

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.

Table of contents

| | | |
|----------|--|----|
| | Preface | 1 |
| | Table of contents | 1 |
| 1 | Introduction | 2 |
| 1.1 | TLS10xB0MB features | 2 |
| 1.2 | Block diagram | 3 |
| 2 | Demoboard | 4 |
| 2.1 | Operating conditions | 5 |
| 3 | Schematic and layout TLS10xB0MB Demoboard | 6 |
| 3.1 | Schematic TLS10xB0MB Demoboard | 6 |
| 3.2 | Layout TLS10xB0MB Demoboard | 7 |
| 4 | Bill of material | 8 |
| 5 | Restrictions | 9 |
| 6 | References | 10 |
| 7 | Revision history | 11 |
| | Disclaimer | 12 |

Introduction

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 μ A in off mode
- improved regulation loop:
 - very fast regulation
 - good stability characteristics
 - small ceramic capacitor of 1 μ F 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.

Introduction

1.2 Block diagram

Figure 1 shows the block diagram of TLS10xB0MB.

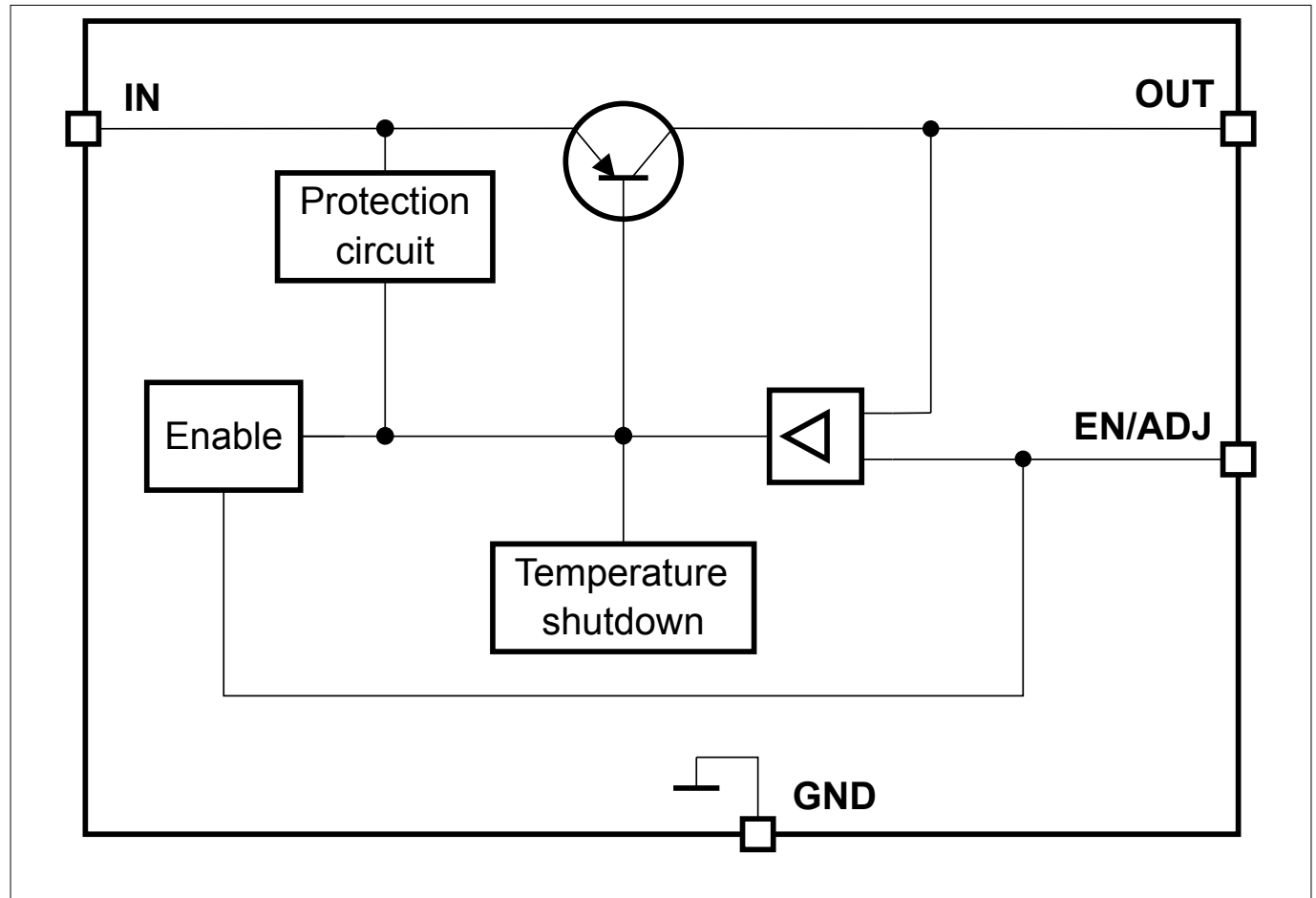


Figure 1 Block diagram of TLS10xB0

Demoboard

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.

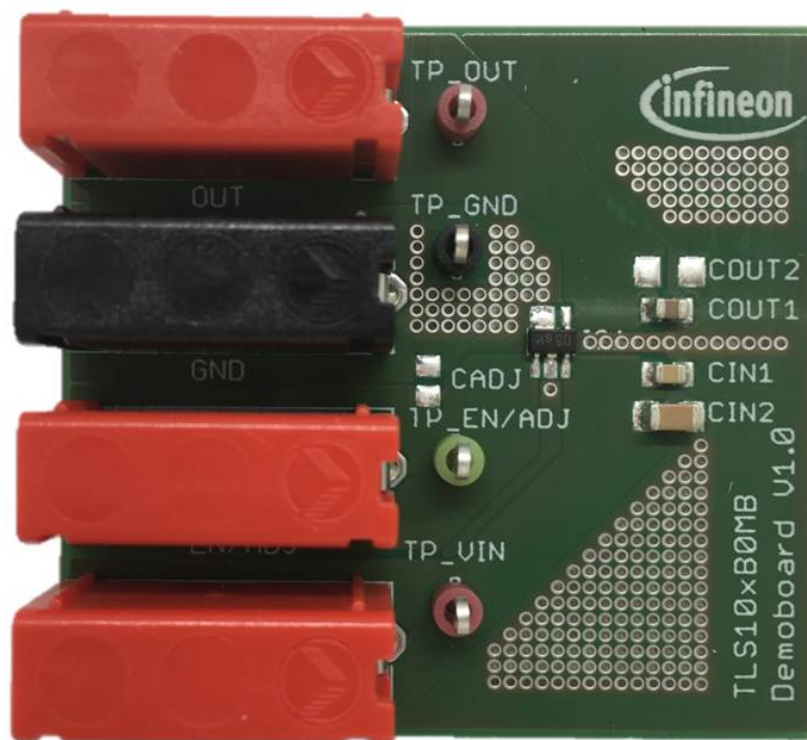


Figure 2 TLS10xB0MB Demoboard

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 operation¹⁾

| 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-VOUT | -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

