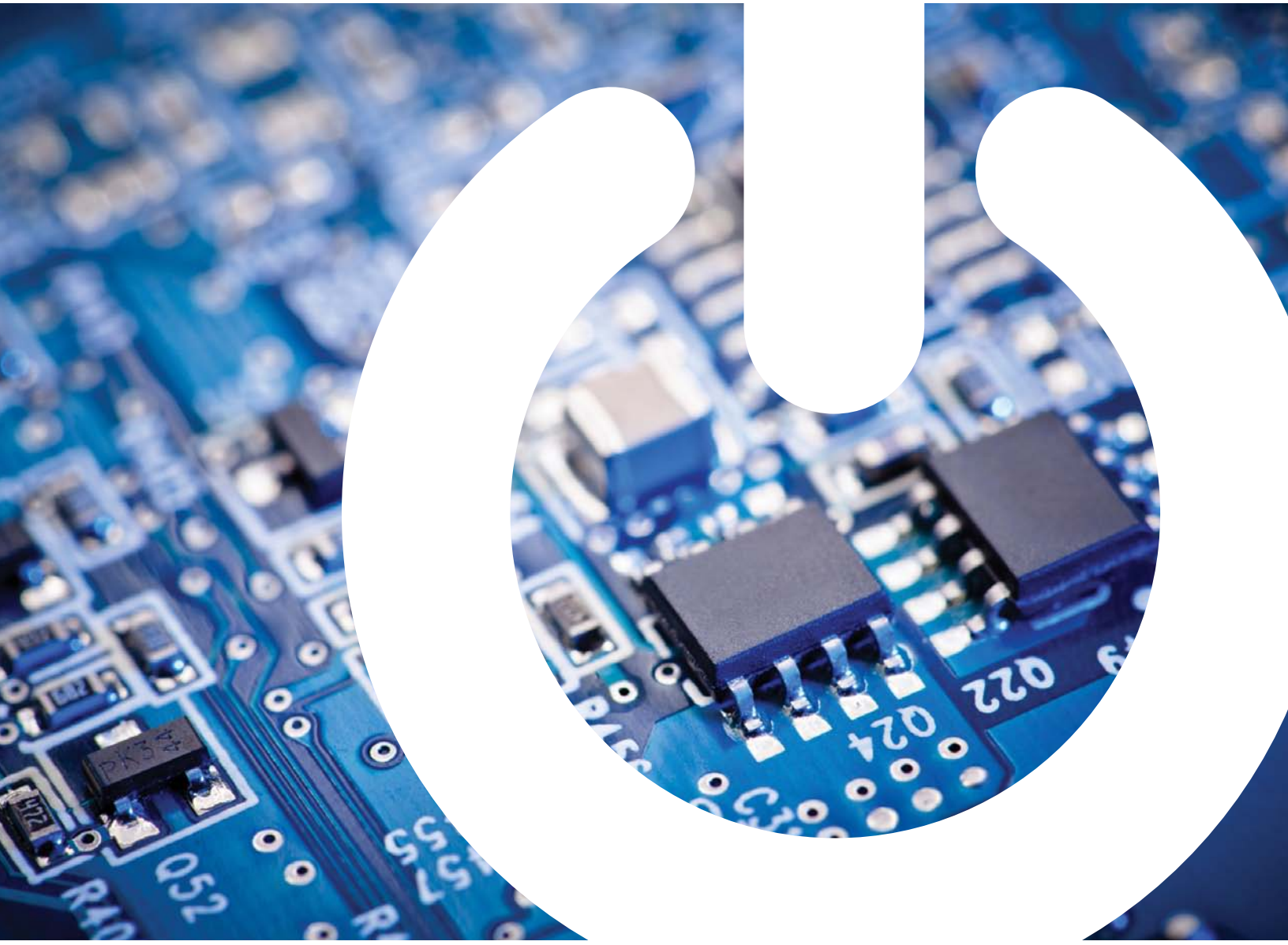
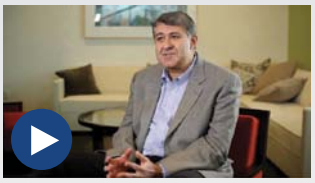
POWER MANAGEMENT
QUICK SELECTION GUIDE

