Industrial Power Solutions
Power Modules, Digital Power Monitors, LDOs, Switching Regulators, Analog Controllers, FPGA Solutions

Product Highlights
April 2017
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Contents

- Power Modules ................................................................. 6
- Digital Power Monitors ..................................................... 12
- LDOs .................................................................................. 14
- Switching Regulators ....................................................... 16
- Analog Controllers ............................................................ 20
- FPGA Solutions ................................................................. 24
- PowerCompass™ Tool ........................................................ 25
- Design Tools and Support .................................................. 26
The Power Management Experts

As an industry leader in power management and analog technology, Intersil provides innovative design solutions that maximize performance and reliability across a broad range of industrial applications, including the smart home and smart grid, test and measurement systems, medical devices and factory automation.

Intersil offers a comprehensive portfolio of highly integrated and efficient digital and analog controllers, power modules and switching regulators that simplify design and integration for power designers seeking solutions for the most complex systems.
Why Intersil?

A Complete Power Solution
Intersil offers a complete portfolio of high-performance power solutions for processor, controller, DSP, FPGA, CPLD, DDR memory or other load in your system. Whether you need standard linear regulators, highly flexible PWM controllers or fully integrated plug-and-play power modules, our products are tailored to meet your design challenges.

Reliable, Proven Supply Chain
Proven proprietary processes and package technologies, shipping over 1 billion ICs per year.

- **Strong technology development**
  - Proprietary process and package technologies

- **Multi-sourcing strategy**
  - Sourcing from multiple leading-edge semiconductor foundries & assembly/test partners ensures a steady product supply and reduced risk

- **Industry-leading quality & reliability metrics**
  - Billion+ ICs shipped every year
  - Less than 1.0 DPPM (defective parts per million) and improving
  - Decades of experience handling military/space products and delivering world-class quality and reliability metrics
  - ISO/TS16949 and AEC-Q100
  - MIL-PRF-38535 compliant and 100% burned in

Assured Product Supply
Long life cycles ensure a steady flow of product, which gives your design longevity. Intersil still supports products that have been in production for more than 40 years.
Simplicity & Performance
Power Dense Modules for Compact <10A Designs

Intersil power modules are simple to design, and offer the smallest footprint for a given output current.

- Pin-compatible 3A ISL8202M and 5A ISL8205M single channel analog power modules offer a 2.6V to 5.5V input voltage range, 0.6V to 5.2V output range with ±1.6% accuracy over line/load/temperature, and up to 95% efficiency. The selectable light load efficiency and 100% duty cycle LDO support Energy Star compliance and extend battery life.

- Offered in an ultra-compact 6.5 mm x 9 mm package, the high efficiency fully integrated ISL8203M can be configured as a dual channel 3A or a single channel 6A power module. Supporting parallel operations for 12A+ output currents, the ISL8203M is so flexible that it reduces your design time for virtually all your low power point of load designs.

<table>
<thead>
<tr>
<th>Output current</th>
<th>33.75mm² QFN22 4.5x7.5mm 1.85mm height</th>
<th>58.5mm² QFN23 6.5x9mm 1.85mm height</th>
</tr>
</thead>
<tbody>
<tr>
<td>3A</td>
<td>ISL8202M</td>
<td>ISL8203M</td>
</tr>
<tr>
<td>5A</td>
<td>ISL8205M</td>
<td></td>
</tr>
<tr>
<td>6A</td>
<td>ISL8203M</td>
<td></td>
</tr>
<tr>
<td>12A+</td>
<td>ISL8203M x 2+</td>
<td></td>
</tr>
</tbody>
</table>
Power Modules
Fully Integrated DC/DC Point-of-Load Solutions

Simple to Design & Use
- Fastest time-to-market power solution
- Flexible & adaptive
- Simple schematics
- Flexible PCB positioning & routing

Power-Dense
- High power density, small form factor
- Up to ~250W POL in a single package
- Multi-phase and/or multi-module allows high output power

Rugged & Reliable
- Thermally optimized packages
- Built-in voltage/current/thermal protections
- Full output load available
- Fully characterized & tested solution

Analog Module
A simple, effective DC/DC power supply solution that integrates necessary power elements in a single package.

Digital Module
A high-performance DC/DC power supply solution that integrates all power elements in a single package and supports digital communication and configurability for advanced power management techniques. Digitally design with PowerNavigator GUI software.
PowerNavigator™ GUI
Simple Configuration and Monitoring

Digital Power Design Simplified

Intersil’s PowerNavigator™ software allows simple configuration and monitoring of multiple digital-DC devices using a PC with a USB interface. PowerNavigator makes it easy to change all the features and functions of your digital power supply design within a simple graphical user interface.

- All Intersil digital power modules & controllers supported
- Drag-and-drop system design
- Click-and-drag sequencing
- Command tool library

Download Free Software
www.intersil.com/powernavigator

POWERMAP

Adds real-time information to the power rail blocks, such as device name, phase count, output voltage and more.

