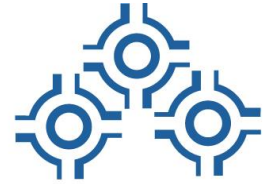


RSK 100

Evaluation System



3ALogics



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1. General information

Scope

This document explains operation of RSK100 including system connection, RF module functions and features, characteristics and specifications, reference design such as PCB Gerber file, BOM and schematic, etc...

Product outline

RSK board uses TRH031M reader chip (13.56MHz RFID Reader IC) supporting multi-protocols (ISO 14443A, 14443B, 15693, & Tag-It). User can easily view 13.56MHz protocol and it's ID through embedded LCD or connecting to PC. Not only user can evaluate functionality of TRH031M but also help to understand 13.56MHz RFID various protocols. MCU includes flash memory thus user can re-program without having to have separate equipment. Also RSK100 includes firmware source so user can reduce design time and enhance understanding of RFID firmware applications.

Product component



- TRH031M sample chip: 3ea
- RSK board
- 3ALogics TAG : ISO/IEC A type 2ea , ISO/IEC B type 2ea
- SDK CD / RS 232 Serial Cable
- 110V/220V AC Adaptor

System requirements

Hardware :

- PC (Pentium 100MHz / RAM 32MB)
- RS232 Serial Port
- 200MB free hard disk space
- CD-ROM or DVD-ROM drive

Software :

- Windows 2000
- Windows XP

Features

- 13.56MHz Multi-Protocol Reader module
- Based on the TRH031M
- 5V DC power
- Supports Protocol
 - ISO/IEC 14443 A / B
 - ISO/IEC 15693
 - Tag it (Texas instrument)
- RS 232 Serial interface
- 16 X 2 Character LCD module
- Microcontroller with 256K byte RAM, 64K byte ROM
- On board HF Antenna Coil

CD Manual

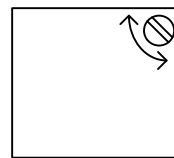
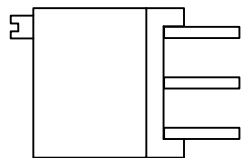
- RSK 100 Evaluation system document
- SDK Manual document
- SDK software
- TAG specification (Data sheet)
- Firmware Manual document
- Firmware source
- Flip software (Atmel MCU program software)

Connecting to Computer

- AC adapter connect
- LCD light Check
- RS 232 Serial Cable connect
- SDK software start (SDK Manual document reference)
- SDK software start
- Tag ID read (SDK window / LCD module)

 **Caution**

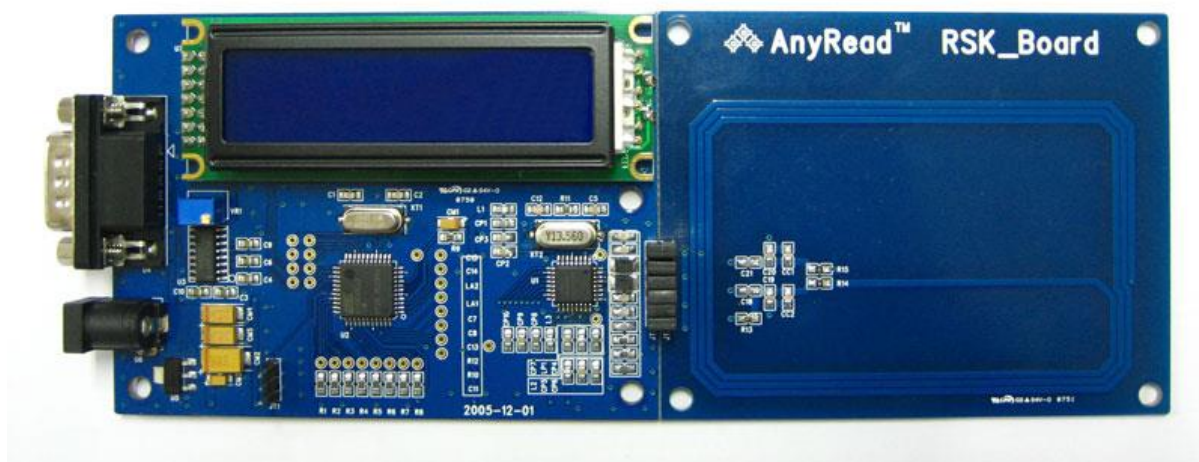
- Avoid magnetic or electric shock
 - Do not dismantle
 - Avoid water or humidity
 - Avoid vibration or shock
 - Only use power adaptor supplied with the kit
 - Avoid direct sunlight and heat
 - Do not operate on metallic object
 - Adjust resistor when LCD panel is not bright words do not appear clearly
- VR1 (Variable Resistor)
- LCD brightness adjustment



