



36V, with 55V Transient Protection, 500mA(I_{OUT}), Step-Down DC/DC Converter with Integrated LDO

MILPITAS, CA – May 12, 2011 – Linear Technology Corporation announces the [LT3645](#), a 500mA (I_{OUT}), 36V step-down switching regulator and integrated LDO packaged in a 3mm x 3mm QFN or MSOP-12E. The LT3645 operates from a V_{IN} range of 3.6V to 36V with transient protection to 55V, making it ideal for load dump and cold-crank conditions found in automotive applications. Its internal 0.75A internal switch can deliver up to 500mA of continuous output current to voltages as low as 0.8V. The LT3645 uses a constant switching frequency of 750kHz to minimize noise while optimizing efficiency. In addition to the primary switcher channel, the integrated LDO can be used for an additional low noise output of up to 200mA of continuous current at voltages as low as 0.8V. Powering the LDO from the primary switching output offers both high efficiency and low noise for applications such as microprocessor core voltages. The LT3645 provides a compact, thermally efficient dual output solution, with its 3mm x 3mm QFN-16 package (or thermally enhanced MSOP-12E) and high switching frequency, which keeps external capacitors and inductor small,

The LT3645's main switcher utilizes a high efficiency 750mA, 450mV $_{CESAT}$ switch, with the necessary oscillator, control, logic circuitry and LDO integrated into a single die. Special design techniques enable high efficiency over a wide input voltage range while its current mode topology enables fast transient response and excellent loop stability. A current-limited DA pin offers an additional level of protection to improve overall reliability. The linear regulator operates from the V_{CC2} pin at voltages ranging from 1.2V to 16V with only a 310mV dropout voltage. Other features of the LT3645 include a power good flag, soft-start and thermal shutdown.

The LT3645EUD is offered in a 3mm x 3mm 16-lead QFN package and is priced at \$2.25 each. The LT3645EMSE is offered in a 12-lead, thermally enhanced MSOP package and is priced at \$2.35 each. Industrial grade versions, namely the LT3645IUD and the LT3645IMSE, are tested and guaranteed to operate from a -40°C to 125°C operating junction

temperature and are priced at \$2.48 and \$2.59 each, respectively. The LT3645HMSE is tested and guaranteed to operate from a -40°C to 150°C operating junction temperature and is priced at \$2.84 each. All prices are for 1,000-piece quantities and all versions are available from stock.

For more information, visit www.linear.com/product/LT3645


Photo Caption: 36V, 500mA(I_{OUT}), Step-Down DC/DC Converter with Integrated LDO

Summary of Features: LT3645

- Wide Input Range: Operation from 3.6V to 36V, Overvoltage Lockout Protects Circuit through 55V Transients
- 500mA Output Current Switching Regulator
- Constant Switching Frequency: 750kHz
- 200mA Low Dropout Linear Regulator 1.2V to 16V Input; 0.8V to 8V Output
- 310mV Dropout Voltage V_{CC2} to OUT2
- Precision Undervoltage Lockout
- Short-Circuit Robust
- Internal Soft Start
- <2µA Shutdown Current
- Small Thermally Enhanced 16-Lead (3mm × 3mm) QFN & 12-Lead MSE Packages

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 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, and µModule[®] subsystems.

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