POL BMR461 Evaluation Board

ROA 170 03

User Guide

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ROA 170 03

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Contents

1   Introduction

This User Guide provides a brief introduction and instruction on how to use the Design board ROA 170 03. This board provides the possibility to evaluate the BMR 461 modules. The ROA 170 03 board is a part of the 3E Design Kit.

1.1   Prerequisites

In order to operate the ROA 170 03 board the following is needed:

- Power supply 5-14 V.

- One or more BMR 461 modules, the module is soldered onto the board at delivery.

- PMBus-to-USB adaptor Flex Power KEP 910 17.

- The "Flex Power Designer" software package and a compatible Windows PC (see reference 1 for details). Users must be familiar with the Windows® operating system.

2   Design Board ROA 170 03

Power the board by connecting 5-14V DC power to either of the "Vin" and "Gnd" connectors located on the both ends of the board (1a-1b. Figure 1).
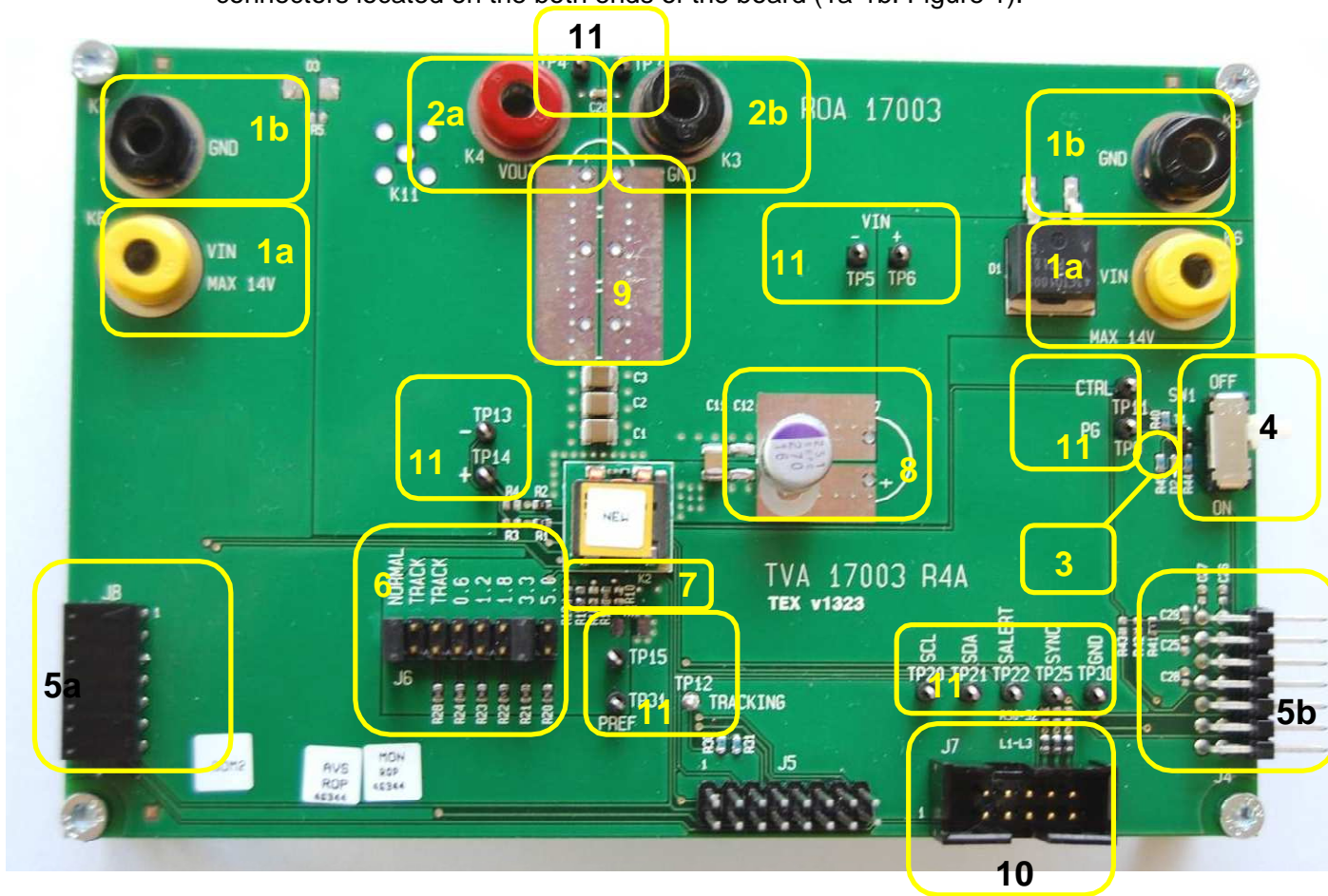

