

# User Manual

This device is the bluetooth low energy module.

**Model Name: 2DV**

**FCC ID: VPYLBCA1ZZ2DV**

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC CAUTION Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This device complies with below part 15 of the FCC Rules.  
Part 15 Subpart C

Since there is no space which indicates FCC ID on this module, FCC ID is indicated in a manual. If the FCC ID is not visible when the module is installed inside another device, then the module is installed must also display a label referring to the enclosed module.

The modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant, and the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification.

The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

## ● Antenna list.

Part number	Vendor	Peak Gain(dBi)	Type	Connector
Internal Trace Antenna	Murata	+1.0	$\lambda/4$ Monopole	-

## ● The following information must be indicated on the host device of this module.

Contains Transmitter Module FCC ID : **VPYLBCA1ZZ2DV**

or

Contains FCC ID : **VPYLBCA1ZZ2DV**

### FCC Compliance Information

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

\*If it is difficult to describe this statement on the host device due to the size, please describe in the user's manual and also either describe on the device packaging or on a removable label attached to the device.

## ● The following statements must be described on the user manual of the host device of this module;

### FCC CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

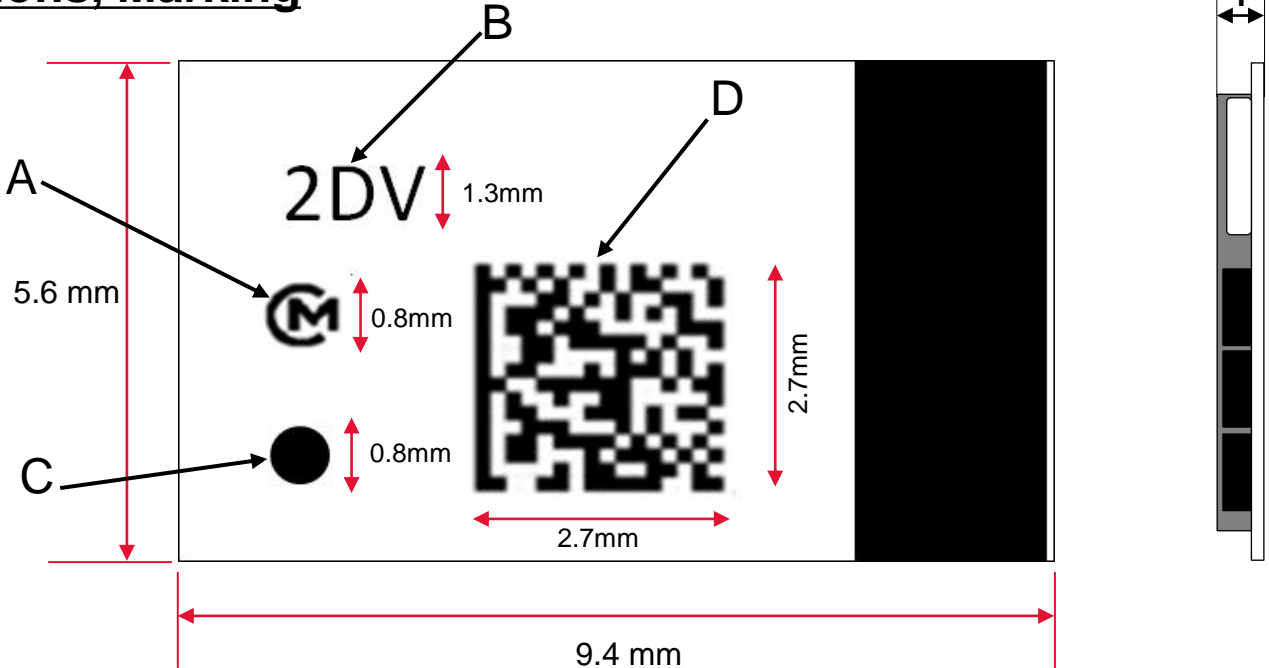
This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines as this equipment has very low levels of RF energy. [※]

※But it is desirable that it should be installed and operated keeping the radiator at least 20cm or more away from person's body.

