

Type 1ZM Wi-Fi® + Bluetooth® Module

NXP 88W8987 Chipset for 802.11a/b/g/n/ac + Bluetooth 5.1
Datasheet - Rev. O

- Design Name: Type 1ZM
- P/N: LBEE5QD1ZM-572

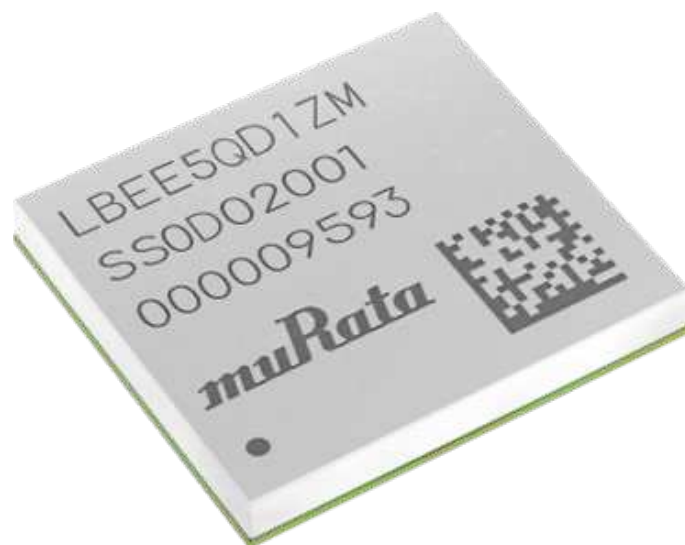




Table of Contents

1 Scope	8
2 Key Features	8
3 Ordering Information	8
4 Block Diagram	9
5 Certification Information	10
5.1 Radio Certification	10
5.2 Bluetooth Qualification	10
6 Dimensions, Marking and Terminal Configurations	11
7 Module Pin Descriptions	13
7.1 Pin Assignments	13
7.2 Pin Descriptions	14
7.3 Configuration Pins	17
7.4 Pin States	17
7.5 SDIO Pin Descriptions	19
8 Absolute Maximum Ratings	19
9 Operating Conditions	20
9.1 Operating Conditions	20
9.2 External Sleep Clock Requirements	20
9.3 Digital I/O Requirements	21
9.4 Package Thermal Conditions	21
10 Power Sequence	21
10.1 Power-On Sequence	21
10.2 Power-Off Sequence	22
11 Interface Timing	23
11.1 SDIO Timing	23
11.1.1 Default Speed Mode	23
11.1.2 High Speed Mode	23
11.1.3 SDR12, SDR25, SDR50 Modes (up to 100 MHz)	24
11.1.4 SDR104 Mode (208 MHz)	25
11.1.5 DDR50 Mode (50 MHz)	26
11.2 High Speed UART Specifications	27
11.3 Bluetooth PCM Timing	27
11.3.1 Master Mode	28
11.3.2 Slave Mode	29
12 DC/RF Characteristics	30



