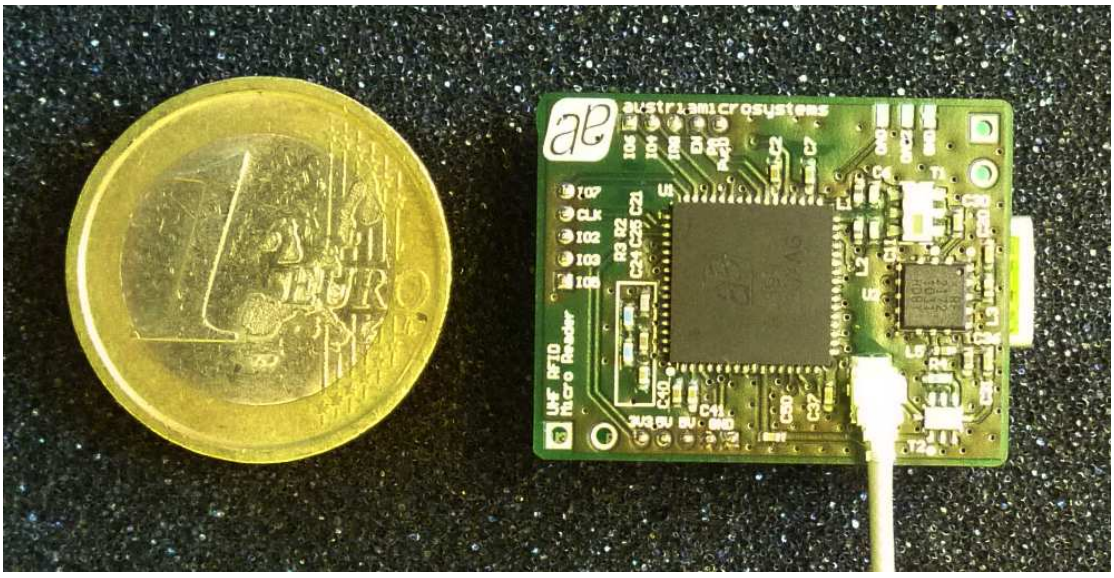
Product Brief

The AS399x “MICRO” Demo Kit & Reference Design

Contents

1. General Description
2. Key Features
3. Applications
4. Schematics & Dimensions
5. Contact



1 General Description

The MICRO UHF RFID Reader reference design from austriamicrosystems is a Low Cost EPC Class 1 Gen 2 compliant UHF RFID Reader system. Leveraging the AS399x family of UHF RFID Reader IC's, provides close to the industries lowest BOM cost, best in class power consumption with the least amount of complexity.

Second only to austriamicrosystems PICO design the low reader BOM enables UHF RFID markets that have previously been out of reach due to cost restraints. With regards to overall cost vs performance the MICRO UHF RFID reference design is unmatched in the industry.

With an external PA delivering up to 23 dBm, it is ideally suited for those applications that have similar cost constraints but require that extra power.

The MICRO reference design comes in two parts namly the analogue (RF) and digital (controller) parts. The user can separate the two boards to fully prove out their own RF and digital parts. With this set up it also means the user can evaluate the suitability of RFID in their current system.

The RF portion is designed such that it can be easily connected to a host micro via SPI. The high level of integration found on the AS399x UHF RFID Reader IC's allows for minimal code loading and quick implementation.

The reference designs come with free, fully portable code and all gerbers and schematics. This allows for a quick, trouble free design in.

You no longer have to be a RFID expert to implement RFID.

