conformity error, 0.375 V/Decade, 5MHz Log Core BW	QFN

Difference Amplifiers and Current Shunt Monitors

Device	Product Description	Key Specifications	Smallest Package
Difference Amplifiers	**Common Applications: Industrial Process Control, Current Shunt Measurement, Line Receiver, Portable, Battery Measurement**		
INA159	Precision, level-shifting difference amplifier with 0.2 gain simplifies interface of ±10V to single-supply ADCs	1.8V to 5.5V, ±100µV V_{OS}, ±1.5µV/°C offset drift, 1.5MHz BW, 96dB CMR, 15V/µs slew rate	MSOP
INA145	Resistor-programmable gain difference amplifier with wide range, single-supply operation	±1.35V to ±18V, 1 to 1000V/V adjustable gain, 570µA I_Q/Ch, 76dB CMRR (min), 1000µV V_{OS}, 3µV/°C V_{OS} drift	SOIC
INA148	High-voltage, precision, unity-gain difference amplifier for measuring low-level signals in the presence of up to ±200V common-mode voltage	±1.35V to ±18V, ±200V CMV at V_S = ±15V, 260µA I_Q, 86dB CMR, 0.075% (max) gain error, 1MΩ input resistance	SOIC
Current Shunt Monitors	**Common Applications: Current Measurement Systems, Power Management, Computing, Motor Control**		
INA209	Ultra-high accuracy, bi-directional current/power monitor with I²C interface for systems needing precise DC current or power measurement	3V to 5.5V, ±1% (max) over temp, 0 to 26V common-mode range, 100µV offset (max), 40mV FSR, –25°C to +85°C	TSSOP
INA210	Voltage-output, high-side measurement, bi-directional zerø-drift series current shunt monitor that can sense drops across a wide common-mode	2.7V to 26V, 100µA (max) I_Q, –0.3V to 26V CMV, ±35µV (max) V_{OS}, ±1% gain, 0.5µV/°C offset drift (max), –40°C to +125°C	SC70
INA19x	High-side measurement, voltage output, low-cost current shunt monitor available in gains of 20, 50 and 100	2.7V to +18V, voltage output, –16V to +80V common mode, 3% accuracy over temp, –40°C to +125°C	SOT23