# Installation Manual

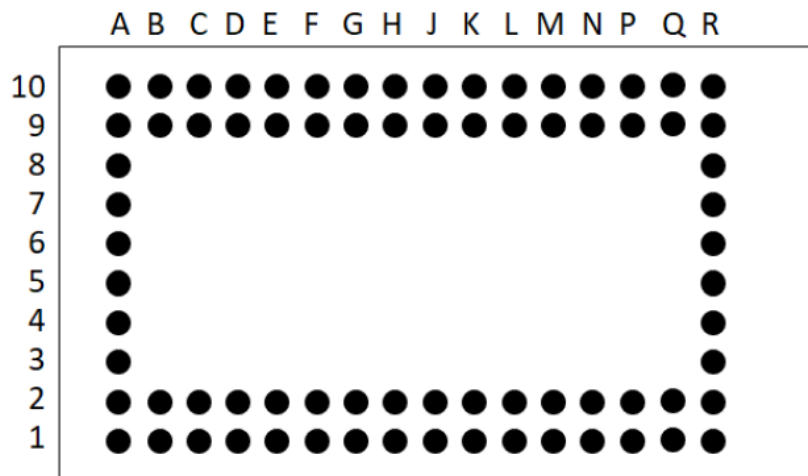
## Dimensions, Marking



marking	Meaning
A	Murata Logo
B	Module Type
C	Pin 1 Marking
D	2D Code

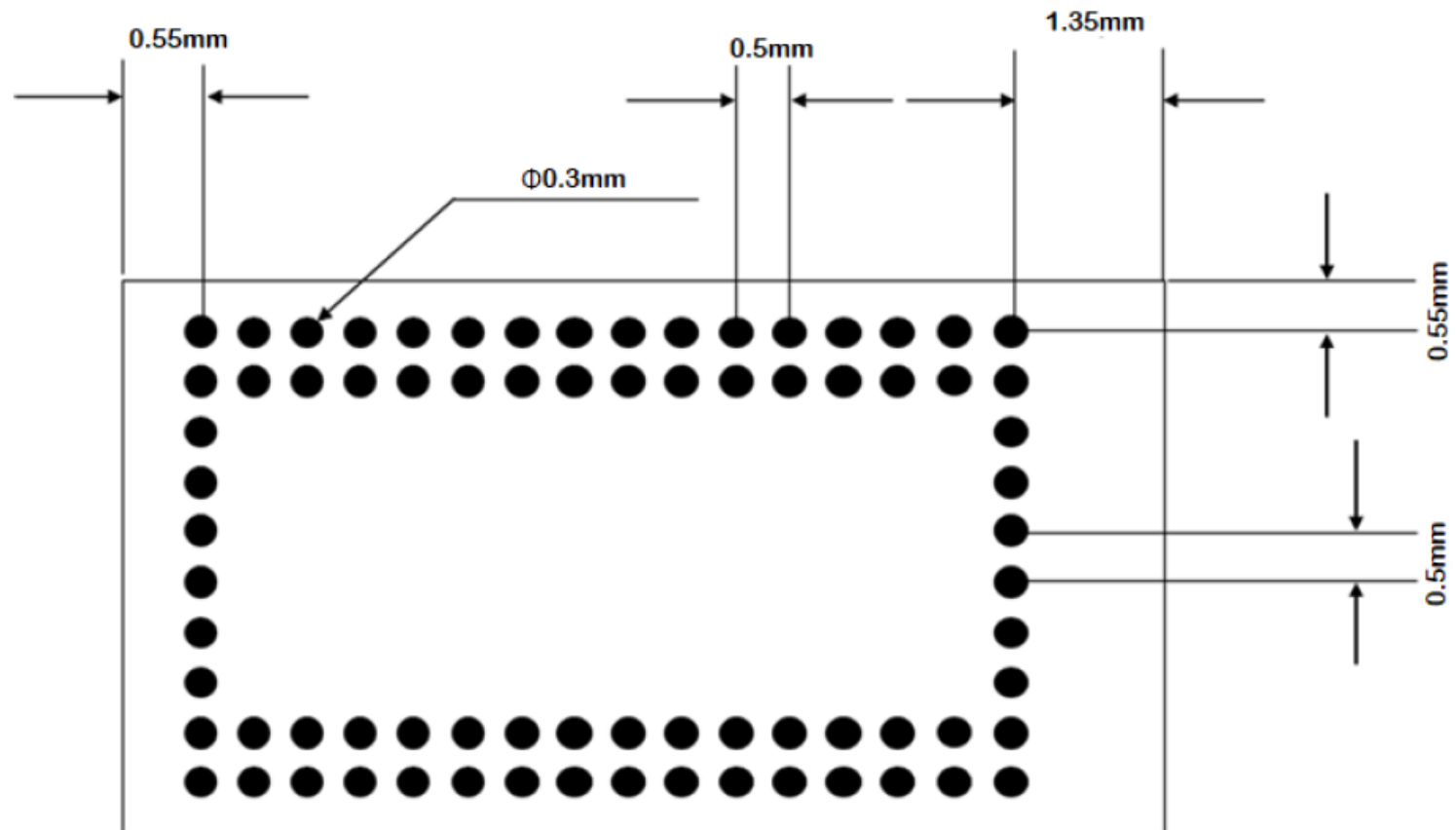
Mark	dimensions	Mark	dimensions	Mark	dimensions
L	5.6 ± 0.25	W	9.4 ± 0.25	T	2.2max

