

Datasheet of Bluetooth

BM77SPPS5MC2 Module

ISSC Technologies Corp.

Revision History

Date	Revision Content	Version
2013/07/03	First Version	1.0
2013/07/09	Add descriptions in current consumption part	1.1
2013/08/20	Update UART baud rate information	1.2
2013/10/01	Update current consumption & Timing Sequence photo	1.3

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1. Introduction

Part Name: ISSC BM77SPPS5MC2 Bluetooth module

Part Number: BM77SPPS5MC2-xxxxxx

The ISSC BM77SPPS5MC2 Bluetooth module is design for MFi (The Made for iPod, Made for iPhone and Made for iPad logos) and Bluetooth standard SPP/ BLE electronic accessories via Bluetooth connectivity. It is available in the 2.4GHz ISM band Class 2 Radio, compatible with Bluetooth Core Specification Version 3.0/ 4.0 + EDR.

ISSC IS1677NM single chip solution combines transceiver and baseband function to decrease the external components. It narrows down the module size and minimizes its cost.

The optimized power design minimize power consumption to keep low battery and the module is integrated with shielding case and 2.4GHz RF Chip antenna. It has passed the Bluetooth SIG and FCC Part 15 certification.

1.1. Major Components

- ISSC IS1677NM (40 pin QFN, single-chip Bluetooth transceiver and baseband processor)
- Serial EEPROM 8K (1024*8) TSSOP 8P

1.2. Features

- Bluetooth 3.0/ 4.0+ EDR compliant
- Low power 1.8V RF operation
- RF transmitter output power Class 2
- RF receiver GFSK typical -90dBm, $\pi/4$ PSK typical -90dBm, 8DPSK typical -83dBm, BLE typical -92dBm
- Internal ROM and 4Mibts of flash
- I2C for external EEPROM and authentication chip (to enable functionality between your electronic accessory and the iPod, iPhone and iPad)
- 1 LED driver

1.3. Application

- GPS
- Printers
- Electric Scale
- Blood Pressure Monitors
- Bar code Scanner
- Industrial Applications (CNC, PLC, RFID)
- Embedded systems

2. Product Specification

2.1. Chipset

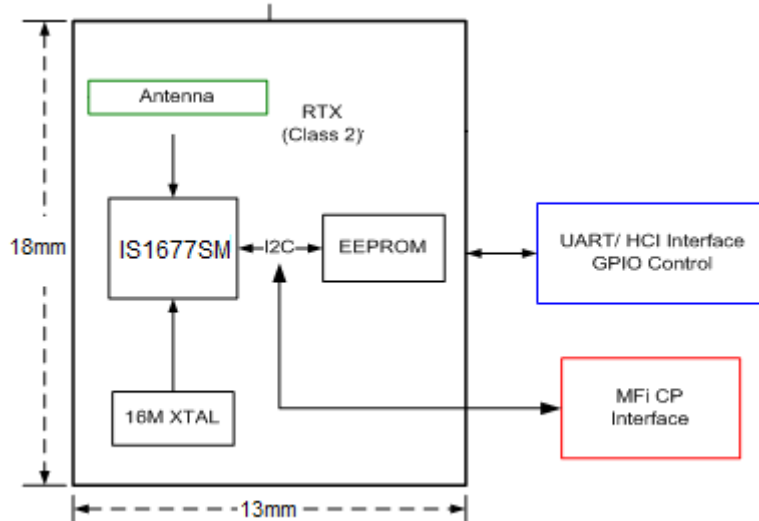
6x6 mm² 40 pin QFN IS1677NM

2.2. Interfaces

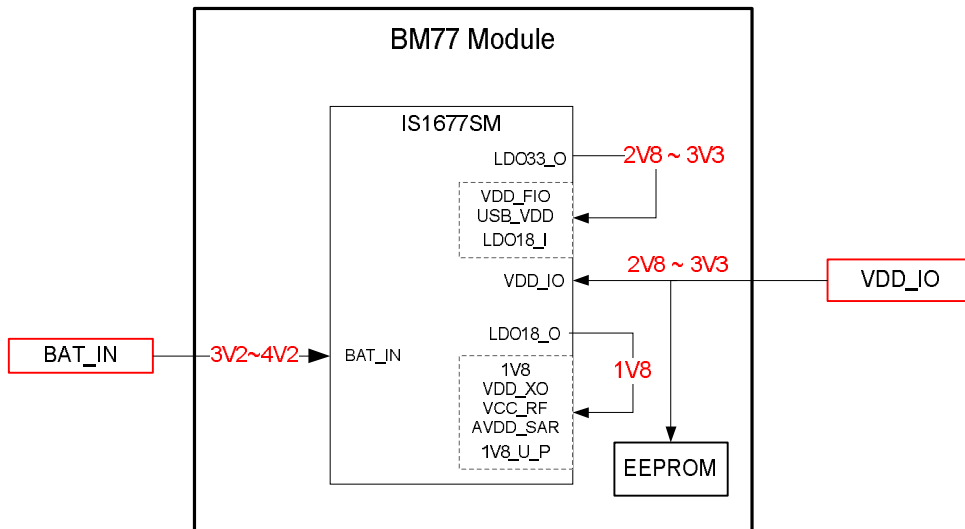
- Multi function GPIO interface
- Bluetooth RF interface
- UART up to 921600 bps
- I2C for external EEPROM and authentication chip

3. Hardware Architecture

Block Diagram



Power Tree



4. Compatibility Requirements

The BM77SPPS5MC2 Bluetooth module shall pass the standard test plan, which includes hardware compatibility and reliability, and software compatibility test.

5. Environmental Requirements

5.1. Temperature

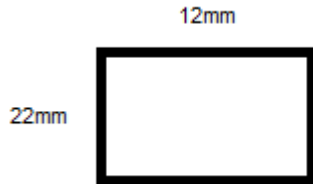
Conditions	Operating Temperature	Non-Operating Temperature
Minimum	-10 °C	-40°C
Maximum	+70 °C	+85 °C

5.2. Humidity

Conditions	Operating Humidity	Non-Operating Humidity
Minimum	10%	5%
Maximum	90%	95%

Appendix A: Dimension and Foot Print

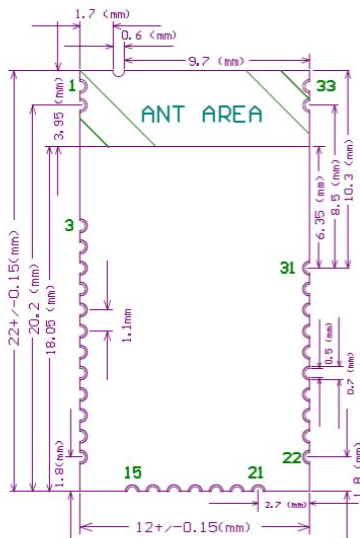
1. Dimension



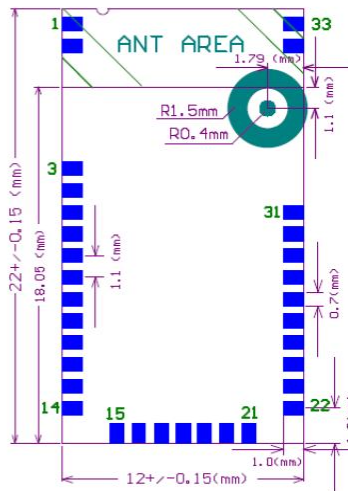
- Dimension: 22 mm* 12 mm* 1.86 mm (Length* Width* Height)
- Tolerance: +/- 0.25 mm

2. Suggested Load Board Foot Print

Dimension(TOP)



Dimension(BOT)



Appendix B: Product Image



Appendix C: Reflow Profile

- 1.) Follow: IPC/JEDEC J-STD-020 C
- 2.) Condition:

Average ramp-up rate (217°C to peak): 1~2°C/sec max.

