



40A μ Module Regulator with 3D Stacked-Inductor Packaging Enhances Thermal Conduction for Cooler Operation

MILPITAS, CA – November 28, 2016 – Linear Technology Corporation introduces the [LTM4636](#), a 40A step-down μ Module[®] switching regulator with 3D construction for quicker heat dissipation and cooler operation in a small package. By stacking its inductor on top of a 16mm x 16mm BGA package, the LTM4636 benefits from the exposed inductor as a heat sink, permitting direct contact with airflow from any direction to cool the device. The LTM4636 delivers 40W ($12V_{IN}$, $1V_{OUT}$, 40A, 200LFM) with only 40°C rise over ambient temperature. Full-power 40W is delivered up to 83°C ambient and half-power 20W is supported at 110°C ambient.

The LTM4636 operates at 92%, 90% and 88% efficiency, delivering 15A, 30A and 40A, respectively, to a 1V load ($12V_{IN}$). The μ Module regulator is scalable, such that four LTM4636s in parallel current sharing mode deliver 160W with only 40°C rise and 88% efficiency ($12V_{IN}$, $1V_{OUT}$, 400LFM).

Device height is 7.07mm, including the inductor stacked on top of a 16mm x 16mm x 1.91mm BGA package. In addition to dissipating heat from the top, the LTM4636 is designed to uniformly disperse heat from the bottom of the package to the PCB with 144 BGA solder balls, with banks of them assigned to GND, V_{IN} and V_{OUT} where high current flows. The LTM4636 μ Module regulator benefits system designers with its enhanced thermal performance in a small package resulting from the combination of impressive DC/DC conversion efficiency and enhanced heat dispersion.

The LTM4636 operates from a 4.7V to 15V input supply and regulates an output voltage from 0.6V to 3.3V. Total DC output voltage accuracy is $\pm 3\%$ from -40°C to 125°C . 1,000-piece price starts at \$38.85 each. For more information, visit www.linear.com/product/LTM4636.

Photo Caption: Scalable 40A Power POL Regulator with Stacked inductor


Summary of Features: LTM4636

- Stacked Inductor Acts as Heat Sink: Exposed Inductor on Top of Package (3D Construction)
- 4.7V to 15V Input
- 0.6V to 3.3V Output at up to 40A
- Scalable; 2 to 6 Devices in Parallel Delivers 80A to 240A Load Current

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, μ Module[®] subsystems and wireless sensor network products. For more information, visit www.linear.com

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