

ED-GW1303S REV1.0

LORAWAN GATEWAY MODULE

SX1303 + SX1250, MINI PCIE, SPI, US915 / EU868

2021-11-11

EDA TECHNOLOGY CO.,LTD



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Revision History

Date	Version	Description	Note
2021-11-11	Draft	Initial release.	

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Chapter 1 Overview

ED-GW1303S module is a new generation of LoRaWAN gateway module in mini-PCIe form-factor with SPI interfaces based on Semtech® SX1303 and SX1250. It features extremely low power consumption, outstanding performance with CE, FCC certified.

ED-GW1303S LoRaWAN gateway module support both US915 and EU868 frequency bands, enable you to have a wide-range of LoRaWAN frequency plans options to choose including EU868, US915, AS923, AS920, AU915, KR920, and IN865.

ED-GW1303S is designed for M2M and IoT applications and can be widely applied in LPWAN gateway supported scenarios. It would be a perfect choice for you to significantly reduce the technical difficulties and time-consumption when developing the LoRa gateway devices, including LoRaWAN gateway, miner hotspots, etc.

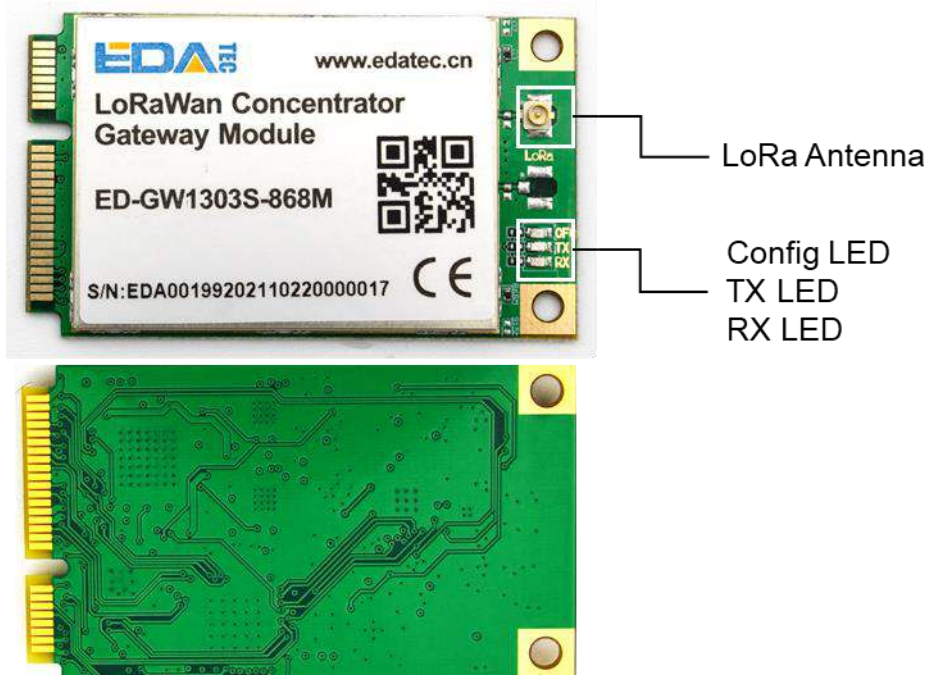
1.1 Features

- Mini PCIe form factor with SPI interfaces
- Powered by Semtech® SX1303 baseband processor
- Ultra-low operating temperature without additional heat dissipation needed
- High sensitivity with Semtech® SX1250 TX/RX front-end; TX power up to 25 dBm @3.3V
- Supports global license-free frequency band including EU868, US915, AS923, AU915, KR920 and IN865
- Certified with CE, FCC

