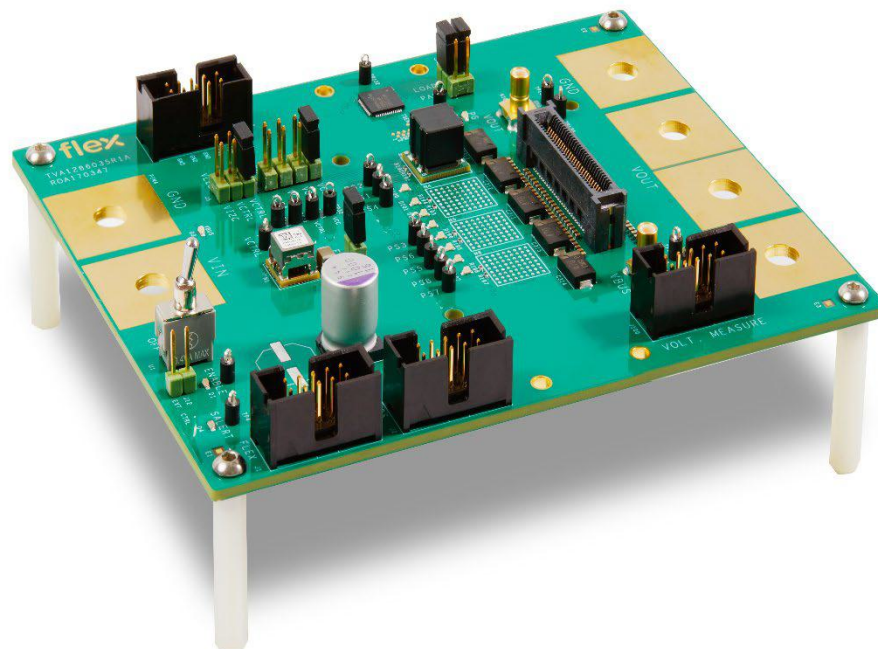


Evaluation board for BMR511

USER GUIDE for BMR511

ROA 170347



Contents

1	Introduction	3
1.1	How to contact Flex Power Modules.....	3
1.2	Prerequisites	3
2	Position overview	4
3	Power-up instructions	5
4	Board supplies	7
5	VRM efficiency measurement	7
6	Phase active LEDs	8
7	Contact and follow us	9

1 Introduction

This User Guide provides a brief introduction and instruction on how to use the 2-phase VRM Integrated Power Stage Module test board ROA170347.

1.1 How to contact Flex Power Modules

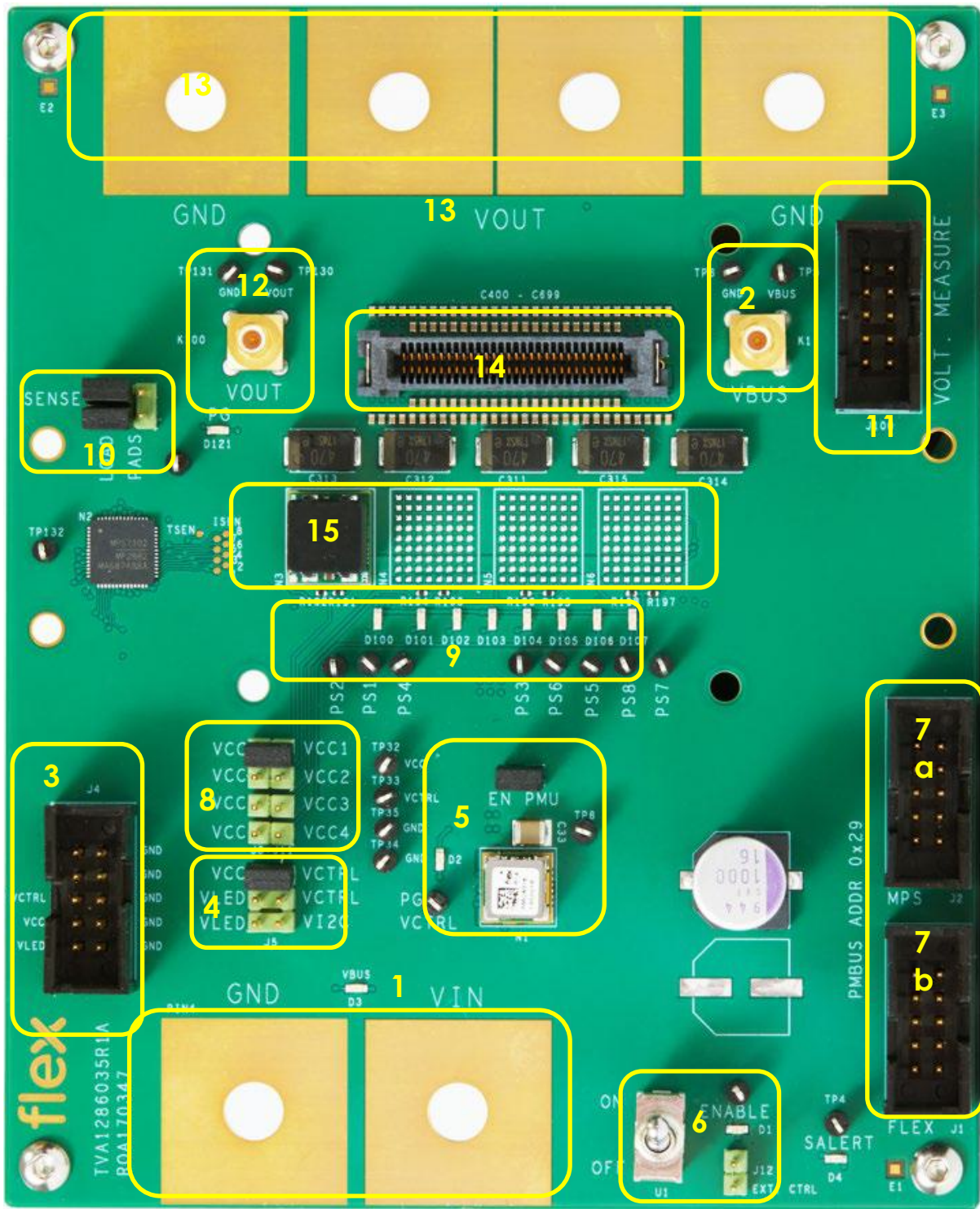
For general questions or interest in our products, please contact your local sales representative or visit our website: [Flexpowermodules](https://www.flexpowermodules.com)