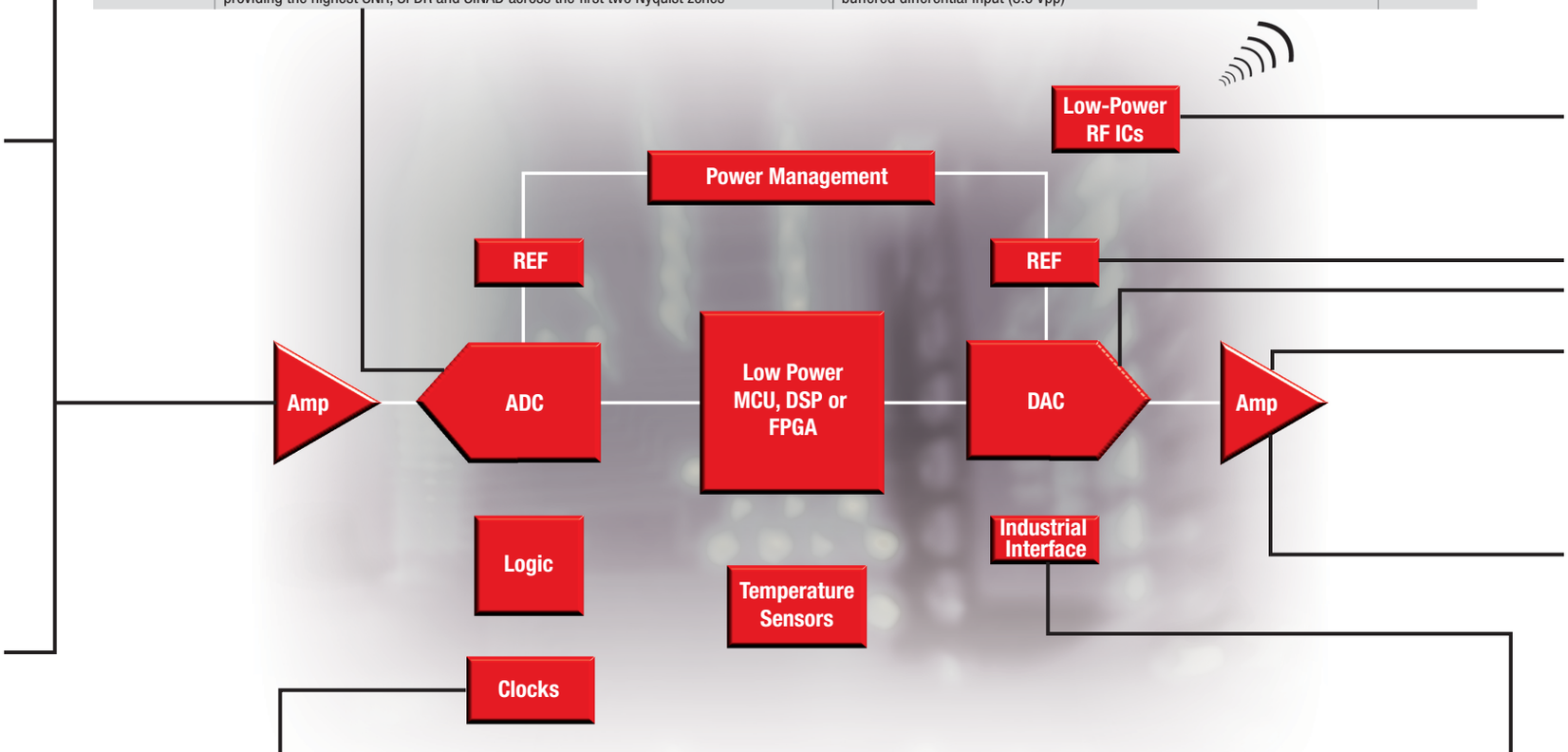
Comparators

Device	Product Description	Key Specifications	Smallest Package
Comparators	**Common Applications: Portable Medical, Sensing, Switches, Video Surveillance Systems**		
TLV3501	Fast response rail-to-rail, high-speed comparator with shutdown in a microsized package	2.7V to 5.5V, 4.5ns propagation delay, 5mA I_Q/Ch, 1mV V_{OS}, 6mV built-in hysteresis, RRIO	SOT23
TLV301x	Includes integrated voltage reference for space and power, ideal for portable medical equipment and motion sensors	1.8V to 5.5V, 1.242V V_{REF}, 5µA I_Q, open-drain or push-pull output, uncommitted comparator inputs	SC70
TLV349x	Nano-power with excellent performance characteristics, propagation delay, for micro-power systems	1.8V to 5.5V, 1.2µA (max) I_Q, 6µs propagation delay at 100mV overdrive	SOT23

*New products are listed in **bold red.** Preview products are listed in **bold blue.***

