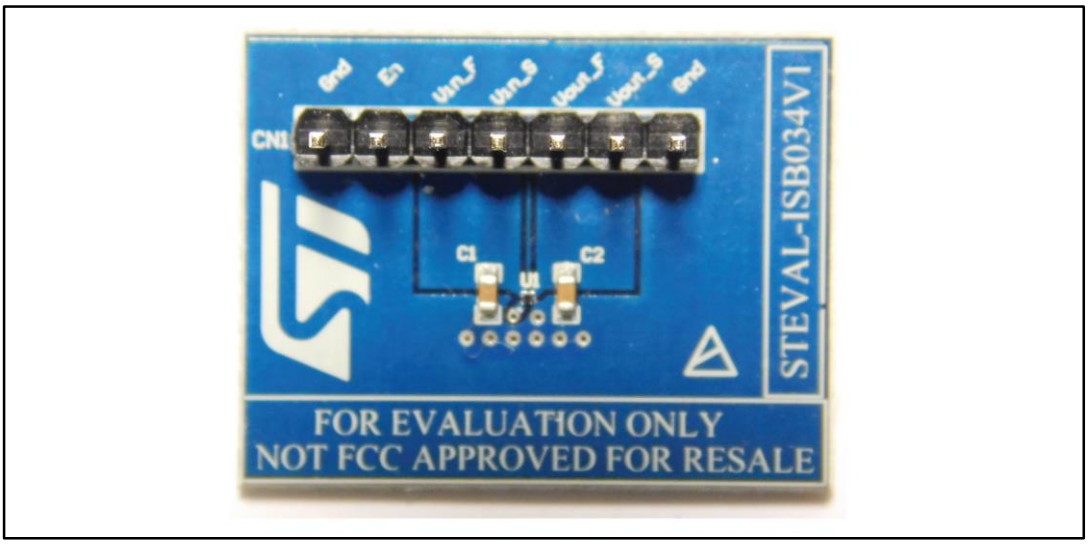
UM2038
User manual

How to use STEVAL-ISB034V1 LDBL20 evaluation board

Introduction

The STEVAL-ISB034V1 evaluation board features the LDBL20 high performance linear voltage regulator, configured to convert a 2.85 V to 5.5 V DC input voltage into a precise and stable 2.5 V output voltage. The board offers all the inputs and output functions necessary to configure the device and to test all its and features and performance characteristics. Only two small ceramic capacitors are needed to implement the linear regulator solution. The 200 mA, very low-dropout LDBL20 voltage regulator features high PSRR, low quiescent current and the minute ST Stamp™ chip-scale package, with a footprint of only (0.47 x 0.47) mm². It is designed for low-power battery operated equipment such as smartphones, tablets and wearable devices.

Figure 1: STEVAL-ISB034V1 evaluation board



Contents

1 STEVAL-ISB034V1: Getting started

1.1 Board description

The evaluation board size is approximately 25.4 mm x 19.2 mm; and the PCB is made of FR4 glass epoxy support with 2 copper layers. The PCB and all components on the evaluation board meet requirements of the applicable RoHS directives.

1.2 Input output connector

The 7-pin CN1 input/output connector provides all the necessary signals: Kelvin connection points for input and output voltage, enable signal input and double GND connection. The exact pin-out is described in the following table.

Table 1: Input/output connector - Pin description

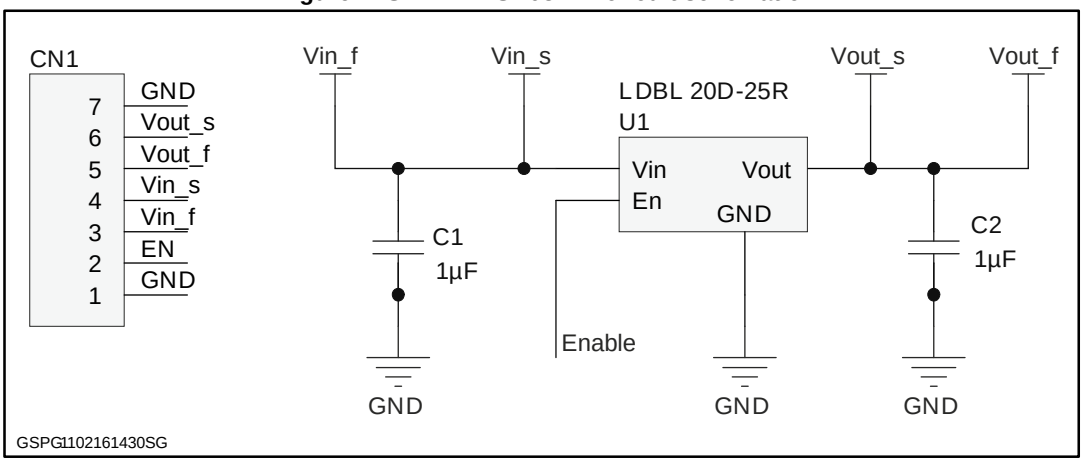
Pin number	Pin description	Symbol
1.7	Ground connection	GND
2	Enable signal	EN
3.4	Input supply voltage	V_{IN}
5.6	Output voltage	V_{OUT}

