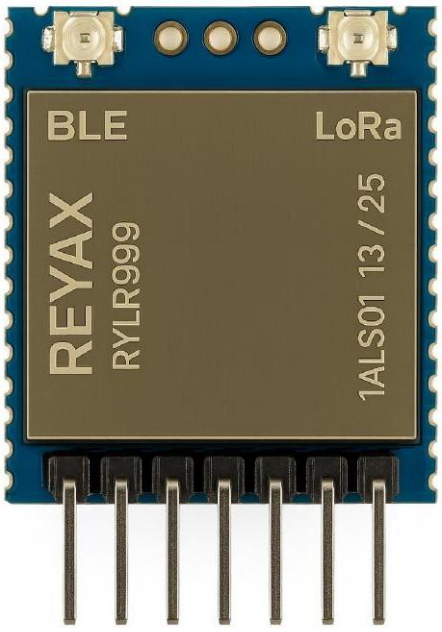
REYAX
TECHNOLOGY CORPORATION, LTD

23-ARP-2025 56312E30

RYLR999

30dBm 868/915 MHz LoRa® & 20dBm 2.4GHz BLE UART Interface Long Range Transceiver Module

Datasheet



PRODUCT DESCRIPTION

The RYLR999 module features both BLE and LoRa functionalities, each controlled through separate UART interfaces.

The BLE functionality supports long range transmission and complies with the standard GATT profile in transparent mode. Additionally, it allows customization of the broadcast name and other settings.

The LoRa® functionality offers long range transmission and high-sensitivity reception, enabling communication with other REYAX modules. Transmission, reception, and various parameters can be controlled using AT commands.

If two UART interfaces are connected, it can also enable BLE-to-LoRa conversion.

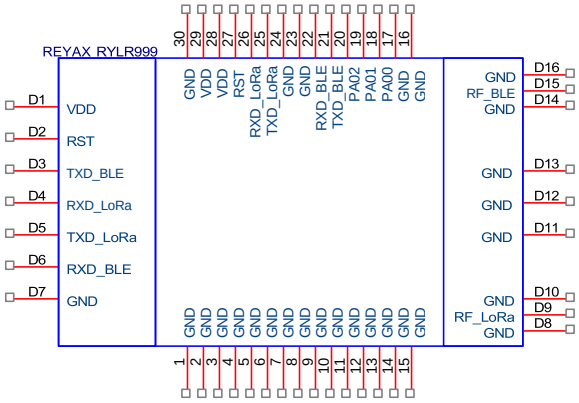
FEATURES

- +20dBm BLE RF output power
- BLE Transparent mode.
- BLE converts long-range communication through LoRa®
- Semtech LoRa® Engine +30dBm RF output power
- Control easily by AT commands
- Firmware can be updated using BLE OTA function.

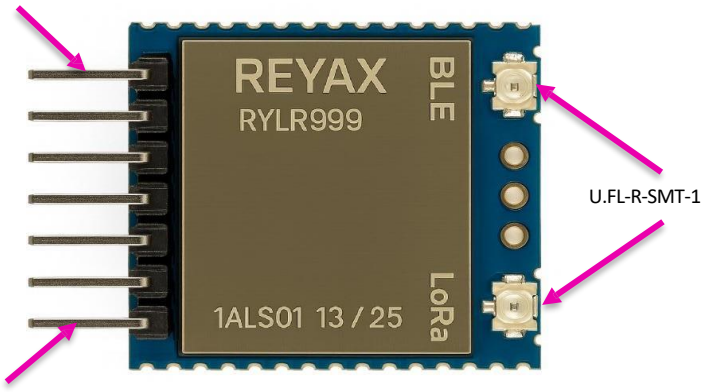
APPLICTIONS

- IoT Applications
- Mobile Equipment
- Industrial Monitoring and Control Equipment
- Drone Control

PIN DESCRIPTION



Pin D1



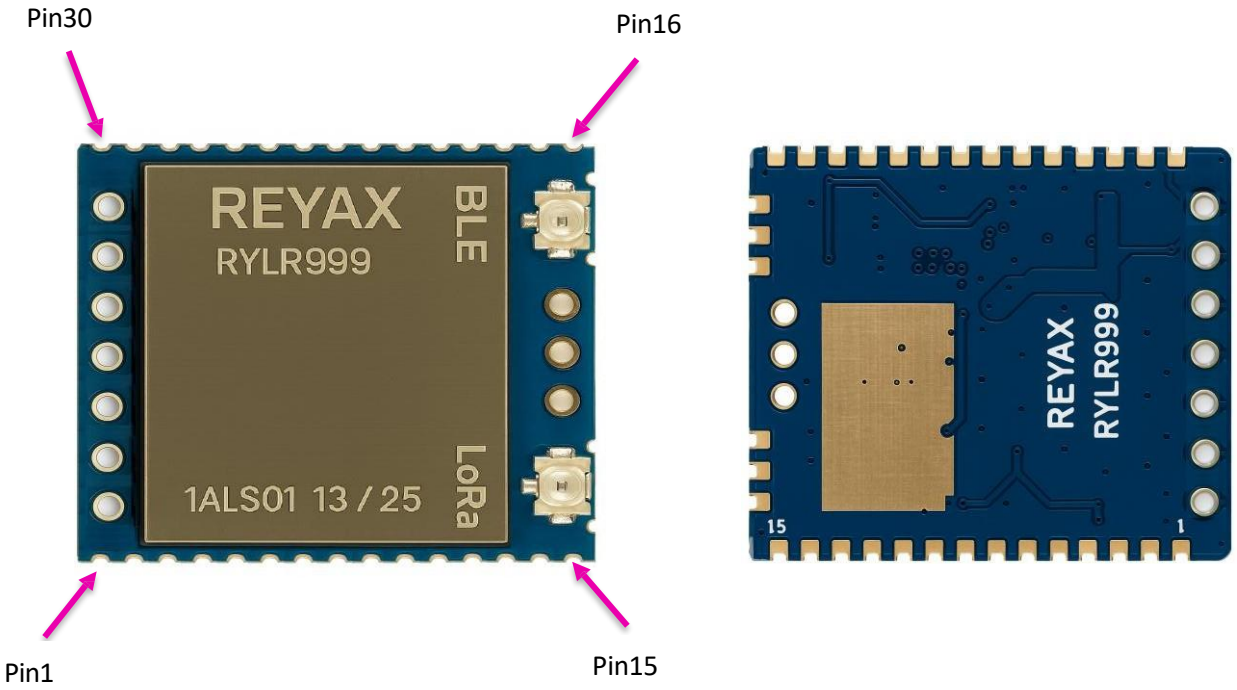
Pin D7

Pin D1

Pin D7

RYLR999 DIP PIN

Pin	Name	I/O	Condition
D1	VDD	P	Power supply
D2	RST	I	Low reset trigger input
D3	TXD_BLE	O	BLE UART Data Output
D4	RXD_LoRa®	I	LoRa® UART Data Input
D5	TXD_LoRa®	O	LoRa® UART Data Output
D6	RXD_BLE	I	BLE UART Data Input
D7	GND	-	Ground