ADCs

Device	Product Description	Key Specifications	Smallest Package
Sampling Rate (fs < 10kSPS)	**Common Applications: Industrial Process Control, Handheld Instrumentation, Consumer, Test Equipment, Medical, Bridge Sensors**		
ADS1174/8	Simultaneous sampling, 16-bit ADCs integrate AC and DC performance for demanding multi-channel, signal acquisition applications	4/8 channels, up to 52kSPS with 97dB SNR and 31mW/Ch, 25kHz signal BW, 2µV/°C offset drift, 2ppm/°C gain drift	HTQFP
ADS1230/2/4	Precision, ΔΣ 20-/24-bit ADC with onboard PGA and internal oscillator for a complete front-end solution for bridge sensor applications	2.7V to 5.3V, PGA w/64 or 128 gain, 88nV noise (80SPS), selectable 10SPS/80SPS, 50/60Hz noise rejection, –40°C to +85°C	TSSOP
ADS1258	Fastest cycling, lowest latency, 16-channel, 24-bit ADC offers DC precision and optional dual-supply operation	±2.5V or 5V, 42µs/Ch latency, programmable filter/data rate, 0.02 µV/°C offset drift, 0.4ppm/°C gain drift, –40°C to +105°C	QFN
ADS1248	24-bit temperature measurement ADC with up to 4 differential or 7 single-ended inputs for industrial systems	±2.5V or 5V, 2kSPS data rate, programmable gain up to 128, 8 GPIO, internal ref, oscillator, temp sensor, burnout detect	TSSOP
Sampling Rate (fs < 5MSPS)	**Common Applications: Medical Instruments, Optical Networking, Industrial Controls, Data Acquisition, Multi-Channel Systems**		
ADS7866/7/8	Low-power, 12-/10-/8-bit SAR ADCs that require only one, single-cell battery to operate —ideal for portable applications	1.2V to 3.6V, 200/240/280kSPS, ±1.5LSB INL, 71dB SNR, –83dB THD (at 30kHz), 0.22mW at 100kSPS and V_{DD} = 1.2V	SOT23
ADS8329/30	Low-power, 1MSPS, 16-bit SAR ADC for high-performance portable applications and multi-channel coherent data acquisition	2.7V to 5V, 15.5mW at 1MSPS, ±1.75 LSB (max) INL, 92dB SNR, –102dB THD, 102dB SFDR, –40°C to +85°C	QFN
ADS8519	±10V bipolar, 16-bit SAR ADC with serial interface offering excellent linearity and a flexible, voltage digital interface that supports 1.8V I/O	8V unipolar, ±5V, ±10V bipolar input, 250kSPS, 92dB SNR, 102dB SFDR, –100dB THD, 100mW at 250kSPS (typ)	SSOP
ADS8484	18-bit SAR ADC with excellent SNR and industry leading drift performance for industrial data acquisition	1.25MSPS, 98dB (typ) SNR, –110dB (typ) THD, 113dB (typ) SFDR, 0.5ppm/°C gain drift, 0.05 ppm/°C offset drift	QFN
Sampling Rate (fs > 5MSPS)	**Common Applications: Wireless Communications, Portable Test Instrumentation, Medical Imaging, Video, Data Acquisition**		
ADS5281	Octal, 12-bit, 50MSPS ADC for applications requiring the lowest power and highest density possible to achieve high system resolution	3.3V, 1/f noise suppression, 64mW/Ch, 70dB SNR, 85dB SFDR at f_{IN} = 5MHz, serialized DDR LVDS outputs, –40°C to +85°C	QFN
ADS62P45	Dual, 14-bit, 125MSPS ADC with selectable CMOS or LVDS outputs for applications requiring large channel density with high performance and low power consumption	3.3V, 73.6dB SNR, 86dB SFDR at f_{IN} = 70MHz, 411mW/Ch (CMOS), selectable coarse and fine input gain, –40°C to +85°C	QFN
ADS5474	14-bit, 400MSPS ADC for applications requiring the highest sampling rates and resolutions with the best dynamic performance, fully buffered differential input	3.3V and 5V, 11.2 effective bits, 1.4GHz input BW, 70.2dBFS SNR and 86dBc SFDR at f_{IN}=100MHz, –40°C to +85°C	HTQFP
ADS5483	16-bit, 135MSPS ADC with fully buffered inputs provides maximum dynamic performance by providing the highest SNR, SFDR and SINAD across the first two Nyquist zones	3.3V and 5V, 78.6dB SNR, 95dB SFDR and 77.4dB SINAD at f_{IN} = 70MHz, fully buffered differential input (3.0 Vpp)	QFN



