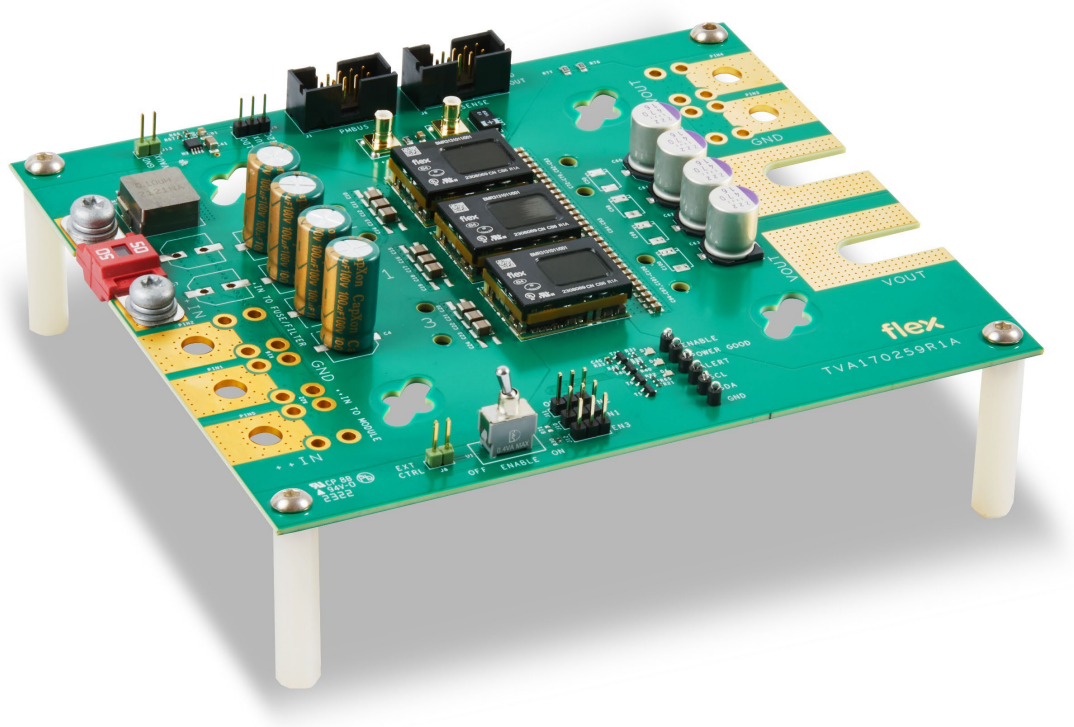
Evaluation board BMR313, BMR314

ROA 170 259

USER GUIDE



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1 Introduction

This User Guide provides a brief introduction and instruction on how to use the Reference Board ROA 170 259 together with one, two or three BMR313 or BMR314 modules.

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:

Flexpowermodules.com

1.2 Prerequisites

In order to operate ROA 170 259 board, the following is needed:

- Power supply 38-60 V.
- Modules are soldered onto the board at delivery.
- Jumpers.

Reference Board ROA 170 259

In Figure 1 the top side of ROA 170 259 is shown.