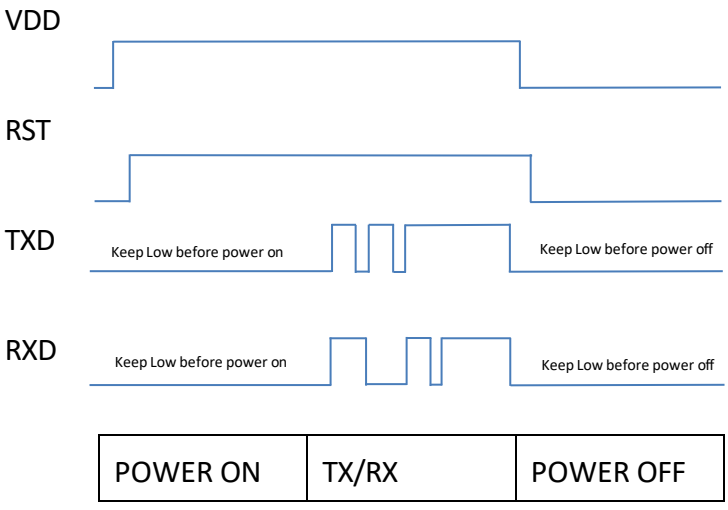


RYLR999_NP SMT PIN

Pin	Name	I/O	Condition
1	GND	-	Ground
2	GND	-	Ground
3	GND	-	Ground
4	GND	-	Ground
5	GND	-	Ground
6	GND	-	Ground
7	GND	-	Ground
8	GND	-	Ground
9	GND	-	Ground
10	GND	-	Ground
11	GND	-	Ground
12	GND	-	Ground
13	GND	-	Ground
14	GND	-	Ground
15	GND	-	Ground
16	GND	-	Ground
17	GND	-	Ground

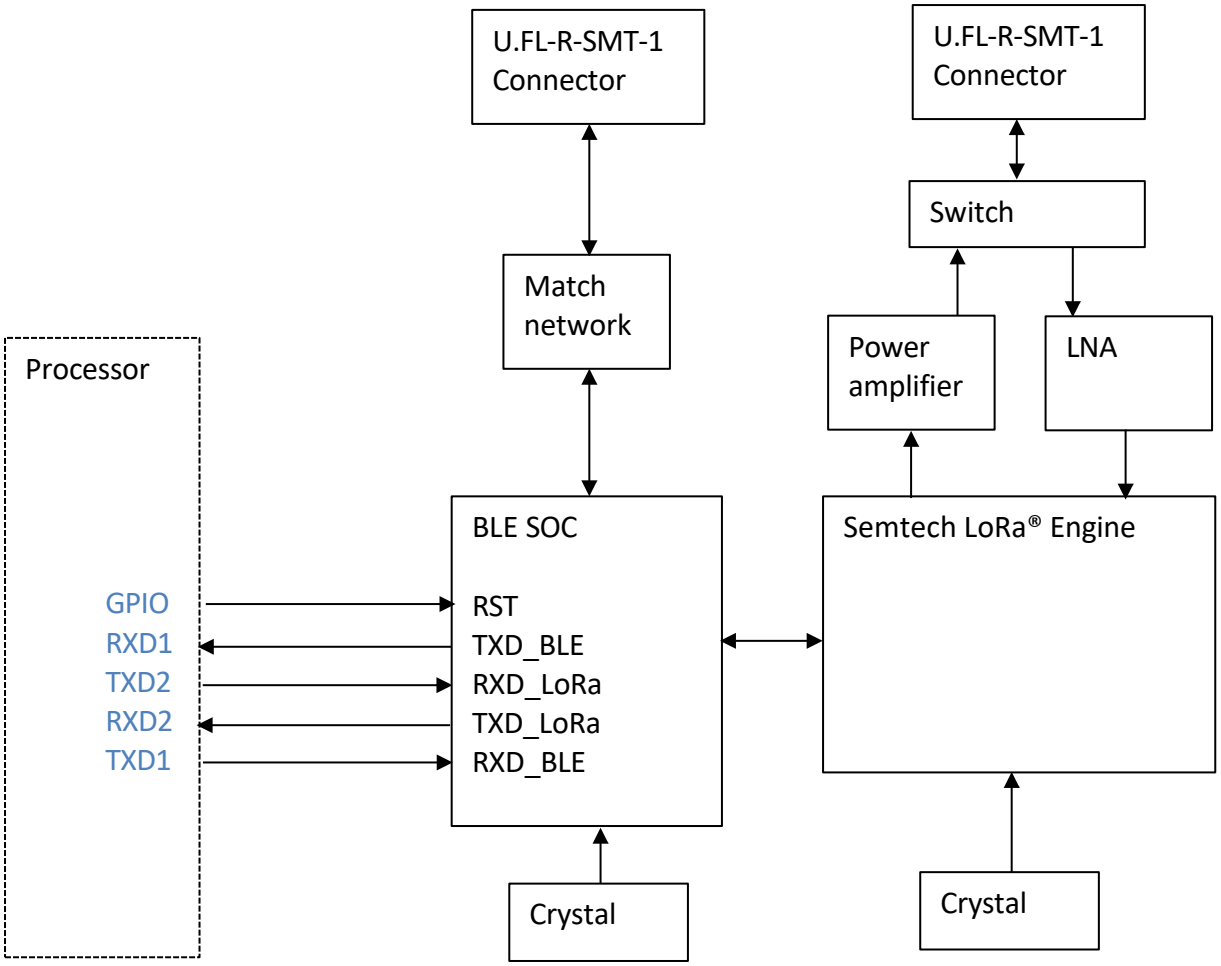
18	PA0	I/O	Not Connected, Reserved for future applications
19	PA1	I/O	Not Connected, Reserved for future applications
20	PA2	I/O	Not Connected, Reserved for future applications
21	TXD_BLE	O	BLE UART Data Input
22	RXD_BLE	I	BLE UART Data Input
23	GND	-	Ground
24	GND	-	Ground
25	TXD_LoRa®	O	LoRa® UART Data Output
26	RXD_LoRa®	I	LoRa® UART Data Input
27	RST	I	Low reset trigger input
28	VDD	P	Power supply
29	VDD	P	Power supply
30	GND	-	Ground