12.1 DC/RF Characteristics for IEEE 802.11b - 2.4 GHz.....	30
12.1.1 High-Rate Condition for IEEE 802.11b - 2.4 GHz	31
12.1.2 Low-Rate Condition for IEEE 802.11b - 2.4 GHz	32
12.2 DC/RF Characteristics for IEEE 802.11g - 2.4 GHz.....	33
12.2.1 High-Rate Condition for IEEE 802.11g - 2.4 GHz	33
12.2.2 Low-Rate Condition for IEEE 802.11g - 2.4 GHz	34
12.3 DC/RF Characteristics for IEEE 802.11n - 2.4 GHz.....	35
12.3.1 High-Rate Condition for IEEE 802.11n - 2.4 GHz	35
12.3.2 Low-Rate Condition for IEEE 802.11n - 2.4 GHz	36
12.4 DC/RF Characteristics for IEEE 802.11a - 5 GHz.....	37
12.4.1 High-Rate Condition for IEEE 802.11a - 5 GHz	37
12.4.2 Low-Rate Condition for IEEE 802.11a - 5 GHz	38
12.5 DC/RF Characteristics for IEEE 802.11n (HT20) - 5 GHz.....	39
12.5.1 High-Rate Condition for IEEE 802.11n (HT20) - 5 GHz	39
12.5.2 Low-Rate Condition for IEEE 802.11n (HT20) - 5 GHz	40
12.6 DC/RF Characteristics for IEEE 802.11ac (HT20) - 5 GHz.....	41
12.6.1 High-Rate Condition for IEEE 802.11ac (VHT20) - 5 GHz	42
12.6.2 Low-Rate Condition for IEEE 802.11ac (VHT20) - 5 GHz	43
12.7 DC/RF Characteristics for IEEE 802.11n (HT40) - 5 GHz.....	44
12.7.1 High-Rate Condition for IEEE 802.11n (HT40) - 5 GHz	44
12.7.2 Low-Rate Condition for IEEE 802.11n (HT40) - 5 GHz	45
12.8 DC/RF Characteristics for IEEE 802.11ac (VHT40) - 5 GHz	46
12.8.1 High-Rate Condition for IEEE 802.11ac (VHT40) - 5 GHz	46
12.8.2 Low-Rate Condition for IEEE 802.11ac (VHT40) - 5 GHz	47
12.9 DC/RF Characteristics for IEEE 802.11ac (VHT80) - 5 GHz	48
12.9.1 High-Rate Condition for IEEE 802.11ac (VHT80) - 5 GHz	49
12.9.2 Low-Rate Condition for IEEE 802.11ac (VHT80) - 5 GHz	50
12.10 DC/RF Characteristics for Bluetooth.....	51
12.10.1 Basic Data Rate Condition.....	51
12.10.2 Enhanced Data Rate Condition	52
12.11 DC/RF Characteristics for Bluetooth Low Energy	53
12.11.1 1 Mbps PHY Condition	53
12.11.2 2 Mbps PHY Condition	54
13 Land Patterns	56
14 General for Radio Regulatory Certification for LBEE5QD1ZM	57
14.1 Application model part number.....	57
14.2 Label.....	57

14.3 Package Label	58
14.4 Country of Origin	59
15 Radio Regulatory Certification by Country for LBEE5QD1ZM	59
15.1 Japan	59
15.1.1 Power Levels for Japan	60
15.1.2 Antenna List	62
15.1.3 About Notations	62
15.2 FCC	63
15.2.1 Supply Voltage	63
15.2.2 Power Level for FCC	63
15.2.3 Theory of Operation for FCC	65
15.2.4 Information to Display in User Manual of Host Device	66
15.2.5 Compliance with FCC requirement 15.407(c)	66
15.2.6 Equipment Installation for FCC	67
15.3 ISED	68
15.3.1 Information to Display in Host Device and User Manual	68
15.3.2 Antenna Installation in End Product	69
15.3.3 Equipment Installation for ISED	69
15.3.4 Power Level for ISED	71
15.3.5 Theory of Operation for ISED	73
15.4 Europe	74
15.4.1 Power Level for Europe	74
15.4.2 Theory of Operation for Europe	76
16 Tape and Reel Packing	77
16.1 Dimensions of Tape (Plastic Tape)	77
16.2 Dimensions of Reel	78
16.3 Taping Diagrams	79
16.4 Leader and Tail Tape	80
16.5 Packaging (Humidity Proof Packing)	81
17 Notice	82
17.1 Storage Conditions	82
17.2 Handling Conditions	82
17.3 Standard PCB Design (Land Pattern and Dimensions)	82
17.4 Notice for Chip Placer	83
17.5 Soldering Conditions	83
17.6 Cleaning	83
17.7 Operational Environment Conditions	84