## Terminal Configurations (Top view)



No	Terminal Name	No	Terminal Name	No	Terminal Name	No	Terminal Name	No	Terminal Name
A-1	GND	C-9	P1_15	G-9	P1_04	L-9	P0_31	Q-9	GND
A-2	LED_6_P0_28	C-10	GND	G-10	P1_11	L-10	P0_11_M33_SWCLK	Q-10	ANT_OUT
A-3	LED_4_P0_19	D-1	P1_13_GPADC_4	H-1	P1_12_GPADC_5	M-1	P0_09_UART_BOOT_TX	R-1	GND
A-4	LED_2_P0_21	D-2	P1_20	H-2	P1_02	M-2	P0_26	R-2	GND
A-5	LED_1_P0_24	D-9	P1_14	H-9	P1_04	M-9	P0_12_CMACE_SWCLK	R-3	GND
A-6	LED_5_P0_29	D-10	LX	H-10	P0_02	M-10	P0_10_M33_SWCLK	R-4	GND
A-7	LED_3_P0_20	E-1	P1_19_GPADC_7	J-1	GND	N-1	P0_16	R-5	GND
A-8	LED_0_P0_13	E-2	P1_22	J-2	P1_06	N-2	P0_07	R-6	GND
A-9	GND	E-9	P1_16	J-9	P0_01	N-9	GND	R-7	GND
A-10	GND	E-10	LY	J-10	P0_00	N-10	GND	R-8	GND
B-1	USBP_P0_14	F-1	P1_09_GPADC_7	K-1	P0_08_UART_BOOT_RX	P-1	P0_06	R-9	GND
B-2	LED_7_P0_27	F-2	P1_10	K-2	P1_00	P-2	P0_17	R-10	GND
B-9	GND	F-9	P0_30	K-9	P1_03	P-9	GND		
B-10	VBAT	F-10	P1_17	K-10	P1_05	P-10	ANT_IN		
C-1	USBM_P0_15	G-1	P1_18_GPADC_6	L-1	P0_25_GPADC_1	Q-1	R S T n		
C-2	P1_21	G-2	P1_07	L-2	P1_01	Q-2	P0_18		

## Land Pattern TOP View (Recommended)



## Operating condition

Parameter		Min	Typ	Max	Unit
Operating Temperature Range*1		-30	—	+85	deg.C
Supply Voltage	VBAT	2.4	3.3	4.75	V
	VBAT for OTP programming*2	2.4	3.3	4.75	V
	VBAT for OTP reading	2.4	3.3	4.75	V

\*1: Please keep derating / margin as much as possible at extreme temperature.