TIMING DIAGRAM



POWER ON	TX/RX	POWER OFF

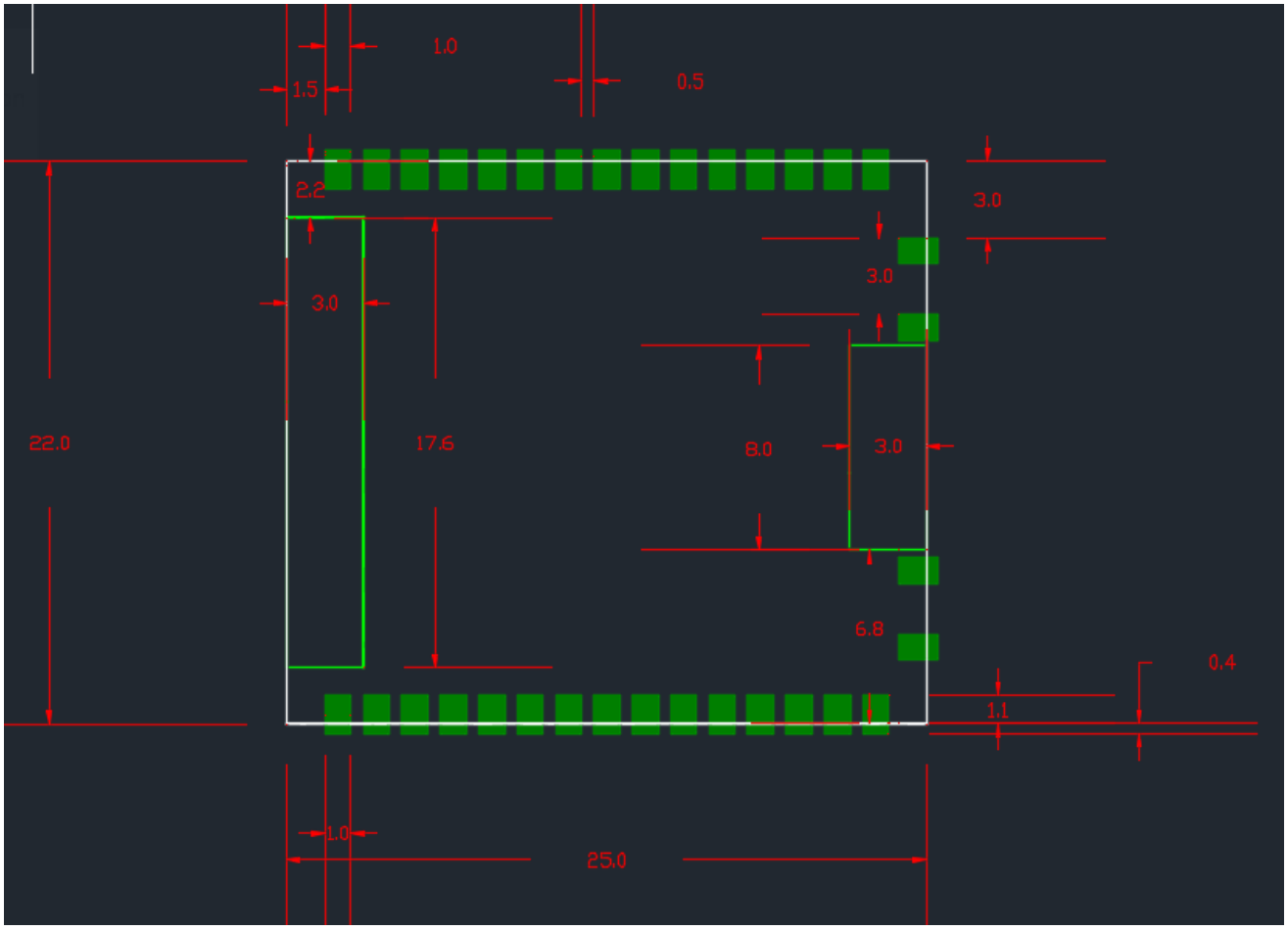
BLOCK DIAGRAM



SPECIFICATION

Item	Min.	Typical	Max.	Unit	Condition
VDD Power Supply	4.75	5	5.25	V	
Digital I/O		3.3		V	
BLE					
RF Output Power		18.5	20	dBm	
RF Sensitivity		-104.9		dBm	@ 125 kbps GFSK
RF Input Level			10	dBm	
RF Frequency Range	2400		2483.5	MHz	
Transmit Mode current		190		mA	20dBm
Advertising Current		17		mA	BLE broadcast 100ms.
Frequency Accuracy		±20		ppm	at 25°C ±3°C
LoRa®					
RF Output Power		30		dBm	
RF Sensitivity	-133			dBm	
RF Input Level			10	dBm	
Frequency Range	820	868/915	960	MHz	
Transmit Mode current		650		mA	RFOP = 30dBm
Receive Mode current		15.5		mA	
Sleep mode current		1.25		mA	AT+MODE=1
Frequency Accuracy		±20		ppm	at 25°C ±3°C
Sleep mode current		18.2		uA	AT+CFUN=0 AT+MODE=1
Baud rate		115200		bps	8, N, 1
Temperature sensor Accuracy		2		°C	AT+TEMP?
Digital input level high	0.8	3.3	3.4	V	VIH
Digital input level low			0.2	V	VIL
Digital output level high	3.1	3.3		V	VOH Imax = 1 mA
Digital output level low			0.2	V	VOL Imax = -1 mA
Operating Temperature	-40	25	+85	˚C	
Dimensions RYLR999_NP					25mm x 22mm x 3mm
Weight		3.2		g	
Flash erase cycles		10		K	Cycles

RYLR999_NP FOOTPRINT



Unit : mm

***For more detail, please refer to the 3D model Information.**

ORDER INFORMATION

Ordering No.	Pin Header
RYLR999	90 Degree Angle
RYLR999_NP	Not mount

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