

USER'S MANUAL - Module PN 576253

Description

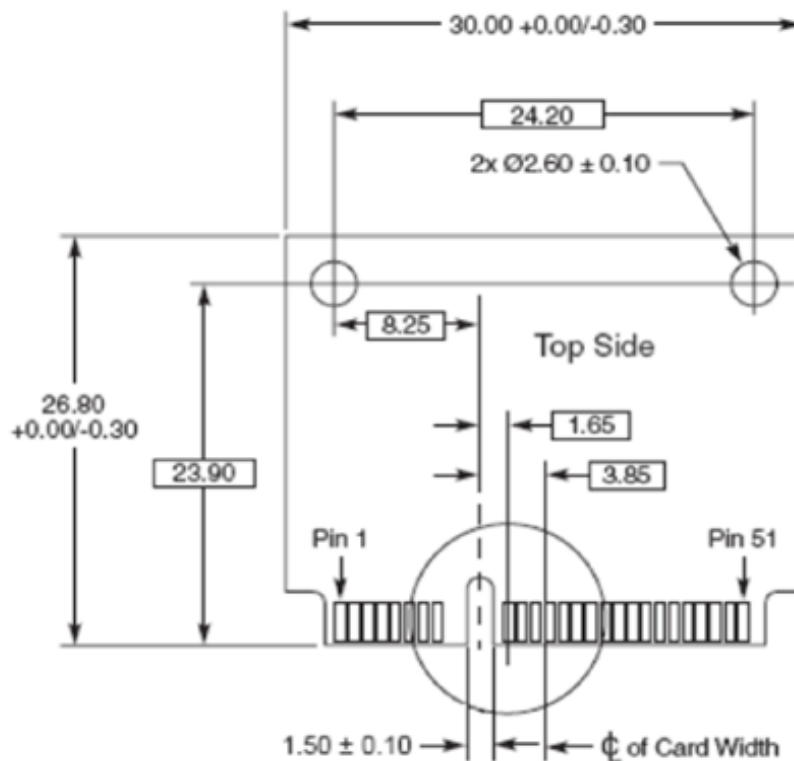
The product is a WiFi and BlueTooth Module that requires an external antenna through a U.FL connector.

Features include:

- Murata WiFi/BT combo module LBEH5HMZPC on the board with the Broadcom BCM4339 utilized inside the Murata part.
- Compliant with IEEE802.11a/b/g/n/ac.
- Compliant with BlueTooth specification v4.1.
- WLAN supported through standard SDIO v3.0 host interface.
- BT is supported through Host Controller Interface (HCI).
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Mechanical Dimension

Module has dimensions of a PCIe mini card, with 1mm nominal thickness. See below for dimensions.



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Pinout Table

Please note: For more information on interface signals and timing, see the Murata specification sheet LBEH5HMZPC.

Pin Number	Signal Name	I/O	Description
1	DI_PCM_SYNC	I/O	BT PCM SYNC, can be master or slave
2	N/C	--	--
3	DI_PCM_RX	IN	BT PCM data input
4	GND	--	--
5	DI_PCM_CLK	I/O	BT PCM Clock, can be master or slave
6	N/C	--	--
7	DO_PCM_TX	I/O	BT PCM data output
8	DI_UART_4MBPS_CTS	IN	BT UART clear to send signal. Active-low.
9	GND	--	--
10	DO_UART_4MBPS_RTS	OUT	BT UART request to send signal. Active-low.
11	N/C	--	--
12	DI_UART_4MBPS_RX	IN	BT UART serial data input.
13	N/C	--	--
14	DO_UART_4MBPS_TX	OUT	BT UART serial data output.
15	GND	--	--
16	VBAT	IN	POWER VBAT (5.0V)
17	VIO	IN	I/O POWER SUPPLY (1.8V)
18	GND	--	--
19	N/C	--	--
20	VBAT	IN	POWER VBAT (5.0V)
21	GND	--	--
22	N/C	--	--
23	N/C	--	--
24	N/C	--	--
25	N/C	--	--
26	GND	--	--
27	GND	--	--
28	N/C	--	--
29	GND	--	--
30	DI_WL_REG_ON	IN	WLAN regulator on signal. Used to power up or power down the internal WLAN regulators. When deasserted, the WLAN section is held in reset.
31	N/C	--	--
32	DI_BT_REG_ON	IN	BT regulator on signal. Used to power up or power down the internal BT regulators. When deasserted, the BT section is held in reset.
33	N/C	--	--
34	GND	--	--
35	GND	--	--
36	N/C	--	--