Clocks

Device	Product Description	Key Specifications	Smallest Package
	Common Applications: Wireless Basestations, Communications, Consumer, PC/Memory		
CDCLVD110A	High-speed, low-jitter, low-skew clock buffer that distributes one differential clock pair input to ten LVDS clock outputs, great for 50Ω transmission lines	2.5V, 1:10 buffer, 900MHz (typ), 15ps (typ) output skew, fail-safe I/O pins for powerdown, –40°C to +85°C	TQFP
CDCM1804	1:4 LVPECL/LVCMOS clock buffer w/dividers that distributes 1 differential clock input to 3 LVPECL differential and 1 single-ended LVCMOS clock outputs	3V to 3.6V, up to 800MHz LVPECL or 200MHz LVCMOS, programmable output divider, –40°C to +85°C	MLF
CDCE949	1.8V programmable VCXO 4-PLL clock synthesizer with 3.3V/2.5V/1.8V I/Os designed to replace multiple crystals and oscillators, saving board space and cost	1.8V, 150ps output skew, ±60ps period jitter, 230MHz (max) f_{OUT}, on-chip EEPROM, 9 LVCMOS outputs	TSSOP
CDCM7005	Ultra-low jitter clock synchronizer with high-frequency outputs and the lowest phase noise and jitter to support clean data converter clocking	3.3V, 5 LVPECL or 10 LVCMOS outputs, LVCMOS input to 200MHz, LVPECL inputs to 2.2GHz, –40°C to +85°C	QFN
CDCE421	Fully integrated, wide-range, low-jitter crystal oscillator clock generator that supports multiple frequencies for FPGA, ASICs, fibre channel and Ethernet	3.3V, 380fs output jitter, 10.9-766.7MHz and 875.2-1175MHz f_{OUT}, >2kV HBM ESD protection, EEPROM	QFN

*New products are listed in **bold red.***

Low-Power RF

Device	Product Description	Key Specifications	Smallest Package
	Common Applications: Industrial Control, Consumer, Zigbee®, Audio		
CC1111	Sub-1GHz radio, MCU, Flash, AES-128 encryption and USB in one chip designed for low-power wireless applications	2.0V to 3.6V, Sub-1GHz FSK/OOK RF SoC, 8051 MCU, 32kB Flash, 4kB SRAM, AES-128, 1.2-500kbps, I²S, 7- to 12-bits ADC	QFN
CC2480	2.4GHz DSSS cost-effective, low-power, Z-Accel ZigBee® processor that provides full ZigBee functionality with a minimal development effort	2.0V to 3.6V, 2.4MHz to 2.4835GHz, SPI or UART, 27mA RX/TX current consumption, 7- to 12-bits ADC, 250kbps data rate	QFN
CC2520	2nd-generation 802.15.4 ZigBee 2.4GHz transceiver for industrial applications requiring selectivity/co-existence, excellent link budget, and low-voltage operation	1.8V to 3.8V, adjacent/alternate channel rejection: 49dB/54dB, 103dB link budget, AES-128, IEEE 802.15.4 MAC HW support, –40°C to +125°C	QFN
CC2591	RF front end range extender for 2.4GHz, low-power radios with integrated PA, LNA, balun, switches, inductors and RF matching	2.0V to 3.6V, 26dB increased link budget, 3.9dB LNA noise including RX/TX, 6dB sensitivity, 22dB gain, >15 times the LOS range	QFN

Voltage References

Device	Product Description	Key Specifications	Smallest Package
Series/Shunt	**Typical Applications: Data Acquisition, Test and Measurement, Instrumentation, Portable Consumer Products, Medical**		
REF31xx	Precision, low-drift, low-dropout series voltage references excellent for low-power portable applications	1.8V to 5.5V, ±10mA I_{OUT}, 20ppm/°C (max), 0.2% (max) accuracy, 115µA (max) I_Q, 50mV (max) dropout	SOT23
REF33xx	Small size, robust output drive, and low dropout voltage for applications requiring low power and minimum board size	1.8V to 5.5V, 5µA (max), 0.15% (max) initial accuracy, 160mV (max) $V_{DROPOUT}$, 30ppm/°C drift (max), ±5mA I_{OUT}	SC70
REF50xx	Low-drift, high-accuracy, low-noise CMOS voltage references designed for industrial applications	2.7V to 18V, 3µVpp/V_{OUT} noise, 0.05% (max) accuracy, 3ppm/°C (max), ±10mA I_{OUT}	SOIC

