STEVAL-ISA043V2

1.5 A /1.2 V high-frequency synchronous buck converter demonstration board based on the ST1S06

Data brief

Features

- Adjustable current-mode pulse width modulation (PWM) synchronous, step-down DC-DC converter with inhibit function
- Input voltage, Vin: 2.5 V to 5.5 V
- Output voltage, Vout: 3.3 V
- Output current, Iout: 1.5 A
- Switching frequency: 1.5 MHz
- RoHS compliant

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Description

This demonstration board, based on the ST1S06, is an adjustable current-mode PWM synchronous, step-down DC-DC converter with inhibit function. It is optimized for powering all low-voltage applications and, more generally, to replace the high-current linear solution when the power dissipation may cause overheating of the application environment.

It provides up to 1.5 A over an input voltage range of 2.5 V to 5.5 V.

A high switching frequency (1.5 MHz) enables the use of tiny surface-mounted components (SMD). In addition to the resistor divider used to set the output voltage value, only an inductor and two capacitors are required.

Moreover, low output ripple is guaranteed by the current-mode PWM topology and by the use of low series resistance (ESR) SMD ceramic capacitors.

The device is thermal protected and current limited to prevent damage due to accidental short circuits.

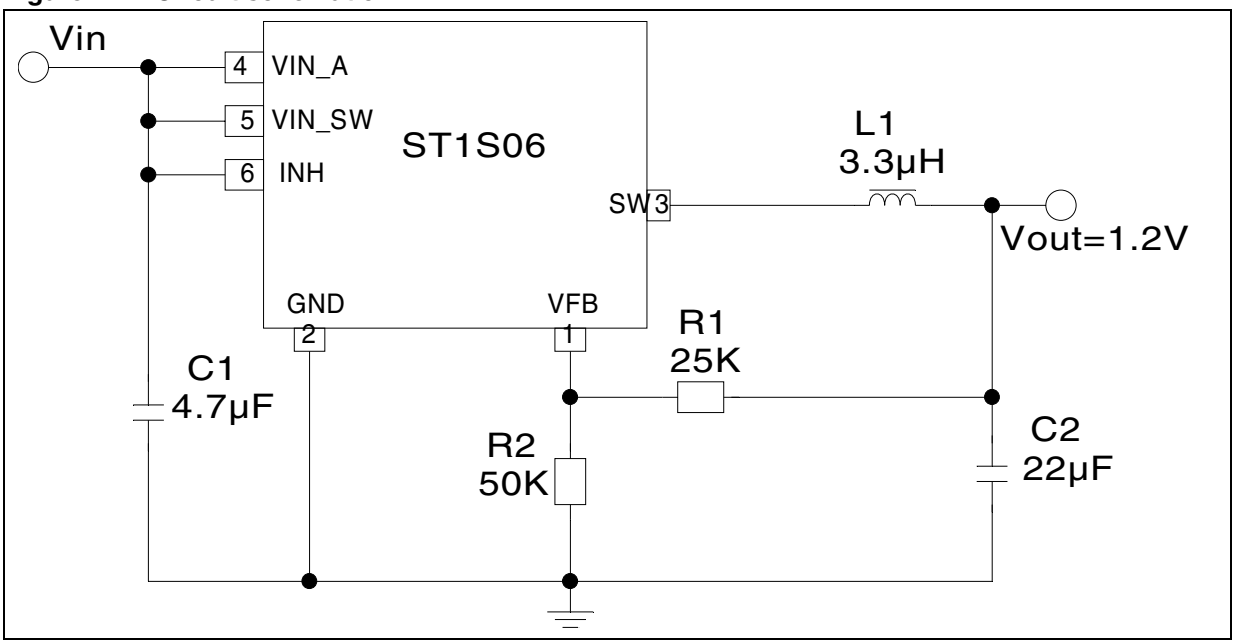
It is a complete 1.5 A switching regulator with its internal compensation eliminating the need for additional components.

The constant-frequency, current-mode, PWM architecture and stable operation with ceramic capacitors results in a low, predictable output ripple. To clamp the error amplifier reference voltage, this device includes a soft-start control block generating a voltage ramp.

The ST1S06 is available in a 6L-DFN 3x3 package.

1 Circuit schematic

Figure 1. Circuit schematic



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
10-Nov-2010	1	Initial release.

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