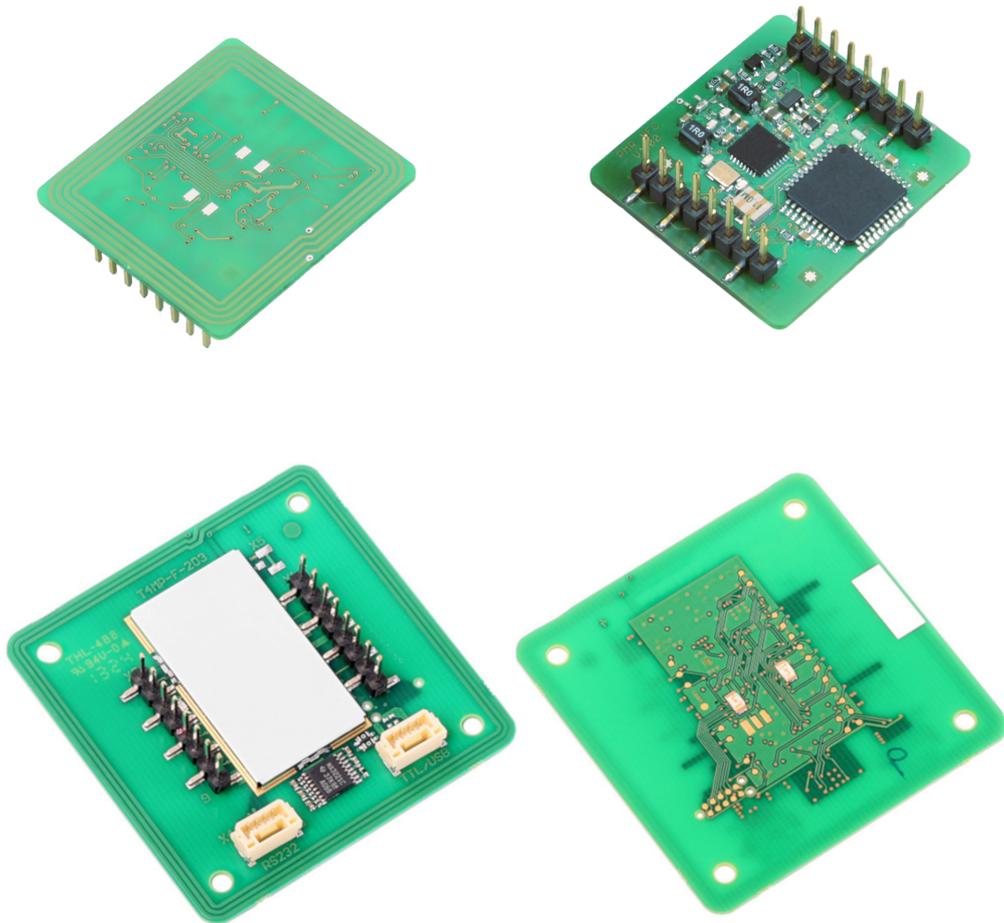


TWN4

MultiTech Mini

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ELATEC GmbH

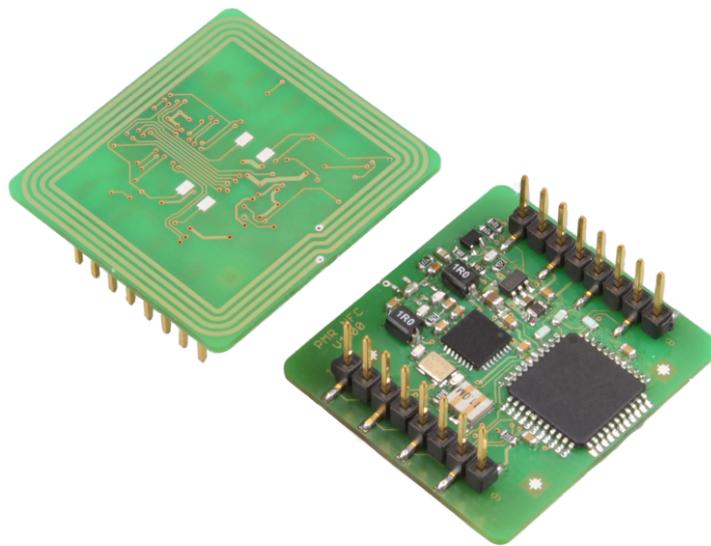
Contents

1	Introduction	3
2	TWN4 Mini Reader	4
2.1	Dimensions	4
2.2	Connectors	5
2.3	Using PI Option	5
2.3.1	SIO Chip soldered on PCB	6
2.3.2	SAM Card Connection	6
3	TWN4 Mini EVP	7
3.1	Dimensions	8
3.1.1	TWN4 Mini EVP-SI M HF	8
3.1.2	TWN4 Mini EVP-SE M HF	9
