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30 W AC-DC adapter based on the L6565

Data Brief

Features

- Input voltage range (V_{IN}) from 88 to 264 V_{AC}
- Mains frequency (f_L) 50 / 60 Hz
- Maximum output power (P_{OUT}) 30 W
- Output voltage $V_{OUT} = 15 V \pm 3\%$
- Output current $I_{OUT} =$ from 0 to 2 A
- $V_{RIPPLE} \leq 1\%$
- Minimum switching frequency (@ 100 V_{DC} input voltage) 60 kHz
- Target efficiency (@ $P_{OUT} = 30 W$, $V_{IN} = 88 - 264 V_{AC}$) $\eta > 80\%$
- Maximum no-load input power $< 0.75 W^{(1)}$



Description

This evaluation board is an AC-DC adapter for consumer equipment, typically implemented as an external unit. For more details see [Chapter 1: Characteristics](#)

1. Compliant with European Code of Conduct on Efficiency of External Power Supplies, phase 2, 01.01.2003

1 Characteristics

As such, it falls within the scope of the European "Code of Conduct on Efficiency of External Power Supplies" and is required to meet efficiency standard under no-load conditions as specified in the following table:

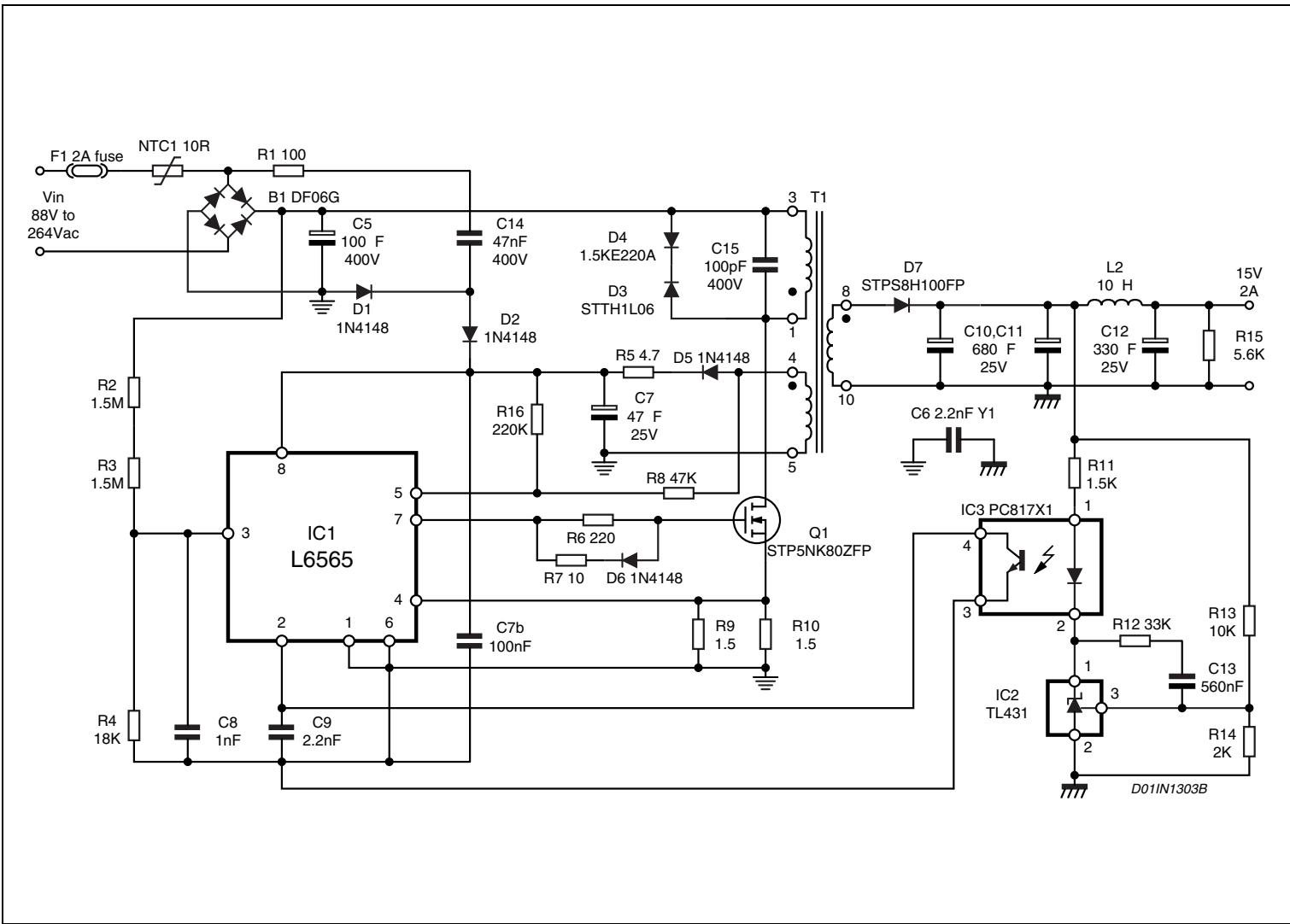
Table 1. No-load conditions

Rated input power	No-load power consumption		
	Phase 1 01.01.2001	Phase 2 ⁽¹⁾ 01.01.2003	Phase 3 01.01.2005
≥ 0.3 W and < 15 W	1.0 W	0.75 W	0.30 W
≥ 15 W and < 50 W	1.0 W	0.75 W	0.30 W
≥ 50 W and < 75 W	1.0 W	0.75 W	0.30 W

1. Compliant with European Code of Conduct on Efficiency of External Power Supplies, phase 2, 01.01.2003

This evaluation board complies with the "Phase 2" requirements. The minimum switching frequency (60 kHz @ $V_{IN} = 100 V_{DC}$) has been chosen trading off between the transformer size and frequency-related losses. To provide room for the leakage inductance spike, an 800 V MOSFET (STP5NK80ZFP) is used.

2 Board schematic

Figure 1. Schematic

3 Revision history

Table 2. Document revision history

Date	Revision	Changes
18-Dec-2007	1	Initial release.

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