RAILSCOPE

Simplifies system validation, giving users the ability to plot all device telemetry.

RAIL INSPECTOR

Quickly guides users through the power supply parameters setup.

SEQUENCING

Adjust power sequencing of multiple rails using graphical interface.
# Analog Power Module Highlights

Find the power module that fits your needs at [intersil.com/powermodule](http://intersil.com/powermodule)

<table>
<thead>
<tr>
<th></th>
<th>ISL8203M 6A</th>
<th>ISL8225M 30A</th>
<th>ISL8240M 40A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>V_{in}</strong> Range (V)</td>
<td>2.85 to 6</td>
<td>4.5 to 20</td>
<td>4.5 to 20</td>
</tr>
<tr>
<td><strong>V_{out}</strong> Range (V)</td>
<td>0.8 to 5</td>
<td>0.6 to 7.5</td>
<td>0.6 to 2.5</td>
</tr>
<tr>
<td><strong>I_{out} (A)</strong></td>
<td>Dual 3A or single 6A</td>
<td>Dual 15A or single 30A</td>
<td>Dual 20A or single 40A</td>
</tr>
<tr>
<td><strong>Current Share</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Multi-phase</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>PGOOD</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Enable</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Ambient Temp Range (°C)</strong></td>
<td>-40 to +85</td>
<td>-40 to +125</td>
<td>-40 to +125</td>
</tr>
<tr>
<td><strong>Load Fault Protection</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Peak Efficiency (%)</strong></td>
<td>95</td>
<td>94</td>
<td>94</td>
</tr>
<tr>
<td><strong>Package (mm)</strong></td>
<td>23 Ld QFN (9 x 6.5 x 1.83)</td>
<td>26 Ld QFN (17 x 17 x 7.5)</td>
<td>26 Ld QFN (17 x 17 x 7.5)</td>
</tr>
</tbody>
</table>
## Digital Power Module Highlights

<table>
<thead>
<tr>
<th></th>
<th>ISL8270M</th>
<th>ISL8271M</th>
<th>ISL8272M</th>
<th>ISL8273M</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VIN Range (V)</strong></td>
<td>2.85 to 6</td>
<td>4.5 to 20</td>
<td>4.5 to 14</td>
<td>4.5 to 14</td>
</tr>
<tr>
<td><strong>VOUT Range (V)</strong></td>
<td>0.8 to 5</td>
<td>0.6 to 7.5</td>
<td>0.6 to 5</td>
<td>0.6 to 2.5</td>
</tr>
<tr>
<td><strong>IOUT (A)</strong></td>
<td>Dual 3A or single 6A</td>
<td>Dual 15A or single 30A</td>
<td>Dual 20A or single 40A</td>
<td>25</td>
</tr>
<tr>
<td><strong>Current Share</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Multi-phase</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>PGOOD</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Enable</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Ambient Temp Range (°C)</strong></td>
<td>-40 to +85</td>
<td>-40 to +85</td>
<td>-40 to +85</td>
<td>-40 to +85</td>
</tr>
<tr>
<td><strong>Load Fault Protection</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Peak Efficiency (%)</strong></td>
<td>95</td>
<td>94</td>
<td>94</td>
<td>96</td>
</tr>
<tr>
<td><strong>Package (mm)</strong></td>
<td>23 Ld QFN (9 x 6.5 x 1.83)</td>
<td>26 Ld QFN (17 x 17 x 7.5)</td>
<td>26 Ld QFN (17 x 17 x 7.5)</td>
<td>40 Ld HDA MODULE (17 x 19 x 3.55)</td>
</tr>
</tbody>
</table>

- **25A** ISL8270M
- **33A** ISL8271M
- **50A** ISL8272M
- **80A** ISL8273M
Digital Power Monitors

Highly Accurate Digital Current Sense and Voltage Monitors

Intersil’s ISL2802x digital power monitor (DPM) family delivers high accuracy measurements in a wide input common mode voltage range (0V to 60V), providing designers with the high level of safety margin that is often necessary in wired, wireless and data infrastructure applications.

• The ISL28022 is a bidirectional high-side and low-side digital current sense and voltage monitor with serial interface.
• The ISL28023 is a precision DPM that integrates the analog comparators, a voltage regulator, a DAC and a low voltage auxiliary channel in a single chip.
• The ISL28025 is a high precision DPM with integrated analog comparators and an integrated voltage regulator.

With a wide specified temperature range and the option of a tiny solution footprint, the ISL2802x digital power monitor family is ideal for telecom, industrial and consumer applications.