3.2	Connectors	10
3.3	Using PI Option	13
3.3.1	SIO Chip soldered on PCB	13
3.3.2	SAM Card Connection	13
4	Disclaimer	14

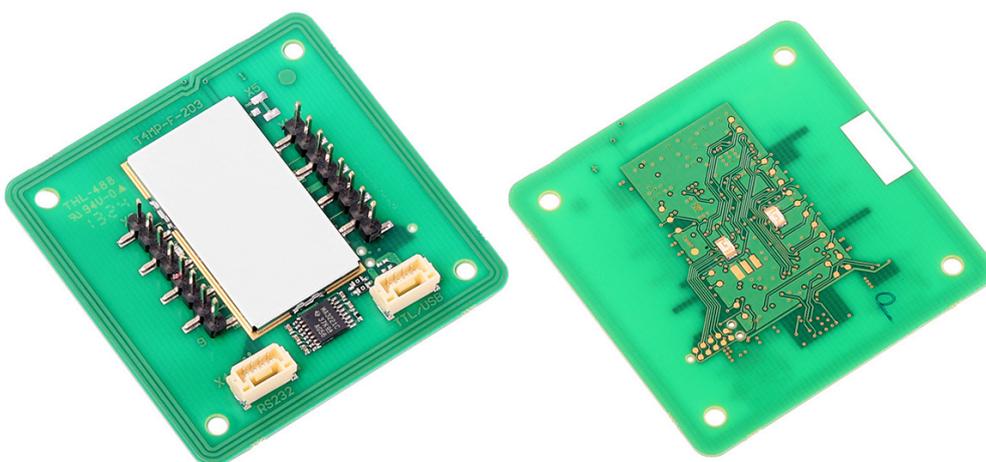
1 Introduction

TWN4 MultiTech Mini is a module to be integrated on custom PCB. It has a built-in HF antenna and subset of IOs compared to TWN4 Core or Nano Module. TWN4 Mini Reader is currently available as version TWN4 Mini Reader MIFARE NFC and TWN4 Mini EVP.

