



Silicon Labs Introduces 'Green' PoE/PoE+ Quad PSE Controller

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AUSTIN, Texas, Nov 09, 2009 (BUSINESS WIRE) -- [Silicon Laboratories](#) Inc. (NASDAQ: SLAB), a leader in high-performance, analog-intensive, mixed-signal ICs, today introduced the Si345x family, the industry's most integrated, energy-efficient quad Power over Ethernet (PoE) Power Sourcing Equipment (PSE) controllers. Able to support four independent PoE (IEEE 802.3af) and PoE+ (IEEE 802.3at) PSE ports, the Si345x controllers offer real-time power measurement capabilities, energy-efficient powered device (PD) detection and disconnect algorithms, and the industry's lowest on-resistance power field-effect transistors (FETs) and sense resistors. These features enable smaller, highly energy-efficient and lower-cost PoE/PoE+ Ethernet switches and midspans designed to power multi-radio wireless access points, industrial automation systems, VoIP phones, and building security and surveillance systems.

The recently ratified IEEE 802.3at PoE+ standard supports up to 30 W per port, enabling PoE to be deployed across more power-hungry applications. However, there is a growing need to make these applications "greener" through increased power efficiencies. Network administrators increasingly demand per-port power measurement and dynamic power allocation to maximize their network's overall power efficiency and minimize power supply costs.

"Minimizing power consumption is an analog-intensive design issue, and Silicon Labs has developed an IP portfolio that enables us to tackle these tough challenges in innovative, cost-effective ways," said Dave Bresemann, vice president of Silicon Laboratories. "Silicon Labs designed the Si345x PoE/PoE+ controllers with a system approach, leveraging our proprietary analog, high-voltage and process technology expertise to deliver a solution that allows designers to maximize energy efficiency and reduce BOM costs and PCB area."

Real-Time Power Monitoring

The Si345x controllers incorporate high-precision current and voltage monitoring capability to measure the power consumed by each port in real-time, enabling systems to maintain tighter control of power allocation. This approach enables smaller power supplies and lower supply overhead and gives system administrators visibility into how much power is allocated to and consumed by each port in their network. IEEE's link layer discovery protocol (LLDP) power management is fully supported by the Si3452 and its Power Manager Software Development Kit, enabling dynamic power allocation. With LLDP, powered devices can make requests to increase or decrease their consumption, and the PSE responds with an acknowledgement or denial based on system power budgets and constraints.

Energy-Efficient Disconnect Algorithm

The Si345x controllers leverage a patent-pending approach to provide a reliable alternative to traditional ac or dc disconnect methods, further improving system power efficiency. Using this innovative method, called dV/dt disconnect, an Si345x controller is able to detect the absence of a connected powered device through proprietary measurement techniques, avoiding the use of dc disconnect or power-hungry series diodes and extra BOM components associated with ac disconnect. The dV/dt disconnect feature helps eliminate expensive thermal management components, such as heat sinks and fans, making the Si345x family a truly green PoE solution. For example, compared to a PoE+ PSE system implemented with an ac disconnect-based PSE controller, a solution using the Si345x's dV/dt disconnect algorithm, integrated low on-resistance FETs and current sense resistors saves nearly 500 mW per port in power consumption or approximately 24 W in a 48-port system.

Only PSE Controller with Integrated Per Port Power FET, Sense Resistor and TVS

The unmatched integration of the Si3452 controller decreases the per-port solution cost and shrinks printed circuit board (PCB) layout area. Each Si3452 supports four PoE or PoE+ PSE ports, with proprietary support for power levels up to 40 W per port. A robust, 0.3 ohm power MOSFET, current sense resistor and a proprietary transient voltage surge suppressor are integrated on each port, simplifying the bill of materials to a single capacitor, reducing per port costs by up to \$0.20 and saving up to 55 percent in PCB space.

Complete Reference Designs and SDK

The Si345x family is supported by a complete set of development tools, including a feature-rich Power Manager Software Development Kit and 8-port midspan evaluation system (Si3452MS8-KIT) to enable rapid integration with software protocol stacks offered by leading Ethernet switch chipset suppliers. Three complete reference designs are also available from Silicon Labs to support PSE daughtercard and motherboard implementations. The complete PSE subsystem solution includes Silicon Labs' Si840x family of bidirectional I2C isolators, which isolate the Si345x's I2C bus to the host system controller. Visit www.silabs.com/ISOpro for more information on the Si840x family.

Pricing and Availability

Fully compliant with the IEEE 802.3at standard, the environmentally friendly Si3452/3 controllers are available in RoHS-compliant, 6 x 6 mm QFN packaging. Samples and production quantities are available now. Pricing for the Si3452/3 controllers is \$3.40 (USD) in 10k quantities. Industrial temperature range devices are also available now. The Si3452MS8-KIT is available now and priced at \$345.00 (USD). Visit www.silabs.com/pr/PoE for more information about the Power Manager SDK and reference designs.

Silicon Laboratories Inc.

Silicon Laboratories is an industry leader in the innovation of high-performance, analog-intensive, mixed-signal ICs. Developed by a world-class engineering team with unsurpassed expertise in mixed-signal design, Silicon Labs' diverse portfolio of highly integrated, easy-to-use products offers customers significant advantages in performance, size and power consumption. These patented solutions serve a broad set of markets and applications including consumer, communications, computing, industrial and automotive.

Headquartered in Austin, TX, Silicon Labs is a global enterprise with operations, sales and design activities worldwide. The company is committed to contributing to our customers' success by recruiting the highest quality talent to create industry-changing innovations. For more information about Silicon Labs, please visit www.silabs.com.

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