

ECN/PCN No.: R0043

For Manufacturer			
<b>Product Description:</b> Bluetooth modules	<b>Abracon Part Number / Part Series:</b> ABBTM Bluetooth module series	<input type="checkbox"/> Documentation only <input type="checkbox"/> ECN <input checked="" type="checkbox"/> EOL	<input checked="" type="checkbox"/> Series <input type="checkbox"/> Part Number
<b>Affected Revision:</b> N/A	<b>New Revision:</b> EOL	<b>Application:</b> <input type="checkbox"/> Safety <input checked="" type="checkbox"/> Non-Safety	
<b>Prior to Change:</b> ABBTM-2.4GHZ, ABBTM-2.4GHZ-31, ABBTM-2.4GHZ-31-T, ABBTM-2.4GHZ-33, ABBTM-2.4GHZ-33-T, ABBTM-2.4GHZ-51, ABBTM-2.4GHZ-51-T, ABBTM-2.4GHZ-52, ABBTM-2.4GHZ-52-T, ABBTM-2.4GHZ-EVAL, ABBTM-2.4GHZ-T, ABBTM-2.4GHZ-T2, ABBTM-NVC-EVK-56, ABBTM-NVC-EVK-71, ABBTM-NVC-EVK-71-MESH, ABBTM-NVC-MB-EVK, ABBTM-NVC-MDCS42A-CON, ABBTM-NVC-MDCS71, ABBTM-NVC-MDCS71-CON, ABBTM-NVC-MDCS71-MESH, ABBTM-NVC-MDCS71-MESH-CON, ABBTM-NVC-MDCS71-101, ABBTM-NVC-MDCS86-101, ABBTM-101-2.4GHZ-T, ABBTM-2.4GHZ-51-101-, ABBTM-2.4GHZ-52-101, ABBTM-53-2.4GHZ-T, ABBTM-103-2.4GHZ-T, ABBTM-2.4GHZ-T; VER.10, ABBTM-NVC-MDCS42A-101, ABBTM-NVC-MDCS42A-F07, and ABBTM-NVC-MDCS56-102.			
<b>After Change:</b> All 32 EOL			
<b>Cause/Reason for Change:</b> Due to low demand, the Bluetooth Module ABBTM series is discontinued.			
Change Plan			
<b>Effective Date:</b> 06/08/2021	<b>Additional Remarks:</b> N/A		
<b>Change Declaration:</b> EOL			
<b>Issued Date:</b> 06/08/2021	<b>Issued By:</b> <i>Nicholas El-Takach</i>	<b>Issued Department:</b> Engineering	
<b>Approval:</b> <i>Syed Raza</i> Engineering VP	<b>Approval:</b> <i>Reuben Quintanilla</i> Quality Director	<b>Approval:</b> <i>Ying Huang</i> Purchasing Director	
For Abracon EOL only			
<b>Last Time Buy (if applicable):</b> No last time buy.	<b>Alternate Part Number / Part Series:</b> N/A		
<b>Additional Approval:</b>	<b>Additional Approval:</b>	<b>Additional Approval:</b>	
Customer Approval (If Applicable)			
<b>Qualification Status:</b> <input type="checkbox"/> Approved <input type="checkbox"/> Not accepted <i>Note: It is considered approved if there is no feedback from the customer 1 month after ECN/PCN is released.</i>			
<b>Customer Part Number:</b>		<b>Customer Project:</b>	
<b>Company Name:</b>	<b>Company Representative:</b>	<b>Representative Signature:</b>	
<b>Customer Remarks:</b>			

# 26.9 x 13.0 x 2.5 mm SMT Bluetooth Module



26.9 x 13.0 x 2.5 mm SMT

**ABBTM-2.4GHz-T**

FCC ID# A8RABBTM2-4G

Compliant to MSL level 3



**RoHS**  
Compliant

## FEATURES:

- Bluetooth Spec v2.0+EDR Compliant
- Class 2, up to 10-meter range
- Complete 2.4GHz Bluetooth® System
- Power management: low power 1.8V operation for Bluetooth® core
- Compact size: 26.9mm (L) x 13 (W) mm x 2.5mm (H)
- Bluetooth® Profile Supported: SPP, OPP, PBAP
- Internal antenna
- On-board flash memory (8Mbits)
- Surface mount module for embedded applications
- Several firmware options
- Rewritable flash memory for easy upgrade route
- Custom firmware production available

## APPLICATIONS:

- Hand-held devices
- Printers
- Personal Navigation Devices
- PDAs and other portable terminals

## GENERAL DESCRIPTION

Abracon's ABBTM is a complete Bluetooth® solution. It is built on CSR BC04-External Core and 8Mbit Flash memory. It's a short range, compact and cost effective module. Designed to be embedded into electronic devices needing Bluetooth® connectivity. The ABBTM module is a power class2 Bluetooth® device, and is in compliance with version 2.0+EDR of the Bluetooth® specification. It includes CSR BC04-External Core and 8Mbit Flash memory, internal antenna, supporting circuitry, together with higher-level software protocols and applications such as L2CAP, SDP, GAP, OPP and PBAP are resident in the flash memory.

