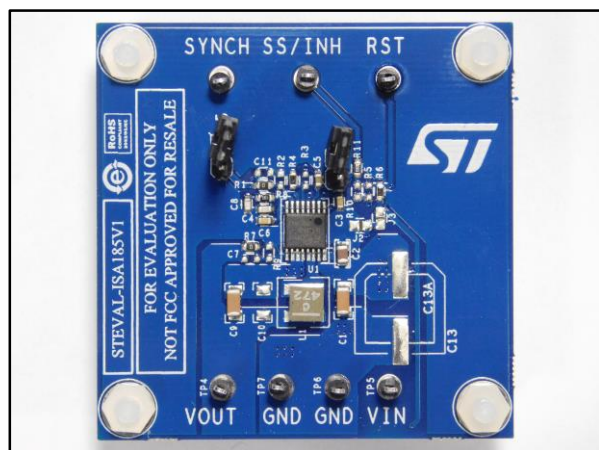


38 V, 0.5 A synchronous step-down switching regulator evaluation board based on A6985F3V3

Data brief



Description

The STEVAL-ISA185V1 is a product evaluation board based on the ST synchronous step-down switching regulator A6985F3V3, which can deliver up to 0.5 A and, with its 100% duty cycle ability to withstand cold crank events and wide input operating voltage range, renders the A6985F3V3 the ideal choice for battery-powered automotive systems. Synchronous rectification helps achieve higher efficiency at full load as well as application compactness, while high-frequency switching (programmable up to 2 MHz) helps to reduce the cost and size of power passive components while remaining outside the AM band.

The device can operate in low consumption mode (LCM) with a quiescent current of 30 μ A, hence ensuring the high efficiency under light load condition required in typical car body applications that are active during car parking. A low noise mode (LNM) can be selected to meet the requirements of infotainment applications with forced PWM mode under all load conditions.

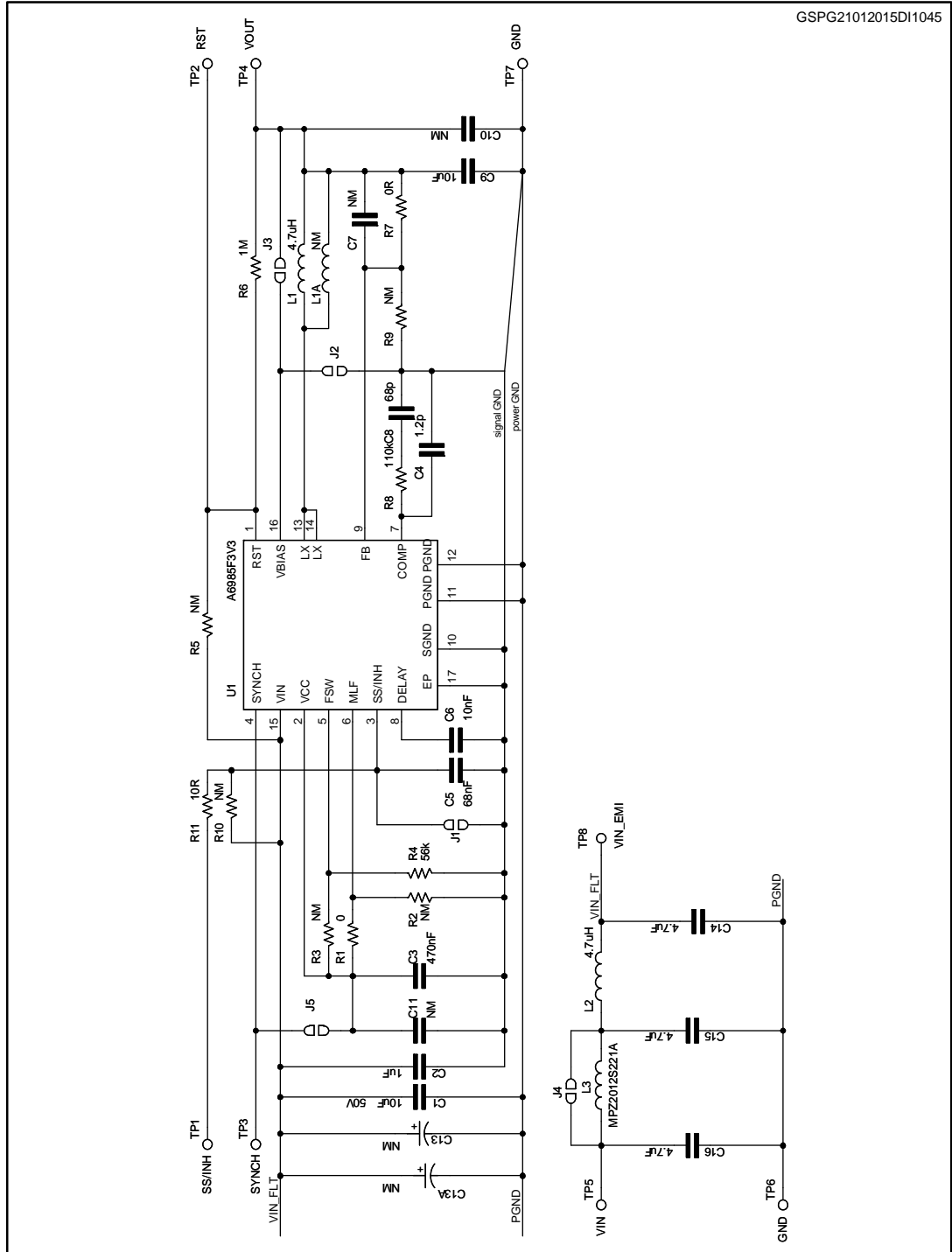
The default board configuration is LCM active, 2 MHz switching frequency, high I_{SKIP} current and the switchover feature enabled, but all of these settings can be easily changed so the user can evaluate different application scenarios.

Features

- AECQ100 qualification
- 0.5 A DC output current
- 4 V to 38 V operating input voltage
- Low consumption mode or low noise mode
- Programmable I_{SKIP} current
- 30 μ A I_Q at light load (LCM $V_{IN} = 12$ V)
- 8 μ A $I_{Q-SHTDWN}$
- Adjustable f_{SW} (250 kHz - 2 MHz)
- Fixed output voltage $V_{OUT} = 3.3$ V
- Embedded output voltage supervisor
- Synchronization
- Adjustable soft-start time
- Internal current limiting
- Overvoltage protection
- Output voltage sequencing
- Peak current mode architecture
- $R_{DS(on)HS} = 360$ m Ω ; $R_{DS(on)LS} = 150$ m Ω
- Thermal shutdown
- RoHS compliant

1 Schematic diagram

Figure 1: STEVAL-ISA185V1 board schematic



2 Revision history

Table 1: Document revision history

Date	Version	Changes
21-Jan-2016	1	Initial release.

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