DACs

Device	Product Description	Key Specifications	Smallest Package
	Common Applications: Data Acquisition, Test and Measurement, Portable, Medical, Communications, Consumer		
DAC755x	Ultra-low glitch, ultra-low crosstalk, 12-bit, voltage-output DAC ideally suited for portable systems and other low-power applications	2.7V to 5.5V, 200µA (max), 5µs settling time, 0.1nV-s glitch energy, RRO	SON
DAC8564	16-bit, quad-channel, ultra-low glitch, voltage-output DAC with 2.5V, 2ppm/°C internal reference for high channel count systems and low-power applications	Integrated 2.5V internal ref, 5ppm/°C (max) temp drift, 0.15nV-s glitch energy, monotonic, INL: ±4 LSB (typ) at 16 bits	TSSOP
DAC5688	800MSPS, 2x/4x/8x interpolating, 16-bit, dual-channel DAC w/dual CMOS digital data bus, internal clock multiplying PLL, and digital quadrature modulation correction	81dBc A_{CLR} WCDMA TM1 F_{OUT} = 70MHz, 2x-32x clock multiplying PLL/VCO, complex mixer w/32-Bit NCO, 1.2V ref, 250MSPS input, 2 to 20mA I_{OUT}	QFN
DAC5682Z	1GSPS, 2x-4x interpolating, 16-bit dual-channel DAC w/1Gbps LVDS input bus for applications requiring large transmit bandwidth and pattern depths for quaderature modulation	1GSPS tested DAC sample rate, +Fs/4 or +Fs/8 coarse mixer, 2x-32x clock multiplying PLL, 8 sample input data FIFO, single-channel DAC5681Z available	QFN
DAC8881/9881	16-/18-bit, single-channel, high-accuracy, low-noise, voltage-output DAC with excellent linearity and settling time	0V to 5V output, 6mW (typ), 24nV/$\sqrt{Hz}$ for gain =1, ±1 LSB INL (max), ±1 LSB DNL (max), 5µs settling time, serial/SPI interface	QFN

Driver Amplifiers

Device	Product Description	Key Specifications	Smallest Package
DAC Buffers and Drivers	**Common Applications: Audio, Industrial Control Systems, Communications, Manufacturing Equipment**		
OPA561	High-power, wide-bandwidth, high-speed op amp for low-speed power-line communication systems	±3.5V to ±7.5V, 1.2A I_{OUT}, 12Vpp output swing, 1MHz BW, 50V/µs slew rate, thermal shutdown, adjustable current limit, –40°C to +125°C	HTSSOP
THS3091	High-voltage, low-distortion, current-feedback amplifier designed for low-distortion at high frequencies even with high gains, and a very high slew rate	±5V to ±15V, 7300 V/µs slew rate, –67dBc THD at 10MHz (G = 5, R_L = 100Ω), 210MHz BW, ±250mA (40Ω), 9.5mA I_Q, –40°C to +85°C	SOIC
XTR300	Industrial analog current/voltage output driver for sending control signals to machines, valves, heaters and other manufacturing equipment	10V to 40V, voltage or current output, separate driver and receiver channels, digital output selection, over-current and thermal protection	QFN
OPA548	5A high-current, high-voltage op amp with a laser-trimmed monolithic integrated circuit for excellent low-level signal accuracy and high output voltage and current	±4V to ±30V, 20mA (max) I_{SUPPLY}, 5A output current, 10V/µs slew rate, thermal shutdown, programmable current limit, –40°C to +85°C	DDPAK

