TLS10xB0MB Demoboard

Z8F61701244

Preface

Scope and purpose

This document provides information about the usage of the demoboards for the voltage tracking regulator TLS10xB0MB (PG-SCT595-5 package variant) from Infineon Technologies AG. Please also refer to the corresponding Data Sheets *[2]* and *[3]*.

Intended audience

This document is intended for engineers who develop applications.

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1 Introduction

Table 1 shows an overview of the feature sets and the package of the TLS10xB0MB voltage tracking regulator family.

Table 1 Family overview TLS10xB0MB family

Type	Package	Output current	Enable/Adjust
TLS105B0MB *[2]*	PG-SCT595-5	50 mA	✓
TLS102B0MB *[3]*	PG-SCT595-5	20 mA	✓

1.1 TLS10xB0MB features

- very high accuracy voltage tracking
- output voltage adjustable down to 2.0 V
- very low dropout voltage
- very low current consumption of typ. 3 µA in off mode
- improved regulation loop:
  - very fast regulation
  - good stability characteristics
  - small ceramic capacitor of 1 µF at the output is required
- internal protection features:
  - output current limitation
  - short circuit protected output (to GND and to battery)
  - overtemperature shutdown
  - reverse polarity protected input
- AEC Qualified
- green product (RoHS compliant)

These features make the TLS10xB0MB voltage tracking regulators perfectly suitable as automotive sensor supply and as high precision supply for off-board loads.

1.2 Block diagram

Figure 1 shows the block diagram of TLS10xB0MB.