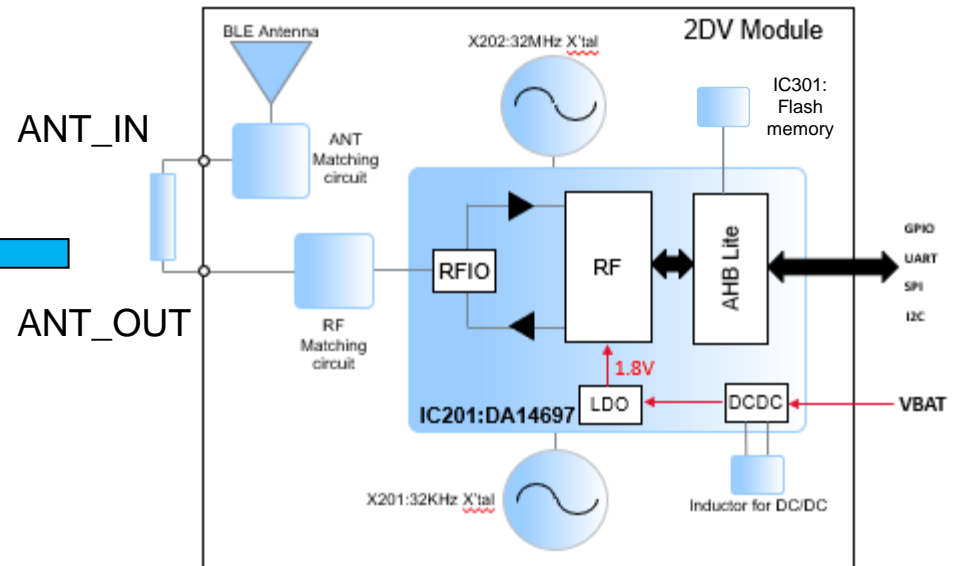
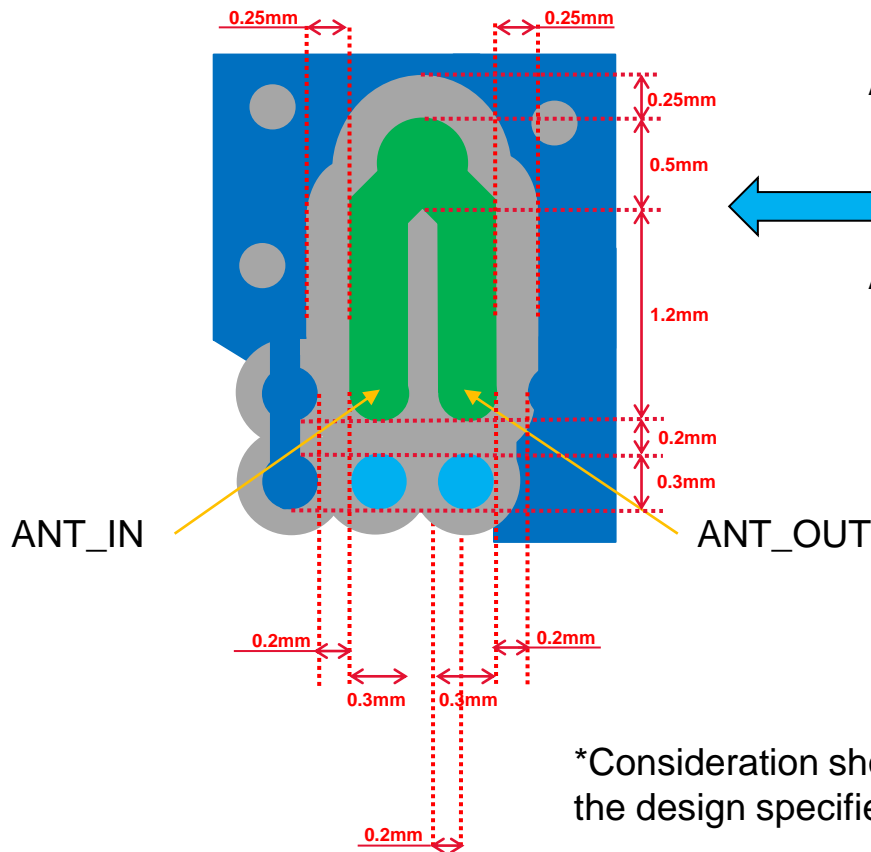
\*2: Required temperature for programming is between -20°C and 70°C

\*The output level can be varied by changing the value of the power index within the scope of the application.

(power setting: -18, -12, -8, -6, -3, -2, -1, 0, 1.5, 2, 3, 4, 4.5, 5dBm)

## Recommended pattern for antenna part

Recommended pattern (green) between these terminals as follow.



The distance (thickness) between the green pattern and the lower ground is 200 microns.

\*Consideration should be given to change applications for traces other than the design specified in the manual.