

UHF RFID Reader/Writer Data sheet LXRFZZUAAA-027(EU) / 030(JP) / 032(US)



1. General Descriptions

LXRFZZUAAA-027(EU), LXRFZZUAAA-030(JP) and LXRFZZUAAA-032(US) are UHF RFID Reader/Writer Device. These modules use RED4 Murata custom model (Phychips). This product complies with ISO18000-63(6C) / EPC Gen2



[Features]

- FCC / IC / ETSI / Japan Radio law certified device
(FCC ID: VPYLXRF032, IC: 772C-LXRF032, JP: 007-AF0012, CE Mark is acquired)
- Low cost
- Adjustable Tx power: 18dBm ~ 25dBm
(Available Tx power is up to 23dBm under Japan regulation)
- Host interface : UART 115.2kbps.
- 100% green material for RoHS compliance
- Related product name

	EU	JP	US
Evaluation Kit (Note1)	LXRFZZUAAA-029-KIT	LXRFZZUAAA-031-KIT	LXRFZZUAAA-033-KIT
Reader writer	LXRFZZUAAA-027	LXRFZZUAAA-030	LXRFZZUAAA-032
Short Range Antenna	LXRFZZUCCA-037	LXRFZZUCCA-036	LXRFZZUCCA-036
Long Range Antenna	LXRFZZUCCA-035	LXRFZZUCCA-034	LXRFZZUCCA-034
Interface Board	LXRFZZUBBA-042		

Note1. A reader writer, a short range antenna, a long range antenna, an interface board, cables and sample tags are included in Evaluation Kit.

