New LinkSwitch(R)-II Design Ideas from Power Integrations Make Driving LEDs Simple

Highly accurate constant-current output regulation and integrated protection features ease development of efficient, cost-effective LED lighting fixtures

SAN JOSE, Calif., Jun 30, 2008 (BUSINESS WIRE) -- Power Integrations (Nasdaq:POWI), the leader in high-voltage integrated circuits for energy-efficient power conversion, today announced a series of design ideas to help designers of LED driver circuitry benefit from the company's recently introduced LinkSwitch-II family of AC-DC power conversion ICs. The new design ideas (DI-184, DI-185 and DI-186), demonstrate that LinkSwitch-II ICs are well suited for power supplies and ballasts driving high-brightness LEDs. The devices' highly accurate constant-current performance and low external component count enable LED ballasts that are simpler to design, lower-cost, and more durable than existing converter technology.

LinkSwitch-II features Power Integrations' advanced primary-side regulation (PSR) technology, which utilizes a transformer winding to sense the output current rather than relying on lossy, expensive secondary-side components to provide feedback and regulate the output. This cuts system component count by up to 30 percent, resulting in simpler, more reliable and lower-cost designs with extremely good active and standby energy-efficiency performance.

Power Integrations' PSR technology ensures highly accurate performance, maintaining output current within a +/- 10% range even if load voltage drop, magnetic component tolerance and temperature conditions vary during manufacture or operation. The constant-current drive enabled by LinkSwitch-II ensures that each LED in a series-connected string provides similar light output. This eliminates the current-sharing problem inherent with parallel-connected diodes, and reduces LED binning costs and optical mixing complexity in lighting fixtures.

Unlike many halogen and CFL lights, LED arrays powered by LinkSwitch-II work with traditional AC-based triac dimmers, as well as more modern remote-controlled dimmers. The high standby efficiency of LinkSwitch-II is particularly important with remote dimming; when it is turned off, LinkSwitch-II absorbs only 30 mW of standby power while waiting to re-energize the lights.

The newly released design ideas are suitable for applications of LED lighting less than 5.5W, such as replacement bulbs for halogen installations, refrigerator interior illumination, landscaping and smaller residential lighting fixtures. DI-184 illustrates a circuit for driving 700mA of current through strings of two series-connected high brightness white LEDs. The DC side circuit is electrically isolated from the AC side for safety. DI-185 and DI-186 both drive 350mA of current through strings of three high brightness white LEDs. The former design utilizes an isolated flyback topology, the later features a novel, non-isolated, tapped buck topology which reduces system cost and complexity. Each design includes appropriate EMI suppression components and operates at universal input voltage levels.

Comments Doug Bailey, vice president of marketing at Power Integrations: "By using LinkSwitch-II, lighting designers are benefiting from a power supply solution that matches the LED's efficiency, longevity and safety. The elimination of lossy secondary-side circuitry enabled by primary-side regulation, in combination with our EcoSmart energy-efficiency technology, results in a highly efficient and cost-effective offline LED driver."

Mr. Bailey continues: "LinkSwitch-II has integrated safety features which ensure that the power supply shuts down if the feedback loop is broken due to external component failure. The device also monitors its own temperature and shuts itself down to prevent the luminary from overheating in fault conditions or due to poor fixture installation, adding a layer of safety for system designers and end users. LinkSwitch-II also lives up to Power Integrations' reputation for reliability and the 700 V MOSFET inside the LinkSwitch-II provides an increased level of protection against line surges that can cause traditional bulbs to fail."

All LinkSwitch-II family members are produced in halogen-free, RoHS-compliant packaging. Power Integrations' Green Room website (www.powerint.com/greenroom) contains information on the issue of energy waste from inefficient power supplies, as well as tips on how to minimize the amount of energy wasted by household and office electronics. The Green Room also provides a comprehensive guide to energy-efficiency standards around the world, as well as a host of reference designs and software to assist in the design of energy-efficient power supplies.

About Power Integrations

Power Integrations is the leading supplier of high-voltage analog integrated circuits used in energy efficient power conversion.

The company's breakthrough integrated-circuit technology enables compact, energy-efficient power supplies in a wide range of electronic products, in AC-DC, DC-DC and LED lighting applications. The company's EcoSmart(R) energy-efficiency technology, which dramatically reduces energy waste, has saved consumers and businesses around the world more than an estimated $2.9 billion on their electricity bills since its introduction in 1998. Reflecting the environmental benefits of EcoSmart technology, the company's stock is included in clean-tech stock indices sponsored by Nasdaq (Nasdaq: CLEN; Nasdaq: CELS) and the American Stock Exchange (AMEX: CTIUS). For more information, visit the company's website at www.powerint.com.

SOURCE: Power Integrations

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