Figure 1. ROA 170 03 (top side).

Position Description

1a   Input voltage connector.

1b   Input voltage connector GND.

2a   Output voltage connector.

2b	Output voltage connector GND.
3	Power good LED.
4	ENABLE switch.
5a	Female board-to-board connector. Connectors are used to connect the board with other 3E design boards. All boards get same PMBus. Only one PMBus-to-USB adaptor is needed.
5b	Male board-to-board connector. Connectors are used to connect the board with other 3E design boards. All boards get same PMBus. Only one PMBus-to-USB adaptor is needed.
6	Vout range strap connector.
7	Address resistors.
8	Space for additional input capacitors.
9	Space for additional output capacitors.
10	Connector for the Flex Power KEP 910 17 PMBus-to-USB adaptor.
11	Test points.

3 USB to PMBus adaptor

The USB to PMBus adaptor used with this board is the Flex Power KEP 910 17.

3.1 Connection of Flex Power KEP 910 17 USB to PMBus adaptor

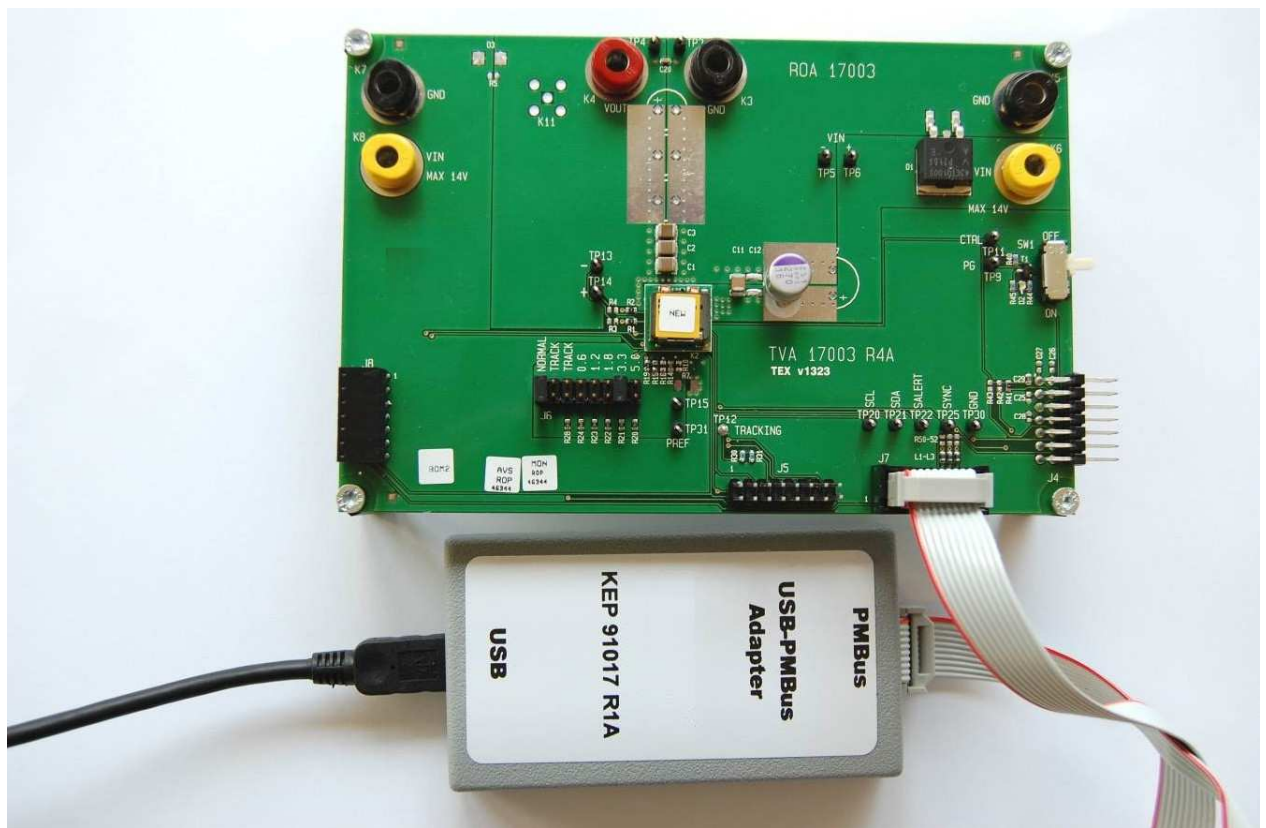Connect the Flex Power KEP 910 17 USB to PMBus adaptor, (10, Figure 1).

Figure 2. Connection of the Flex Power KEP 910 17 USB to PMBus adaptor.

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4   Power-up and Power-down Instructions

4.1   Power-up instruction

- Make sure strap connector is properly set according to section 5.

- Connect the PMBus Adapter/Cable to the board.

- Connect and turn on the 5-14 V supply

- Turn the ENABLE switch in On position

- Start the software program.

- The power good LED next to the ENABLE switch should now give green light. The LED is controlled by PG output of BMR 461, but supplied from PMBus Adapter/Cable.

4.2   Power-down instruction

- Turn the ENABLE switch in Off position or turn Off the 5-14V supply.

5 Vout range strap connector and pinstrap resistors

This section describes the Vout-range strap connector and the pinstrap resistors.
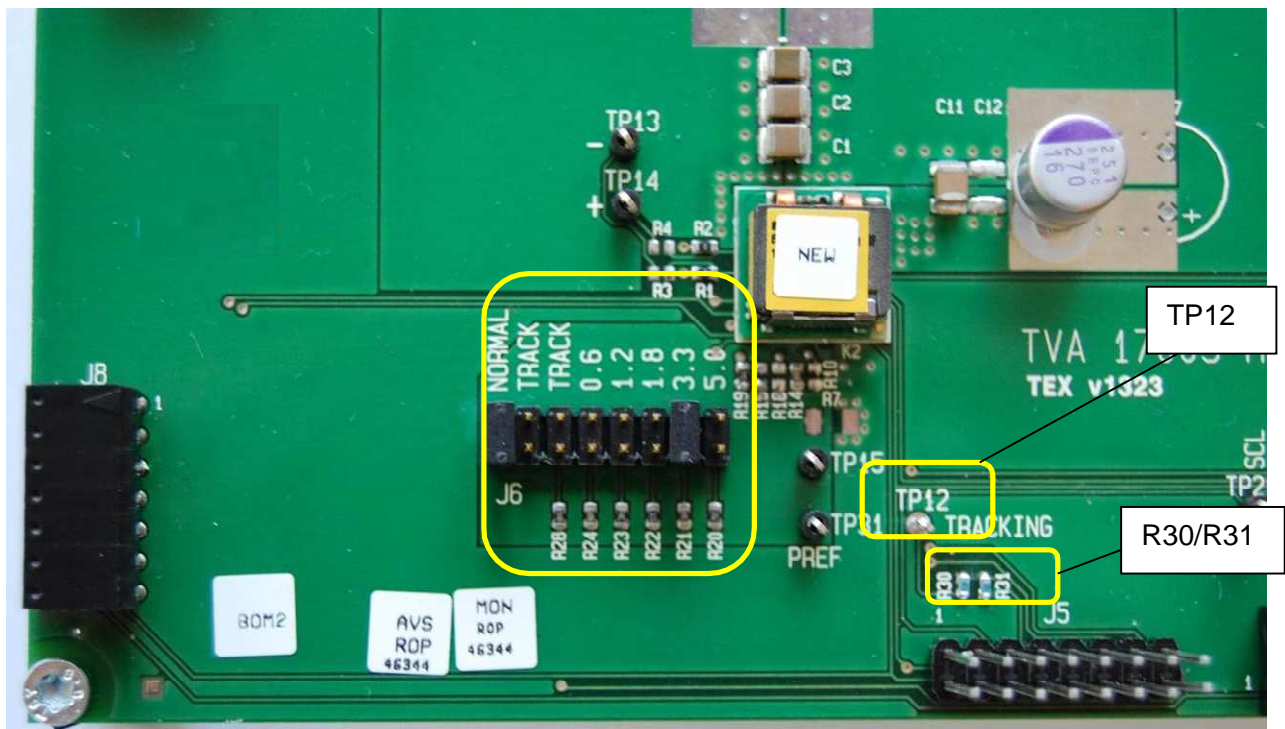

