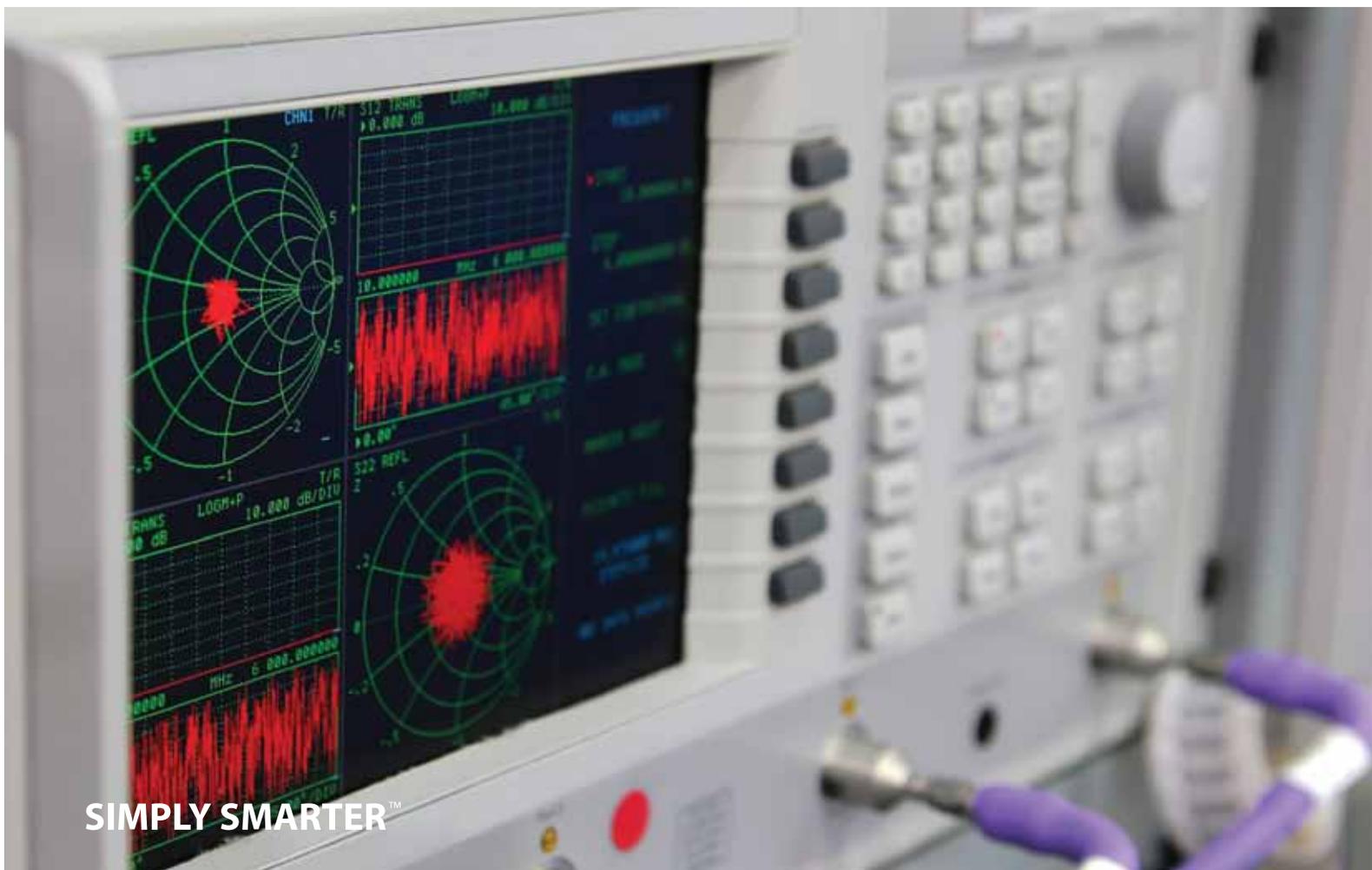


INSTRUMENTATION SOLUTIONS

High Speed Data Converters,
Digital Potentiometers,
Precision Voltage References,
Current Sense Amplifiers, Op Amps,
Fully Differential Amplifiers, LDOs,
Synchronous Buck Regulators

intersil™



SIMPLY SMARTER™

INSTRUMENTATION SOLUTIONS

INTERSIL'S SOLUTIONS FOR INSTRUMENTATION (ELECTRONIC TEST & MEASUREMENT DEVICES)



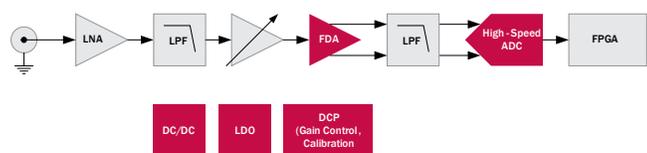
Built on a solid foundation of many years of analog experience, Intersil is committed to developing leadership solutions for the instrumentation market segment. Over the past several years Intersil has heavily invested and will continue to invest in robust technology capable of supporting the demanding requirements of the instrumentation market. Intersil's new family of high speed analog-to-digital converters (ADCs) offers unparalleled performance and significant power reduction over competitive devices, consuming as little as one-third the power. These devices, and the others featured in this brochure, are excellent examples of this commitment to the industrial market.

Contents

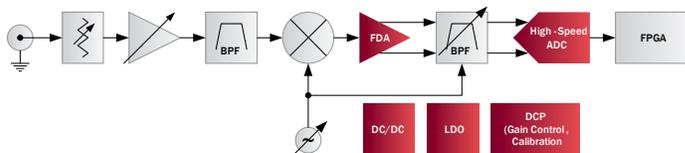
- Electronic Test & Measurement Modulespage 2, page 3
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- Precision Voltage References page 10
- Current Sense Amplifiers page 7
- Micropower, Chopper Stabilized, RRIO Operational Amplifiers page 8
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- Other Power Management devices for Instrumentation page 15
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ELECTRONIC TEST & MEASUREMENT MODULES

Data Acquisition



Spectrum Analyzer



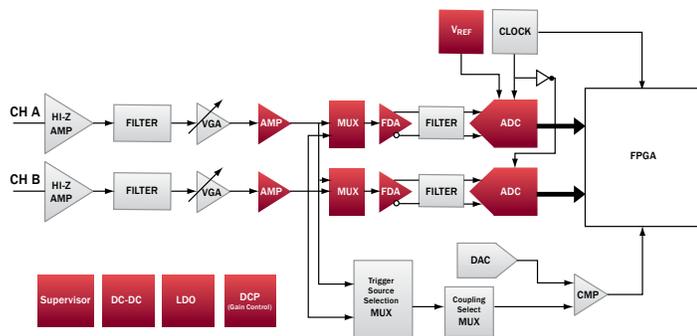
Key Products

Product Type	Part Number	Device Description
DC/DC	ISL9440 (page 15)	Quad Output Switching Controller
	ISL85033 (page 14)	Dual 3A Switching Regulator
LDO	ISL80102 (page 12)	2A High Performance LDO
DCP	ISL22444 (page 9)	Low Noise, Low Power, SPI® Bus, 256 Taps Digital Potentiometer
FDA	ISL55210 (page 6)	Fully Differential Amplifier
	ISL55211 (page 6)	Fixed Gain FDA
ADC	ISLA214P50 (page 5)	14-Bit, 500MSPS ADC
	ISLA216P25 (page 5)	16-Bit, 250MSPS ADC
	ISLA214P25 (page 5)	14-Bit, 250MSPS ADC
	ISLA112P50 (page 4)	12-Bit, 500MSPS ADC
	ISLA110P50 (page 4)	10-Bit, 500MSPS ADC

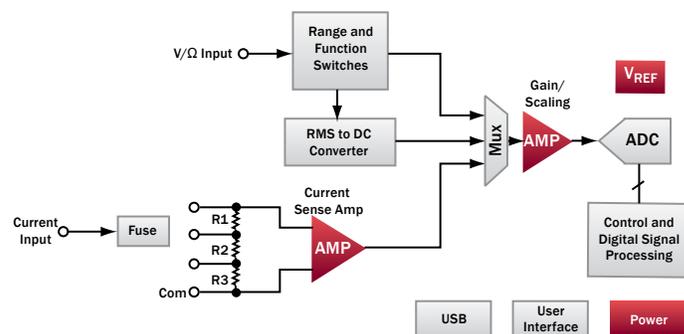
Key Products

Product Type	Part Number	Device Description
DC/DC	ISL8016 (page 14)	6A 1MHz Sync Switching Regulator
	ISL6124 (page 15)	Power Sequencer
	ISL8112 (page 15)	Dual Output Switching Controller
	ISL80101/2/3 (page 12)	High Performances LDOs
LDO	ISL9008A (page 15)	Low Noise LDO with Low I _Q , High PSRR
DCP	ISL22313/323/343 (page 9)	Low Noise, Low Power, SPI® Bus, 256 Taps Digital Potentiometers
FDA	ISL55210 (page 6)	Fully Differential Amplifier
	ISL55211 (page 6)	Fixed Gain FDA
ADC	ISLA214P50 (page 5)	14-Bit, 500MSPS ADC
	ISLA216P25 (page 5)	16-Bit, 250MSPS ADC
	ISLA214P25 (page 5)	14-Bit, 250MSPS ADC

