
High efficiency synchronous step-down regulator based on the L6984

Data brief



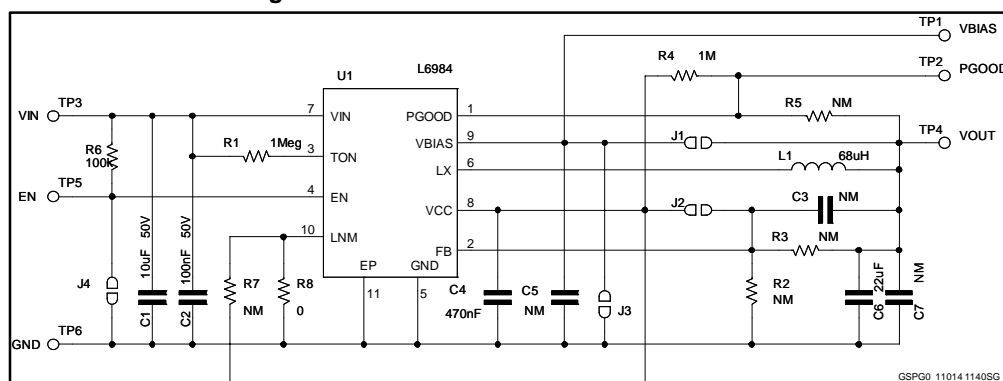
Description

The STEVAL-ISA159V1 product evaluation board is based on a high-efficiency monolithic synchronous step-down regulator, capable of delivering up to 400 mA of DC current. The fixed 3.3 V output requires no external resistor divider. The Low Consumption Mode (LCM) is designed for applications active during car parking, so it maximizes the efficiency at light load with controlled output voltage ripple. The Low Noise Mode (LNM) makes the switching frequency nearly constant over the load current range, serving low noise application specifications such as car audio/sensors. The PGOOD open collector output can implement output voltage sequencing during the power-up phase. The synchronous rectification, designed for high efficiency at medium-heavy load, and the high switching frequency capability ensure a compact application size. Pulse-by-pulse current sensing on the low-side power element implements effective constant current protection.

Features

- 400 mA DC output current
- 4.5 V to 36 V operating input voltage
- Synchronous rectification
- Low consumption mode or low noise mode
- 100 μ A I_Q at light load (LCM $V_{OUT} = 3.3$ V)
- 13 μ A $I_{Q-SHTDWN}$
- Adjustable f_{SW} (250 kHz - 600 kHz)
- Output voltage adjustable from 0.9 V
- No resistor divider required for 3.3 V V_{OUT}
- V_{BIAS} maximizes efficiency at light load
- 350 mA valley current limit
- Constant on-time control scheme
- PGOOD open collector
- Thermal shutdown

Figure 1: STEVAL-ISA159V1 circuit schematic



2 Revision history

Table 1: Document revision history

Data	Revision	Changes
03-Oct-2014	1	Initial release

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