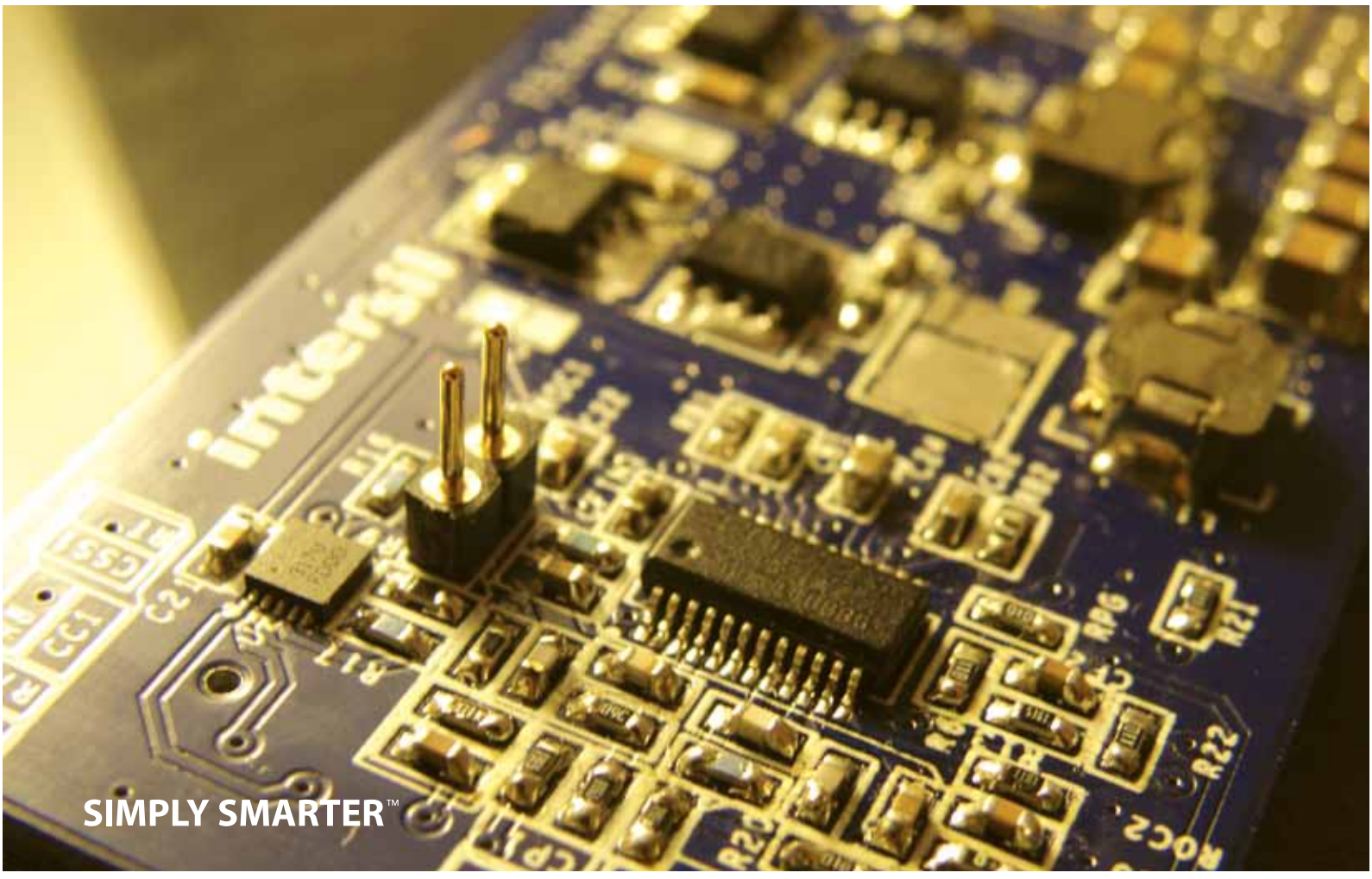
INTERSIL SELECTION GUIDE

INTERSIL POWER SOLUTIONS FOR XILINX® FPGAs

Integrated FET Switching Regulators
PWM Controllers
LDO / Linear Regulators
Zilker Labs Digital Power
Highly-Integrated Power Conversion Modules
Power Supply Support

intersil™



INTERSIL POWER SOLUTIONS FOR XILINX® FPGAs

COMPLETE POWER DELIVERY SOLUTIONS FROM INTERSIL

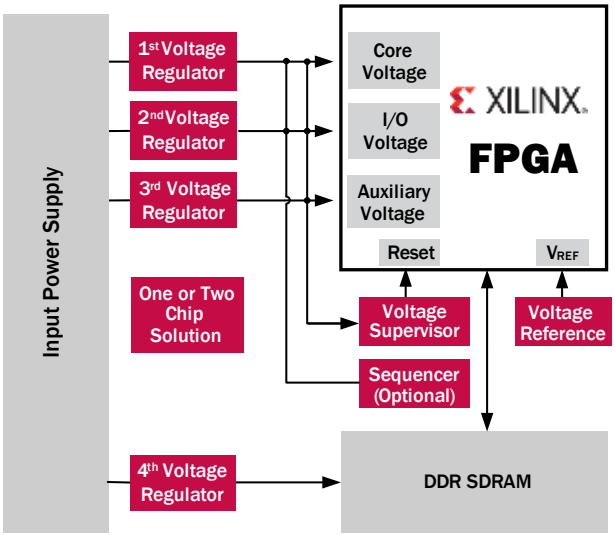
Intersil Power Solutions for Xilinx FPGAs

Intersil Corporation offers a complete portfolio of high performance power solutions for Xilinx FPGAs and other loads in your system. These products, which range from standard linear regulators to highly flexible PWM controller & driver options to plug-in fully integrated power modules, are tailored to meet every designer's challenges.

Intersil also makes designing with power products EASY by providing cutting edge support tools like iSim (an online simulation tool), thorough application notes, a broad selection of evaluation boards, comprehensive technical documentation, and the industry's BEST Field Application Engineers to support you every step of the way.

This brochure contains a snapshot of our broad portfolio of power conversion and power supply control products for use in Point of Load applications.

Intersil is the one-stop shop for all of your power requirements!



CONTENTS

INTERSIL POWER SOLUTIONS FOR XILINX® FPGAs

SELECTING A POWER SUPPLY IC FOR FPGA-BASED SYSTEMS

This application guide offers customers two ways to select the best Intersil Power Supply IC solution for FPGA-based systems.

► Selecting a Power Supply IC by the Number of Supplies Needed

One Supply

For Ease-of-Use/Integration

For up to 1 Amp

ISL8009A Adjustable Output, Sync Buck with Integrated FETs

ISL6410/A Sync Current-mode PWM regulators with Integrated FETs

For 1 Amp to 8 Amps

ISL8012/13A/14A Family of 2A to 4A Sync Buck regulators with Integrated FETs

EL7554 4A Step-Down Sync Regulator

EL7566 Sync Step-Down Regulator capable of up to 6A

For Most Flexibility (up to 20Amps)

ISL6526 High Frequency, Low Cost Sync Buck

For V_{IN} Up to +24V

ISL6420B Sync Buck with control and protection schemes

For Greater than 20 Amps

ISL8120 Two-phase Sync Buck PWM controller

Two Supplies

For Smallest Size

ISL8088, ISL8022, ISL8033A
Dual Sync Buck **For Highest Efficiency**

ISL6440 High-Performance, Dual-output PWM controller

For V_{IN} Up to +24V

ISL8510 High Frequency Dual Sync Buck

Three or Four Supplies

For Up to 20 Amps

ISL944x Synch Buck Controllers (3 PWMs + 1 LDO)

ISL6442 Triple Output (2 PWMs + 1 LDO)

► Selecting a Power Supply IC by the Xilinx Device Being Used and the Supply Voltages Available (See page 4)

Xilinx Devices	VIRTEX® SERIES	SPARTAN® SERIES	COOLRUNNER™ SERIES	XC9500 SERIES
V_{CCINT}	1/1.2/1.5/1.8V	1/1.2V	1.8/3.3V	2.5/3.3/5V
V_{CCO}/V_{CCIO}	1.2, 1.5, 1.8, 2.5, 3.3V	1.2, 1.5, 1.8, 2.5, 3.3V	1.5, 1.8, 2.5, 3.3, 5V	1.8, 2.5, 3.3, 5V
V_{CCAUX}	2.5/3.3V	2.5/3.3V	-	-

INTERSIL POWER SOLUTIONS FOR XILINX® FPGAs

SELECTING A POWER SUPPLY IC BY THE XILINX DEVICE AND THE SUPPLY VOLTAGES AVAILABLE

Overview

XILINX FPGAs POWER REQUIREMENT

The flexibility of FPGAs leads to the requirement for multiple supply voltages and currents.

Core Voltage / Power (V_{CCINT})

In large FPGAs, the logic core generally has the most demanding current requirements, up to tens of Amps depending on the number of gates being used and the clock frequency.