USB Scope



Digital Multimeter



Key Products

Product Type	Part Number	Device Description
MUX	ISL59421 (page 11)	Video MUX for Signal Switch and Select
DCP	ISL22313/323/343 (page 9)	Low Noise, Low Power, I ² C Bus, 256 Taps Digital Potentiometers
	ISL22414/424/444 (page 9)	Low Noise, Low Power, SPI Bus, 256 Taps Digital Potentiometers
V _{REF}	ISL60002 (page 10)	Precision Low Power FGA™ Voltage Reference
Supervisor	ISL88011 (page 15)	Reset Controller
ADC	ISLA118P50/ ISLA110P50 (page 4)	Highest Performance 8- & 10-bit, 500MSPS ADCs
AMP	EL5166 (page 11)	1.4GHz Current Feedback Amplifier
	ISL28138 (page 11)	4.5MHz Precision Op Amp
FDA	ISL55210 (page 6)	Fully Differential Amplifier
DC/DC	ISL8012 (page 14)	2A 1MHz High Efficiency Synchronous Buck Regulator
	ISL8500 (page 14)	2A Standard Buck PWM Regulator
	ISL8014 (page 14)	4A 1MHz Buck Regulator
	ISL9104 (page 14)	500mA 4.3MHz Buck Regulator
LDO	ISL80101 (page 12)	High PSRR 1A LDO
	ISL80103 (page 12)	High Performance 3A Linear Regulator
	ISL9000 (page 15)	Low Noise, Very High PSRR, Low I _q Dual LDO

Key Products

Product Type	Part Number	Device Description
Amplifier	ISL28110/210 (page 11)	Precision Low Noise JFET Op Amps
	ISL28118/218 (page 11)	40V Precision Single Supply Low Power Op Amps
	ISL28208 (page 7)	40V Low Noise Rail-Rail Out Single Supply Op Amp
	ISL28107/207 (page 11)	Precision Single Low Noise Op Amps
	ISL28117/217 (page 11)	40V Precision Low Power Op Amps
	ISL28127/227 (page 11)	Precision Single and Dual Low Noise Op Amps
Current Sense Amplifier	ISL28133/233/433 (page 11)	Chopper Stabilized, RRIO Op Amps
	ISL28005/006 (page 7)	Micropower, Current Sense Amplifiers
	ISL28118/218, ISL28108/208 (page 7)	40V Precision Single Supply Rail-to-Rail Output Low Power Op Amps
V _{REF}	ISL28133/233/433 (page 11)	Micropower Chopper Stabilized Rail-to-Rail Input Output Op Amps
	ISL21009 (page 10)	High Voltage Input Precision, Low Noise FGA™ V _{REF}
	ISL21007 (page 10)	Precision, Low Noise FGA™ V _{REF}
	ISL21060 (page 10)	Precision, Low Noise FGA™ V _{REF}
Power	ISL21070 (page 10)	25µA Micropower Voltage Reference
	ISL21080 (page 10)	300nA Nanopower Voltage Reference
	ISL9305/H (page 13)	Mini-PMIC Dual Buck, Dual LDO
	ISL9003A (page 15)	150mA Low Noise LDO

INSTRUMENTATION SOLUTIONS

HIGH SPEED DATA CONVERTERS



8-, 10-, 12-Bit, 500MSPS

ISLA118P50 /
ISLA110P50 /
ISLA112P50

HIGHEST PERFORMANCE, LOWEST POWER 8-, 10-, 12-BIT 500MSPS ADCs

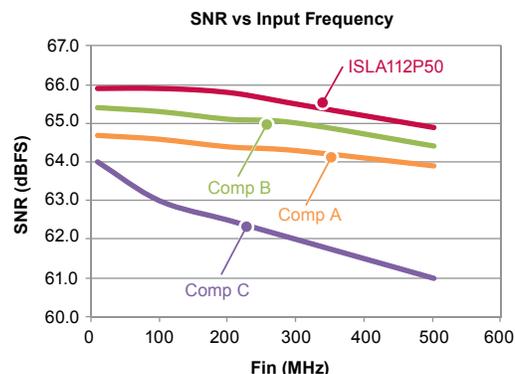
The ISLA11xP50 are a series of low-power, high-performance, 8-, 10-, and 12-Bit 500MSPS analog-to-digital converters designed with Intersil's proprietary FemtoCharge™ technology on a standard CMOS process. These devices are an upgrade of the KAD551XP-50 product family and are pin similar.

Device	SNR (dBFS)	SFDR (dBc)	ENOB (bits)	Power (mW)
ISLA112P50	65.9	86	10.7	455
ISLA110P50	60.7	86	9.8	441
ISLA118P50	49.9	68	8.0	428

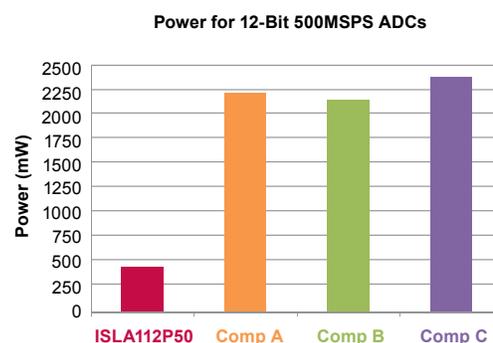
KEY FEATURES

- Highest performance 8-, 10-, and 12-Bit 500MSPS ADCs
- Lowest power 10- & 12-Bit 500MSPS ADCs
- Only pin-compatible 8-, 10-, and 12-Bit 500MSPS ADCs
- Support for multi-channel systems:
 - Fine gain/offset adjust for channel matching
 - Clock divider synchronous reset for channel synchronization
 - Optimized output timing for multi-channel system reliability
- Support for undersampling/high IF applications
 - 1.15GHz analog input bandwidth
 - 60fs clock jitter
 - Dynamic performance specified to 1GHz

HIGHEST SNR



LOWEST POWER



10- & 12-Bit, 250MSPS

KAD5612P-25Q72
KAD5610P-25Q72

DUAL-CHANNEL, HIGHEST PERFORMANCE, LOWEST POWER 10-, 12-BIT 250MSPS ADCs

The KAD561xP is a series of low-power, high-performance, dual-channel 10- & 12-bit, analog-to-digital converters. Designed with FemtoCharge™ technology on a standard CMOS process, the series supports sampling rates of up to 250MSPS. The KAD561xP-25 is the fastest member of this pin-compatible family, which also features sample rates of 210MSPS (KAD561xP-21), 170MSPS (KAD561xP-17) and 125MSPS (KAD561xP-12).

Device	SNR (dBFS)	SFDR (dBc)	ENOB (bits)	Power (mW)
KAD5612P-25	66.0	86	10.7	429
KAD5610P-25	60.7	86	9.8	411

KEY FEATURES

- Lowest power 10- & 12-Bit 250MSPS dual ADCs
- Highest Performance 10-bit 250MSPS Dual ADC
- Only pin-compatible 10- & 12-Bit dual 250MSPS ADCs
- Programmable gain, offset and skew for channel-to-channel matching
- Support for undersampling/high IF applications
 - 1.3GHz analog input bandwidth
 - 60fs clock jitter
 - Dynamic performance specified to 1GHz

APPLICATIONS

- Portable instrumentation
- High performance data acquisition
- Power amplifier linearization
- Radar and satellite antenna array processing
- Broadband communications
- Communications test equipment
- WiMAX and microwave receivers

INSTRUMENTATION SOLUTIONS

HIGH SPEED DATA CONVERTERS



**14-Bit,
500MSPS
ISLA214P50**

INDUSTRY'S FASTEST 14-BIT ADC

The ISLA214P50 is a 14-bit, 500MSPS ADC that consumes 63% less power while sampling at a rate 25% higher than any other 14-bit ADC. The ISLA214P50 was designed using Intersil's proprietary FemtoCharge™ technology and operates from a 1.8V power supply. The converter's ultra-high sample rate and resolution improve sensitivity and accuracy, while the decrease in power consumption allows simplified thermal and power system design. This ADC also combines breakthrough performance with extensive configurability, making it one of the most flexible and easy-to-use ADCs on the market.

KEY FEATURES

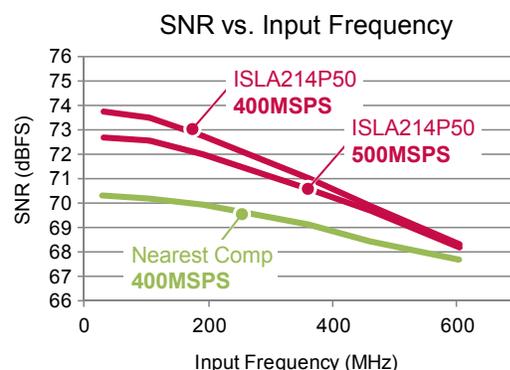
- Highest sample rate 14-bit ADC
- Facilitating design re-use and reducing time-to-market, pin-compatible with family of high performance ADCs:
 - ISLA216P – 16-Bit, 130 / 200 / 250MSPS
 - ISLA214P – 14-Bit, 130 / 200 / 250MSPS
 - ISLA212P50 – 12-Bit, 500MSPS
 - ISLA212P – 12-Bit 130 / 200 / 250MSPS
- Support for multi-channel systems:
 - Fine gain/offset adjust for channel matching
 - Clock divider synchronous reset for channel synchronization
 - Optimized output timing for multi-channel system reliability
- Support for undersampling/high-IF applications
 - 700MHz analog input bandwidth
 - 75fs clock jitter
 - Dynamic performance specified to 600MHz
- Industry-leading dynamic performance

**63% LESS POWER CONSUMPTION
25% HIGHER SAMPLING RATE**

than any other 14-bit ADC

Device	Sample Rate (MSPS)	SNR (dBFS)	Power (mW)
ISLA214P50	500	72.7	835
Nearest Competitor	400	70.3	2500

HIGH SNR



**16-Bit,
250MSPS
ISLA216P25**

INDUSTRY'S LOWEST POWER 16-BIT, 250MSPS ADC

The ISLA216P is a series of low power, high performance 16-bit analog-to-digital converters. Designed with Intersil's proprietary FemtoCharge™ technology on a standard CMOS process, the series is the only pin-compatible family of 16-bit ADCs that support sampling rates from 40 to 250MSPS. The ISLA216P is part of a pin-compatible family of 12- to 16-bit ADCCs with maximum sample rates ranging from 130MSPS to 500MSPS.