Order Your Reference Designs & GUI Software today!
intersil.com/en/tools/reference-designs/isl2802xevkit1z.html
# Precision Digital Power Monitor Comparison

<table>
<thead>
<tr>
<th>Feature</th>
<th>Basic ISL28022</th>
<th>Full Featured ISL28023</th>
<th>Tiny Package ISL28025</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input Range</strong></td>
<td>0 to 60V</td>
<td>Opt 1: 0 to 60V</td>
<td>Opt 1: 0 to 60V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Opt 2: 0 to 16V</td>
<td>Opt 2: 0 to 16V</td>
</tr>
<tr>
<td><strong>Primary Channel</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>LV Aux Channel</strong></td>
<td>-</td>
<td>Yes</td>
<td>Voltage Only</td>
</tr>
<tr>
<td><strong>Internal Temp Sensor</strong></td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>External Temp Sensor</strong></td>
<td>-</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td><strong>HV Internal Regulator (3.3V out)</strong></td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Fast OC/OV/UV Alert Outputs</strong></td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Margin DAC</strong></td>
<td>-</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td><strong>Slave Addresses Available</strong></td>
<td>16</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td><strong>User Select Conversion Mode / Sample Rate</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>User Select Fixed Period Averaging</strong></td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Peak Min / Max Current Registers</strong></td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>I²C / SMBus</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>PMBus</strong></td>
<td></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>1.2V I²C Level Translators</strong></td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>High Speed (3.4MHz) I²C Mode</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>External Clock Input</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Power Shutdown Mode</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Package</strong></td>
<td>10 Ld MSOP, 16 Ld QFN</td>
<td>24 Ld QFN</td>
<td>16 Ld WLCSP</td>
</tr>
</tbody>
</table>
LDOs
Best-in-Class Solution

ISL80510/05
Best Dropout and Transient Performance for Sensitive Loads

These high-performance, single output low-dropout (LDO) voltage regulators offer noise immunity across a wide range of frequencies. The ISL80510 and ISL80505 deliver 1A and 0.5A of continuous output current and ultra-low dropout of 130mV and 45mV at full load, respectively.

Best-in-Class Transient Performance
The high transient performance of ISL80510/05 allows minimal variation in output with a small 4.7μF output ceramic capacitor.

ISL80510 vs. Competitor: Transient Response

The ISL80510 has a peak-to-peak excursion that’s 9 times lower than the competitor’s device under similar conditions.

Leading Performance
- Fast transient response
- Best in class ±0.5% initial accuracy & ±1.8% total DC accuracy over full temp range
- Very low dropout (81mV @ 2A typ)
- Best-in-class package power density (Up to 3A per 9mm²)

Feature Rich
- Adjustable soft-start to set ramp time and inrush current
- Low enable threshold for low voltage applications
- Adjustable current limit
- Power-Good

World-Class Design & Support Team
- Expertise in high-performance DC/DC solution for CPUs
- Complete reference designs