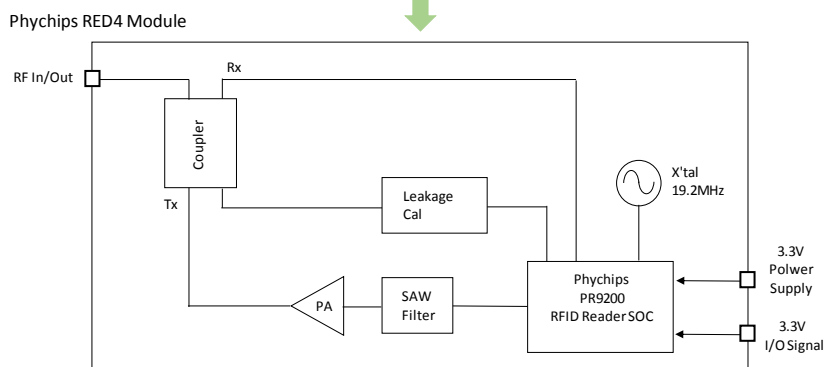
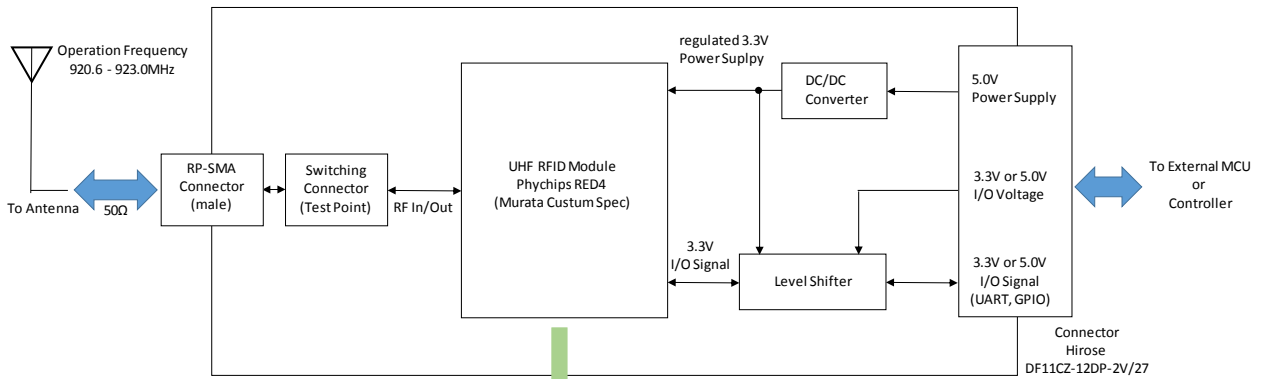
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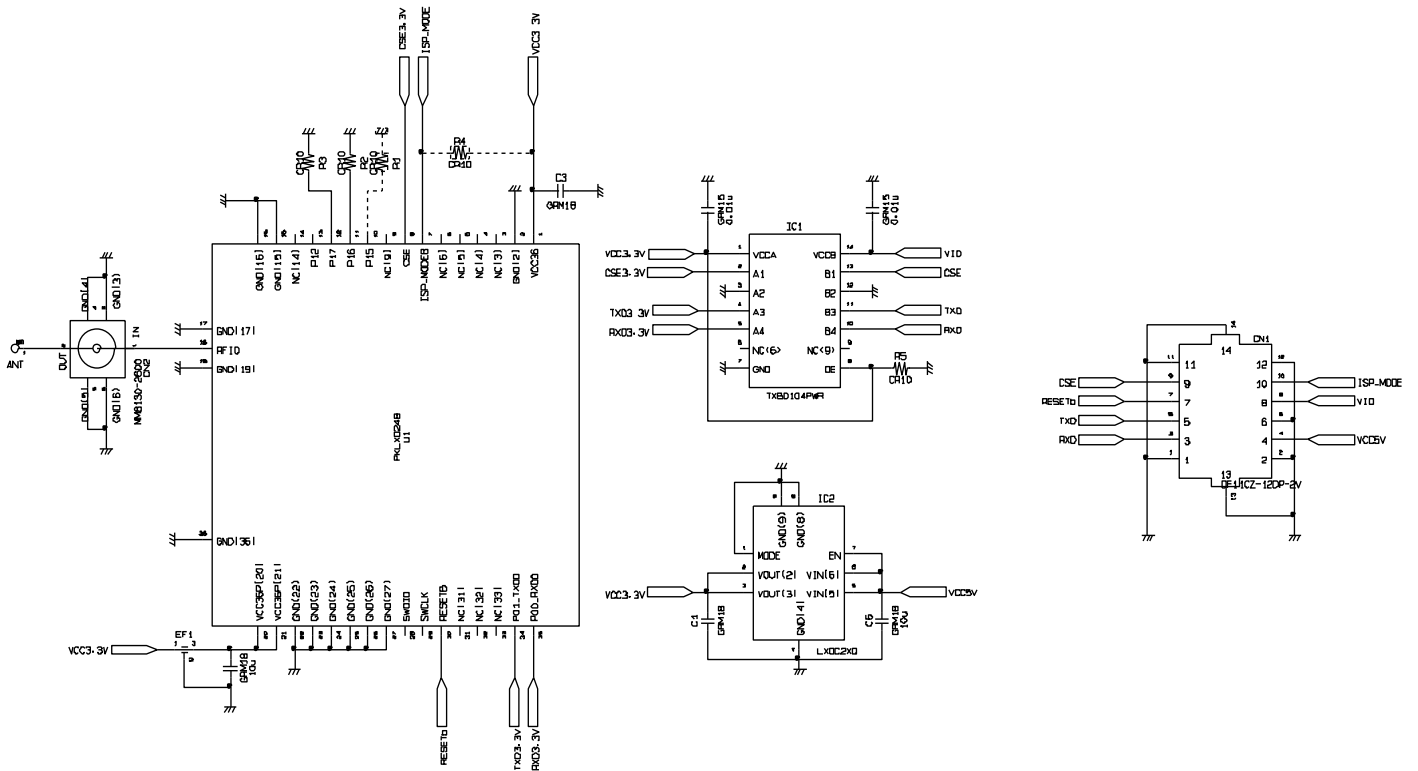
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2. Block Diagram



