AW-CU362

Bluetooth 5.0 LE Stamp Module

Datasheet

Rev. 0.6

Revision History

Revision	*Date*	*Description*	*Initials*	*Approved*
Version 0.1	**2018/03/23**	**Initial Version**	**Alex Yu**	**Daniel Lee**
Version 0.2	**2018/07/11**	Update mechanical Information	**Alex Yu**	**N.C. Chen**
Version 0.3	**2018/07/12**	Update PCB Footprint	**Alex Yu**	**N.C. Chen**
Version 0.4	**2018/09/16**	● Update Output Power ● Update Receiver Sensitivity and Flash Size	**Alex Yu**	**N.C. Chen**
Version 0.5	**2018/11/02**	● Update IO Interface ● Update Receiver Sensitivity ● Update Operating Conditions ● Update Power Consumption ● Update FCC Bluetooth 2.4GHz Power Table ● Update Packaging Information	**Alex Yu**	**N.C. Chen**
Version 0.6	**2018/12/12**	● Update Block Diagram	**Alex Yu**	**N.C. Chen**
Version 0.7	**2018/02/01**	● Add in FCC/CE on certification	**Alex Yu**	**N.C. Chen**

Table of Contents

1. Introduction

1.1 Product Overview

AzureWave presents **AW-CU362** the advanced Stamp **Bluetooth 5.0 module** provides a highly cost-effective, flexible and easy to-use hardware/software device to build a new generation of connected, smart devices. These smart-connected devices enable device to deliver a broad-range of services to consumers including energy-management, demand-response, home automation and remote access. This allows a user to manage comfort and convenience, also run diagnostics and receive alerts and notifications, in addition to managing and controlling the device. Developers can leverage the rich connectivity features of these new smart devices to create a new generation of innovative new applications and services

The device builds upon the success of Dialog's Bluetooth microcontroller device using the Dialog DA14585 and software. Adding new enhancements and capabilities.

The **AW-CU362** is powered by production quality, field-tested Dialog software that includes a rich set of software components that work together to support the development of Smart devices, and enable these devices to connect to mobile clients such as smart-phones, Internet-based Cloud and Smart-Grid services. The feature-rich software stack enables OEMs to focus on application-specific software functionality, thus enabling rapid development and reduced software development costs and risks.