Preheat : 150~200°C · 60~180 seconds

Temperature maintained above 217°C : 60~150 seconds

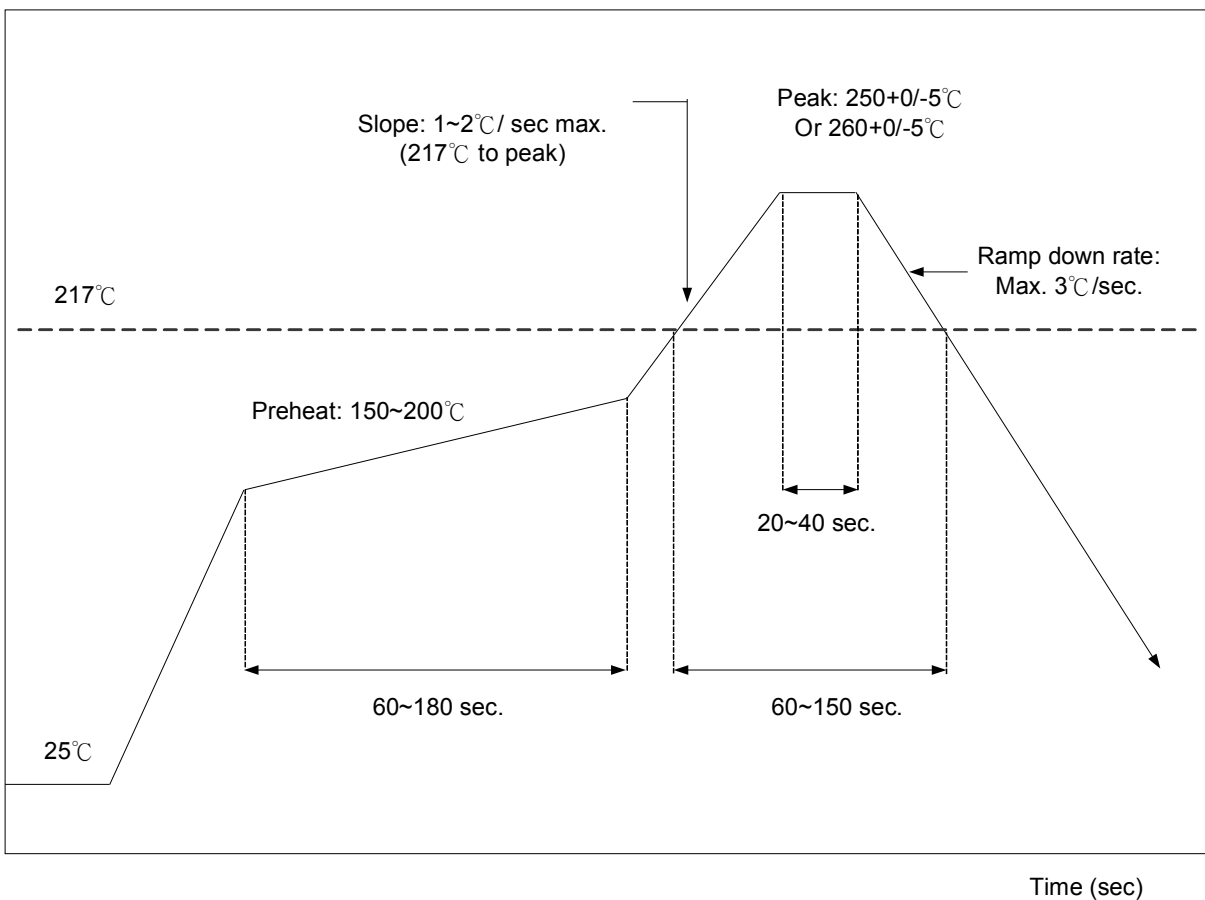
Time within 5°C of actual peak temperature: 20 ~ 40 sec.

Peak temperature : 250+0/-5°C or 260+0/-5°C

Ramp-down rate : 3°C/sec. max.

Time 25°C to peak temperature : 8 minutes max.

Cycle interval : 5 minus



Appendix D: Label Information

FCC Label Instructions:

The outside of final products that contains this module device must display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: A8TBM77SPPSYC2A" or "Contains FCC ID: A8TBM77SPPSYC2A." Any similar wording that expresses the same meaning may be used.

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

Appendix E: Reversion History

Version	Date	History
0.2	2012/8/15	Modified support baud rate
0.3	2012/10/31	Modified the values of Calibration LDO18 Fixed for module schematic
0.4	2013/01/30	Modified Figure Error in page_15
1.0	2013/07/03	First Version
1.1	2013/07/09	Add descriptions in current consumption part
1.2	2013/08/20	Update UART Baud rate information
1.3	2013/10/01	Update current consumption & Timing Sequence photo