Audio Amplifiers

Device	Product Description	Key Specifications	Smallest Package
Class D Amplifiers/ Codecs	**Common Applications: Portable, Headset, High-End Audio Equipment, Consumer**		
TPA2013D1	2.7W constant output power, Class-D audio amplifier with integrated boost converter designed to maximize battery performance in portable devices	1.8V to 5.5V, 2.7W (4Ω)/2.2W (8Ω) output power, 85% efficiency, 9mA (typ) I_Q, 95dB PSRR at 217Hz, 77dB CMRR at 1kHz, –40°C to +150°C	WCSP
TAS5706	20W stereo, digital-input, Class-D audio power amplifier with integrated feedback and on-chip audio processing that enable improved cost and performance	10V to 26V supply, –100dB to +48dB gain, 98mA (typ) I_Q at 18V, 99dB SNR, 0.08% (typ) THD+N at 1kHz and 10W, up to 90% efficiency (8Ω)	HTQFP
PCM2912	Audio Codec with USB interface, mono microphone input and stereo headphone output with analog front end functionality, ideal for headset applications	5.V, USB 2.0 compliant, 48kHz sampling rate, 16-bit ΔΣ mono ADC, 16-bit ΔΣ stereo DAC, 92dB ADC and DAC, on-chip USB interface	TQFP
TLV320AIC3106	Low-power, stereo audio Codec with notch filtering and excellent SNR and THD performance providing increased flexibility for portable audio applications	2.7V to 3.6V analog supply, ADC/DAC w/stereo 8-96kSPS, 92dB/102dB SNR, 40mW for 16Ω headphone driver, 15mW stereo playback	BGA
TAS5414/24	4-channel, automotive, analog-input digital amplifiers with improved efficiency over traditional linear amplifier solutions for automotive head units and external amplifier modules	8V to 22V supply, 45W/ch into 2Ω (14.4V), <0.02% THD+N (typ) at 1W, 70dB PSRR, 50V load dump, I²C diagnostics, automotive EMC, –40°C to +105°C	SSOP

Interface/Isolation Products

Device	Product Description	Key Specifications	Smallest Package
	Common Applications: Data Communication, Display, PC and Server, Data Transmission		
TUSB6020	USB 2.0, high-speed, on-the-go (OTG) dual-role controller with certified compliance and inter-operability for a seamless interface to the VLYNQ serial interface	Mentor Graphics™ MUSBMHDRC core, integrated USB 2.0 OTG PHY, 4-pin VLYNQ, <100µA idle-mode power	BGA
TL16C754C	64-byte FIFO, quad UART with low-voltage processor support, asynchronous data bus timing, and automatic RS-485 transceiver control per channel	3Mbps (5V) and 2Mbps (3.3V) operation, programmable auto-RTS and auto-CTS, X_{ON}/X_{OFF} software flow control	LQFP
SN65HVD17xx	±70V fault-protected RS-485 transceivers designed to survive overvoltage faults	3V to 5V, > ±70V bus-pin fault protection, –20V to 25V CM, Bus ESD protection 16kV JEDEC HBM	SOIC
SN75DP122	DisplayPort 1:2 switch with integrated TMDS translator provides support for using modern displays with a DP input and existing displays with HDMI or DVI inputs	Integrated TMDS level translator, 2.7Gbps DP port data rate, 2.5Gbps TMDS port data rate	QFN
ISO724x	Quad, high-speed digital isolator with a digital logic I/O buffer separated by TI's capacitive isolation barrier technology providing galvanic isolation of up to 4000V	3.3V or 5V, 1/25/150Mbps, >25 year life span, 2ns (max) PWD, 1ns (max) ch-ch skew, 1ns (typ) jitter, –40°C to 125°C	SOIC

*New products are listed in **bold red.** Preview products are listed in **bold blue.***

Thermal Monitoring

Device	Product Description	Key Specifications	Smallest Package
Temperature Sensors	**Common Applications: Industrial Monitoring, System Control, Computers, Portable, Servers, Environmental Monitoring**		
TMP75	Two-wire/SMBµs digital-out temperature sensor designed to fit into any thermally sensitive system	2.7V to 5.5V, 50µA (typ) I_Q, 2.0°C (max) error from –25°C to +85°C, 9- to 12-bits resolution, 3µA (max) $I_{SHUTDOWN}$, –55°C to +125°C operation	MSOP
TMP102	Low-power, digital temp sensor w/SMBµs for portable, battery-powered systems, available in a small surface-mount	1.4V to 3.6V, 0.5°C from –25°C to +85°C, 1µA (max) $I_{SHUTDOWN}$ accuracy, 12-bit resolution, 10µA active I_Q	SOT563
TMP300	Resistor-programmable temp switch and analog out temp sensor with low supply voltage, small size and power requirements for portable, battery-powered systems	1.8V to 18V, 110µA (max), 4°C switch accuracy, –40°C to 150°C ext temp range, 10mV/°C analog output	SC70
TMP42x	World's smallest, high-performance, remote+local temperature sensor supporting up to 3 remote temp sensors with a high level of system performance	±1°C remote and ±1.5°C local sensor accuracy, series resistance cancellation, I²C/SMBus, diode fault detection, programmable n-factor correction	SOT23

