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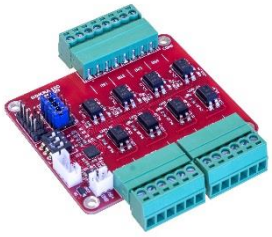
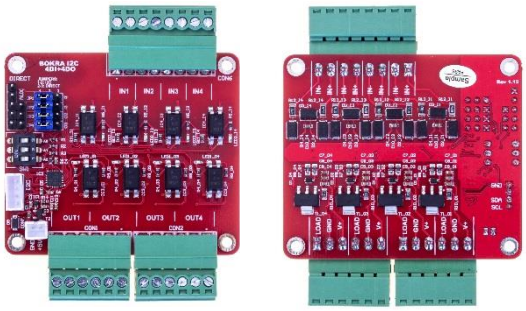
I²C 4DI+4DO



The **BOKRA I2C 4DI+4DO** module is digital I / O module containing four digital input and four digital output channels. The level of the digital input signal - 24V. Digital output signals - open collector, n-p-n. All channels are individually galvanically isolated with an electrical insulation strength of 1.5 kV.

There is an indication of the status of digital input and output channels.



The **BOKRA I2C 4DI+4DO** module is controlled via the I²C interface using the MCP23008 chip. The microcontroller has the ability to direct access four channels (two digital input and two digital output) through an auxiliary connector. These control methods allow you to use the module with almost any type of microcontroller.

The main areas of application of the **BOKRA I2C 4DI+4DO** module:

- Industry
- Data acquisition systems (DAS)
- Agricultural industry
- Smart home
- Heating, Ventilation, & Air Conditioning (HVAC)
- PLC
- Ecology monitoring
- Transport
- Consumer electronics and devices
- Lighting

BOKRA I2C 4DI+4DO features

- MCP23008 I2C chip
- Support 100kHz and 400KHz I2C bus frequency
- Microswitch addressing to use eight addresses on the I²C bus
- Grove connectors for I²C
- Interrupt output signal from MCP23008
- Compatible with most microcontrollers
- 4 Optically isolated digital input channels
- 0-24VDC input voltage
- 4 Optically isolated digital output channels
- Maximum current per channel - 300 mA peak
- Type of output signal - open collector, n-p-n
- 1500VDC insulation breakdown strength for input and output signals (optocoupler LTV-814)
- LED indication of input and output signals status
- The **BOKRA I2C 4DI+4DO** module size 65 x 56 mm. The format of the module corresponds to the popular format of the Raspberry Pi 3A+, which greatly simplifies its use with the Raspberry Pi.

MCP23008 is controlled via I²C connector.

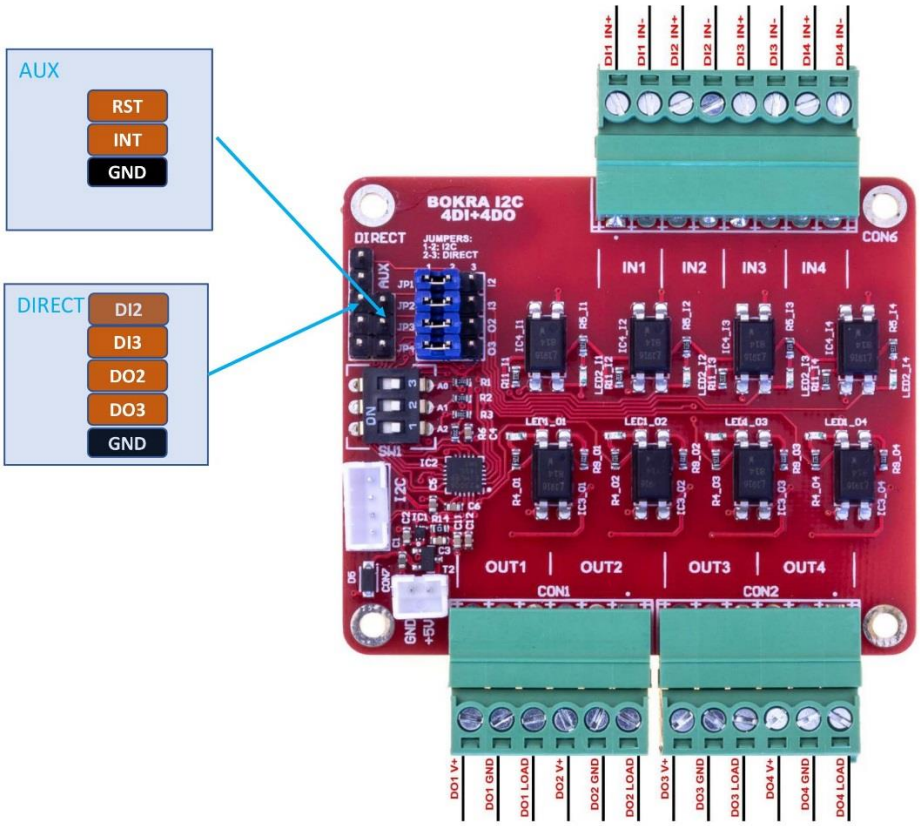
Microswitch SW1 is used to select the address MCP23008 on mikroBUS.