The ISLA216P also provides multi-channel support so multiple ADCs can be matched precisely and aligned in time, simplifying the design of multi-channel systems. For advanced applications that benefit from multi-channel design, including data acquisition systems, radar array processing, broadband communications, software defined radios, and communications test equipment, the ISLA216P is an ideal choice.

Device	Sample Rate (MSPS)	SNR (dBFS)	SFDR (dBc)	ENOB (bits)	Power (mW)
ISLA216P25	250	75.0	87	12.1	786
ISLA216P20	200	76.6	91	12.4	706
ISLA216P13	130	77.5	96	12.6	603

KEY FEATURES

- Sample rates from 40 to 250MSPS
- Designed for ultra-low power
 - Single supply 1.8V operation
 - Total power consumption:
 - At 250MSPS = 786mW (40% less than competition)
 - At 200MSPS = 720mW (40% less than competition)
 - Nap and sleep modes
 - 200µs sleep wake-up time
- Designed for ease of use
 - SPI-programmable
 - Clock duty cycle stabilizer
 - Programmable 1/2/4x clock divider
 - Programmable built-in test patterns
 - User-accessible analog and digital temperature monitors
 - DDR LVDS-compatible or LVCMOS outputs
 - Two's complement, gray code, binary output data format
 - Data output clock provided
 - Pin-compatible devices for sample rates from 40 to 250MSPS

Differential Amplifiers

ISL55210
ISL55211

WORLD'S BEST SFDR AT LOWEST POWER ADC DRIVER

The ISL55210 is a very wide band, voltage feedback, fully differential amplifier (FDA) intended for high dynamic range ADC input interface applications. This voltage feedback FDA design includes an independent output common mode voltage control.

Intended for very high dynamic range ADC interface applications at the lowest quiescent power (115mW), the ISL55210 offers a 4.0GHz Gain Bandwidth Product with a very low input noise of 0.85nV/√(Hz). In a balanced differential I/O configuration, with 2V_{P-P} output into a 200Ω load configured for a gain of 15dB, the IM3 terms are <-100dBc through 110MHz. With a minimum operating gain of 2V/V (6dB), the ISL55210 supports a wide range of higher gains with minimal BW or SFDR degradation. Its ultra high differential slew rate of 5,600V/μs ensures clean large signal SFDR performance or a fast settling step response.

The ISL55210 requires only a single 3.3V (max 4.2V) power supply with 35mA typical quiescent current. This industry leading low current solution can be further reduced when needed using the optional power shutdown to <0.4mA supply current. External feedback and gain setting resistors give maximum flexibility and accuracy. A companion device, the ISL55211, includes on-chip feedback and three possible gain setting connections where an internally fixed gain solution is preferred. The ISL55210 is available in a leadless, TQFN-16 package and is specified for operation over the -40°C to +85°C ambient temperature range.

KEY FEATURES

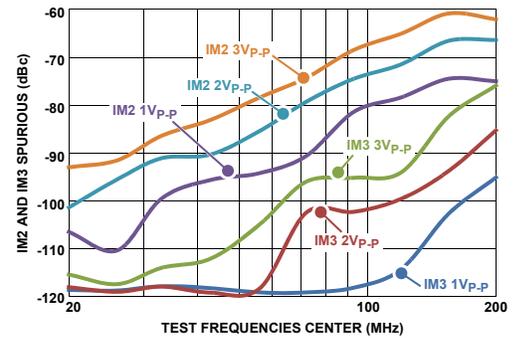
- Gain Bandwidth Product 4.0GHz
- Input Voltage Noise 0.85nV/√(Hz)
- Differential Slew Rate..... 5,600V/μs
- 2V_{P-P}, 2-tone IM3 (200Ω) 100MHz <-109dBc
- Supply Voltage Range..... 3.0V to 4.2V
- Quiescent Power (3.3V supply) 115mW

APPLICATIONS

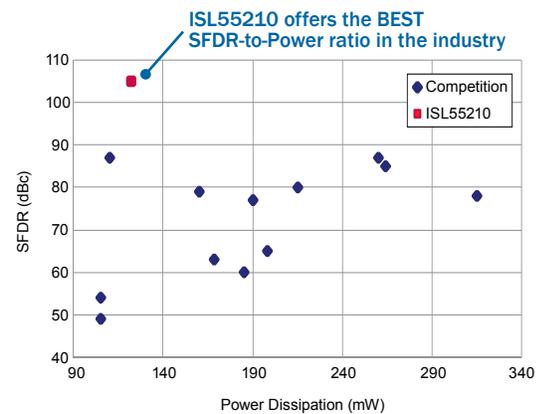
- Low Power, High Dynamic Range ADC interface
- Differential Mixer Output Amplifier
- SAW Filter Pre/Post Driver
- Differential Comms-DAC Output Driver

ULTRA-LOW DISTORTION

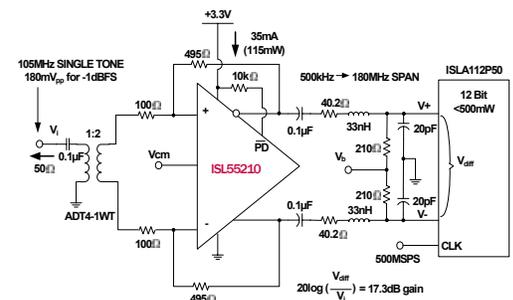
Suitable for driving high speed ADCs in 1st and higher Nyquist zone applications



WORLD BEST SFDR AT LOWEST POWER



TYPICAL APPLICATION CIRCUIT



Device	# of Channels	Topology	V _S Min (V)	V _S Max (V)	BW (MHz)	G _{MIN} (V/V)	Slew Rate (V/μsec)	Noise (nV/√Hz)	I _S Max (mA)	I _{OUT} (mA)	V _{OS} Max (mV)	I _B Max	RR In	RR Out	Headroom (V)	Shutdown	MSRP (1K)
ISL55210	1	FDA	3	4.2	2200	4	5600	0.85	38.5	30	1.2	90μA	No	No	1	Yes	\$3.75
ISL55211*	1	FDA	3	4.2	1400	2	5600	0.85	38.5	30	1.2	91μA	No	No	1	Yes	TBD

* Coming soon.

Current Sense Amplifiers

ISL28005,
ISL28006

28V MICROPOWER, PRECISION HIGH SIDE AND LOW SIDE CURRENT SENSE AMPLIFIERS

The ISL28005/6 are new PR40 voltage out current sense amplifiers with very flexible high and low side input capabilities that exhibit exceptional accuracy and precision across the full common mode voltage range.

These amplifiers feature very low power and a very wide input range from below ground to 28V with better than 0.5% error across the entire range at 25 °C and 1% over the full -40 to 125 °C range.

They have three fixed gain options of 20, 50 and 100 V/V as well as an option for user-defined gains with external resistors.

The ISL28006 provides very high accuracy and ideal for high end, low ohmic current shunt applications at either rail. The ISL28005 is ideal for cost sensitive applications.

The ISL28006 family is an excellent solution for many industrial applications.

KEY FEATURES

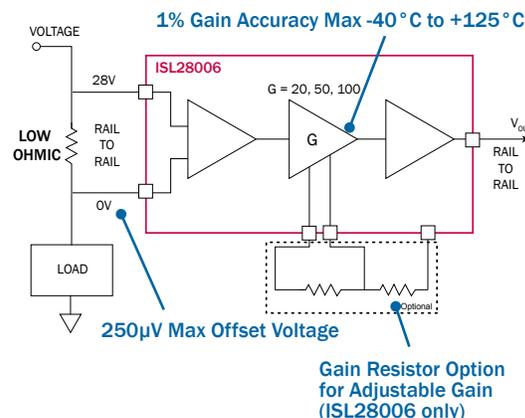
- 50µA supply current
- Supply independent of input
 - 2.7V to 28V supply
 - 0V to 28V V_{CM}
- Max. 250µV input V_{OS}
- Gain accuracy max:
 - 0.5% @ 25°C
 - 1% @ -40°C to +125°C
- Four gain options
 - 20V/V, 50V/V, 100V/V, & ADJ
- -40°C to +125°C operation

APPLICATIONS

- Low ohmic shunt sense
- Battery management
- mV/µV-meters
- High-precision voltage and current measurement
- Power management in communications, networking, industrial
- Test/DAQ (data acquisition) systems
- Computing and display power management
- Alternative energy (wind, power, solar)

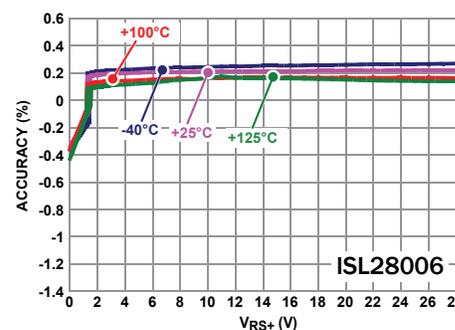
PRECISION CURRENT SENSE AMPLIFIER

- ✓ Only 50µA current consumption
- ✓ Ability to operate rail-rail for both low-side and high-side sensing
- ✓ Excellent for low ohmic measurements



VERY HIGH ACCURACY ACROSS V_{CM} RANGE

- 0.5% @ 25°C
- 1% @ -40°C to +125°C



Device	Device Description	Gain (V/V)	V_S (min) (V)	V_S (max) (V)	I_S (per amp) (mA)	BW (MHz)	V_{OS} (max) (mV)	CMRR (dB)	Common Mode Input Range (min) (V)	Common Mode Input Range (max) (V)	Package
ISL28005	Micropower, Rail-to-Rail Input Current Sense Amplifier with Voltage Output	20, 50, 100	2.7	28	0.05	0.11	0.06	125	0	28	5 Ld SOT23
ISL28006	Micropower, Rail-to-Rail Input Current Sense Amplifier with Voltage Output	20, 50, 100, Adj	2.7	28	0.05	0.11	0.06	125	0	28	5 Ld SOT23

