

Datasheet of Bluetooth

BM87SPPS5MC2 Module

ISSC Technologies Corp.

Revision History

Date	Revision Content	Version
2013/09/05	The first version	0.9

Content

1. Introduction	3
1.1. Major Components	3
1.2. Features.....	3
1.3. Application	3
2. Product Specification	4
2.1. Chipset.....	4
2.2. Interfaces	4
3. Hardware Architecture	5
4. Compatibility Requirements	5
5. Environmental Requirements	6
5.1. Temperature.....	6
5.2. Humidity.....	6
Appendix A: Dimension and Foot Print	7
Appendix B: Product Image	7
Appendix C: Reflow Profile	8
Appendix D: Label Information	8
Appendix E: Packaging Information	8

1. Introduction

Part Name: ISSC BM87SPPS5MC2 Bluetooth module

Part Number: BM87SPPS5MC2-xxxxxx

The ISSC BM87SPPS5MC2 Bluetooth module is designed for both MFi (The Made for iPhone, iPad and iPod badge) and Bluetooth SPP App-Enabled Accessories with audio solution. It is available in the 2.4GHz ISM band Class 2 Radio, compatible with Bluetooth Core Specification Version 3.0 + EDR and has passed the Bluetooth SIG and FCC Part 15 certification

ISSC IS1687SM single chip solution combines transceiver and baseband function to decrease the external components. It narrows down the module size, minimizes its cost and the optimized power design minimize power consumption to keep low battery.

To provide the best audio and voice quality, IS1687SM also integrates a DSP co-processor, a PLL, and a stereo CODEC to handle voice and audio applications. For voice, not only basic A-law/ μ -law/CVSD encoding /decoding but also enhanced noise reduction and echo cancellation are implemented by the built-in DSP to reach the best quality in the both sending and receiving sides. For enhanced audio applications, SBC or MP3 encoding/decoding functions can be also carried out by DSP to satisfy A2DP requirements.

1.1. Major Components

- ISSC IS1687SM (7x7 mm², 56 pin QFN, single-chip Bluetooth transceiver and baseband processor)
- 4M bits flash and 32K bits (24C32) EEPROM

1.2. Features

- Bluetooth 3.0 EDR compliant
- Profiles: HSP 1.0, HFP 1.5, A2DP 1.0, AVRCP 1.0, SPP 1.0
- Low power 1.8V RF operation
- RF transmitter output power Class 2
- RF receiver GFSK typical -90dBm, $\pi/4$ PSK typical -91dBm, 8DPSK typical -84dBm
- Internal ROM and 4Mibts of flash
- 36-MIPS DSP co-processor (32/24/16-bit fixed point core)
- I2C for external EEPROM and Apple CP (to accomplish certification and authorization flow in MFi App-Enabled Accessories)
- 2 LED drivers

1.3. Application

- Stereo Headset
- Bluetooth Speakerphone
- Toys
- Gaming
- Health & Fitness
- Smart Watch/Feature Watch
- Wearable Accessories
- Conference/Education system

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Product Specification

1.4. Chipset

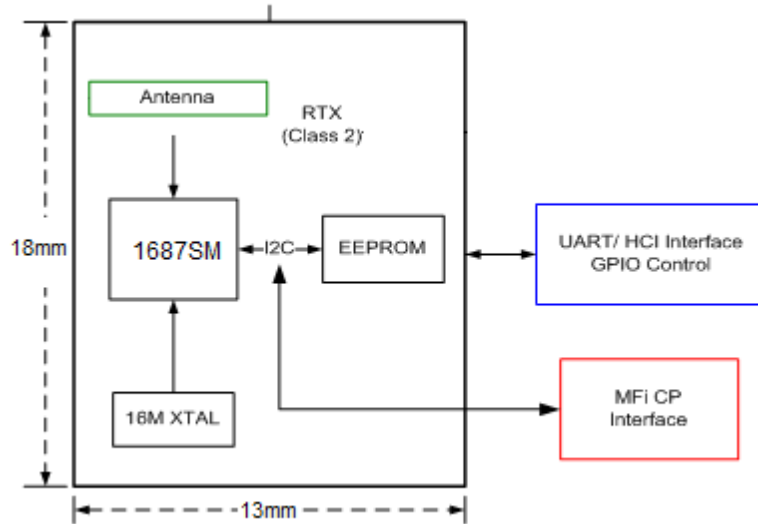
7x7 mm² 56 pin QFN IS1687SM

1.5. Interfaces

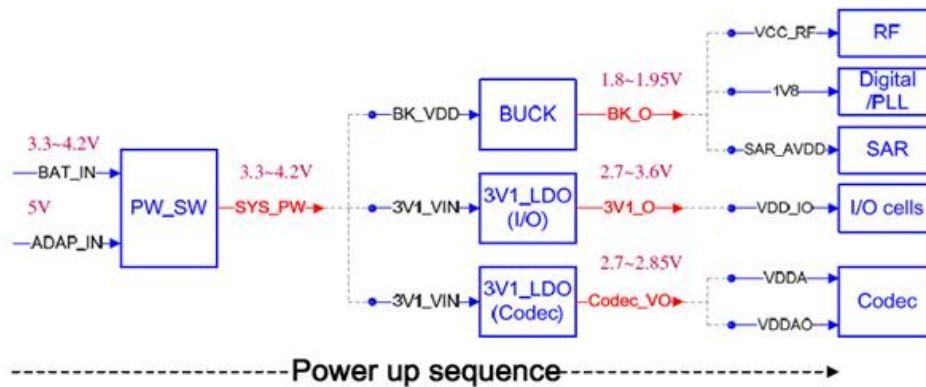
- Multi function GPIO interface
- Bluetooth RF interface
- UART up to 921600 bps
- I2C for external EEPROM and authentication chip
- UART interface for external peripherals control.
- Serial audio interface

Hardware Architecture

Block Diagram



Power Tree



2. Compatibility Requirements

The BM87SPPS5MC2 Bluetooth module shall pass the standard test plan, which includes hardware compatibility and reliability, and software compatibility test.

3. Environmental Requirements

3.1. Temperature

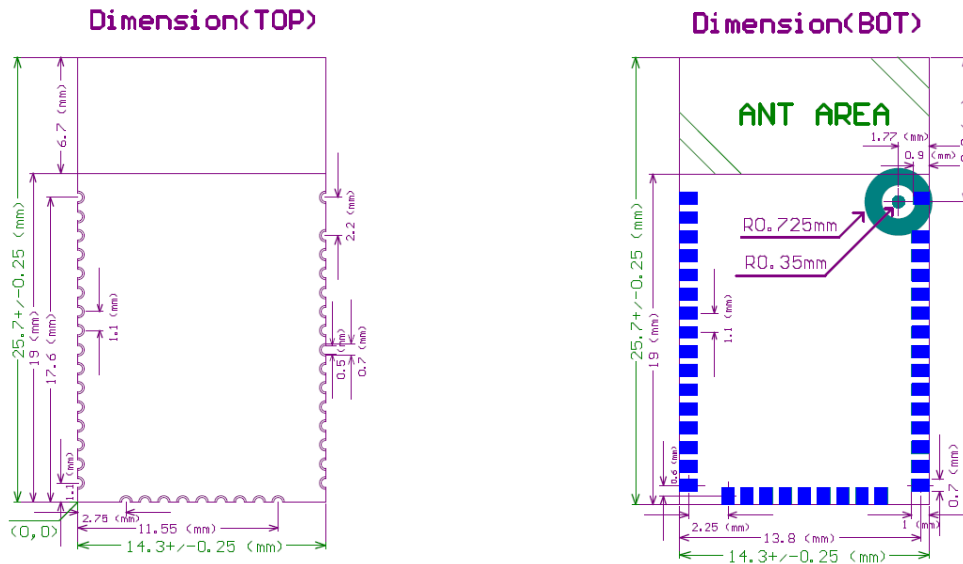
Conditions	Operating Temperature	Non-Operating Temperature
Minimum	- 40 °C	- 40°C
Maximum	+85 °C	+85 °C

3.2. Humidity

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

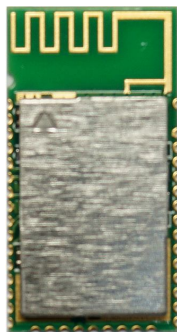
Appendix A: Dimension and Foot Print

1. Dimension & Foot Print



- Dimension: 25.7 mm* 14.3 mm* 1.86 mm (Length* Width* Height)
- Tolerance: +/- 0.25 mm

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

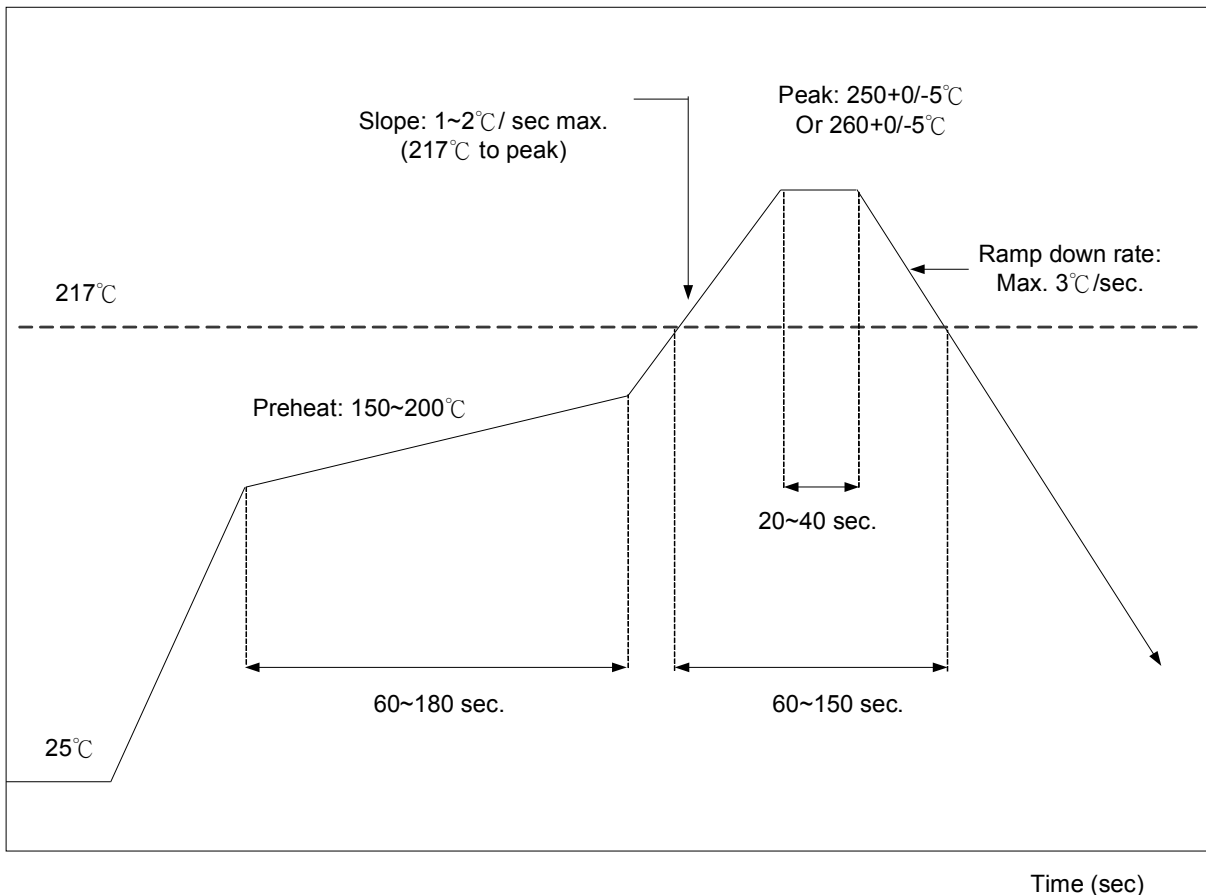
Time within 5°C of actual peak temperature: 20 ~ 40 sec.

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:A8TBM8NSPXYC2A " or "Contains FCC ID: A8TBM8NSPXYC2A." Any similar wording that expresses the

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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: Packaging Information

TBA