3. Schematic



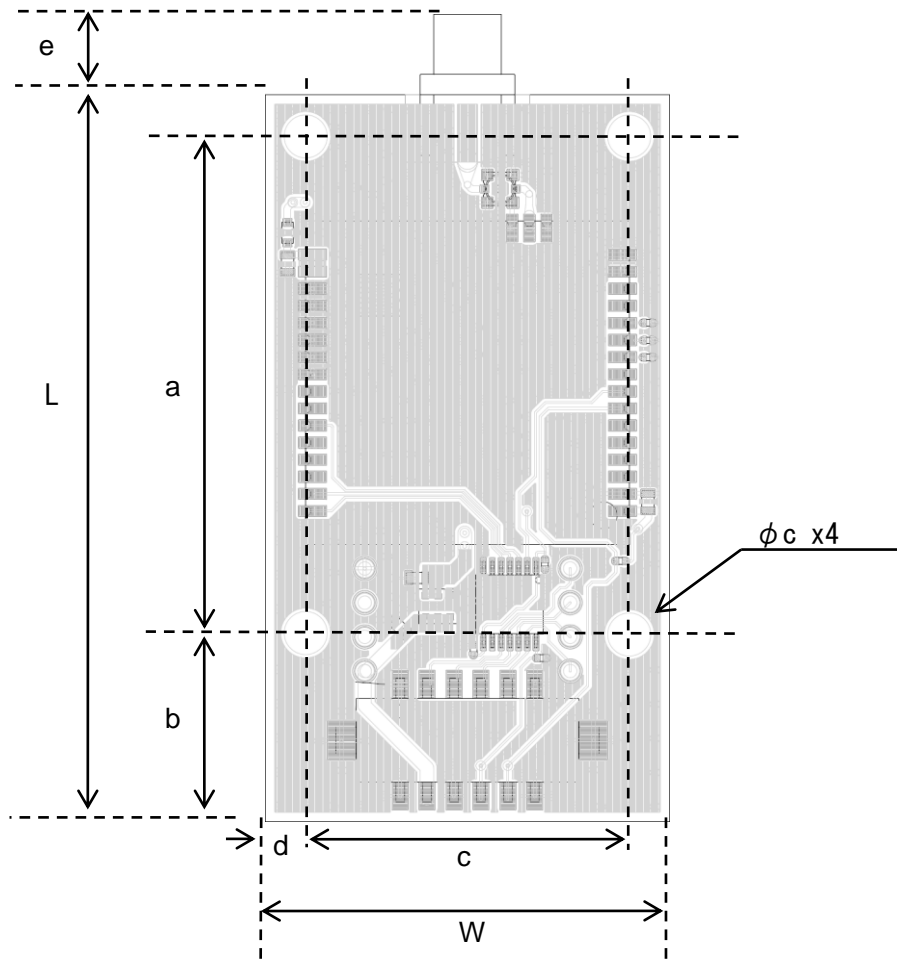
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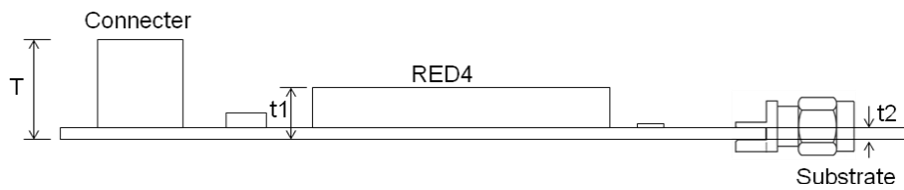
4. Mechanical Information

4-1. Dimensions

<Top View>



<Side View>



Unit:mm

Mark	Size	Mark	Size	Mark	Size
L	54.0 +/- 0.4	C	24.0 +/- 0.2	t1	4.0 +0.5 / -0.2
W	30.0 +/- 0.3	D	3.0 +/- 0.4	t2	1.0 +0.2 / -0.1
a	37.0 +/- 0.2	E	12.7 +/- 1.0	T	8.2 +0.5 / -0.4
b	13.9 +/- 0.4	ϕc	3.2 +/- 0.1		

