

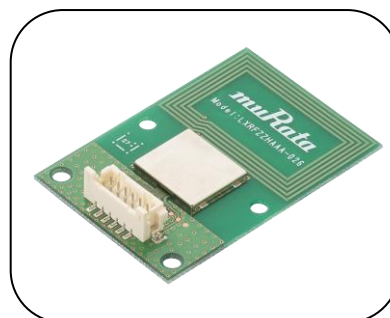
HF RFID Reader/Writer Data sheet LXRFZZHAAA-026



1. General Descriptions

LXRFZZHAAA-026 is HF RFID Reader/Writer Device utilizing TRF7970A (Texas Instruments).

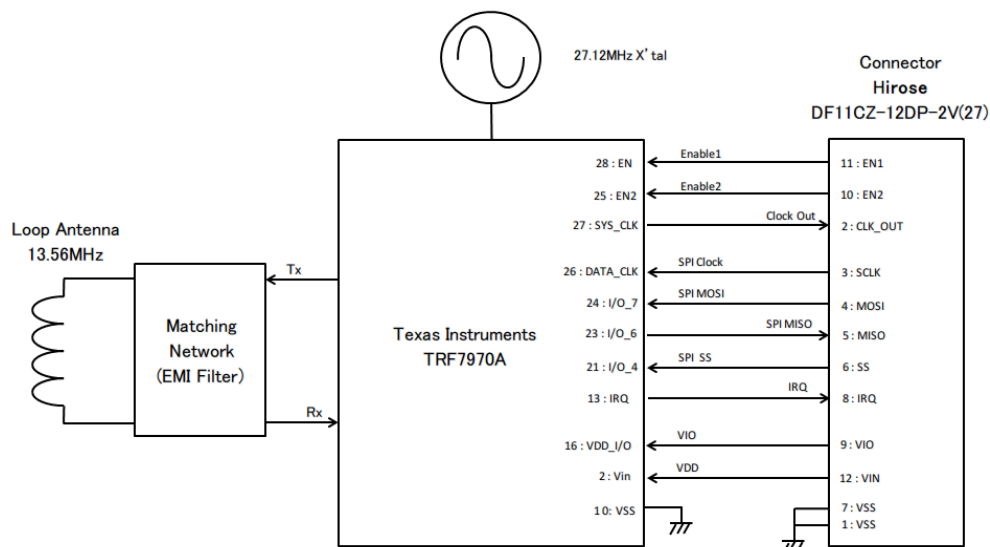
This product complies with ISO14443A, ISO15693 and Felica standards.



[Features]

- Optimized antenna design for Murata tag
- FCC / IC / ETSI / Japan Radio law certified device
(FCC ID : VPYLXRF026 , IC : 772C-LXRF026 , CE Mark acquired)
- Low cost
- Host interface : 4-Wire SPI
- Evaluation kit (LXRFZZHAAA-028) is available
- 100% green material for RoHS compliance

2. Block Diagram



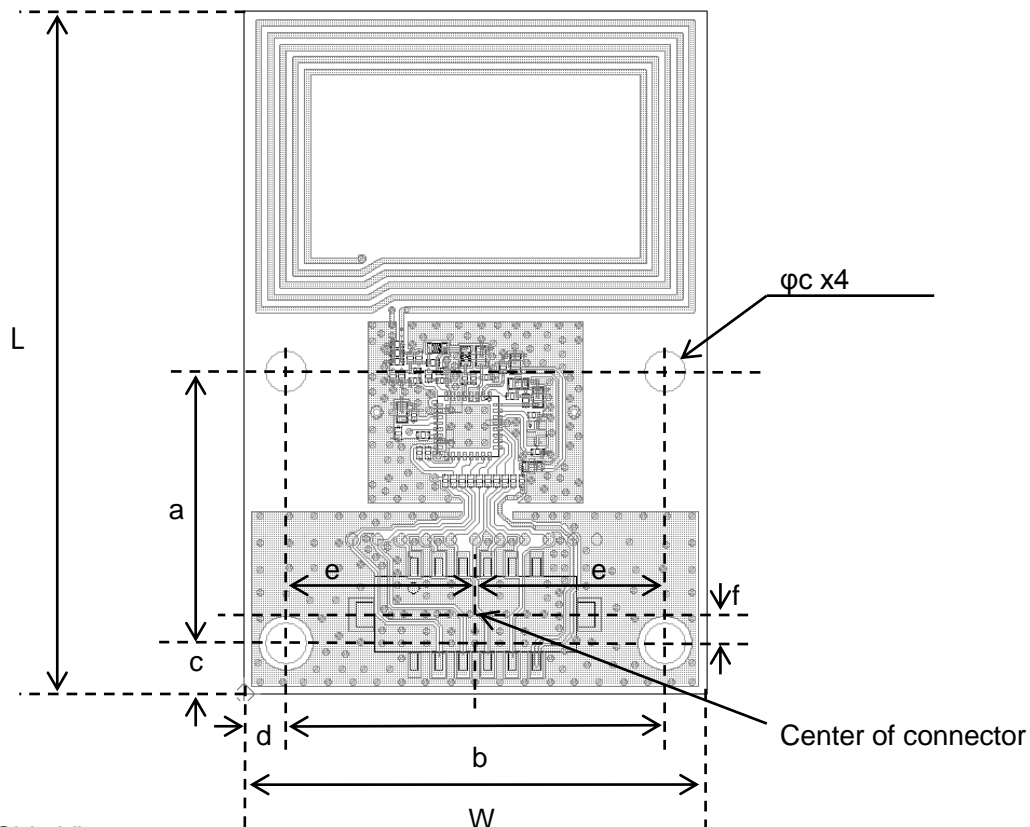
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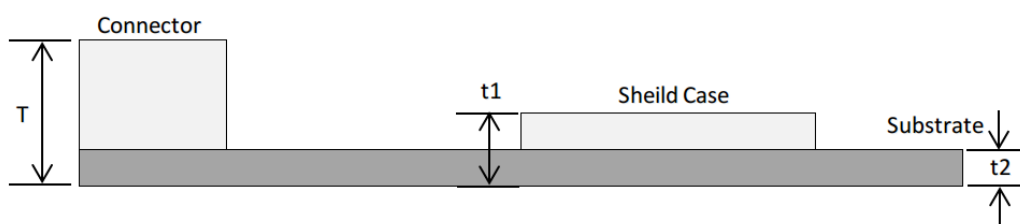
3. Mechanical Information