www.renesas.com
# High-Performance LDO Highlights

<table>
<thead>
<tr>
<th>Device</th>
<th>$V_{IN}$ (V)</th>
<th>$V_{OUT}$ (V)</th>
<th>$I_{OUT \ max}$ (A)</th>
<th>PSRR @1kHz (dB)</th>
<th>Split Input</th>
<th>Fixed $V_{OUT}$ Option</th>
<th>Dropout (mV)</th>
<th>Acc. (%)</th>
<th>Iq (mA)</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISL80505</td>
<td>1.8 to 6</td>
<td>0.8 to 5.5</td>
<td>0.5</td>
<td>50</td>
<td>No</td>
<td>No</td>
<td>45</td>
<td>1.8%</td>
<td>2.2mA</td>
<td>8 Ld 3x3 DFN</td>
</tr>
<tr>
<td>ISL80510</td>
<td>2.2 to 6</td>
<td>0.8 to 5.5</td>
<td>1</td>
<td>48</td>
<td>No</td>
<td>No</td>
<td>130</td>
<td>1.8%</td>
<td>2.2mA</td>
<td>8 Ld 3x3 DFN</td>
</tr>
<tr>
<td>ISL80101A</td>
<td>2.2 to 6</td>
<td>0.8 to 5</td>
<td>1</td>
<td>48</td>
<td>No</td>
<td>Yes</td>
<td>90</td>
<td>1.8%</td>
<td>3.0mA</td>
<td>10 Ld 3x3 DFN</td>
</tr>
<tr>
<td>ISL80101-Adj</td>
<td>2.2 to 6</td>
<td>0.8 to 5</td>
<td>1</td>
<td>58</td>
<td>No</td>
<td>Yes</td>
<td>130</td>
<td>1.8%</td>
<td>3.0mA</td>
<td>10 Ld 3x3 DFN</td>
</tr>
<tr>
<td>ISL80102</td>
<td>2.2 to 6</td>
<td>0.8 to 5</td>
<td>2</td>
<td>55</td>
<td>No</td>
<td>Yes</td>
<td>81</td>
<td>1.8%</td>
<td>7.5mA</td>
<td>10 Ld 3x3 DFN</td>
</tr>
<tr>
<td>ISL80103</td>
<td>2.2 to 6</td>
<td>0.8 to 5</td>
<td>3.0</td>
<td>55</td>
<td>No</td>
<td>Yes</td>
<td>120</td>
<td>1.8%</td>
<td>7.5mA</td>
<td>10 Ld 3x3 DFN</td>
</tr>
<tr>
<td>ISL80111</td>
<td>1 to 3.6</td>
<td>0.8 to 3.3</td>
<td>1</td>
<td>80</td>
<td>Yes</td>
<td>No</td>
<td>27</td>
<td>1.6%</td>
<td>3.5mA</td>
<td>10 Ld 3x3 DFN</td>
</tr>
<tr>
<td>ISL80112</td>
<td>1 to 3.6</td>
<td>0.8 to 3.3</td>
<td>2</td>
<td>80</td>
<td>Yes</td>
<td>No</td>
<td>53</td>
<td>1.6%</td>
<td>3.5mA</td>
<td>10 Ld 3x3 DFN</td>
</tr>
<tr>
<td>ISL80113</td>
<td>1 to 3.6</td>
<td>0.8 to 3.3</td>
<td>3</td>
<td>80</td>
<td>Yes</td>
<td>No</td>
<td>75</td>
<td>1.6%</td>
<td>3.5mA</td>
<td>10 Ld 3x3 DFN</td>
</tr>
<tr>
<td>ISL80136</td>
<td>6 to 40</td>
<td>2.5 to 12</td>
<td>0.05</td>
<td>45</td>
<td>No</td>
<td>No</td>
<td>120</td>
<td>1.0%</td>
<td>18µA</td>
<td>8 Ld EPSOIC</td>
</tr>
<tr>
<td>ISL80138</td>
<td>6 to 40</td>
<td>2.5 to 12</td>
<td>0.15</td>
<td>47</td>
<td>No</td>
<td>No</td>
<td>295</td>
<td>1.0%</td>
<td>18µA</td>
<td>14 Ld HTSSOP</td>
</tr>
</tbody>
</table>
Complete Portfolio
Wide Range of $V_{IN}$ Switching Regulators

- **Power Rail**
  - 42V
  - 36V
  - 24V
  - 18V
  - 12V
  - 5V
  - 3.3V
  - 2.5V

- **Up to 42V**
  - **ISL854xx**
  - 4.5V to 28V

- **Up to 18V**
  - **ISL850xx**

- **2.5V - 5.5V**
  - **ISL80xx**

- **Up to 12V LOADS**
  - **12V Server Supply**
  - **OR**
  - **5V Bias Supply Or Intermediate BUS**
  - **OR**
  - **3.3V I/O supply**
  - **OR**
  - **0.6V~3.3V POL Supply**
Wide \( V_{\text{IN}} \) Sync Buck Regulators

**ISL85410/5/8**

- Wide input voltage range (3V to 40V) with 500mA to 1A options
- \( V_{\text{OUT}} \) range: 0.6V to 95% of \( V_{\text{IN}} \)
- Fully integrated synchronous buck regulators
- Internal or external compensation
- High efficiency synchronous buck operation
- Light load efficiency
- Internal fixed (500kHz) or adjustable switching frequency from 300kHz to 2MHz
- 12 Ld 4 x 3 DFN

Compact Synchronous Buck Regulator

**ISL8002B**

- \( V_{\text{IN}} \) range: 2.7V to 5.5V
- \( I_{\text{OUT}} \) maximum: 2A
- External soft-start programmable
- Output tracking and sequencing
- Switching frequency: 2MHz
- Selectable PFM or PWM operation option
- Overcurrent and short-circuit protection
- Over-temperature/thermal protection
- \( V_{\text{IN}} \) undervoltage lockout and \( V_{\text{OUT}} \) overvoltage protection
- Up to 95% peak efficiency
- 8 Ld 2 x 2 TDFN

8A, High Efficiency Sync Buck Regulator

**ISL8018**

- \( V_{\text{IN}} \) range: 2.7V to 5.5V
- \( V_{\text{OUT}} \) range: 0.6V to \( V_{\text{IN}} \)
- Up to 97% efficiency
- ±10% output voltage margining
- Adjustable current limit
- Start-up with prebiased output
- Internal soft-start - 1ms or adjustable, internal/external compensation
- Adjustable frequency from 500kHz to 4MHz - default at 1MHz
- External synchronization up to 4MHz - master to slave phase shifting capability
- 20 Ld 3 x 4 QFN
### 2.5V – 6V Synchronous Buck Regulators