- TWN4 Mini Reader MIFARE NFC



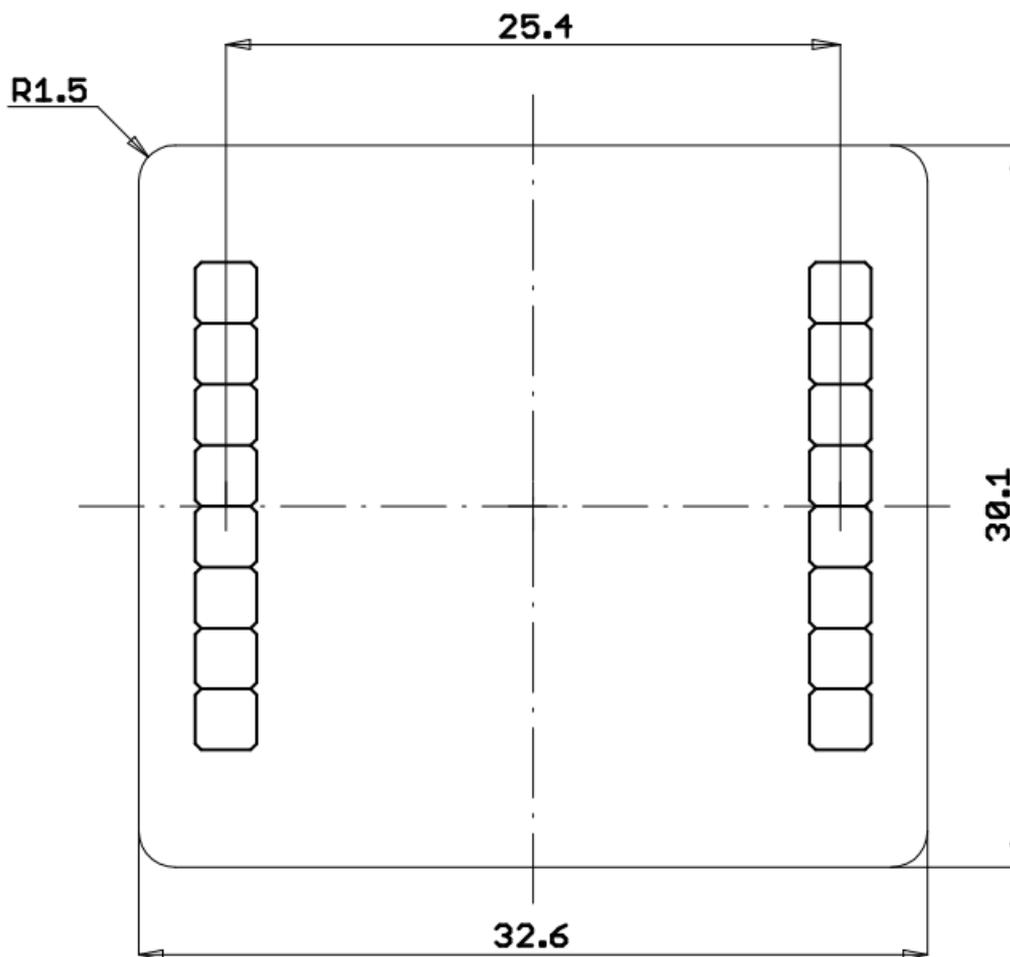
- TWN4 Mini EVP



2 TWN4 Mini Reader

2.1 Dimensions

Below are the dimensions of the TWN4 MultiTech Mini. All dimensions in mm unless otherwise stated.



2.2 Connectors

The TWN4 Mini Reader has two on-board single row headers with 8 positions each. The pins of these two connectors are together enumerated from 1 to 16.

- Single row header
- Pitch 2.54mm
- Pin shape square 0.635mm

Pin	Pin Name	Function
1	RESET-	Low active TTL input with internal pull-up resistor for hard reset.
2	PWRDWN-	Low active TTL input with internal pull-up resistor for turning off the voltage regulator.
3	GND	Ground
4	VIN	Unregulated input to on-board voltage regulator
5	RXD- (USB: D+)	Low active TTL input with internal pull-up resistor of asynchronous RXD to COM1. In case of USB version: USB Data+
6	TXD- (USB: D-)	Low active TTL output (push/pull) of asynchronous TXD from COM1. In case of USB version: USB Data-
7	SCK	SCK from SPI host interface.
8	SS-	SS- from SPI host interface.
9	VCC	Internally regulated 3.0V power supply. To be used for SAM1.
10	SAM_IO	I/O line for SAM1.
11	GPIO3	GPIO3, I/O pin for general purposes.
12	GPIO2	GPIO2, I/O pin for general purposes.
13	GPIO1	GPIO1, I/O pin for general purposes.
14	GPIO0	GPIO0, I/O pin for general purposes.
15	SAM_CLK	Clock output for SAM1
16	SAM_RST	Reset output for SAM1

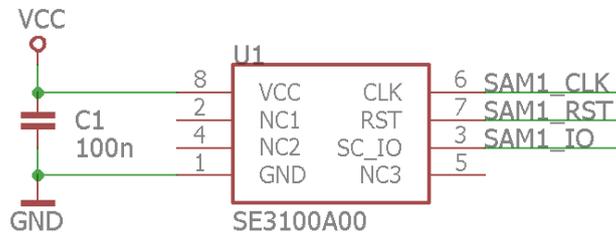
2.3 Using PI Option

To use the PI Option, e.g. to read the PAC bits from an iCLASS transponder, a SIO processor is needed. This can be either a SIO chip which is soldered directly on a PCB or a SAM card incorporating the SIO processor.

