Bluetooth Module : MB8811C1

[top]

[bottom]

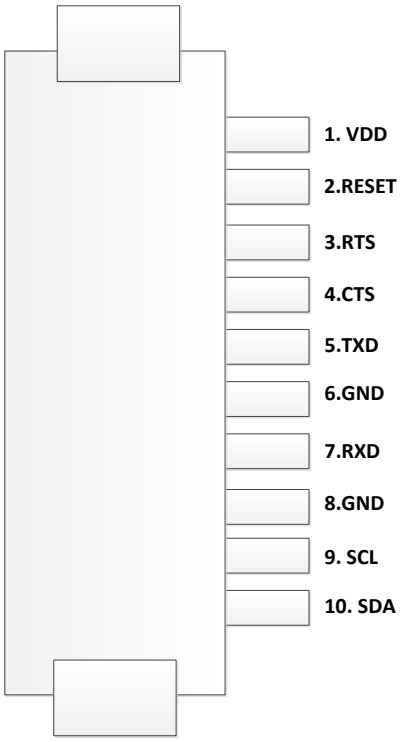
This MB8811C1 Module is compatible with Bluetooth specification version 4.0. MB8811C1 is a fully integrated RF, baseband controller etc.

SPECIFICATION

Main Chips	CSR8811
Standards	Bluetooth 4.0+BLE
Frequency Band	2402 ~ 2480 MHz
Tx Power	**7mW**
Rx Sensitivity	< -70dBm (BER 0.1%)
Distance	< 10m (open space)
Power Voltage	3.3V
Dimension	18.6 x 31.2 x 3.4 mm
Environmental Range	Operation temperature : -10 ~ +70℃
Modulation mode	GFSK, 8DPSK, ≤κ/4 DQPSK
Communication method	FHSS

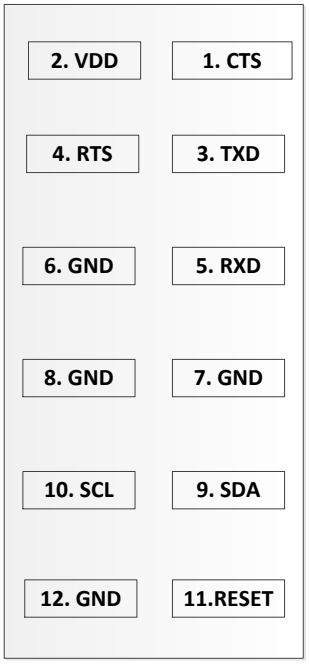
Pin define(TOP PIN MAP)

No	Pin Name	I/O	Description
1	CTS	I	Bluetooth UART Clear to Send.Active-low clear.
2	VDD	I	Positive Input for the internal regulator (3.0 ~ 3.6V)
3	TXD	O	Bluetooth UART Serial Output.
4	RTS	O	Bluetooth UART Request to Send. Active-low request.
5	RXD	I	Bluetooth UART Serial Input.
6,7,8,12	GND	-	Ground.
9	SDA	I/O	I2C interface DATA
10	SCL	O	I2C interface Clock
11	RESET	I	Reset if low. Input debounced so must be low for >5ms to cause a reset