Figure 5.1 Vout range strap connector. This picture shows the board configured for Normal mode and 3.3V output voltage.

The board can be operated in two different modes:

1. Normal mode: Place a jumper in the "NORMAL" position and one in the position for the desired output voltage. Note that the resistors in positions R20-R24 can be replaced in order to change the predefined output voltages.

2. Tracking mode: Place a jumper in each of the "TRACK" positions. In this mode a voltage divider shall be mounted in positions R30/R31 and the external tracking voltage shall be connected to TP12. Refer to chapter "Voltage Tracking" in the technical specification to select the values of R30 and R31. Note that in the technical specification for BMR 461 the tracking resistors are denominated R1 and R2. R1 corresponds to R31 and R2 to R30 on the board.

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5.1   Adjustment of address resistors

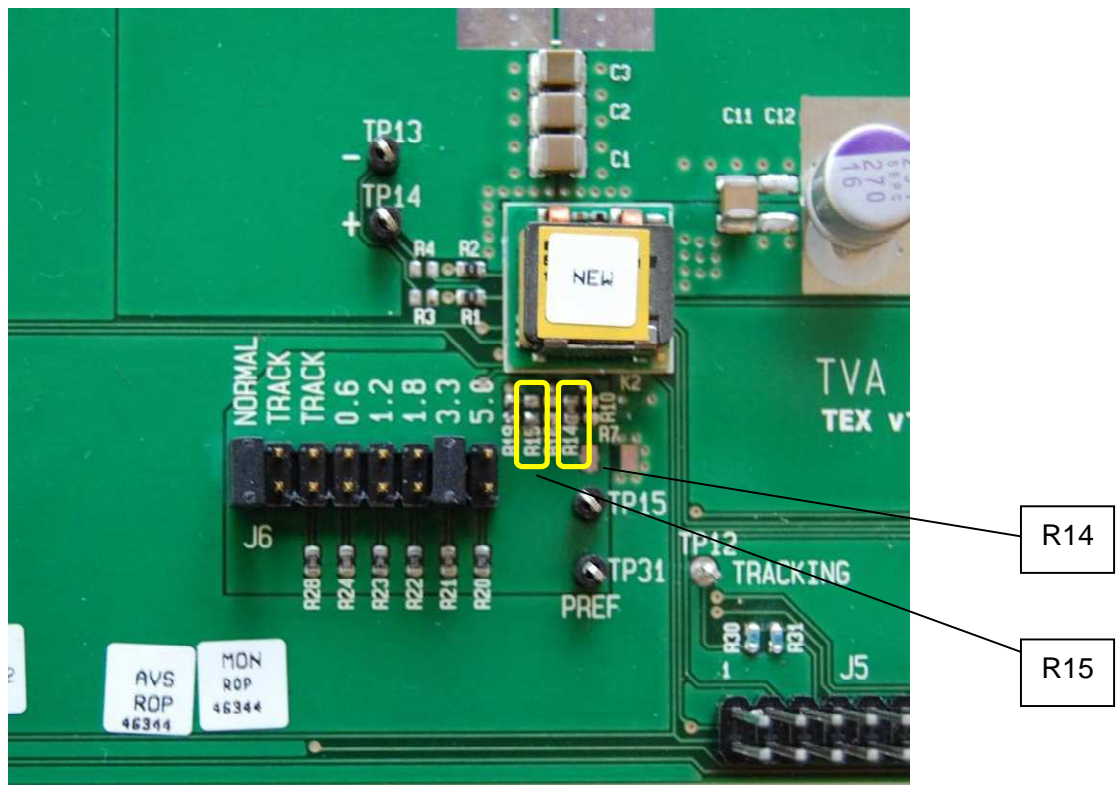To change the address change the resistor values as shown in fig. 5.2.