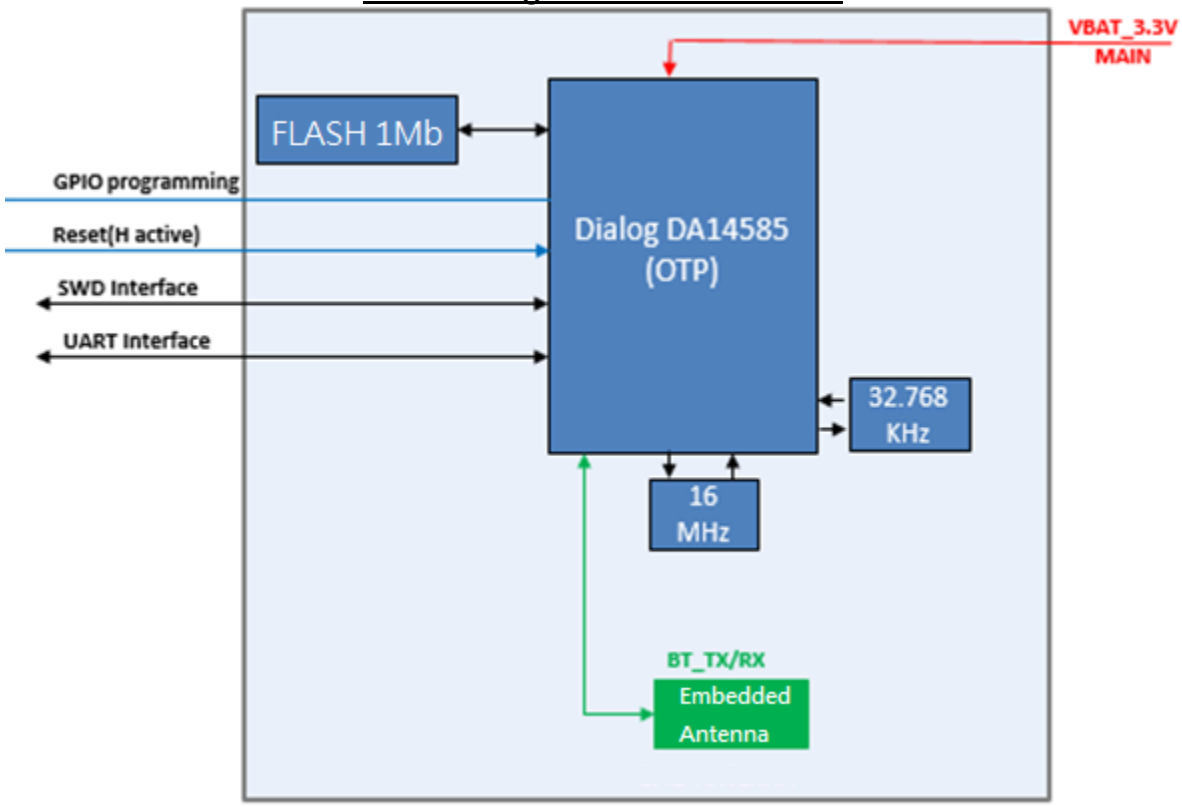
1.2 Features

1.2.1 Bluetooth

- **DA14585 (Dialog DA14585 is a Bluetooth Low Energy 5.0 SoC)**
  - **Processor**
    - ARM Cortex-M0, 32bit, 16MHz
    - Dedicated Link Layer Processor
    - AES-128 bit encryption Processor
  - **Memory**
    - 64 KB OTP Memory
    - 128 KB ROM
    - 96 KB Retention SRAM
  - **External Flash**
    - 1M Bit SPI Flash
  - **Wireless**
    - Bluetooth V5.0
  - **Antenna**
    - Embedded Antenna
  - **IO Interfaces**
    - UART
    - SWD
    - GPIO
    - SPI
    - I2C
    - ADC
    - Quadrature Decoder
  - **Power input**
    - Single 3.3V Power Input
  - **Package**
    - Stamp Module – 19.6 mm x 15 mm x 2.45 mm
  - **Certifications**
    - FCC/CE

1.3 Block Diagram

Block Diagram of AW-CU362



1.4 Specifications Table

1.4.1 General

Features	Description
Product Description	AW-CU362 Bluetooth 5.0 Stamp Module
Major Chipset	Dialog DA14585
Host Interface	UART
Dimension	19.6 mm x 15 mm x 2.45 mm
Package	30-pin
Antenna	Embedded Antenna
Weight	1g

1.4.2 Bluetooth

Features	Description
Bluetooth Standard	Bluetooth V5.0 complaint
Frequency Rage	2402~2480MHz
Modulation	GFSK (1Mbps) for Bluetooth
Output Power (Board Level Limit)*	2~-4 dBm
Receiver Sensitivity	-90 dBm (typical)
Data Rate	Bluetooth V5.0 Only