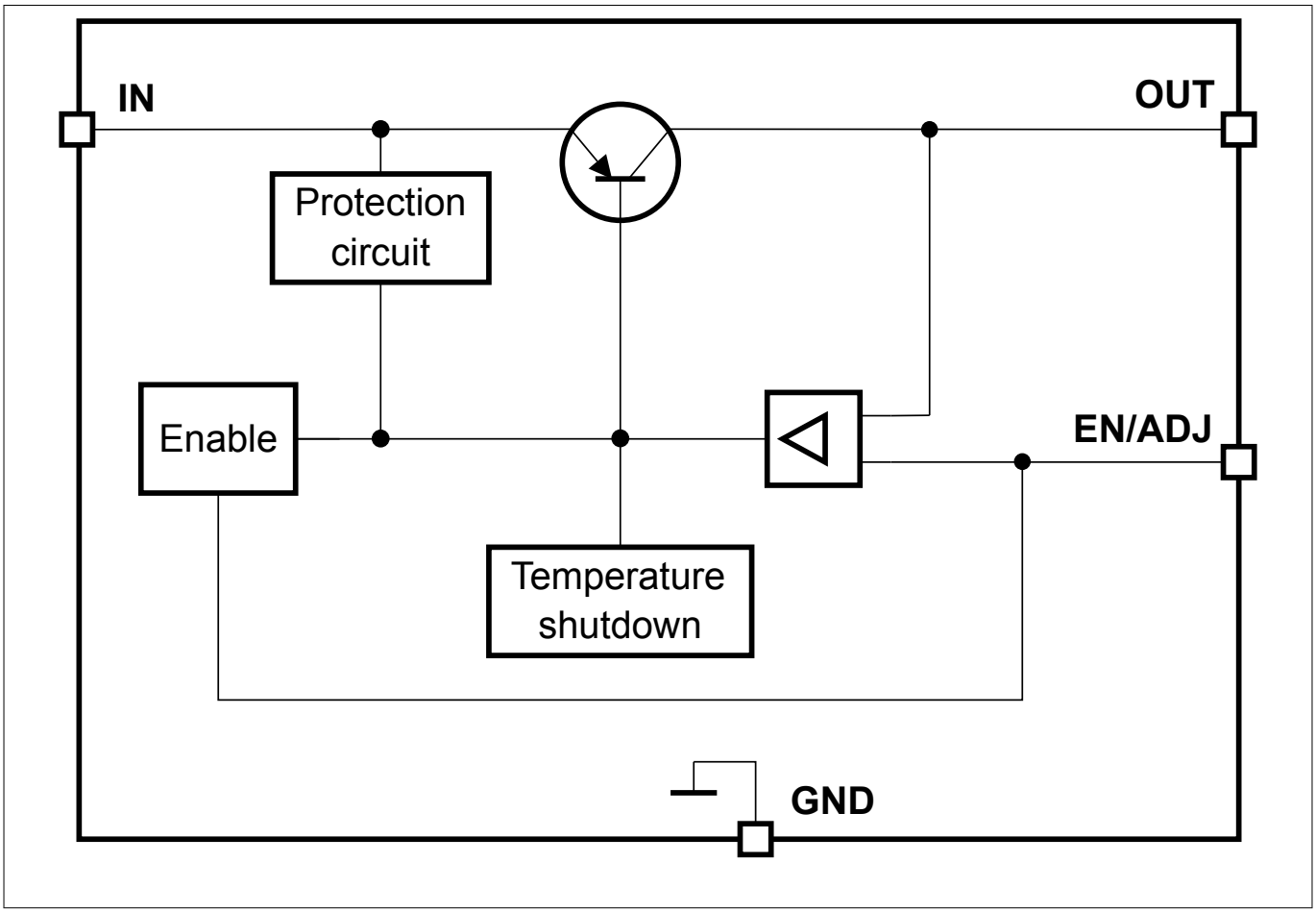

Figure 1 Block diagram of TLS10xB0

2 Demoboard

The TLS10xB0MB Demoboard is available for all devices of the TLS10xB0MB voltage tracking regulator family in a PG-SCT595-5 package (see the device list in ***Table 1***).

Figure 2 shows the TLS10xB0MB Demoboard.

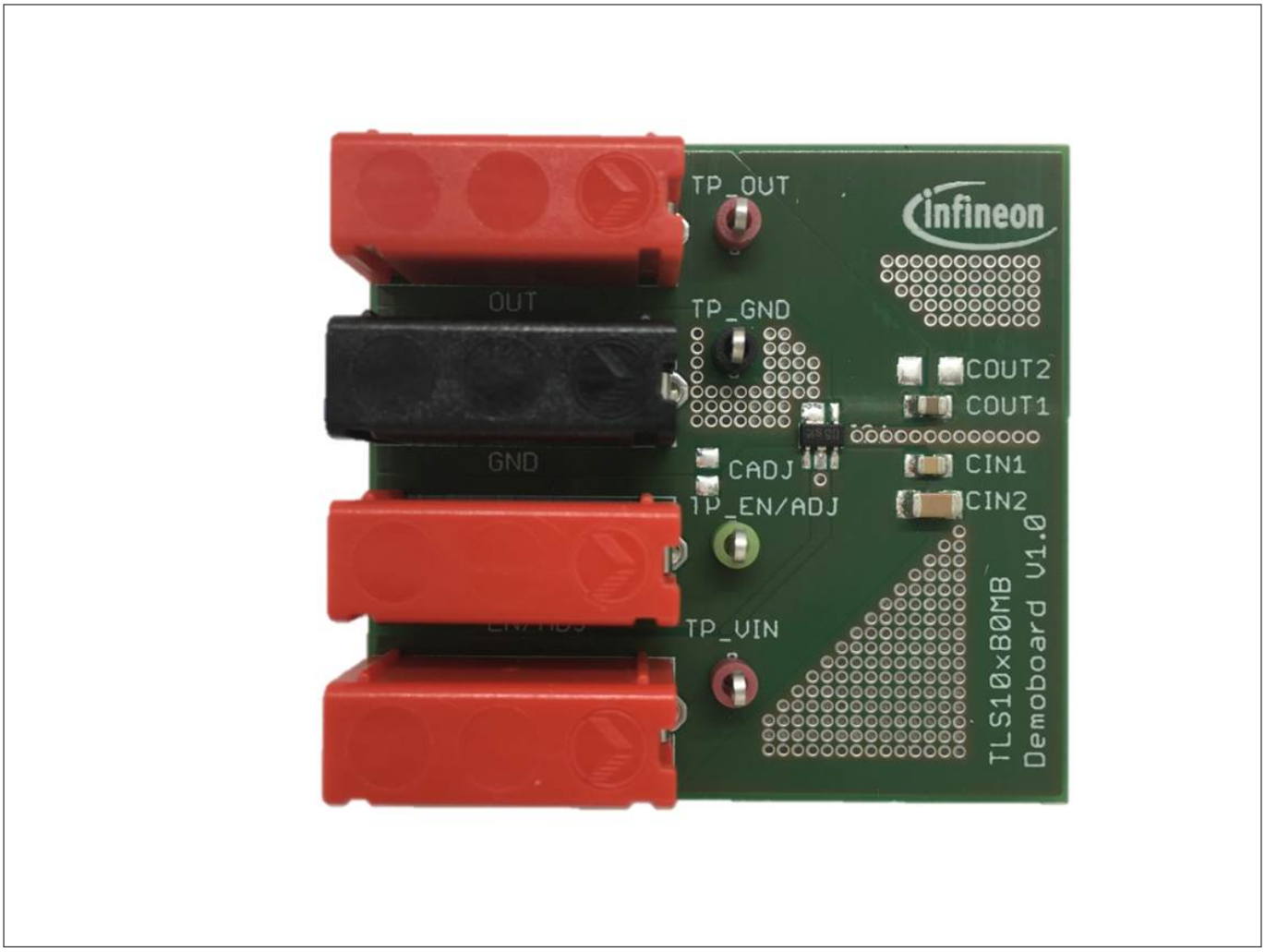

Figure 2 TLS10xB0MB Demoboard

2.1 Operating conditions

To avoid electrical damage of the Demoboard, the operating range defined in ***Table 2*** must be followed.