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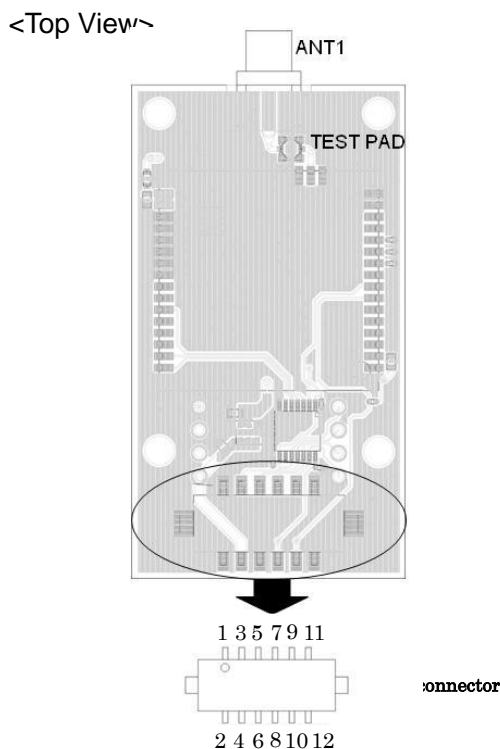
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4-2. Pin description



No	Pin Name	Type	Description
1	VSS	GND	Ground.
2	VSS	GND	Ground.
3	RXD	Digital Input	UART data input. Baud rate = 115.2kbps.
4	VCC	Power Supply	Main power supply 5V.
5	TXD	Digital Output	UART data output. Baud rate = 115.2kbps.
6	VSS	GND	Ground.
7	RESETb	Digital Input	NC (Should be floating).
8	VIO	Power supply	I/O voltage for TXD, RXD, CSE.
9	CSE	Digital Input	Chip Select Enable / module power enable. Low: Disable / High: Enable.
10	ISP_MODEb	Digital input	NC (Should be floating).
11	VSS	GND	Ground.
12	VSS	GND	Ground.
13	ANT1	RF I/O	Antenna connector (50Ω)

Note 2. 12 pin Connector : Hirose DF11CZ012DP-2V(27).
 Counterpart connector : Hirose DF11 Receptacle 12pin (DF11CZ-12DS-2V / DF11-12DS-2C, etc).
 RF Test Connector (TEST PAD): Murata MM8130-2600B.
 RF Connector (ANT1): SMA Reverse Polarity.

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5. Characteristics

5-1. Basic configuration

LXRFZZUAAA-027(EU), 030(JP), 032(US) is the UHF RFID reader writer device utilizing RED4 Murata custom model (Phychips).

Please refer the following data sheet for a functional description.

< RED4 data sheet >

RED4_spec_20150916.pdf (UHF RFID Reader/Writer Module Specification)

※In case the data sheet has been updated, please refer the latest version.

5-2. Ratings

5-2-1. Absolute ratings

parameter	Symbol	Limiting values		Unit
		Min	Max	
Power supply voltage	VCC	-0.3	6.0	V
Storage temperature	T _{STG}	-20	+70	°C
Humidity	H	40	80	%

