



# WINE7

RAIN RFID Reader/Writer Module

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## 1. Overview

### 1.1 Instruction

WINE7 is a high-performance module built upon the PR7 platform. It features an optimized configuration aimed at maximizing the capabilities of the PR7, a third-generation reader System-on-Chip (SoC). The innovative WINE reader protocol empowers users to seamlessly integrate their own applications. Designed as a universally compatible Stock Keeping Unit (SKU), it can be deployed globally with easy region-specific settings. WINE7 is versatile, catering to a diverse array of single-antenna applications, spanning from mobile and handheld to fixed readers

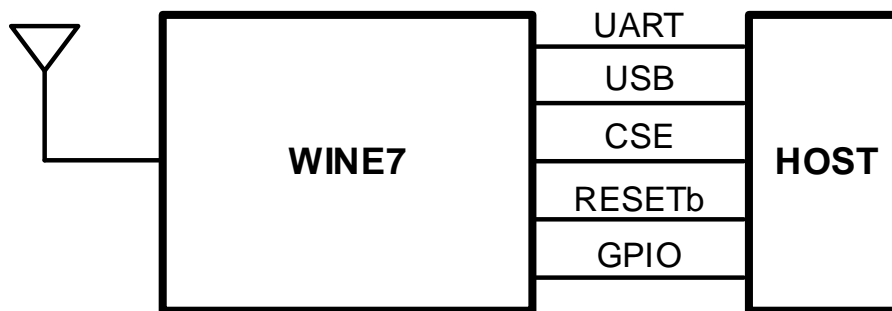


Figure 1 Block diagram

## 2. Specifications

### 2.1 Absolute Maximum Ratings

Parameter	Condition	Min.	Typ.	Max.	Unit
Supply voltage				5.0	V
Storage Temperature		-40		+85	°C

### 2.2 Functional Specification

Parameter	Condition	Min.	Typ.	Max.	Unit
Frequency range		860		930	MHz
Tx Maximum power				30	dBm
Tx Dynamic Range			30		dB
DC voltage	VCC50			5.0	V
Operation Temperature		-20		+70	°C
Current	Idle		35		mA
	Active	CW on, Tx power 30dBm		900	mA

### 2.3 Reliability

Item	Test Condition	Duration	Result
HTOL	70°C / 3.6V (DC)		TBD
HTST	85°C		TBD
LTST	-40°C		TBD
THB	85°C / 85% R.H / 3.6V (DC)		TBD
TC	-40°C to 85°C (Each 30min)		TBD
PCT	121°C / 100% R.H / 2 <sup>5</sup> kPa		TBD
MSL	Moisture Sensitivity Level BAKE : 125 (+5,-0) °C SOAK : 30°C ±2°C, 60% ±3% R.H. REFLOW : ≥260°C		TBD
ESD	2000V (JS-001-2014)		TBD

## 2.4 Certifications

Regulation Standard	ID
FCC (Part 15)	TBD
CE (ETSI EN 302 208)	TBD
JAPAN MIC	TBD
KC	TBD

### 3. Hardware Interface

WINE7 supports connectivity used 15 pin and 40 pin connectors that provide DC power and commutation interface to your HOST. Antenna port support a U.FL connector.

#### 3.1 15 Pin connector description

No	Name	IO	Type	Description
1	GND	P		Ground
2	GND	P		Ground
3	VCC50	P		DC 5.0V for Reader
4	VCC50	P		DC 5.0V for Reader
5	PB0	IO	Digital	I/O port
6	PB1	IO	Digital	I/O port
7	PC6	IO	Digital	I/O port
8	PC7	IO	Digital	I/O port
9	PA1_RXD	O	Digital	UART input
10	PA0_TXD	I	Digital	UART output
11	DM	IO	Digital	USB Data -
12	DP	IO	Digital	USB Data +
13	WAKEUPB	I		Reader wake up signal [ 0 : Wake up ]
14	CSE	I	Digital	Chip Select Enable / Module power enable [ 0 : Disable 1: Enable ]
15	RESETB	I		Reader reset signal [ 0 : Reset ]

- ✓ Connector type: 1.25mm pitch connector
- ✓ Model part Number: 12505WR-15 [YEONHO]
- ✓ Housing for this wafer is 12505HS-15 [YEONHO]