2.3.1 SIO Chip soldered on PCB

The SIO processor has to be added to the design of the mainboard. The chip shall be connected to the SAM-pins of the TWN4 Mini Reader.

Recommended schematic:



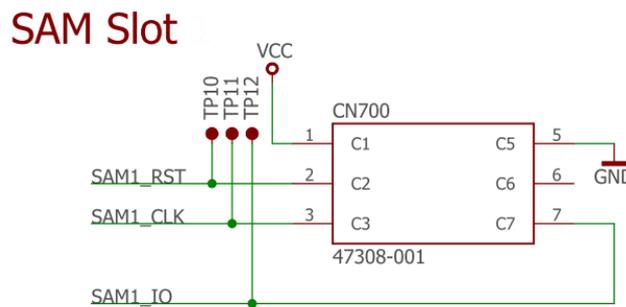
2.3.2 SAM Card Connection

A SAM socket has to be added to the design of the mainboard. The SAM socket shall be connected to the SAM-pins of the TWN4 Mini Reader.

Following SAM sockets are recommended:

- Molex 47388-2001
- Molex 47308-0001

Recommended schematic:



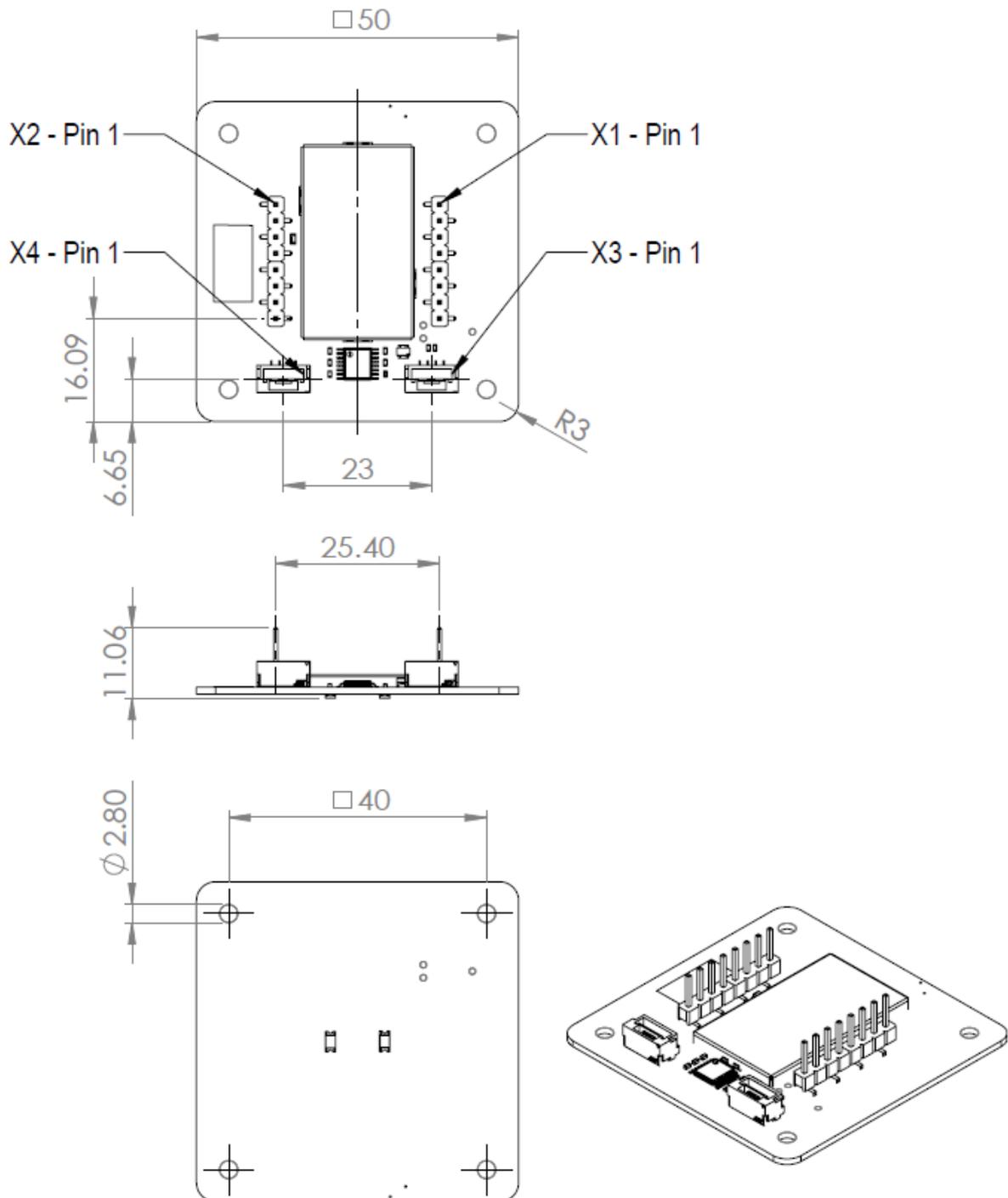
3 TWN4 Mini EVP

The TWN4 Mini EVP comes in two versions, one with internal antenna (TWN4 Mini EVP-SI M HF) and one with a connector for an external antenna (TWN4 Mini EVP-SE M HF). The external antenna can be connected to the UMCC connector X5.