2 Key Features

- Interface
  - Between the Controller and Host Computer is USB
  - Between the Controller and the AS399x is SPI via a low cost pinheader connection
  - Between the RF board and the Antenna we use a U.FL (50 Ohm) SMA (Male)
- 5V power supply from USB.
- GUI
  - Adjust Output Power
  - Adjust Receive – Sensitivity
  - Adept to different frequency schemes
  - Change Gen2 specific parameters like BLF, Coding, Session Flags, …
  - Diagnostic Features: RSSI Measurement, Reflected Power Measurement
  - Support for sending direct commands
  - Advanced Tag Manipulations: R/W to different memory banks, define passwords
  - Associate tags with other applications like media player
  - View and easily manipulate register settings with advance tool tip text.
- Power Consumption: complete reader system is only 600mW (typ), 1.08W (max)
- Comes with both the AS3991 and AS3992
- Fully Gen 2 compliant, ISO 18000-6b & c
- Differential Tx chip-output configuration
- External power amplifier RF2172
- Maximum output power 22.5 dBm scalable in 20 steps

- Single – ended Rx chip-input configuration
- Low cost MCU: Silabs (C8051F340-GQ)
- Indicator LED

3 Applications

Typical applications for the MICRO reference design include;

- Embedded Consumer Applications
- Mobile Applications (Low Power Handheld, PDA's, Smart Phones)
- Embedded Industrial Applications
- Gaming
- Desk top readers
- Low/Mid powered modules

4 Schematics and Dimensions

RF Board

- Dimensions 26.85mm x 20.83mm
- 4 layer PCB
- Dual side component placement
- PCB thickness – 1.85mm

Controller Board

- Dimensions 26.85mm x 20.83mm
- 2 layer PCB
- Component placement on single side
- PCB thickness – 1.7mm