#### 3.2 40 Pin connector description

No	Name	IO	Type	Description
1	GND	P		Ground
2	CSE	I	Digital	Chip Select Enable / Module power enable [ 0 : Disable 1: Enable ]
3	WAKEUPB	I	Analog	Reader wake up signal [ 0 : Wake up ]
4	RESETB	I		Reader reset signal [ 0 : Reset ]
5	DM	IO	Digital	USB Data -
6	DP	IO	Digital	USB Data +
7	PA0_TXD	I	Digital	UART output

8	PA1_RXD	O	Digital	UART input
9	PA2	IO	Digital	I/O port
10	PA3	IO	Digital	I/O port
11	GND	P		Ground
12	PA4	IO	Digital	I/O port
13	PA5	IO	Digital	I/O port
14	PA6	IO	Digital	I/O port
15	PA7	IO	Digital	I/O port
16	PB0	IO	Digital	I/O port
17	PB1	IO	Digital	I/O port
18	PB2	IO	Digital	I/O port
19	PB3	IO	Digital	I/O port
20	PB4	IO	Digital	I/O port
21	GND	P		Ground
22	PB5	IO	Digital	I/O port
23	PB6	IO	Digital	I/O port
24	PB7	IO	Digital	I/O port
25	PC0	IO	Digital	I/O port
26	PC1	IO	Digital	I/O port
27	PC2	IO	Digital	I/O port
28	PC3	IO	Digital	I/O port
29	PC4	IO	Digital	I/O port
30	PC5	IO	Digital	I/O port
31	GND	P		Ground
32	PC6	IO	Digital	I/O port
33	PC7	IO	Digital	I/O port
34	TCK/SWCLK	I	Digital	JTAG Clock / Serial Wire Clock
35	TMS/SWDIO	I	Digital	JTAG Test Mode State / Serial Wire Data Input Output
36	VCC50	P		DC 5.0V for Reader
37	VCC50	P		DC 5.0V for Reader
38	VCC50	P		DC 5.0V for Reader
39	VCC50	P		DC 5.0V for Reader
40	VCC50	P		DC 5.0V for Reader

- ✓ Connector type: 0.5mm pitch FPC connector
- ✓ Model part Number: 05002HR-40CE [HIROSE]

### 3.3 RF port description

- ✓ Connector type: Coaxial Micro-Receptacle
- ✓ Model part No.: U.FL-R-SMT-1(10) [HIROSE]



## 4. Application Circuit

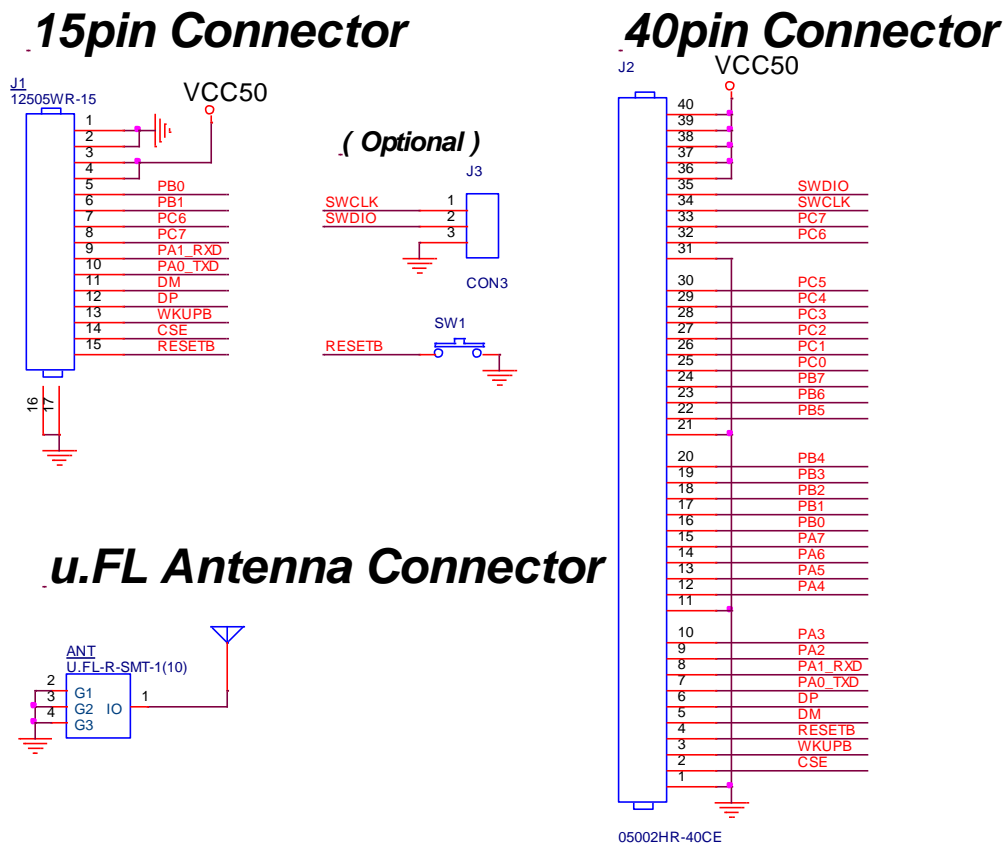
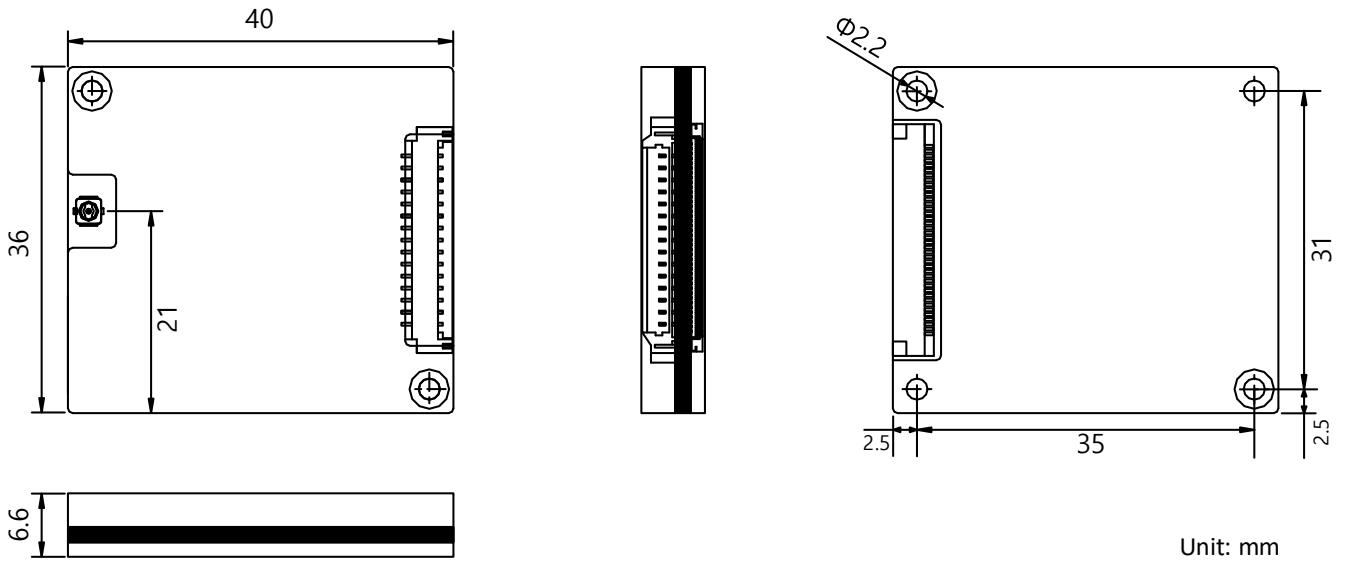


Figure 2 Application circuit

Figure 3 shows the example of application circuit of WINE7. According to your application, you can use a variety of structure.

## 5. Dimension



## 6. Revision History

Version	Date	Page	Description
0.0.1	2023.11.10		Preliminary
0.0.2	2023.11.14		Modified the block diagram Deleted a typical characteristics, the firmware default function, the channel number table and the operation mode Added the application circuit
0.1.0	2024.01.30		Updated figure and specifications

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