TLS202B1MBV50 Demoboard

Z8F60341179

About this document

Scope and purpose

This document provides information about the usage of the demoboard for the Low Dropout Linear Voltage Post Regulator TLS202B1MBV50 from Infineon Technologies AG. Please also refer to the corresponding Data Sheet [1].

Intended audience

This document is intended for engineers who develop applications.

Table of contents

1 Introduction

The TLS202B1MBV50 is the ideal IC to supply regulated voltage for general ECUs, safety and infotainment applications. The fixed output voltage makes the TLS202B1MBV50 suitable for supplying the majority of standard applications.

The TLS202B1MBV50 is a monolithic integrated fixed linear voltage post regulator for load currents up to 150 mA. The IC regulates an input voltage V_I up to 18 V to a fixed output voltage of 3.3 V with an accuracy of ±3 %. The TLS202B1MBV50 is especially designed for applications requiring very low standby current, for example with a permanent connection to the preregulators such as DC-DC converters. The regulator is not designed to operate with a direct connection to the battery. The voltage regulator can be enabled and disabled via the Enable input. The device is available in a very small surface mounted PG_SCT595 package and is designed for the harsh environment of automotive applications. Therefore it is protected against overload, short circuit and overtemperature conditions by the implemented output current limitation and the overtemperature shutdown circuit. The TLS202B1MBV50 can be also used in all other applications requiring a stabilized 3.3 V voltage.

1.1 TLS202B1MBV50 features

- Output voltage: 3.3 V
- Output voltage accuracy of ±3 %
- Output current up to 150 mA
- Extended input voltage operating range of 2.7 V to 18 V
- Enable functionality
- Low dropout voltage: typ. 290 mV
- Very low current consumption: typ. 50 µA
- Very low shutdown current: typ. 0.01 µA
- Very high PSRR: typically 63 dB at 10 kHz
- Output current limitation
- Short circuit protection
- Overtemperature shutdown
- Wide temperature range From -40°C to 150°C
- Suitable for use as post regulator in automotive applications
- Green product (RoHS compliant)
- AEC qualified

1.2 Block diagram

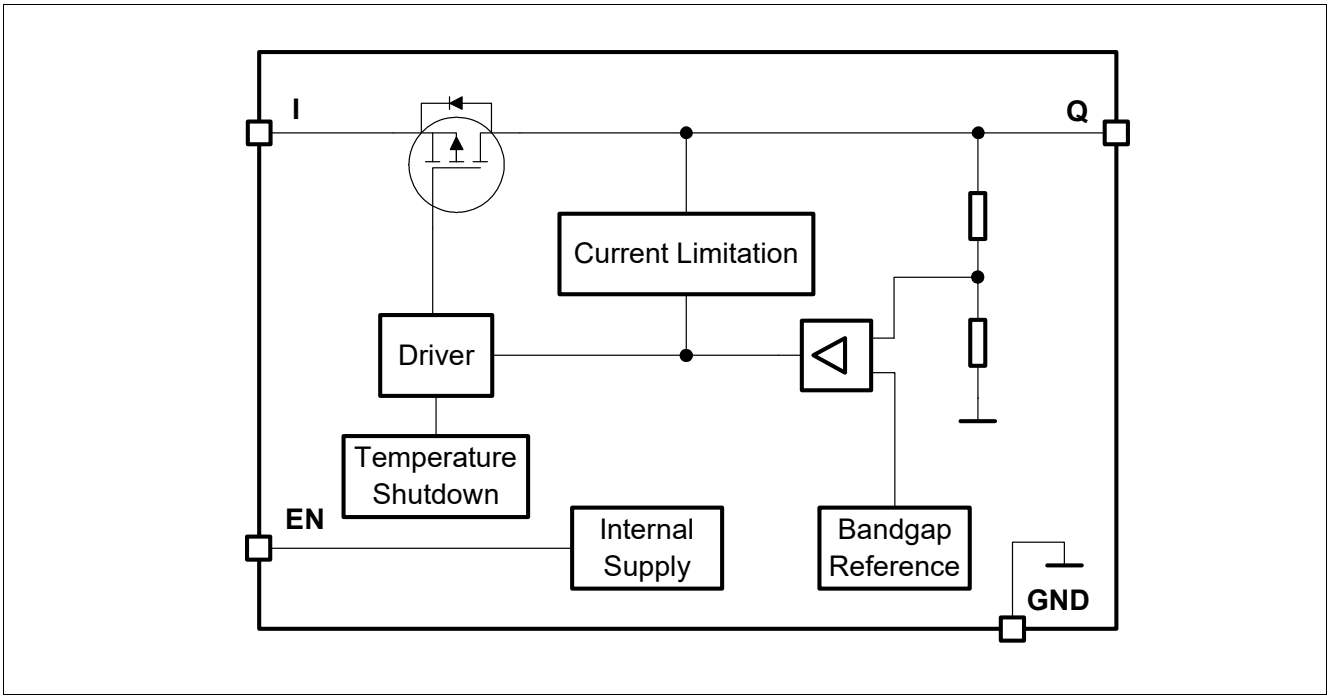

Figure 1 Block diagram of TLS202B1MBV50

2 Demoboard

The TLS202B1MBV50 demoboard is equiped by default with TLS202B1MBV50 and all necessary components.

