



Isolated Forward Converter Chipset Simplifies Design While Enhancing System Reliability

MILPITAS, CA – August 9, 2011 – Linear Technology Corporation announces the [LTC3765](#) and [LTC3766](#) synchronous forward converter chipset with active clamp reset and Direct Flux Limit™ that prevents power transformer saturation under all conditions. The LTC3765 is a primary-side intelligent controller that works in concert with the LTC3766 to implement a robust and simple self-starting isolated power supply. After start-up, the LTC3765 receives timing signals and bias power from the secondary-side LTC3766 controller through a tiny pulse transformer. Secondary-side control puts the brains near the load, ensuring reliable control of the output voltage and current while providing the fastest transient response and eliminating the need for an optocoupler.

In traditional active clamp forward converters, a large change in output load or input voltage can cause the power transformer to saturate, resulting in converter failure. Direct Flux Limit prevents transformer saturation under all conditions, increasing overall converter reliability while maintaining a superior transient response when compared to alternative solutions. This type of forward converter design is well suited for 12V, 24V and 48V nominal input voltages that are commonly found in telecom, datacom and industrial applications.

The LTC3765/LTC3766 contains control circuitry to implement an active clamp transformer reset technique enabling higher efficiencies (up to 96%) and greater power densities when compared to conventional catch winding or resonant reset techniques. High current gate drivers for the main switch, the active clamp switch and the synchronous switches include adjustable delays to achieve maximum efficiency. Additional features include a fast & accurate average current limit, fixed-frequency adjustable operation from 75kHz to 500kHz, clean start-up into pre-biased loads, multiphase operation for high power designs, overtemperature protection and true remote output voltage sense.

The LTC3765 is available in a thermally enhanced MSOP-16 package and the 1,000-piece price starts at \$2.56. The LTC3766 is available in a 4mm x 5mm QFN-28 and SSOP-28

packages and the 1,000-piece pricing starts at \$3.88. For more information, visit www.linear.com/product/LTC3765 and www.linear.com/product/LTC3766


Photo Caption: Isolated Synchronous Forward Converter

Summary of Features: LTC3765/LTC3766

- Direct Flux Limit Prevents Transformer Saturation
- Active Clamp Drive with Delay Adjustment
- Synchronous Rectification
- Fast and Accurate Average Current Limit
- Clean Start-up Into Prebiased Loads
- Multiphase Operation Eases High Power Design
- Secondary-Side Control for Fast Transient Response
- True Remote Output Voltage Sense
- Operating Frequency 75kHz to 500kHz

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 μ Module[®] subsystems.

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