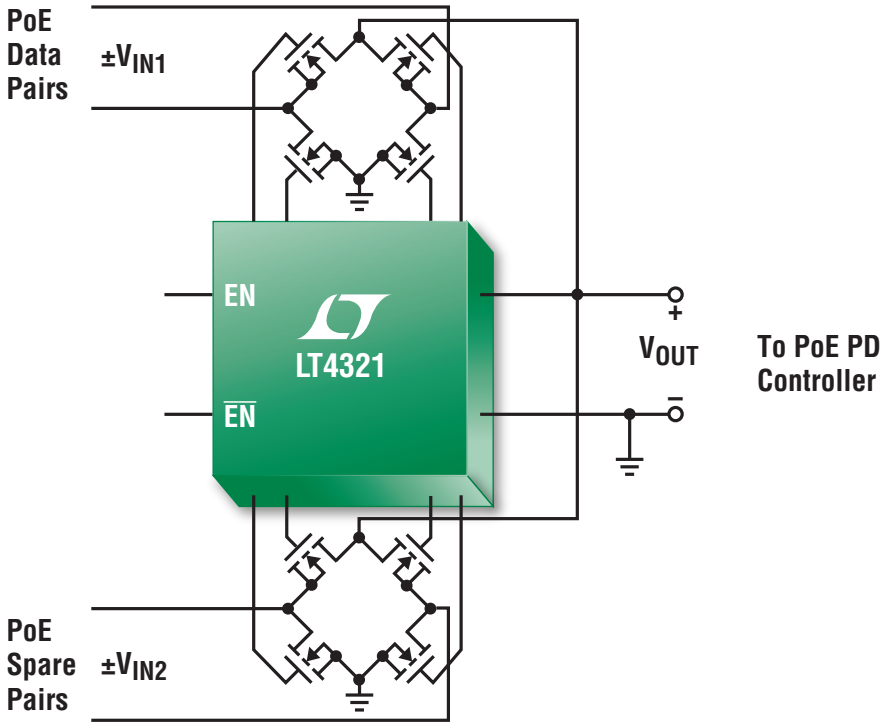
PoE Ideal Diode Bridge

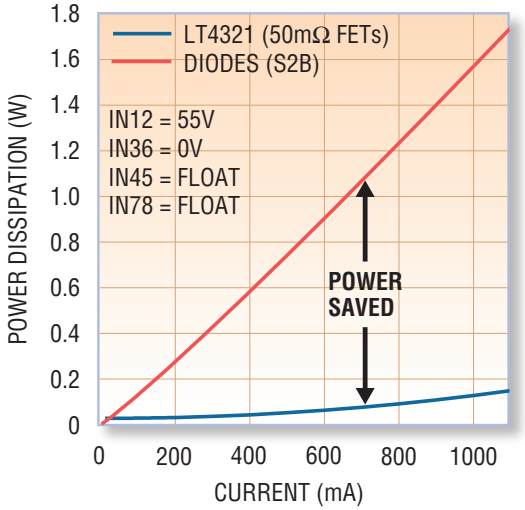


Active Diode Bridge Controller Minimizes Power Loss and Heat in Power over Ethernet Powered Device

The LT®4321 ideal diode bridge controller 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). Circuit size and cost are reduced as the enhanced power efficiency eliminates heat sinking requirements. Power savings of 10× or more enables PDs to stay below PoE classification power levels, or to add value-rich functionality while maintaining class.

Features

- Low Loss Replacement for Two PoE PD Diode Bridges
- Reduces Heat to Ease Thermal Design
- Maximizes Available Power and Voltage
- PoE/PoE+/LTPoE++™ Compatible
  - Works with 2- and 4-Pair PoE
  - Does Not Corrupt Detection and Classification
  - IEEE 802.3 Compliant When Paired with a PD Controller
- 100V Absolute Maximum
- Less Than 5µA Quiescent Current During Detection
- –40°C to 125°C Guaranteed Temperature Range
- 16-Pin 4mm × 4mm QFN Package



