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STEVAL-ISA138V1

19 V - 90 W adapter with PFC for laptop computers using the L6563H and L6699

Data brief



Features

- Universal input mains range: from 90 to 264 Vac - frequency from 45 to 65 Hz
- Output voltage: 19 V at 4.75 A continuous operation
- Mains harmonics: meets EN61000-3-2 Class-D and JEITA-MITI Class-D
- No load mains consumption: in accordance with ENERGY STAR 2.0 for external power supplies
- Average efficiency: in accordance with ENERGY STAR 2.0 for external power supplies
- Light load efficiency: in accordance with ErP Lot 6 Tier2 requirements
- EMI: within EN55022-Class-B limits
- Safety: meets EN60950 standards
- Dimensions: 65 x 151 mm, 25 mm maximum component height
- PCB: double-side, 70 µm, FR-4, mixed PTH/SMT
- RoHS compliant

Description

The STEVAL-ISA138V1 solution evaluation board is a 90 W, wide-range mains, power-factor corrected, AC-DC adapter. Its electrical specifications are tailored to a typical hi-end portable computer power adapter.

The architecture is based on a two-stage approach: a front-end PFC pre-regulator based on the L6563H TM PFC controller and a downstream LLC resonant half bridge converter using the new L6699 resonant controller. Thanks to the chipset used, the main features of this design are very high overall efficiency, compliance with ENERGY STAR® eligibility criteria (EPA rev. 2.0 EPS), high efficiency even at light load, and compliance with the new ErP Lot 6 Tier2 requirements. No load input power consumption is very low also, well within the international regulation limits.

The controller of the LLC stage is the L6699, integrating innovative functions such as self-adjusting adaptive dead-time, anti-capacitive mode protection and proprietary "safe-start" procedure to prevent hard switching at startup.

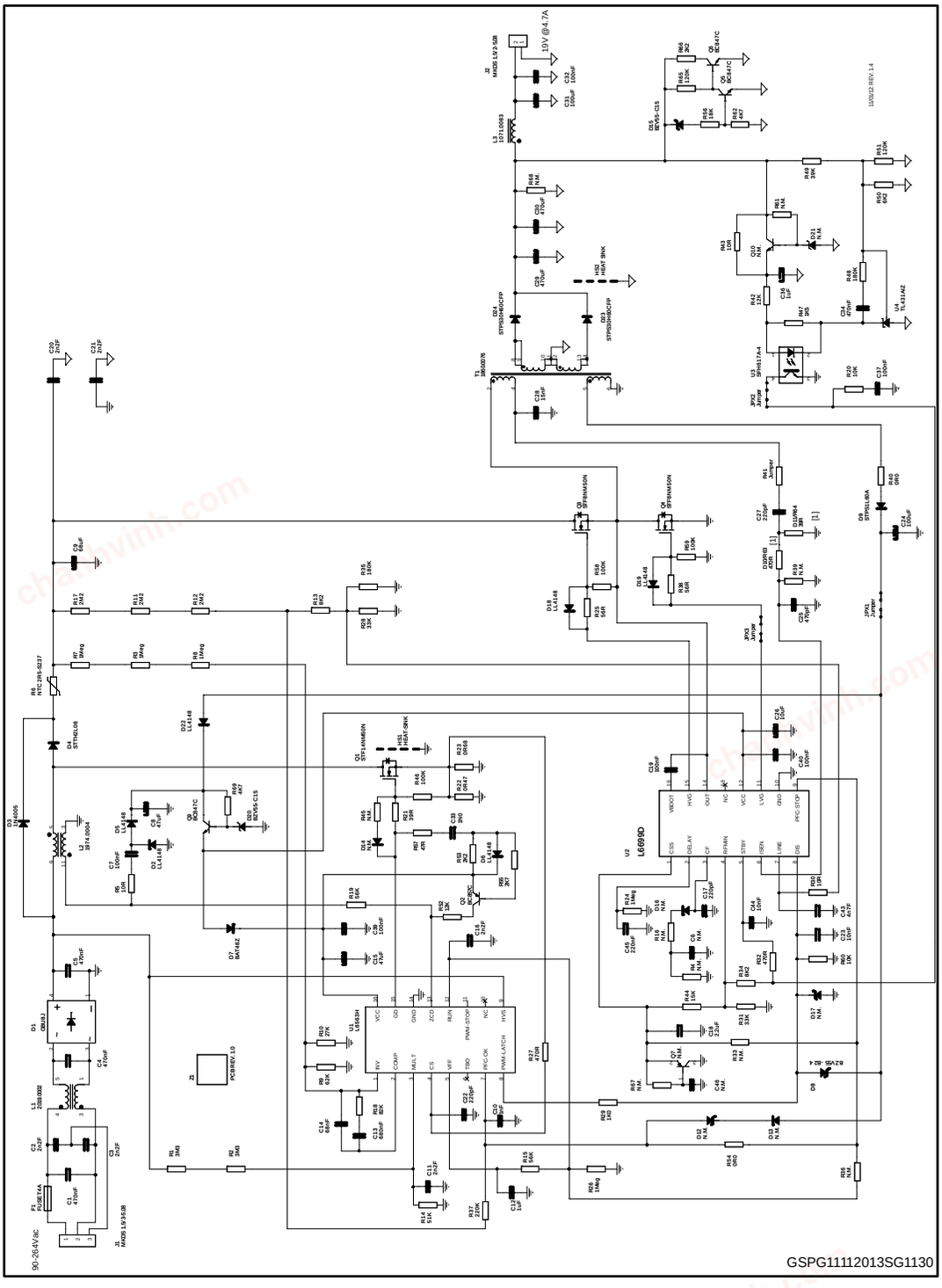
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1 Schematic diagram

Figure 1: Schematic diagram



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2 Revision history

Table 1: Document revision history

Date	Revision	Changes
15-Nov-2013	1	Initial release

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