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25A μ Module Regulator Supports N+1 Redundancy Ensuring Power Availability under Fault Conditions

MILPITAS, CA & NORWOOD, MA – October 9, 2017 – Analog Devices, Inc., which recently acquired Linear Technology Corporation, announces the [LTM4645](#), a 25A step-down μ Module[®] (power module) regulator with the ability to current share multiple independent devices (N) where at least one LTM4645 is used as backup (+1) to ensure power availability if one device in this N+1 arrangement detects a fault and must be disconnected. For example, a 75A, 1V load such as an ASIC requires three LTM4645s for 75A (= 3 x 25A) total. For system resilience, one extra LTM4645 is added as a backup in 3+1 fashion, resulting in four LTM4645s current shared to deliver 75A if one fails. In the event of a faulty operation of one regulator, the device signals an upstream hot swap controller to disconnect itself from the power path while the remaining three LTM4645 regulators maintain uninterrupted operation. Applications benefiting from the LTM4645's N+1 redundancy feature include data centers, aerospace, banking transactions and cloud-based systems where improved system safety and integrity are top priority.

The LTM4645 operates from 4.7V to 15V input supply and regulates an output voltage adjustable from 0.6V to 1.8V. Synchronous step-down operation delivers 25A at 1V from 12V_{IN} with 86% efficiency, 3.5W power loss and 41°C rise (no airflow, no heat sink). The device is offered in a 9mm x 15mm x 3.51mm BGA package and includes the inductor, MOSFETs and DC/DC regulator IC. With a differential remote sense amplifier to compensate for voltage droop caused by PCB trace resistance and tested electrical parameters from –40°C to 125°C, the output voltage total DC accuracy is guaranteed at $\pm 1.2\%$. The LTM4645 has several safety functions such as output overvoltage protection, output overcurrent protection, and an onboard temperature monitoring diode. The propagation delay from time of failure device turn-off is less than 200ns.

The LTM4645 is rated for operation from –40°C to 125°C. Up to 6 devices can current share for 150A of load current. Power loss is only 3.5W for 12V input to 1V output at 25A load. For 12V input, 1V output conversion, full power is delivered up to 75°C (0LFM, no heat sink) and at 85°C derating of load current is 20A. 1,000-piece pricing starts at \$26.23 each. For more information, visit www.linear.com/product/LTM4645.

Photo Caption: 25A μ Module Regulator

Summary of Features: LTM4645


- 4.7V to 15V Input Voltage Range
- 0.6V to 1.8V Output Voltage Range
- 25A DC Output Current
- $\pm 1.2\%$ Total DC Output Voltage Error from -40°C to 125°C
- Supports High Reliability N+1 Phase Redundancy
- 9mm x 15mm x 3.51mm BGA Package

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

Analog Devices just got more Powerful. On March 10, Analog Devices acquired Linear Technology, creating the premier high-performance analog company. More info at <http://lt.linear.com/07c>

About Analog Devices

Analog Devices (NASDAQ: ADI) is the leading global high-performance analog technology company dedicated to solving the toughest engineering challenges. We enable our customers to interpret the world around us by intelligently bridging the physical and digital with unmatched technologies that sense, measure, power, connect and interpret. Visit <http://www.analog.com>

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