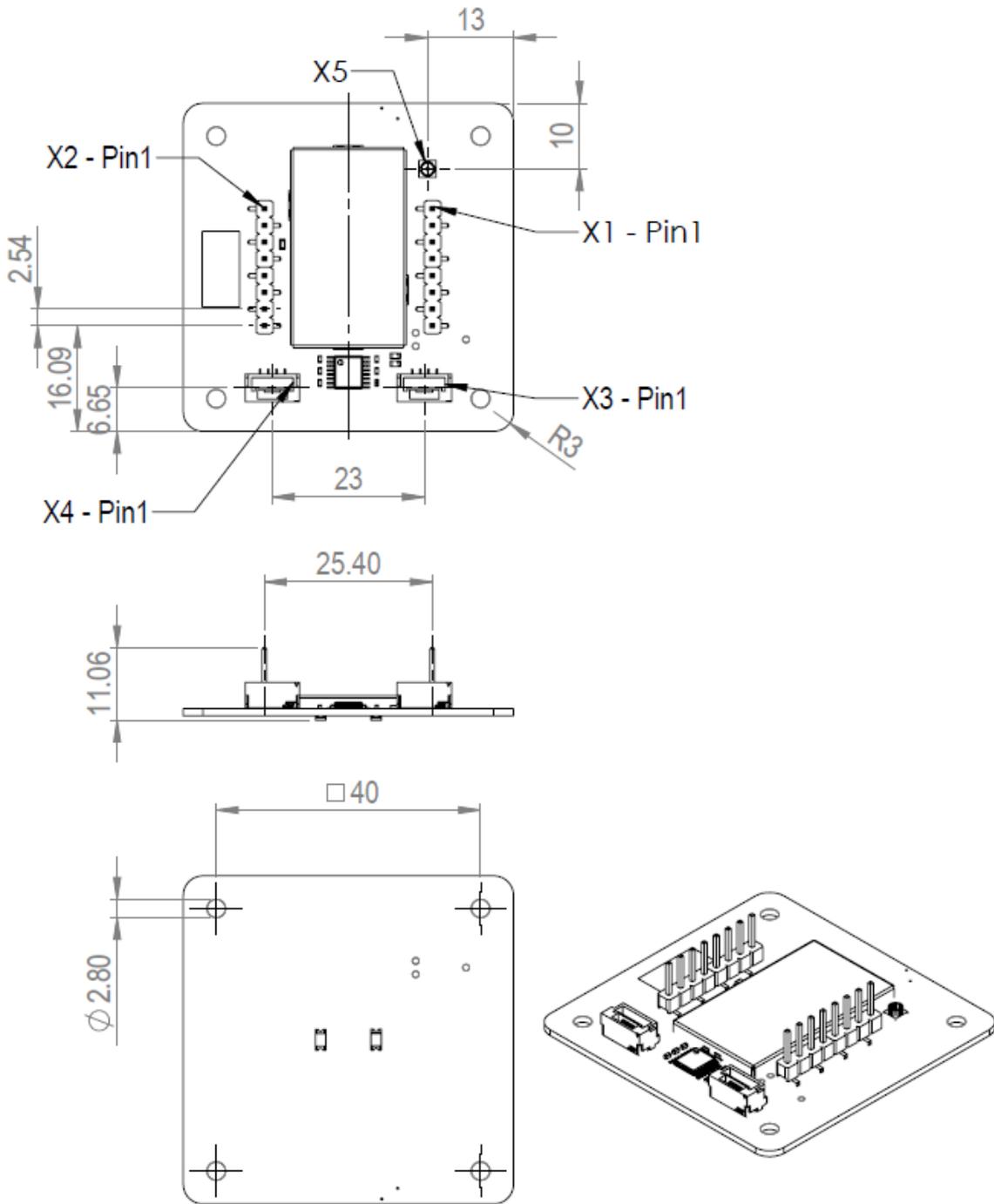
3.1 Dimensions

Below are the dimensions of the TWN4 Mini EVP. All dimensions in mm unless otherwise stated.

3.1.1 TWN4 Mini EVP-SI M HF



3.1.2 TWN4 Mini EVP-SE M HF



3.2 Connectors

The TWN4 Mini EVP has two on-board single row headers with 8 positions each. The pins of these two connectors are together enumerated from 1 to 16.

- Single row header
- Pitch 2.54mm
- Pin shape square 0.635mm

Pin	Pin Name	Function
1	RESET-	Low active TTL input with internal pull-up resistor for hard reset.
2	PWRDWN-	Low active TTL input with internal pull-up resistor for turning off the voltage regulator.
3	GND	Ground
4	VIN	Unregulated input to on-board voltage regulator
5	RXD- (USB: D+)	Low active TTL input with internal pull-up resistor of asynchronous RXD to COM1. In case of USB version: USB Data+
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12	GPIO2	GPIO2, I/O pin for general purposes.
13	GPIO1	GPIO1, I/O pin for general purposes.
14	GPIO0	GPIO0, I/O pin for general purposes.
15	SAM_CLK	Clock output for SAM1
