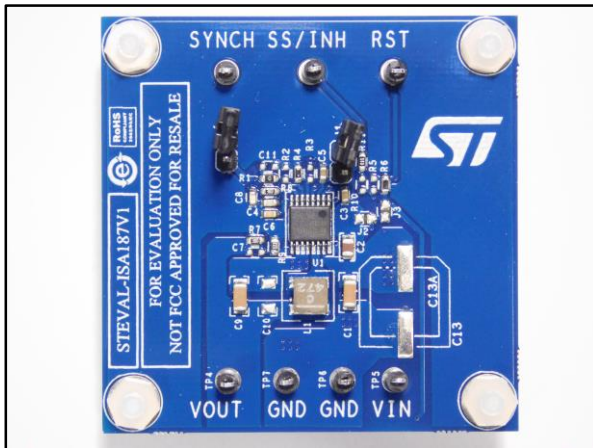


38 V, 0.5 A synchronous step-down switching regulator evaluation board based on A6985F

Data brief



Description

The STEVAL-ISA187V1 is a product evaluation board based on the ST synchronous step-down switching regulator A6985F, 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, represents 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 reduce the cost and size of power passive components while remaining outside the AM band.

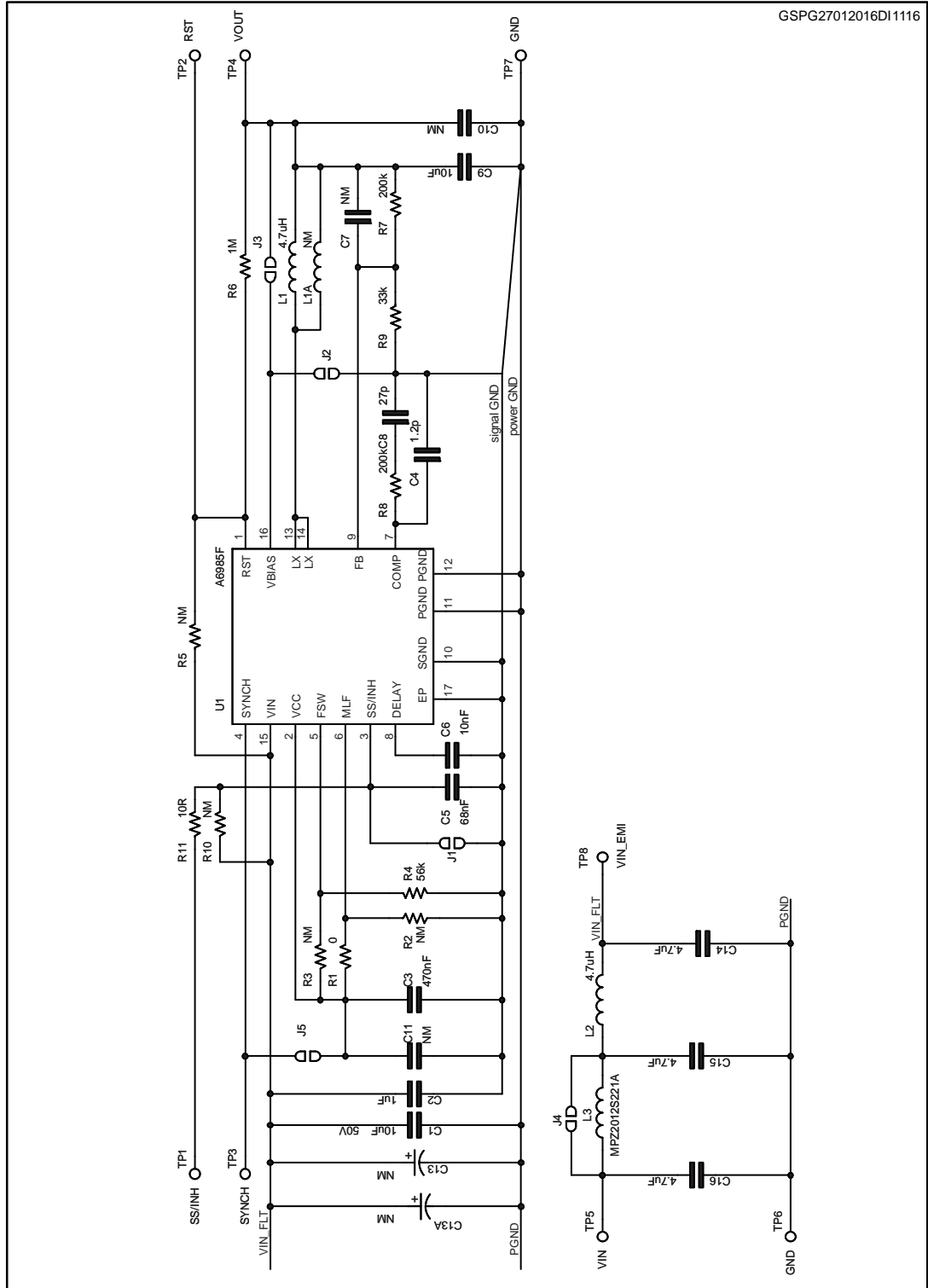
The device can operate in low consumption mode (LCM), with a quiescent current of 30 μA at $V_{\text{IN}}=12\text{ V}$ and $V_{\text{OUT}}=3.3\text{ V}$ that ensures high efficiency under light load, which is a requirement in typical car body applications that are active when a car is parked. A low noise 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 μA I_{Q} at light load (LCM $V_{\text{IN}} = 12\text{ V}$ and $V_{\text{OUT}} = 3.3\text{ V}$)
- 8 μA $I_{\text{Q-SHTDWN}}$
- Adjustable f_{SW} (250 kHz - 2 MHz)
- Output voltage adjustable from 0.85 V to V_{IN}
- Embedded output voltage supervisor
- Synchronization
- Adjustable soft-start time
- Internal current limiting
- Overvoltage protection
- Output voltage sequencing
- Peak current mode architecture
- $R_{\text{DS(on)HS}} = 360\text{ m}\Omega$; $R_{\text{DS(on)LS}} = 150\text{ m}\Omega$
- Thermal shutdown
- RoHS compliant

1 Schematic diagram

Figure 1: STEVAL-ISA187V1 schematic circuit



GSPG27012016DI1116

2 Revision history

Table 1: Document revision history

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

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