1.2 Prerequisites

In order to operate the ROA170347 board, the following is needed:

- Power supply 5-16 V.
- MPS PMBus adaptor and GUI compatible with controller MP2882R1.

2 Position overview



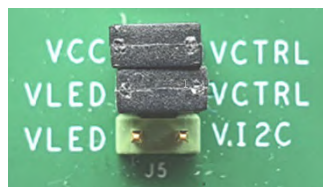
Positions

- 1 Input voltage connectors.
- 2 Input voltage measurement connector.
- 3 Connector for external +3.3V supplies (VCC, VCTRL, VLED) if on board supply (PMU module) is not used.
- 4 Jumpers to bridge VCC, VCTRL and VLED together.
- 5 PMU module circuitry for on board +3.3V supply.
- 6 Output voltage enable circuitry.
- 7 PMBus connectors.
- 8 VRM modules VCC supply jumpers.
- 9 VRM modules PWM signals test points and phase active LEDs.
- 10 VRM modules sense position selection jumpers.
- 11 VRM modules voltage connector for efficiency measurements. Points of measurement are the pads of VRM modules.
- 12 VRM modules output voltage measurement connector. Points of measurement are at the Loadslammer socket.
- 13 VRM modules output voltage connectors.
- 14 Loadslammer socket for VRM rail.
- 15 VRM modules 1-4 (from left to right).

3 Power-up instructions

For power up, follow the instructions below.

- Remove the external enable control jumper J12 (position 6).
- Populate the PMU enable jumper J30 ("EN PMU") (position 5). This enables the PMU module to supply VCTRL and VCC from the input voltage.
- Bridge VCTRL, VCC and VLED together by jumpers in J5 (position 4).



- Make sure the VCC supply jumper (J8-J11, position 8) is populated for each VRM module (1 to 4, from left to right) that shall be operated:



- Use the VRM modules sense position selection jumpers (position 10) to make the choice of sense point:

Sense at Loadslammer connector (LOAD). For load transient and output ripple Vout measurements using connectors at position 12:



Sense at module pads (PADS). For efficiency Vout measurements using the connector at position 11:



- Set the enable switch (position 6) in OFF position.
- Apply Vin = 12V through connectors (position 1).
- Connect an MPS adaptor to PMBus connector J2 (position 7a). The MP2882 controller should now be detected at address 0x29 when making a scan in the MPS GUI.
- Enable the output voltage by setting the enable switch (position 6) in ON position. Depending on controller configuration the power good LEDs will give green light.

4 Board supplies

Supply	Description
VIN	Input supply to the VRM modules and the PMU POL module. Supplied by the connectors (position 1).
VCC	Driver supply for VRM modules. Supplied by jumper to VCTRL (position 4) or connector (position 3).
VCTRL	Supply for controller. Supplied by PMU module or connector (position 3).
VLED	Supply for all LEDs on the test board. Supplied by jumper to VCTRL (position 4), jumper to VI2C (position 4) or connector (position 3).
VI2C	Supply (3.3V) provided by Flex PMBus adaptor connector (position 7b).

5 VRM efficiency measurement

In order to measure the efficiency of the VRM modules alone, the following setup should be made:

- Disable the PMU module by removing jumper J30 (position 5).
- Disable the VRM modules not to be measured by removing the corresponding VCC supply jumpers (position 8):



- Set the sense position jumpers (position 10) to the “PADS” position, which sets the sense point at the pads of module 1.



- Separate VCC, VCTRL and VLED supplies by removing all jumpers in J5 (position 4).
- Supply the VRM modules (VIN, VCC=+3.3V) and the VRM controllers (VCTRL=+3.3V) by external supplies through the connectors (position 1, 3).
- Measure the input voltages (VIN, VCC) and the output voltage of the VRM module using the connector J100 (position 11) in order to measure at the pads of the module. The input and output currents must be measured by external equipment.

6 Phase active LEDs

These LEDs (position 9) indicate the VRM phases currently switching. Each LED will light up when the corresponding PWM signal is active.

7

Contact and follow us

Headquarter

Flex Power Modules
Torshamnsgatan 28A
SE-164 40 Kista, Sweden

Email: pm.info@flex.com

Web: flexpowermodules.com

LinkedIn: linkedin.com/showcase/flex-power-modules/

Flex Power Designer: flexpowerdesigner.com

WeChat: flexpowermodules.com/wechat

YouTube: youtube.com/flexintl

Copyright

© Flex 2023. All rights reserved

Disclaimer

No part of this document may be reproduced in any form without the written permission of the copyright owner.

The contents of this document are subject to revision without notice due to continued progress in methodology, design and manufacturing. Flex shall have no liability for any error or damage of any kind resulting from the use of this document.

Trademarks

All trademarks are properties of their owners.

Flex is the trademark of Flextronics International. **PMBus™** is a trademark of SMIF, Inc.

Windows® and **Microsoft®** are the trademarks of Microsoft Corporation in the United States or other countries.