Switching Regulators, LDOs, Power Modules, Bridge Drivers



intersil™



A HERITAGE OF POWERING INNOVATION

Learn how Intersil's power management technologies have transformed the semiconductor industry and are ideal for today's evolving infrastructure, industrial and mobile consumer markets at **intersil.com/power**

INTERSIL POWER MANAGEMENT SOLUTIONS

Intersil is the leader in power management expertise. Built upon an unrivaled heritage in advanced analog IC and multiphase power solutions, Intersil delivers the industry's highest performance, most efficient, easiest to use and integrate, and consistently reliable power management systems. Our solutions meet the demands of today's most complex power system designs across the infrastructure, mobile, industrial, automotive and aerospace markets.

This quick selection guide highlights our key general-purpose power management products. For a complete list of Intersil's power management products, please visit **intersil.com/power**

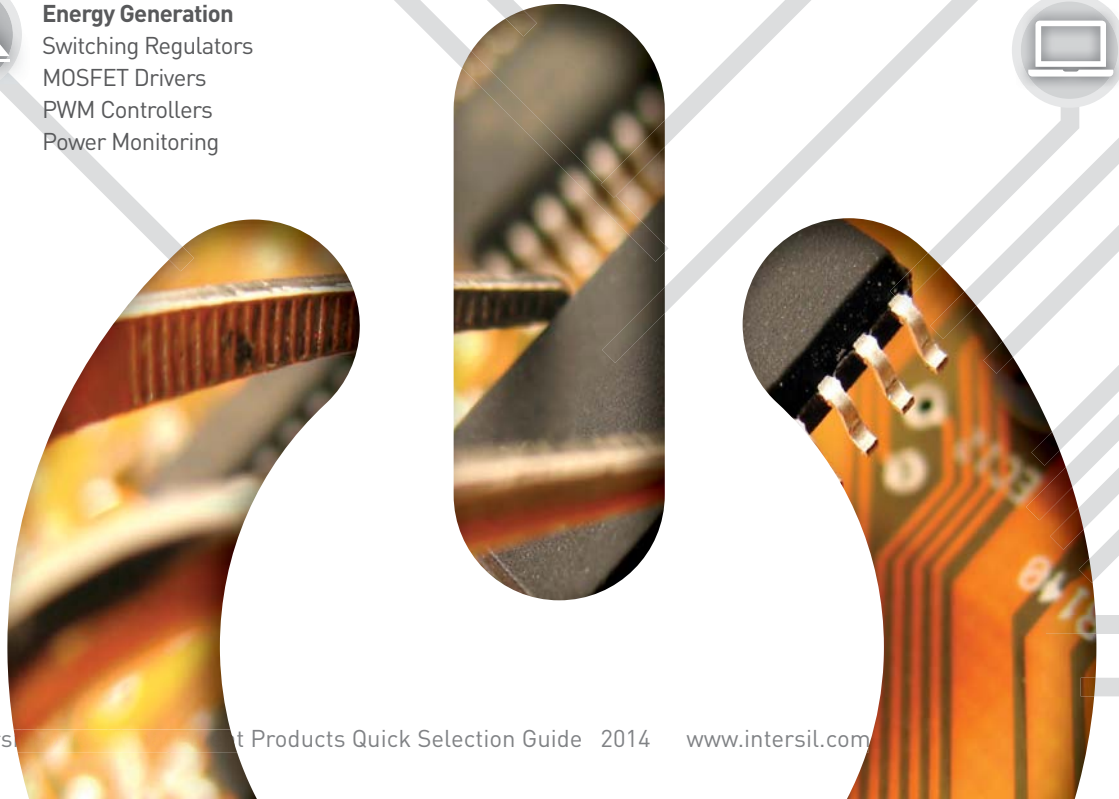
Medical
Power Modules
Switching Regulators
FPGA Power

Cloud Infrastructure
Digital Power
Power Modules
Core Power
Switching Regulators
FET Drivers

Security
Switching Controllers
Hot Plug
Encoders
Video Compression

Energy Generation
Switching Regulators
MOSFET Drivers
PWM Controllers
Power Monitoring

Computing
Core Power
Memory Power
Display Power
LDOs
Hot Plug



Rad Hard (Space)
FPGA Power
Switching Regulators
FET Drivers

Telecom/Datacom
Digital Power
Switching Controllers
Power Modules
FET Drivers
FPGA Power
Point-of-Load

Wired Network
Digital Power
Core Power
Power Modules
Switching Regulators
FET Drivers

Consumer/Mobile
Buck-Boost Regulators
Battery Management
LDOs
Display/Backlight Drivers
Optical Sensors

Instrumentation/ Measurement
Power Modules
Switching Regulators
FPGA Power

Military/Hi-Reliability
FPGA Power
Linear Regulators
FET Drivers
SMD

Building & Home
Voltage Regulator
Signal Conditioning
Bridge Driver
Cell Balancing and Safety
Battery Charger

Automotive
HEV/EV Cell Balancing
PWM Controllers
Video Decoders

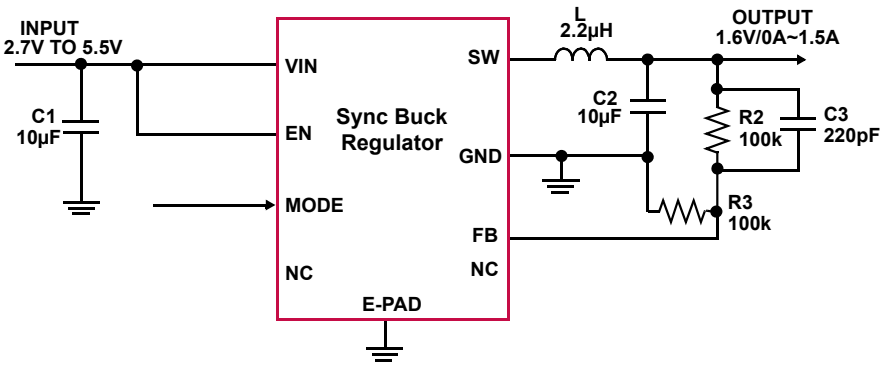
Industrial Automation
Power Modules
Digital Power (full, hybrid)
Core Power
Switching Regulators
FET Drivers

CONTENTS

INTEGRATED FET SWITCHING REGULATORS

TYPICAL APPLICATION

Intersil's large variety of switching regulators are easy to use and have great power conversion efficiency.



BUCK REGULATORS

Device	Device Description	V_{IN} Range (V)	I_{OUT} (max) (A)	V_{OUT} Range (V)	I_Q (typ)	Switching Freq (MHz)	Package	Eval Kit
Single Output 2.7V - 5.5V								
ISL80019/A	Sync Buck Regulator	2.7 - 5.5	1.5	0.6 - V_{IN}	35µA	2.3	8 Ld 2x2 TDFN	✓
ISL8002/A	Sync Buck Regulator	2.7 - 5.5	2	0.6 - V_{IN}	35µA	2.3	8 Ld 2x2 TDFN	✓
ISL8023/A	Sync Buck Regulator	2.7 - 5.5	3	0.6 - 5.5	50µA	4	16 Ld 3x3 TQFN	✓
ISL8024/A	Sync Buck Regulator	2.7 - 5.5	4	0.6 - 5.5	50µA	4	16 Ld 3x3 TQFN	✓
ISL8025/A	Sync Buck Regulator	2.7 - 5.5	5	0.6 - V_{IN}	50µA	2.4	16 Ld 3x3 TQFN	✓
ISL8016	Sync Buck Regulator	2.7 - 5.5	6	0.6 - 5.5	70µA	4	20 Ld 3x4 QFN	✓
Single Output 3V - 18V								
ISL85003	Sync Buck Regulator	3 - 18	3	0.8 - 12	2mA	0.6	12 Ld 4x3 DFN	✓
Single Output 3V - 38V								
ISL85415	Sync Buck Regulator	3 - 36	0.5	0.6 - 95% of V_{IN}	80µA	2	12 Ld 4x3 DFN	✓
ISL85418	Sync Buck Regulator, Wide V_{IN}	3 - 36	0.8	0.6 - 95% of V_{IN}	80µA	2	12 Ld 4x3 DFN	✓
ISL85410	Sync Buck Regulator, Wide V_{IN}	3 - 36	1	0.6 - 95% of V_{IN}	80µA	2	12 Ld 4x3 DFN	✓
ISL85403	2.5A Regulator with Integrated High-Side MOSFET for Synchronous Buck or Boost Buck Converter	3 - 36	2.5	0.5 - 36	300µA	2	20 Ld 4x4 QFN	
Single Output 40V								
ISL8540	Standard Buck Regulator	9 - 40	2	1.21 - 35	60µA	0.6	20 Ld 6.5x6.4 HTSSOP	✓
Single Output 60V								
ISL8560	Standard Buck Regulator	9 - 60	2	1.21 - 55	60µA	0.6	20 Ld 6x6 QFN	✓
Dual Output 2.7V - 5.5V								
ISL8088	Dual Sync Buck Regulator, Pin Compatible with LTC3407-2	2.75 - 5.5	0.8	0.6 - 5.5	30µA	2.25	10 Ld 3x3 DFN	✓
ISL8022	Dual Sync Buck Regulator	2.8 - 5.5	2.0 / 1.7	0.6 - 5.5	40µA	2.25	12 Ld 4x3 DFN	✓
ISL8033/A	Dual Sync Buck Regulator	2.85 - 6	3 / 3	0.8 - 6	15mA	1/2.5 (A ver)	24 Ld 4x4 QFN	✓
ISL8036/A	Dual Sync Buck Regulator	2.85 - 6	3 / 3	0.8 - 6	15mA	1	24 Ld 4x4 QFN	✓
Dual Output 3V - 28V								
ISL85033	Dual Standard Buck Regulator, Wide V_{IN}	4.5 - 28	3	0.8 - 28	1.2mA	2	28 Ld 4x4 TQFN	✓
Quad Output 2.5V - 5.5V								
ISL9305	Dual Buck Regulator and Dual LDO with I^2C	2.3 - 5.5	0.8	0.8 - 5.5	50µA	2.6	16 Ld 4x4 TQFN	✓
ISL9305H	Dual Buck Regulator and Dual LDO with I^2C	2.5 - 5.5	1.5	0.8 - 5.5	50µA	2.6	16 Ld 4x4 TQFN	✓
ISL9307	Dual Buck Regulator and Dual LDO	2.5 - 5.5	1.5	0.9 - 3.3	50µA	2.6	16 Ld 4x4 TQFN	✓

BUCK-BOOST REGULATORS

Device	Device Description	V_{IN} Range (V)	I_{SW} (max) (A)	V_{OUT} Range (V)	I_Q (typ)	Switching Freq (MHz)	Package	Eval Kit
Single Output 1.8V - 5.5V								
ISL9110/A	Sync Buck-Boost Regulator	1.8 - 5.5	2	1 - 5.2	35µA	2.5	12 Ld 3x3 DFN, 20 Bump WLCSP (A ver)	✓
ISL9112	Sync Buck-Boost Regulator with I^2C	1.8 - 5.5	2	1.9 - 5	35µA	2.5	12 Ld 3x3 DFN	✓
ISL91108	Sync Buck-Boost Regulator	1.8 - 5.5	3.7	1 - 5.2	27.5µA	2.6	20 Bump WLCSP	✓
ISL91110	Sync Buck-Boost Regulator	1.8 - 5.5	4	1 - 5.2	35µA	2.5	20 Bump WLCSP	✓

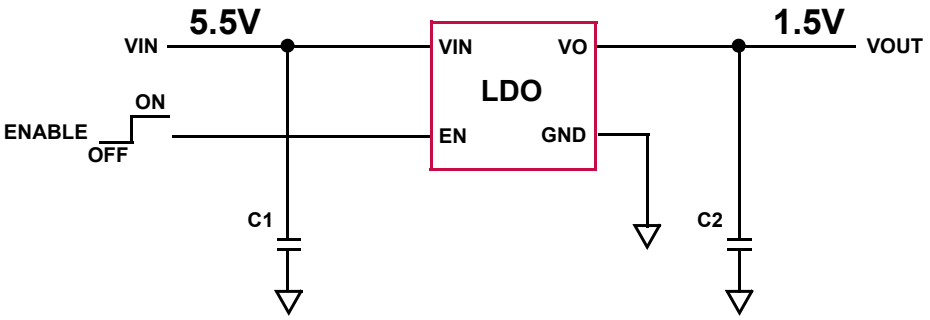
BOOST REGULATORS

Device	Device Description	V_{IN} Range (V)	I_{SW} (max) (A)	V_{OUT} Range (V)	I_Q (typ)	Switching Freq (MHz)	Package	Eval Kit
Single Output 1.8V - 5.5V								
ISL97701	Standard Boost Regulator with Integrated Schottky and Input Disconnect Switch	2.3 - 5.5	0.5	4.3 - 28	900µA	1	10 Ld 3x3 DFN	✓
ISL78113A	Low Input Voltage and High Efficiency Synchronous Boost Converter with 1.3A Switch	0.8 - 4.7	0.5	1 - 5.2	1µA	2.23	8 Ld DFN	
ISL9111/A	Sync Boost Regulator, Low Input Voltage	0.5 - 5.25	0.8	2.5 - 5.25	20µA	1.2	6 Ld 2.9x2.8 SOT	✓
ISL9113	Sync Boost Regulator, Low Input Voltage	0.8 - 4.7	1.1	1 - 5.2	20µA	1.8	8 Ld 2x2 DFN, 6 Bump WLCSP	✓
ISL97519/A	Standard Boost Regulator	2.3 - 5.5	1.5	1.1 - 25		1.2	8 Ld 3x4.9 MSOP	✓
ISL97516	Standard Boost Regulator	2.3 - 5.5	1.7	1.1 - 25	700µA	1.2	8 Ld 3x4.9 MSOP	✓
ISL91117	Sync Boost Converter with Output Disconnect	1.8 - 4.8	3.5	Up to 5.2	35µA	2.5	20 Bump WLCSP	✓
ISL97656	Standard Boost Regulator	2.3 - 6	3.8	1.1 - 24	700µA	1.2	10 Ld 3x3 DFN	✓
Single Output 12V								
ISL98012	Standard Boost Regulator	1.8 - 13.2	1	4.5 - 17	1.4mA	670kHz	10 Ld 3x4.9 MSOP	✓

LDO / LINEAR REGULATORS

TYPICAL APPLICATION

Intersil LDOs are great for generating low current, well-regulated outputs and require very few external components.



LDOs

Device	Device Description	V_{IN} Range (V)	V_{OUT} Range (V)	O/P Volt Accuracy (%)	I_{OUT1} (max)	I_{OUT2} (max)	PSRR @ 1kHz (dB)	I_Q (typ)	Typical Drop-Out Voltage (mV)	Enable/ Shut-down	Package	Eval Kit
Up to 6.5V												
ISL9003A	Low Noise LDO with Low I_Q, High PSRR	2.3 - 6.5	1.5 - 3.3	±1.8	150mA		90	29µA	200 @150mA	Yes	5 Ld SC-70, 6 Ld µTDFN	✓
ISL9012	Dual LDO with Low Noise, Low I_Q, and High PSRR	2.3 - 6.5	1.5 - 3.3	±1.8	150mA	300mA	70	45µA	250 @ 300mA	Yes	10 Ld DFN	
ISL9016	150mA Dual LDO with Low Noise, High PSRR, and Low I_Q	1.8 - 6.5	1.2 - 3.3	±1.8	150mA	150mA	80	49µA	250 @ 150mA	Yes	6 Ld µTDFN	✓
ISL9021A	250mA Single LDO with Low I_Q, Low Noise and High PSRR LDO	1.5 - 5.5	0.9 - 3.3	±1.8	250mA		60	35µA	150 @ 250mA	Yes	4 Ball WLCSP, 6 Ld µTDFN	✓
ISL9000A	Dual LDO with Low Noise, Very High PSRR, and Low I_Q	2.3 - 6.5	1.5 - 3.3	±1.8	300mA	300mA	90	40µA	250 @ 300mA	Yes	10 Ld DFN	✓
ISL9001A	LDO with Low I_{SUPPLY}, High PSRR	2.3 - 6.5	1.5 - 3.3	±1.8	300mA		90	25µA	250 @ 300mA	Yes	8 Ld DFN	✓
ISL9014A	Dual LDO with Low Noise, Low I_Q, and High PSRR	2.3 - 6.5	1.5 - 3.3	±1.8	300mA	300mA	70	45µA	250 @ 300mA	Yes	10 Ld DFN	✓
ISL9007	High Current LDO with Low I_Q and High PSRR	2.3 - 6.5	1.5 - 3.3	±1.8	400mA		75	50µA	250 @ 400mA	Yes	8 Ld MSOP	✓
ISL80101	High Performance 1A LDO	2.2 - 6.0	0.8 - 5.0	±1.8	1A		58	3mA	130 @ 1A	Yes	10 Ld DFN	✓
ISL80101-ADJ	High Performance Adjustable V_{OUT} 1A LDO	2.2 - 6.0	0.8 - 5.0	±1.8	1A		58	3mA	130 @ 1A	Yes	10 Ld DFN	✓
ISL80101A	High Performance Adjustable V_{OUT} 1A LDO with Programmable Current Limiting	2.2 - 6.0	0.8 - 5.0	±2.0	1A		48	3mA	212 @ 1A	Yes	10 Ld DFN	✓
ISL80111	Ultra Low Dropout 1A Low Input Voltage NMOS LDO	1 - 3.6	0.8 - 3.6	±1.6	1A		80	3.5mA	27	Yes	10 Ld DFN	✓
ISL80121-5	Fixed 5V Output 1A LDO with Programmable Current Limiting	2.2 - 6.0	0.8 - 5.0	±1.8	1A		40	3mA	130 @ 1A	Yes	10 Ld DFN	✓
ISL80102	High Performance 2A LDO	2.2 - 6.0	0.8 - 5.0	±1.8	2A		55	7.5mA	81 @ 2A	Yes	10 Ld DFN	✓
ISL80112	Ultra Low Dropout 2A Low Input Voltage NMOS LDOs	1 - 3.6	0.8 - 3.6	±1.6	2A		80	3.5mA	53	Yes	10 Ld DFN	✓
ISL80103	High Performance 3A LDO	2.2 - 6.0	0.8 - 5.0	±1.8	3A		55	7.5mA	120 @ 3A	Yes	10 Ld DFN	✓
ISL80113	Ultra Low Dropout 3A Low Input Voltage NMOS LDO	1 - 3.6	0.8 - 3.6	±1.6	3A		80	3.5mA	75	Yes	10 Ld DFN	✓
Up to 40V												
ISL80136	40V, Low Quiescent Current, 50mA Linear Regulator	6 - 40	2.5 - 12	±1	50mA		58	18µA	120	Yes	8 Ld EPSOIC	✓
ISL80138	40V, Low Quiescent Current, 150mA Linear Regulator	6 - 40	2.5 - 12	±1	150mA		66 @ 100Hz	18µA	295 @ 150mA	Yes	14 Ld HTSSOP	✓

ANALOG POWER MODULES

Device	Device Description	V_{IN} Range (V)	V_{OUT} Range (V)	I_{OUT} (A)	Current Share	Multi-phase	P_{GOOD}	Enable	Ambient Temp Range (°C)	Load Fault Protection	Peak Efficiency (%)	Package (mm)	Eval Kit
ISL8204M*	High Efficiency DC/DC Power Module	1 - 20**	0.6 - 6	4	No	No	No	Yes	-40 to +85	Yes	95	15 Ld QFN (15 x 15 x 3.5)	✓
ISL8206M*	Complete High Efficiency DC/DC Power Module	1 - 20**	0.6 - 6	6	No	No	No	Yes	-40 to +85	Yes	95	15 Ld QFN (15 x 15 x 3.5)	✓
ISL8201M	10A, High Efficiency DC/DC Module	1 - 20**	0.6 - 5	10	No	No	No	Yes	-40 to +85	Yes	95	15 Ld QFN (15 x 15 x 3.5)	✓
ISL8200AM	Complete Current Share 10A DC/DC Power Module	4.5 - 20	0.6 - 6	10	Yes Up to 6 phase single output with current balancing and sharing	Yes	Yes	Yes	-40 to +85	Yes	93	23 Ld QFN (15 x 15 x 2.2)	✓