18 Preconditions to Use Our Products	85
Revision History	87

Figures

Figure 1: Block Diagram	9
Figure 2: Dimensions, Marking and Terminal Configurations	11
Figure 3: Structure	12
Figure 4: Pin Assignments - Top View	13
Figure 5: SDIO Pins	19
Figure 6: Package Thermal Conditions	21
Figure 7: Power-On Sequence Graph	22
Figure 8: Power-Off Sequence Graph	22
Figure 9: SDIO Protocol Timing Diagram - Default Speed Mode	23
Figure 10: SDIO Protocol Timing Diagram - High Speed Mode	23
Figure 11: SDIO Protocol Timing Diagram - SDR12, SDR25, SDR50 Mode	24
Figure 12: SDIO Protocol Timing Diagram - SDR104 Mode	25
Figure 13: SDIO CMD Timing Diagram - DDR50 Mode	26
Figure 14: SDIO DATA Timing Diagram - DDR50 Mode	26
Figure 15: High Speed UART Timing Diagram	27
Figure 16: Bluetooth Data Signal - Master Mode	28
Figure 17: Bluetooth PCM_SYNC signal - Master Mode	28
Figure 18: Bluetooth Data Signal - Slave Mode	29
Figure 19: Bluetooth PCM_SYNC signal - Slave Mode	29
Figure 20: Burst Current Definition	30
Figure 21: Land Patterns	56
Figure 22: Radio Regulatory Certification Label	57
Figure 23: Package (Humidity Proof Packing)	58
Figure 24: Package Label Display Example	58
Figure 25: Dimensions of Tape (Unit: mm)	77
Figure 26: Dimension of Reel (Unit: mm)	78
Figure 27: Taping Diagrams	79
Figure 28: Leader and Tail Tape	80
Figure 29: Peeling Off Force	80
Figure 30: Humidity Proof Packaging	81
Figure 31: Reflow soldering standard conditions (Example)	83

Tables

Table 1: Document Conventions	7
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Table 2: Ordering Information	8
Table 3: Transmit Power Limit Files	10
Table 4: Markings	11
Table 5: Dimensions	12
Table 6: Terminal Configurations	13
Table 7: Pin Descriptions	14
Table 8: Configuration Pins	17
Table 9: I/O State Table	17
Table 10: SDIO Pin Descriptions	19
Table 11: Absolute Maximum Ratings	19
Table 12: Operating Conditions	20
Table 13: External Sleep Clock Requirements	20
Table 14: Digital I/O Requirements	21
Table 15: Power-On Sequence Parameters	22
Table 16: Power-Off Sequence Parameters	22
Table 17: SDIO Protocol Timing Parameters - Default Speed, High-Speed Modes	24
Table 18: SDIO Protocol Timing Parameters - SDR12, SDR25, SDR50 Modes	24
Table 19: SDIO Protocol Timing Parameters - SDR104 Mode	25
Table 20: SDIO Protocol Timing Parameters - DDR50 Mode	26
Table 21: High Speed UART Timing Parameters	27
Table 22: Symbol Definition for Data Signal & PCM_SYNC Signal - Master Mode	28
Table 23: Symbol Definition for Data Signal & PCM_SYNC Signal - Slave Mode	29
Table 24: DC/RF Characteristics and Files	30
Table 25: Characteristics Values for IEEE 802.11b - 2.4 GHz	30
Table 26: High-Rate Condition for IEEE 802.11b - 2.4 GHz	31
Table 27: Low-Rate Condition for IEEE 802.11b - 2.4 GHz	32
Table 28: Characteristics values for IEEE 802.11g - 2.4 GHz	33
Table 29: High-Rate Condition for IEEE 802.11g - 2.4 GHz	33
Table 30: Low-Rate Condition for IEEE 802.11g - 2.4 GHz	34
Table 31: Characteristics values for IEEE 802.11n - 2.4 GHz	35
Table 32: High-Rate Condition for IEEE 802.11n - 2.4 GHz	35
Table 33: Low-Rate Condition for IEEE 802.11n - 2.4 GHz	36
Table 34: Characteristics Values for IEEE 802.11a - 5 GHz	37
Table 35: High-Rate Condition for IEEE 802.11a - 5 GHz	37
Table 36: Low-Rate Condition for IEEE 802.11a - 5 GHz	38
Table 37: Characteristics Values for IEEE 802.11n (HT20) - 5 GHz	39
Table 38: High-Rate Condition for IEEE 802.11n (HT20) - 5 GHz	39
Table 39: Low-Rate Condition for IEEE 802.11n (HT20) - 5 GHz	40
Table 40: Characteristics Values for IEEE 802.11ac (HT20) - 5 GHz	41
Table 41: High-Rate Condition for IEEE 802.11ac (VHT20) - 5 GHz	42