Device	Device Description	BW (MHz)	SR (V/µs)	V_S (min) (V)	V_S (max) (V)	I_S (per amp) (mA)	Noise V_N (nV/√Hz)	I_{BIAS} (µA)	V_{OS} (max) (mV)	I_{OUT} (mA)	PSRR (dB)	CMRR (dB)	Gain AV (min)	A_{VOL} (dB or V/mV)	Enable	Package
ISL28118 (Single) ISL28218 (Dual)	40V Precision Single Supply Rail-to-Rail Output Low Power Operational Amplifiers	4	1.2	3	40	0.85	5.6	0.23	0.23	16	124	118	1	1724	N	8 Ld SOIC
ISL28108 (Single) ISL28208 (Dual)	40V Precision Single Supply Rail-to-Rail Output Low Power Operational Amplifiers	1.2	0.45	3	40	165	15.8	-0.013	0.23	19	128	123	1	126	N	8 Ld SOIC

INSTRUMENTATION SOLUTIONS

MICROPOWER, CHOPPER STABILIZED, RRIO OPERATIONAL AMPLIFIERS



5V Op Amps
ISL28233,
ISL28433

The ISL28233 and ISL28433 are dual and quad micropower, chopper stabilized operational amplifiers that are optimized for single and dual supply operation from 1.65V to 6.0V. Their low supply current of 18µA and wide input range enable the ISL28233, ISL28433 to be an excellent general purpose op amp for a wide range of applications.

KEY FEATURES

- Low input offset voltage: 6µV, Max.
- Low offset drift: 0.05µV/°C, Max.
- Input bias current: 180pA, Max.
- Noise (0.01Hz to 10Hz): 1.0µV_{P-P}, Typ.
- Quiescent current (per amp): 8µA, Typ.
- Single supply range: 65V to +6.0V
- Temperature range: -40°C to +125°C
- Rail-to-Rail inputs and output

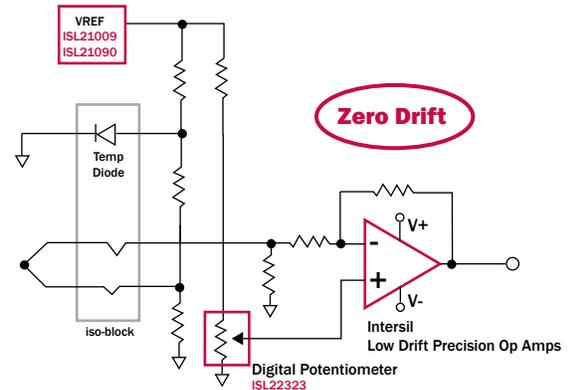
APPLICATIONS

- Pressure measurement
- Electronic weigh scales
- Precision/strain gauge sensor
- Precision regulation
- Low ohmic current sense
- Bi-directional current sense
- High gain analog front ends

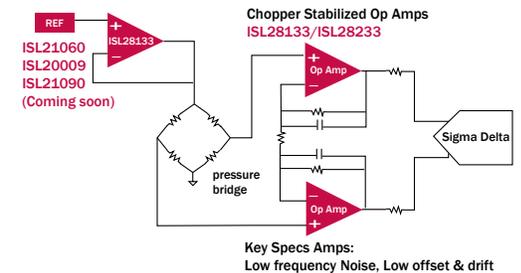
Temperature is the most widely measured quantity in industrial process control systems. Its wide range of application and varied operations call for a variety of engineering adaptations of the temperature transducer. Pressure measuring devices are second only to temperature measuring devices in terms of industry utilization. Pressure sensors convert a physical value - weight, air pressure, level, force, and flow - into a differential signal in the mV/V range and are referred to as metal thick-film, ceramic or piezo-resistive. The ISL28233 is an excellent choice for these applications due to its exceptional precision, low noise and extremely low drift performance.

TYPICAL APPLICATION

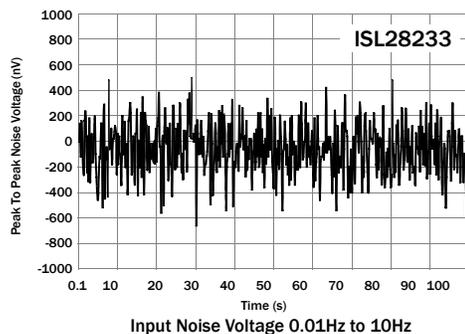
Temperature Measurement



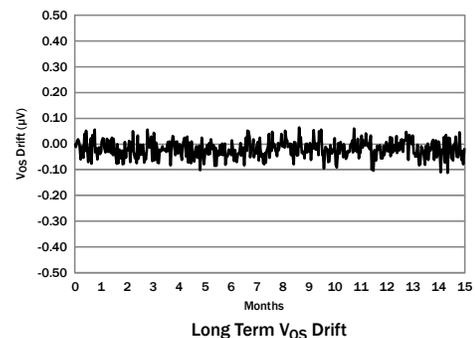
Low Power Pressure Sensor Analog Frontends



EXTREMELY LOW NOISE



BEST IN CLASS PERFORMANCE FOR PRECISION AND DRIFT



Competitive Summary

Mfg	Max I _S (µA)	Max V _{OS} (µV)	TC V _{OS} (nV/°C)	Max I _{BIAS} (pA)	Noise @ 0.1 to 10Hz (nV _{P-P})	Min BW (kHz)
ISL28233	25	6	50	180	1.0	400
Comp A	25	10	50	200	1.1	350
Comp B	17	15	100	50	1.96	115

INSTRUMENTATION SOLUTIONS

DIGITAL POTENTIOMETERS



Non-Volatile DCPs

ISL223x3
ISL224x4

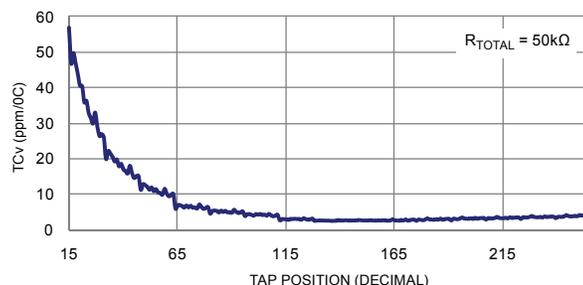
256-TAP (8-BIT) SINGLE/DUAL/QUAD SUPPLY NON-VOLATILE DCPs

Often in instrumentation applications, a DCP is used for calibration and for adjusting settings needed for multiple channels or system set-ups. Within these applications, the DCP is used to adjust offset, gain or to set a resistor value for trim circuitry. Available in both I²C and SPI, the ISL223x3 and ISL224x4 digital potentiometers allow for digital flexibility in analog circuitry. Each DCP can be used as a three terminal potentiometer or variable rheostat.

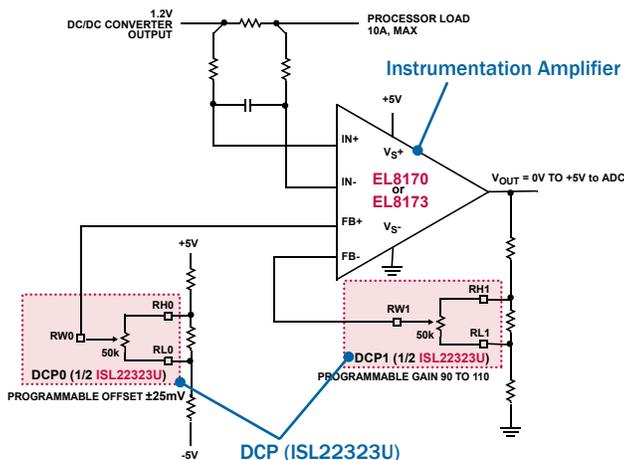
KEY FEATURES

- Allows multiple DCPs in one system
 - Daisy chain configuration for SPI interface
 - Multiple address selections for I²C interface
- Extended industrial temperature range: -40°C to +125°C
- High reliability
 - Endurance: 1,000,000 data changes per bit per register
 - Register data retention: 50 years @ T ≤ +55°C
- Low power
 - Typical operation current <4μA max
- Created for dual power supply applications
 - V_{CC} = 2.25V to 5.5V
 - V₋ = -2.25V to -5.5V

LOW VARIANCE ACROSS THE OPERATING TEMPERATURE RANGE (-40 °C TO 125 °C)

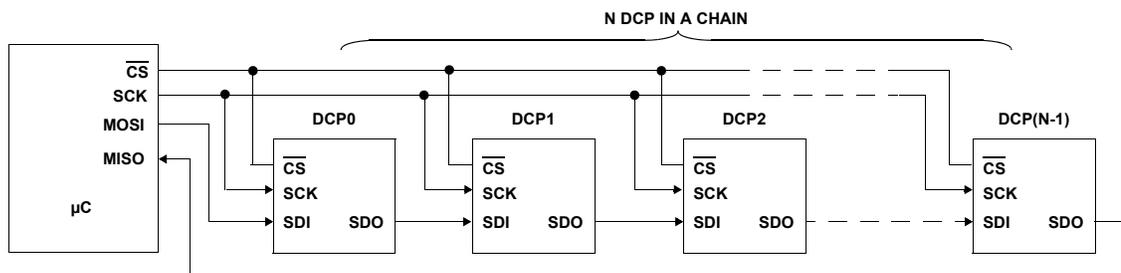


CURRENT SENSING WITH DIGITAL GAIN AND OFFSET CONTROL



DAISY CHAIN CONFIGURATION

Minimizes the number of I/O channels from a microcontroller/FPGA/DSP used to control any number of DCPs. This configuration also allows simultaneous setting updates of all the DCPs within the daisy chain.



NON-VOLATILE 256 TAP DCPs

Device	# of Channels	Bus Interface Type	Resistance Options (kΩ)	V _{CC} Range (V)	Supply Current (μA)	Max Operating Temp (°C)	End-to-End Tempco (ppm/°C)	Middlepoint Ratiometric Tempco (ppm/°C)	Terminal Voltage (V)	Package
ISL22313	1	I ² C	10, 50, 100	2.25 to 5.5	0.2	125	± 50	±4ppm/°C	±5	10 Ld MSOP
ISL22414	1	SPI			0.2		± 50			10 Ld MSOP
ISL22323	2	I ² C			0.5		± 45			14 Ld TSSOP, 16 Ld QFN
ISL22424	2	SPI			0.5		± 45			14 Ld TSSOP, 16 Ld QFN
ISL22343	4	I ² C			0.5		± 45			20 Ld QFN, 20 Ld TSSOP
ISL22444	4	SPI			0.5		± 45			20 Ld QFN, 20 Ld TSSOP

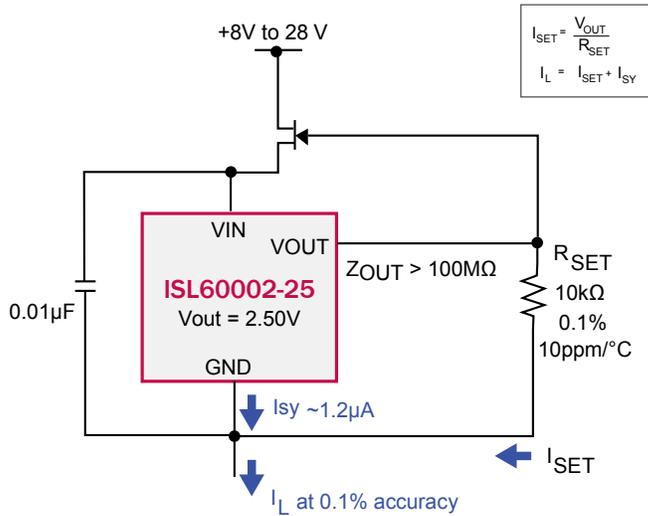
INSTRUMENTATION SOLUTIONS

PRECISION VOLTAGE REFERENCES

**Low Cost,
Low Power,
Precision
Voltage
ISL60002**

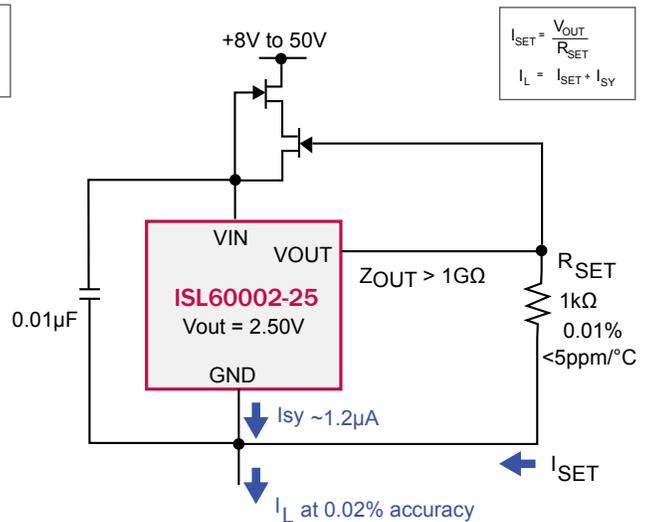
ISL60002 VOLTAGE REFERENCE USED AS A LOW COST PRECISION CURRENT SOURCE

Using an N-JFET and a nanopower voltage reference, ISL60002, a precision, low cost, high impedance current source can be created. The precision of the current source is dependent on the tempco accuracy of the reference.



ISL60002 VOLTAGE REFERENCE USED AS AN ULTRA-PRECISION CURRENT SOURCE

Using two cascaded N-JFETs and a nanopower voltage reference, ISL60002, an ultra precision, very high impedance current source can be created. The precision of the current source is dependent on the tempco accuracy of the reference.



PRECISION VOLTAGE REFERENCES

Device Number	Category	Broad Range of Output Voltages													Temp Co ppm/°C	Initial Accuracy % Vout	Temp Range °C	Isy Max mA	Vsy Range Volts	Noise Low Freq mVp-p	Noise High Freq mVrms	Line Reg mV/V	Load Reg mV/mA	Iout Source/Sink mA	Hyst ppm	LTD ppm/1khr	Pkg		
		0.6V	0.9V	1.024V	1.2V	1.25V	1.5V	1.8V	2.048V	2.5V	2.6V	3V	3.3V	4.096V														5V	7V
ISL21007B	Ultra Precision				o			o	o								3	0.040	-40 to 125	150	2.7 to 5.5	4.5	2.2	560	80	7/7	50	100	SOIC-8
ISL21007C	Ultra Precision				o			o	o								5	0.080	-40 to 125	150	2.7 to 5.5	4.5	2.2	560	80	7/7	50	100	SOIC-8
ISL21009C	Ultra Precision				o			o	o				o	o			5	0.080	-40 to 125	180	3.5 to 16.5	4.5	2.2	40	80	7/7	50	50	SOIC-8
ISL21007D	Ultra Precision				o			o	o								10	0.100	-40 to 125	150	2.7 to 5.5	4.5	2.2	560	80	7/7	50	100	SOIC-8
ISL21009D	Ultra Precision				o			o	o				o	o			10	0.160	-40 to 125	180	3.5 to 16.5	4.5	2.2	40	80	7/7	50	50	SOIC-8
ISL21060B	Ultra Precision, Ultra Low Power							o	o		o						10	0.040	-40 to 125	40	2.5 to 5.5	10	2.5	150	50	10/5	100	100	SOT23-6
X60003B	Ultra Precision, Ultra Low Power											o	o				10	0.020	-40 to 85	0.9	4.5 to 9	30	NA	37	12	10/10	150	10	SOT23-3
X60003C	Ultra Precision, Ultra Low Power											o	o				10	0.060	-40 to 85	0.9	4.5 to 9	30	NA	37	12	10/10	150	10	SOT23-3
ISL60002B	Ultra Low Power		o	o	o		o	o	o	o	o						20	0.100	-40 to 85	0.9	2.7 to 5.5	30	NA	244	98	7/7	100	316	SOT23-3
ISL60002C	Low Cost, Ultra Low Power		o	o	o		o	o	o	o	o						20	0.240	-40 to 85	0.9	2.7 to 5.5	30	NA	244	98	7/7	100	316	SOT23-3
ISL60002D	Low Cost, Ultra Low Power		o	o	o		o	o	o	o	o						20	0.490	-40 to 85	0.9	2.7 to 5.5	30	NA	244	98	7/7	100	316	SOT23-3
X60003D	Low Cost, Ultra Low Power											o	o				20	0.120	-40 to 85	0.9	4.5 to 9	30	NA	37	12	10/10	150	10	SOT23-3
ISL21060C	Ultra Low Power							o	o		o						25	0.120	-40 to 125	40	2.5 to 5.5	10	2.5	150	50	10/5	100	100	SOT23-6
ISL21070C	Low Cost, Ultra Low Power	o	o					o	o		o						30	0.500	-40 to 85	25	2.7 to 5.5	30	10	250	100	10/10	100	50	SOT23-3
ISL21080	Low Cost, Ultra Low Power		o	o		o	o	o	o	o	o	o	o	o	o	o	50	0.500	-40 to 85	1.5	2.7 to 5.5	30	52	350	100	7/7	100	50	SOT23-3
X60250V8I	Ultra Low Power				o												70	1.040	-40 to 85	20	2.7 to 5.5	100	200	NA	NA	0.4/0.001	100	100	TSSOP-8

Check Data Sheet Conditions

OTHER PRECISION ANALOG DEVICES FOR INSTRUMENTATION

Precision Amplifiers

High Precision

Part Number			Supply Voltage (V)		Rail-To-Rail		Vos Max @ 25°C	TCVos Typ	Ib Max @ 25°C	CMRR min @ 25°C	PSRR min @ 25°C	Is Max @ 25°C	GBW	Slew Rate	Noise 0.1 to 10Hz	Voltage Noise @ 1kHz	Price @ 1kpcs		
Single	Dual	Quad	Min	Max	In	Out	mV	µV/°C	nA	dB	dB	mA	MHz	V/µs	µVpp	nV/√Hz	Single	Dual	Quad
ISL28133	ISL28233	ISL28433	1.65	5.5	Yes	Yes	0.006	0.05	0.18	118	110	0.025	0.4	0.2	1	65	\$0.99	\$1.45	\$2.60
ISL28130	ISL28230	ISL28430	1.65	5.5	Yes	Yes	0.04	0.02	0.25	110	105	0.025	0.4	0.2	1.1	65	\$0.60	\$0.90	\$1.60
ISL28117B	ISL28217B		4.5	40	No	No	0.05	0.14	1	120	120	0.53	1.5	0.5	0.25	8	\$0.94	\$1.75	
ISL28127	ISL28227		4.5	40	No	No	0.07	0.1	10	115	115	2.8	10	3.6	0.085	2.5	\$0.90	\$1.45	
ISL28107	ISL28207		4.5	40	No	No	0.075	0.1	0.3	115	115	0.29	1	0.32	0.34	13	\$1.16	\$1.58	
EL8176			2.4	5.5	Yes	Yes	0.1	2.4	2	90	90	0.075	0.4	0.13	1.5	28	\$0.76		
ISL28176	ISL28276	ISL28476	2.4	5.5	Yes	Yes	0.1	0.5	2	90	90	0.075	0.4	0.13	1.5	28	\$0.86	\$1.27	\$1.69
ISL28117C	ISL28217C		4.5	40	No	No	0.1	0.14	1	120	120	0.53	1.5	0.5	0.25	8	\$0.74	\$1.48	