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37	DIO_SD_CMD	I/O	WLAN SDIO Command Line
38	N/C	--	--
39	DI_SD_CLK	IN	WLAN SDIO Clock Input
40	GND	--	--
41	DIO_SD_DATA0	I/O	WLAN SDIO Data Line 0
42	DO_WL_HOST_WAKE	I/O	WLAN host wake up output indicates that a host wake-up should be performed. Can also be programmed to be a WLAN GPIO.
43	DIO_SD_DATA1	I/O	WLAN SDIO Data Line 0
44	DO_BT_HOST_WAKE	I/O	HOST_WAKE of general purpose I/O signal.
45	DIO_SD_DATA2	I/O	WLAN SDIO Data Line 0
46	DI_BT_DEV_WAKE	I/O	DEV_WAKE of general purpose I/O signal.
47	DIO_SD_DATA3	I/O	WLAN SDIO Data Line 0
48	N/C	--	--
49	N/C	--	--
50	GND	--	--
51	N/C	--	--
52	N/C	--	--

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Specifications

- Standards
 - o 802.11a/b/g/n/ac
 - o Bluetooth 4.1LE/2.1+EDR (Class 1)
- Chipset
 - o Murata LBEH5HMZPC (Utilizing Broadcom BCM4339)
- Host Interface
 - o WLAN: SDIO v3.0
 - o BT: Host Controller Interface (HCI)
- Radio
 - o Antenna
 - Dual Band 2.4GHz/5.0GHz
 - Single U.FL connector
 - o Operating Frequency
 - WiFi b/g/n Band 2.400GHz – 2.4835GHz
 - WiFi a/n/ac Band 5.180GHz – 5.825GHz
 - Bluetooth: 2402MHz – 2480MHz
 - o Modulation
 - WiFi 802.11a OFDM
 - WiFi 802.11b DSSS/CCK
 - WiFi 802.11g OFDM
 - WiFi 802.11n OFDM
 - WiFi 802.11ac OFDM
 - Bluetooth Header: GFSK
 - Bluetooth Payload: 4-DQPSK
 - Bluetooth Payload: 8-DPSK
 - o Output Power
 - WiFi 802.11a 14 +/- 2 dBm
 - WiFi 802.11b 19 +/- 2 dBm
 - WiFi 802.11g 16 +/- 2 dBm
 - WiFi 802.11n 15 +/- 2 dBm
 - WiFi 802.11ac 12 +/- 2 dBm
 - Bluetooth 2.1: 11 +/-4 dBm
 - Bluetooth LE: 10 dBm
 - o Receive Sensitivity
 - WiFi 802.11a -65 dBm
 - WiFi 802.11b -76 dBm
 - WiFi 802.11g -65 dBm
 - WiFi 802.11n -64 dBm
 - WiFi 802.11ac -54 dBm
 - Bluetooth 2.1: -80 dBm

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- Bluetooth LE: -70 dBm
- Power Consumption
 - o Continuous TX 350mA
 - o Continuous RX 160mA
- Operating Voltage
 - o VBAT: 5.0VDC +/- 5%
 - o VIO: 1.8VDC +/- 5%
- Environmental
 - o Storage: -20C to 70C
 - o Operating: 0C to 60C

NOTE: For more detailed specifications, Consult the Murata part specification for p/n LBEH5HMZPC.

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

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme à Industrie Canada exempts de licence standard RSS (s) . Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence , y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

IMPORTANT! Changes or modifications not expressly approved by Bosch Automotive Service Solutions Inc could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CAN ICES-3 (A)/NMB-3(A)

This equipment complies with radiation exposure limits set forth for uncontrolled environment. The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter.

Cet équipement est conforme aux limites d'exposition aux rayonnements définies pour un environnement non contrôlé. L'antenne (s) utilisée pour ce transmetteur doit être installée pour fournir une distance de séparation d'au moins 20 cm de toute personne et ne doit pas être colocalisée ou fonctionner conjointement avec une autre antenne ou émetteur.

UNII Band Operation:

UNII devices that operate within 5.15-5.25 GHz are to be restricted to indoor operations to reduce any potential for harmful interference to co-channel MSS operations.