I/O Voltage / Power (V_{CCO})

Designated V_{CCO} and equal to 1.5V, 1.8V, 2.5V or 3.3V depending on the I/O standard selected. I/O standards can be set independently by block in the FPGA, so more than one I/O voltage for a single FPGA is possible.

VAUX Voltage / Power (V_{CCAUX})

The "auxiliary" supply is important for the latest generation of Xilinx FPGAs because it is tied into the I/O level setting and DCM circuitry. It is designated V_{CCAUX} , and is usually 3.3V or 2.5V.

Xilinx FPGAs Power Requirement

VIRTEX	VIRTEX5	VIRTEX4	VIRTEX II Pro and VIRTEX II Pro X	VIRTEX II	VIRTEX-E/ EM	VIRTEX6 (LXT, SXT, and HXT)
	VIRTEX SERIES					
Vccint	1V	1.2V	1.5V	1.5V	1.8V	1V
Vcco	1.2, 1.5, 1.8, 2.5, 3.3V	1.2, 1.5, 1.8, 2.5, 3.3V	1.2, 1.5, 1.8, 2.5, 3.3V	1.2, 1.5, 1.8, 2.5, 3.3V	1.2, 1.5, 1.8, 2.5, 3.3V	1.2, 1.5, 1.8, 2.5V
Vccaux	2.5V	2.5V	2.5V	3.3V	N/A	2.5V

SPARTAN	Spartan-3A DSP	Spartan-3AN FPGA	Spartan-3A	Spartan-3E	Spartan 3	Spatan-6 (LX and LXT)
	SPARTAN SERIES					
Vccint	1.2V	1.2V	1.2V	1.2V	1.2V	1.2V/1V
Vcco	1.2, 1.5, 1.8, 2.5, 3.3V	1.2, 1.5, 1.8, 2.5, 3.3V	1.2, 1.5, 1.8, 2.5, 3.3V	1.2, 1.5, 1.8, 2.5, 3.3V	1.2, 1.5, 1.8, 2.5, 3.3V	1.2, 1.5, 1.8, 2.5, 3.3V
Vccaux	2.5/3.3V	3.3V	2.5/3.3V	2.5V	2.5V	2.5/3.3V

CoolRunner	CoolRunner	CoolRunner II	CoolRunner XPLA3
	COOLRUNNER SERIES		
Vccint	1.8V	1.8V	3.3V
Vccio	1.5, 1.8, 2.5, 3.3V	1.5, 1.8, 2.5, 3.3V	0-3.3V

XC9500XL	XC9500XL	XC9500XV	XC9500
	XC9500 SERIES		
Vccint	3.3V	2.5V	5V
Vccio	2.5, 3.3, 5V	1.8, 2.5, 3.3V	3.3, 5V

INTERSIL POWER SOLUTIONS

V_{CCINT} or V_{CCIO} or V_{CCAUX}	I_{CCINT} or I_{CCIO} or I_{CCAUX}	V_{IN} = 3.3V	V_{IN} = 5V	V_{IN} = 12V	V_{IN} = 24V
1V	≤ 600mA	ISL9104A, ISL8088, ISL8010	ISL9104A, ISL8088, ISL6455A, ISL8010	ISL8502	ISL6420B, ISL8501, ISL8510
	1A	ISL65426, ISL8011, ISL8009A	ISL65426, ISL8011, ISL8009A	ISL6420B, ISL8502	ISL6420B, ISL8501, ISL8510
	2A	ISL8022, ISL8012	ISL8022, ISL8012	ISL6420B, ISL8502	ISL6420B, ISL8500
	3A	ISL8022, ISL8013A	ZL2105, ISL8022, ISL8013A	ZL2105, ISL6420B	ISL6420B
	4A-6A	ISL8204M/6M, ISL78214, ISL8014A, EL7554, EL7566	ISL8204M/6M, ZL2106, ISL78214, ISL8014A, EL7554	ISL8204M/6M, ZL2106, ISL6420B	ISL6420B
	≥ 10A	ISL8200M, ISL8201M, ZL6100, ZL2006/8, ISL8120, ISL6520, ISL6406, ISL8104, ISL8105A	ISL8200M, ISL8201M, ZL6100, ZL2004/6/8, ISL8120, ISL8101/2, ISL6521, ISL6520, ISL6406, ISL6439, ISL6527/A, ISL8104, ISL8105A	ISL8200M, ISL8201M, ZL6100, ZL2004/6/8, ISL8120, ISL8101/2, ISL6420B, ISL8104, ISL8105A	ISL6420B
1.2V	≤ 600mA	ISL9104A, ISL8088, ISL6410, ISL8010	ISL9104A, ISL8088, ISL6445A, ISL6410A, ISL8010	ISL8502	ISL6420B, ISL8501, ISL8510
	1A	ISL65426, ISL8011, ISL8009A	ISL65426, ISL8011, ISL8009A	ISL6420B, ISL8502	ISL6420B, ISL8501, ISL8510
	2A	ISL8022, ISL8012	ISL8022, ISL8012	ISL6420B, ISL8502	ISL6420B, ISL8500, ISL8540
	3A	ISL8033A, ISL8013A	ZL2105, ISL8033A, ISL8013A	ZL2105, ISL6420B	ISL6420B
	4A-6A	ISL8204M/6M, ISL78214, ISL8014A, EL7554, EL7566	ISL8204M/6M, ZL2106, ISL78214, ISL8014A, EL7554	ISL8204M/6M, ZL2106, ISL6420B	ISL6420B
	≥ 10A	ISL8200M, ISL8201M, ZL6100, ZL2006/8, ISL8120, ISL6520, ISL6525, ISL6406, ISL8104, ISL8105A	ISL8200M, ISL8201M, ZL6100, ZL2004/6/8, ISL8120, ISL8101/2, ISL6521, ISL6406, ISL6439, ISL6527/A, ISL8104, ISL8105A	ISL8200M, ISL8201M, ZL6100, ZL2004/6/8, ISL8120, ISL8101/2, ISL6525, ISL8107, ISL6420B, ISL8104, ISL8105A	ISL8107, ISL6420B
1.5V	≤ 600mA	ISL9104A, ISL8088, ISL6410, ISL8010	ISL9104A, ISL8088, ISL6445A, ISL6410A, ISL8010	ISL8502	ISL6420B, ISL8501, ISL8510
	1A	ISL65426, ISL8011, ISL8009A	ISL65426, ISL8011, ISL8009A	ISL6420B, ISL8502	ISL6420B, ISL8501, ISL8510
	2A	ISL8022, ISL8012	ISL8022, ISL8012	ISL6420B, ISL8502	ISL6420B, ISL8500, ISL8540
	3A	ISL8033A, ISL8013A	ZL2105, ISL8033A, ISL8013A	ZL2105, ISL6420B	ISL6420B
	4A-6A	ISL8204M/6M, ISL78214, ISL8014A, EL7554, EL7566	ISL8204M/6M, ZL2106, ISL78214, ISL8014A, EL7554	ISL8204M/6M, ZL2106, ISL6420B	ISL6420B
	≥ 10A	ISL8200M, ISL8201M, ZL6100, ZL2006/8, ISL8120, ISL6520, ISL6525, ISL6406, ISL8104, ISL8105A	ISL8200M, ISL8201M, ZL6100, ZL2004/6/8, ISL8120, ISL8101/2, ISL6521, ISL6406, ISL6439, ISL6527/A, ISL8104, ISL8105A	ISL8200M, ISL8201M, ZL6100, ZL2004/6/8, ISL8120, ISL8101/2, ISL6525, ISL8107, ISL6420B, ISL8104, ISL8105A	ISL8107, ISL6420B
1.8V	≤ 600mA	ISL9104A, ISL8088, ISL6410, ISL8010	ISL9104A, ISL8088, ISL6445A, ISL6410A, ISL8010	ISL8502	ISL6420B, ISL8501, ISL8510
	1A	ISL65426, ISL8011, ISL8009A	ISL65426, ISL8011, ISL8009A	ISL6420B, ISL8502	ISL6420B, ISL8501, ISL8510
	2A	ISL8022, ISL8012	ISL8022, ISL8012	ISL6420B, ISL8502	ISL6420B, ISL8500, ISL8540
	3A	ISL8033A, ISL8013A	ZL2105, ISL8033A, ISL8013A	ZL2105, ISL6420B	ISL6420B
	4A-6A	ISL8204M/6M, ISL78214, ISL8014A, EL7554, EL7566	ISL8204M/6M, ZL2106, ISL78214, ISL8014A, EL7554	ISL8204M/6M, ZL2106, ISL6420B	ISL6420B
	≥ 10A	ISL8200M, ISL8201M, ZL6100, ZL2006/8, ISL8120, ISL6520, ISL6525, ISL6406, ISL8104, ISL8105A	ISL8200M, ISL8201M, ZL6100, ZL2004/6/8, ISL8120, ISL8101/2, ISL6521, ISL6406, ISL6439, ISL6527/A, ISL8104, ISL8105A	ISL8200M, ISL8201M, ZL6100, ZL2004/6/8, ISL8120, ISL8101/2, ISL6525, ISL8107, ISL6420B, ISL8104, ISL8105A	ISL8107, ISL6420B
2.5V	≤ 600mA	ISL9104A, ISL8088, ISL6410, ISL8010	ISL9104A, ISL8088, ISL6445A, ISL6410A, ISL8010	ISL8502	ISL6420B, ISL8501, ISL8510
	1A	ISL65426, ISL8011, ISL8009A	ISL65426, ISL8011, ISL8009A	ISL6420B, ISL8502	ISL6420B, ISL8501, ISL8510
	2A	ISL8022, ISL8012	ISL8022, ISL8012	ISL6420B, ISL8502	ISL6420B, ISL8500, ISL8540
	3A	ISL8033A, ISL8013A	ZL2105, ISL8033A, ISL8013A	ZL2105, ISL6420B	ISL6420B
	4A-6A	ISL8204M/6M, ISL78214, ISL8014A, EL7554, EL7566	ISL8204M/6M, ZL2106, ISL78214, ISL8014A, EL7554	ISL8204M/6M, ZL2106, ISL6420B	ISL6420B
	≥ 10A	ISL8200M, ISL8201M, ZL6100, ZL2006/8, ISL8120, ISL6520, ISL6525, ISL6406, ISL8104, ISL8105A	ISL8200M, ISL8201M, ZL6100, ZL2004/6/8, ISL8120, ISL6521, ISL6406, ISL6439, ISL6527/A, ISL8104, ISL8105A	ISL8200M, ISL8201M, ZL6100, ZL2004/6/8, ISL8120, ISL6525, ISL8107ISL6420B, ISL8104, ISL8105A	ISL8107, ISL6420B
3.3V	≤ 600mA	ISL9104A, ISL8088, ISL6410, ISL8010	ISL9104A, ISL8088, ISL6445A, ISL6410A, ISL8010	ISL8502	ISL6420B, ISL8501, ISL8510
	1A	ISL65426, ISL8011, ISL8009A	ISL65426, ISL8011, ISL8009A	ISL6420B, ISL8502	ISL6420B, ISL8501, ISL8510
	2A	ISL8022, ISL8012	ISL8022, ISL8012	ISL6420B, ISL8502	ISL6420B, ISL8500, ISL8540
	3A	ISL8033A, ISL8013A	ZL2105, ISL8033A, ISL8013A	ZL2105, ISL6420B	ISL6420B
	4A-6A	ISL8204M/6M, ISL78214, ISL8014A, EL7554, EL7566	ISL8204M/6M, ZL2106, ISL78214, ISL8014A, EL7554	ISL8204M/6M, ZL2106, ISL6420B	ISL6420B
	≥ 10A	ZL6100, ZL2006/8, ISL8120, ISL6520, ISL6525, ISL6406, ISL8104, ISL8105A	ZL6100, ZL2004/6/8, ISL8120, ISL6521, ISL6406, ISL6439, ISL6527/A, ISL8104, ISL8105A	ZL6100, ZL2004/6/8, ISL8120, ISL6525, ISL8107, ISL6420B, ISL8104, ISL8105A	ISL8107, ISL6420B
5V	≤ 600mA	-	ISL9104A, ISL8088, ISL8010	ISL8502	ISL8500
	1A	-	ISL65426, ISL8501	ISL8501	ISL8501
	2A	-	ISL8022, ISL8012, ISL8500	ISL8500, ISL8502	ISL8500
	3A	-	ZL2105, ISL8033A, ISL85033, ISL8013A	ZL2105, ISL85033	ISL85033
	4A-6A	-	ISL8204M/6M, ZL2106, ISL78214, ISL8014A, EL7554, ISL6441, EL7566	ISL8204M/6M, ZL2106, ISL6441	ISL6441
	≥ 10A	-	ISL8200M, ISL8201M, ZL6100, ZL2006/8, ISL8120, ISL6521, ISL6443A, ISL6227, ISL6520, ISL6525, ISL6440, ISL6445, ISL944x, ISL8105/A/B	ISL8200M, ISL8201M, ZL6100, ZL2006/8, ISL8120, ISL6443A, ISL6227, ISL6525, ISL8107, ISL944x, ISL6440, ISL8103, ISL8121	ISL6443A, ISL6227, ISL8107, ISL6440, ISL6442, ISL6420B, ISL944x, ISL8106