Power supply - 5 VDC.

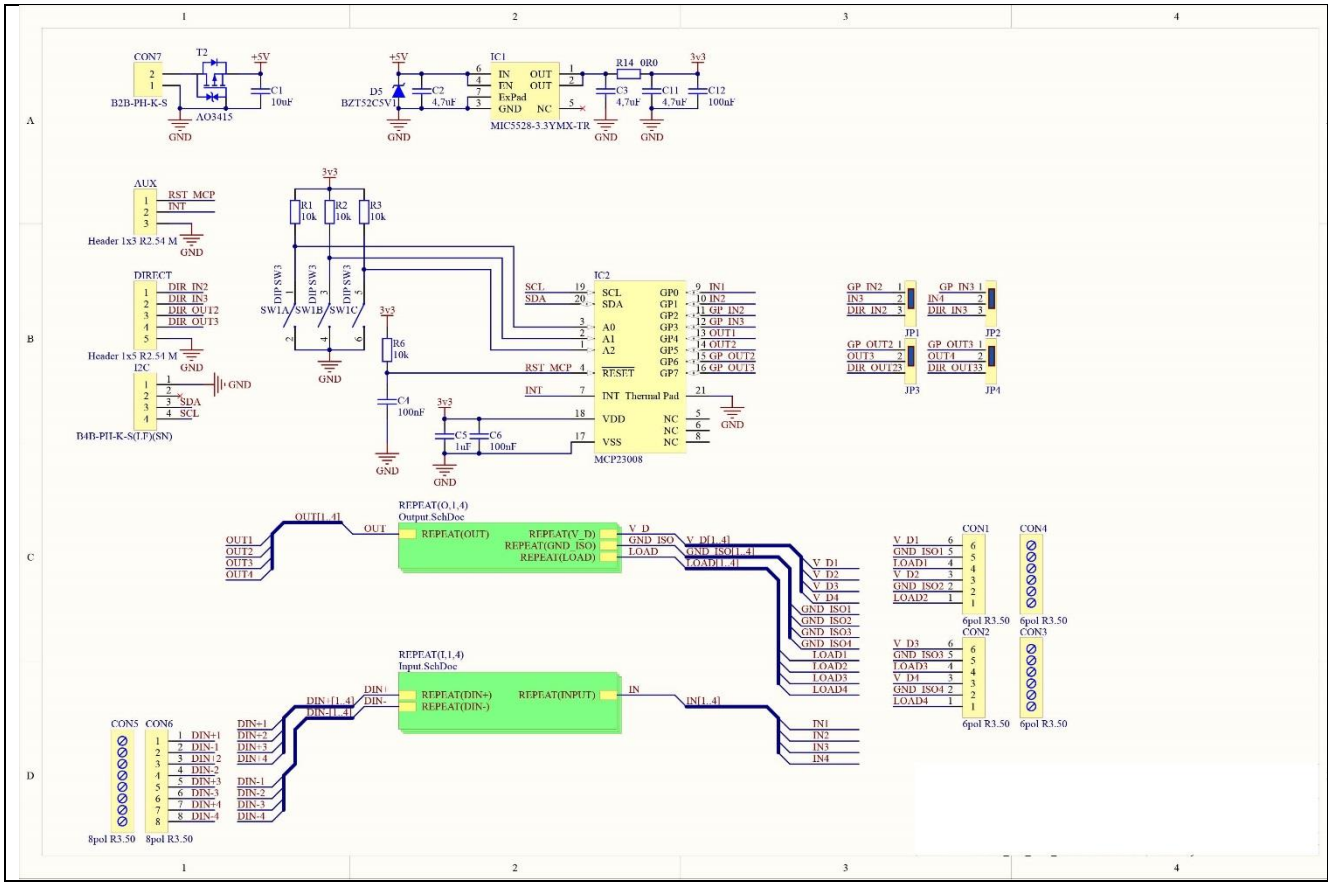
RST and INT signals of the MCP23008 are output to the AUX connector.