5-2-2. Operating conditions

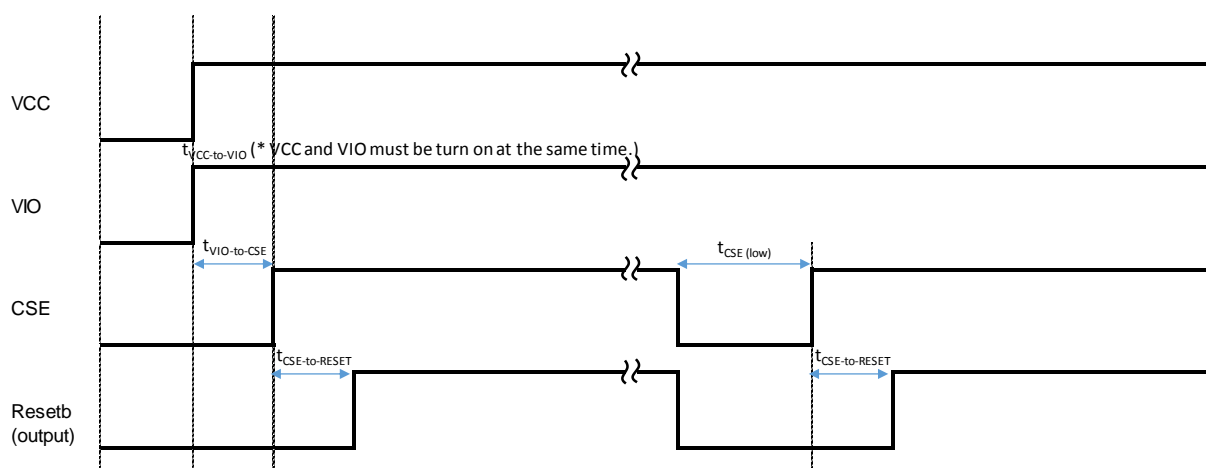
Parameter	Symbol	Min	Typ	Max	Unit
Power Supply Voltage	VCC	4.5	5	5.5	V
Ambient temperature	T _{amb}	-20	25	+70	°C
I/O Voltage	VIO	3.0		5.5	V

5-3. Electrical Characteristics

5-3-1. State of system

State	CSE	UHF R/W Chipset		Power Amp	Function
		Analog	Digital		
Power Down	Low	OFF	OFF	OFF	Module power off. All functions including UART communication are not available.
Idle	High	OFF	ON	OFF	Stand-by. Module is ready to operate with the UART commands.
Active	High	ON	ON	ON	Tag read / write / access / lock etc. Module is operating with RF block.

5-3-2. Power on sequence



State of system	Power off	Power Down	RESET release	SYSTEM booting (100msec)	Idle / Active	Power Down	RESET release	SYSTEM booting (100msec)	Idle / Active
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Parameter	Symbol	Min	Typ	Max	Unit
Time delay from VCC rising edge to VIO rising edge	t _{VCC-to-VIO}	0		1	msec
Time delay from VIO rising edge to CSE rising edge	t _{VIO-to-CSE}	0			sec
Time delay from CSE rising edge to RESETb rising edge	t _{CSE-to-RESET}		13		msec
Time duration of CSE low (to enter the system into "Power Down" state or to reset the system)	t _{CSE(los)}	150			msec

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5-3-3. Digital Input / output specifications

Parameter	Symbol	Min	Typ	Max	Unit
High level output voltage (for TXD)	V _{OH}	V _{IO} - 0.4			V
Low level output voltage (for TXD)	V _{OL}			0.4	V
High level input voltage (for CSE, RXD)	V _{IH}	V _{IO} x 0.65		V _{IO}	V
Low level input voltage (for CSE, RXD)	V _{IL}	0		V _{IO} x 0.35	V

5-3-4. RF specifications

$-20^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$, $4.5\text{V} \leq V_{\text{CC}} \leq 5.5\text{V}$

	Parameter	Conditions	Min	Typ	Max.	Unit	Remarks
1	Specification	-	ISO18000-6C/EPC Global Gen II			-	
2	Modulation Method	-	DSB-ASK			-	
3	Frequency	-	865.70	866.9	867.50	MHz	EU
			920.60	920.6	923.00	MHz	JP
			917.1	921.9	926.9	MHz	US
4	Frequency Tolerance	@CW signal	-20		+20	ppm	
5	Tx Power Setting Range	-	18.0		25.0	dBm	0.5dB step. Note3.
6	Maximum Tx Power	@23dBm setting			24.8	dBm	JP (250mW+20%)
		@25dBm setting			27.0	dBm	EU/US
5	Spurious	-	Meet to the following national radio laws; EU: ETSI EN 302 208 US: FCC 15C JP: ARIB STD-T107				
6	Impedance	-		50		ohm	
7	Current Consumption	I _{pd}	@POWER DOWN		0.5	1	mA
		I _{idle}	@IDLE		15	20	mA
		I _{act}	@RF=ON (CW, 25dBm) with 50ohm load		330	480	mA

Note 3. Available Tx power is 23dBm under Japan regulation.