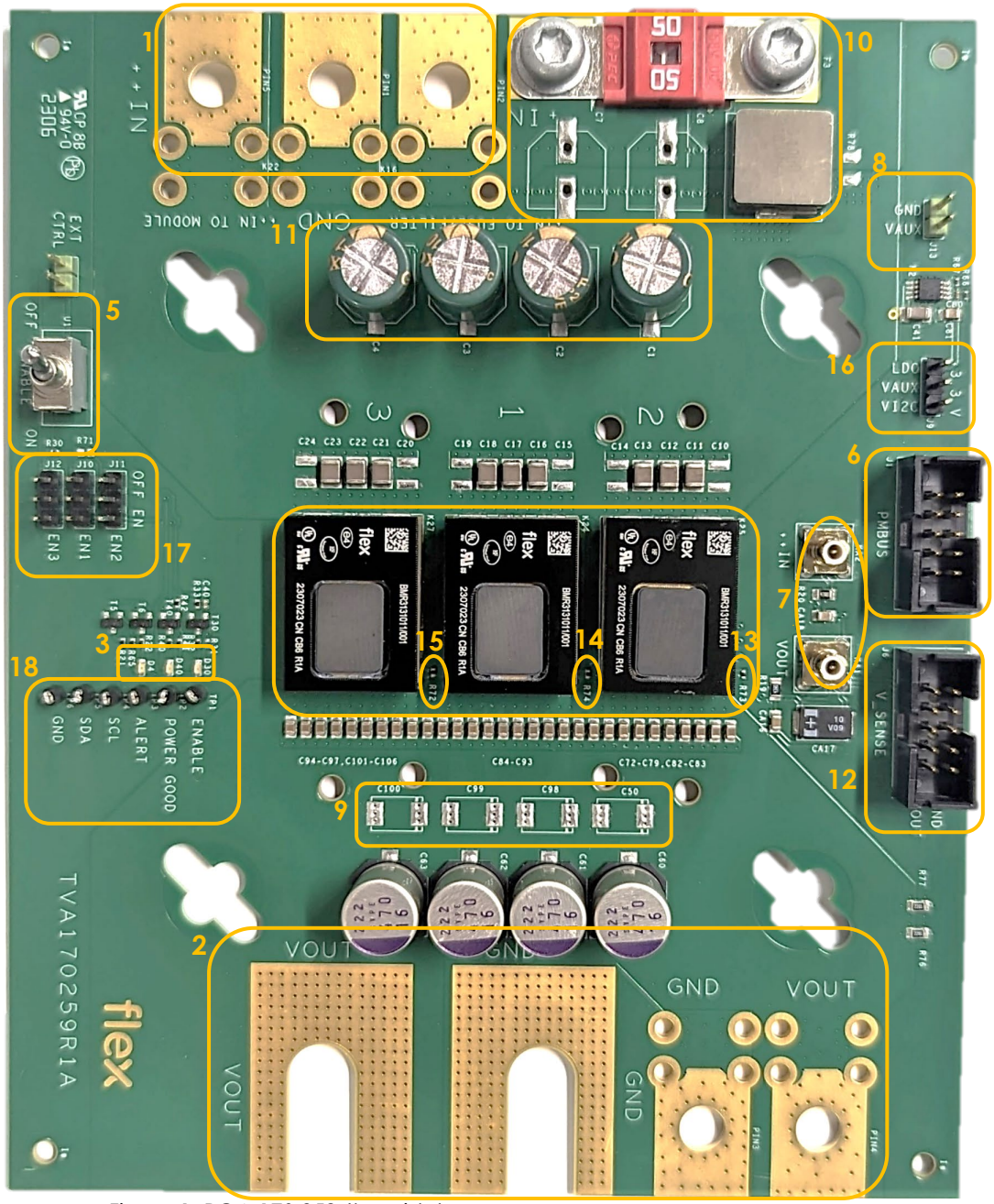
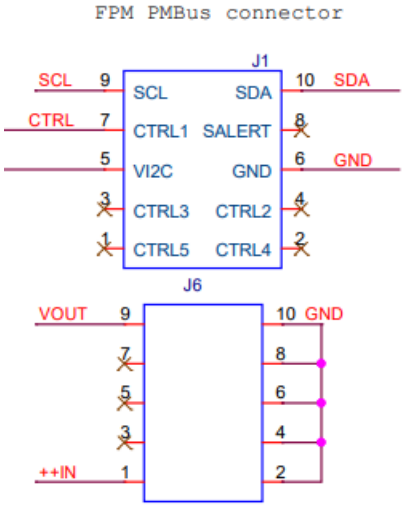
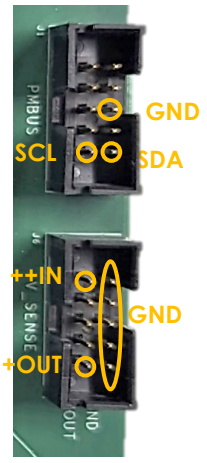


Figure 1. ROA 170 259 (top side).