*Pin to pin compatible to the ISL8201M
** P_{VCC}: 4.5V to 14.4V

DIGITAL POWER MODULES

Device	Device Description	V_{IN} Range (V)	V_{OUT} Range (V)	I_{OUT} (A)	Current Share	Multi-phase	P_{GOOD}	Enable	Ambient Temp Range (°C)	Load Fault Protection	Peak Efficiency (%)	Package (mm)	Eval Kit
ZL9006M	Digital DC/DC PMBus 6A Power Module	4.5 - 13.2	0.6 - 3.6	6	Yes				-40 to +85		95	32 Ld HDA MODULE (17.2mm x 11.45mm x 2.5mm)	✓
ZL9010M	Digital DC/DC PMBus 10A Power Module	4.5 - 13.2	0.6 - 3.6	10	Yes				-40 to +85		95	32 Ld HDA MODULE (17.2mm x 11.45mm x 2.5mm)	✓
ZL9101M	Digital DC/DC PMBus 12A Module	4.5 - 13.2	0.54 - 3.6	12	Yes	Yes	Yes	Yes	-40 to +85	Yes	95	21 Ld QFN (15 x 15 x 3.5)	✓
ZL9117M**	Digital DC/DC PMBus 17A Module	4.5 - 13.2	0.54 - 3.6	17	Yes	Yes	Yes	Yes	-40 to +85	Yes	95	21 Ld QFN (15 x 15 x 3.5)	✓

**Pin to pin compatible to ZL9101M

BRIDGE DRIVERS

HALF-BRIDGE

Device	Device Description	Max Bootstrap Supply Voltage (V)	Max Bias Voltage (V)	Peak Pull-up Current (A)	Peak Pull-down Current (A)	Turn-On Prop Delay (ns)	Turn-Off Prop Delay (ns)	Rise Time (ns)	Fall Time (ns)	Package	Eval Kit
HIP2103	60V, 1A/2A Peak, Half Bridge Driver with 4V UVLO	60	14	1	2	28	30	21	17	8 Ld DFN	✓
HIP2104	60V, 1A/2A Peak, Half Bridge Driver with 4V UVLO and Two Internal LDO's 12V and 3.3V	60	14	1	2	23	27	21	17	12 Ld DFN	✓
HIP2120	100V, 1.25A Peak, High Frequency Half Bridge Driver with PWM and Enable Inputs (CMOS inputs)	114	14	2	2	50	32	10	10	9 Ld DFN, 10 Ld DFN	
HIP2121, HIP2123	100V, 2A Peak, High Frequency Half Bridge Driver with PWM and Enable Inputs (Logic/TTL inputs)	114	14	2	2	50	32	10	10	9 Ld DFN, 10 Ld DFN	
HIP2122	100V, 2A Peak, High Frequency Half Bridge Driver with Independent High and Low Inputs (CMOS inputs)	114	14	2	2	50	32	10	10	9 Ld DFN, 10 Ld DFN	

FULL-BRIDGE

Device	Device Description	Max Bootstrap Supply Voltage (V)	Max Bias Voltage (V)	Peak Pull-up Current (A)	Peak Pull-down Current (A)	Turn-On Prop Delay (ns)	Turn-Off Prop Delay (ns)	Rise Time (ns)	Fall Time (ns)	Package
HIP4080A	80V/2.5A Peak, High Frequency Full Bridge FET Driver with Charge Pump and Input Comparators	95	15	2.6	2.4	70	50	10	10	20 Ld PDIP, 20 Ld SOIC
HIP4081A	80V/2.5A Peak, High Frequency Full Bridge FET Driver with Charge Pump and Independent Control Inputs	95	15	2.6	2.4	60	35	10	10	20 Ld PDIP, 20 Ld SOIC
HIP4082	80V/1.25A Peak Current Full Bridge FET Driver	95	15	1.4	1.3	75	55	9	9	16 Ld PDIP, 16 Ld SOIC

3-PHASE

Device	Device Description	Max Bootstrap Supply Voltage (V)	Max Bias Voltage (V)	Peak Pull-up Current (A)	Peak Pull-down Current (A)	Turn-On Prop Delay (ns)	Turn-Off Prop Delay (ns)	Rise Time (ns)	Fall Time (ns)	Package
HIP4083	80V/0.3A Peak Three Phase High Side Driver	95	15	0.24 (avg)	0.3 (avg)	65	60	35	30	16 Ld PDIP, 16 Ld SOIC
HIP4086	80V/0.5A Peak Three Phase Driver with Integrated Charge Pump	95	15	0.5	1.1	65	75	20	10	24 Ld PDIP, 24 Ld SOIC
HIP4086A	80V/0.5A Peak Three Phase Driver	95	15	0.5	1.1	65	75	20	10	24 Ld SOIC

PROFILE

Intersil formed in August 1999 when we acquired the semiconductor business of Harris Corporation which held product portfolios and intellectual property from RCA and GE Solid State.