INTERSIL POWER SOLUTIONS FOR XILINX® FPGAs
INTEGRATED FET SWITCHING REGULATORS

Single Output

ISL8012
ISL8013A
ISL8014A

INTEGRATED FET SWITCHING REGULATORS

Intersil's Integrated FET Switching Regulator products integrate PWM control, drivers, and MOSFETs along with protection features to form complete plug-and-play power solutions, making them ideal for small form-factor applications.

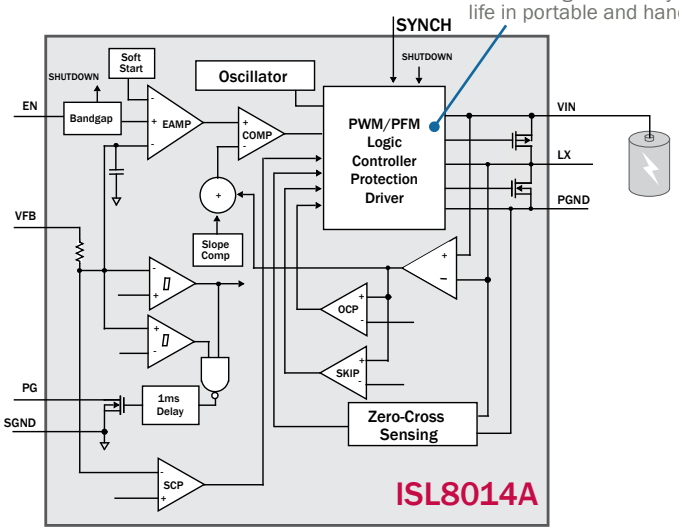
SMALL PACKAGE

16 Ld QFN saves 59% board space compared to TSSOP

20 Ld TSSOP (6.4x6.6mm) | 16 Ld QFN (4x4mm)

UP TO 97% EFFICIENCY

Flexible PFM/PWM Mode of Operation
Enables high efficiency and extends battery life in portable and handheld applications.



Dual Output

ISL85033

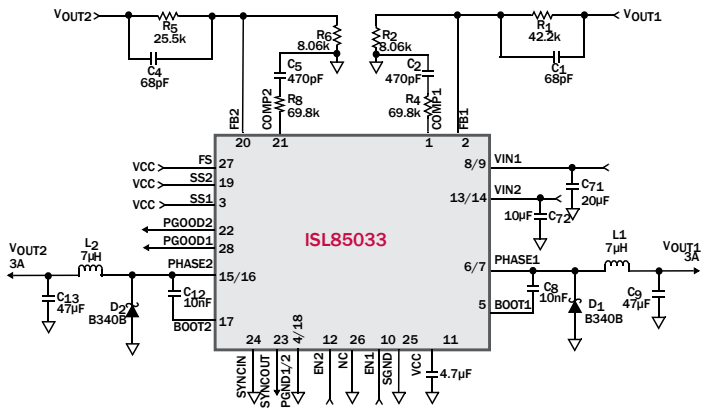
STEP-DOWN DC/DC SYNCHRONOUS AND NON-SYNCHRONOUS DUAL OUTPUT SWITCHING REGULATORS

Family of Dual Output Switching Regulators ideal for a variety of low-voltage (5V) and high voltage (up to 28V), space constrained and high efficiency general purpose applications.

KEY FEATURES AND BENEFITS

Wide input voltage range of 4.5V to 28V supports a wide range of applications

- Current-share both channels to source up to 6A for higher load requirements
- Independent "PowerGood" and "Enable" signals provides complete start-up control
- Options between internal and externally adjustable soft-start provides smooth monotonic start-up operation
- Selectable in-phase or 180° out-of-phase operation provides a trade-off between reducing input filter requirements and lowest noise operation
- Independent, sequential, ratiometric or absolute tracking between outputs
- SYNC-IN and SYNC-OUT signals enable synchronizing multiple ICs without needing a system clock
- Integrated bootstrap diodes reduces over-all solution size and cost



Dual 3A Output (V_{IN} Range From 4.5V to 28V)

INTERSIL POWER SOLUTIONS FOR XILINX® FPGAs
PWM CONTROLLERS

Single Output
ISL6420B

ADVANCED SINGLE SYNCHRONOUS BUCK PWM CONTROLLER

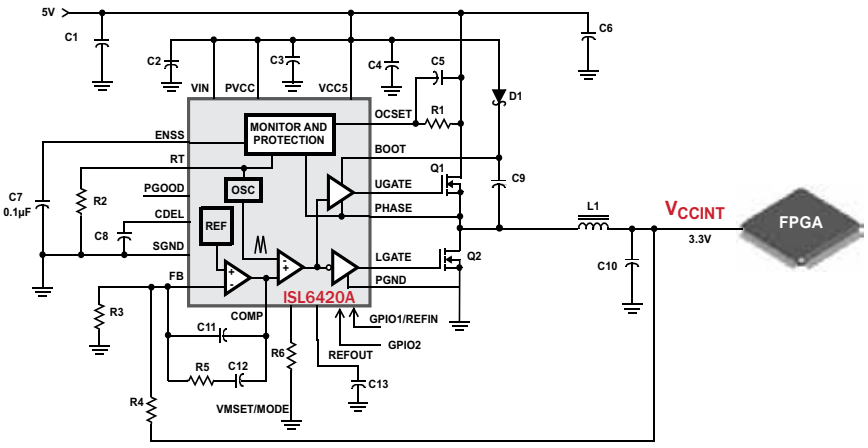
The ISL6420B is an excellent solution for all the FPGA family's power requirements. It has a wide input voltage range from 4.5V to 28V and a programmable output current capability up to 20A.