Table 42: Low-Rate Condition for IEEE 802.11ac (VHT20) - 5 GHz.....	43
Table 43: Characteristics Values for IEEE 802.11n (HT40) - 5 GHz.....	44
Table 44: High-Rate Condition for IEEE 802.11n (HT40) - 5 GHz.....	44
Table 45: Low-Rate Condition for IEEE 802.11n (HT40) - 5 GHz.....	45
Table 46: Characteristics Values for IEEE 802.11ac (VHT40) - 5 GHz	46
Table 47: High-Rate Condition for IEEE 802.11ac (VHT40) - 5 GHz.....	46
Table 48: Low-Rate Condition for IEEE 802.11ac (VHT40) - 5 GHz.....	47
Table 49: Characteristics Values for IEEE 802.11ac (VHT80) - 5 GHz	48
Table 50: High-Rate Condition for IEEE 802.11ac (VHT80) - 5 GHz.....	49
Table 51: Low-Rate Condition for IEEE 802.11ac (VHT80) - 5 GHz.....	50
Table 52: Characteristics Values for Bluetooth	51
Table 53: Basic Data Rate Condition	51
Table 54: Enhanced Data Rate Condition	52
Table 55: DC/RF Characteristics for Bluetooth Low Energy	53
Table 56: 1 Mbps PHY Condition	53
Table 57: 2 Mbps PHY Condition	54
Table 58: Japan Power Level 2.4 GHz WLAN Per Antenna Port	60
Table 59: Japan Power Level 2.4 GHz BT/BLE Per Antenna Port	60
Table 60: Japan Power Level 5 GHz WLAN Per Antenna Port (W52).....	60
Table 61: Japan Power Level 5 GHz WLAN Per Antenna Port (W53).....	61
Table 62: Japan Power Level 5 GHz WLAN Per Antenna Port (W56).....	61
Table 63: Antenna Registered Under the Japan Radio Act	62
Table 64: Supply Voltage Values	63
Table 65: FCC Power Level 2.4 GHz WLAN Per Antenna Port.....	63
Table 66: FCC Power Level 2.4 GHz BT/BLE Per Antenna Port.....	64
Table 67: FCC Power Level 5 GHz WLAN Per Antenna Port.....	64
Table 68: FCC Theory of Operation for WLAN.....	65
Table 69: ISSED Power Level 2.4 GHz WLAN Per Antenna Port.....	71
Table 70: ISSED Power Level 2.4 GHz BT/BLE Per Antenna Port.....	71
Table 71: ISSED Power Level 5 GHz WLAN Per Antenna Port.....	71
Table 72: ISSED Theory Operation for WLAN.....	73
Table 73: Europe Power Level 2.4 GHz WLAN Per Antenna Port.....	74
Table 74: Europe Power Level 2.4 GHz BT/BLE Per Antenna Port.....	75
Table 75: Europe Power Level 5 GHz WLAN Per Antenna Port.....	75
Table 76: Europe Theory of Operation for WLAN.....	76
Table 76: Taping Specifications	79

About This Guide

Murata's Type 1ZM is a small and high-performance module based on NXP's 88W8987 combo chipset, supporting IEEE 802.11a/b/g/n/ac + Bluetooth 5.1 BR/EDR/LE. This datasheet describes Type 1ZM module in detail.



Please be aware that an important notice concerning availability, standard warranty and use in critical applications of Murata products and disclaimers thereto appears at the end of this specification sheet.