3-1. Dimensions

<Top View>



<Side View>



Unit:mm

Mark	Size	Mark	Size	Mark	Size
L	56.0 +/- 0.4	c	4.20 +/- 0.4	φc	3.5 +/- 0.1
W	38.0 +/- 0.4	d	3.50 +/- 0.4	T	8.2 +0.5 / -0.4
a	22.5 +/- 0.2	e	15.5 +/- 0.6	t1	2.6 +0.2 / -0.1
b	31.0 +/- 0.2	f	2.35 +/- 0.6	t2	1.0 +0.2 / -0.1

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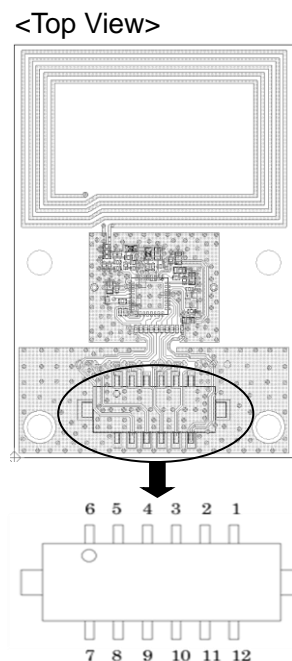
HF RFID Reader/Writer Data sheet

LXRFZZHAAA-026



3-2. Pin description

No	Pin Name	Type	Description
1	VSS	Supply pad	GND reference
2	CLK_OUT	Digital Output	Clock output for External MCU
3	SCLK	Digital Input	SPI clock input
4	MOSI	Digital Input	SPI data input
5	MISO	Digital Output	SPI data output
6	SS	Digital Input	SPI chip select
7	VSS	Supply pad	GND reference
8	IRQ	Digital Output	Interrupt request
9	VIO	Supply pad	I/O voltage
10	EN2	Digital input	Enable input 2
11	EN1	Digital input	Enable input 1
12	VIN	Supply pad	Input Voltage



※ Connector : Hirose DF11CZ012DP-2V(27).

Counterpart connector : Hirose DF11 Series Receptacle 12pin.

DF11CZ-12DS-2V, Hirose DF11-12DS-2C, etc.

4. Characteristics

4-1. Basic configuration

LXRFZZHAAA-026 is the HF RFID reader writer device utilizing TRF7970A(TI).
Please refer the following data sheet for a functional description.

< TRF7970A data sheet >

TRF7970A Multiprotocol Fully Integrated 13.56-MHz RFID and Near Field
Communication (NFC) Transceiver IC

SLOS743K –AUGUST 2011–REVISED APRIL 2014

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

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4-2. Ratings

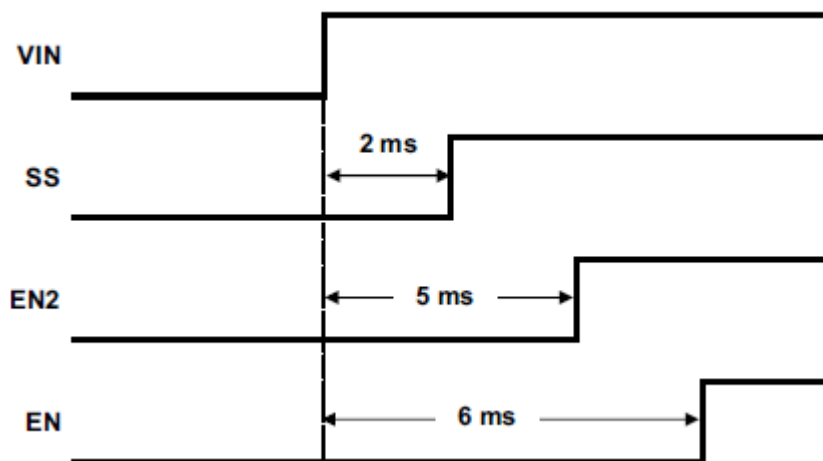
4-2-1. Limiting values

parameter	Symbol	Limiting values		Unit
		Min	Max	
Power Supply Voltage	V_{IN}	-0.3	5.8	V
Maximum current	I_{IN}		150	mA
Storage temperature	T_{STG}	-25	+85	°C