The core or the I/O voltages are supplied by a synchronous buck switcher with fast transient response which makes the solution very efficient. The output voltages of the ISL6420B are fully adjustable from 0.6V to 28V, with a maximum tolerance of ±1.0% over temperature and line voltage variations.

The switching frequency is resistor selectable from 100kHz to 1.4MHz which offers cost and space savings. The ISL6420B integrates control, output adjustment, monitoring and protection functions into a single package. The ISL6420B is available in QFN and QSOP packages.

KEY FEATURES

- Output can sink or source current
- Lossless, programmable over-current protection using upper MOSFET's $r_{DS(on)}$
- Simple single-loop control design
- Fast transient response
- Full 0% to 100% duty cycle

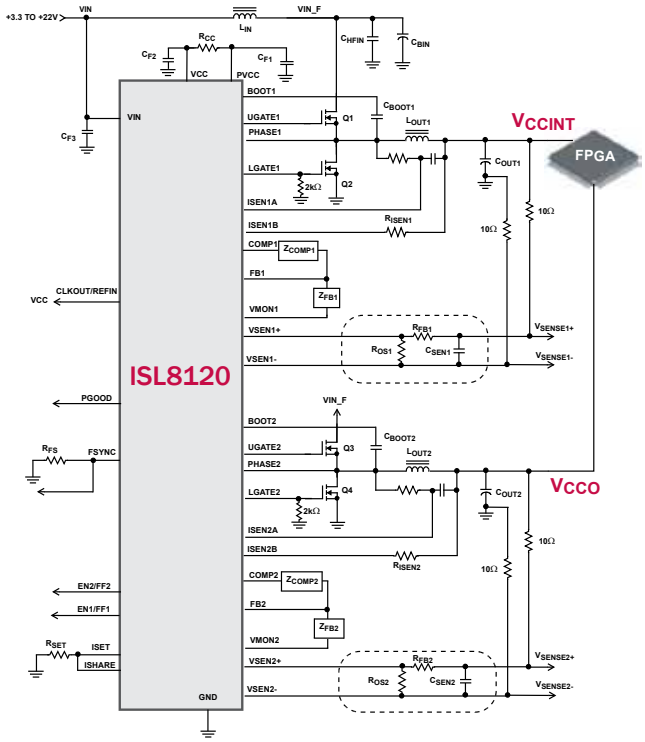


Multiple Output
ISL8120

>20A SOLUTIONS: MULTI-PHASE BUCK PWM CONTROLLER

As the number of components on a board increases, high current power supplies are required for well regulated voltages. Implementation of multiphase PWM controllers, not only supplies higher current, but also optimizes for area and cost using fewer and low cost transistors. These reductions are possible due to the phase interleaving process of this topology.

The ISL8120 is a two-phase PWM control IC with Integrated MOSFET drivers. It has multi-feature functions those provide complete control and protection for dual independent regulators that can be a source for core as well as I/O voltages of FPGA. It has the system voltage regulation accuracy up to ±0.6% over temperature. It integrates an optional Load Line (Droop) programming, using the loss-less inductor DCR current sampling. Precision channel current sharing is implemented using loss-less $R_{DS(ON)}$ current sampling, which makes it a highly efficient solution.



Coming Soon: ISL8126

Higher performance version of the ISL8120 with 26.5V maximum input voltage.

Contact your local sales office for more details.

Multiple Output

ISL9440
ISL9440A
ISL9440B
ISL9440C
ISL9441

TRIPLE SYNCHRONOUS BUCK PWM CONTROLLER FOR V_{CCA} WITH SINGLE LINEAR CONTROLLER FOR V_{CCI}

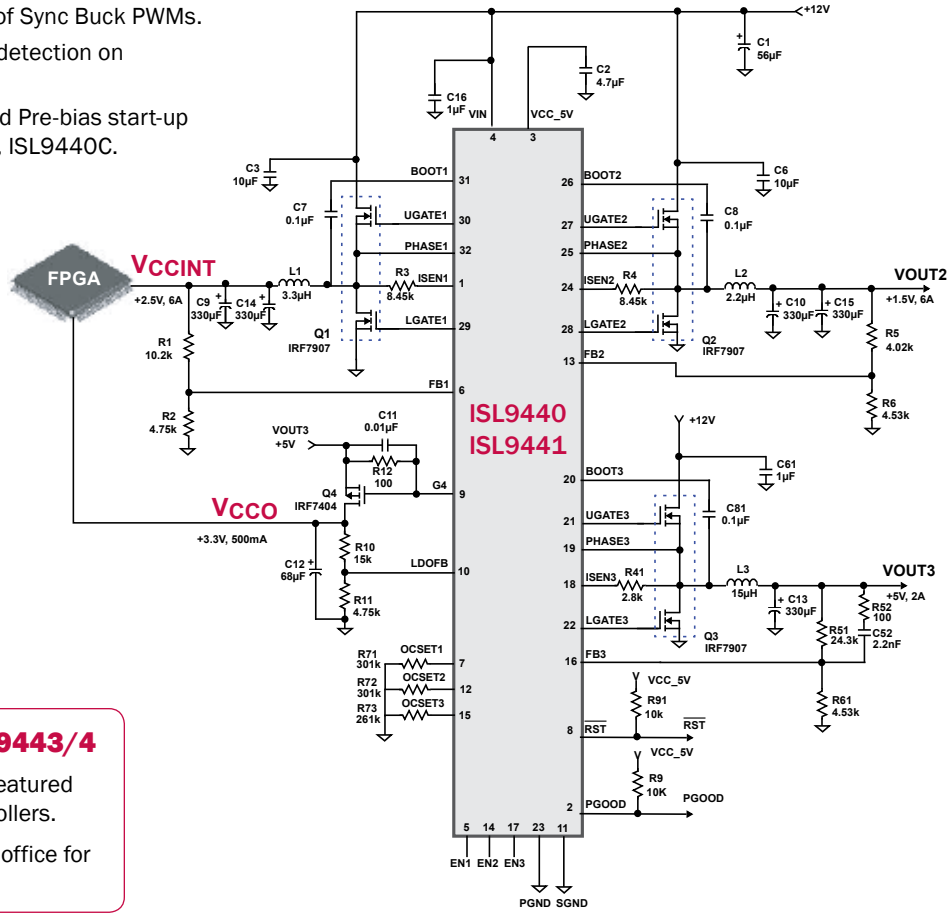
Combination products that incorporate multiple switchers and/or linears in a single package are an excellent choice for many FPGA-based designs. The ISL944x family of triple PWM/single linear controllers adds to the flexibility and versatility of the popular ISL644x family of dual PWM/single linear controllers. It can create a highly efficient quad-output solution by using out-of-phase synchronous buck switchers to drive external FETs for current loads up to 20A and has an internal 5V linear regulator that can source up to 6A using an external transistor.

The three PWMs are synchronized at 0°/180°/0° to reduce the RMS input current and ripple voltage. Switching frequency of 300kHz (ISL9440/B, ISL9441) or 600kHz (ISL9440A/C) allow the designer to make trade-offs between efficiency and external component size and cost.

The ISL944x family incorporates several protection features such as OCP, OVP, OTP and UVLO, and offers cycle by cycle current limiting. It utilizes current mode control with internal compensation, keeping total BOM costs low. Independent digital enables for each PWM not only allow sequencing without additional circuitry, but are also “green” functions, allowing supplies to shut down when not needed, conserving energy. The output voltages are independently programmable using a simple resistor divider.

KEY FEATURES

- Wide input voltage range (4.5V to 24V).
- Independent digital enable controls for each controller.
- Out of phase switching of Sync Buck PWMs.
- “Early Warning” low V_{IN} detection on ISL9440, ISL9440A.
- Adjustable Soft-start and Pre-bias start-up capability on ISL9440B, ISL9440C.



Triple, 180° Out-of-Phase, Step-Down PWM and Single Linear Controller

Coming Soon: ISL9443/4

High performance and featured triple output PWM controllers.