Portable Power

Device	Product Description	Key Specifications	Smallest Package
Battery Management	**Common Applications: Wireless Communications, Computing, Portable Consumer, Gas Gauging**		
bq24072	Mini-USB-friendly, Li-Ion charger and PowerPath™ management designed for space-limited portable applications	Input current limiting, 28V (max) V_{IN}, 2A input, dynamic power management, programmable timers, thermal regulation	QFN
bq2431x	Li+ charger front end protection IC that protects integrated charger functions on chipsets from hazardous events due to faulty inputs	30V (max) input voltage, input current limit up to 1.5A, <1µs response against input over voltage	SON
bq27500/540	Li-Ion and Li-Pol battery impedance tracking gas gauge IC that accurately shows remaining battery capacity to extend run time and reserve energy for shutdown	I²C, impedance track technology, high accuracy, reports available capacity, automatic capacity reduction with age, EEPROM, automatic sleep mode	QFN
bq77PL900	5-10 cell precision monitor and protector designed for applications such as gas gauging, host communications and data storage	3.3V to 5V, OV, UV, OT protection, OC and SC protection, I²C, 50V (max) V_{CC}, –20°C to +85°C	SSOP
Lighting and Display	**Common Applications: Portable Consumer Electronics, White LED Backlighting, Medical/Industrial Handheld**		
TPS61160	18 V_{IN}, white LED driver with digital and PWM brightness control, capable of driving up to 10 LEDs in series and digital dim with no audible noise	Integrated 40V switch FET, CTRL, open LED protection, –40°C to +85°C	QFN
TPS60255	7-channel, high-efficiency, 175mA white LED backlight charge pump for applications with small LCD displays such as mobile phones and PDAs	2.7V to 6.0V, soft start, overcurrent limit, thermal shut down and over voltage detection, –40°C to +85°C	QFN
Linear Regulator LDO	**Common Applications: Portable Consumer, Wireless Networking, RF, Power Supplies, FPGA/DSP**		
TPS720xx	350mA, low dropout linear regulator for portable applications such as digital cameras, camera phones, wireless LAN products	1.1V to 5.5V, 350mA I_O, soft start, 40µA I_Q, low V_{IN}, 2% accuracy, 50µVrms, over current and thermal protection	WCSP
TPS71701	Low-noise, high-bandwidth PSRR, 150mA low-dropout linear regulator for small portable devices requiring fast start-up and excellent transient response	2.5V to 6.5V, 50µA I_O, 170mV (typ) dropout, 70dB at 1kHz PSRR, 30µV (typ) noise, 3% accuracy overall, –40°C to +125°C	SC70
TPS780xx	150mA, adj. (1.22V to 5.25V) single-output LDO for single-cell lithium, two coin cells, two-cell alkaline and other battery-powered applications	2.2V to 5.5V, 500nA I_Q, adjustable output voltage, thermal shutdown, enable pin, current limit, –40°C to +125°C	SON
TPS728xx	200mA low-dropout linear regulator with pin-selectable, dual-voltage level output with dynamic voltage scaling that helps reduce leakage currents	200mA, 2.7V to 6.5V V_{IN}, 2.5% accuracy over load, line and temperature extremes	WCSP
Power Management Unit	**Common Applications: Portable Consumer, Application Processor Supply**		
TPS65024x	6-channel power management unit designed for single-cell Li-Ion systems such as navigation systems, smart phones, portable media players and industrial handhelds	2.5V to 6.0V DC/DC, dynamic voltage scaling, 2.25MHz switching frequency, 85µA quiescent current, PWM/PFM modes	QFN
TPS65051	6-channel power management IC with 2 DC/DCs, 4 LDOs designed for applications powered by one Li-Ion or Li-Polymer cell, which require multiple power rails	2.5V to 6.0V DC/DC, 2.25MHz fixed frequency, power save mode, 100% duty cycle for lowest dropout, 95% efficient	QFN