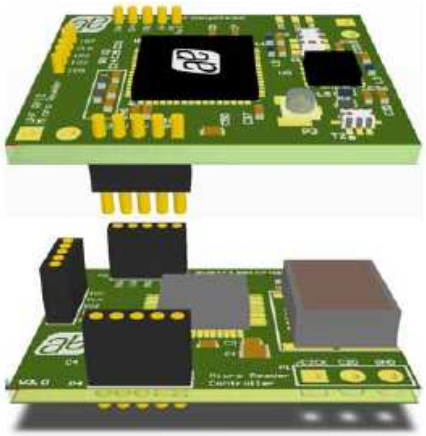


Fig 1

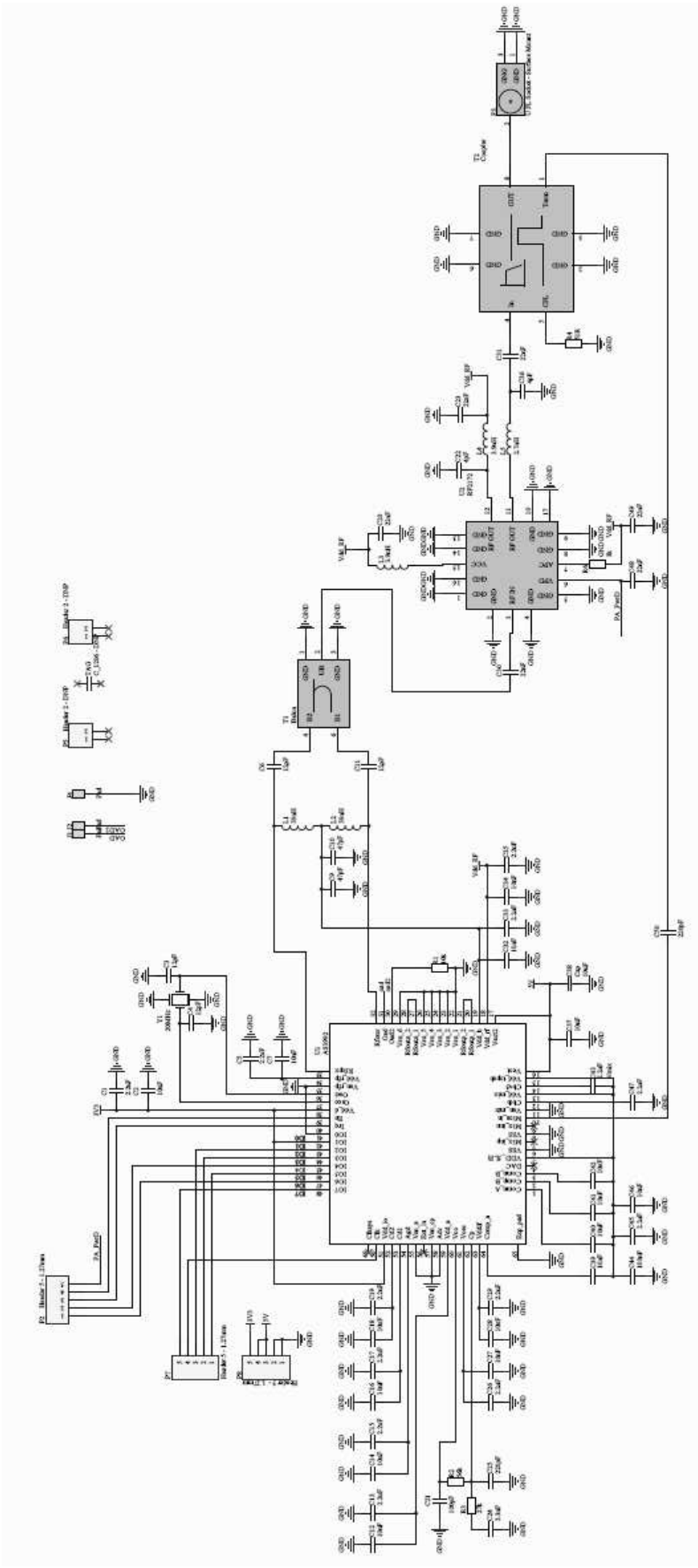