Contact your local sales office for more details.

High Current LDOs

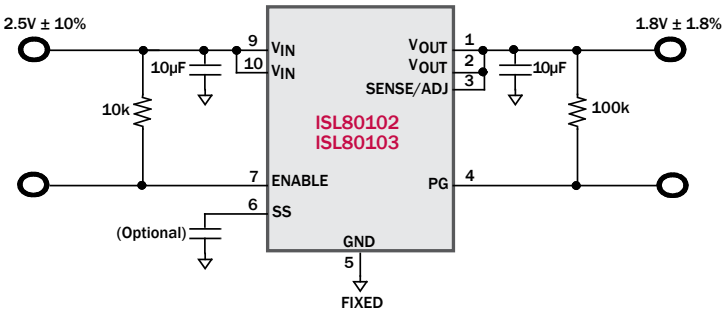
ISL80101
ISL80101A
ISL80102
ISL80103

ISL80101, ISL80102, ISL80103 HIGH CURRENT LDOs

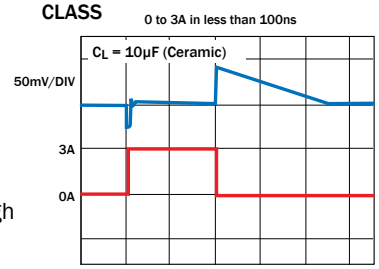
The ISL80101 1A LDO offers the industry's fastest load transient response resulting in the best AC accuracy and high signal integrity. The ISL80101 also offers the industry's highest initial and total DC accuracy of ±0.5% and ±1.8% respectively and good noise performance in applications where signal immunity is important.

KEY FEATURES

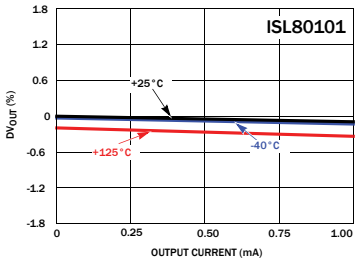
- 1A, 2A and 3A max output currents
- 2.2V to 6.0V input voltage range
- Ultra fast transient response
- ±0.5% initial DC output accuracy and ±1.8% guaranteed DC output accuracy
- Low dropout as low as 81mV at 2A
- 0.4µA typical shutdown current
- 3mm x 3mm small DFN package provides high power density
- Fixed and adjustable output voltage options
- Adjustable current limit on ISL80101A, ISL80121



ULTRA FAST TRANSIENT RESPONSE
1A, 2A AND 3A LDOs PROVIDE BEST IN CLASS



±0.5% V_{OUT} INITIAL DC OUTPUT ACCURACY



High Current LDO/Linear Regulator

High Current

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 TO263/220
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
ISL80131 (Coming soon)	Very Low Dropout 1A LDO	2.2 to 6	N/A	0.8 to 5	ADJ	±1.8	1	7.5	N/A	43 @ 1A	10 Ld DFN
ISL80111 (Coming soon)	Split Supply 1A LDO	1 to 3.6	2.9 to 5.5	0.6 to 2.5	Y	±1.5	1	2	5.5	70 @ 1A	10 Ld DFN, 5 Ld TO263/220
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 TO263/220
ISL80112 (Coming soon)	Split Supply 2A LDO	1 to 3.6	2.9 to 5.5	0.6 to 2.5	Y	±1.5	2	2	5.5	140 @ 2A	10 Ld DFN, 5 Ld TO263/220
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 TO263/220
ISL80113 (Coming soon)	Split Supply 3A LDO	1 to 3.6	2.9 to 5.5	0.6 to 2.5	Y	±1.5	3	2	5.5	280 @ 3A	10 Ld DFN, 5 Ld TO263/220

* See respective datasheets for available fixed output voltage options.

Building an Intelligent Power System

HIGH PERFORMANCE DIGITAL DC/DC POWER

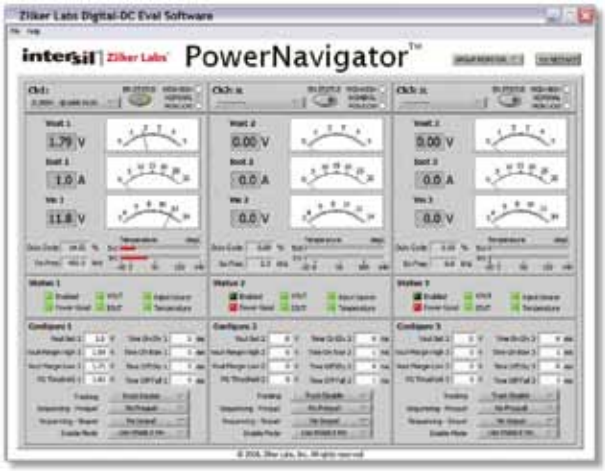
Zilker Labs products combine a world-class digital power conversion architecture with power management logic in a single IC. They require minimal external circuitry, reducing board space requirements and simplifying the design process. The patented Zilker Labs technology from Intersil builds intelligence into the silicon, allowing the devices to be easily configured through simple pin-strap options or by using PMBus commands with no programming required. The Digital-DC product family addresses a wide range of operating conditions allowing system designers to complete designs using parts from a single supplier.

SYSTEM BENEFITS

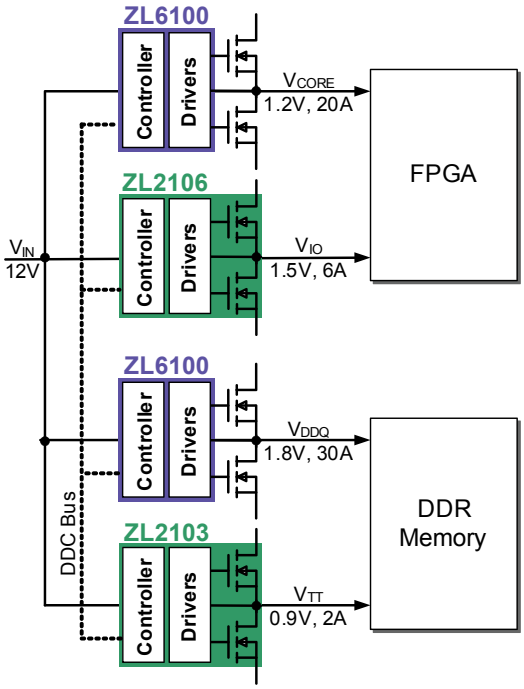
- Easy-to-design digital solution
- Flexible solution can be used in a wide variety of applications
- Seamlessly combine devices to address a full range of system requirements
- High efficiency and fast transient response
- Adaptive performance optimization to increase efficiency
- Integrated power and fault management without additional components
- Easily configured by simple pin-straps, resistor connections or via I^2C/SMBus interface
- Smaller footprint, fewer components

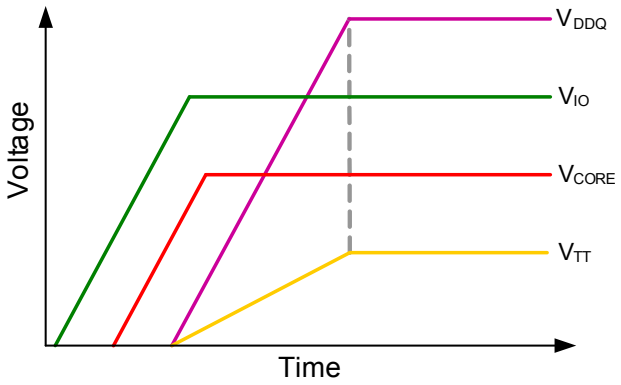
Evaluation Software (PowerNavigator™)

Allows simple configuration and monitoring of multiple Digital-DC devices using a PC with a USB interface.



Power Management Benefits





- Voltage tracking (50% / 100%)
- Autonomous output sequencing
- Adjustable voltage margining (5% / 10%)
- Voltage, current, temperature monitoring
- Configurable fault management
- Snapshot parametric data capture
- Interoperability with DDC bus
- I^2C/SMBus interface, PMBus compatible

INTERSIL POWER SOLUTIONS FOR XILINX® FPGAs

HIGHLY-INTEGRATED POWER CONVERSION MODULES

Power Module
ISL8201M

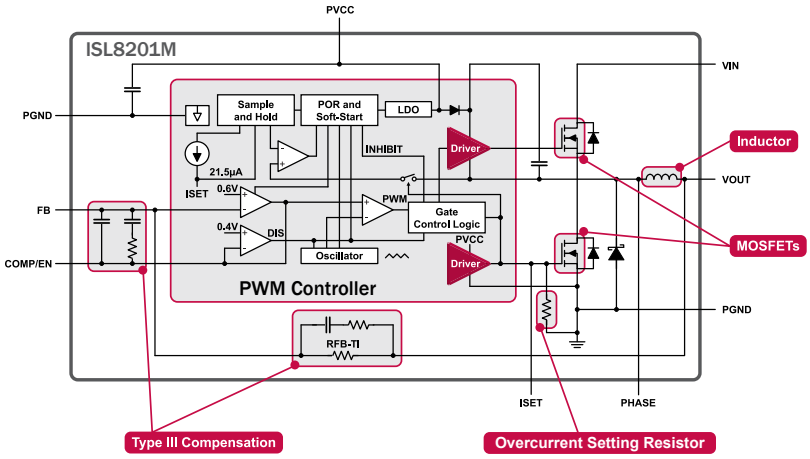
ISL8201M POWER MODULE

Intersil offers highly integrated POL DC/DC Power Module in an innovative QFN style package.

