

DK-EVAL-04A

IQRF development kit

User's Guide



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Description

DK-EVAL-04A is a universal development kit for wireless applications with IQRF transceiver modules. Very small size, LiPoL accumulator and low cost make this kit ideal for use in networks.

A user-specific functionality is given by software in internal TR module.



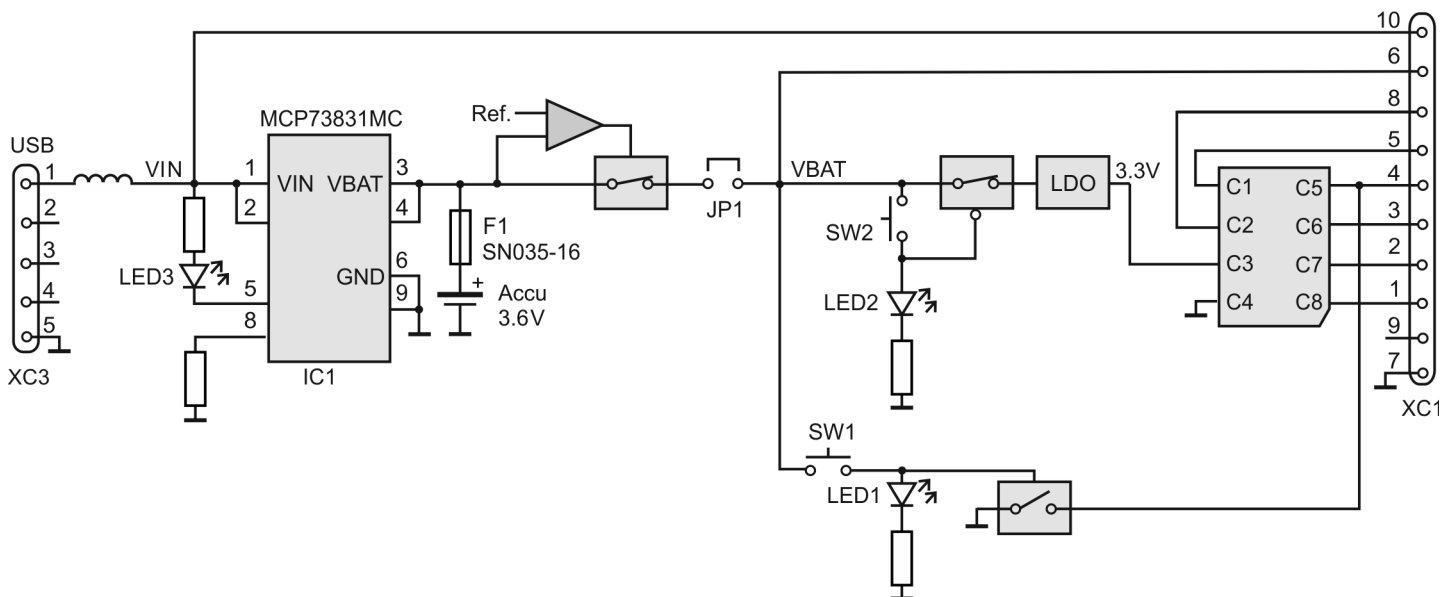
Applications

- Wireless applications development
- Host for IQRF TR modules
- Huge IQMESH networks debug and testing
- Battery powered and portable wireless systems

Key features

- SIM connector with plastic holder for TR module
- 2 pushbuttons, wake-up on button press capability
- 3 indication LEDs
- 6 I/Os
- LiPoL accumulator and internal charger. Charged via microUSB connector
- Accumulator over-current and over-discharge protection
- Voltage output to supply low power peripherals, sensors etc.
- Optional DK-PWR-01 power supply board to support operation and charging up to 5 kits available
- Compatible with IQRF DDC kits (Development Daisy Chain)
- Space saving