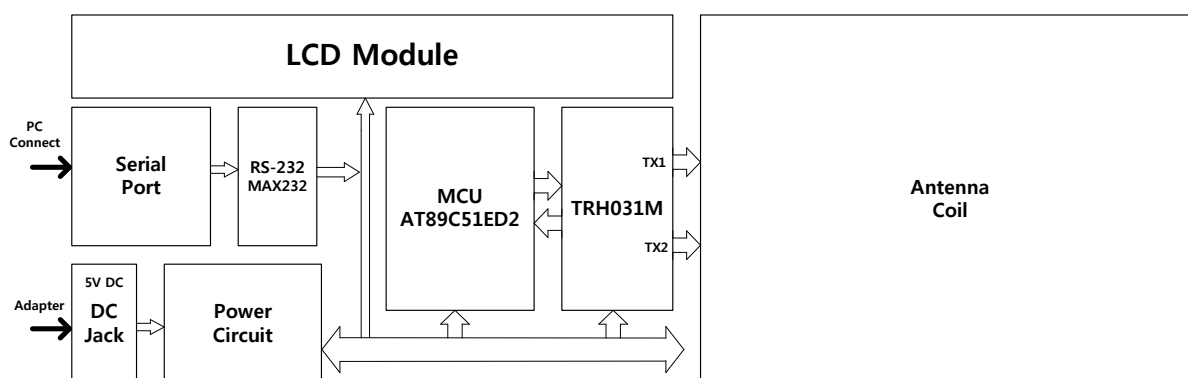
■ Please make sure product specification before use. Any damage or improper usage of the product may result in inability to return goods to manufacturer.