4-2-2. Operation condition

Parameter	Symbol	Min	Typ	Max	Unit
Power Supply Voltage	V_{IN}	4.5	5	5.5	V
Ambient Temperature	T_{amb}	-25	25	+65	°C
I/O Voltage	V_{IO}	1.8		V_{DD}	V
I/O Voltage – logic low	V_{IL}			$0.2 \times V_{IO}$	V
I/O Voltage – logic high	V_{IH}	$0.8 \times V_{IO}$			V

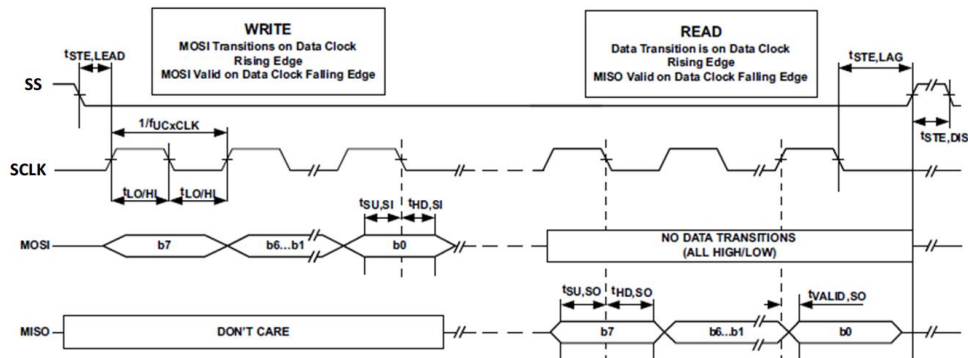
4-3. Start-up sequence



4-4.SPI Specification

SPI Mode1 (CPOL = 0, CPHA = 1).

Recommended SCLK speed is less than 2MHz.



Parameter	Min	Typ	Max	Unit
$t_{LO/HL}$ (SCKL 50% duty)	250	62.5	50	ns
$t_{STE,LEAD}$ (SS low to clock)		200		ns
$t_{STE,LAG}$ (Last clock to SS high)		200		ns
$t_{STE,DIS}$ (SS rising edge to next SS falling edge)	300			ns
$t_{SU,SI}$ (MOSI input data setup time)	15			ns
$t_{HD,SI}$ (MOSI input data hold time)	15			ns
$t_{SU,SO}$ (MISO input data setup time)	15			ns
$t_{HD,SO}$ (MISO input data hold time)	15			ns
$t_{VALID,SO}$ (MISO input data valid time)	30	50	75	ns

4-5. Electrical Characteristics

Without notice; Ambient Temperature ($T_{amb} = +25^{\circ}\text{C}$), Operational voltage ranges.

	Parameter	Symbol	Conditions	Min	Typ	Max.	Unit	Remarks	
1	Frequency	F	Standard :13.56MHz All Ambient Temperature	-50		50	ppm	Japanese radio law: Within+/-50ppm	
2	Current Consumption1	I _{STBY}	Standby mode			5.0	mA		
3	Current Consumption2	I _{cw}	Non-modulated continuous wave output			150	mA		
4	Output Power	P	Non-modulated continuous wave output		22	24	dBm		
5	Harmonics	H	Second(27.12MHz)			50	uW	Japanese radio law : Not over 50uW	
			Third(40.68MHz)			50	uW	Japanese radio law : Not over 50uW	
6	Spurious Emission	Japanese radio law	S _J	13.56MHz			47.544	mV/m	Japanese radio law : Not over 47.544mV/m
				13.41MHz - 13.553MHz, 13.567MHz - 13.71MHz			1.061	mV/m	Japanese radio law : Not over 1.061.mV/m
				13.11MHz – 13.41MHz, 13.71MHz - 14.01MHz			316	uV/m	Japanese Radio law : Not over 316uV/m
				Except above frequency			150	uV/m	Japanese radion law : Not over 150V/m
	ETSI	S _E	30MHz -1000MHz				250	nW e.r.p.	EN302 291-1 : Not over 250 nW e.r.p
			47MHz - 74MHz, 87.5MHz – 118MHz, 174MHz – 230MHz, 470MHz – 862MHz				4	nW e.r.p.	EN302 291-1 : Not over 4nW e.r.p.

4-6. Applicable standards

LXRFZZHAAA-026 is approved by the following standards.

- R&TTE/ RE directive (EN 302 291series, EN 301 489series)
- FCC Part 15 Sub partC and RSS-210
- Japanese radio law

6. Packaging

20pcs / Carton

7. 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.

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