Low Noise

Part Number		Supply Voltage (V)		Rail-To-Rail		Vos Max @ 25°C	TCVos Typ	Ib Max @ 25°C	Is Max @ 25°C	GBW	Slew Rate	Noise 0.1 to 10Hz	Voltage Noise @ 1kHz	Current Noise @ 1kHz	Price @ 1kpcs	
Single	Dual	Min	Max	In	Out	mV	µV/°C	nA	mA	MHz	V/µs	µVpp	nV/√Hz	fA/√Hz	Single	Dual
ISL28190	ISL28290	3	5.5	Single Supply	Yes	0.7	1.9	16,000	11	170	50		1	2,100	\$1.58	\$2.61
ISL28191	ISL28291	3	5.5	Single Supply	Yes	0.63	3.1	6,000	3.5	61	17		1.7	1,800	\$1.32	\$2.38
ISL28127	ISL28227	4.5	40	No	No	0.07	0.1	10	2.8	10	3.6	0.085	2.5	400	\$0.90	\$1.45
ISL28118	ISL28218	3	40	Single Supply	Yes	0.23	0.3	575	1.1	4	1.2	0.3	5.6	355	TBD	\$1.79
ISL28110	ISL28210	9	40	No	No	0.3	1	0.002	2.9	12.5	23	0.6	6	9	TBD	\$1.69
ISL28117B	ISL28217B	4.5	40	No	No	0.05	0.14	1	0.53	1.5	0.5	0.25	8	100	\$0.94	\$1.75
ISL28117C	ISL28217C	4.5	40	No	No	0.1	0.14	1	0.53	1.5	0.5	0.25	8	100	\$0.74	\$1.48
ISL28146	ISL28246	2.4	5.5	Yes	Yes	0.65	0.3	35	1.25	5	1.9	0.4	12	350	\$0.76	\$0.92
ISL28107	ISL28207	4.5	40	No	No	0.075	0.1	0.3	0.29	1	0.32	0.34	13	53	\$1.16	\$1.58
ISL28136	ISL28236	2.4	5.5	Yes	Yes	0.15	0.4	35	1.1	5	1.9	0.4	15	350	\$1.00	\$1.14
ISL28138		2.4	5.5	Yes	Yes	0.3	0.6	0.03	1.1	4.5	4.8	2	26	120	\$0.70	

Low Input Bias Current (High Input Impedance)

Part Number			Supply Voltage (V)		Rail-To-Rail		Vos Max @ 25°C	TCVos Typ	Ib Max @ 25°C	Is Max @ 25°C	GBW	Slew Rate	Noise 0.1 to 10Hz	Voltage Noise @ 1kHz	Current Noise @ 1kHz	Price @ 1kpcs		
Single	Dual	Quad	Min	Max	In	Out	mV	µV/°C	nA	mA	MHz	V/µs	µVpp	nV/√Hz	fA/√Hz	Single	Dual	Quad
ISL28110	ISL28210		9	40	No	No	0.3	1	0.002	2.9	12.5	23	0.6	6	9	\$0.99	\$1.69	
ISL28113	ISL28213	ISL28413	1.8	5.5	Yes	Yes	5	2	0.02	0.13	2	1	14	55	5	\$0.44	\$0.53	\$0.72
ISL28114	ISL28214	ISL28414	1.8	5.5	Yes	Yes	5	2	0.02	0.36	5	2.5	12	40	8	\$0.44	\$0.53	\$0.72

Current Feedback Amplifier

Device	# of Channels	Topology	Vs Min (V)	Vs Max (V)	BW (MHz)	GMIN (V/V)	Slew Rate (V/µsec)	Noise (nV/√Hz)	Is Max (mA)	IOUT (mA)	Vos Max (mV)	Ib Max	RR In	RR Out	Headroom (V)	Shutdown	Price @ 1kpcs
EL8108	2	CFA	5	12	200	2	800	6	18	450	25	5µA	No	No	1	Yes	\$1.88
EL8103	1	VFA	3	5.5	500	1	600	12	6	65	8	9µA	-Vs	Yes	0.1	No	\$1.35
ISL55190	1	VFA	3	5.2	250	5	220	1.06	20	65	1.1	40µA	Negative rail only	Yes	0.04	Yes	\$1.24
EL5131	1	VFA	5	13	360	5	280	1.7	4.1	50	0.9	3.3fA	No	No	1.2	Yes	\$1.24
EL5166	1	CFA	5	12	1400	1	6000	1.7	8.5	160	5	8.5µA	No	No	1	Yes	1.38
EL5167	1	CFA	5	12	1400	1	6000	3	9.3	110	5	25µA	No	No	1	No	\$1.37
EL5236	2	VFA	4.5	13.2	250	2	125	1.3	7	60	3	9µA	No	No	1.2	No	\$1.27
EL5104	1	VFA	4	13.2	700	1	3000	10	11	90	10	30µA	No	No	1.2	Yes	\$1.20
EL5178	1	VFA	4.75	11	700	2	850	18	14	50	30	20µA	No	No	1.3	No	\$1.46
EL5175	1	VFA	4.75	11	550	1	900	21	11	40	40	25µA	No	No	1.46	Yes	\$1.15

MUX

Device	Device Description	Configuration	BW (MHz)	SR (V/µs)	Is (mA)	Gain Av (min)	IOUT (mA)	Diff Gain (%)	Diff Phase (°)	Package	Price @ 1kpcs
ISL59421	865MHz Multiplexing Amplifier	2 to 1	865	1417	14.5	1	130	0.01	0.02	10 Ld MSOP	1.98

Note: Above specs, pricing, and availability are as of March 2011. Information subject to change. For the latest information, check our web site: www.intersil.com

INSTRUMENTATION SOLUTIONS

LDO WITH ADJUSTABLE CURRENT LIMIT FOR USB PORT PROTECTION



High Power LDO
ISL80101A

INDUSTRY'S FIRST ACCURATE, ADJUSTABLE, COMPACT VOLTAGE AND CURRENT LIMITED LDO TO PROTECT USB, FIRE WIRE AND OTHER PORTS

The ISL80101A protects against over current due to short-circuit and overload conditions applied to the output. When this happens, the LDO performs as a constant current source. If the short-circuit or overload condition is removed, the output returns to normal voltage regulation operation.

The ISL80101A can replace a traditional USB current limit switch, while providing a tightly regulated voltage and needing less passive filtering to reduce voltage spikes.

The adjustable output voltage and adjustable current limit allow users the ultimate flexibility in optimizing design per their specifications.

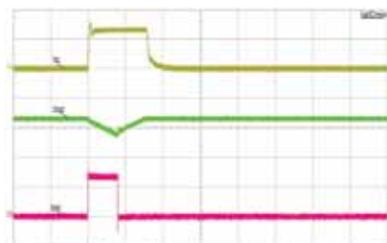
The ISL80101A will fit in a wide variety of applications, such as digital scopes/multimeters, data acquisitions systems and spectrum analyzers, that require the current limit to be set between 300mA and 1.62A for applications needing currents from a low as 200mA and as high as 1.0A. This can be achieved very simply with one resistor. The typical accuracy of the current limit is $\pm 16\%$.

KEY FEATURES

- Input voltage range from 2.2V to 6V
- Tight $\pm 1.8\%$ V_{OUT} accuracy over $-40^{\circ}\text{C} < T_J < 125^{\circ}\text{C}$
- Very fast load transient response, excellent AC accuracy
- Less than $1\mu\text{A}$ shutdown current (typ)
- P_{GOOD} , enable, short-circuit & reverse current protection, and over-temperature shutdown capability
- Space-saving 10 Ld 3x3 DFN package

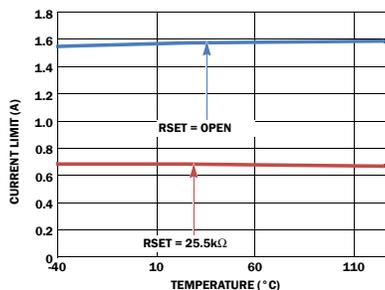
EXCELLENT CURRENT LIMITING

Allows for input side protection from current spikes.



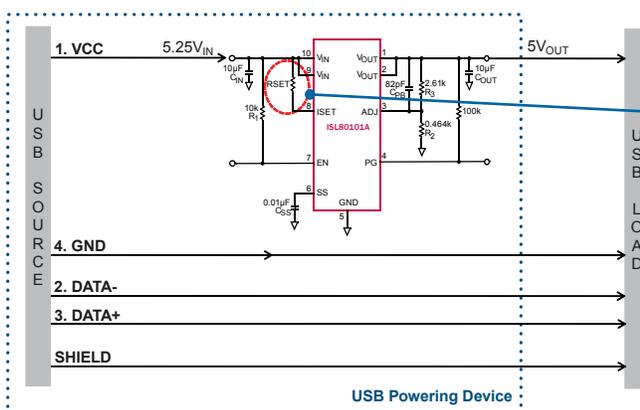
$V_{OUT} = 3.3\text{V}$, $C_{OUT} = 100\mu\text{F}$

GREAT CURRENT LIMIT ACCURACY OVER TEMPERATURE



Current Limit vs Temperature

Protection at the Source
USB Application Diagram



The current limit threshold of ISL80101A adjusted through a resistor (R_{SET})

- Lower Threshold - Connecting I_{SET} through R_{SET} to V_{IN}
- Raise Threshold - Connecting I_{SET} through R_{SET} to GND



High Current LDO

Device	Device Description	V_{IN} Range (V)	V_{BIAS} Range (V)	V_{OUT} Range (V)	Adj. & Fixed V_{OUT} Options*	V_{OUT} Accuracy (%)	I_{OUT} Max (A)	I_Q of V_{IN} (mA)	I_Q of V_{BIAS} (mA)	Typ. V_{IN} Drop-Out Voltage (mV)	Package
ISL80101	High Performance 1A LDO	2.2 to 6	N/A	0.8 to 5	Y	± 1.8	1	5	N/A	130 @ 1A	10 Ld DFN, 5 Ld T0263/220
ISL80101A	1A LDO with Adj Current Limit	2.2 to 6	N/A	0.8 to 5	ADJ	± 1.8	1	5	N/A	90 @ 1A	10 Ld DFN
ISL80121	1A LDO with 0.75A Current Limit	2.2 to 6	N/A	0.8 to 5	5V	± 1.8	1	5	N/A	90 @ 1A	10 Ld DFN
ISL80102	High Performance 2A LDO	2.2 to 6	N/A	0.8 to 5	Y	± 1.8	2	8	N/A	81 @ 2A	10 Ld DFN, 5 Ld T0263/220
ISL80103	High Performance 3A LDO	2.2 to 6	N/A	0.8 to 5	Y	± 1.8	3	8.5	N/A	120 @ 3A	10 Ld DFN, 5 Ld T0263/220

* See respective datasheets for available fixed output voltage options.