2. Product description

RSK board

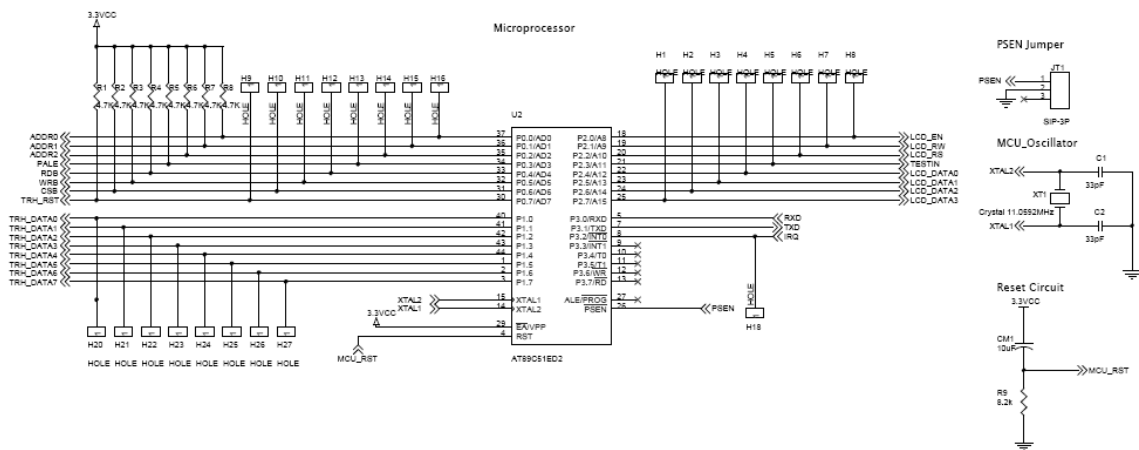


Block diagram

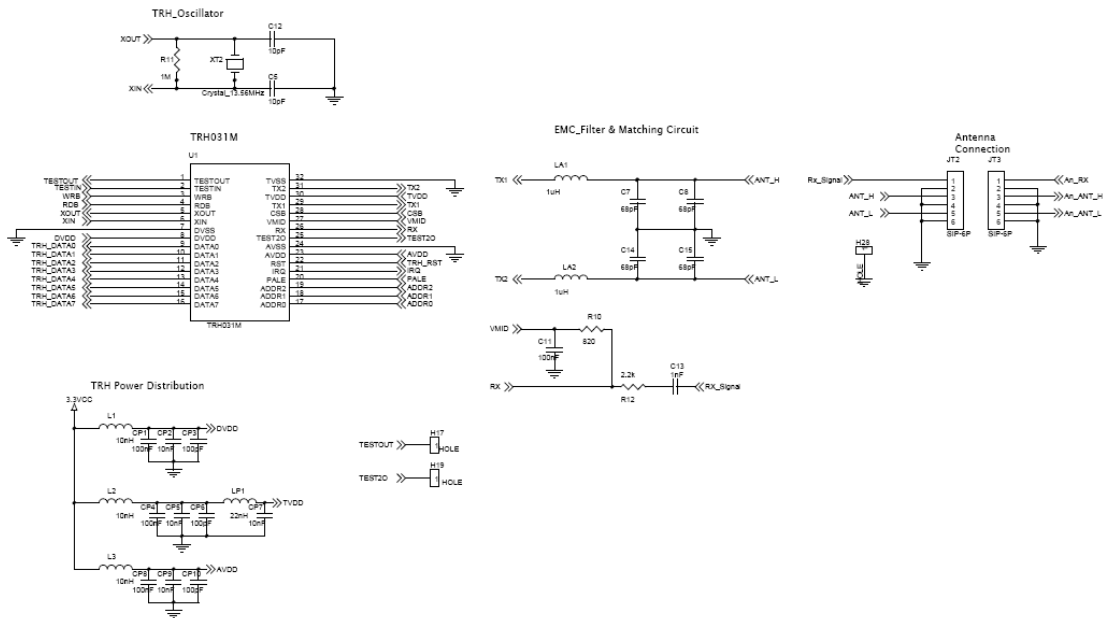


3.RSK PCB description

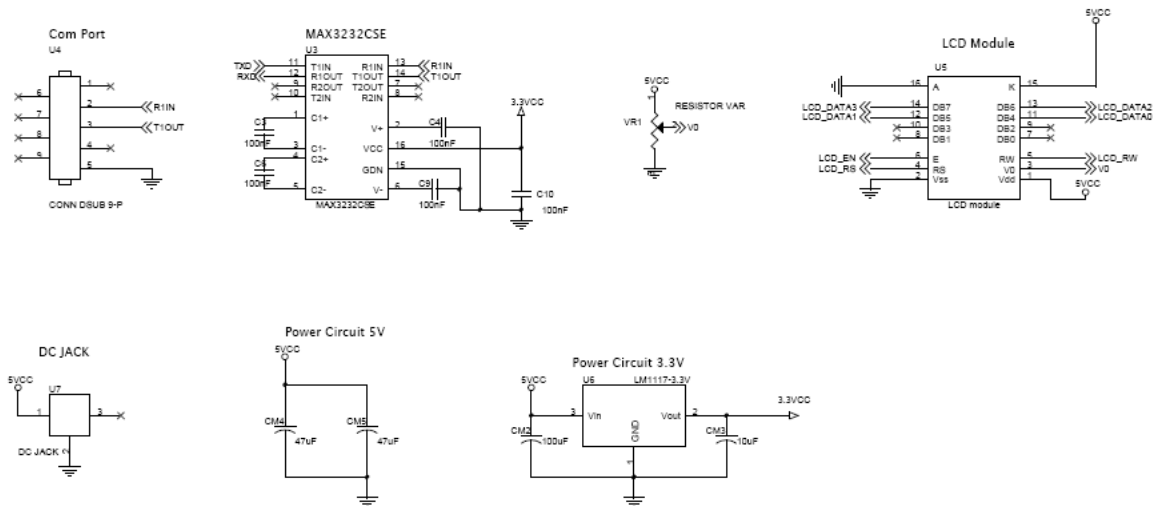
Schematic



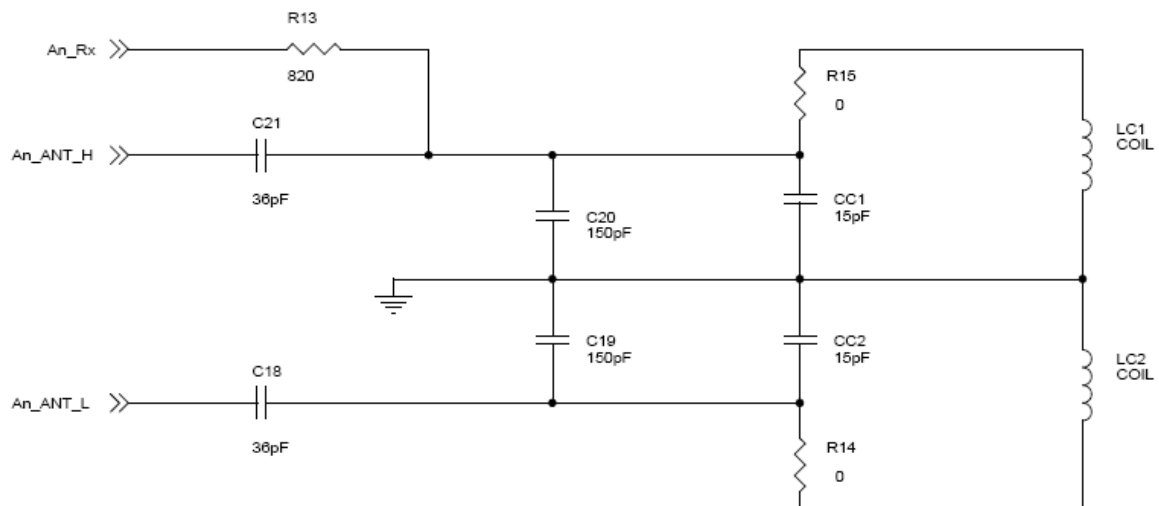
Picture 3-1 MCU (Atmel AT90C51ED2)