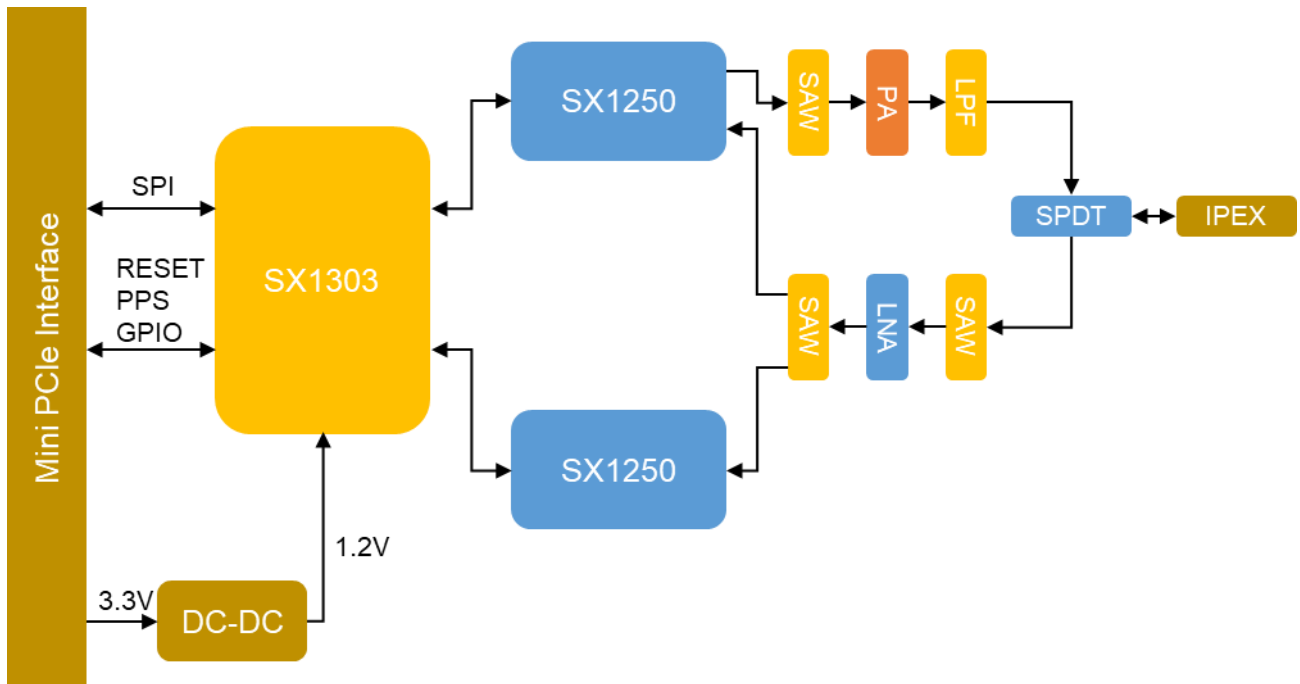
1.2 Ordering Code

Code	Description
ED-GW1303S-915M	US915
ED-GW1303S-868M	EU868

1.3 Interface Diagram



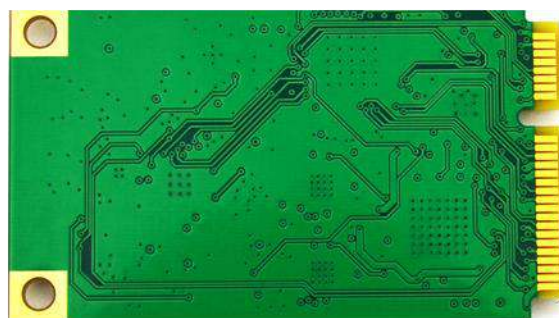
1.4 Block Diagram



Chapter 2 Interfaces

2.1 Pinout

RESERVED	1	
NC	3	
NC	5	
NC	7	
GND	9	
RESERVED	11	
RESERVED	13	
GND	15	
NC	17	
PPS	19	
GND	21	
RESERVED	23	
NC	25	
GND	27	
GND	29	
RESERVED	31	
NC	33	
GND	35	
GND	37	
VCC_3V3	39	
VCC_3V3	41	
GND	43	
SX_SCK	45	
SX_MISO	47	
SX_MOSI	49	
SX_CSN	51	



	2	VCC_3V3
	4	GND
	6	NC
	8	NC
	10	RESERVED
	12	RESERVED
	14	NC
	16	NC
	18	GND
	20	NC
	22	NRESET
	24	VCC_3V3
	26	GND
	28	NC
	30	NC
	32	NC
	34	GND
	36	RESERVED
	38	RESERVED
	40	GND
	42	RX_ON
	44	TX_ON
	46	CFG_ON
	48	NC
	50	GND
	52	VCC_3V3

2.2 Power

Pin Name	Pin ID	Pin Type	Description
GND	4,9,15,18,21,26,27,29,34,35,37,40,43,50		
3.3V	2,24,39,41,52	PI	Power In

The power in voltage of ED-GW1303S is 3.3V. Under TX mode, the max current can be 400mA.

2.3 SPI Interface

Pin Name	Pin ID	Pin Type	Description
SX_CLK	45	DI	SPI Clock
SX_MISO	47	DO	SPI MISO
SX_MOSI	49	DI	SPI MOSI
SX_CSN	51	DI	SPI CS

2.4 Control Signals

Pin Name	Pin ID	Pin Type	Description
PPS	11	DI	GPS PPS
NRESET	13	DI	RESET Pin
RX_ON	42	DO	RX Indicate
TX_ON	44	DO	TX Indicate
CFG_ON	46	DO	CONFIG Indicate

2.4.1 PPS

Support GPS-PPS, this can be used to receive data packets with timestamps.

