STEVAL-SMACH15V1

Data brief

15 W 5 V output USB adapter evaluation board with STCH03 CC-mode primary sensing switching controller



Features

- Universal AC Main Input voltage range: 90 V_{AC} to 264 V_{AC}
- Output range: 5 V-3 A continuous operation
- Constant voltage (CV) and constant current (CC) operation with CC primary sensing
- Output overvoltage and short-circuit protection
- Input power in standby <15 mW at 230 V_{AC}
- Intelligent power management to maximize efficiency over entire output power range
- Compliant with stringent energy regulations
- EMI: According to EN55022-Class-B
- Small form factor: 44x35x15 mm

Description

The STEVAL-SMACH15V1 USB adapter evaluation board is based on the STCH03 offline PWM controller for low standby adapters. The controller can provide constant output current (CC) regulation using primary sensing feedback.

The device combines a high-performance low-voltage PWM controller chip and a 650 V HV start-up cell in the same package. It also features extremely low quiescent current and burst-mode management. These features help minimize residual input consumption to less than 15 mW under no-load conditions.

The device offers output overvoltage protection (OVP) and over-temperature protection (OTP). It also offers Hiccup-mode protection for when the transformer saturates or the secondary diode fails short, and an output UVP protection that limits the average output current when an output short circuit occurs.

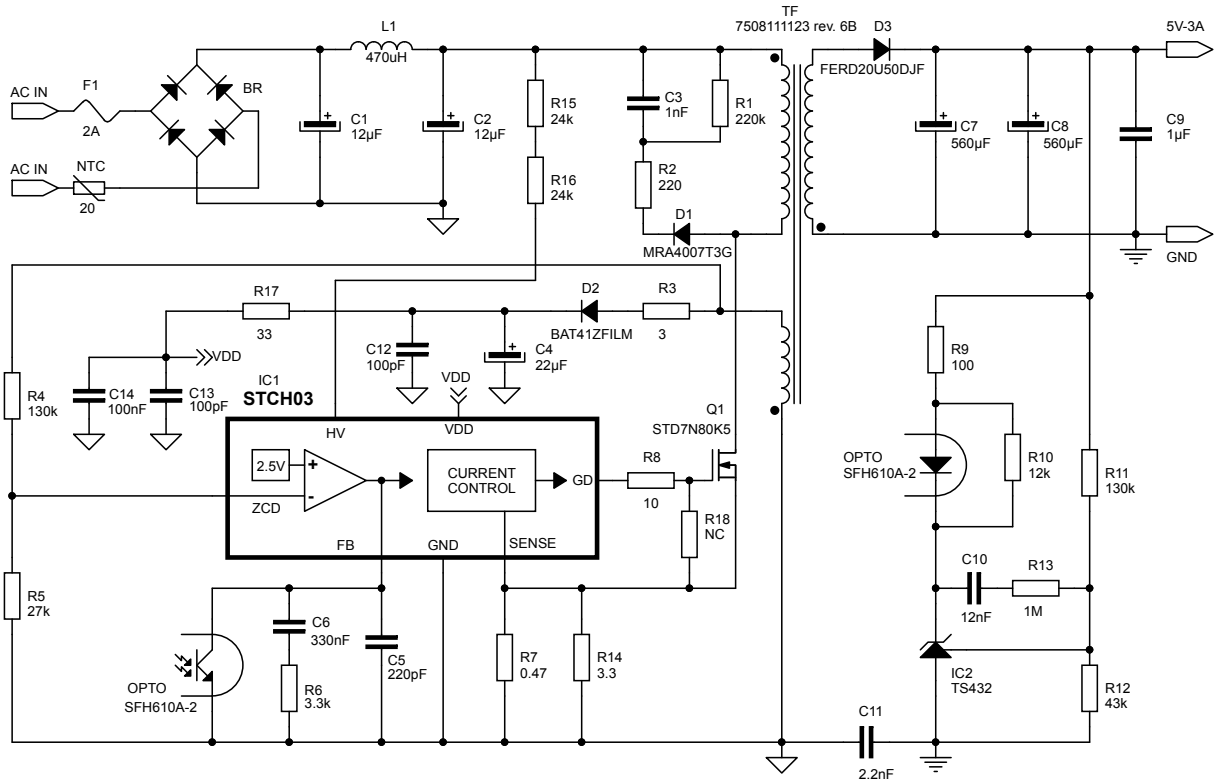
The adapter satisfies energy saving recommendations (EuCoC rev. 5 – Tier 2 and EPS of DOE USA) and EN55022-Class-B Conducted noise emissions.

The small form factor and the output USB connector renders the design suitable for small USB chargers and adapters for mobile phones, tablets and other handheld equipment.

Product summary	
USB adapter evaluation board based on STCH03 offline PWM controller	STEVAL-SMACH15V1
Offline PWM controller for low standby adapters	STCH03
Application category	Power management

1 Schematic diagram

Figure 2. **STEVAL-SMACH15V1 evaluation board schematic**



Revision history

Table 1. **Document revision history**

Date	Version	Changes
19-Jun-2018	1	Initial release.

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