INSTRUMENTATION SOLUTIONS

DUAL BUCK, DUAL LDO WITH I²C



**Dual Buck,
Dual LDO**
ISL9305H

INDUSTRY'S MOST VERSATILE MINI-PMIC PROVIDES THE POWER NEEDED BY TODAY'S MOBILE DEVICES

The ISL9305H combines two 1500mA, 3MHz synchronous step-down converters and two 300mA low-dropout linear regulators (LDOs) to provide design flexibility and operational versatility. With four powerful regulators in a compact 4x4mm size, the ISL9305H is a complete solution for powering microprocessor systems utilizing Li Ion/Polymer batteries.

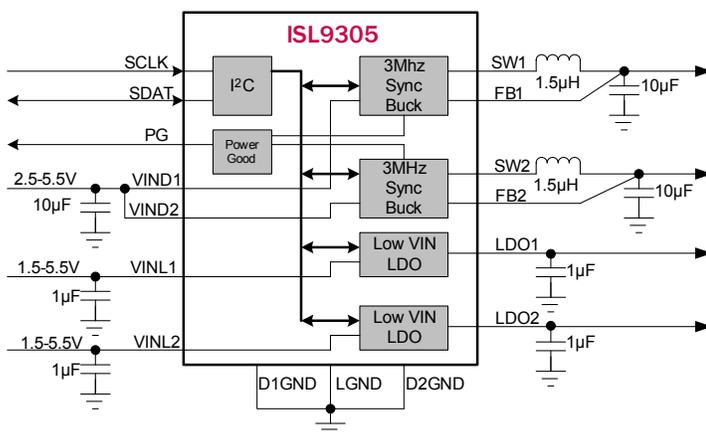
The four regulators are optimized to efficiently power hand held Instruments, Multi-meters, portable medical and navigation devices. The step-down converters can obtain more than 90% efficiency and provide voltages as low 0.8V. The LDOs can operate from input voltages as low as 1.5V and be powered by one of the step-down converters to further improve efficiency.

The ISL9305 provides I²C programmability to adjust the step-down regulators to one of more than 100 voltage settings and the LDO outputs to one of 55. The ISL9305H provides many other programming features, including slew rate control, PFM/PWM selection, and ultrasonic operation.

The high level of integration in the ISL9305H enables a reduced total component count and bill-of-materials, lowering overall cost. The ISL9305's compact size provides ease of design and for applications where space is limited, the ISL9305 will be offered in 2x2mm CSP version.

BLOCK DIAGRAM

- Two 1500mA, synchronous buck converters
- Two 300mA, low V_{IN} operation, low dropout LDOs

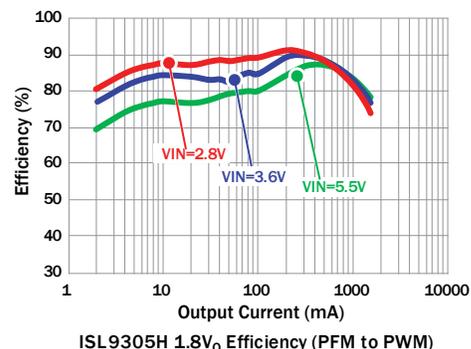


KEY FEATURES

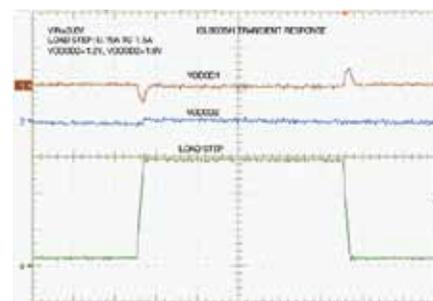
- Two 1500mA, synchronous buck converters
- Two 300mA, low V_{IN} operation, low dropout LDOs
- 3MHz F_{sw} on bucks reduces size & BOM cost
- I²C interface control:
 - Output voltage selection on all 4 channels
 - Voltage stepping in 50mV steps for buck regulators
 - 100mV steps for LDOs
- Power up/down sequencing on all 4 channels
- Separate input pins for each channel
- DCDCs in/out phase mode
- PFM ultrasonic mode selection
- Programmable slew rate control

HIGH PFM/PWM EFFICIENCY

More than 90% Efficiency



10 TO 100% LOAD TRANSIENT



Device	Device Description	V _{IN} (min) (V)	V _{IN} (max) (V)	V _{OUT1} (min) (V)	V _{OUT1} (max) (V)	V _{OUT2} (V)	V _{OUT3} (V)	V _{OUT4} (V)	I _{OUT1} (A)	Package	1K Units MSRP (\$)
ISL9305H	3MHz Dual 1.5A Step-Down Converters and Dual Low-Input LDOs with I ² C Compatible Interface	2.5	5.5	0.8	V _{IN}	Adj.	Adj.	Adj.	1.5	16 Ld TQFN	2.1

HIGH EFFICIENCY SYNCHRONOUS BUCK REGULATOR



Switching Regulator
ISL8016

6A 1MHz SYNC SWITCHING REGULATOR

Space and efficiency are very important in power designs for any instrumentation equipment. Traditionally for a 5A or 6A rail a controller with external FET's would be used to get the best efficiency; however, the size of the solution could prove to be large. Now the ISL8016 can generate a 6A solution for any space-constrained application while still providing excellent efficiency. The ISL8016 is a high efficiency, monolithic, synchronous step-down DC/DC converter that can deliver up to 6A continuous output current from a 2.7V to 5.5V input supply. The output voltage is adjustable from 0.6V to V_{IN} . The output current limit is adjustable thru ISET pin. It uses current control architecture to deliver very low duty cycle operation at high frequency with fast transient response and excellent loop stability.

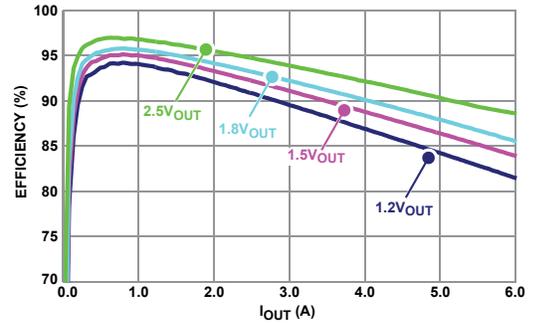
The ISL8016 integrates a pair of low ON-resistance P-channel and N-channel internal MOSFETs to maximize efficiency and minimize external component count. The 100% duty-cycle operation allows less than 200mV dropout voltage at 6A output current. The operational frequency, pulse-width modulation (PWM), is adjustable from 500kHz to 4MHz. Connecting the FS pin high sets the default frequency to 1MHz switching frequency allows the use of small external components. SYNCIN/SYNCOUT enables multiple ICs to synchronize out of phase to reduce ripple and eliminate beat frequencies.

KEY FEATURES

- High efficiency synchronous buck regulator with up to 97% efficiency
- 0.8% reference accuracy over-temperature/load/line
- Fixed/adjustable output voltage options
- +/-10% output voltage margining capability
- Start-up into a pre biased load
- Current sharing capability
- Soft stop output voltage discharge during disable
- Adjustable switching frequency from 500kHz to 4MHz, default 1MHz

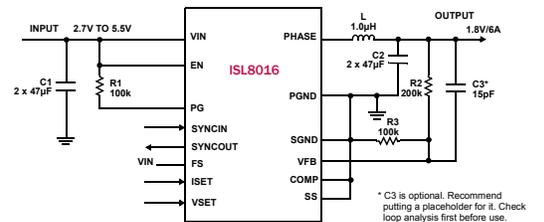
HIGH EFFICIENCY

Up to 97% Efficiency



TYPICAL APPLICATION DIAGRAM

Single Chip 6A



* C3 is optional. Recommend putting a placeholder for it. Check loop analysis first before use.