<table>
<thead>
<tr>
<th>Device</th>
<th># of Outputs</th>
<th>$V_{IN}$ Range (V)</th>
<th>$I_{OUT}$ (max) (A)</th>
<th>$V_{OUT}$ Range (V)</th>
<th>PFM</th>
<th>Adj SS/TRK</th>
<th>Ext Comp</th>
<th>Sync</th>
<th>Adj Freq</th>
<th>Adj OCP</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISL8088</td>
<td>Dual</td>
<td>2.7 to 5.5</td>
<td>0.8</td>
<td>0.6 to $V_{IN}$</td>
<td>Y</td>
<td>N/N</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>10 Ld 3x3 DFN</td>
</tr>
<tr>
<td>ISL80019/A</td>
<td>Single</td>
<td>2.7 to 5.5</td>
<td>1.5</td>
<td>0.6 to $V_{IN}$</td>
<td>Y</td>
<td>N/N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>8 Ld 2x2 TDFN</td>
</tr>
<tr>
<td>ISL80015/A</td>
<td>Single</td>
<td>2.7 to 5.5</td>
<td>1.5</td>
<td>0.6 to $V_{IN}$</td>
<td>N</td>
<td>N/N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>8 Ld 2x2 TDFN</td>
</tr>
<tr>
<td>ISL8022</td>
<td>Dual</td>
<td>2.7 to 5.5</td>
<td>2/1.7</td>
<td>0.6 to $V_{IN}$</td>
<td>Y</td>
<td>N/N</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>12 Ld 4x3 DFN</td>
</tr>
<tr>
<td>ISL8002/A</td>
<td>Single</td>
<td>2.7 to 5.5</td>
<td>2</td>
<td>0.6 to $V_{IN}$</td>
<td>Y</td>
<td>N/N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>8 Ld 2x2 TDFN</td>
</tr>
<tr>
<td>ISL8002B</td>
<td>Single</td>
<td>2.7 to 5.5</td>
<td>2</td>
<td>0.6 to 4</td>
<td>Y</td>
<td>Y/Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>8 Ld 2x2 TDFN</td>
</tr>
<tr>
<td>ISL8020/A</td>
<td>Single</td>
<td>2.7 to 5.5</td>
<td>2</td>
<td>0.6 to $V_{IN}$</td>
<td>N</td>
<td>N/N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>8 Ld 2x2 TDFN</td>
</tr>
<tr>
<td>ISL8033/A</td>
<td>Dual</td>
<td>2.85 to 6</td>
<td>3/3</td>
<td>0.8 to $V_{IN}$</td>
<td>N</td>
<td>N/N</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>24 Ld 4x4 QFN</td>
</tr>
<tr>
<td>ISL8036/A</td>
<td>Dual</td>
<td>2.85 to 6</td>
<td>3/3</td>
<td>0.8 to $V_{IN}$</td>
<td>N</td>
<td>Y/N</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>24 Ld 4x4 QFN</td>
</tr>
<tr>
<td>ISL80030/A</td>
<td>Single</td>
<td>2.7 to 5.5</td>
<td>3</td>
<td>0.6 to $V_{IN}$</td>
<td>N</td>
<td>N/N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>8 Ld 2x2 TDFN</td>
</tr>
<tr>
<td>ISL80031/A</td>
<td>Single</td>
<td>2.7 to 5.5</td>
<td>3</td>
<td>0.6 to $V_{IN}$</td>
<td>Y</td>
<td>N/N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>8 Ld 2x2 TDFN</td>
</tr>
<tr>
<td>ISL8023/A</td>
<td>Single</td>
<td>2.7 to 5.5</td>
<td>3</td>
<td>0.6 to $V_{IN}$</td>
<td>Y</td>
<td>Y/N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>16 Ld 3x3 TQFN</td>
</tr>
<tr>
<td>ISL8024/A</td>
<td>Single</td>
<td>2.7 to 5.5</td>
<td>4</td>
<td>0.6 to $V_{IN}$</td>
<td>Y</td>
<td>Y/N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>16 Ld 3x3 TQFN</td>
</tr>
<tr>
<td>ISL8025/A</td>
<td>Single</td>
<td>2.7 to 5.5</td>
<td>5</td>
<td>0.6 to $V_{IN}$</td>
<td>Y</td>
<td>Y/N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>16 Ld 3x3 TQFN</td>
</tr>
<tr>
<td>ISL8026/A</td>
<td>Single</td>
<td>2.5 to 5.5</td>
<td>6</td>
<td>0.6 to $V_{IN}$</td>
<td>Y</td>
<td>Y/N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>16 Ld 3x3 TQFN</td>
</tr>
<tr>
<td>ISL8016</td>
<td>Single</td>
<td>2.7 to 5.5</td>
<td>6</td>
<td>0.6 to $V_{IN}$</td>
<td>Y</td>
<td>Y/N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>20 Ld 3x4 QFN</td>
</tr>
<tr>
<td>ISL8018</td>
<td>Single</td>
<td>2.7 to 5.5</td>
<td>8</td>
<td>0.6 to $V_{IN}$</td>
<td>Y</td>
<td>Y/N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>20 Ld 3x4 QFN</td>
</tr>
</tbody>
</table>
### Up to 18V Synchronous Buck Regulators

