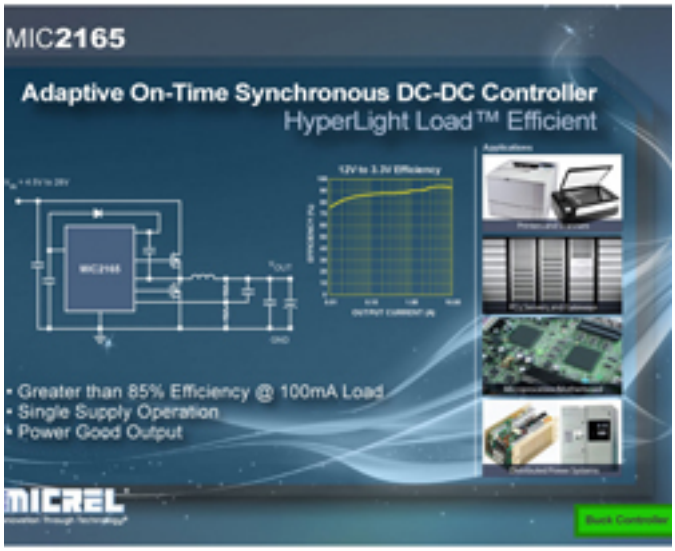
DC-DC Controller Features Single Supply Operation



Micrel, Inc. today introduced the MIC2165, a HyperLight Load efficient, adaptive on-time, synchronous DC-DC controller. The device features an architecture that significantly reduces the required output capacitance and allows for excellent transient response, while making high delta-V operation (VIN=28V, VOUT=0.8V) possible. The MIC2165 employs a HyperLight Load feature to achieve very high efficiencies at light load conditions. Also built into MIC2165 are a power good signal and an internal VDD regulator that enables single-supply operation. The solution is ideal for applications that require very low standby power dissipation such as set-top boxes, gateways, routers, computing peripherals, servers, processor core supply and low-voltage distributed power supplies. The MIC2165 is currently available in volume quantities with pricing starting at $1.00 for 1K quantity. Samples can be ordered on line at: http://www.micrel.com/ProductList.do [1].

“A host of customer-friendly features such as internal 5V VDD regulator and power good output, combined with Micrel’s HyperLight Load efficiency offer terrific benefits including reduced BOM cost and world class efficiency,” stated Doyle Slack, director of analog marketing, Micrel. “The huge advantage gained by our HyperLight LoadTM is very high efficiency at light load conditions. This results in minimal power loss during standby modes.”

The MIC2165 operates at 600kHz switching frequency and can be used to provide up to 25A of output current. The device achieves up to 95 percent efficiency, while still switching at high frequencies over a broad load range. The MIC2165 operates over an input supply range of 4.5V to 28V. The device has an internal linear regulator which provides a regulated 5V to power the internal control circuitry. An

UVLO feature is provided to ensure proper operation under power-sag conditions to prevent the external power MOSFET from overheating. A digital soft start feature is provided to reduce the inrush current. Short current sensing on the bottom MOSFET, with hiccup, ensures protection in case of output short circuit. The MIC2165 includes an enable (EN) input to shutdown the converter and a power good output that allows simple sequencing. The device is stable with all output capacitors (zero to high ESR). The MIC2165 is available in a 10-pin MSOP ePad package with a junction operating range from –40ºC to +125ºC.

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