Audience & Purpose

Intended audience includes any customer looking to integrate this module into their product. In particular, RF, hardware, software, and systems engineers.

Document Conventions

Table 1 describes the document conventions.

Table 1: Document Conventions

Conventions	Description
	Warning Note Indicates very important note. Users are strongly recommended to review.
	Info Note Intended for informational purposes. Users should review.
	Menu Reference Indicates menu navigation instructions. Example: Insert→Tables→Quick Tables→Save Selection to Gallery 
	External Hyperlink This symbol indicates a hyperlink to an external document or website. Example: Embedded Artists AB  Click on the text to open the external link.
	Internal Hyperlink This symbol indicates a hyperlink within the document. Example: Scope  Click on the text to open the link.
<code>Console input/output or code snippet</code>	Console I/O or Code Snippet This text Style denotes console input/output or a code snippet.
<code># Console I/O comment // Code snippet comment</code>	Console I/O or Code Snippet Comment This text Style denotes a console input/output or code snippet comment. - Console I/O comment (preceded by "#") is for informational purposes only and does not denote actual console input/output. - Code Snippet comment (preceded by "//") may exist in the original code.



1 Scope

This specification is applied to the IEEE 802.11a/b/g/n/ac + Bluetooth 5.1 BR/EDR/LE combo module.

2 Key Features

- NXP 88W8987 inside
- Supports IEEE 802.11a/b/g/n/ac specification: Dual band 2.4 GHz and 5 GHz
- SISO with 20 MHz, 40 MHz, and 80 MHz channels
- Up to MCS9 data rates (433 Mbps)
- Supports Bluetooth specification version 5.1
- For supported Bluetooth functions, refer to [Bluetooth SIG site](#)
- WLAN interface: SDIO 3.0
- Bluetooth interface: HCI UART, and PCM
- Temperature Range: - 30 °C to 85 °C
- Dimensions: 10.2 x 9.3 x 1.3 mm
- Weight: 318 mg
- MSL: 3
- Surface-mount type
- RoHS compliant

3 Ordering Information

Table 2: Ordering Information

Ordering Part Number	Description
LBEE5QD1ZM-572	Module order
LBEE5QD1ZM-SMP	Sample module order (If module samples are not available through distribution, contact Murata referencing this part number)
EAR00364	Embedded Artists Type 1ZM M.2 EVB (default EVB available through distribution)
LBEE5QD1ZM-EVB	Murata Type 1ZM M.2 EVB (contact Murata as this is special order item)