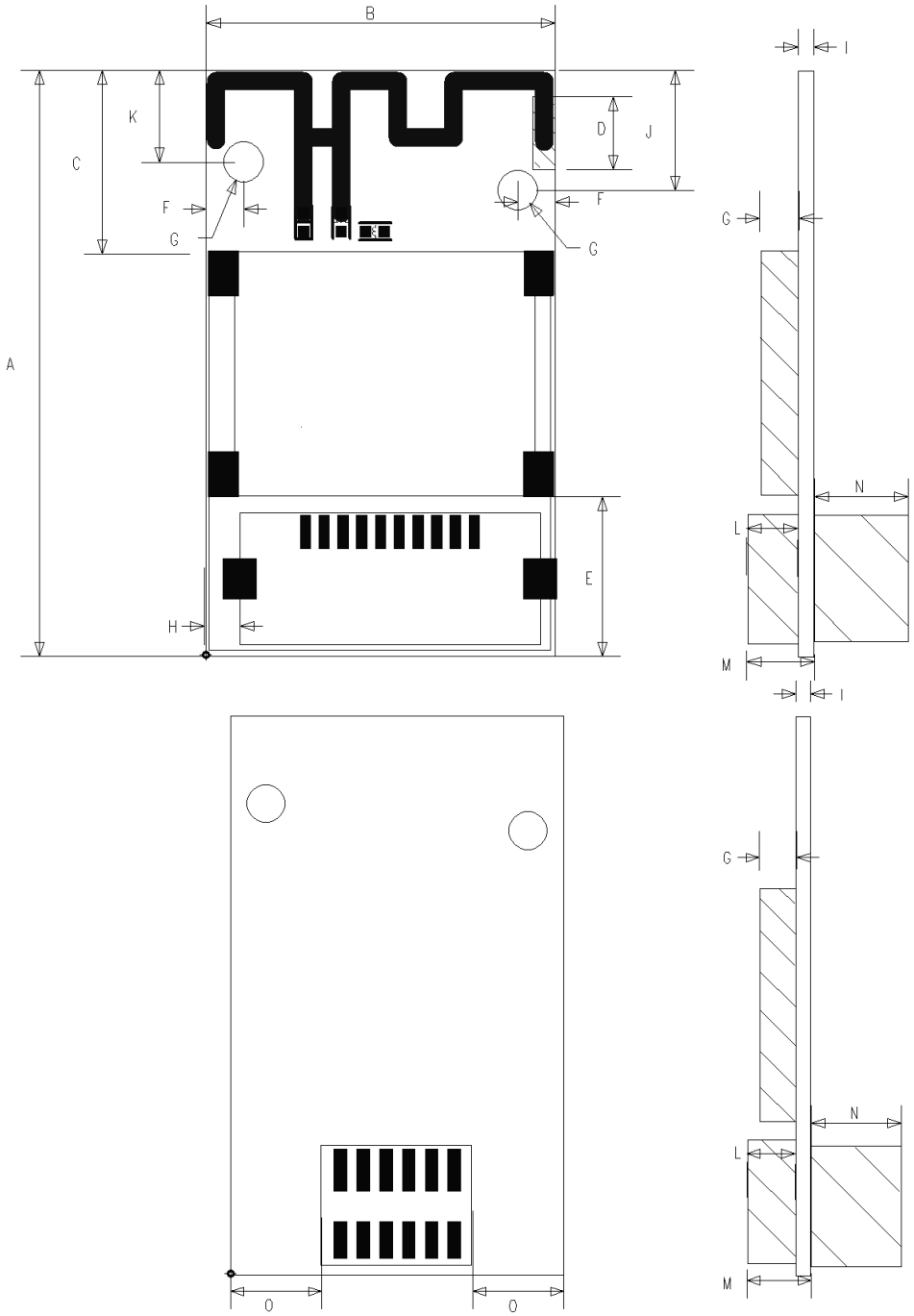


Pin define(BOTTOM PIN MAP)

No	Pin Name	I/O	Description
1	CTS	I	Bluetooth UART Clear to Send.Active-low clear.
2	VDD	I	Positive Input for the internal regulator (3.0 ~ 3.6V)
3	TXD	O	Bluetooth UART Serial Output.
4	RTS	O	Bluetooth UART Request to Send. Active-low request.
5	RXD	I	Bluetooth UART Serial Input.
6,7,8,12	GND	-	Ground.
9	SDA	I/O	I2C interface DATA
10	SCL	O	I2C interface Clock
11	RESET	I	Reset if low. Input debounced so must be low for >5ms to cause a reset



Dimension



Mark	Dimension	Mark	Dimension	Mark	Dimension	Mark	Dimension	Mark	Dimension
A	18.60±0.3	D	3.90±0.2	G	2.0±0.2	J	6.4±0.2	M	3.4±0.2
B	31.20±0.3	E	8.40±0.2	H	1.9±0.2	K	4.9±0.2	N	5.0±0.2
C	9.70±0.3	F	2.0±0.3	I	0.8±0.1	L	2.6±0.2	O	5.1±0.2

(Unit : mm)

Electrical Characteristics

Conditions : VDD = 3.3V, Ta = 25 ℃, unless otherwise noted.

Absolute Maximum Ratings

Parameter	Min	Max	Unit
Power Supply Voltage : VDD	-0.4V	3.6V	DCV
Storage Temperature	-40	85	℃

Recommended Operating Conditions

Parameter	Min	Max	Unit
Power Supply Voltage	3.0V	3.6V	DCV
Operation Temperature	-10	70	℃

Current consumption

Parameter	Connection Type	Avg	Peak	Unit
Page scan, Time interval = 1.28s	-	2		mA
Inquiry and Page scan, Time interval = 1.28s	-	2	3	mA
ACL No data transfer	Master	10		mA
ACL data transfer	Master	32		mA

