

Leading the Transition to Energy-Efficient Power Supplies

Integrated circuits (ICs) make computers, mobile phones, and consumer electronics smaller, faster, and smarter. However, many of these highly advanced products have yet to incorporate ICs in one crucial area – their power supplies. Any electronic device that plugs into a wall outlet requires a power supply to convert high-voltage alternating current (AC) into low-voltage direct current (DC). Many power supplies still utilize outdated, inefficient technologies – such as century-old copper-and-iron transformers – that needlessly waste electricity and raw materials.

Power Integrations (PI) is bringing the benefits of ICs to the power supply market. Our chips enable simpler, smaller, more efficient power supplies at a cost equal to or lower than outdated technologies. PI products offer the following benefits:

- **Fewer Components, Reduced Size:** Our highly integrated ICs enable power supplies with up to 70 percent fewer components than discrete designs and with far less raw-material content than bulky copper-and-iron transformers.
- **Reduced Time-to-Market, Lower Manufacturing Costs:** By drastically reducing component count and complexity, our ICs cut design cycle time by as much as two-thirds compared with discrete designs and enable significantly lower manufacturing costs.
- **Reliability:** Because a lower component count means fewer points of potential failure, highly integrated power supplies designed with our chips are much more reliable than complex discrete designs.
- **Energy Efficiency:** PI's EcoSmart™ energy-efficiency technology, included in all of our ICs introduced since 1998, dramatically improves the efficiency of AC-DC power supplies in both active and standby modes. This patented technology has saved an estimated total of more than \$5 billion of standby energy waste and prevented millions of tons of CO₂ emissions at no added cost to manufacturers and with no change in behavior on the part of consumers.

At a Glance

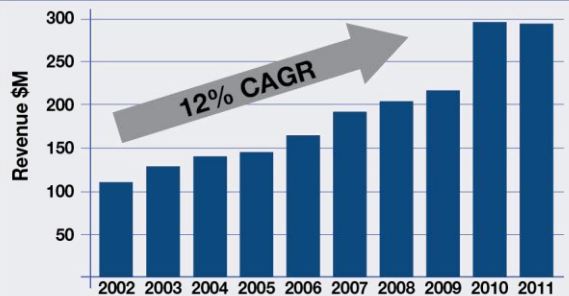
Founded:	1988
Industry:	Analog semiconductors
Chief Executive Officer:	Balu Balakrishnan
Corporate HQ:	San Jose, California
Initial Public Offering:	Dec. 1997; \$4/share (split-adjusted)
Ticker symbol (NASDAQ):	POWI
Annual Revenue (2010):	\$298.7 million
Employees:	443 (as of 12/31/11)
Patents:	454 U.S., 317 non-U.S. (12/31/11)

Balu Balakrishnan President & Chief Executive Officer

Balu Balakrishnan joined Power Integrations (PI) in 1989 and served in a variety of roles before becoming CEO in 2002. Mr. Balakrishnan is the chief inventor of PI's TOPSwitch™, TinySwitch™ and EcoSmart™ technologies and holds more than 120 patents. Mr. Balakrishnan has received the Discover Award for Technological Innovation as well as a TechAmerica Innovator Award, both in recognition of the environmental benefits of EcoSmart technology. He holds an M.S.E.E. from the University of California, Los Angeles, and a B.S.E.E. from Bangalore University, India.



Consistent Revenue Growth



Enabling Highly Integrated Power Supplies



Copper-and-iron transformer weighs 12 ounces.



Adapter with Power Integrations IC weighs 2 ounces.



Discrete power supply: 70 components



Power supply with Power Integrations IC: only 36 components

Slaying the Energy Vampires

Inefficient power supplies are a significant source of energy waste, resulting in unnecessary costs and carbon emissions. In fact, the Electric Power Research Institute (EPRI) estimates that more efficient power supply designs could save as much as \$3 billion and 24 million tons of CO₂ emissions per year in the United States alone.¹ The worst offenders, copper-and-iron linear transformers, operate at efficiencies as low as 20 percent, meaning that for every watt delivered to the end product, a total of five watts are consumed by the power supply.

While power supplies built with electronic components are typically more efficient than linear transformers, their efficiency tends to drop dramatically when the end product goes into standby mode (e.g., when a TV or a DVD player is turned off by remote control, a computer goes into sleep mode, or a microwave oven sits idle). The average home contains dozens of devices that spend most of their time in standby mode, so the energy waste adds up. A 2008 study found that 13% of the electricity used in the average California home is for products in standby or other “low-power” modes.²



PI's *EcoSmart* technology provides a solution to standby energy waste by sensing when an end product enters standby mode and then varying the switching performance of the integrated power transistor to maintain high efficiency. *EcoSmart* technology enables manufacturers to meet all current and proposed standby energy limits around the world, without adding to product cost.