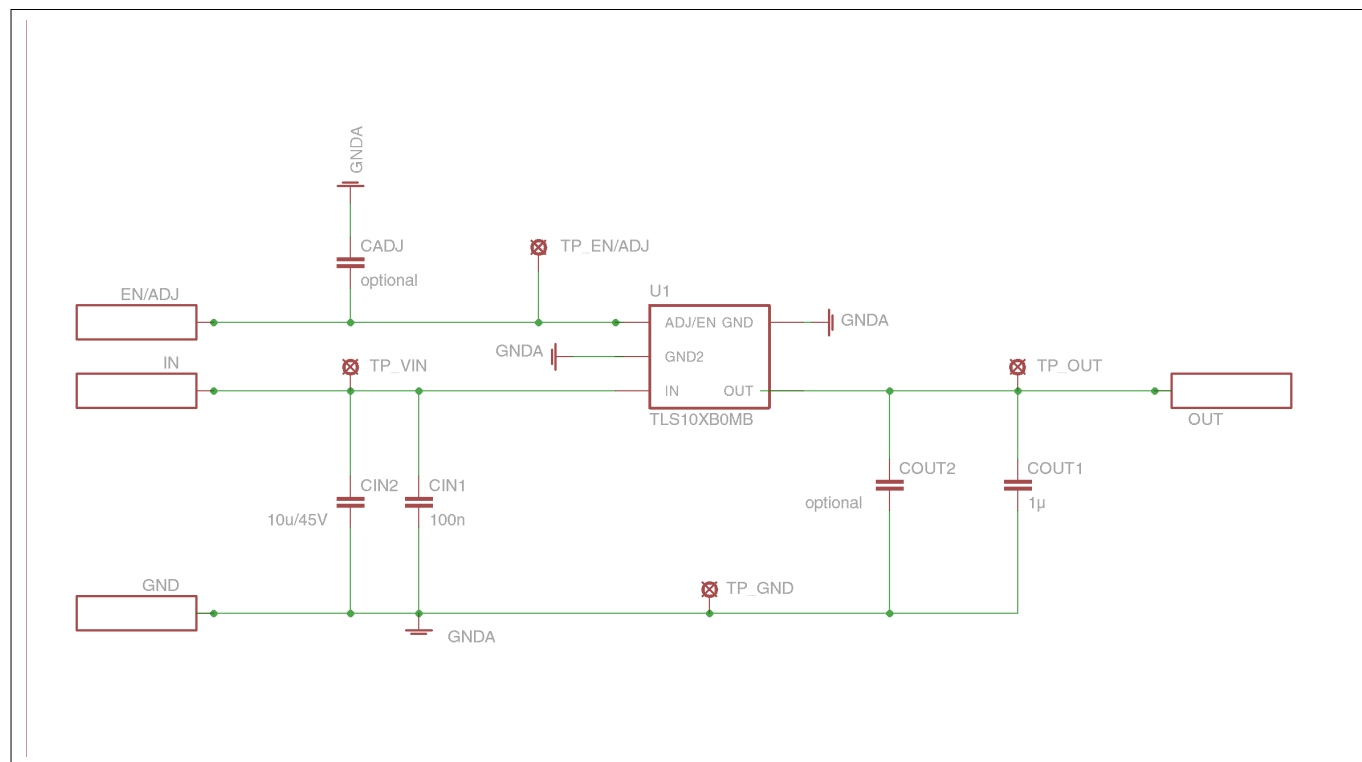


Figure 3 Schematic of TLS10xB0MB Demoboard

3.2 Layout TLS10xB0MB Demoboard

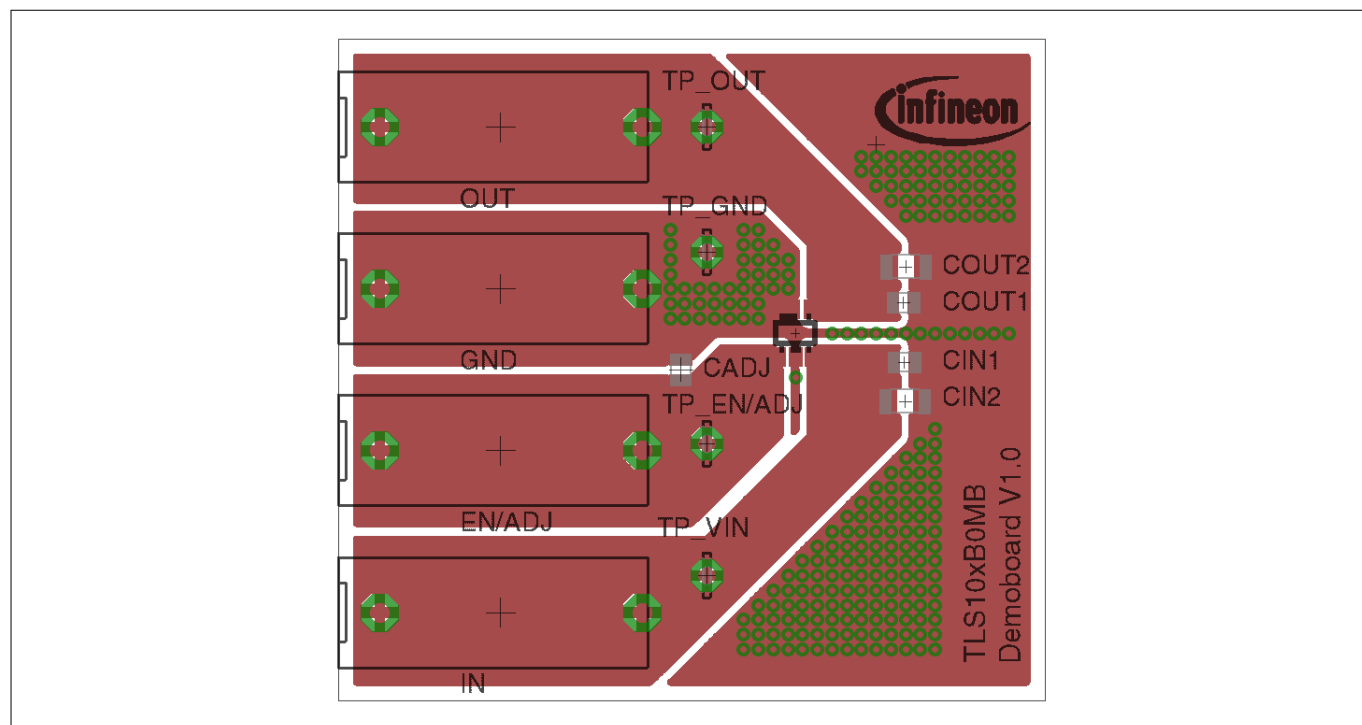


Figure 4 Top layer of TLS10xB0MB Demoboard

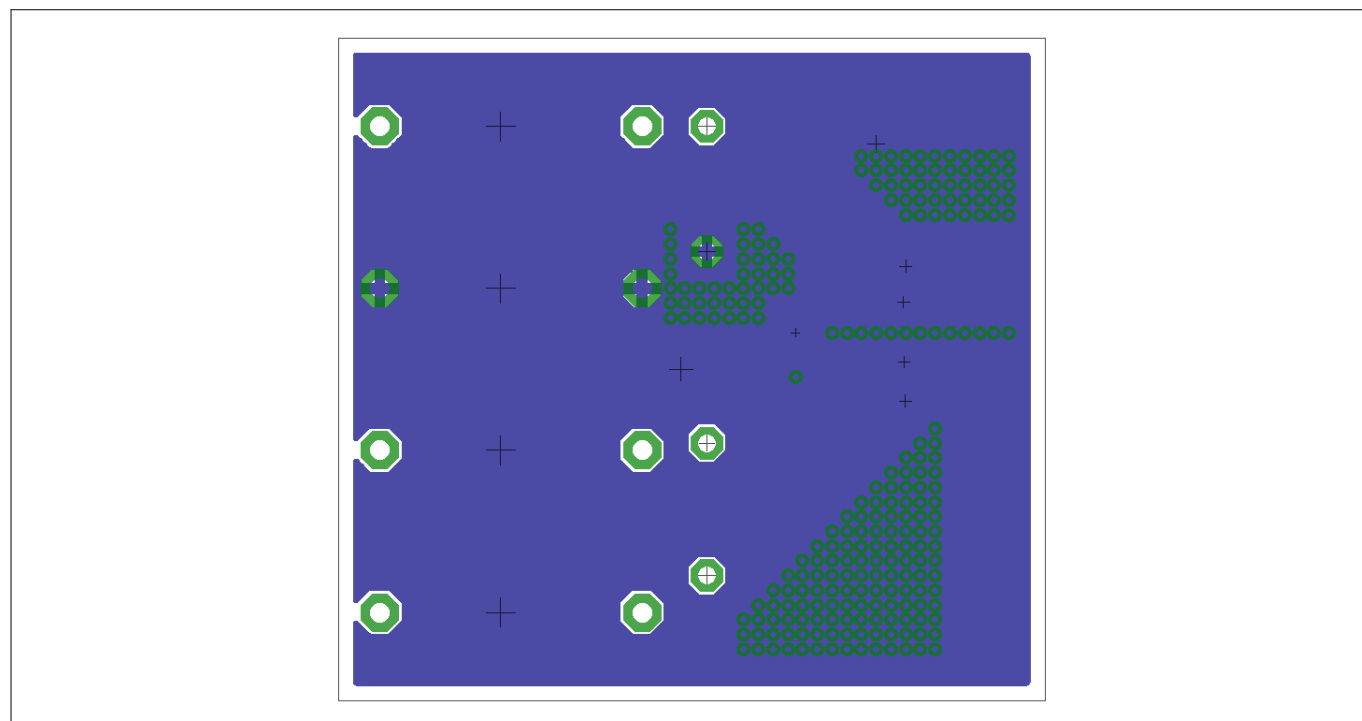


Figure 5 Bottom layer of TLS10xB0MB Demoboard

Bill of material

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 μ F | C1206 |
| COUT1 | 1 μ F | 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 | – |

Restrictions

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.

References

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 |

Revision history

7 Revision history

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

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