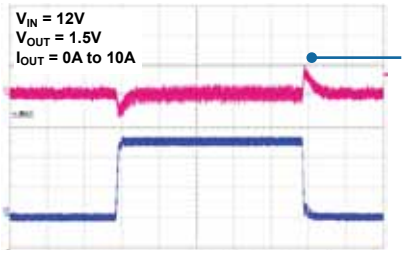
This Power Module provides a highly integrated power management solution by integrating most of the components required to build a DC/DC power supply.

KEY FEATURES (ISL8201M)

- Only three main external components required
- Up to 95% peak efficiency
- 10A of DC output current
- Wide input voltage range 1.0V to 20V
- Adjustable +0.6V to +5V output range
- Fixed 600kHz switching frequency
- Operating temperature range -40°C to +85°C ambient
- Small footprint, low profile surface mount QFN package



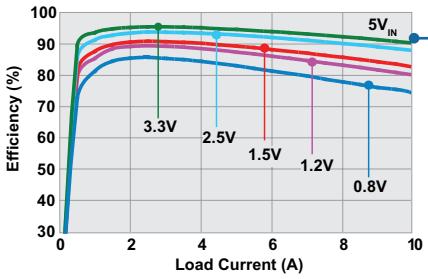
FAST TRANSIENT RESPONSE



1.5V Transient Response

71mV Peak
Electrical performance and tight output voltage range to meet your load requirements.

HIGH EFFICIENCY



Efficiency vs Load Current ($5V_{IN}$)

95% Peak Efficiency
Delivers 10A output current with up to 95% efficiency; no need for heat sinks or airflow to meet power specs.

Intersil Power Module Family

Part Number	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)	1K Units MSRP ($)
ISL8200M	3 - 20	0.6 - 6	10	Y	Y	Y	Y	-40 to +85	Y	93	23 Ld QFN (15 x 15 x 2.2)	15.86
				Up to 6 phase single output with current balancing and sharing								
ISL8201M	1 - 20	0.6 - 5	10	N	N	N	Y	-40 to +85	Y	95	15 Ld QFN (15 x 15 x 3.5)	13.19
ISL8204M*	1 - 20	0.6 - 6	4	N	N	N	Y	-40 to +85	Y	95	15 Ld QFN (15 x 15 x 3.5)	8.12
ISL8206M*	1 - 20	0.6 - 6	6	N	N	N	Y	-40 to +85	Y	95	15 Ld QFN (15 x 15 x 3.5)	11.34

* Lower output current pin-for-pin compatible to the ISL8201MIRZ.

Voltage Monitor
ISL88042

ISL88042 QUADRUPLE VOLTAGE MONITOR

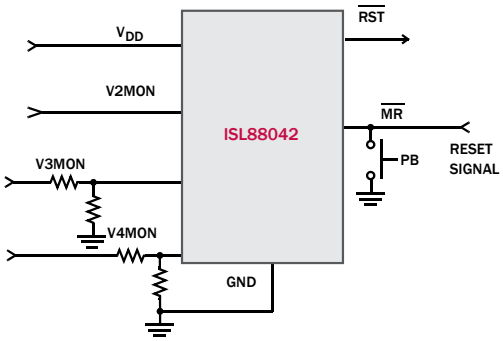
Intersil's supervisor ICs helps to ensure the reliability of a system by providing such useful functions as Voltage Monitoring, Power On Reset, Watchdog Timer, Power Fail Warning, and Manual Reset.

KEY FEATURES

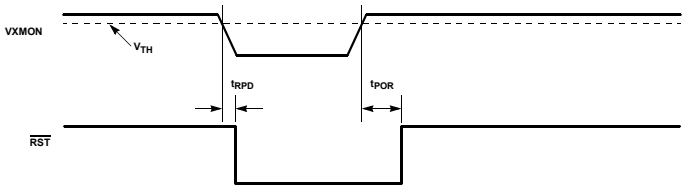
- Quadruple voltage monitoring
- Fixed-voltage options allow precise monitoring of +5.0V and +3.3V power supplies
- Two adjustable voltage inputs monitor voltages > 0.6V
- Manual reset capability
- ~200ms power-on reset timeout

DIFFERENTIATORS

- Integrated multi-voltage monitor for reduced BOM & smaller board space requirements
- Factory-fixed voltage thresholds available on V_{DD} and V2MON pins



Typical Application Diagram



Voltage Monitoring Diagram

Power Sequencers
ISL6123
ISL6124
ISL6125
ISL6126
ISL6127
ISL6128
ISL8723
ISL8724

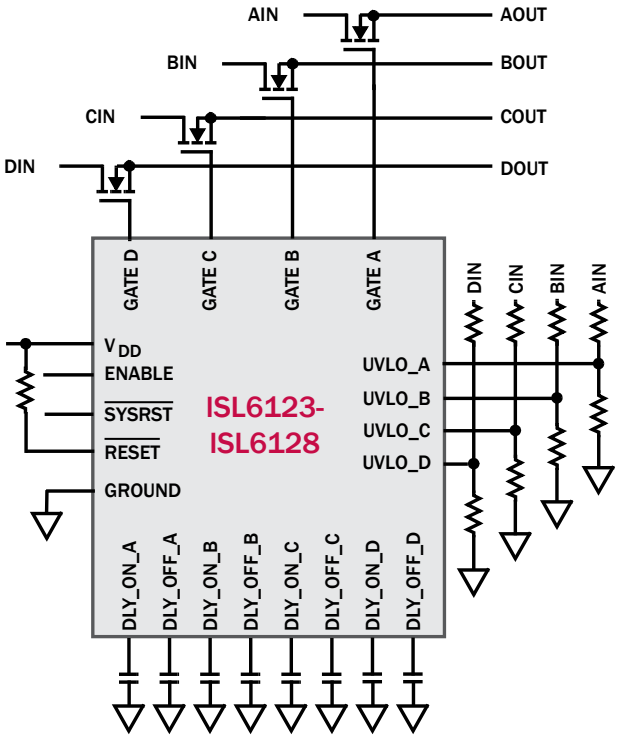
ISL6123-ISL6128 POWER SEQUENCERS

Intersil single-chip sequencing solutions sequence up to four different voltages while providing other useful features such as voltage monitoring, fault protection, and reset assertion. High performance FPGAs and various subsystems can utilize such power sequencing for proper functionality at initial power-up as well as for power-down.

KEY FEATURES

- User-programmable under-voltage thresholds and delays
  - Users can easily program threshold voltages via resistors and change the turn-on and turn-off sequence using external capacitors
- Available options with FET gate drive or open drain outputs for driving logic inputs
  - Gives flexibility to choose the appropriate output options based on specific application needs
- Options for integrated supply monitoring and reset capability
  - Helps save cost by eliminating the need for additional discrete voltage monitors