Simplified circuit diagram



Electrical specifications*(Typical values unless otherwise stated)*

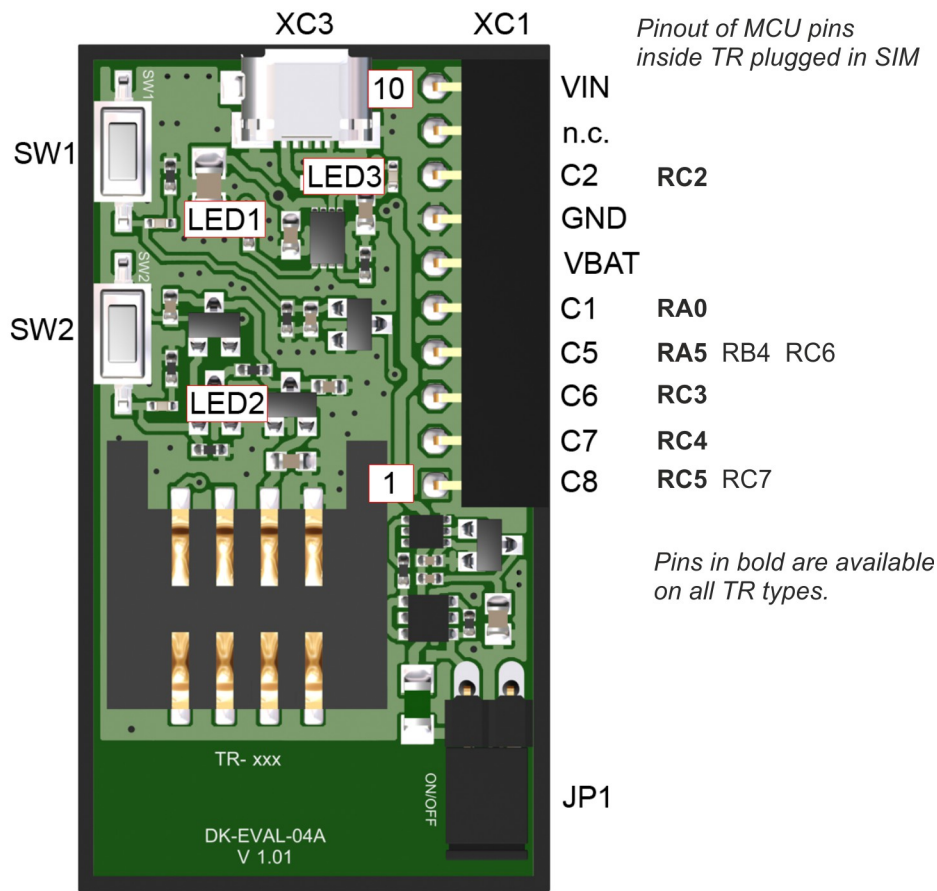
Power supply	
accumulator	LIP552240, 400 mAh, nominal voltage 3.7 V
external source	
via micro USB connector (with charging)	4.4 V to 6.0 V DC
via XC1 connector, pin 6	3.5 V to 6.0 V DC
Supply current	
sleep	1.5 μ A (powered from accumulator, jumper JP1 disconnected)
charging	50 mA max.
Temperature	0 °C to +45 °C (operating), +10 °C to +25 °C (storage)
Supported TR modules	TR-52B, TR-52D, TR-55D, TR-56D and similar types, in SIM card format
Dimensions	48 mm x 27 mm x 11 mm
Weight	17 g

Absolute maximum ratings

Stresses above those values may cause permanent damage to the device. Exposure to maximum rating conditions for extended periods may affect device reliability.

Power supply (from external source)	6.0 V
Storage temperature:	-40 °C to +85 °C

Hardware



Power supply

DK-EVAL-04A is supplied from internal accumulator or from external power source via micro USB connector XC3 which also serves as a charger. The TR module is supplied when jumper JP1 is set. Charging is indicated by LED3. The accumulator is protected against over-current (by resettable fuse SN035-16) and against over-discharging.

The accumulator should be kept charged.

For external power source also connector XC1 (pins 6 and 7) can be used.

Jumper JP1 must be disconnected in this case.

Pushbuttons

- User pushbutton SW1 is connected to pin C5 of the TR module, active low. Therefore, the TR module should have the C5 pin configured as input with internal pull-up. It is arranged by OS by default. Wake-up on change or interrupt on change on this pin can also be configured by user software.
- Reset pushbutton SW2 TR module is disconnected from power supply when the SW2 pushbutton is pressed.

LEDs

- LED1 and LED2 are on when the appropriate pushbutton is pressed.
- LED3: charging indication. LED3 is on during charging and switched off when fully charged.

SIM connector

Caution: The TR module can be plugged / unplugged into / from the SIM connector while powered off only.

Tip: Use the SW2 pushbutton for this. The TR module is disconnected from power while the SW2 pushbutton is held.

Supported TR module types

TR	Supported
TR-52D	Yes
TR-53D	–
TR-54D v1.01	–
TR-54D v1.02	Yes
TR-55D	Yes

TR	Supported
TR-56D	Yes
TR-58DA	–
TR-52B	Yes
TR-53B	–
TR-72D	Yes

Caution: The unsupported TR modules must not be plugged into DK-EVAL-04A SIM connector.

Interface connector

Interface connector XC1 makes SIM I/O pins, power supply and ground accessible externally. It is compatible with IQRF DDC development kits.

Caution: DK-EVAL-04A PCB layout is optimized for space savings during development of network applications with a lot of nodes on a table. Thus, this kit is not intended for range tests using TR modules with internal PCB antenna (e.g. TR-52DA, the range would be shortened in this case). For range test use e.g. TR-52D and an external antenna.

Product information

Pack list

- DK-EVAL-04A kit (without a TR-module)
- Accumulator (soldered) inside
- 1 jumper (power on switch)

Recommended options

- TY-A6A Power supply with USB A connector
- CAB-USBABMICRO-100 Cable for TY-A6A power supply
- DK-PWR-01 Power supply expansion board (to supply and charge up to 5 DK-EVAL-04A kits)

Ordering code

- DK-EVAL-04A IQRF universal development kit

Document history

- 150119 Pinout of MCU pins added in chapter *Control and indication*.
- 140801 Chapter *Supported TR module types* added.
- 140124 First release.

Sales and Service

Corporate office

MICRORISC s.r.o., Prumyslova 1275, 506 01 Jicin, Czech Republic, EU
Tel: +420 493 538 125, Fax: +420 493 538 126, www.microrisc.com

Partners and distribution

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