<table>
<thead>
<tr>
<th>Device</th>
<th># of Outputs</th>
<th>V&lt;sub&gt;IN&lt;/sub&gt; Range</th>
<th>I&lt;sub&gt;OUT (max)&lt;/sub&gt;</th>
<th>V&lt;sub&gt;OUT Range&lt;/sub&gt;</th>
<th>I&lt;sub&gt;Q (typ)&lt;/sub&gt;</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISL85003/A</td>
<td>Single</td>
<td>4.5V to 18V</td>
<td>3A</td>
<td>0.8V to Dmax*V&lt;sub&gt;IN&lt;/sub&gt;</td>
<td>3.2mA</td>
<td>12 Ld 3x4 DFN</td>
</tr>
<tr>
<td>ISL85005/A</td>
<td>Single</td>
<td>4.5V to 18V</td>
<td>5A</td>
<td>0.8V to Dmax*V&lt;sub&gt;IN&lt;/sub&gt;</td>
<td>3.2mA</td>
<td>12 Ld 4x3 DFN</td>
</tr>
<tr>
<td>ISL85009</td>
<td>Single</td>
<td>3.8V to 18V</td>
<td>9A</td>
<td>0.6V to Dmax*V&lt;sub&gt;IN&lt;/sub&gt;</td>
<td>3mA</td>
<td>15 Ld 3.5x3.5 TQFN</td>
</tr>
<tr>
<td>ISL85012</td>
<td>Single</td>
<td>3.8V to 18V</td>
<td>12A</td>
<td>0.6V to Dmax*V&lt;sub&gt;IN&lt;/sub&gt;</td>
<td>3mA</td>
<td>15 Ld 3.5x3.5 TQFN</td>
</tr>
<tr>
<td>ISL85014</td>
<td>Single</td>
<td>3.8V to 18V</td>
<td>14A</td>
<td>0.6V to Dmax*V&lt;sub&gt;IN&lt;/sub&gt;</td>
<td>3mA</td>
<td>15 Ld 3.5x3.5 TQFN</td>
</tr>
</tbody>
</table>

### Up to 28V Synchronous Buck Regulators

<table>
<thead>
<tr>
<th>Device</th>
<th># of Outputs</th>
<th>V&lt;sub&gt;IN&lt;/sub&gt; Range</th>
<th>I&lt;sub&gt;OUT (max)&lt;/sub&gt;</th>
<th>V&lt;sub&gt;OUT Range&lt;/sub&gt;</th>
<th>I&lt;sub&gt;Q (typ)&lt;/sub&gt;</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISL85033</td>
<td>Dual</td>
<td>4.5V to 28V</td>
<td>3A</td>
<td>0.8V – Dmax*V&lt;sub&gt;IN&lt;/sub&gt;</td>
<td>1.2mA</td>
<td>28 Ld 4x4 TQFN</td>
</tr>
</tbody>
</table>

### Up to 40V Synchronous Buck Regulators

<table>
<thead>
<tr>
<th>Device</th>
<th># of Outputs</th>
<th>V&lt;sub&gt;IN&lt;/sub&gt; Range</th>
<th>I&lt;sub&gt;OUT (max)&lt;/sub&gt;</th>
<th>V&lt;sub&gt;OUT Range&lt;/sub&gt;</th>
<th>I&lt;sub&gt;Q (typ)&lt;/sub&gt;</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISL85412</td>
<td>Single</td>
<td>3.5V to 40V</td>
<td>150mA</td>
<td>0.6V to Dmax*V&lt;sub&gt;IN&lt;/sub&gt;</td>
<td>50 μA</td>
<td>8 Ld 3x3 TDFN</td>
</tr>
<tr>
<td>ISL85418</td>
<td>Single</td>
<td>3V to 40V</td>
<td>800mA</td>
<td>0.6V to Dmax*V&lt;sub&gt;IN&lt;/sub&gt;</td>
<td>80μA</td>
<td>12 Ld 4x3 DFN</td>
</tr>
<tr>
<td>ISL85413</td>
<td>Single</td>
<td>3.5V to 40V</td>
<td>0.3A</td>
<td>0.6V to Dmax*V&lt;sub&gt;IN&lt;/sub&gt;</td>
<td>50μA</td>
<td>8 Ld 3x3 DFN</td>
</tr>
<tr>
<td>ISL85415</td>
<td>Single</td>
<td>3V to 36V</td>
<td>0.5A</td>
<td>0.6V to Dmax*V&lt;sub&gt;IN&lt;/sub&gt;</td>
<td>80μA</td>
<td>12 Ld 4x3 DFN</td>
</tr>
<tr>
<td>ISL85410</td>
<td>Single</td>
<td>3V to 40V</td>
<td>1A</td>
<td>0.6V to Dmax*V&lt;sub&gt;IN&lt;/sub&gt;</td>
<td>80μA</td>
<td>12 Ld 4x3 DFN</td>
</tr>
<tr>
<td>ISL854102</td>
<td>Single</td>
<td>3V to 40V</td>
<td>1.2A</td>
<td>0.6V to Dmax*V&lt;sub&gt;IN&lt;/sub&gt;</td>
<td>80μA</td>
<td>12 Ld 4x3 DFN</td>
</tr>
<tr>
<td>ISL85403</td>
<td>Single</td>
<td>3V to 40V</td>
<td>2.5A</td>
<td>0.8V to Dmax*V&lt;sub&gt;IN&lt;/sub&gt;</td>
<td>300μA</td>
<td>20 Ld 4x4 QFN</td>
</tr>
</tbody>
</table>

