



60V, 4A Synchronous Step-Down Regulator with Adjustable Rail-to-Rail Output & Wire Drop Compensation

MILPITAS, CA – January 18, 2016 – The [LTC3649](#) is a high efficiency, 60V, 4A synchronous buck regulator that incorporates a constant frequency, current mode architecture and programmable output current and output voltage, which are set with a single external resistor. The LTC3649 operates from an input voltage range of 3.1V to 60V and provides an adjustable rail-to-rail output voltage range from 0V to 0.5V below V_{IN} , while delivering up to 4A of continuous output current. Its wide input and output voltage range is ideal for a wide range of test, measurement and industrial applications. The LTC3649's unique design includes an accurate internally generated 50 μ A current source on the I_{SET} pin, enabling it to deliver outputs as low as 0V with the use of a single external programming resistor. Furthermore, the LTC3649 offers $\pm 0.8\%$ output voltage accuracy and programmable output current with $\pm 4\%$ accuracy without a sense resistor. Its switching frequency is user programmable from 300kHz to 3MHz, enabling the use of tiny, low cost capacitors and inductors. Combined with a 28-lead 4mm x 5mm QFN or thermally enhanced TSSOP package, the LTC3649 offers a very compact solution footprint.

The LTC3649 uses internal power switches with $R_{DS(ON)}$ of only 100mOhms and 50mOhms to deliver efficiencies as high as 95%. Burst Mode[®] operation offers high efficiency at light loads, requiring only 440 μ A of quiescent current. For noise sensitive applications, the LTC3649 can run in forced continuous mode, offering very low output ripple. Additional features include $\pm 4\%$ accurate output current monitoring, a power good voltage monitor, programmable wire drop compensation, external synchronization capability and thermal protection.

The LTC3649EUFD is available in a 4mm x 5mm QFN-28, the LTC3649EFE is offered in a 28-lead, thermally enhanced TSSOP package. Industrial grade versions, the LTC3649IUFD and LTC3649IFE, are guaranteed to operate over the -40°C to 125°C operating junction temperature range. Pricing starts at \$5.65 each in 1,000-piece quantities. All versions are available from stock. For more information, visit www.linear.com/product/LTC3649.

Photo Caption: 60V, 4A Monolithic Synchronous Step-Down Regulator Offers 95% Efficiency
& Rail-to-Rail Outputs

Summary of Features: LTC3649

- Wide V_{IN} Range: 3.1V to 60V
- Wide V_{OUT} Range: 0V to ($V_{IN} - 0.5V$)
- Single Resistor V_{OUT} Programming
- Integrated 110m Ω Top N-Channel/50m Ω Bottom N-Channel MOSFETs
- 95% Efficiency with 12V $_{IN}$ and 5V $_{OUT}$
- Active I_Q : 440 μ A, Shutdown I_Q : 15 μ A
- Accurate Current Monitoring ($\pm 4\%$) without Sense Resistor
- Accurate Resistor Programmable Frequency (300kHz to 3MHz) with $\pm 50\%$ Frequency Sync Range
- Accurate Programmable Output Current Limit
- Input Voltage Regulation for MPPT Applications
- $\pm 0.8\%$ Output Voltage Accuracy
- Peak Current Mode Operation
- Programmable Wire Drop Compensation
- Burst Mode[®] Operation, Forced Continuous Mode
- Internal Compensation & Programmable Soft-Start
- Overtemperature Protection
- Available in Thermally Enhanced 28-Lead 4mm \times 5mm QFN & TSSOP Packages

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

About Linear Technology

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