

High-Efficiency, $\pm 12\text{A}$ Power Augment for Device Power Supply

FEATURES

- ▶ Efficient Switching Supply Driver
 - ▶ Integrated $3\text{m}\Omega$ 16V Power Switches
 - ▶ Silent Switcher Architecture
- ▶ Regulates Positive or Negative Output Voltages
- ▶ Start/Stop into Preregulated V_{OUT}
- ▶ Supply Voltage Differential Up to 16V
- ▶ Precision Integrated Current Sense with $\pm 32.4\text{A}$ Range
- ▶ -2.5V to $+6\text{V}$ Output with Up to $\pm 12\text{A}$ (Continuous) and $\pm 16\text{A}$ (Transient)
- ▶ Synchronizable from 350kHz to 1.4MHz
- ▶ Ultra-Low Switching Cycle to Cycle Jitter
- ▶ Ganging Capability for Higher Current
- ▶ Die Temperature Monitoring
- ▶ Safe Shutdown
- ▶ Diagnostics and Fault Reporting
- ▶ 7mm x 8mm, 52-Pin LQFN

APPLICATIONS

- ▶ Automatic Test Equipment (ATE)
- ▶ Device Power Supply

GENERAL DESCRIPTION

The LT8752 is a companion to the LT8740 device power supply (DPS). Its purpose is to provide augmented power delivery capability at high efficiency. The power stage is a peak current mode regulated synchronous buck with $3\text{m}\Omega$ switches. With a typical positive supply voltage of 9V, and the negative supply voltage of -5.5V , relative to device SGND, the LT8752 can drive an output voltage ranging from -2.5V up to 6V, relative to SGND. The device can supply $\pm 12\text{A}$ of continuous current when properly cooled. Average currents up to $\pm 16\text{A}$ can be supplied during transients. A series output current sensing resistor is integrated, supporting accurate output current measurement up to $\pm 32.4\text{A}$. The current delivered to the DUT is reported to the LT8740 by a differential voltage signal with up to $\pm 3.15\text{V}$ swing at a typical 96.2mV/A .

The LT8752 offers ultra-low switching edge jitter, which makes this part ideal for ATE applications that require very low output voltage noise. The LT8752 output current is set by the V_{CTRL} pin, which is controlled by the digital PID control loop of the LT8740 while operating in either force voltage or force current mode. The G_{VCTRL} pin provides capability to parallel (gang/merge) the outputs of multiple drivers. The switcher starts into a preregulated output with minimal output voltage transient. An analog output pin reports device temperature and pulls down to indicate an alarm condition. An open-drain FAULT output is provided in the event of overtemperature or other fault events. The LT8752's switching is synchronized to an external clock. The duty cycle of the clock configures the output current control mode.

TYPICAL APPLICATION

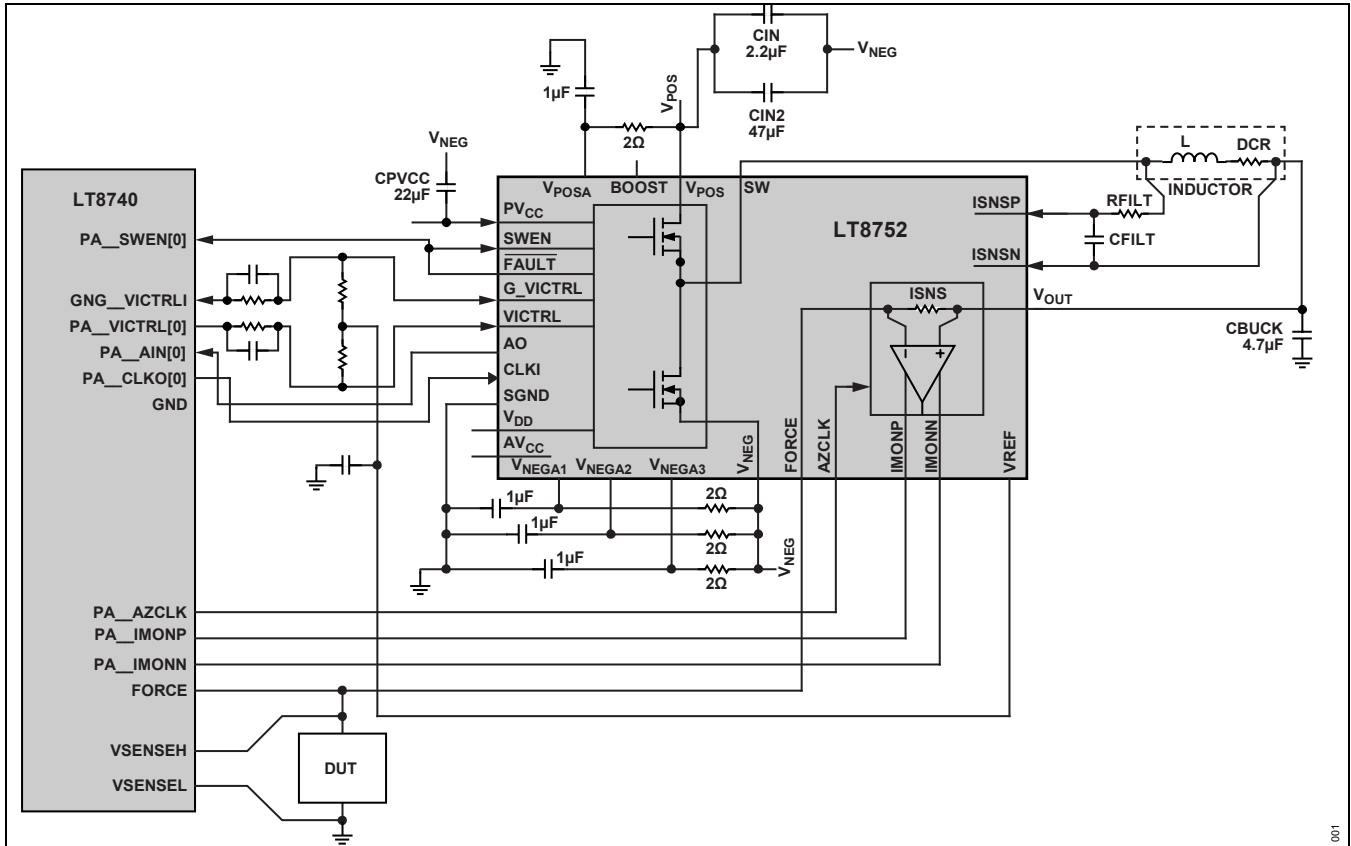


Figure 1. Single-Channel $\pm 12A$, 8.5V Span DPS for ATE Applications

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NOTES

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