2.4.2 NRESET

This signal can be used to reset the module, active HIGH.

2.4.3 RX_ON

When receive is enabled, the RX_ON signal will output HIGH, and the RX LED will on.

2.4.4 TX_ON

When transmit is enabled, the TX_ON signal will output HIGH, and the TX LED will on.

2.4.5 CFG_ON

When the module is configured successful, the CFG_ON signal will output HIGH, and the CFG LED will on.

2.5 Antenna Connector

The Antenna connector is compatible with I-PEX 1 standard.

Recommended P/N		20279-001E-03
PART NO.	PACKING REEL	QUANTITY IN 1 REEL
20279-001E-01	PLASTIC REEL	2,500
	CORRUGATED PAPER REEL	2,500
20279-001E-03	PLASTIC REEL	5,000
20279-001E-05	PLASTIC REEL	10,000

NOTES

- APPLICABLE CONNECTOR PART NO.
MHF I PLUG
20278-11*R-**-**
20351-***R-37
20631-***R-**-**
20670-001R-**-**
20767-001R-20
MHF II PLUG
20311-011R-**-**
20686-001R-08
- COPLANARITY: 0.1mm MAX.
- THIS IS "Pb-FREE" CONNECTOR.

NO.	DISCRPTION	MATERIAL	FINISH , REMARKS
3	GROUND CONTACT	PHOSPHOR BRONZE	ALL OVER Ni 1.00 μm MIN. CONTACT PART Au 0.05 μm MIN. SOLDERING PART Au 0.05 μm MIN.
2	CONTACT	BRASS	ALL OVER Ni 1.00 μm MIN. CONTACT PART Au 0.10 μm MIN. SOLDERING PART Au 0.03 μm MIN.
1	HOUSING	LCP	UL94V-0, WHITE

*LENGTH: 4.0±0.4 AT PLUG PART NO. 20670-001R-08, 20670-001R-13, 20670-001R-32
4.7±0.4 AT PLUG PART NO. 20670-001R-18, 20670-001R-37
5.6 AT PLUG PART NO. 20767-001R-20 (REFERENCE DIMENSION)
3.8±0.3 AT PLUG PART NO. 20686-001R-08, 20311-011R-**-**

*MATING HEIGHT: 2.5 MAX. AT PLUG PART NO. 20670-001R-**-**
3.0 MAX. AT PLUG PART NO. 20767-001R-20
2.0±0.1 AT PLUG PART NO. 20686-001R-08, 20311-011R-**-**

MATING CONDITION

REV.	EDN	BY	DATE	APP.	APP.	DATE	REVISION RECORD
27	Z210232	S.T	2021/03/08	M.T	ANGLE	±2°	6 OVER 30 MAX ±0.3
26	Z200434	TOI	2020/04/20	Y.H	6 MAX.	±0.2	30 OVER 120 MAX ±0.5
25	Z200262	TOI	2020/03/05	Y.H	GENERAL TOLERANCE		
24	Z191405	Y.F	2019/10/23	Y.S	DWG.	DATE	
23	Z181523	M.N	2018/11/20	Ken	CHK.	K.Oobayashi	2001/06/07
22	Z180765	M.N	2018/10/30	Ken	CHK.	E.Kawabe	2001/06/07
REV.	EDN	BY	DATE	APP.	APP.	DATE	REVISION RECORD
							K.Katabuchi 2001/06/07

PROJECTION	SERIES No.	TITLE	SCALE	CUSTOMER COPY
	R9	MHF® I/II RECEPTACLE	10:1	
		DWG. No.	SIZE	SHEET
		20279	A3	1/8
				REV. 27