Input/Output Characteristics

Parameter	Min	Max	Unit
V_{IL} Input Voltage Low	-0.4	0.8	V
V_{IH} Input Voltage High	0.7*VDD	VDD+0.4	V
V_{OL} Output Voltage Low	-	0.2	V
V_{OH} Output Voltage High	VDD-0.2	-	V

General Performance					
Parameter	**Condition**	**Min**	**Typ**	**Max**	**Unit**
Frequency Range	Normal	2402	-	2480	MHz

Transmitter Performance					
Parameter	**Condition**	**Min**	**Typ**	**Max**	**Unit**
Transmit Power	Normal	-6	0	8	dBm
Power density	Normal	-	-	20	dBm
20dB bandwidth	Normal			1000	KHz
Adjacent channel power (F_0 = 2441MHz)	$F=F_0 \pm 2MHz$	-	-	-20	dBm
	$F=F_0 \pm 3MHz$	-	-	-40	dBm
	$F=F_0 \pm 4MHz$	-	-	-40	dBm
Out-band Spurious Emission	30MHz ~ 1GHz	-	-	-36	dBm
	1GHz ~ 12.75GHz	-	-	-30	dBm
	1.8GHz ~ 1.9GHz	-	-	-47	dBm
	5.1GHz ~ 5.3GHz	-	-	-47	dBm
Modulation Characteristic	$\Delta F1_{avg}$	140	-	175	KHz
	$\Delta F2_{max}$	115	-	-	KHz
	$\Delta F2_{avg} / \Delta F1_{avg}$	80	-	-	%
Initial Carrier Frequency Tolerance	DH1 packet	-75	-	75	KHz
Carrier Frequency Drift	DH5 packet	-25		25	KHz

Receiver Performance					
Parameter	**Condition**	**Min**	**Type**	**Max**	**Unit**
Sensitivity at 0.1% BER	Single slot (DH1 packet)	-70	-	-	dBm
Sensitivity at 0.1% BER	Multi slot (DH5 packet)	-70	-	-	dBm
Maximum received signal at 0.1% BER		-20	-	-	dBm
Maximum level of intermodulation interferers	f1-f2 = 5 MHz, Pwanted= -64 dBm	-39	-	-	dBm

MB8811C1 Test Manual

1) RF Test Utility
2) First time, CSR Bluesuite program must be installed. you can use BTCli.exe and enter DUT(Device Under Test) mode. So RF equipment can inquiry and test. (reference document.)

   * reference document : MB8811C1_JIG_Bluetest3 setting manual.pdf

3) RF Test method
   RF Test tool is BlueTest.exe at CSR bluesuite program. You can see detail explanation from reference document.

   * reference document : BlueTest Instruction Manual.pdf

Conformity Assessment Display
Company name: MCSLogic
Model : MCS Bluetooth Smart Device Module (MB8811C1)
Manufacture Year : 2014. .
Manufacturer / Manufacture Country : MCSLogic / Korea

″Operation of the radio equipment may cause propagation interference, and so the life-saving services could not be″

STATEMENT and Warning

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

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

FCC RF Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

IC

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.
This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

French:

Cet appareil radio est conforme au CNR-210 d'Industrie Canada. L'utilisation de ce dispositif est autorisée seulement aux deux conditions suivantes : (1) il ne doit pas produire de brouillage, et (2) l'utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.
Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

LG Electronics

19-1, Cheongho-ri Jinwi-myeon, Pyeongtaek-si,Gyeonggi-do, 451-713, Korea

NCC

「依據低功率電波輻射性電機管理辦法
第十二條
經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。
第十四條
低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。
前項合法通信，指依電信法規定作業之無線電通信。
低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。」

任一平台若裝置本模組，其平台標籤須標示 “內建藍芽模組 NCC:XXXXXXXXXXX”

This device is intended only for OEM integrators under the following conditions:

- The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: “Contains FCC ID: BEJ9QK-DMMB8811C1”, “contains IC: 2703H-DMMB8811C1”. The grantee's FCC ID can be used only when all FCC/ IC compliance requirements are met.

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product which integrates this module.

CE

Hereby declares that this WiFi module is in compliance with the essential requirements and other relevant provisions of R&TTE Directive 1999/5/EC. The standards for complying are as following:

ETSI EN 301 489-1 V1.9.2: 2011-09

ETSI EN 301 489-17 V2.2.1: 2012-09

ETSI EN 300 328 V1.8.1:2012-06

EN 62311: 2008

EN 60950-1: 2006 +A11:2009+A1:2010+A12:2011+A2:2013

CE0984

This is a class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

This is a class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

This device is intended for home and office use in all EU countries