Position	Description
1	Input voltage connectors. Connector +IN connects the filter and fuse in series with ++IN. ++IN connects to modules.
2	Output voltage connectors.
3	Power Good, Enable and Alert LEDs.
5	ENABLE switch.
6	Connector for the PMBus-to-USB adaptor (pin connection below) [J1].
7	SMB Oscilloscope connector VOUT [KA1] and VIN [KA2].
8	Connector for auxiliary 3.3 V supply [J13].
9	Space for additional output capacitors.
10	Input filter and fuse.
11	Input capacitors.
12	Voltages sense connector (Pin connection below) [J6].
13	Address resistor for module 2 [R73].
14	Address resistor for module 1 [R74].
15	Address resistor for module 3 [R72].
16	Jumper location for connecting VAUX to VI2C or LDO [J9].
17	Jumper locations [J10, J11, J12] routing enable signals from modules to GND or ENABLE switch.
18	Testpoints.





2 Power-up and Power-down Instructions

2.1 Power-up instruction

- **Make sure jumpers [J10, J11, J12] are populated for the mounted modules.**

    a. **Modules which shall be controlled with the ENABLE switch, place jumper to in position EN.**

    b. **For modules to remain off, place Jumper in position OFF.**

- **Make sure that the control switch is off.**
- LEDs are powered via VAUX. VAUX can be powered from V12C or LDO depending on jumper location J9. If connected by external supply, no jumper is needed.
- Apply VIN 38-60 V through connectors in position 1, ++IN for no fuse or filter, +IN for filter and fuse.
- Set Enable switch in ON position. Both enable LED and power good LED (position 3) should give green light.

2.2 Power-down instruction

- **Set Enable switch in OFF position.**
- Turn off VIN.

Note: If no jumper is applied at J10, J11, J12. The corresponding module will be enabled regardless of the ENABLE switch state.

3 Board Supplies

Other than the input voltage, VIN, supplies according to the Table 1 are used on the test board.

Supply	Description	May be jumped to	Supply connector
VAUX	Supply for LEDs.	VI2C, LDO	J13 (position 8)
LDO	Supply (3.3V) provided by LDO mounted on the board.	VAUX	
VI2C	Supply (3.3V) provided by PMBus-to-USB adaptor	VAUX	J1 (position 6)

Table 1. Summary of supplies.

4 Address Resistors

Communication is done using PMBus. The addresses are decided by address resistors R73, R74, R72. The default resistance values are 1,1.6 and 2.2 kΩ which gives PMBus address 0x12, 0x13, 0x14.

Module	Resistor value Ω	Address	Reference designator
2	1k	0x12	R73
1	1.6k	0x13	R74
3	2.2k	0x14	R72

5 Jumper locations

The different jumper and enable switch states corresponds to the different module states.

Module number	J10 Jumper position	Enable Switch	Output voltage
1	OFF	OFF	OFF
1	OFF	ON	OFF
1	EN	OFF	OFF
1	EN	ON	ON
1	None	OFF	ON
1	None	ON	ON

Module number	J11 Jumper position	Enable Switch	Output voltage
2	OFF	OFF	OFF
2	OFF	ON	OFF
2	EN	OFF	OFF
2	EN	ON	ON
2	None	OFF	ON
2	None	ON	ON

Module Number	J12 Jumper position	Enable Switch	Output voltage
3	OFF	OFF	OFF
3	OFF	ON	OFF
3	EN	OFF	OFF
3	EN	ON	ON
3	None	OFF	ON
3	None	ON	ON

6 Test Points and Sense Locations

6.1 VIN/VOUT test points

Input voltage should be measured at test point J6/KA2 (position 7 and 12) which is connected directly to the VIN/GND pins of module 1.

Output voltage can be measured at test points J6/KA1 (position 7 and 12) which are directly connected to VOUT/GND pins of module 1.
Measuring efficiency these test points shall be used.