IQRF-BB-01

IQRF Breakout board

User's guide

IQRF
Smarter wireless. Simply.

Description

IQRF-BB-01 breakout board is a development adapter for connecting an IQRF TR transceiver to any device.

It enables easy development with platforms like Arduino, Gemalto, BeagleBone, ChipKIT™, Raspberry Pi and many others.

Interconnectivity by individual single-wire cables ensures absolute versatility.

Integrated LDO voltage regulator and level shifters on all I/O pins allow to use a 3.3 V as well as 5 V logic. TR power supply can be switched on/off by the control pin.

IQRF-BB-01 is intended especially for applications using IQRF SDK (Software Development Kit) and DPA framework for wireless applications without TR programming. However, it can be used in any SW application.
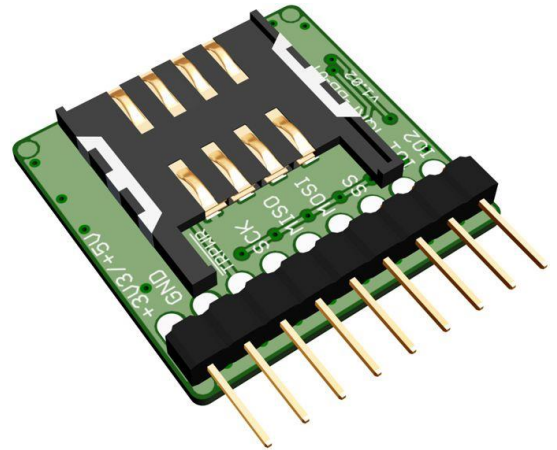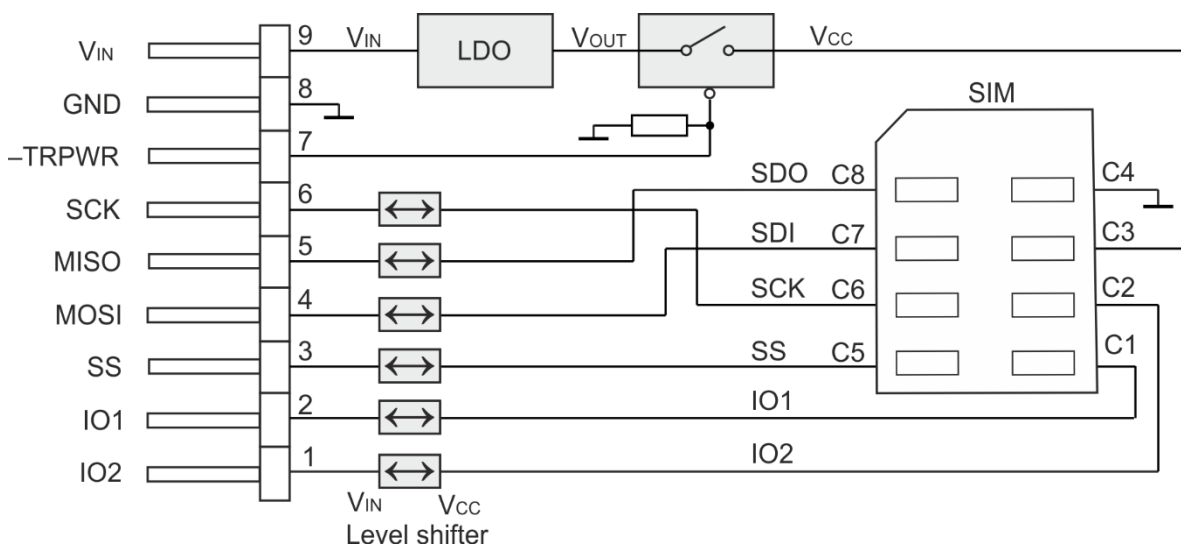
Key features

- Enables arbitrary interconnection
- 3.3 V as well as 5 V logic supported
- Bidirectional level shifters on all I/O pins
- 3.3 V LDO voltage regulator
- TR power supply switchable by the control pin (enabling TR HW reset)
- 9 pins, 6 TR I/Os
- SIM card connector for TR transceiver
- Compatible with TR-72D, TR-62D, TR-52D, TR-52B and TR-53B

Applications

- IQRF wireless development with any device
- Arduino, Gemalto, BeagleBone, ChipKit, Raspberry Pi, …
- Devices supported by IQRF SDK
- RF connectivity in many fields
- Internet of Things

Simplified schematic

Electrical specifications

*Typical values **unless otherwise stated***

Supply voltage (V_{IN})	3.1 V to 5.4 V
LDO output (V_{OUT})	+3.3 V ± 60 mV (when V_{IN} > 3.4 V), 100 mA max.
Operating temperature	-40 °C to +85 °C
Size (L x W x H)	29.8 mm x 23.4 mm x 5.5 mm

Absolute maximum ratings

Stresses above listed maximum values may cause permanent damage to the device and affect device reliability. Functional operation at these or any other conditions beyond those specified is not supported.