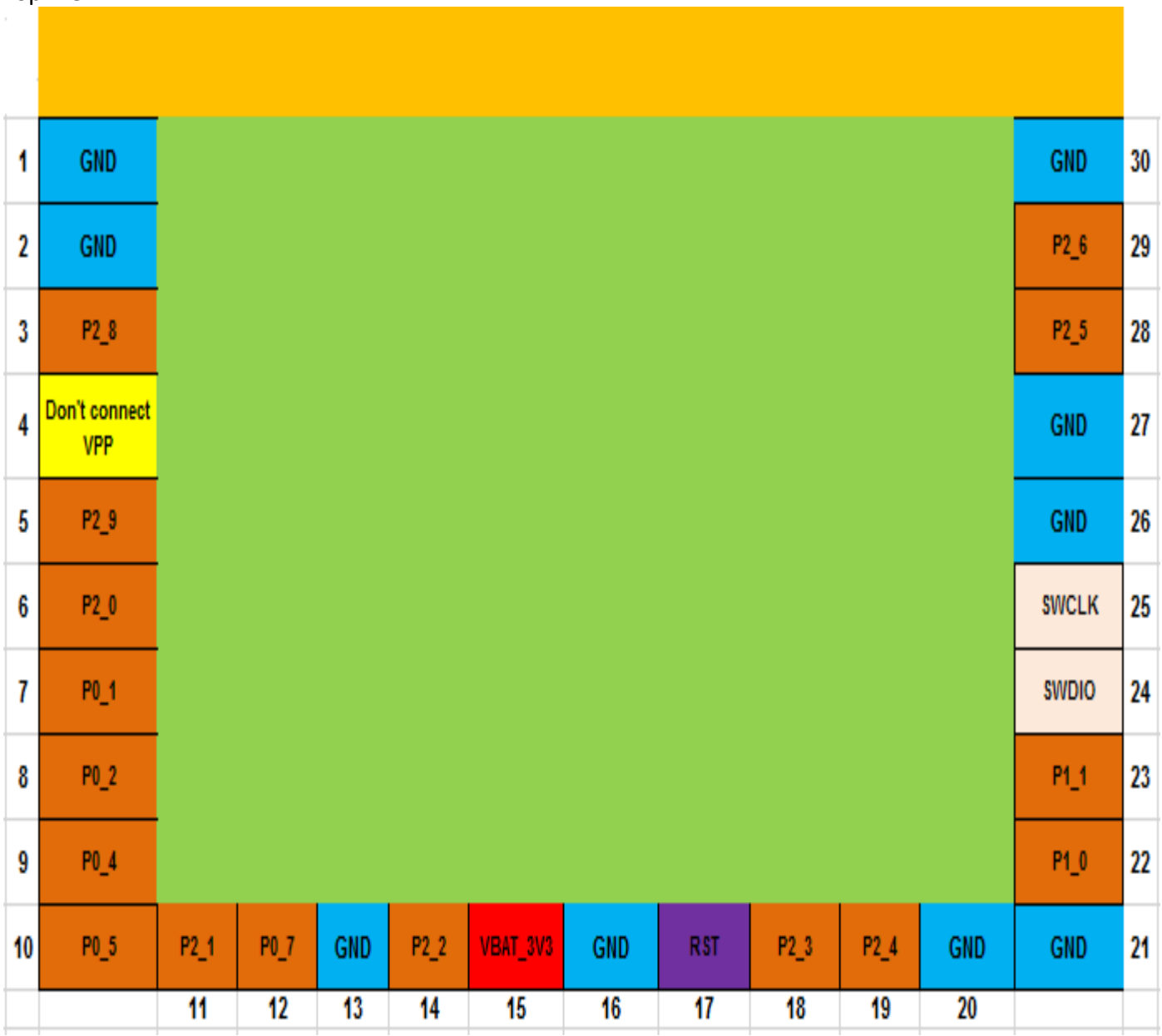
1.4.3 Operating Conditions

Features	Description
Operating Conditions	
Voltage	3.3V +/- 8%
Operating Temperature	-30 ~ 85℃
Operating Humidity	<85%
Storage Temperature	-40 ~ 85℃
Storage Humidity	< 60 %
ESD Protection	
Human Body Model	2KV per JEDEC EID/JESD22-A114
Changed Device Model	500V per JEDEC EIA/JESD22-C101

2. Pin Definition

2.1 Pin Map

Top View



2.2 Pin Table

2.2.1 Power

Pin No	Definition	Basic Description	Type	Level
15	VBAT_3V	3.3V Power input	PWR	3.3V
4	VPP	Leave VPP floating		

2.2.2 Reset and SWD

Pin No	Definition	Basic Description	Type	Level
24	SWDIO	JTAG Data input/output.	I/O	3.3V
25	SWCLK	JTAG clock signal input.	I/O	3.3V
17	RST	Reset signal (active high). Must be connected to GND if not used.	I	3.3V (internal pull low 2.2k ohm)

2.2.3 GPIO

Pin No	Definition	Function 0	Function 1	Function 2	Function 3	Type	Level
3	P2_8	GPIO	UART0(CTS)	QD_CHA_X		I/O	3.3V
5	P2_9	GPIO	UART0(RTS)	QD_CHB_X		I/O	3.3V
6	P2_0	GPIO	UART2(CTS)			I/O	3.3V
7	P0_1	GPIO	ADC[1]			I/O	3.3V
8	P0_2	GPIO	ADC[2]			I/O	3.3V
9	P0_4	GPIO	UART0(TX)			I/O	3.3V
10	P0_5	GPIO	UART0(RX)			I/O	3.3V
11	P2_1	GPIO	SPI_CLK			I/O	3.3V
12	P0_7	GPIO	UART2(RTS)			I/O	3.3V
14	P2_2	GPIO	SPI_DI			I/O	3.3V
18	P2_3	GPIO	SPI_DO	QD_CHA_Y		I/O	3.3V
19	P2_4	GPIO	SPI_EN	QD_CHB_Y		I/O	3.3V
22	P1_0	GPIO	UART2(TX)	QD_CHA_Z		I/O	3.3V
23	P1_1	GPIO	UART2RTX)	QD_CHB_Z		I/O	3.3V
28	P2_5	GPIO	SDA			I/O	3.3V
29	P2_6	GPIO	SCL			I/O	3.3V

2.2.4 GND

Pin No	Definition	Basic Description	Type	Level
1	GND			
2				
13				
16				
20				
21				
26				
27				
30				

3. Electrical Characteristics

3.1 Absolute Maximum Ratings

Symbol	Parameter	Minimum	Typical	Maximum	Unit
VBAT_3V	3.3V power supply		3.3	3.6	V

3.2 Recommended Operating Conditions

Symbol	Parameter	Minimum	Typical	Maximum	Unit
VBAT_3V	3.3V power supply	3.0	3.3	3.6	V

3.3 Digital IO Pin DC Characteristics

Symbol	Parameter	Minimum	Typical	Maximum	Unit
VIH	Input High Voltage	0.84			V
VIL	Input Low Voltage			0.36	V

3.4 Power up Timing Sequence

3.5 Power Consumption*

3.5.1 Bluetooth

No.	Mode	Packet Type	RF Power (dBm)	Voltage=3.3V	
				Max.	Avg.
1.	TX	LE	-0.72dBm	3.67mA	3.66mA
2.	RX	LE	n/a	5.13mA	5.13mA

Current Unit: mA

* The power consumption is based on Azurewave test environment, these data for reference only.

3.6 Certifications FCC Bluetooth 2.4GHz Power Table

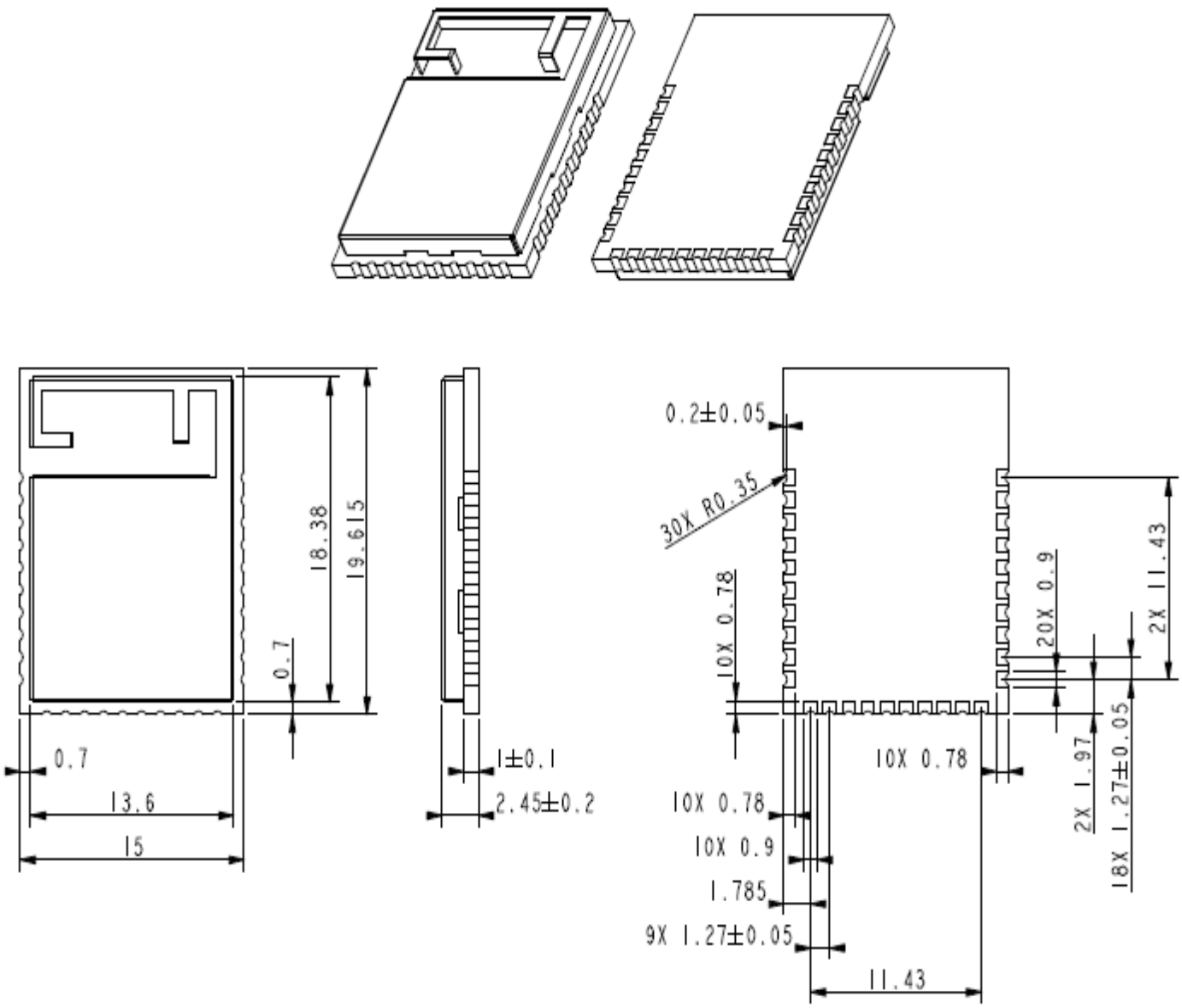
FCC Bluetooth 2.4GHz Power Table:

Embedded Antenna(3.78dBi)

Modulation	Channel	Meter Power (Average,dBm)	Meter Power (Peak,dBm)
802.15.1 (BT5.0)	0(2402MHz)	0.600	0.670
	19(2440MHz)	0.450	0.510
	39(2480MHz)	0.230	0.280

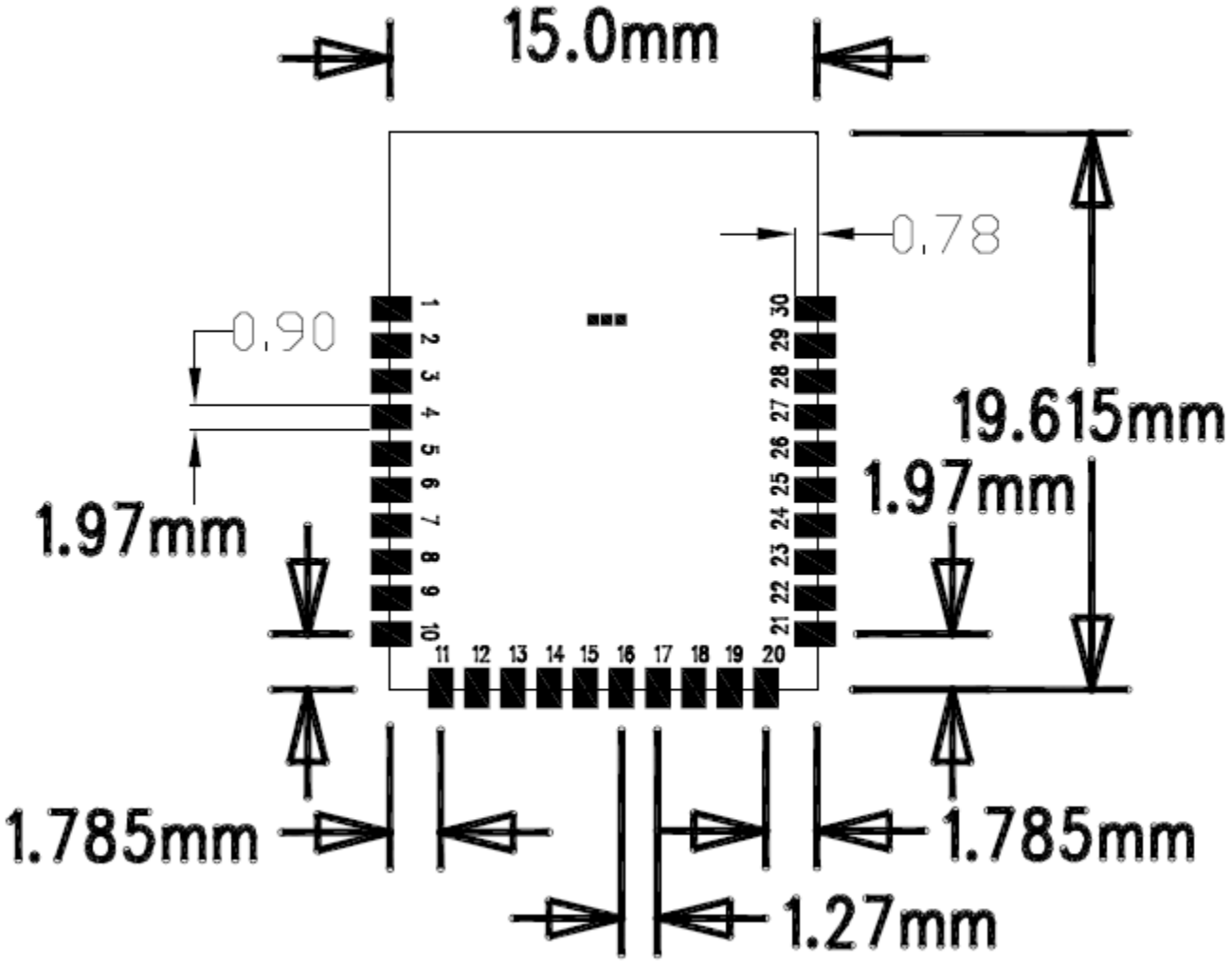
4. Mechanical Information

4.1 Mechanical Drawing



4.2 PCB Footprint

AW-CU362 TOP View PCB Layout Footprint



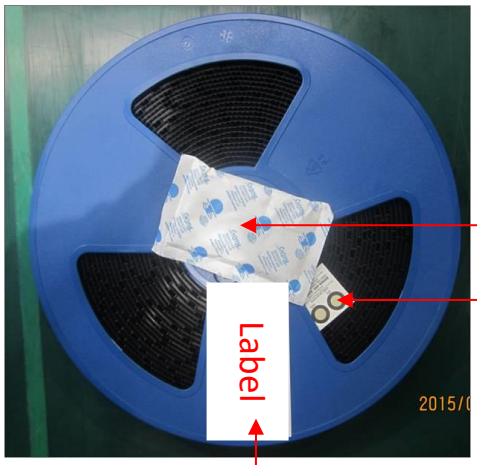
TOP VIEW

5. Packaging Information

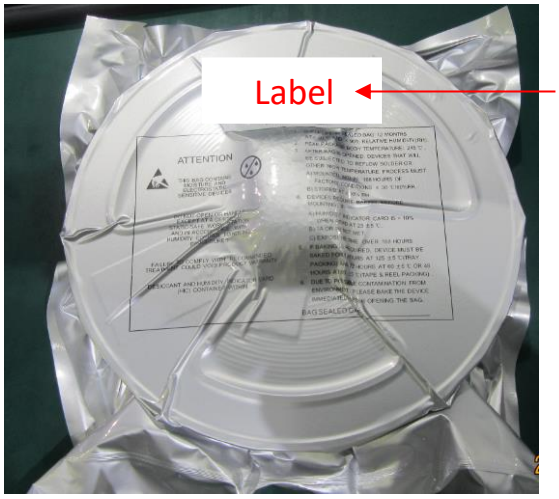
Tape reel = 1 Box = 700 pcs

Carton = 3 Boxes = 2,100 pcs

8.1 Tape & Reel Picture



8.2 Packing Picture



8.3 Inside of Inner Box Picture

8.4 Inner Box Picture

8.5 Inside of Carton Picture

1 Carton = 3 Boxes

8.6 Carton and Label Picture

AFFIX SHIPPING LABEL

AFFIX PACKING LABEL

AFFIX BOX LABEL

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