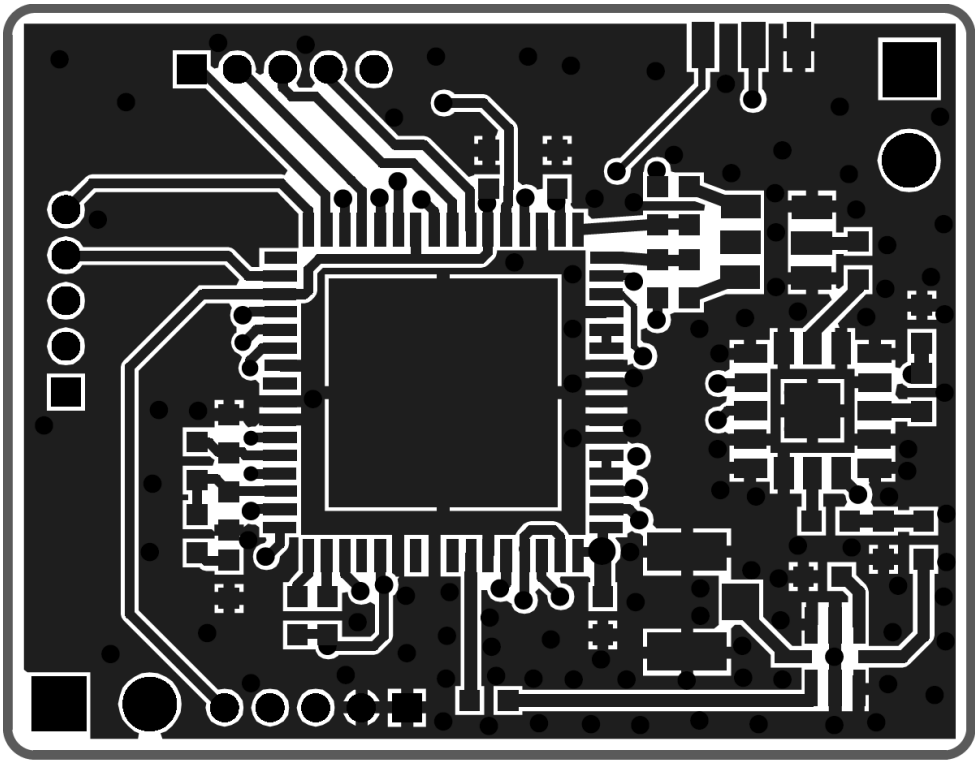
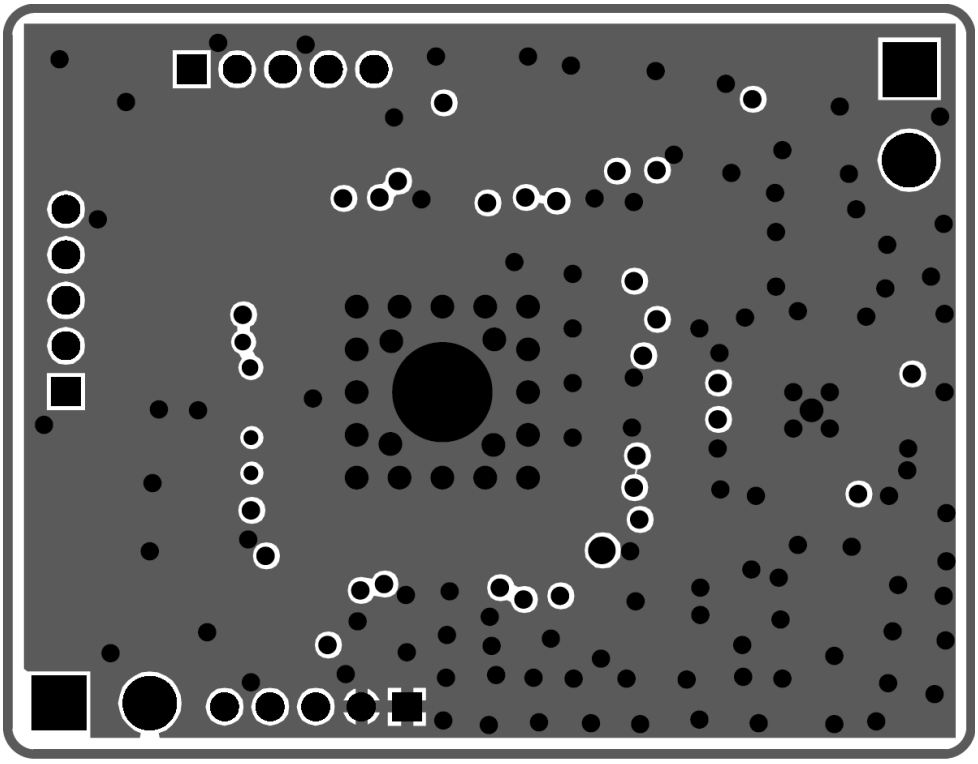
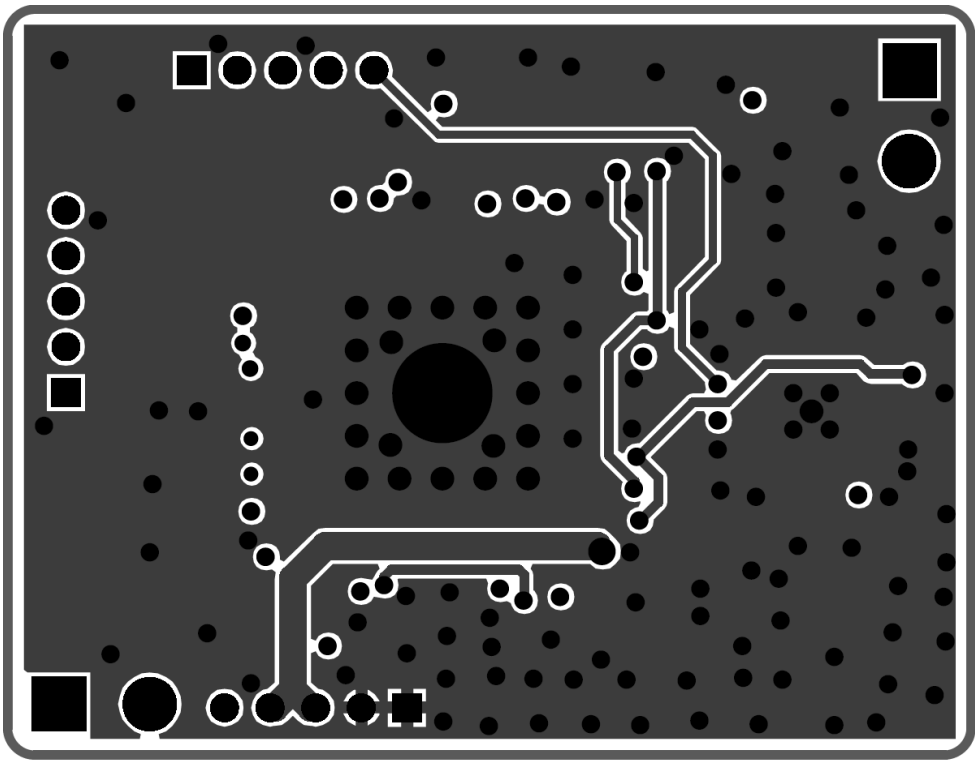


