



Low Loss 3-Phase Ideal Diode Bridge Rectifier Reduces Heat, Easing Thermal Design

MILPITAS, CA – May 10, 2016 – Linear Technology Corporation announces the availability of a low loss 3-phase ideal diode bridge rectifier reference design, demonstrated on evaluation board [DC2465](#). Conventional 3-phase rectifiers employ six diodes, but the diodes drop voltage and dissipate significant power at just a few amperes of load current. This requires costly heat sinking and active cooling solutions that complicate thermal design and increase solution size. The DC2465 design replaces the six diodes with three LT4320 ideal diode bridge controllers, driving six low loss N-channel MOSFETs, dramatically reducing power and voltage losses. This enables the overall system to be specified to operate with a smaller, more cost-effective power supply due to the enhanced power efficiency. Low voltage applications benefit from the extra margin afforded by saving the two diode drops inherent in diode bridges. Compared to traditional approaches, the MOSFET bridge enables a rectifier design that is highly space- and power-efficient.

The DC2465 board rectifies line-to-line AC voltages from $9V_{RMS}$ to $48V_{RMS}$ with frequencies up to 400Hz while sourcing a load of up to 25A without forced airflow. Efficiency at 9V input is raised from 84% for a diode bridge to 97% for the active bridge.

The DC2465 evaluation board is available, priced at \$125.00 each. The LT4320 ideal diode bridge controller IC is offered in 8-pin MSOP, PDIP, and 3mm x 3mm DFN packages. Evaluation circuit boards are available online or from your local Linear Technology sales office. For more information, visit www.linear.com/demo/DC2465.

Photo Caption: 3-Phase Active Diode Bridge Rectifier


Summary of Features: DC2465

- High Efficiency Rectification of 3-Phase AC Input
- Replaces Diodes with Low Loss N-Channel MOSFETs
- Minimizes Heat Dissipation, Easing Thermal Design
- Maximizes Power Efficiency & Available Voltage
- Input Rating
 - 9V_{AC} to 48V_{AC} RMS Line-to-Line Operation
 - Up to 400Hz Line Frequency
- Output Rating
 - 70V_{DC} Maximum Output Voltage
 - 25A Maximum Load without Forced Airflow

Pricing shown is for budgetary use only and may differ due to local duties, taxes, fees and exchange rates.

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

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