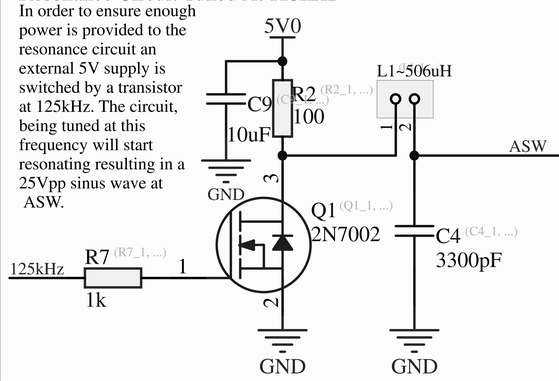
ATtiny1617 RFID slave

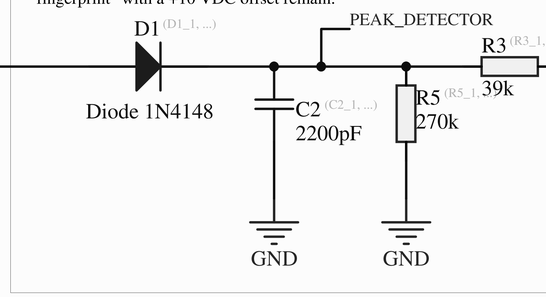
Resonance Circuit Tuned At 125kHz

In order to ensure enough power is provided to the resonance circuit an external 5V supply is switched by a transistor at 125kHz. The circuit, being tuned at this frequency will start resonating resulting in a 25Vpp sinus wave at ASW.



Peak Detector

When a RFID card is close to the antenna coil, it will start to leech power through inductance in a way determined by its ID number, this is the cards "fingerprint". It reveals it self in the form of a voltage drop when its active; a logig "1". By sampling only the peak of the ASW, we can filter out the 125kHz carry signal, thus only the "fingerprint" with a +10 VDC offset remain.

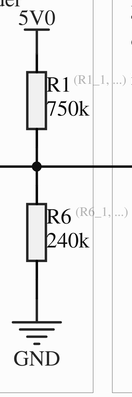


DC-block

As the MCU runs on 3.3V we block out the +10 VDC and only let through the AC, that is the signal.

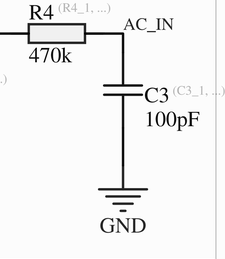
Voltage devider

To make the signal easier to sample, a 1.3 VDC offset is introduced.

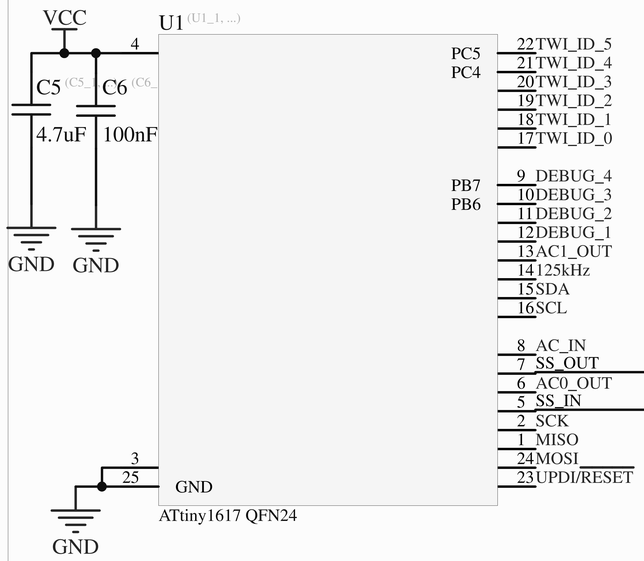


Low Pass Filter

To make the signal easier to sample, a 1.3 VDC offset is introduced.

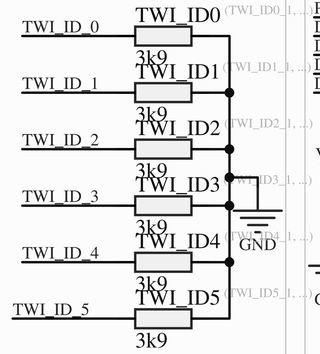


MCU

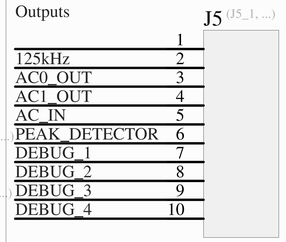


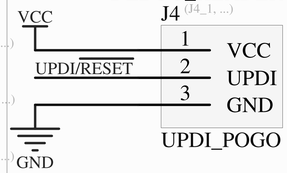
TWI

The Two Wire Interface protocol is used to communicate between the first slave in each row and the master. ID is determined by the 3.9k ohm resistors.

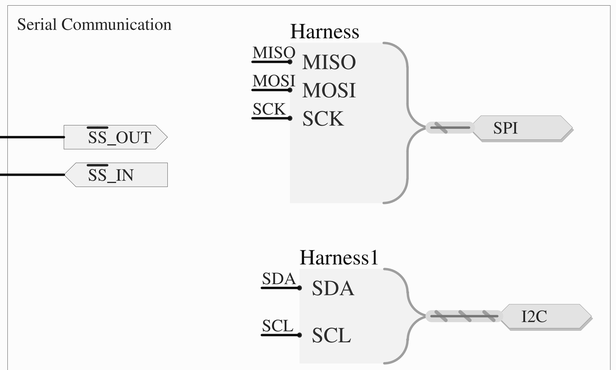


Outputs





Serial Communication



Title		
Size: A	Number	Revision
Date: 7/12/2018		Sheet of
File: F:\Master PCB\..\RFID_planke.SchDoc		Drawn By: