DTDS LoRa Module

User Manual

DTDS

LoRa Module – DTDS-622

Contents

FCC Compliance Statement (USA)

FCC ID: 2AXXTDTDS-622LORAMO

Compliance Statements: This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference.
2. This device must accept any interference received, including, an interference that may cause undesired operation.

Caution Statements:
• Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
• This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

This module is labelled with its own FCC ID. The end product using this module is required to display a label on itself referring to the enclosed module details. The final product must be labelled with the following: "Contains FCC ID: 2AXXTDTDS-622LORAM"

The OEM using this product should not provide information to end user regarding installation or removal of this transmitter RF module or information to change RF related parameters in the user manual or by any means, with the end product.

The OEM shall integrate the module as per the module Integration guidelines and grant condition.

The OEM is responsible for ensuring compliance with the applicable FCC rules for the transmitters operating individually and simultaneously.

Product Description

DTDS LoRa-622 is a low cost, low power consumption long range solution for wireless communication. The module complies with both Class A and Class C LoRaWAN protocol specifications. It is suitable for Long Range sensor-based applications interfaced with an external host MCU.

It also provides high interference immunity and meets all the LoRaWAN protocol specifications.

General Features

1. TCXO enabled stable clock.
2. Operating Temperature range -40 °C to +85 °C.
3. AT Commands Interface over UART.
4. Low power consumption.
5. Assembly pads for easy PCB mounting.
6. Highly compact Form Factor of 15 x 26 x 5 mm.

Applications

1. Water Meters
2. Energy Meters
3. Home Automation
4. Lighting Monitoring and Control
5. Environmental Sensors
6. Smart Cities
7. Other IoT Products

Package View

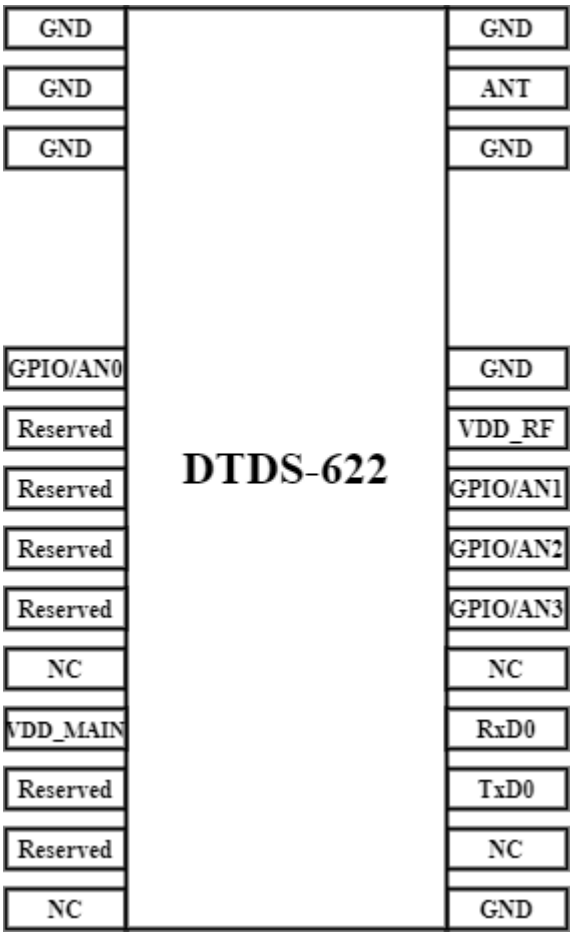

Figure 1- Top View of DTDS-622 Module

Pin I/O Description and Serial Configuration

Pin Number	Pin Name	Pin Type	Pin Description
1	GND	-	Ground
2	GND	-	Ground
3	GND	-	Ground
4	GPIO/AN0	I/O	Analog Input/GPIO
5	Reserved	-	Reserved for future use
6	Reserved	-	Reserved for future use
7	Reserved	-	Reserved for future use
8	Reserved	-	Reserved for future use
9	NC	-	No Connection
10	VDD_MAIN	I	Supply for the Main Board
11	Reserved	-	Reserved for future use
12	Reserved	-	Reserved for future use
13	NC	-	No Connection
14	GND	-	Ground
15	NC	-	No Connection
16	UART_TxD	O	AT Commands Transmit to Host
17	UART_RxD	I	AT Commands Receive from Host
18	NC	-	No Connection
19	GPIO/AN3	I/O	Analog Input/GPIO
20	GPIO/AN2	I/O	Analog Input/GPIO
21	GPIO/AN1	I/O	Analog Input/GPIO
22	VDD_RF	I	Supply for the RF Module
23	GND	-	Ground
24	GND	-	Ground
25	ANT	I/O	Antenna Signal
26	GND	-	Ground

Table 1 - Pin Description for DTDS-622 Module

Configuration Items	Value
Baud rate	115200 bps
Data bit	8 bits
Parity bit	None
Stop bit	1 bit
Flow control	None
Local echo back	No
Line terminator	Transmission: CR+LF Reception: CR+LF

Table 2 – Serial/ UART Configuration

Connection Circuit

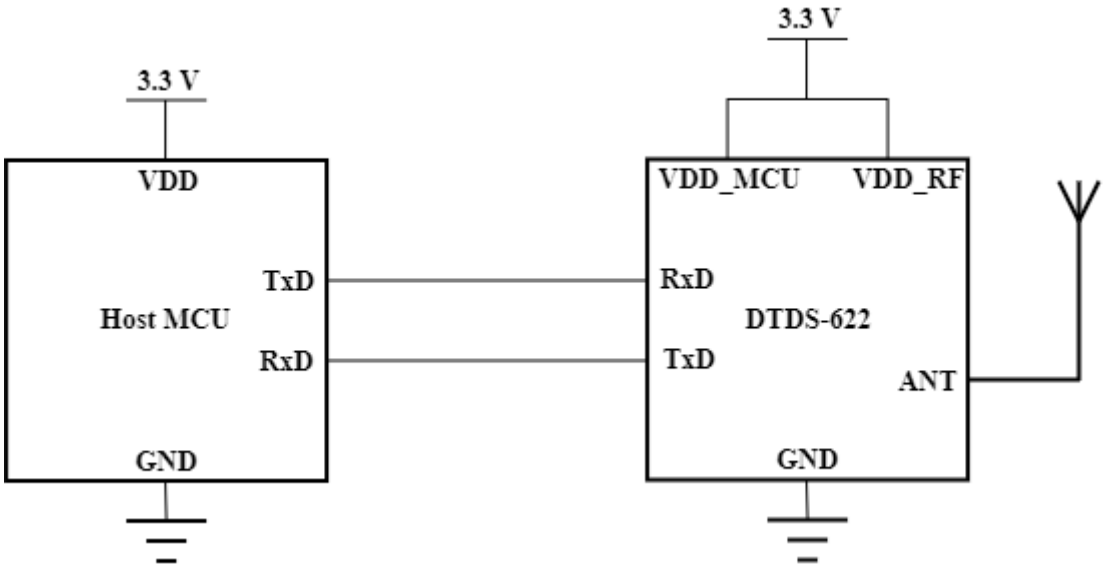

Figure 2- Connection Diagram for User Application

Note: Antenna does not form the scope of supply with the module. An external Antenna can be connected to the UFL connector available on the module or the Antenna output from the module can be extended to an SMA or any other type of connector on the host application board. The recommended Antenna is 50 Ohms terminated Taoglas T1.92.2113 Omnidirectional Antenna with a peak gain not exceeding 2.14 dBi in the bent configuration.

Technical Specifications

	Parameters	Typical Specifications	Units
Mechanical Specification	Size	15(W) X 27(L) X 5(H)	mm
	Package	26 pins, SMD	-
Electrical Specification	Power Supply	3 – 3.7, 3.3 Typical	V
	Standby Current	< 4	mA
	Sleep Current	≈15	µA
	TX Current	138@BW 125 KHz, 22 dBm, 865/868/915/923 MHz	mA
	RX Current	8@BW 125 KHz, 22 dBm, 865/868/915/923 MHz	mA
	Data Rate	0.018 to 62.5 (LoRa)	Kb/s
	RF Interface	RFIO single ended, 50 Ohm	-
	Operating Frequency Bands	EU 868	MHz
		US 915	MHz
		AS 923	MHz
		IN 865	MHz
RF Specification	Sensitivity	-137dBm @SF12, BW 125kHz	dBm
		-124dBm @SF7, BW 125kHz	
	RF interface	RFIO	-
Interfaces	USART	USART_TX, USART_RX	-
	I2C	I2C_SCL, I2C_SDA	-
	Host interface available via AT commands over UART	-	-

Table 3-Electrical, Mechanical and LoRaWAN specifications of DTDS-622 Module

Physical Dimensions

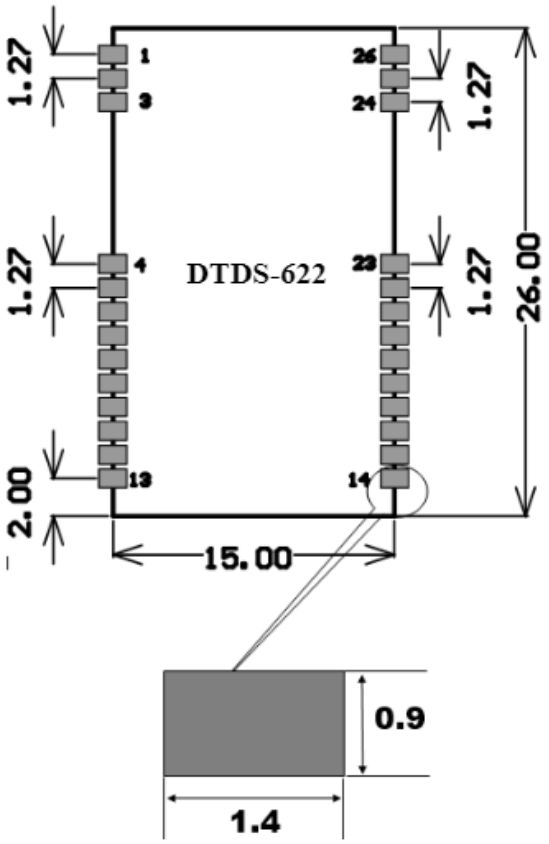

Figure 3- Physical Dimensions of the DTDS-622 Module (all units are in mm)

Notes

Revision History

		Description	
Rev.	**Date**	**Section**	**Summary**
1.0	Dec. 24, 2019	-	Initial Release
1.1	Oct. 21, 2020	Contents	Added FCC compliance statements