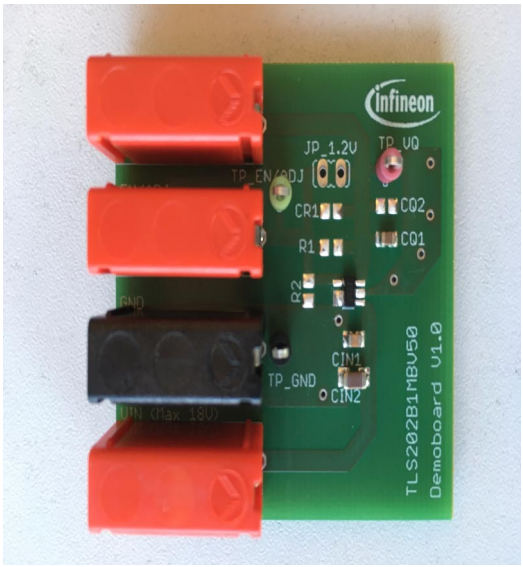

Figure 2 TLS202B1MBV50 demoboard

2.1 Operating conditions

To avoid any electrical damage of the demoboard, the maximum operating range defined in **Table 1** must be followed.

Table 1 Operating range[1)]

Parameter	Symbol	Limit Values		Unit	Note
		Min.	Max.		
Board supply[2)]	VIN	0	18	V	Power supply
Regulator output	VQ	0	5.5[3)]	V	Regulated output for loads up to 150 mA
Enable signal	EN	0	18	V	Enable signal to switch regulator on
Ground	GND	0	0	V	System GND

1) The demoboard operates at an ambient temperature of 25°C.
2) Functional input voltage range: 2.7 V to 18 V.
3) Nominal output voltage depends on voltage variant of TLS202B1MBV50.

2.2 Signal adaption

The connectors TP_VIN, TP_VQ, TP_EN/ADJ and TP_GND permit easy signal adaption, for example with probes for an oscilloscope.

Table 2 Signals

Connector	Accessible Signal
TP_VIN	I (power supply)
TP_VQ	Q (output voltage)
TP_EN/ADJ	EN (enable voltage)
TP_GND	GND (chip ground connection)