Fig 2







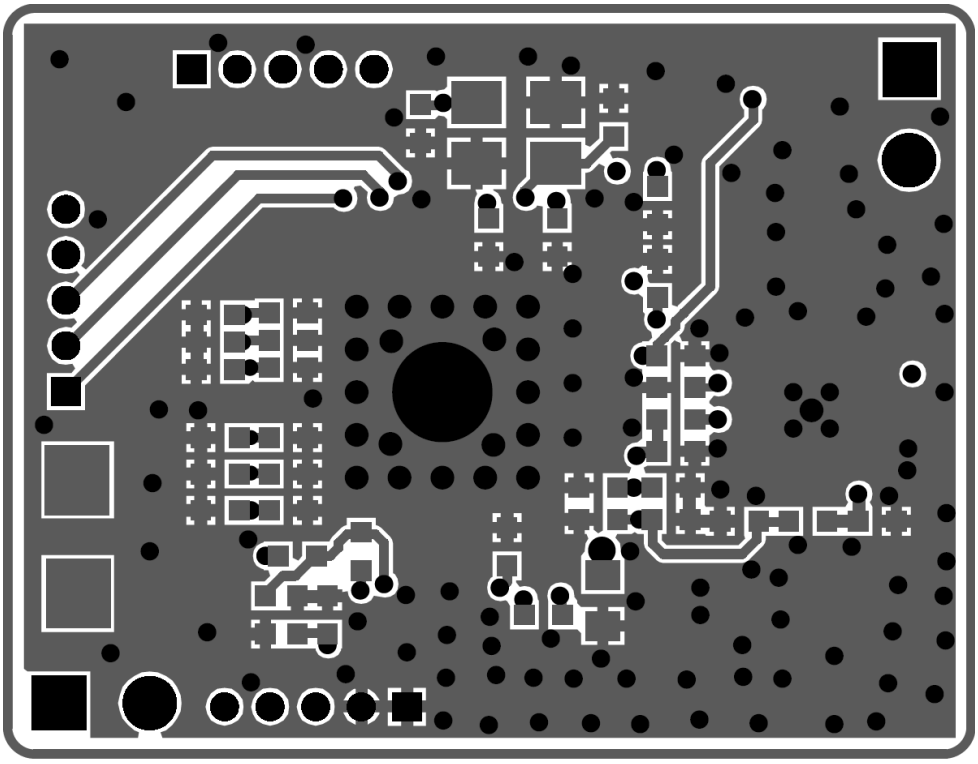


Fig 3

5 Contact

Mark Dickson – Marketing Manager RFID

Phone +43 3136 500 5916
Fax +43 3136 500 5692

mark.dickson@austriamicrosystems.com