Reflecting the environmental benefits of *EcoSmart* technology,



Power Integrations has received numerous recognitions including an ENERGY STAR® award. The company's stock is included in clean-technology stock indices such as the [Cleantech Index](#) and has twice been named one of the [world's top 20 "sustainable" stocks](#) by SustainableBusiness.com.

Energy-Efficient Technology

Energy Vampire vs. EcoSmart



The Price of Standby Waste



The Green Room: www.powerint.com/green-room

PI's Green Room web site offers a wealth of information on energy-efficient power supplies, including:

- Comprehensive database of energy-efficiency regulations: Search by application, regulatory agency, or geographic location
- Application-specific design tools: Data sheets, application notes, and reference designs
- Mr. Green blog: An informative blog about energy-efficiency standards and other green matters
- Energy FAQs: Answers to frequently asked questions about energy efficiency

¹ Electric Power Research Institute: <http://www.efficientpowersupplies.org>

² "Low-Power Mode Energy Consumption in California Homes," Lawrence Berkeley National Laboratory, September 2008.

Comprehensive Product Portfolio for a Broad Addressable Market

Because any electronic product that plugs into a wall outlet requires a power supply, Power Integrations' ICs can be found in a vast range of end products, including home appliances, audio/video products, computer equipment, external chargers and adapters, LED light bulbs, and electronic utility meters being installed around the world as part of smart-grid deployments. We offer ICs for use in power supplies ranging from 1 watt to 500 watts of output – an addressable market opportunity of approximately \$2 billion annually.

Comprehensive Design Support

Hands-on power-supply expertise is available to customers through a worldwide staff of application engineers stationed throughout Asia, Europe, and North America. We also offer a wide range of online design resources, including *PI Expert*[™] – an interactive software program that takes a user's power supply specifications and automatically determines the critical components (including transformer specifications) needed to generate a working power supply – and *PI University*[™] – an online technical learning center featuring practical instructional videos that form a complete how-to tutorial in power supply design. These resources are available at www.powerint.com, along with a comprehensive library of reference designs, application notes, and product data sheets.

Relentless Innovation

Power Integrations is an innovation-driven company with more than 450 U.S. patents on a wide range of innovations for the power supply industry, including our high-voltage silicon process technology, system- and circuit-level breakthroughs (such as *EcoSmart* technology) and IC packaging (such as our proprietary *eSIP*[™] package).

Contacts

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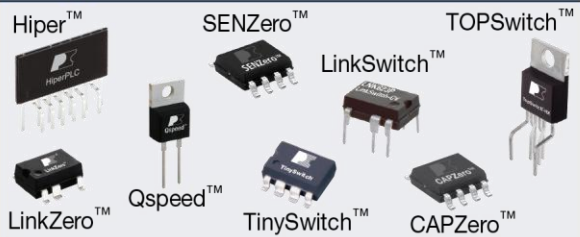
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Innovation in Power Conversion

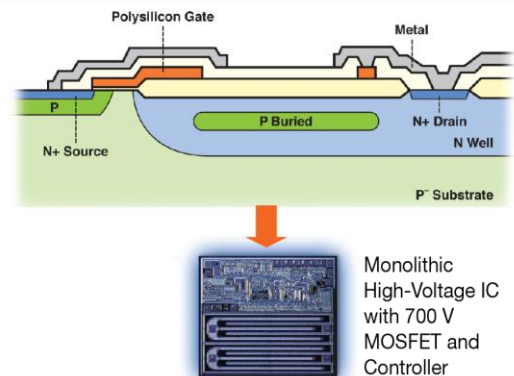
Energy-Efficient Product Families



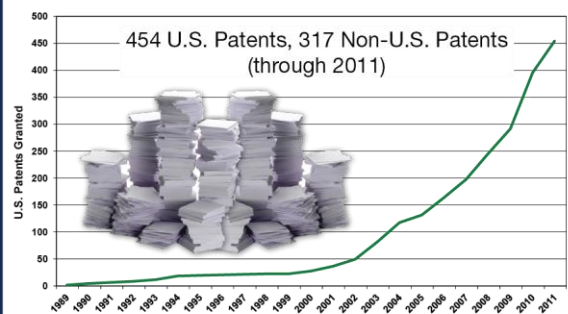
LED Light Powered by LinkSwitch



Patented High-Voltage Silicon Process Technology



Intellectual Property



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