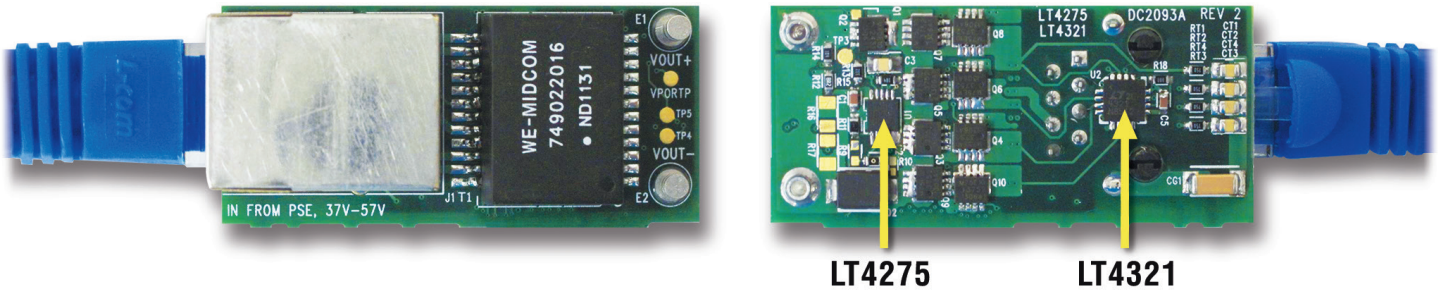
LINEAR TECHNOLOGY

LT4321 PoE Active Bridge Controller Power Savings

PoE Type	$P_{PD(MAX)}$	$V_{PD(MIN)}$	$I_{PD(MAX)}$	$P_{SAVED(MAX)}$ Per Bridge	Powered Bridges	Power Savings	Efficiency Gain
PoE, IEEE 802.3af	13W	37V	350mA	0.46W	1	**0.46W**	**3.6%**
PoE+, IEEE 802.3at	25.5W	42.5V	600mA	0.83W	1	**0.83W**	**3.3%**
LTPoE++	90W	41V	2.2A	1.6W at 1.1A	2	**3.2W**	**3.6%**

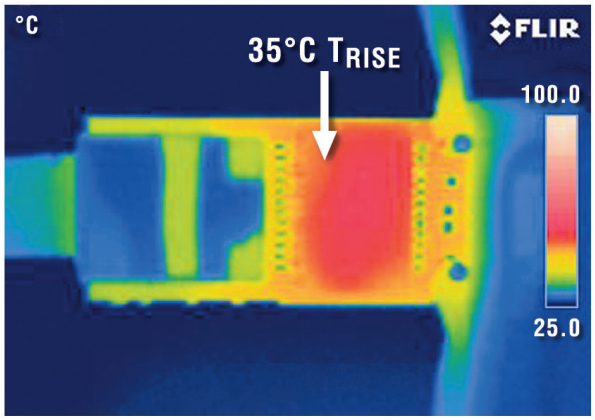
High Efficiency 90W PD Solution

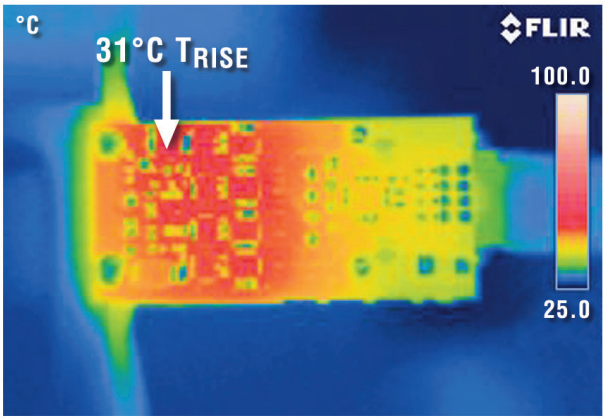
Using LT4321 and LT4275 LTPoE++/PoE+/PoE PD Controller



Top Views

Bottom Views





Thermograph Conditions: 4-Pair 90W LTPoE++, 2.2A at 41V without Forced Airflow