Picture 3-2 HF RFID Reader IC (TRH031M)



Picture 3-3 Power circuit & Serial port & LCD module

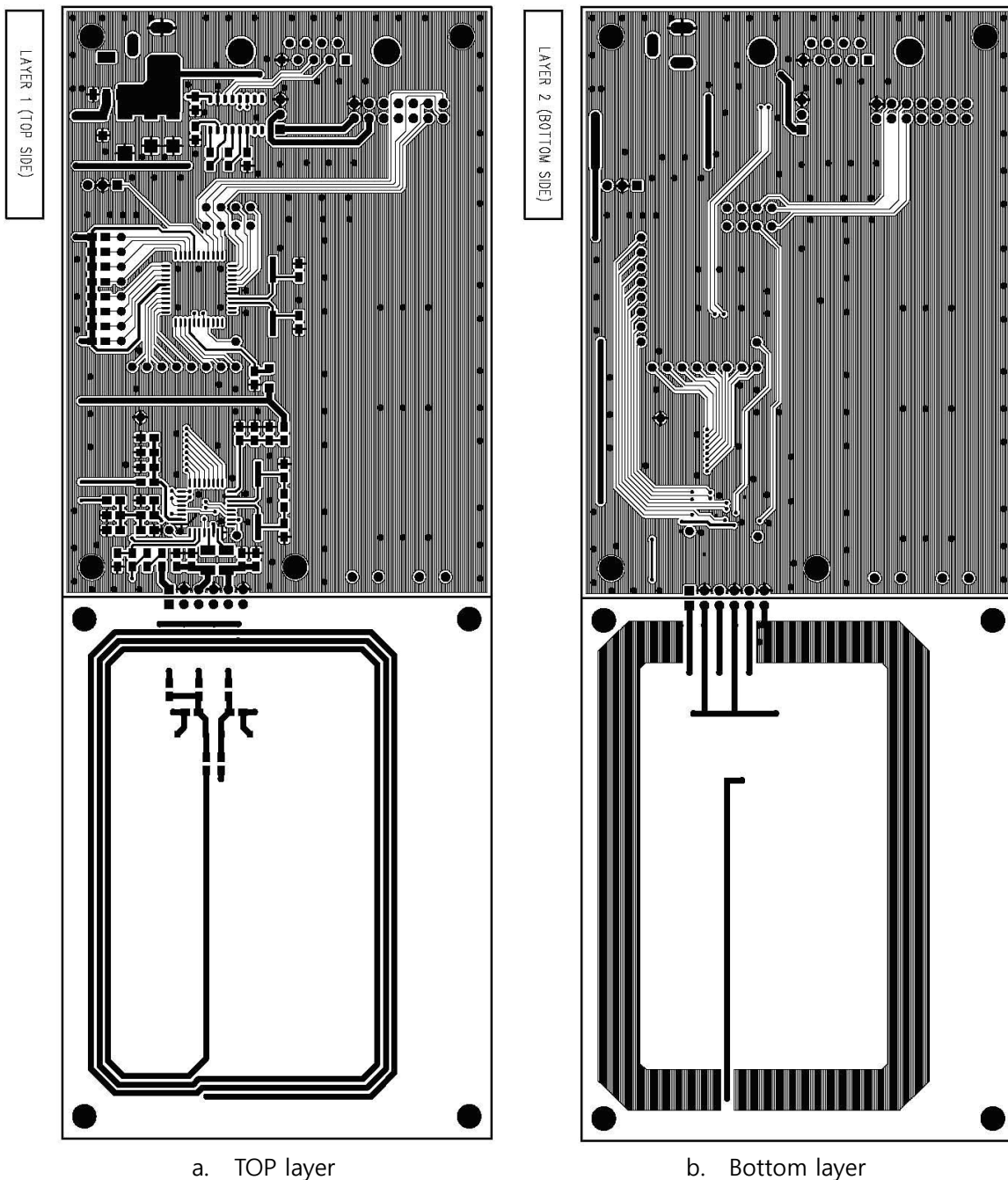


Picture 3-4 Antenna Coil

Part list (BOM)