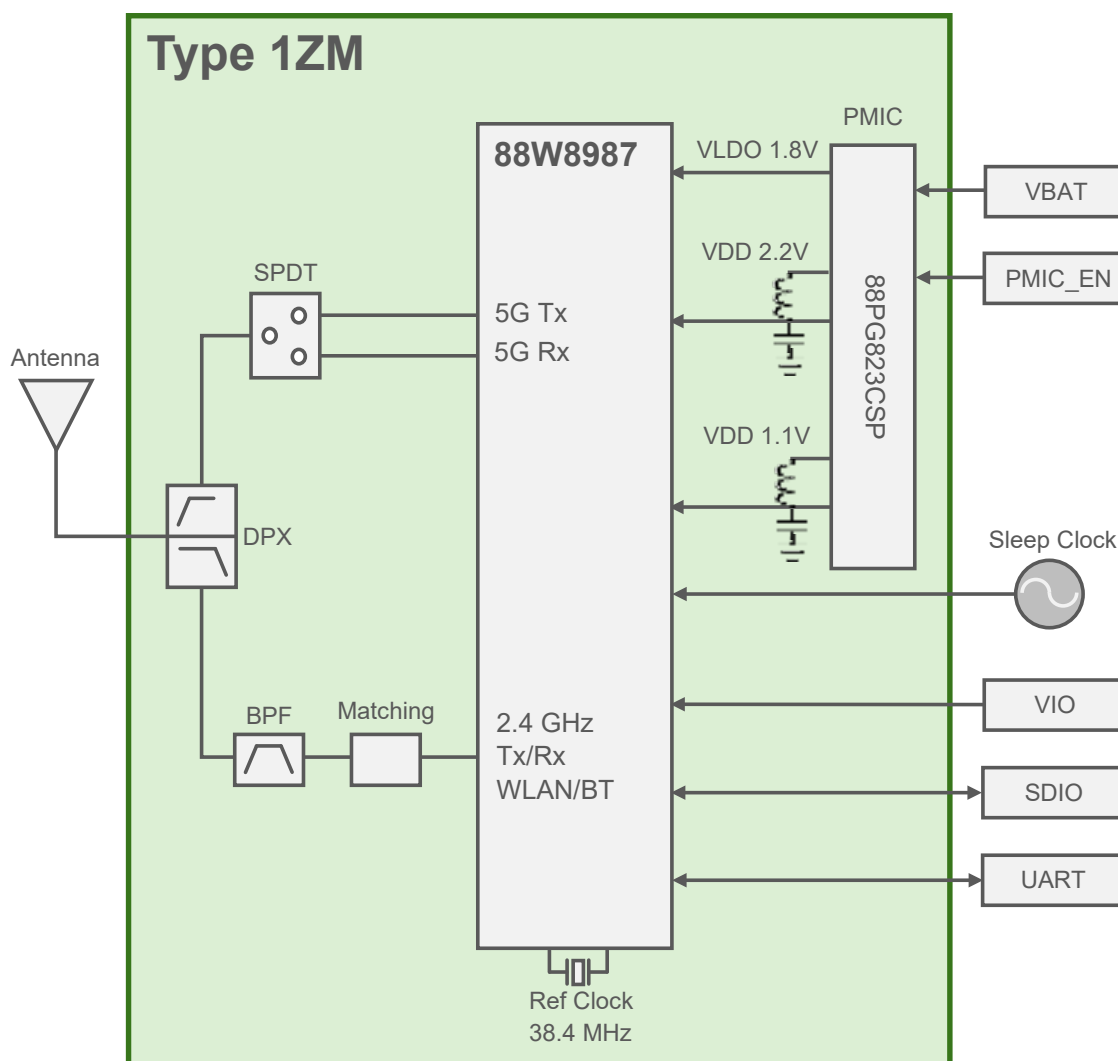


“Type 1ZM” is design name of this module. Design name may be used in certification test report.

4 Block Diagram

Figure 1 shows the block diagram of Type 1ZM module.

Figure 1: Block Diagram





5 Certification Information

This section has information about radio and Bluetooth certification.

5.1 Radio Certification

Transmit output power setting is defined by “txpower_XX.bin” The transmit power files are hosted at Murata GitHub for [Linux](#) and [FreeRTOS](#). **Table 3** shows the transmit power file required for each region.

Table 3: Transmit Power Limit Files

Country	ID	Country Code	Tx Power Limit File	
			Linux	FreeRTOS
USA (FCC)	2BG7RAMP1	US	txpower_US.bin	wlan_txpwrlimit_cfg_murata_1ZM_US.h
Canada (IC)	772C-LB1ZM	CA	txpower_CA.bin	wlan_txpwrlimit_cfg_murata_1ZM_CA.h
Europe	EN300328/301893, EN300440 conducted test report is prepared.	DE	txpower_EU.bin	wlan_txpwrlimit_cfg_murata_1ZM_EU.h
Japan	Japanese type certification is prepared. 001-P01598	JP	txpower_JP.bin	wlan_txpwrlimit_cfg_murata_1ZM_JP.h



Each country code is defined by Murata's db.txt file. Please ask your contact person from Murata.

5.2 Bluetooth Qualification

- QDID: 142383
- Set Bluetooth Tx Power to Class 1 by using [bt_power_config_1.sh](#).
- For supported Bluetooth functions, refer to [Bluetooth SIG site](#).