



16A μ Module Regulator Configurable as Quad, Triple, Dual or Single Output Powers FPGAs, ASICs & Microprocessors

MILPITAS, CA – January 13, 2014 – Linear Technology announces the [LTM4644](#) quad output step-down μ Module[®] (micromodule) regulator configurable as a single (16A), dual (12A, 4A or 8A, 8A), triple (8A, 4A, 4A) or quad (4A each) output regulator. This flexibility enables system designers to rely on one simple and compact μ Module regulator for the variety of voltage and load current requirements of FPGAs, ASICs and microprocessors as well as other board circuitry. The LTM4644 regulator includes the DC/DC controllers, power switches, inductors and compensation components in a 9 x 15 x 5.01mm BGA package. Only eight external ceramic capacitors (1206 or smaller case sizes) and four feedback resistors (0603 case size) are required to regulate four independently adjustable outputs between 0.6V to 5.5V. Separate input pins enable the four channels to be powered from different or a common supply rail(s) from 4V to 14V. The LTM4644 is ideal for applications in communications, data storage, industrial, transportation and medical systems.

At an ambient temperature of 55°C, the LTM4644 delivers up to 13A at 1.5V from a 12V input or up to 14A with 200LFM airflow. The four channels operate at 90° out-of-phase to minimize input ripple whether at the 1MHz default switching frequency or synchronized to an external clock between 700kHz and 1.3MHz. With the addition of an external bias supply above 4V, the LTM4644 can regulate from an input supply voltage as low as 2.375V. Output overvoltage and overcurrent fault protection are included in the regulator.

The LTM4644 is available with operation specified over the -40°C to $+125^{\circ}\text{C}$ internal temperature range. The μ Module regulator is available for immediate delivery from stock with pricing starting at \$22.85 each for 1,000-piece quantities. For more information, visit

www.linear.com/product/LTM4644

Photo Caption: 16A Step-Down μ Module[®] Regulator Solution Configurable as Quad, Triple, Dual or Single Output

Summary of Features: LTM4644


- Configurable 16A Step-Down Solution in Less Than 1.5 x 2.3cm Area on Dual-Sided PCB
 - o Only Eight Capacitors & Four Resistors Required for a Complete Four-Output Channel Solution
 - o Supports Four Independent 4A Outputs to a Single 16A Output & Everything in Between Easy Paralleling with Load Share

Configuration 1	Configuration 2	Configuration 3	Configuration 4	Configuration 5	
Four Outputs	Three Outputs	Two Outputs	Two Outputs	One Output	
4A	8A	8A	12A	16A	
4A					
4A	4A	8A	4A		
4A	4A				

- 9 x 15 x 5.01mm BGA Package
- 4V to 14V V_{IN} Range
 - o As low as 2.375 V_{IN} with External 4V Bias Supply
 - o Separate Input Supply Pins for Each Channel
- User Adjustable V_{OUT} between 0.6V to 5.5V

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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