Operating Frequency Band	2.4GHz ~ 2.48GHz Unlicensed ISM Band
Bluetooth Specification	V2.0 + EDR
Output Power Class	Class 2
Operating Voltage	+3.3V
Host Interface	UART
Audio Interface	PCM Interface
Flash Memory Size	8 Mb

## ELECTRICAL SPECIFICATIONS:

Absolute Maximum Ratings		
	Minimum	Maximum
Storage temperature	-40°C	+150°C
Supply voltage: VBAT	-0.4V	5.6V
Other terminal voltages	VSS-0.4V	VDD+0.4V

Recommended Operating Conditions		
	Minimum	Maximum
Operating temperature range	-40°C	+85°C
Guaranteed RF performance range	-40°C	+85°C
Supply voltage: VBAT	2.2V	4.2V

# 26.9 x 13.0 x 2.5 mm SMT Bluetooth Module



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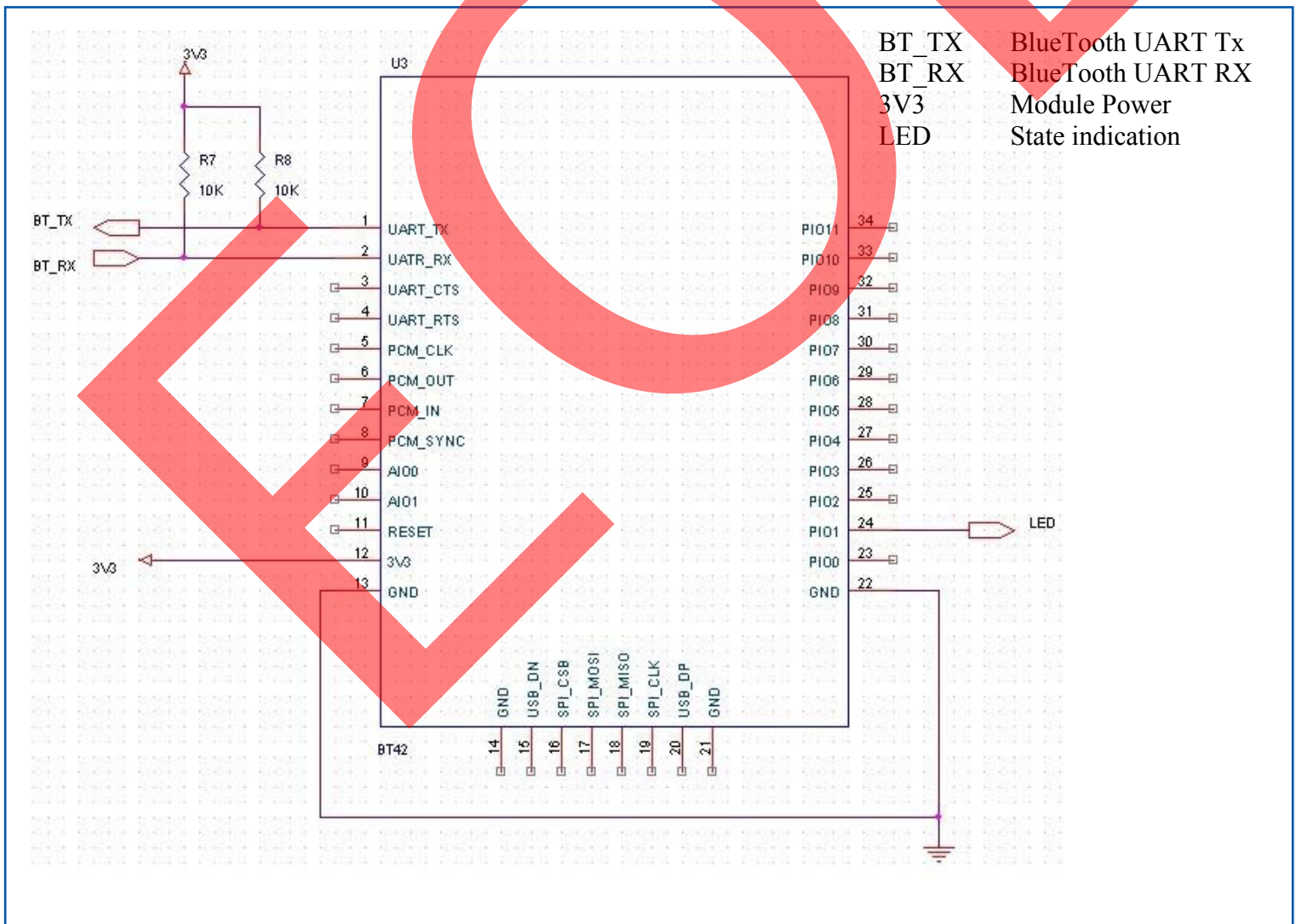
26.9 x 13.0 x 2.5 mm SMT

## POWER CONSUMPTION

Operation Mode	Connection Type	UART Rate (kbps)	Average	Unit
Page scan	-	115.2	0.42	mA
ACL No traffic	Master	115.2	4.60	mA
ACL With file transfer	Master	115.2	10.3	mA
ACL 1.28s sniff	Master	38.4	0.37	mA
ACL 1.28s sniff	Slave	38.4	0.42	mA
SCO HV3 30ms sniff	Master	38.4	19.8	mA
SCO HV3 30ms sniff	Slave	38.4	19.0	mA
Standby Host connection	-	38.4	40	μA

**Note:** Low power mode on the linear regulator is entered and exited automatically when the chip enters/leaves Deep Sleep mode.

## REFERENCE CIRCUIT



# 26.9 x 13.0 x 2.5 mm SMT Bluetooth Module



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### Firmware Configuration

- a) UART Baud: 115200 , N, 8, 1
- b) BlueTooth Name: ABBTM
- c) Pin Code: 0000

### Software Description

1. After Power on 3V3, the module is connectable and Pairing
2. ABBTM-2.4GHz-T can be found with the name “ABBTM” via any Bluetooth device
3. Input the Pincode “0000”, you can pair with the module named “ABBTM”
4. Then the ABBTM can be connected
5. Data can be transferred between the ABBTM and any other Bluetooth device

### State Indicator

- a) Connectable and discoverable LED: 100mS High Level per 2S
- b) Connected LED: always on

## MECHANICAL DIMENSIONS

#### Recommended Land Pattern

No.	Pin Name	No.	Pin Name	No.	Pin Name
1	UART-TX	13	GND	25	PIO (2)
2	UART-RX	14	GND	26	PIO (3)
3	UART-CTS	15	NC	27	PIO (4)
4	UART-RTS	16	SPI-CSB	28	PIO (5)
5	PCM-CLK	17	SPI-MOSI	29	PIO (6)
6	PCM-OUT	18	SPI-MISO	30	PIO (7)
7	PCM-IN	19	SPI-CLK	31	PIO (8)
8	PCM-SYNC	20	NC	32	PIO (9)
9	AIO (0)	21	GND	33	PIO (10)
10	AIO (1)	22	GND	34	PIO (11)
11	RESET	23	PIO (0)		
12	+3.3V	24	PIO (1)		

Note: Specified dimensions without tolerance are listed for reference purposes only. Dimensions: mm.

# 26.9 x 13.0 x 2.5 mm SMT Bluetooth Module



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## PIN DESCRIPTION

Pin #	Name	Type	Function
1	UART-TX	CMOS Output	UART Data Output
2	UART-RX	CMOS Input	UART Data Input
3	UART-CTS	CMOS Input	UART Clear To Send Active Low
4	UART-RTS	CMOS Output	UART Request To Send Active Low
5	PCM-CLK	Bi-directional	Synchronous Data Clock
6	PCM-OUT	CMOS Output	Synchronous Data Output
7	PCM-IN	CMOS Input	Synchronous Data Input
8	PCM-SYNC	Bi-directional	Synchronous Data Sync
9	AIO(0)	Bi-directional	Programmable Input/Output Line
10	AIO(1)	Bi-directional	Programmable Input/Output Line
11	RESETB	CMOS Input	Reset if low. Input debounced so must be low for >5ms to cause a reset
12	3.3V	POWER	+3.3V Supply
13	GND	GND	Ground
14	GND	GND	Ground
15	NC	NC	
16	SPI-CSB	CMOS Input	Chip Select For Synchronous Serial Interface
17	SPI-MOSI	CMOS Input	Serial Peripheral Interface Data Input
18	SPI-MISO	CMOS Output	Serial Peripheral Interface Data Output
19	SPI-CLK	CMOS Input	Serial Peripheral Interface Clock
20	NC	NC	
21	GND	GND	Ground
22	GND	GND	Ground
23	PIO(0)	Bi-directional with programmable strength	Control output for external LNA (if fitted)
24	PIO(1)	Bi-directional with programmable strength	Control output for external PA (if fitted)
25	PIO(2)	Bi-directional	Programmable Input/Output Line
26	PIO(3)	Bi-directional	Programmable Input/Output Line
27	PIO(4)	Bi-directional with programmable strength	Programmable Input/Output Line or optional BT_Priority/CH_Clk output for co-
28	PIO(5)	Bi-directional with programmable strength	Programmable Input/Output Line or optional BT_Active output for co-existence
29	PIO(6)	Bi-directional with programmable strength	Programmable Input/Output Line or optional WLAN_Active/Ch_Data input for co-
30	PIO(7)	Bi-directional	Programmable Input/Output Line
31	PIO(8)	Bi-directional	Programmable Input/Output Line
32	PIO(9)	Bi-directional	Programmable Input/Output Line
33	PIO(10)	Bi-directional	Programmable Input/Output Line
34	PIO(11)	Bi-directional	Programmable Input/Output Line

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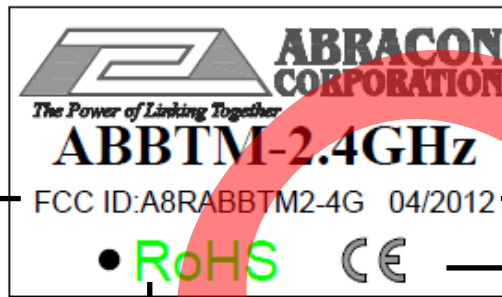
**RoHS**  
Compliant

## PART IDENTIFICATION:

**ABBTM-2.4GHz -** ■ ■

Tape & Reel Options	
T	500 units per reel
T2	250 units per reel

## MARKING



Line #1: Abracon Logo

Line #2: Abracon Part #

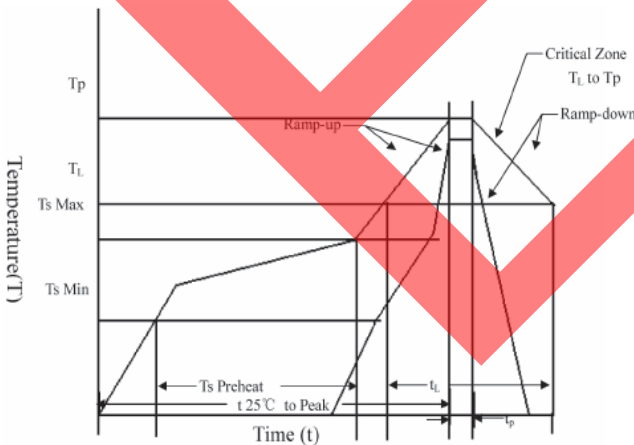
Line #3: Date Code  
(wk / year)

Line #4: RoHS

Line #4: CE Certification Symbols

Line #3: FCC ID

## REFLOW PROFILE



$T_S$ max to $T_L$ (Ramp-up Rate)	3°C/second max.
Preheat	
Temperature Min. ( $T_S$ Min.)	150°C
Temperature Typical ( $T_S$ Typ.)	175°C
Temperature Max. ( $T_S$ Max.)	200°C
Time ( $t_s$ )	60 ~ 180 seconds
Ramp-up rate ( $T_L$ to $T_p$ )	3°C/second max.
Time Maintained Above:	
--Temperature ( $T_L$ )/Time ( $T_L$ )	217°C/60 ~ 150 seconds
Peak Temperature ( $T_p$ )	250°C max. for 10 seconds
Target Peak Temperature ( $T_p$ Target)	250°C +0/-5°C
Time within 5°C of actual peak ( $t_p$ )	20 ~ 40 seconds
Ramp-down Rate	6°C/second max.
Tune 25°C to Peak Temperature (t)	8 minutes max.