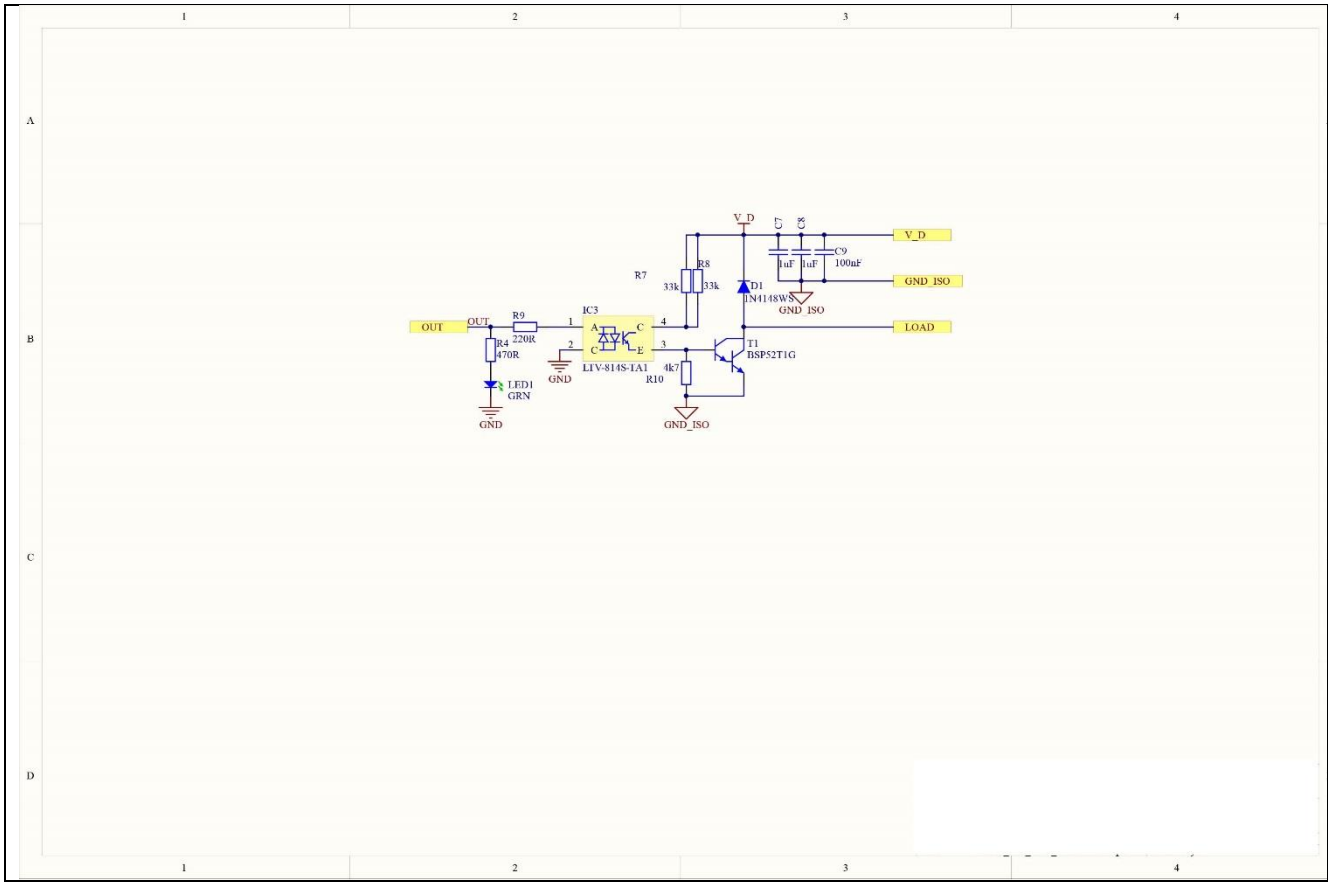
Using the DIRECT connector, external signals DO2 are fed to the module, DO3 and signals DI2 and DI3 are obtained from it. How to connect channels OUT2, OUT3, IN2 and IN3 with an external module or with MCP23008 is determined on the corresponding jumpers.