16	SAM_RST	Reset output for SAM1

In addition to the single row headers, there are two connectors of type JST BM04B-GHS-TBT for RS-232 and TTL/USB connection.

- X3 (TTL/USB)
- JST BM04B-GHS-TBT
- Pitch 1.25mm

Pin	Pin Name	Function
1	GND	Ground
2	RXD- (USB: D+)	Low active TTL input with internal pull-up resistor of asynchronous RXD to COM1. In case of USB version: USB Data+
3	TXD- (USB: D-)	Low active TTL output (push/pull) of asynchronous TXD from COM1. In case of USB version: USB Data-
4	VIN	Unregulated input to on-board voltage regulator

- X4 (RS-232)
- JST BM04B-GHS-TBT
- Pitch 1.25mm

Pin	Pin Name	Function
1	GND	Ground
2	RX_V24	RS232 RXD (Input)
3	TX_V24	RS232 TXD (Output)
4	VIN	Unregulated input to on-board voltage regulator

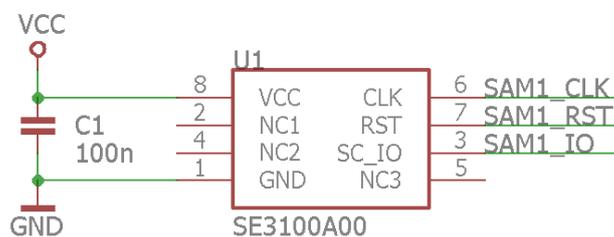
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Recommended schematic:



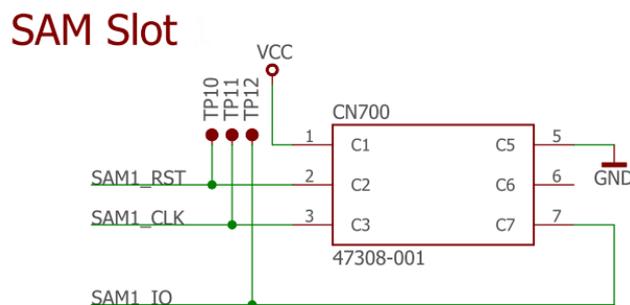
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- Molex 47308-0001

Recommended schematic:



4 Disclaimer

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