



10A μ Module Step-Down Regulator Delivers Full Current with 86% Efficiency at up to 83°C Ambient

MILPITAS, CA – June 27, 2013 – Linear Technology Corporation announces the [LTM4649](#), a 10A step-down μ Module[®] regulator with high operating efficiency and low temperature rise in a 9mm x 15mm x 4.92mm BGA (ball grid array) package. The LTM4649 requires no heat sink, airflow or output current derating at full power from 0°C to 83°C ambient temperature, while operating up to 86% efficiency (5V_{IN}–12V_{IN}, 1.5V_{OUT} at 10A). Output current is reduced only by 4A up to 100°C ambient and by 2A with 400LFM. The LTM4649 converts input supplies ranging from 4.5V to 16V to lower output voltages ranging from 0.6V to 3.3V. Equipped with a differential remote sense amplifier to compensate for voltage droop due to circuit board trace impedance, the LTM4649 regulates a load voltage with +/- 1.5% accuracy over line, load and temperature (-40°C to 125°C).

The LTM4649 provides input and output clocks for multiphase operation among multiple devices to accurately current share for up to 40A load. Multiphase operation reduces input and output ripple as well as the number of input and output capacitors. Applications include point-of-load conversion from 12V or 5V inputs in telecom, industrial, avionics and test equipment.

The LTM4649 is synchronizable to an external clock ranging in frequency from 400kHz to 750kHz. With options for Burst Mode[®] operation for the highest conversion efficiency at light load and pulse-skipping operation for lower output voltage ripple, gives users the option to personalize a circuit's performance. The LTM4649 permits output voltage tracking for sequencing multiple rails in a system. To protect the load, the LTM4649 features output overvoltage and overcurrent protection.

The LTM4649 E and I grades are guaranteed for internal operation from -40°C to 125°C. Pricing for 1,000-piece quantities starts at \$16.75 each. For more information, visit www.linear.com/product/LTM4649


Photo Caption: 10A μ Module[®] Step-Down Regulator in Small BGA Package

Summary of Features: LTM4649

- 10A Output Current
- 4.5V to 16V Input, 0.6V to 3.3V Output
- No Heat Sink, Airflow or Current Derating up to 83°C Ambient Temperature
- +/-1.5% Maximum Total DC Output Voltage Error
- Multiphase Operation & Synchronizable
- 9mm x 15mm x 4.92mm BGA

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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