ISL6123-ISL6128 TYPICAL APPLICATION



INTEGRATED FET SWITCHING REGULATORS

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 IQ High Efficiency Synchronous Buck Converter	2.7	6	0.8	V_{IN}	0.5	32	4.3	93	N	6 Ld µTDFN T+R	1.6
ISL8009A	1.5A Low Quiescent Current 1.6MHz High Efficiency Synchronous Buck Regulator	2.7	5.5	0.8	V_{IN}	1.5	17	1.6	95	Y	8 Ld DFN T+R	1.52
ISL8012 (See page 6)	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 (See page 6)	3A Low Quiescent Current 1MHz High Efficiency Synchronous Buck Regulator	2.8	5.5	0.8	V_{IN}	3	35	1	97	N	16 Ld QFN	2.71
ISL8014A (See page 6)	4A Low Quiescent Current 1MHz High Efficiency Synchronous Buck Regulator	2.8	5.5	0.8	V_{IN}	4	35	1	97	N	16 Ld QFN	3.71
ISL6410	0.6 Amp PWM Regulator with Selectable V_{OUT} of 1.8, 1.5, or 1.2V, fsw 750kHz, Adj POR delay in QFN pkg.	3	3.6	1.2, 1.5, 1.8	1.2, 1.5, 1.8	0.6	2300	.75	93	Y	10 Ld MSOP, 16 Ld QFN	1.01
ISL6410A	0.6 Amp PWM Regulator with Selectable V_{OUT} of 3.3, 1.8, or 1.2V, fsw 750kHz, Adj POR delay in QFN pkg	4.5	5.5	1.2, 1.8, 3.3	1.2, 1.8, 3.3	0.6	2300	.75	93	Y	10 Ld MSOP, 16 Ld QFN	1.01
ISL8010	600mA, PFM/PWM Mode Synchronous Buck Regulator with Low Quiescent Current	2.5	5.5	0.8	V_{IN}	0.6	120	1.5	95	N	10 Ld MSOP	4.00
ISL8011	1.2 Amp PWM Regulator, fsw 1.4MHz	2.5	5.5	0.8	V_{IN}	1.2	5000	1.6	96	Y	10 Ld DFN	1.41
EL7554	4 Amp PWM Regulator with ±5% Voltage Margining and Sequencing	3	6	0.8	V_{IN}	4	1000	0.2 to 1	95	Y	28 Ld HTSSOP	2.85
EL7566	6 Amp PWM Regulator with ±5% Voltage Margining and Sequencing	3	6	0.8	V_{IN}	6	1000	0.2 to 1	95	Y	28 Ld HTSSOP	3.62
ISL8502	2 Amp PWM Regulator with Integrated MOSFETs	4.5	14	0.6	V_{IN}	2	*	0.5 to 1.2	95	Y	24 Ld QFN	2.21
ISL8500	2 Amp, PWM Standard Buck Regulator	5.5	25	0.6	19	2	80	0.5	94	Y	12 Ld DFN	2.05
Multiple Output												
ISL8088	Dual 800mA Low Quiescent Current 2.25MHz High Efficiency Synchronous Buck Regulator	2.75	5.5	0.6	V_{IN}	0.8/0.8	30	2.25	96	Y	10 Ld DFN	2.63
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	1500	2.25	97	N	12 Ld DFN	4.17
ISL85033 (See page 6)	Wide V_{IN} Dual Standard Buck Regulator With 3A/3A Continuous Output Current	4.5	28	0.8	V_{IN}	3/3	1200	0.3 to 2	92	Y	28 Ld TQFN	3.3
ISL6455	0.6 Amp PWM Regulator and Dual 0.3 Amp LDOs and Reset	3	3.6	0.8	2.5	0.6	2500	0.75	93	Y	24 Ld QFN	1.81
ISL6455A	0.6 Amp PWM Regulator and Dual 0.3 Amp LDOs and Reset	4.5	5.5	0.8	3.3	0.6	3500	0.75	93	Y	24 Ld QFN	1.81
ISL65426	Dual 6A I_{OUT}, 1.5MHz fsw; Programmable I_{OUT} and V_{OUT}	3	5.5	1	V_{IN}	6	30000	1	95	Y	50 Ld QFN	4.17
ISL8501	1 Amp PWM Regulator with Dual 0.5 Amp LDO	5	25	0.6	20	1	2500	0.5	95	Y	24 Ld QFN	2.17
ISL8510	1 Amp PWM Regulator with Single 0.5 Amp LDO	5	25	0.6	20	1	2500	0.5	95	Y	24 Ld QFN	2.04

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 ($)
ISL6520	Simple PWM Controller, 300kHz	2.5	5	0.8	5	20	5	0.3	3.2	8 Ld SOIC, 16 Ld QFN	1.21
ISL6525	Buck and Synchronous-Rectifier PWM Controller	2.5	12	1.2	V_{IN}	25	12	1	5	14 Ld SOIC	1.44
ISL8105A	1V to 12V Single-Phase Synchronous Buck Converter PWM Controller with Integrated MOSFET Gate Drivers	1	20	0.6	0.75 x V_{IN}	15	5, 12	0.6	3.2	8 Ld SOIC, 10 Ld DFN	0.95
ISL8107	Single-Phase Pulse-Width Modulation (PWM) Controller with Wide (9V-75V) V_{IN} Range	9	75	1.2	75	10	N/A Internal)	**	2	16 Ld QFN	2.89
ISL6406	PWM Controller with Adj fsw 100kHz to 770kHz with Ext Freq Sync	3.3	5	0.8	5	20	3.3 to 5	0.1 to 0.77	9.8	16 Ld SOIC, 16 Ld TSSOP, 16 Ld QFN	1.13
ISL6439/A	PWM Controller with fsw 300 or 600kHz	3.3	5	0.8	3.3	20	3.3	0.3/ 0.6	6.9	14 Ld SOIC, 16 Ld QFN	1.17
ISL6527/A	PWM Controller with fsw 300 or 600kHz, External Reference	3.3	5	0.8	V_{IN}	20	3.3 to 5	0.3/0.6	3.3	14 Ld SOIC, 16 Ld QFN	1.23/0.96
ISL6420B (See page 7)	PWM Controller with Wide V_{IN}, Start-Up into Pre-Bias Load	4.5	28	0.6	V_{IN}	20	5	0.1 to 1.4	2	20 Ld QFN	1.39
ISL6406	PWM Controller with Adj fsw 100kHz to 770kHz with Ext Freq Sync	3.3	5	0.8	0.96 x V_{IN}	20	3.3 to 5	0.1 to 0.77	9.8	16 Ld SOIC, 16 Ld TSSOP, 16 Ld QFN	1.13
ISL8104	PWM Controller with 50kHz to 1.5MHz fsw	1.2	12	0.6	5	30	8 to 12	.05 to 1.5	51	14 Ld SOIC	1.35

PWM CONTROLLERS (CONTINUED)

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 ($)
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	22	20	300	32 Ld QFN	4.67
ISL6440	Dual PWM Controllers with Wide V_{IN}, fsw 300kHz	4.5	24	0.8	0.93 x V_{IN}	10	300	24 Ld QSOP	2.44
ISL6445	Dual Synchronous Buck PWM Controller with Wide V_{IN}, fsw 1.4MHz	4.5	24	0.8	24	10	1400	24 Ld QSOP	2.44
ISL6441	Dual PWM Controllers with Wide V_{IN}, fsw 1.4MHz and Linear Controller	4.5	24	0.8	0.7 x V_{IN}	6	1400	28 Ld QFN	2.54
ISL6442	Dual PWM Controllers with Wide V_{IN}, fsw 2.4MHz and Linear Controller	4.5	24	0.8	0.95 x V_{IN}	20	300 to 2500	24 Ld QSOP	2.60
ISL6443A	Dual PWM Controllers with Wide V_{IN}, fsw 300kHz and Linear Controller	4.5	24	0.8	0.93 x V_{IN}	10	300	28 Ld QFN	2.24
ISL9440/40A/41 (See page 8)	Triple, 180° Out-of-Phase, Step-Down PWM and Single Linear Controller	4.5	24	0.8	V_{IN}	20	300/600/300	32 Ld QFN	4.67/3.99/4.67
ISL9440B/40C	Triple, 180 Out-of-Phase, Step Down PEM and Single Linear Controller with Adj SS and Pre-bias Start-up Capability	4.5	24	0.8	V_{IN}	20	300/600	32 Ld QFN	3.99
ISL6521	PWM Controller and Triple Linear Controllers	4.5	5.5	0.8	4.5	20	300	16 Ld SOIC	2.97
ISL8101	Two Phase Multiphase Buck PWM Controller with MOSFET Drivers, fsw 250kHz/Phase	5	12	0.6	2.3	80	200	24 Ld QFN	1.77
ISL8102	Two Phase Buck PWM Controller with High Current MOSFET Drivers, fsw 1.5MHz/Phase	4.6	12	0.6	2.3	100	*	32 Ld QFN	
ISL8103	Three Phase Buck PWM Controller with High Current MOSFET Drivers, fsw 1.5MHz/Phase	4.6	12	0.6	2.3	100	*	40 Ld QFN	
ISL8121	Two Phase Buck PWM Controller with Integrated 4 Amp MOSFET Drivers	4.5	20	0.6	0.66 x V_{IN}	>60	up to 2000	24 Ld QFN	3.11
ISL8120 (See page 7)	Dual/n-Phase Buck PWM Controller with Integrated Drivers	2.97	22	0.6	0.9 x Vin	>60	150 to 1500	32 Ld QFN	4.15

LDOs

High Current

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	1K Units MSRP ($)
ISL80101 (See page 9)	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 TO263/220	1.1
ISL80102 (See page 9)	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 TO263/220	1.42
ISL80103 (See page 9)	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 TO263/220	2.26

Low Current

Device	Device Description	V_{IN} Range (V)	V_{OUT} Range (V)	O/P Volt Accuracy (%)	$I_{OUT}1$ (max) (mA)	$I_{OUT}2$ (max) (mA)	PSRR @ 1kHz (dB)	IQ (µA)	Typical Drop-Out Voltage (mV)	Enable/ Shutdown	Package	1K Units MSRP ($)
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	29	200 @150mA	Y	5 Ld SC-70 T+R, 6 Ld µTDFN T+R	0.56
ISL9021	250mA Single LDO with Low I_Q, Low Noise and High PSRR LDO	1.5 to 5.5	0.9 to 3.3	±1.8	250	N/A	60	35	150 @ 250mA	Y	4 Ld WLCSP T+R, 6 Ld µTDFN T+R	0.69
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	40	250 @ 300mA	Y	10 Ld DFN	1.27
ISL9007	High Current LDO with Low I_Q and High PSRR	2.3 to 6.5	1.5 to 3.3	±1.8	400	N/A	75	50	250 @ 400mA	Y	8 Ld MSOP	0.67