Chapter 3 Electrical Characteristics

3.1 Power

Parameter	Description	Min	Type	Max	Unit
VCC	Power In	3.0	3.3	3.6	V

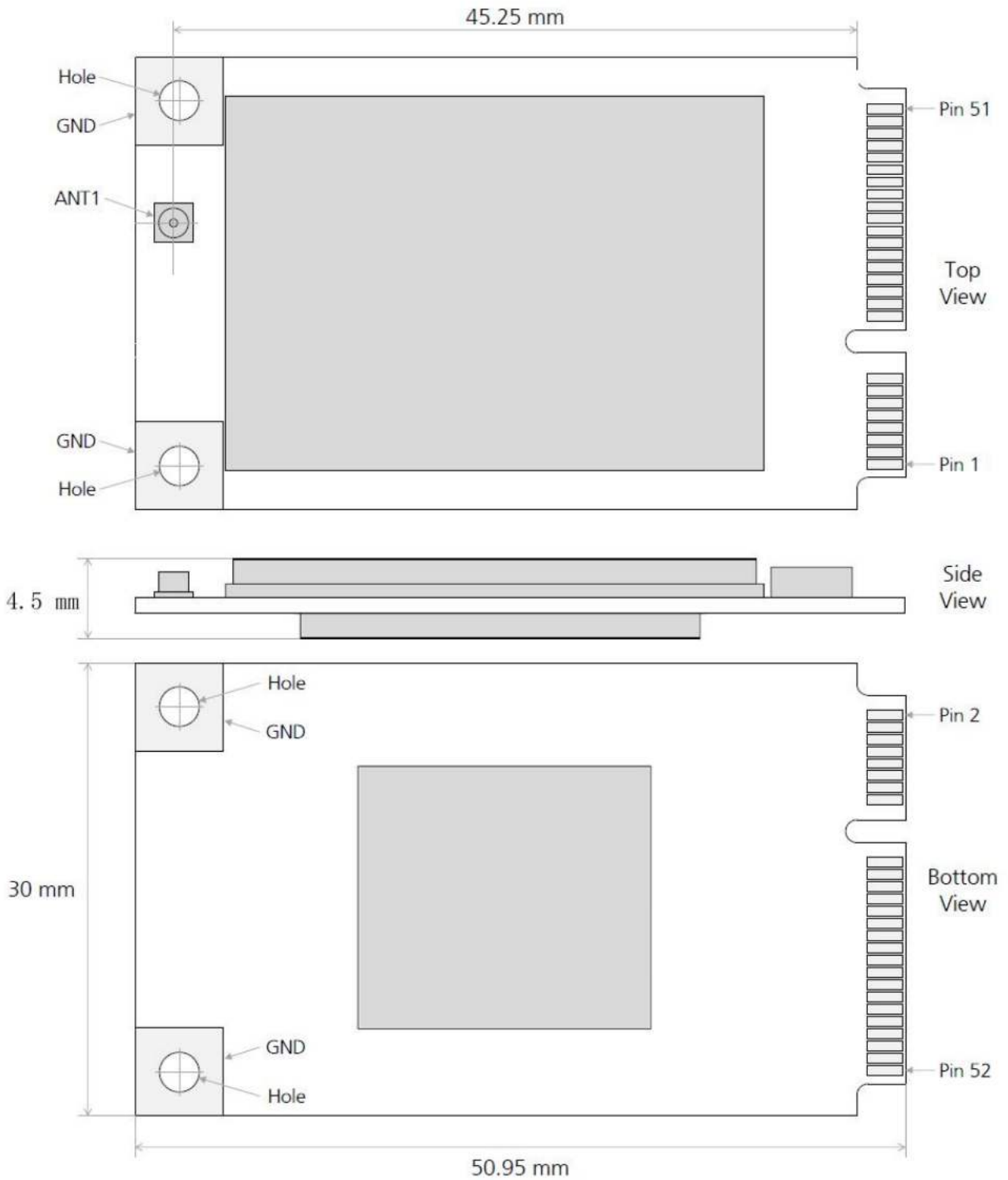
3.2 IO

Parameter	Description	Min	Max	Unit
VIH	Input High Voltage	$0.7 * VCC$	$VCC + 0.3$	V
VIL	Input Low Voltage	-0.3	$0.3 * VCC$	V
VOH	Output High Voltage	$VCC - 0.5$	VCC	V
VOL	Output Low Voltage	0	0.4	V

3.3 Current

Parameter	Operation Mode	Type	Unit
RX	RX Enable, TX Disable	54	mA
TX / RX	RX Enable, TX@25dBm	360	mA
IDLE	RX Disable, TX Disable	27	mA

Chapter 4 Dimension



Chapter 5 Contact

- Email – sales@edatec.cn / support@edatec.cn
- Mobile – +86-18621560183
- Website – <https://www.edatec.cn>
- Address – Room 301, Building 24, No. 1661, Jialuo Road, Jiading District, Shanghai

5.1 About EDATEC

EDA Technology Co.,Ltd is located in Shanghai, it is one of Raspberry Pi's Global Design Partners. Our vision is to offer the hardware solutions for IoT, Industrial Control, Automation, Green Energy & Artificial Intelligence solutions based on Raspberry Pi Technology platform.

We provide the standard hardware solution, custom design & manufacturing services that accelerate the electronic product development and time to market.