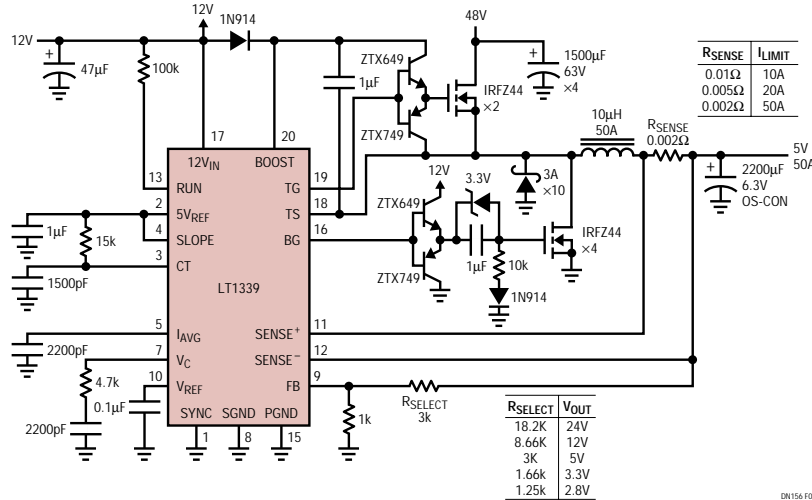


High Power Synchronous Buck Converter Delivers up to 50A

The **LT1339** is a full-featured synchronous switching controller for input voltages ranging from 12V to 48V and output voltages ranging from 1.3V to 36V. The **LT1339** is ideal for power levels ranging from tens of watts to tens of kilowatts and is remarkably easy to use. This is one power controller that is not afraid of 20A, 50A or even 150A of load current. The **LT1339** includes features such as user-adjustable slope compensation, undervoltage lockout with hysteresis, precision shutdown threshold, synchronization and soft start. In addition, the **LT1339** has an average current limit loop that yields a constant output current limit regardless of input and/or output voltage.

The circuit below operates from a 48V input and delivers a configurable output from 2.8V to 24V while maintaining greater than 90% efficiency. When configured for a 24V output, it can deliver 960W at 97% efficiency. 3V of negative offset is added to the bottom gate drive in order to prevent phantom turn-on of the bottom MOSFETs when the input is greater than 30V. Schottky diodes are placed in parallel with the bottom MOSFETs to negate the body diode effect of the bottom FETs. Several smaller diodes are interdigitized to reduce the inductance of the loop formed by the body diode and the external Schottkys. For applications that operate from lower input voltages, **FETKY™** MOSFETs (FETs with internal Schottky diodes) can eliminate the external Schottky diodes needed in this circuit.



Source: Design Note 156
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 FETKY is a trademark of International Rectifier Corporation

DN156 F02

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PC Power

Notebook
PC Power

Portable
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Distributed
Power

Isolated
Power

Off-Line
Power Supplies

Power
Management

Appendices