(Buck or Buck-Boost)
Robust & Reliable

Analog Controllers

Robust, Reliable Performance

- Remote sense, Power-Good, Enable, adjustable soft-start
- Extensive protection (OCP, OVP, OTP, SCP)
- Reference tracking, voltage margining
- Pre-biased startup, external compensation
- External frequency synchronization

Large Selection

- Wide input voltages up to 72V
- Several configurations (single output, multi-output, multi-phase)
- Wide frequency (100kHz to 2.5MHz)
- Variety of package choices (i.e. DFN, QFN, HTSSOP, QSOP)

High Integration

- On-chip MOSFET drivers
- Internal bootstrap diodes
- Integrated compensation

World-Class Design & Support Team

- Leading modulator technology (EAPP, R4)
- Expertise in high current solution for CPUs
- Complete reference designs

Intersil’s extensive portfolio of PWM controllers can support multiple applications. The portfolio of single, dual, triple and quad output controllers offer either voltage mode or current mode architecture. These PWM controllers are optimized to provide high efficiency across the entire load range and have the drivers integrated.
ISL8117/A
Innovative 60V Sync Buck Controller

The ISL8117/A is 60V synchronous buck controller able to bypass the intermediate step-down conversion stage traditionally requested for industrial applications.

ELIMINATES NEED FOR INTERMEDIATE POWER CONVERSION STAGE

- Reduces design time, solution cost
  - Option of internal or external compensation
  - Adjustable frequency up to 2MHz optimizes power supply cost, size and efficiency
- Simplifies design, easy-to-use
  - No external compensation required
  - Layout friendly pin architecture
  - Default design values reduce external components
- Less real estate, higher performance
  - 40% fewer external components than competing devices
  - Up to 98% efficiency, 1.5% output voltage accuracy
# Single Output Analog Controllers

<table>
<thead>
<tr>
<th>Input</th>
<th>Device</th>
<th>$V_{\text{IN}}$ Range (V)</th>
<th>$V_{\text{OUT}}$ Range (V)</th>
<th>$I_{\text{OUT}}$ (max) (A)</th>
<th>Package</th>
<th>Technical Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>12V</td>
<td>ISL8104</td>
<td>1.2 to 12</td>
<td>0.6 to Dmax*$V_{\text{IN}}$</td>
<td>30</td>
<td>16 Ld QFN, 14 Ld SOIC</td>
<td>Voltage mode with non-linear control, Current sharing</td>
</tr>
<tr>
<td></td>
<td>ISL6341/A/B/C</td>
<td>1.5 to 12</td>
<td>0.8 to Dmax*$V_{\text{IN}}$</td>
<td>30</td>
<td>10 Ld DFN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ISL6545A</td>
<td>1 to 12</td>
<td>0.6 to Dmax*$V_{\text{IN}}$</td>
<td>25</td>
<td>10 Ld DFN, 8 Ld SOIC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ISL8105A/B</td>
<td>4.5 – 14</td>
<td>0.6 – Dmax*$V_{\text{IN}}$</td>
<td>25</td>
<td>10 Ld DFN, 8 Ld SOIC</td>
<td>Voltage mode with non-linear control, Current sharing</td>
</tr>
<tr>
<td>20V</td>
<td>ISL8118</td>
<td>3.3 to 20</td>
<td>0.6 to Dmax*$V_{\text{IN}}$</td>
<td>30</td>
<td>28 Ld QFN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ISL6540A</td>
<td>3.3 – 20</td>
<td>0.6 – Dmax*$V_{\text{IN}}$</td>
<td>30</td>
<td>28 Ld QFN</td>
<td>Voltage mode with feed forward, feature rich, popular for POL module</td>
</tr>
<tr>
<td></td>
<td>ISL8106</td>
<td>7 to 25</td>
<td>0.6 to Dmax*$V_{\text{IN}}$</td>
<td>12</td>
<td>16 Ld QFN</td>
<td></td>
</tr>
<tr>
<td>28V</td>
<td>ISL8130</td>
<td>4.5 – 28</td>
<td>0.6 – Dmax*$V_{\text{IN}}$</td>
<td>20</td>
<td>20 Ld QFN, 20 Ld QSOP</td>
<td>Universal controller for buck, boost or SEPIC</td>
</tr>
<tr>
<td></td>
<td>ISL6420B</td>
<td>4.5 to 28</td>
<td>0.6 to Dmax*$V_{\text{IN}}$</td>
<td>20</td>
<td>20 Ld QFN, 20 Ld QSOP</td>
<td></td>
</tr>
<tr>
<td>36V</td>
<td>ISL8115</td>
<td>3.0 – 36</td>
<td>0.6 – Dmax*$V_{\text{IN}}$</td>
<td>40</td>
<td>24 Ld TQFN</td>
<td>Voltage mode with non-linear control, Current sharing</td>
</tr>
<tr>
<td>60V</td>
<td>ISL8117/A</td>
<td>4.5 – 60</td>
<td>0.6 – Dmax*$V_{\text{IN}}$</td>
<td>20</td>
<td>16 Ld QFN, 16 Ld TSSOP</td>
<td>Current mode, simplified pin-out, Low external components</td>
</tr>
<tr>
<td>75V</td>
<td>ISL8107</td>
<td>9 to 75</td>
<td>1.2 to Dmax*$V_{\text{IN}}$</td>
<td>10</td>
<td>16 Ld QFN</td>
<td></td>
</tr>
</tbody>
</table>
## Multi-Output Analog Controllers