1.3 How to work with the board

The input operating supply voltage for the 2.5 V version is 2.85 to 5.5 V_{DC}. The first step is to connect a DC power supply with a voltage inside this range to pin 1 (or 7) and 3, 4. The device is turned ON through the Enable signal at logic level HIGH (V_{EN} > 1 V), and OFF when at logic level LOW (V_{EN} < 0.4 V). For device evaluation it can be connected directly to V_{IN} or GND respectively. The Enable signal should never be left floating, to avoid unwanted ON/OFF triggering.

2 Schematic diagram

Figure 2: STEVAL-ISB034V1 circuit schematic



3 PCB layout

Figure 3: PCB layout – top side

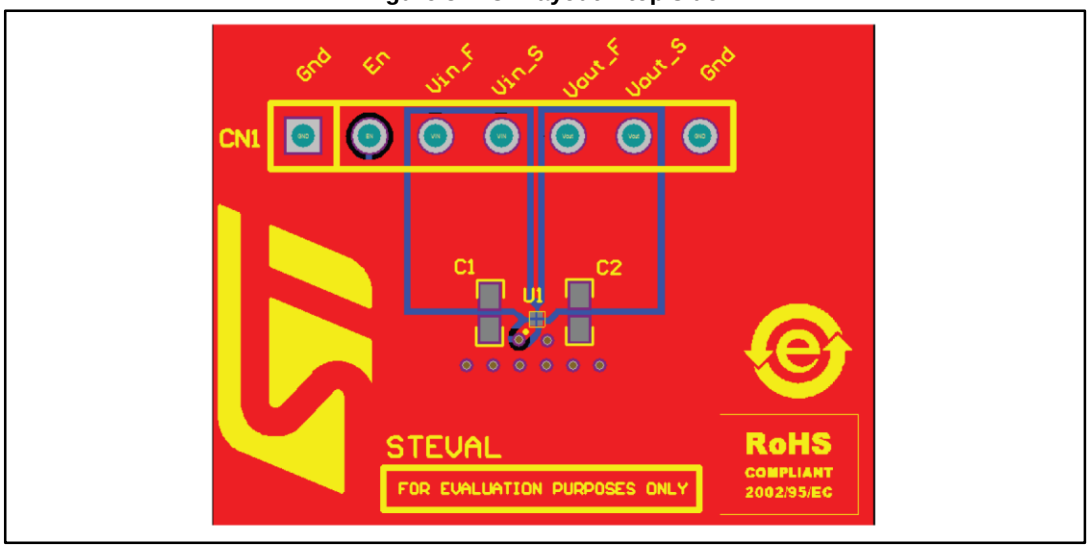
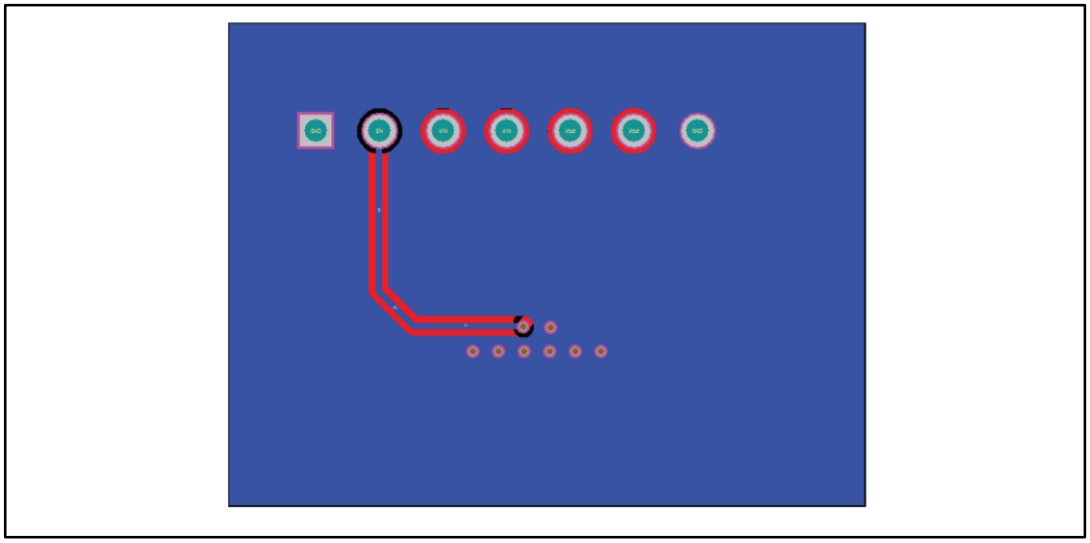


