

# Test Board User Guide Template

ROA 170 014

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## USER GUIDE



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# 1 Introduction

This User Guide provides a brief introduction and instruction on how to use the Reference Board ROA1286012 together with BMR685 modules of revision R1A and later.

## 1.1 How to contact Flex

For general questions or interest in our products, please contact your local sales representative. Contact details are available from our website:

<https://flex.com/expertise/power/scalable-power-modules>

## 1.2 Prerequisites

In order to operate the ROA1286012 board the following is needed:

- Power supply 36-75 V.
- BMR685 module.

## 2 Reference Board ROA1286012

In Figure 1a and 1b the top and bottom side of the ROA1286012 is shown.



Figure 1a. ROA1286012 (top side)

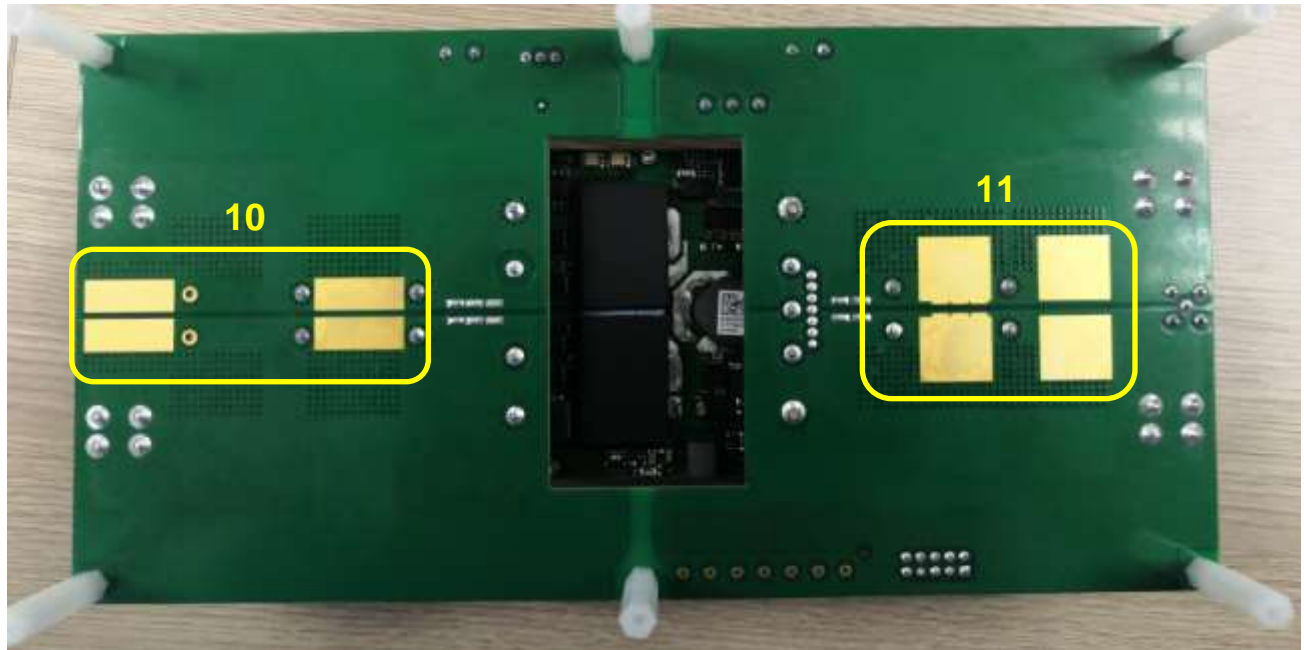


Figure 1b. ROA1286012 (bottom side)

**Position Description (Top Side)**

- 1 Input voltage connectors.
- 2 Output voltage connectors.
- 3 SMB Oscilloscope connectors for Vin and Vout, See Sec 7.
- 4 BMR685 module.
- 5 Testing points for Vin.
- 6 Testing points for Vout.
- 7 ENABLE switch.
- 8 Testing points for Vsense+, Vtrim and Vsense-.
- 9 Connector for the PMBus-to-USB adaptor.

**Position Description (Bottom Side)**

- 10 Space for additional input capacitors.
- 11 Space for additional output capacitors.

## 3 Power-up and Power-down Instructions

### 3.1 Power-up instruction

- Apply input power supply through connectors (position 1).

- Apply Electrical loading through connectors (position 2).
- Make sure Enable switch (position 7) is in OFF position
- Turn on input power supply ( $V_{in} = 36-75V$ ).
- Set Enable switch in ON position.

## 3.2 Power-down instruction

- Set Enable switch in OFF position
- Turn off input power supply ( $V_{in} = 36-75V$ ).

## 4 Test Points

### 4.1 VIN/VOUT test points

Input voltage should be measured at test points +IN/-IN (position 5) which are connected directly to the VIN/GND pins of BMR685 module at the Test board.

Output voltage can be measured at test points +OUT/-OUT (position 6) which are directly connected to VOUT/GND pins of BMR685 module at the Test board.

### 4.2 Vsense+ /Vtrim/Vsense- test points

Vsense+ / Vsense- test points (position 8) for Loading regulation and Line regulation testing.

Vtrim test points (position 8) for output voltage active adjust, apply a voltage between Vtrim test point and Vsense- point.

### 4.3 Output ripple and noise test points

Test point (position 3) can be used to measure the output ripple and noise for BMR685 module.

## 5 Additional Input and Output Capacitance

If additional output capacitance is desired, the possibility exists to mount extra electrolytic and/or ceramic capacitors. The space for additional input capacitors is position 10 and the space for additional output capacitors is position 11.



## 6 PMBus Connector

PMBus connector (position 9) which can be connected directly to USB Interface Adapter which Texas Instruments produce. Using the Adapter, it can realize PMBus communication, as well as download program to controller.

In Figure 2 PMBus connector pin definition is demonstrated as follow:

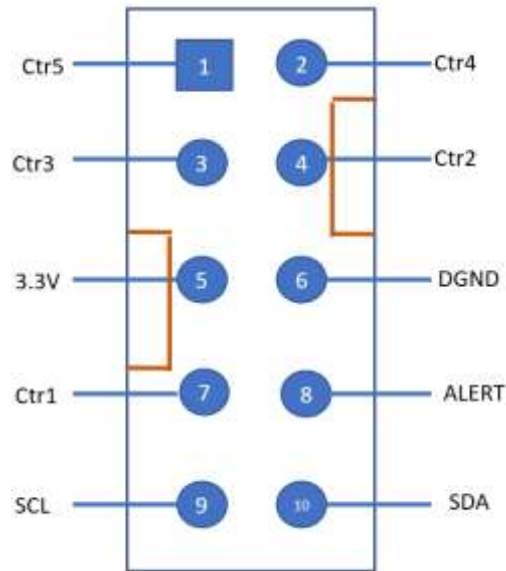


Figure 2 PMBus connector pin definition