Num	Quantity	Part	Value
1	2	CC2,CC1	15pF
2	2	CM3,CM1	10uF
3	1	CM2	100uF
4	2	CM4,CM5	47uF
5	9	CP1,C3,CP4,C4,C6,CP8,C9, C10,C11	100nF
6	4	CP2,CP5,CP7,CP9	10nF
7	3	CP3,CP6,CP10	100pF
8	2	C2,C1	33pF
9	2	C5,C12	10pF
10	4	C7,C8,C14,C15	68pF
11	1	C13	1nF
12	2	C21,C18	36pF
13	2	C20,C19	150pF
14	1	H1	Hole
15	1	JT1	SIP-3P
16	2	JT2,JT3	SIP-6P
17	2	LA2,LA1	1uH
18	2	LC1,LC2	COIL
19	1	LP1	22nH
20	3	L1,L2,L3	10nH
21	8	R1,R2,R3,R4,R5,R6,R7,R8	4.7K
22	1	R9	8.2k
23	2	R13,R10	820
24	1	R11	1M
25	1	R12	2.2k
26	2	R15,R14	0
27	1	U1	TRH031M
28	1	U2	AT89C51ED2
29	1	U3	MAX3232CSE
30	1	U4	CONN DSUB 9-P
31	1	U5	LCD module
32	1	U6	LM1117-3.3V
33	1	U7	DC JACK
34	1	VR1	RESISTOR VAR
35	1	XT1	Crystal 11.0592MHz
36	1	XT2	Crystal_13.56MHz

Gerber (Layout)



Picture 3-5 RSK Board Layout

4. Electrical characteristics

Operating condition

Parameter	MIN	MAX	UNIT
Temperature	-20	85	°C
DC Power supply	4.5	5.5	V

Current consumption

Parameter	Conditions	MIN	TYP	MAX	UNIT
Current Consumption	Operating	-	150	-	mA
	Only MCU Operating	-	29	-	mA

Operating distance

Parameter	MIN	TYP	MAX	UNIT
Operating Distance	-	7	-	cm

Serial interface characteristic

Parameter	VALUE	UNIT
Baud-rate	9600	baud
Cable length	2.0	m

5.Revision history

Date	Version	Content
2008. 04. 10	0.1	Preliminary release
2008. 04. 17	1.0	1.0 version release

6.Customer support

Warranty

1 year limited warranty.

The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, or failure caused by a product for 3ALogics is not responsible. The warranty is voided by removal or alteration of board or parts identification labels.

Contents

1. General introduction
2. Product description
3. RSK PCB description
4. Electrical characteristics
5. Revision history
6. Customer support

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AnyRead™ / *nDolphin™*
- is a trademark of 3ALogics.

RSK Board physical dimension

FR4 / 2layer / 1.6T

RF module size :

110mm X 73.5mm

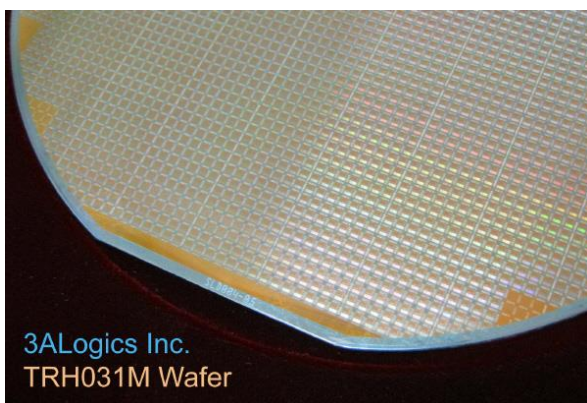
Antenna Coil size :

80mm X 53mm

LCD module size :

82mm X 29mm (height: 12.5mm)

3ALogics 13.56MHz RFID reader Evaluation system RSK 100 Quick document



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MEMO

A large, empty rectangular box with a dotted border, intended for a memo or notes.

It's RFID

RFID & Mobile SoC for Ubiquitous Technology

