



## **Ideal Diode Bridge Controller Minimizes Power Loss & Heat in PoE Powered Devices**

MILPITAS, CA – October 22, 2013 – Linear Technology Corporation introduces the [LT4321](#), an ideal diode bridge controller that replaces two diode bridge rectifiers with low-loss N-channel MOSFET bridges to increase the available power and reduce heat dissipation in a Power over Ethernet Powered Device (PoE PD). IEEE 802.3 PoE specifications require PDs to accept DC supply voltages of any polarity over their Ethernet inputs. The space- and power-efficient LT4321 dual active bridge rectifies and smoothly combines power from both the data and spare pairs into a single, polarity-correct supply output. Circuit size and cost are reduced as the enhanced power efficiency eliminates heat sinking requirements. Power savings of 10x or more enables PDs to stay within PoE classification levels or to add value-rich functionality while maintaining class.

Carefully designed to be compliant with IEEE 802.3, the LT4321's bias current does not corrupt detection and classification. Working with 2- or 4-pair Ethernet, the controller is compatible with PoE, PoE+ and LTPoE++<sup>™</sup> standards. An integrated charge pump provides the gate drive for the eight low on-resistance N-channel MOSFETs without requiring external capacitors. Although designed for PoE PDs, the LT4321's 20V to 80V operating range with a 100V absolute maximum makes it suitable and robust for telecom applications employing batteries or reversible supplies. Dual-polarity enable pins provide shutdown capability to the LT4321, reducing its bias current to 32μA from the 0.5mA operating current.

Specified over the –40°C to 125°C ambient temperature range, the LT4321 is offered in a compact 16-pin 4mm x 4mm QFN package. Pricing begins at \$2.95 each for 1,000-piece quantities. Samples and evaluation circuit boards are available online or from your local Linear Technology sales office. For more information, visit [www.linear.com/product/LT4321](http://www.linear.com/product/LT4321)


**Photo Caption:** Power over Ethernet (PoE) Active Bridge Rectifier Maximizes Available Power & Voltage

### Summary of Features: LT4321

- Low Loss Replacement for Dual ORed Diode Bridges
- Controls Eight N-Channel MOSFETs
- Reduces Heat to Ease Thermal Design
- Maximizes Available Power & Voltage
- 20V to 80V DC Operation, 100V Absolute Maximum
- PoE/PoE+/LTPoE++ Compatible
  - o Works with 2-Pair & 4-Pair PoE Applications
  - o Does Not Corrupt IEEE 802.3 Detection & Classification
  - o IEEE 802.3 Compliant When Paired with a Powered Device (PD) Controller
- DC Polarity Correction & ORing of Telecom Supplies
- 0.8mA (max) Quiescent Current, 60µA (max) in Shutdown
- -40°C to +125°C Guaranteed Ambient Temperature Range
- 16-Pin 4mm x 4mm QFN Package

### About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for over three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, µModule® subsystems, and wireless sensor network products. For more information, visit [www.linear.com](http://www.linear.com)

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