Fig 5.2 Address resistors.

Change resistors R14 (SA0 set) and R15 (SA1 set) to achieve the desired PMBus address. Refer to chapter "PMBus addressing" in the technical specification to select the values of R14 and R15.

6 Test Points

Input voltage should be measured at test points TP5/TP6 which are connected directly to the VIN pins of the module.

Output voltage should be measured at test points TP3/TP4 which are connected to the default sense points of the module (close to load at K3/K4).

(Alternative sense points close to the pins of the module can be used by populating R3/R4 instead of R1/R2. Output voltage should then be measured at TP13/TP14. Refer to schematic for more details).

Test points are provided for most signals according to printing on the test board.

7 Additional input and output capacitance

If additional input or output capacitance is desired, the possibility exists to mount extra electrolytic and/or ceramic capacitors. See fig 5.1
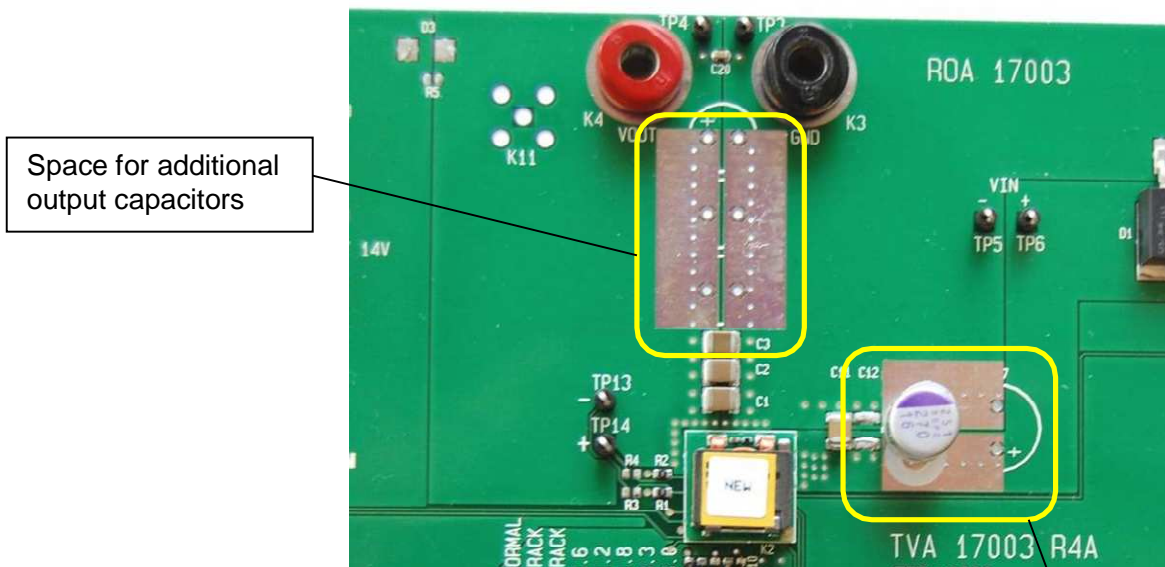

Fig 5.1 Space for additional capacitors.

At the bottom side of the board there is space for another 2 ceramic input capacitors and another 3 ceramic output capacitors.