Analog Devices, Inc., has introduced several families of highly efficient and reliable switching regulators with optimized levels of functional integration that maximize the power conversion and consumption in performance-driven applications. These products range from three-phase controllers to fully-integrated controller, driver, and FET devices. Features such as margining and tracking have been integrated into several product variants to enhance the monitoring and control capabilities of the overall system.

**Features**
- Wide input voltage range (1V-24V)
- Step-up and step-down through variety of topologies
- Online design tools provide fast and robust solutions
- Synchronous converters for high efficiency

**Benefits**
- Higher efficiency over LDOs
- Fully-integrated regulators for quick design
- Reduced part count
- Reduced BOM cost
- Integrated advanced features

**Applications**
- Mobile handsets
- Set-top boxes
- Telecommunications and networking systems
- DDR terminations
- Hard disk drives

### Product Specifications

| Part Number | Type                      | Dimming Type | Number of LEDs | Number of Strings | Configuration | Input Voltage (VDC) | Output Voltage (VDC) | Output Current (mA) | Peak Efficiency (%) | Diagnostic Capabilities | Interface | Markets |
|-------------|---------------------------|--------------|----------------|-------------------|---------------|---------------------|----------------------|---------------------|-------------------|------------------------|-----------|
| ADP1610     | Step-up, SEPIC           | Digital      | 2              | Serial            | 2.5-5.5       | Adj. 1.23-12/20     | 1000-1,000            | –                   | None              | –                     | I2C, SPI  |
| ADP1612     | Step-up, flyback, SEPIC  | –            | 5              | 1                 | 1.8-6         | 1.3-20               | 300-1,000             | 95                  | None              | –                     | I2C, SPI  |
| ADP1621     | Step-down                | –            | 20             | –                 | 3-5.5         | Adj. 1.215-80       | 10,000               | –                   | None              | –                     | I2C, SPI  |
| ADP1622     | Step-down, flyback       | –            | 15             | –                 | 1-24          | Adj. 0.6-60         | 25,000               | –                   | None              | –                     | I2C, SPI  |
| ADP1629     | Dual step-down, invert, flyback | –       | 15/15          | –                 | 1-24          | Adj. 0.6-60         | 25,000               | –                   | None              | –                     | I2C, SPI  |
| ADP1664     | Step-down, invert, flyback | –           | 15             | –                 | 3.15-14      | Adj. 0.6-60         | 10,000               | –                   | None              | –                     | I2C, SPI  |
| ADP2102     | Step-down                | –            | 1              | –                 | 2.7-5.5      | Adj. 0.6-3.3       | 600                  | –                   | None              | –                     | I2C, SPI  |
| ADP1828     | Step-down, flyback       | –            | 15             | –                 | 1-24          | Adj. 0.6-60         | 25,000               | –                   | None              | –                     | I2C, SPI  |
| ADP1653     | Digital                  | –            | 2              | –                 | 2.7-5.5      | 10.5                | 500                  | 92                  | None              | I2C or 2-bit logic | –         |

**Markets Legend**
- ☐ Commercial Lighting
- ☐ Flashlights
- ☐ Transportation
- ☐ Backlighting
- ☐ Storage

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Flash LED Driver, LED, and Backlighting LED Drivers

The ADP1653 is an ultra-compact, high efficiency, 12V boost converter from Analog Devices, specifically designed and optimized for use in cellular camera phones and digital still cameras. The ADP1653 solution consumes a mere 7.2 mm x 6.4 mm of board space while still offering high-efficiency Flash circuitry that can drive one string of high-brightness LEDs up to 500 mA, as well as a separate indicator LED at lower currents up to 17 mA.

Analog Devices offers LED drivers for automotive and LCD backlighting applications. Products like the AD8240, designed for automotive applications, both drive and monitor the LED assembly. End users are demanding bigger, brighter, and thinner displays. The ADM8845 and ADM8843 charge-pump-based backlight drivers are designed for driving up to six and four white LEDs in parallel, respectively, while ensuring uniform brightness of a backlit LCD display. By individually monitoring each LED current, excellent matching performance is achieved. The ADM8845 is also designed to maximize power efficiency by switching automatically between three charge pump modes based on the input voltage. For applications with severe height restrictions, the ADM8843 offers an ultra-thin package height of 0.5 mm.

Features
• Small 45 mm² total solution size
• 92 percent efficiency
• 90 lumens of brightness
• Tx masking with 50 µs
• 2.2 µH power inductor
• 500 mA Flash current

Benefits
• Reduces bill of materials
• Extends battery life
• Improves picture quality
• Enables smaller form factors

Applications
• Digital still cameras
• Camera phones
• Portable video recorders

Product Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type</th>
<th>Dimming Type</th>
<th>Number of LEDs/ String</th>
<th>Number of Strings</th>
<th>Configuration</th>
<th>Input Voltage (VDC)</th>
<th>Output Voltage (VDC)</th>
<th>Output Current (mA)</th>
<th>Peak Efficiency (%)</th>
<th>Diagnostic Capabilities*</th>
<th>Interface</th>
<th>Markets</th>
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<tbody>
<tr>
<td>AD8240</td>
<td>–</td>
<td>PMW</td>
<td>Variable</td>
<td>–</td>
<td>Serial/parallel</td>
<td>9-27</td>
<td>12 Adjustable</td>
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<td>Yes</td>
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<td>ADM8843</td>
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<td>PMW</td>
<td>4 WLED</td>
<td>–</td>
<td>Parallel</td>
<td>2.6-5.5</td>
<td>2K mode</td>
<td>30</td>
<td>88</td>
<td>TSD/SCP</td>
<td>Pin controlled</td>
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<tr>
<td>ADM8845</td>
<td>–</td>
<td>PMW</td>
<td>6 WLED</td>
<td>–</td>
<td>Parallel</td>
<td>2.6-5.5</td>
<td>X mode</td>
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<td>TSD/SCP</td>
<td>Pin controlled</td>
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<tr>
<td>ADP5520</td>
<td>Inductive boost</td>
<td>Current modulation</td>
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<td>1</td>
<td>Serial</td>
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<td>30</td>
<td>85</td>
<td>Yes</td>
<td>I2C</td>
<td></td>
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</tbody>
</table>

*Diagnostic capabilities: TSD: Thermal shutdown, SCP: Short circuit protection
Short-Range Transceivers for Wireless Connectivity

The ADF7000 series of transmitter and transceiver ICs provides high-performance, robust short-range wireless connections. Covering the 75 MHz to 1 GHz frequency range, the ADF7000 series is ideally suited for many applications requiring short-range wireless connectivity. The popular ADIisLINK™ air-interface protocol allows users to transfer data between multiple end points and a base station (ADF702x) without having to develop their own protocol software. In addition to this, ADI SRD Design Studio™ allows real time simulation and optimization of many of the parameters in a typical wireless system.

Features
- Frequency range from 75 MHz to 1 GHz operation
- Best in class Rx sensitivity
- Data rates up to 384 kbps
- Complete hardware and software tools: ADIisLINK™, ADI SRD Design Studio™

Benefits
- Wide frequency range
- Extended RF range
- Rapid system development
- Robust short-range wireless connections
- Real time simulation and optimization

Applications
- Home/building control and automation
- Lighting control
- Wireless metering
- Home security
- Industrial sensors
- Healthcare monitoring
- TV wireless remote control

Product Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type</th>
<th>Input Voltage (V)</th>
<th>Over Air Data Rate (kbps)</th>
<th>Data Throughput (kbps)</th>
<th>Frequency (Hz)</th>
<th>Power Consumption (mA)</th>
<th>Range (Meters)</th>
<th>System Resources (KB)</th>
<th>Markets</th>
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</thead>
<tbody>
<tr>
<td>ADF7012</td>
<td>RF transmitter</td>
<td>2.3-3.6 supply</td>
<td>179.2</td>
<td>179.2</td>
<td>75 MHz-1 GHz</td>
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<td>2.3-3.6 supply</td>
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<td>200</td>
<td>431 MHz-478 MHz/862 MHz-956 MHz</td>
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<td>80 MHz-650 MHz</td>
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<td>32.5</td>
<td>80 MHz-650 MHz/868 MHz-940 MHz</td>
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<td>24</td>
<td>32.5</td>
<td>80 MHz-650 MHz/868 MHz-940 MHz</td>
<td>58 mW typ.</td>
<td>&gt;1,000</td>
<td>–</td>
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</tr>
</tbody>
</table>

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