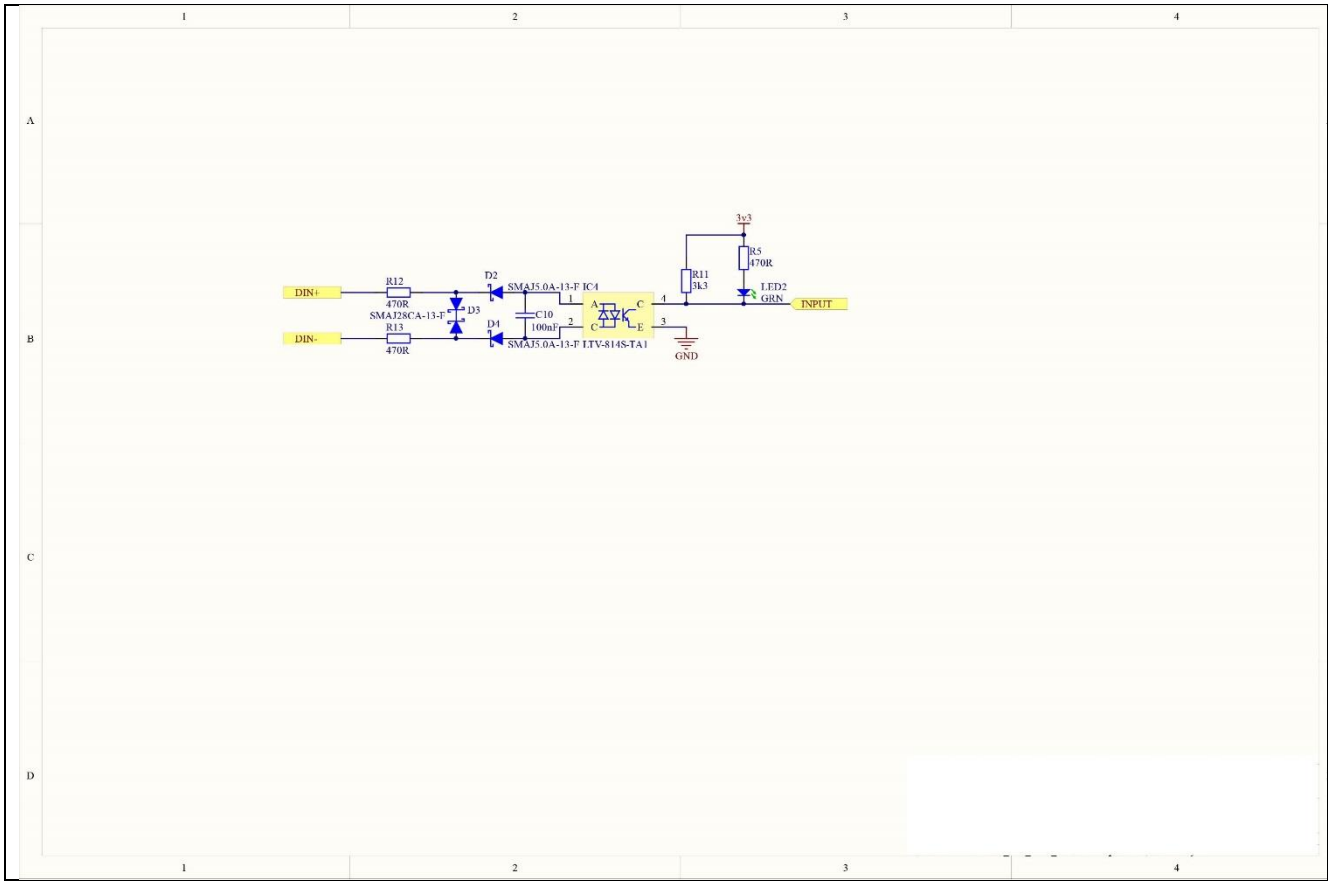
The following figure shows the **location of elements on the BOKRA I2C 4DI+4DO module**.



BOKRA I2C 4DI+4DO schematic:




V_D
C7
C8
C9
1uF
1uF
100nF
V_D
GND_ISO
R7
33k
R8
33k
D1
1N4148WS
GND_ISO
OUT
OUT
R9
220R
IC3
LTV-814S-TA1
LOAD
R4
470R
T1
BSP52T1G
LED1
GRN
GND
GND
R10
4k7
GND_ISO


3v3
R5
470R
R11
3k3
LED2
GRN
INPUT
DIN+
R12
470R
D2
SMAJ5.0A-13-F
IC4
SMAJ28CA-13-F
D3
C10
100nF
DIN-
R13
470R
D4
SMAJ5.0A-13-F
LTV-814S-TA1
GND