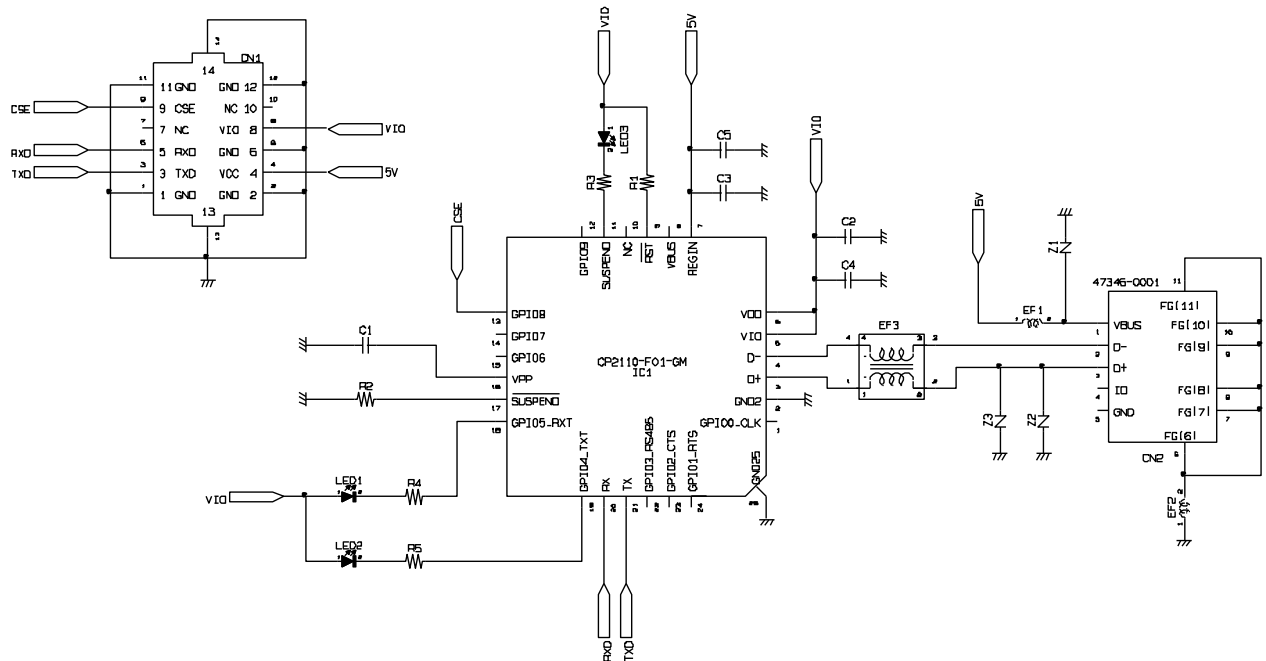
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6. Application Circuit

The circuit of interface board (USB-UART bridge) to control reader writer device is shown as an example. Using this interface board, you can control R/W device by the PC.

This circuit is available in the Evaluation kit (LXRFZUAAA-027, 030, 032).



7. Packaging Information

7-1 Quantities per 1 tray

5pcs / Tray

7-2 Quantities per 1 carton

10pcs / Carton

7-3 Minimum order quantity

10pcs

8. Contact window

URL: <http://www.murata.com/en-global/products/rfid>

Email: magicstrap@murata.com

For any inquiries, please feel free to contact us.

NOTICE

1. Storage Conditions:

To avoid damaging, be sure to observe the following points.

- Store products where the ambient temperature is 15 to 35 °C and humidity 45 to 75% RH.
(Packing materials, In particular, may be deformed at the temperature over 40 °C.).
- Store products in non corrosive gas (Cl₂, NH₃, SO₂, No_x, etc.).
- Stored products should be used within 6 months of receipt.

2. Handling Conditions:

Be careful in handling or transporting products because excessive stress or mechanical shock may break products.



Note:

Please make sure that your product has been evaluated and confirmed against your specifications when our product is applied to your product.

All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, under the condition and in the environment agreed upon between you and us. You are requested not to use our product deviating from such agreement.