High Voltage

Device	Device Description	V_{IN} (min) (V)	V_{IN} (max) (V)	V_{OUT} (min) (V)	V_{OUT} (max) (V)	I_{OUT} (max) (mA)	I_{BIAS} (min) (mA)	Package	1K Units MSRP ($)
ISL6719	100V Linear Bias Supply	17	100	1.5	20	100	1.1	9 Ld DFN	1.25

INTERSIL POWER SOLUTIONS FOR XILINX® FPGAs

INTERSIL'S POWER MANAGEMENT PORTFOLIO OF DC/DC REGULATORS, PWMS AND LDO CONTROLLERS

DIGITAL POWER (See page 10)

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 (mA)	Switching Frequency (MHz)	Peak Efficiency (%)	Integrated MOSFET	Package	1K Units MSRP ($)
Single Output												
ZL2105	3A Integrated Digital DC/DC Converter	4.5	14	0.54	5.5	3	10	0.2 to 1	92	Y	36 Ld QFN	2.42
ZL2106	6A Digital-DC Synchronous Step-Down DC/DC Converter	4.5	14	0.54	5.5	6	11	0.2 to 1	87	Y	36 Ld QFN	2.70
Multiple Output												
ZL2004	Adaptive Digital DC/DC Controller with Current Sharing	4.5	14	0.54	4	>40	16	0.2 to 1.4	N/A	N	36 Ld QFN	2.87
ZL2004-01	Adaptive Digital DC/DC Controller with Current Sharing	4.5	14	0.54	4	>40	16	0.2 to 1.4	N/A	N	36 Ld QFN	2.87
ZL2006	Adaptive Digital DC/DC Controller with Drivers Current Sharing	3	14	0.54	5.5	>40	16	0.2 to 1.4	94	Y	36 Ld QFN	3.02
ZL2008	Digital DC/DC Controller with Drivers and Pin-Strap Current Sharing	3	14	0.54	5.5	>40	16	0.2 to 1.4	94	Y	36 Ld QFN	3.02
ZL6100	Adaptive Digital DC/DC Controller with Drivers and Current Sharing	3	14	0.54	5.5	>40	16	0.2 to 1.4	94	Y	36 Ld QFN	3.02

POWER MODULES

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 (mA)	Switching Frequency (MHz)	Peak Efficiency (%)	Current Share	Package	1K Units MSRP ($)
ISL8200M	Complete Current Share 10A DC/DC Power Module	3	20	0.6	6	10	36	0.7	94	Y	23 Ld QFN	15.86
ISL8201M (See page 11)	10A, High Efficiency DC/DC Module	1	20	0.6	5	10	10	0.6	95	N	15 Ld QFN	13.19
ISL8204M	Complete High Efficiency DC/DC Module	1	20	0.6	6	4	13	0.6	95	N	15 Ld QFN	8.12
ISL8206M	Complete High Efficiency DC/DC Module	1	20	0.6	6	6	13	0.6	95	N	15 Ld QFN	11.34

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	Additional Features	Package	1K Units MSRP ($)
ISL88001	Ultra Low Power 3 Ld Voltage Supervisors in SC-70 and SOT-23 Packages	1	Y	N	Active Low	N	N	N	N	Ultra Low 160nA Current	3 Ld SC70, 3 Ld SOT23	0.58
ISL88013	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	Y	N	Enhanced WDT	5 Ld SOT23	0.94
ISL88012	5 Ld Voltage Supervisors with Adjustable Power-On Reset, Dual Voltage Monitoring or Watchdog Timer Capability	2	Y	Y	Active High and Low	Y	Y	N	N	**	5 Ld SOT23	0.99
ISL88041	Quad Voltage Monitor with Enable Feature	4	N	Y	Active Low	Y	N	N	N	**	8 Ld SOIC	1.26
ISL88042 (See page 12)	Quad Voltage Monitor	4	y	Y	Active Low	Y	N	N	N	Two fixed and two adj. monitors	8 Ld TDFN	1.46

SEQUENCERS

Low Voltage

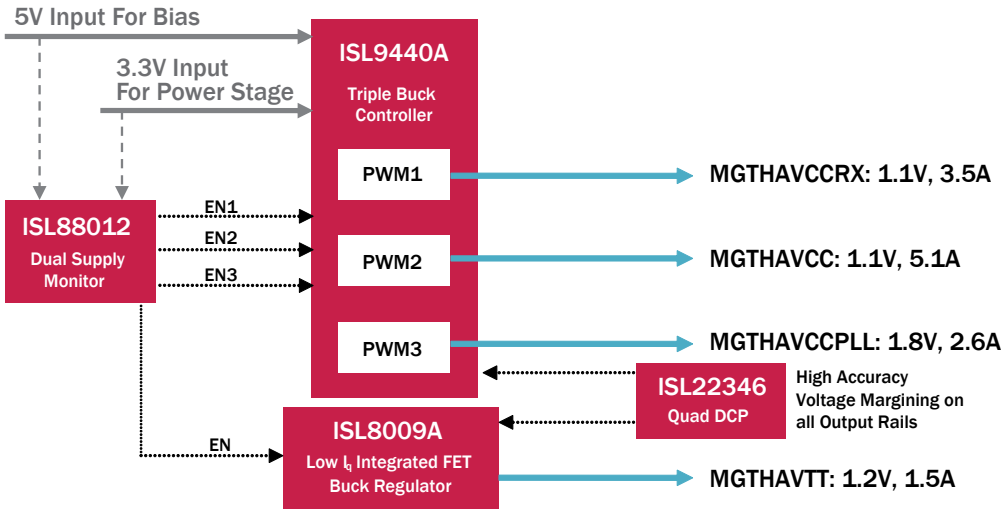
Device	Device Description	VBIAS Range (V)	Sequenced Voltages or Range (V)	Enable	Logic Level	Sequenced Output Control	Initial Startup Requirements	Monitored Inputs	Channel That Turn-off When 1 UVLO Faults	Preset or Adjustable Sequence	Features	Package
ISL6125 (See page 12)	Power Sequencing Controllers	+1.5 to +5.5	N/A	Active Low	CMOS	Open Drain Logic	4 UVLO 1EN	4	4 Open Drain	Adjustable ON & OFF Delay	Auto Restart, Open Drain Sequenced Outputs	24 Ld QFN
ISL6130	Power Sequencing Controllers	+1.5 to +5.5	+0.7 to +5.5	Active High	TTL	Charge Pumped 1µA FET Drive	1 UVLO 1EN	4	1 Gate	Voltage Determined ON, Adjustable OFF Delay	Gates Independent On as UVLO Valid, Low bias current sleep	24 Ld QFN

High Voltage

Device	Device Description	VBIAS (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 ($)
ISL8701A	Adjustable Quad Sequencer	3.3 to 24	N/A	N/A	Active Low, Open Drain	UV/OV	1	4 Simultaneous	Preset Order, Adjustable Delay	**	14 Ld SOIC	1.11
ISL8704A	Adjustable Quad Sequencer	3.3 to 24	Active Low	TTL	Active High, Open Drain	UV/OV & EN	1	4 Simultaneous	Preset Order, Adjustable Delay	Fault Reporting	14 Ld SOIC	1.11

REFERENCE DESIGNS

INTERSIL POWER MODULE FOR XILINX® VIRTEX-6 HXT CHARACTERIZATION BOARDS



ISL9440A: TRIPLE, 180° OUT-OF-PHASE, STEP-DOWN PWM AND SINGLE LINEAR CONTROLLER

- Three Independent Integrated Synchronous Buck PWM Controllers
- Internal Bootstrap Diodes
- Internal Compensation & Soft-Start
- Adaptive Shoot Through Protection
- Out-of-Phase Switching to Reduce Input Capacitance (0°/180°/0°)
- No External Current Sense Resistor - Uses Lower MOSFET's $r_{DS(ON)}$
- Current Mode Controller with Voltage Feed Forward
- Overcurrent, Overvoltage, Undervoltage, Over-Temperature Protection
- Wide Input Voltage Range

ISL8009A/B: 1.5A LOW QUIESCENT CURRENT 1.6MHZ HIGH EFFICIENCY SYNCHRONOUS BUCK REGULATOR

- Synchronous Buck Regulator with up to 95% Efficiency
- 2.7V to 5.5V Supply Voltage
- 3% Output Accuracy Over-Temperature/Load/Line
- 1.5A Guaranteed Output Current
- Selectable Forced PWM Mode and PFM Mode
- Less Than 1µA Logic Controlled Shutdown Current
- Internal Soft-Start and Current Mode Compensation
- Internal Digital Soft-Start
- Peak Current Limiting, Short Circuit and Over-Temperature Protection

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