ABRACON IS  
ISO 9001:2008  
CERTIFIED



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Revised: 01.14.15

# 26.9 x 13.0 x 2.5 mm SMT Bluetooth Module



26.9 x 13.0 x 2.5 mm SMT

ABBTM-2.4GHz-T

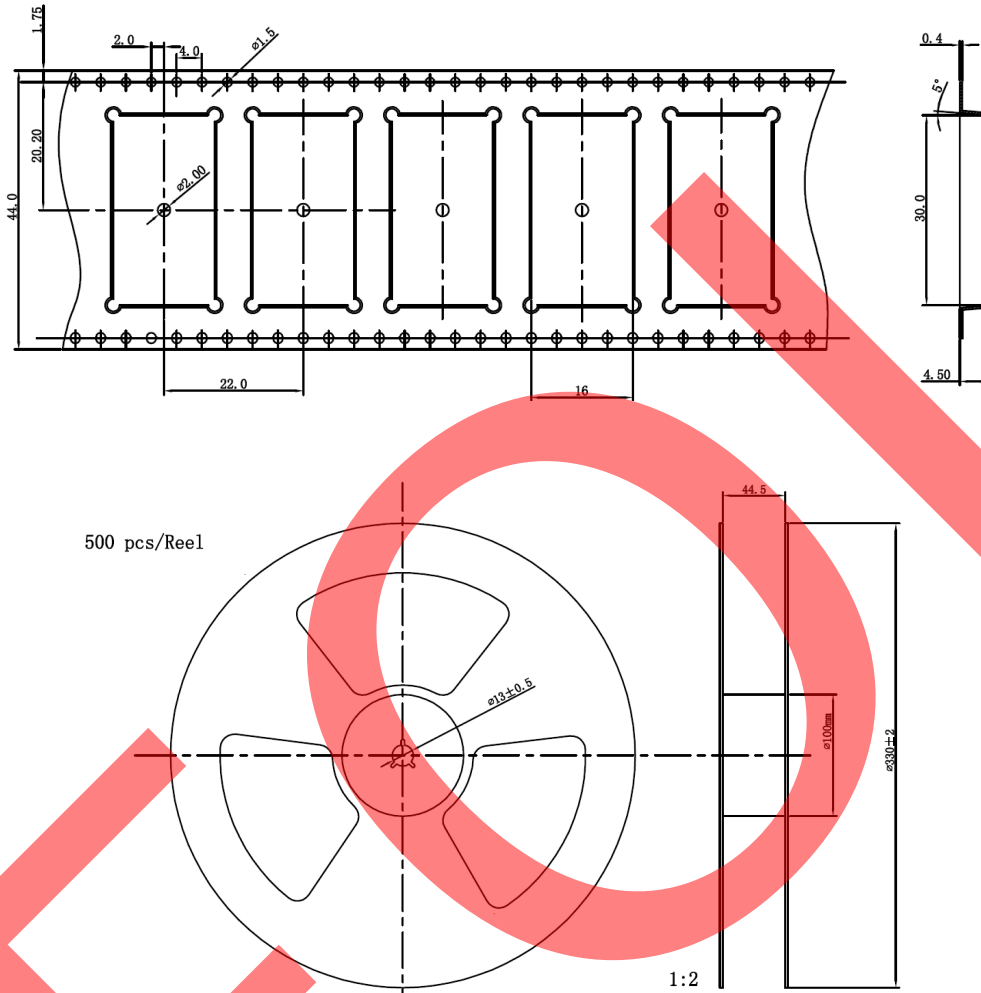
FCC ID# A8RABBTM2-4G



RoHS  
Compliant

## PACKAGING:

(500) units per reel standard, (250) units per reel available (option # T2)



- a) Unless otherwise specified, the tolerance is  $\pm 0.1\text{mm}$
- b) The carrier tape material thickness is  $0.4\text{mm}$
- c) Unless otherwise specified, the round corner is  $R0.3$ ; the peeling angle is no greater than  $5^\circ$
- d) The finished products has no rough edges and no damage; cover tape should be sealed
- e) Material is ROHS compliant

### Packaging:

ABBTM-2.4GHz-T and ABBTM-2.4GHz-T2 devices will be packaged per MSL level-3 requirements; Labeled as MSL 3, Tape-Packed + Vacuum-Packed with Antistatic bag, Desiccant, Humidity Indicator Card (HIC). Ref: IPC/JEDEC J-STD-033B.1

**ATTENTION:** Abracon Corporation's products are COTS – Commercial-Off-The-Shelf products; suitable for Commercial, Industrial and, where designated, Automotive Applications. Abracon's products are not specifically designed for Military, Aviation, Aerospace, Life-dependant Medical applications or any application requiring high reliability where component failure could result in loss of life and/or property. For applications requiring high reliability and/or presenting an extreme operating environment, written consent and authorization from Abracon Corporation is required. Please contact Abracon Corporation for more information.

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