<table>
<thead>
<tr>
<th>Output</th>
<th>Device</th>
<th>$V_{IN}$ Range (V)</th>
<th>$V_{OUT}$ Range (V)</th>
<th>$I_{OUT}$ (max) (A)</th>
<th>Package</th>
<th>Technical Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual</td>
<td>ISL6446A</td>
<td>5.6 to 24</td>
<td>0.6 to Dmax*V$_{IN}$</td>
<td>25/ch</td>
<td>24 Ld QSOP</td>
<td>2 outputs, voltage mode</td>
</tr>
<tr>
<td></td>
<td>ISL9444</td>
<td>4.5 to 28</td>
<td>0.6 to Dmax*V$_{IN}$</td>
<td>25/ch</td>
<td>40 Ld QFN</td>
<td>3 outputs, current mode, Internal compensation</td>
</tr>
<tr>
<td>Triple</td>
<td>ISL9440B</td>
<td>4.5 - 24</td>
<td>0.8 - Dmax*V$_{IN}$</td>
<td>0.8/ch</td>
<td>32 Ld QFN</td>
<td>3 outputs with programmable soft-start</td>
</tr>
</tbody>
</table>

## Multiphase Analog Controllers

<table>
<thead>
<tr>
<th>Phase</th>
<th>Device</th>
<th>$V_{IN}$ Range (V)</th>
<th>$V_{OUT}$ Range (V)</th>
<th>$I_{OUT}$ (max) (A)</th>
<th>Package</th>
<th>Technical Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 12-phase</td>
<td>ISL8126</td>
<td>3.0 to 26.5</td>
<td>0.6 to Dmax*V$_{IN}$</td>
<td>60</td>
<td>32 Ld QFN</td>
<td>Current sharing up to 12 phase</td>
</tr>
<tr>
<td>2-phase</td>
<td>ISL8121</td>
<td>3.0 to 20</td>
<td>0.6 to Dmax*V$_{IN}$</td>
<td>60</td>
<td>24 Ld QFN</td>
<td>2-phase, popular for 5V/3.3V module</td>
</tr>
<tr>
<td>4-phase</td>
<td>ISL6558</td>
<td>5 ±10%</td>
<td>0.8 to Dmax*V$_{IN}$</td>
<td>120</td>
<td>20 Ld QFN, 16 Ld SOIC</td>
<td>4-phase controller, 5V$_{IN}$ bias</td>
</tr>
</tbody>
</table>
FPGA Power Solutions

Complete Power Delivery Solutions for FPGAs

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

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- Xilinx FPGA power estimator import function to jump start

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- Zynq Series

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- ECP Family
- iCE Family
- CrossLink Family
- Mach Family

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- Upfront design time reduced by 92%
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Once you’ve got your rails identified, suggested parts are just a click away—including both single output devices, and dual devices that could serve more than one output. You can choose as many parts as you’d like to compare.

Summary Analysis

To help you finalize part selections, the app looks at the efficiency data across your specified output operational range, and presents system cost and graphs showing the system efficiency, power dissipation and junction temperature.

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Quickly identify parts that match your specific requirements, set up multiple rails, perform high-level system analysis, and generate custom reference design files.

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