54V, 110A Continuous/140A Peak DC-to-DC µModule Regulator with PMBus Interface

FEATURES

- High Efficiency at High Frequency: up to 93.9% Efficiency at V_{IN} = 54V to V_{OUT} = 3.3V
- PMBus-Compliant I²C Serial Interface and Non-Volatile Memory/EEPROM:
  - Programming of V_{OUT}, Current Limits, Soft-Start/Soft-Stop, Frequency Synchronization And Phasing, Loop Compensation, Warnings, and Fault Handling
  - Telemetry of Voltage, Current, Temperature, and Faults
  - Configurable "Black Box" Fault Log Saves up to 15 Records of All Telemetry and Faults
- Wide Input Voltage Range: 45V to 65V
- Output Voltage Range: 0.5V to 3.6V
- Optimized for V_{IN} = 48V to 54V, V_{OUT} = 3.3V
- ±1.5% Maximum DC Output Error with Differential Remote Voltage Sense
- Parallel Multiple µModule ICs for Increased Total I_{OUT}
- Available in a *22mm × 24mm × 14.15mm Surface-Mounted Open Frame Package*

APPLICATIONS

- Servers, Network, and Storage Equipment
- Automated test equipment (ATE)

GENERAL DESCRIPTION

The *LTP8813* is a 110A continuous/140A peak step-down power µModule® (micromodule) regulator that provides microprocessor core voltage from a 48V or 54V power distribution system. The LTP8813 features remote configurability and telemetry of power management parameters over PMBus, an open-standard digital interface based on I²C.

The LTP8813 is comprised of a programmable digital control loop with precision mixed-signal circuitry, an EEPROM, power MOSFETs, a planar transformer, inductors, and ancillary components. The LTP8813's high level of integration minimizes component count and design time and maximizes flexibility and power density.

The LTP8813 preserves high efficiency at high conversion ratios by utilizing a quasi-resonant architecture that reduces high-voltage switching losses.

ABRIDGED DATA SHEET

TYPICAL APPLICATION

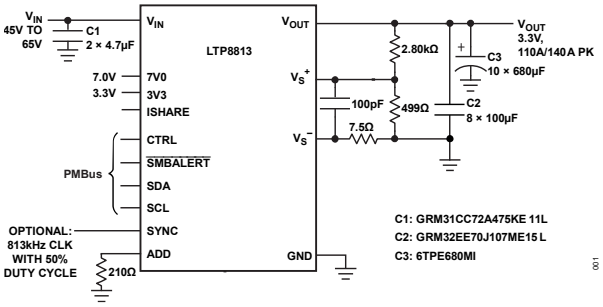

Figure 1. V_{OUT} = 3.3V, I_{OUT} = 110A Continuous/140A Peak DC-to-DC µModule Regulator with PMBus Interface

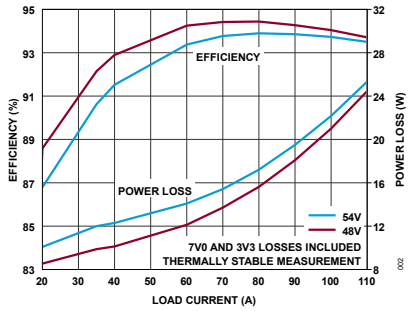

Figure 2. Efficiency vs. Power Loss for V_{OUT} = 3.3V

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