QUICK FACTS

Founded 1967
Headquarters..... Milpitas, CA
President, CEO..... Necip Sayiner
Employees.....1,100
NASDAQ Listing..... ISIL
FY 2013 Sales.....$575 million
Unexpired U.S. Patents.....1,000+
Number of Products .....3,000+

MAIN OFFICES

North America - West Coast
1001 Murphy Ranch Road
Milpitas, CA 95035
TEL:1-888-INTERSIL (468-3774)

North America - East Coast
1650 Robert J. Conlan Blvd
NE Palm Bay, FL 32905
TEL: 321-724-7000
FAX: 321-729-7320

Europe
Oskar-Messter-Str. 29
D-85737 Ismaning, Germany
TEL: +49-89-46263-0

Asia Pacific
Suite 701, Han Tang Building
Overseas Chinese Town
Shenzhen 518053, P.R. China
TEL: +86-755-8246-5118

Japan
6F, Mita Nitto Daibiru
3-11-36, Mita, Minato-ku
Tokyo, 108-0073, Japan
TEL: +81-3-5439-2311

PRODUCT GROUPS

Mobile Power
Computing PC
Consumer Handheld
Consumer Display

Industrial and Infrastructure
Wired and Wireless Infrastructure
Servers and Storage
Industrial

Precision Products
Automotive
RadHard and Aerospace
High Precision Analog

Specialty Products
Security and Surveillance
Motion and Light Sensing
Specialty Analog

RELIABLE AND PROVEN SUPPLY CHAIN

Proven proprietary processes and package technologies, shipping over 1 billion ICs per year

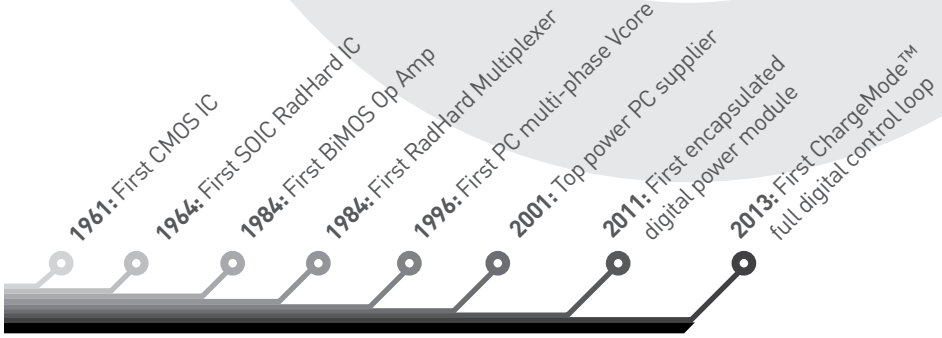
Multi-sourcing strategy using multiple, leading-edge semiconductor foundries and assembly/test partners assures dependable supply

Decades of experience handling military/space products with wafer-by-wafer assurance testing for both high-dose and low-dose radiation

Intersil holds the following certifications:

- ISO/TS16949:2009
- ISO14001:2004
- ISO9001:2008
- QML

A HERITAGE OF INNOVATION



WORLD-CLASS QUALITY AND FAILURE ANALYSIS SUPPORT

Quality
Company-wide zero defect mindset

Quality performance at less than 1.4 DPPM (defective parts per million) and improving

Built-in reliability philosophy with supplier partnerships with industry leaders

Top ratings from customers on quality

Worldwide dedicated quality support

Failure Analysis
Worldwide failure analysis support with over a combined 150 years of experience

Extensive in-house capability utilizing state-of-the-art imaging equipment and highly integrated electrical and physical fault isolation techniques and equipment

Design edit capability for quick design verification