

Fast and Accurate 5V Octal 2A/Single 16A Step-Down Converter with Daisy-Chain SPI

FEATURES

- ▶ **Eight Channels: 3.2-5V_{IN} at 2A_{OUT(MAX)}**
- ▶ **Output Accuracy of $\pm 0.25\%$ Over 0° to -85°C, Operating Range up to T_J = 125°C, Dedicated V_{SNSN} Combined Ground Sensing for True Differential Sensing at Chip Level**
- ▶ **SPI Interface for Programmability and Telemetry**
 - Programmable V_{OUT} from 0.4V to 4.94V
 - Programmable Channel Configurations: 8x2A, 4x4A, 6x2A and 1x4A, 4x2A and 2x4A, 2x8A, 1x16A Synchronous Phase Shifted Operation
 - Programmable Faults to Trigger Common Open-Drain FAULTb Status Output
 - Programmable OCP, OVP, UVP, OT, and Fault Response
 - Programmable Switching Frequency: 650kHz, 1.25MHz, 2.5MHz
 - V_{OUT}, I_{OUT} Telemetry
- ▶ Status Register for Fault Reporting
- ▶ SYNC_OUT and CLK_OUT for Simplified Signal Routing
- ▶ 30-Lead (3.3mm x 6.3mm) LQFN Package

APPLICATIONS

- ▶ Test and Measurement Instruments
- ▶ High power delivery channels density applications

GENERAL DESCRIPTION

The **LT[®]8460** contains eight step-down regulators, each with an independent programmable V_{OUT} and overcurrent protection. Each converter can operate completely autonomously or be programmed for interleaved operation with adjacent channels, in phase or phase-shifted with respect to the rest of the channel combinations, and up to a total output current of 16A. Switching frequency setting will be fixed, and it can be set externally as well. Each channel will report V_{OUT} and I_{OUT} independently, with a minimum reporting interval of 163.8μs and 40.96μs, respectively, whether operating independently or in parallel mode. T_J will be reported on a separate register, and both the overtemperature threshold and response are programmable. V_{OUT} can be programmed for all channels with a single command as well.

The LT8460 can deliver up to 2W per channel, with a peak limit of 2.5W. The nominal current delivery of 2A must be reduced with output voltages above 1V. In an octal configuration, the LT8460 can deliver up to 16W.

No external components are required, and the sensed voltage will be internally scaled to the programmed V_{OUT}.

An SPI digital I/O port is used to program the output voltages, enable the part, read and program fault thresholds and responses. A common open-drain FAULTb can be programmed to report any combination of faults on various channels based on the status_fault registers. All the faults are accessible through several registers to help to locate the channel and the fault type that caused the FAULTb pin to go low.

The 30-lead 3.3mm x 6.3mm LQFN package makes the LT8460 particularly well suited for extremely space-constrained designs

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