Figure 4: PCB layout – bottom side



4 LDBL20 block diagram and pinout

Figure 5: LDBL20 block diagram

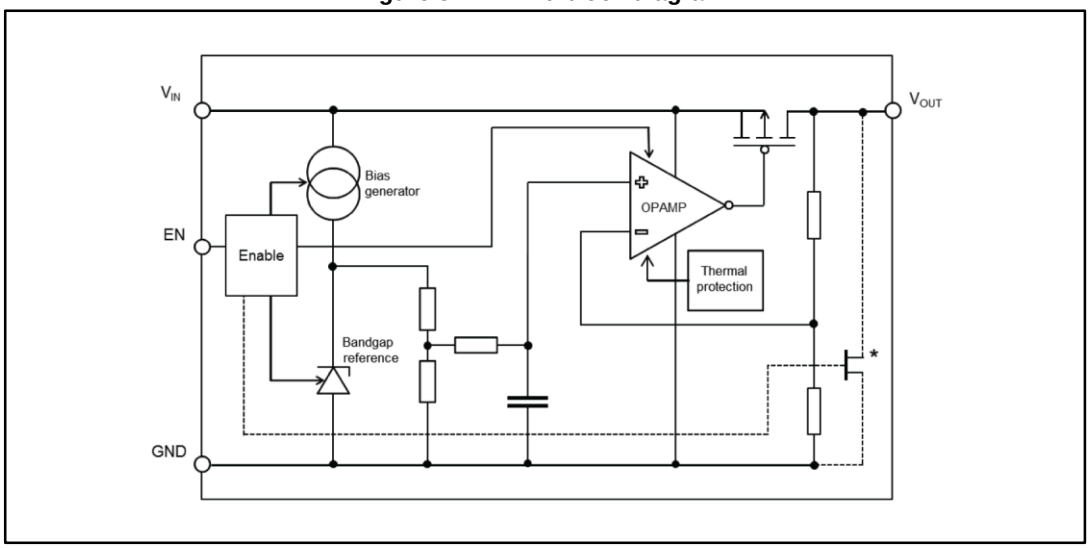


Figure 6: LDBL20 (ST-STAMP™ package) - pinout, bottom view

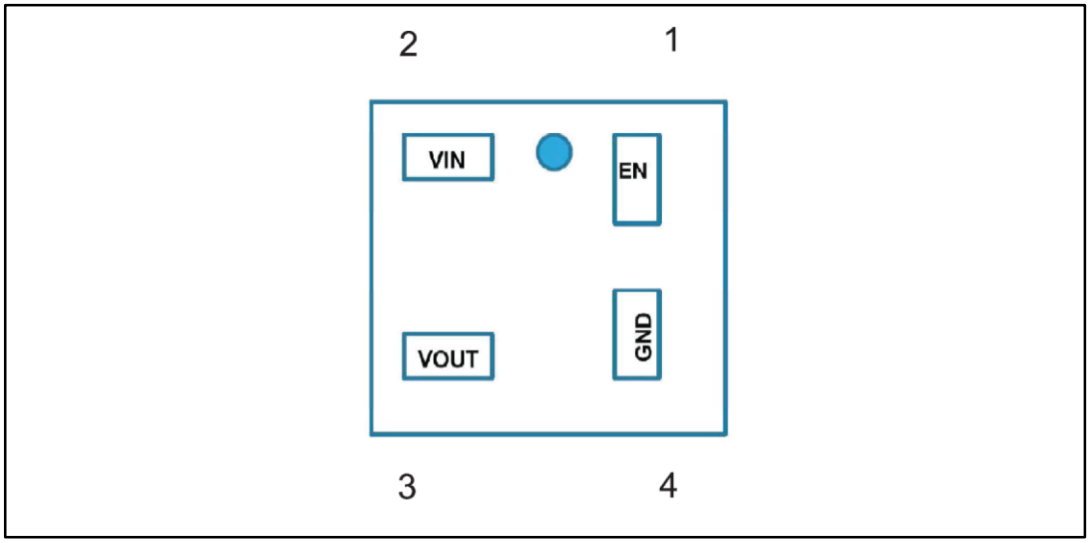


Table 2: LDBL20 (ST-STAMP™ package) - Pin description

Pin number	Pin description	Symbol
1	Enable	EN
2	Input supply voltage	V_{IN}
3	Output voltage	V_{OUT}
4	Ground connection	GND

5 Appendix A: General handling precautions

Please observe the following precautions when using the STEVAL-ISB034V1 evaluation board:

- Do not modify or manipulate the board or the device when the board is powered and/or connected to the load
- Do not supply the board with a DC source higher than the maximum device voltage
- Any equipment or tool used for manipulating the semiconductor devices or to perform board modification should be connected to ground to avoid ESD
- Disconnect and remove connectors and cables when the board is not being supplied
- Antistatic tools are recommended

6 Revision history

Table 3: Document revision history

Date	Version	Changes
17-Mar-2016	1	Initial release.

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