3 Schematic and layout

3.1 Schematic

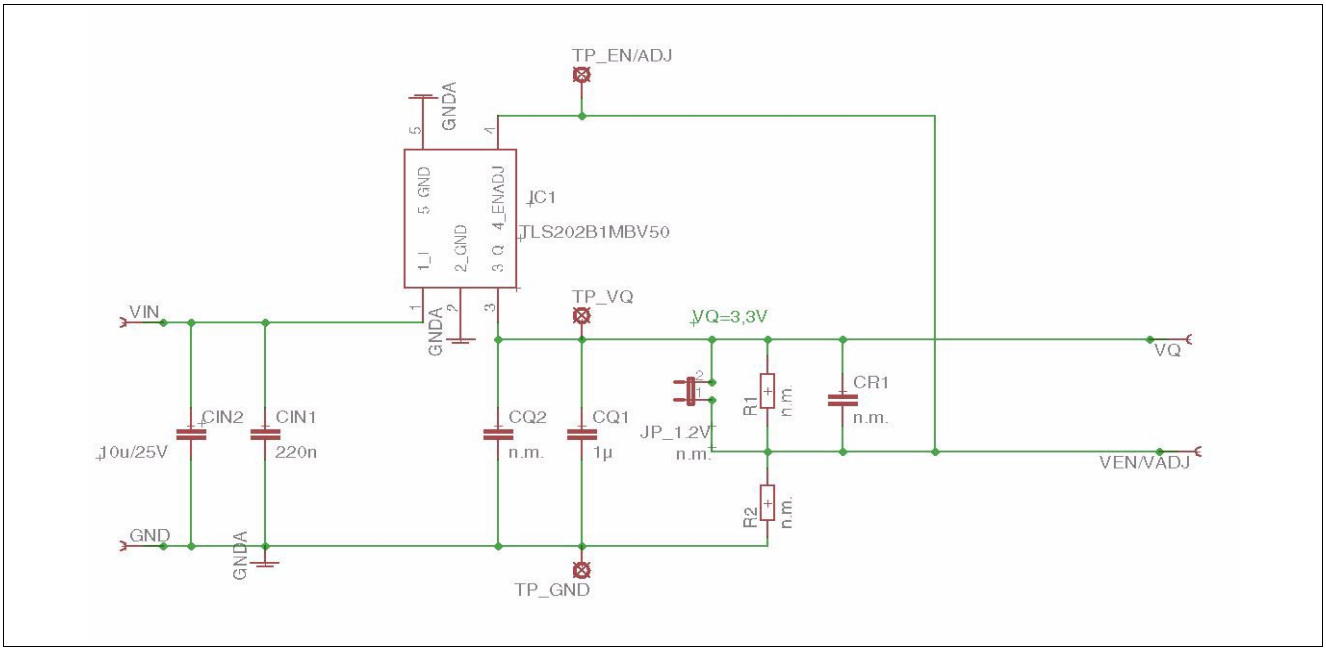

Figure 3 Schematic of TLS202B1MBV50 demoboard

3.2 Layout

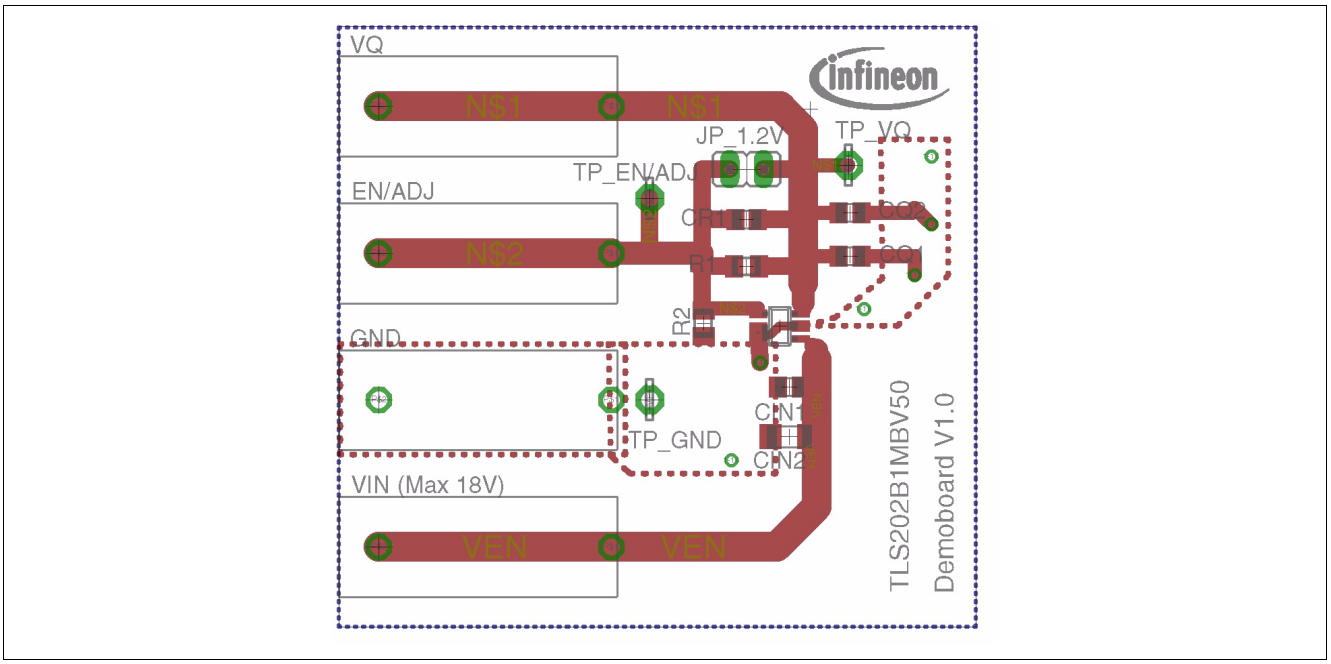

Figure 4 Top Layer of TLS202B1MBV50 demoboard

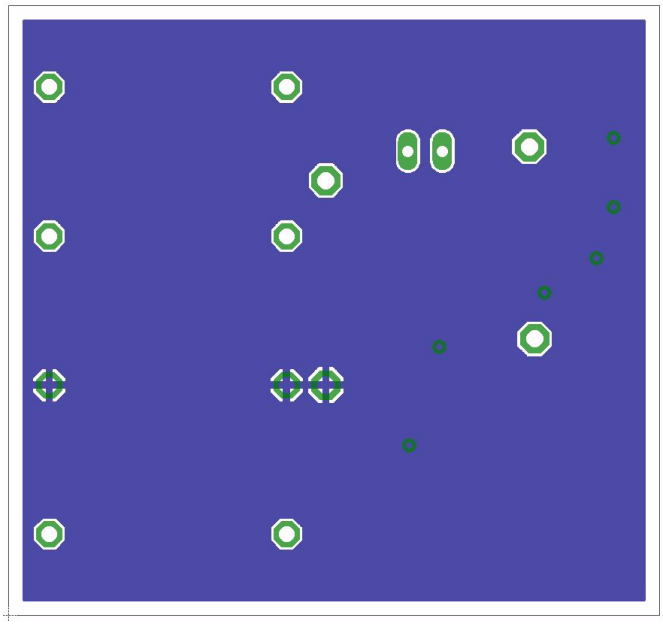

Figure 5 Bottom layer of TLS202B1MBV50 demoboard

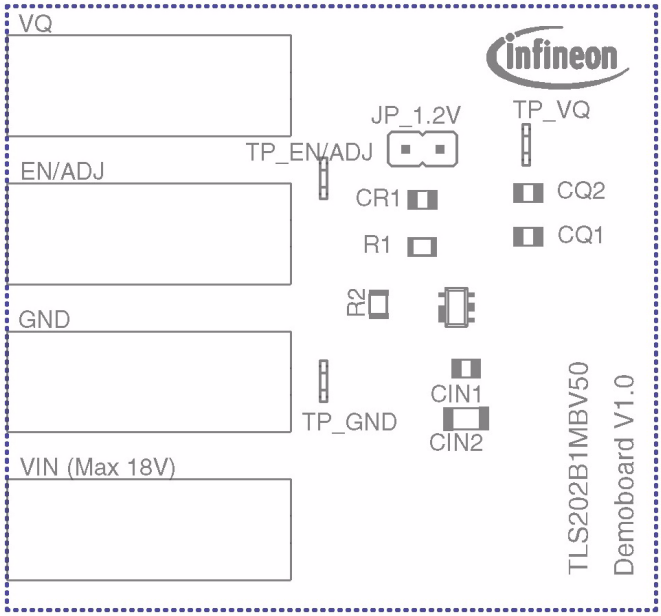

Figure 6 Top layer components of TLS202B1MBV50 demoboard

4 Bill of material

Table 3 Bill of Material

Part	Value	Package
VIN	Banana jack	BABU4MM
VQ	Banana jack	BABU4MM
EN/ADJ	Banana jack	BABU4MM
GND	Banana jack	BABU4MM
R1	not applicable for TLS202B1MBV50	R0805
R2	not applicable for TLS202B1MBV50	R0805
CR1	not applicable for TLS202B1MBV50	R0805
CIN1	220 nF / 25 V (X7R)	C0805
CIN2	10 µF / 25 V (X7R)	C1206
CQ1	1 µF / 16 V (X7R)	C0805
CQ2	not placed	C0805
TP_VIN		
TP_VQ		
TP_EN/ADJ		
TP_GND		
IC1	TLS202B1MBV50MBV33	PG_SCT595

5 Restrictions

This demoboard offers limited features allowing you only to evaluate and test the Infineon product.
The demoboard is not an end product or finished appliance, nor is it intended or authorized by Infineon to be integrated into end products. You are not authorized to use the demoboard in any production system.

References

[1] TLS202B1MBV50 Data Sheet, Infineon Technologies AG

6 Revision history

Revision	Date	Changes
1.0	2017-10-26	Initial version

Trademarks of Infineon Technologies AG
All referenced product or service names and trademarks are the property of their respective owners.

Edition 2017-10-26
Published by
Infineon Technologies AG
81726 Munich, Germany

Do you have a question about any aspect of this document?
Email: erratum@infineon.com

Document reference
Z8F60341179

IMPORTANT NOTICE

The information contained in this application note is given as a hint for the implementation of the product only and shall in no event be regarded as a description or warranty of a certain functionality, condition or quality of the product. Before implementation of the product, the recipient of this application note must verify any function and other technical information given herein in the real application. Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind (including without limitation warranties of non-infringement of intellectual property rights of any third party) with respect to any and all information given in this application note.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer's technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

For further information on technology, delivery terms and conditions and prices, please contact the nearest Infineon Technologies Office (**www.infineon.com**).

WARNINGS

Due to technical requirements products may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by Infineon Technologies in a written document signed by authorized representatives of Infineon Technologies, Infineon Technologies' products may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.