Table 2 Limit values for operation[1)]

Parameter	Pin	Maximum Ratings		Unit	Note
		Min.	Max.		
Board supply voltage[2)]	IN	-16	45	V	power supply
Enable/Adjust voltage[3)]	EN/ADJ	-0.3	45	V	tracked reference voltage
Regulator output voltage	OUT	-5	45	V	–
Input output voltage difference	VIN-OUT	-30	45	V	–
Ground	GND	0	0	V	system GND

1 The Demoboard operates at an ambient temperature of 25°C
2 Functional input voltage range: 4 V to 45 V
3 Functional ADJ voltage range: 2 V to 14 V

3 Schematic and layout TLS10xB0MB Demoboard

3.1 Schematic TLS10xB0MB Demoboard

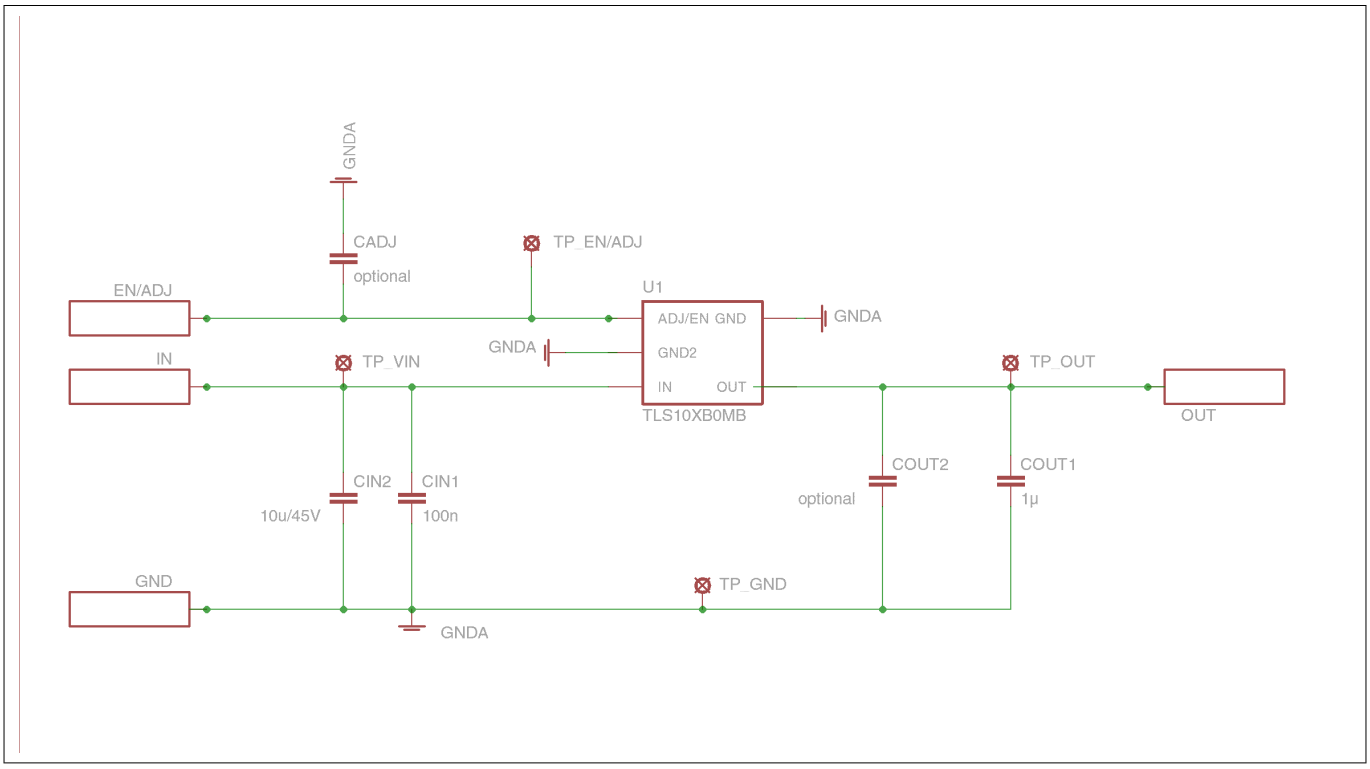

Figure 3 Schematic of TLS10xB0MB Demoboard

3.2 Layout TLS10xB0MB Demoboard

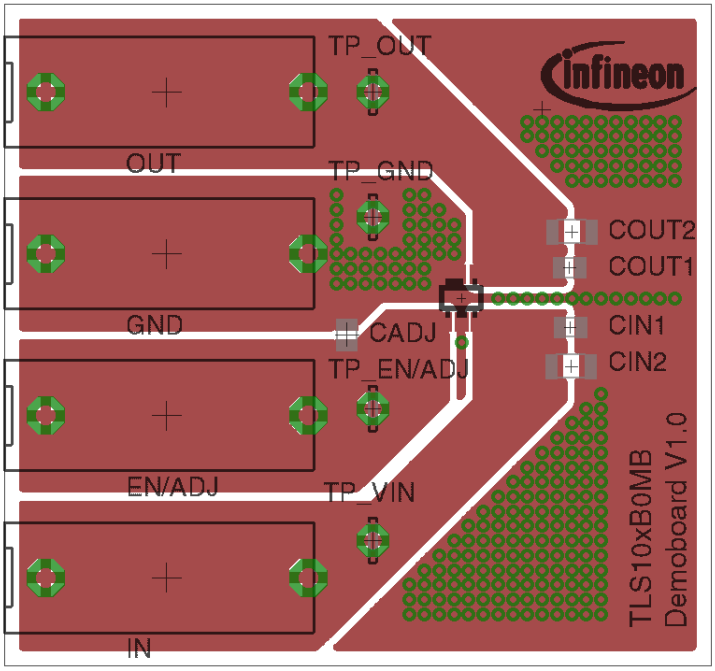

Figure 4 Top layer of TLS10xB0MB Demoboard

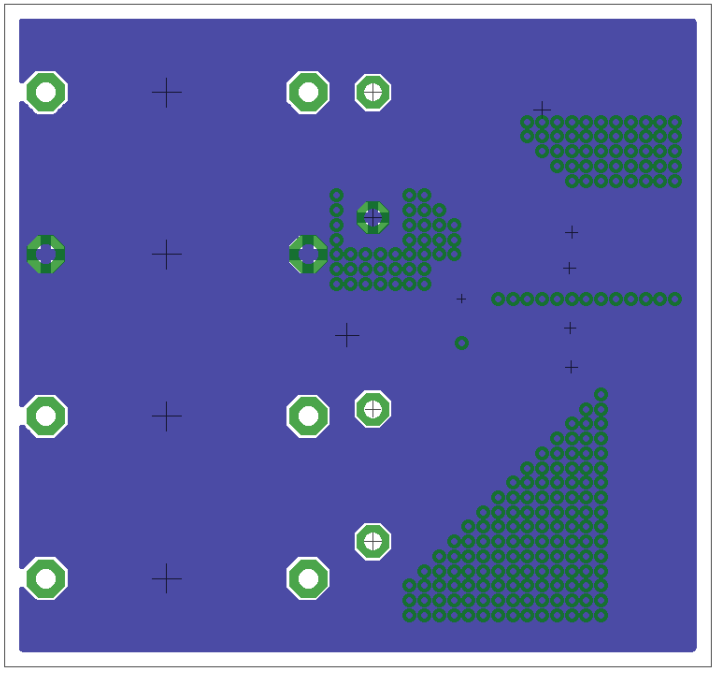

Figure 5 Bottom layer of TLS10xB0MB Demoboard

4 Bill of material

Table 3 Bill of Material

Part	Value	Package
IN	banana jack	BABU4MM
OUT	banana jack	BABU4MM
EN/ADJ	banana jack	BABU4MM
GND	banana jack	BABU4MM
CIN1	100 nF	C0805
CIN2	10 µF	C1206
COUT1	1 µF	C0805
COUT2	n.a.	C1206
CADJ	n.a.	C0805
TP_VIN	test point VIN	–
TP_EN/ADJ	test point EN/ADJ	–
TP_OUT	test point OUT	–
TP_GND	test point GND	–

5 Restrictions

This Demoboard offers limited features only for evaluation and testing of Infineon products. The Demoboard is not an end product or finished appliance, nor is it intended or authorized by Infineon to be integrated into end products. The Demoboard may not be used in any production system.

For further information please contact ***www.infineon.com***.

6 References

Table 4

Number	Bibliography
[1]	What The Designer Should Know – Introduction to Automotive Linear Voltage Regulators. Infineon Technologies AG
[2]	TLS105B0MB Data Sheet, Infineon Technologies AG
[3]	TLS102B0MB Data Sheet, Infineon Technologies AG

7 Revision history

Revision	Date	Changes
1.0	2018-04-13	Application Note created

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