Line Power

Device	Product Description	Key Specifications	Smallest Package
Power Interface	**Common Applications: Portable Media, Set Top Boxes, PC, Server Backplanes, Base Stations**		
TPS2550/51	Current-limited switches with resistor-set current limit intended for applications where heavy capacitive loads and short-circuits are likely to be encountered	2.5V to 6.5V, 100mA-1100mA current limit, 2µs over-current response, 85mΩ high-side MOSFET, 15kV ESD protection, soft-start, –40°C to +85°C	SON
TPS2490/91	Positive high voltage, 10-pin hot swap controller that drives an external N-channel MOSFET switch, ideal for 12V, 24V and 48V backplanes	9V to 80V, programmable power and current limiting, programmable fault timer and UVLO, power good open drain output	MSOP
TPS2359	Dual-slot ATCA AdvancedMC™ controller with dual 3.3V and 12V power control for 2 advanced mezzanine cards	Inrush control, over-current protection and FET O-Ring, I²C programmable fault times and current limits, –40°C to +85°C	QFN
TPS23753	PoE PD controller with isolated flyback controller	Optimized for 13W isolated PD applications, includes input adaptor O-Ring, current and inrush limit, output overload and thermal protection	TSSOP
DC/DC Switching Converters	**Common Applications: Set Top Boxes, Consumer Electronics, Telecom, Base Station, Memory Termination for DDR**		
TPS54160	Non-synchronous SWIFT™ buck converter	3V<V_{IN}<60V, I_{OUT} up to 1A, burst mode operation for light load efficiency	SON
TPS54x8x	Dual-channel, step-down SWIFT™ DC/DC converter designed to simplify point-of-load power designs and reduce bill of materials cost	4.5V to 28V, up to 2A/3A I_{OUT}, selectable overcurrent thresholds, 300kHz/600kHz, built-in soft start and control loop compensation	HTSSOP
TPS51113	Low pin count synchronous DC/DC controller	300kHz switching frequency, V_{DD} powered drivers, and P_{GOOD} indicator	SON
TPS51200	Sink/source DDR termination regulator designed for low input voltage, low-cost, and low external component count systems	1.1V to 3.5V, droop compensation, P_{GOOD}, EN input, remote sensing, soft start, UVLO and OCL, –40°C to +85°C	MSOP
PWM & PFC Controllers	**Common Applications: Industrial Control, LED Lighting, Telecom/Datacom Power Supplies, Entry Level Servers, DC/DC Transformers**		
TPS40210/11	4.5 to 52V input current mode boost controllers for topologies including boost, flyback, SEPIC and various LED driver applications	4.5V to 52V, current mode control, programmable freq (35k to 500k+), freq synch, soft start, 700mV/250mV V_{REF}	MSOP
UCC28070	Dual-phase, advanced interleaved PFC controller for applications at power levels ≥600W where performance and scalability to other power levels are valued	180° out-of-phase operation, voltage feedforward, programmable F_{SW} dithering, programmable F_{SW} 10kHz to 300kHz, programmable soft start	TSSOP
UCC28230	Advanced PWM controller for use in high-efficiency, high power density, unregulated intermediate bus converters	Frequency controlled start-up, under-voltage lockout, thermal shutdown, programmable soft-start, over-current hiccup mode, short circuit protection	DFN
Plug-In Modules	**Common Applications: Servers, Consumer, Workstations, Instrumentation**		
PTH08T250W	50A, wide-input, non-isolated, power module with TurboTrans™ and current sharing, optimized for advanced computing and server applications	4.5V to 14V, 0.7V to 3.6V adjustable output, 1.5% output regulation, parallel stacking, SmartSync™, Auto-Track™ sequencing, –40°C to +85°C	DIP
PTR08060/100	6A and 10A, non-isolated, wide-output adjustable power module designed for powering servers, consumer electronics and networking equipment	4.5V to 14V, 0.6V to 5.5V adjustable output, 94% (typ) efficiency, 6A/10A I_{OUT} at 60°C and 200 LFM, –40°C to +85°C	SIP

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