Buck Converter/Regulator

Device	Device Description	V _{IN} (min) (V)	V _{IN} (max) (V)	V _{OUT} (min) (V)	V _{OUT} (max) (V)	I _{OUT} (max) (A)	I _Q (µA)	Switching Frequency (MHz)	Peak Efficiency (%)	POR/PGOOD	Package	1K Units MSRP (\$)
Single Output												
ISL9104A	500mA 4.3MHz Low I _Q High Efficiency Synchronous Buck Converter	2.7	6	0.8	V _{IN}	0.5	32	4.3	93	N	6 Ld µTDFN	1.60
ISL8012	2A Low Quiescent Current 1MHz High Efficiency Synchronous Buck Regulator	2.7	5.5	0.8	V _{IN}	2	40	1	95	Y	10 Ld DFN	1.85
ISL8013A	3A Low Quiescent Current 1MHz High Efficiency Synchronous Buck Regulator	2.8	5.5	0.8	V _{IN}	3	35	1	97	Y	16 Ld QFN	2.71
ISL8014A	4A Low Quiescent Current 1MHz High Efficiency Synchronous Buck Regulator	2.8	5.5	0.8	V _{IN}	4	35	1	97	Y	16 Ld QFN	3.71
ISL8016	6A Low Quiescent Current High Efficiency Synchronous Buck Regulator	2.8	5.5	0.8	V _{IN}	6	50	1	97	Y	20 Ld QFN	4.70
ISL8500	2A Standard Buck PWM Regulator	5.5	25	0.6	19	2	80	0.5	94	Y	12 Ld DFN	2.05
ISL85001	1A Standard Buck PWM Regulator	5.5	25	0.6	19	1	80	0.5	94	Y	12 Ld DFN	2.4
Multiple Output												
ISL8022	Dual 2A/1.7A Low Quiescent Current 2.25MHz High Efficiency Synchronous Buck Regulator	2.8	5.5	0.6	V _{IN}	2.0/1.7	40	2.25	97	Y	12 Ld DFN	3.05
ISL8033A	Dual 3A/3A Low Quiescent Current 2.25MHz High Efficiency Synchronous Buck Regulator	2.8	5.5	0.6	V _{IN}	3/3	40	2.25	97	Y	12 Ld DFN	4.17
ISL8501	Triple Output Controller with 1A Standard Buck PWM and Dual LDOs	5	25	0.6	22	1		0.5	95		24 Ld QFN	2.17
ISL85033	Wide V _{IN} Dual Standard Buck Regulator With 3A/3A Continuous Output Current	4.5	28	0.8	V _{IN}	3/3	1.2	0.3 to 2	92	Y	28 Ld TQFN	3.3

OTHER POWER MANAGEMENT DEVICES FOR INSTRUMENTATION

Low Power LDO

Device	Device Description	V _{IN} Range (V)	V _{OUT} Range (V)	O/P Volt Accuracy (%)	I _{OUT1} (max) (mA)	I _{OUT2} (max) (mA)	PSRR @ 1kHz (dB)	Noise (VRMS 10 to 100) (kHz)	I _q (μA)	Typical Drop-Out Voltage (mV)	# of PORs	Operating Temp. Range (°C)	Package
ISL9000	Dual LDO with Low Noise, Very High PSRR, and Low I _q	2.3 to 6.5	1.5 to 3.3	±1.8	300	300	90	30	40	250 @ 300mA	2	-40 to +85	10 Ld DFN
ISL9003A	Low Noise LDO with Low I _q , High PSRR	2.3 to 6.5	1.5 to 3.3	±1.8	150	N/A	90	20	29	200 @150mA	N/A	-40 to +85	5 Ld SC70, 6 Ld μTDFN
ISL9008A	Low Noise LDO with Low I _q , High PSRR	2.3 to 6.5	1.5 to 3.3	±1.8	150	N/A	65	45	45	200 @150mA	N/A	-40 to +85	5 Ld SC70, 6 Ld μTDFN

PWM Controllers

Single Output

Device	Device Description	V _{IN} (min) (V)	V _{IN} (max) (V)	V _{OUT} (min) (V)	V _{OUT} (max) (V)	I _{OUT} (max) (A)	V _{BIAS} (V)	Switching Frequency (MHz)	I _S (typ) (mA)	Package	1K Units MSRP (\$)
ISL6341B	5V or 12V Synchronous Buck PWM Controller	1.5	12	0.8	V _{IN}	30	4.5 to 14.4	0.6	7	10 Ld TDFN	1.31
ISL6420B	Advanced Synchronous Buck PWM Controller	4.5	28	0.6	V _{IN} -0.5V	10	5	1.4	2	20 Ld QFN, 20 Ld QSOP	1.41
ISL8105B	+5V or +12V Single-Phase Synchronous Buck Converter PWM Controller with Integrated MOSFET Gate Drivers, Extended Soft-Start Time	1	20	0.6	0.87 V _{IN}	15	5, 12	0.3	3.2	8 Ld SOIC, 10 Ld DFN	0.89

Multiple Output

Device	Device Description	V _{IN} (min) (V)	V _{IN} (max) (V)	V _{OUT} (min) (V)	V _{OUT} (max) (V)	I _{OUT} (max) (A)	Switching Freq. (kHz)	Package	1K Units MSRP (\$)
ISL6440	300kHz Dual, 180° Out-of-Phase, Step-Down PWM Controller	4.5	24	0.8	22	10	300	24 Ld QSOP	2.44
ISL8112	High Light-Load Efficiency, Dual-Output, Main Power Supply Controller	4.5	25	0.7	5.5	30	400/500, 300/400, 200/300	32 Ld QFN	2.31
ISL8120	Dual/n-Phase Buck PWM Controller with Integrated Drivers	3.3	22	0.6	90% of V _{IN}	>60	150 to 1500	32 Ld QFN	4.31
ISL9440	Triple, 180° Out-of-Phase, Step-Down PWM and Single Linear Controller	4.5	24	0.8	24	20	300/600	32 Ld QFN	4.67

Switching Charger for 1 & 2 Cell Li-ion Batteries

Device	Device Description	V _{OUT} (typ) (V)	Voltage Accuracy (%)	V _{IN1} (max) (V)	V _{IN2} (max) (V)	I _{OUT1} (max) (A)	I _{OUT2} (max) (A)	Safety Timer	Self Termination	Accepts CC Adapter	V _{IN1} Trickle Charge (min) (% CC)	V _{IN2} Trickle Charge (min) (% CC)	Thermal Regulation	Functions (Pin)	Package	1K Units MSRP (\$)
ISL9220/A	Switching Charger for 1-Cell and 2-Cell Li-ion Batteries	4.2	0.5	1.8	N/A	2	N/A	Y	Y	N	10	N/A	Y	Enable, Charge Status, Fault	20 Ld TQFN	2.3

Power Sequencers

Low Voltage Sequencers

Device	Device Description	V _{BIAS} Range (V)	Sequenced Voltages or Range (V)	Enable	Logic Level	Sequenced Output Control	Initial Startup Requirements	Monitored Inputs	Channel That Turn-off When 1 UVLO Faults	Preset or Adjustable Sequence	Features	Package	1K Units MSRP (\$)
ISL6124	Power Sequencing Controller	+1.5 to +5.5	+0.7 to +5.5	Active Low	CMOS	Charge Pumped 1μA FET Drive	4 UVLO 1EN	4	4 Gates	Adjustable ON & OFF Delay	Auto Restart	24 Ld QFN	2.39
ISL8724	Power Sequencing Controller	+2.5 to +5.5	+0.7 to +5.5	Active Low	CMOS	Charge Pumped 10μA FET Drive	4 UVLO 1 EN	4	4 Gates	Adjustable ON & OFF Delay	Auto Restart	24 Ld QFN	2.48

High Voltage Sequencers

Device	Device Description	V _{BIAS} (V)	Enable	Logic Level	Sequenced Output Control	Initial Startup Requirements	Monitored Inputs	Channels That Turn-On When V _{IN} is Non-Compliant	Preset or Adjustable Sequence	Features	Package	1K Units MSRP (\$)
ISL8702A	Adjustable Quad Sequencer	3.3 to 24	Active High	TTL	Active High, Open Drain	UV/OV & EN	1	4 Simultaneous	Preset Order, Adjustable Delay	Fault Reporting	14 Ld SOIC	1.11
ISL8705A	Adjustable Quad Sequencer	3.3 to 24	Active Low	TTL	Active Low, Open Drain	UV/OV & EN	1	4 Simultaneous	Preset Order, Adjustable Delay	Fault Reporting	14 Ld SOIC	1.11

Voltage Monitors

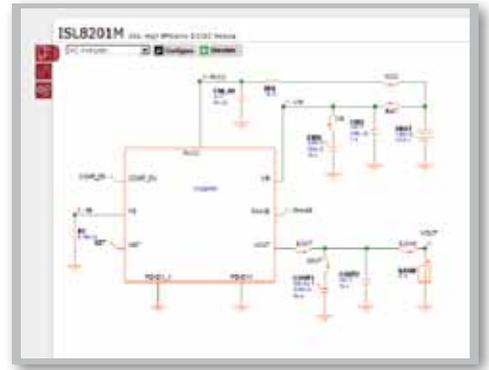
Device	Device Description	# of Voltage Monitors	Fixed V _{TRIP}	Adj. V _{TRIP} (Resistors)	Reset Output Type	Manual Reset	TwinPin™ MR/RST	WDT	Adj. POR Timeout	Bus Interface	Package	1K Units MSRP (\$)
ISL88011	5 Ld Voltage Supervisors with Adjustable Power-On Reset, Dual Voltage Monitoring or Watchdog Timer Capability	1	Y	N	Active High and Low	Y	Y	N	Y	N/A	5 Ld SOT23, 14 Ld PDIP	0.88
ISL88012	5 Ld Voltage Supervisor with Adjustable Power-On Reset, Dual Voltage Monitoring or Watchdog Timer Capability	2	Y	Y	Active High and Low	Y	Y	N	N	N/A	5 Ld SOT23	0.99

Note: Above specs, pricing, and availability are as of March 2011. Information subject to change. For the latest information, check our web site: www.intersil.com

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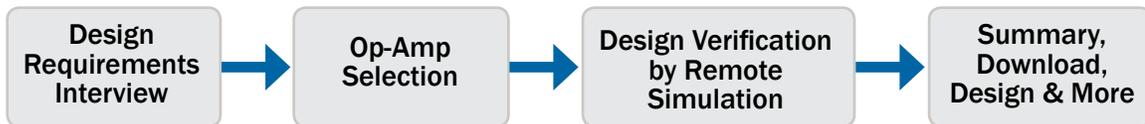
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