Supply voltage (V_{IN})	6.0 V
Storage temperature	-40 °C to +85 °C
Ambient temperature under bias	-40 °C to +85 °C

Hardware

### Basic components

| Part	Type
Interface connector	9 pin single row male connector for square 0.635 mm, 2.54 mm pitch pins
SIM connector	KON-SIM-01
LDO voltage regulator IC	Low quiescent low drop MCP1700T-3302 (Microchip). For more information refer to the datasheet.
Level shifters	Based on BSS138 MOSFETs
Power supply switch	Based on IRLML2502 MOSFETs

Pins

| Interface connector		TR SIM connector	
Pin	Name	Pin	Description (See datasheet of given TR transceiver)
1	IO2	C2	I/O
2	IO1	C1	I/O
3	SS	C5	SPI Slave select input, UART TX output
4	MOSI	C7	SPI SDI input, I2C data input/output
5	MISO	C8	SPI SDO output, UART RX input
6	SCK	C6	SPI / I2C clock input/output
7	–TRPWR	–	TR power supply control, input with pull-down resistor. Enabled by log. 0 or when disconnected, disabled by log. 1.
8	GND	C4	Ground
9	VIN	C3	Power supply
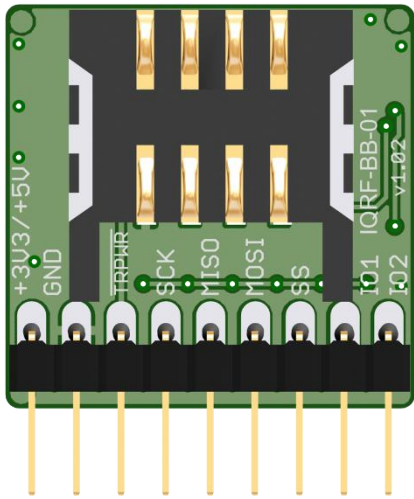
Top view
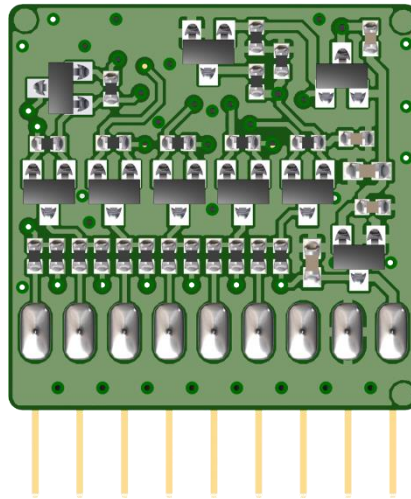
Bottom view
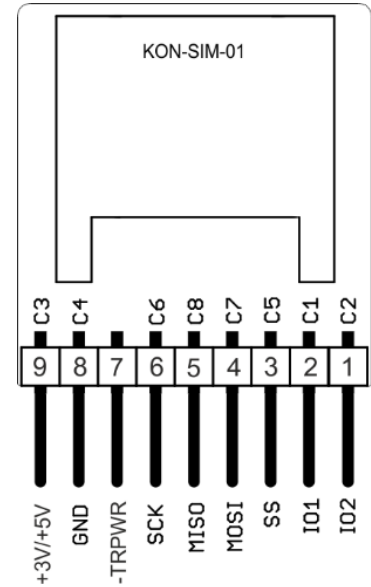
Pinout

Dimensions
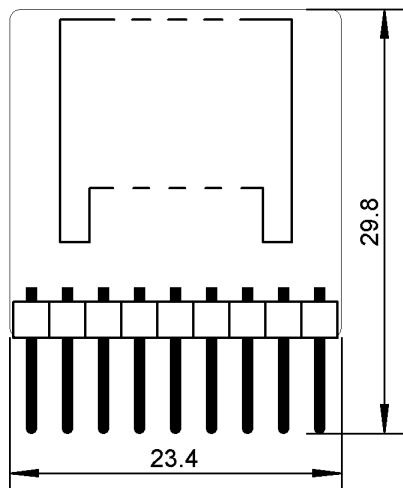
Top view. Units: mm.

Application

See IQRF video tutorial set on www.iqrf.org/videos.

Application software

See IQRF SDK (Software Development Kit) for usage IQRF with 3-rd party devices programmable under Java or C/C++.

Product information

Ordering codes

IQRF-BB-01   IQRFbreakout board, without interconnecting cables

Hardware revision

- v1.02   First release. With silkscreen IQRF-SHIELD-02.

Document history

- 151124   First release.

Sales and Service

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Partners and distribution

Please visit www.iqrf.org/partners.

Quality management

ISO 9001 : 2009 certified

Complies with directives 2011/65/EU (RoHS) and 2012/19/EU (WEEE).

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