

TARGET SPECIFICATION

The mentioned items and the specifications may be changed without notice.

Notice**• Precaution on using ROHM Products**

- 1) Our Products are designed and manufactured for application in ordinary electronic equipment (such as AV equipment, OA equipment, telecommunication equipment, home electronics appliances, amusement equipment, etc.). If you intend to use our Products in devices requiring extremely high reliability (such as medical equipment, transport equipment, traffic equipment, aircraft/spaceship, nuclear power controllers, fuel controllers, car equipment including car accessories, safety devices, etc.) and whose malfunction or failure may cause loss of human life, bodily injury or serious damage to property ("Special Applications"), please consult with the ROHM sales representative in advance. Unless otherwise agreed in writing by ROHM in advance, ROHM shall not be in any way responsible or liable for any damages, expenses or losses incurred by you or third parties arising from the use of any ROHM's Products for Specific Applications.
- 2) ROHM designs and manufactures its Products subject to strict quality control system. However, semiconductor products can fail or malfunction at a certain rate. Please be sure to implement, at your own responsibilities, adequate safety measures including but not limited to fail-safe design against the physical injury, damage to any property, which a failure or malfunction of our Products may cause. The following are examples of safety measures.
 - [a] Installation of protection circuits or other protective devices to improve system safety
 - [b] Installation of redundant circuits to reduce the impact of single or multiple circuit failure
- 3) Our Products are designed and manufactured for use under standard conditions and not under any special or extraordinary environments or conditions, as exemplified below. Accordingly, ROHM shall not be in any way responsible or liable for any damages, expenses or losses arising from the use of any ROHM's Products under any special or extraordinary environments or conditions. If you intend to use our Products under any special or extraordinary environments or conditions (as exemplified below), your independent verification and confirmation of product performance, reliability, etc, prior to use, must be necessary:
 - [a] Use of our Products in any types of liquid, including water, oils, chemicals, and organic solvents
 - [b] Use of our Products outdoors or in places where the Products are exposed to direct sunlight or dust
 - [c] Use of our Products in places where the Products are exposed to sea winds or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - [d] Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
 - [e] Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
 - [f] Sealing or coating our Products with resin or other coating materials
 - [g] Use of the Products in places subject to dew condensation
- 4) The Products are not subject to radiation-proof design.
- 5) Please verify and confirm characteristics of the final or mounted products in using the Products.
- 6) Confirm that operation temperature is within the specified range described in the product specification.
- 7) ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.
- 8) This Product may be subjected to radio wave interference from other equipment emitting radio waves.
- 9) This Product emits radio waves due to the specification. To use equipment emitting radio waves, certification under the Radio Act should be obtained by region in which the Product is used. For the standards for certification under the Radio Act to be obtained for the use of this Product, separately contact your ROHM representative.

| | | | | |
|--------------------|-------|----------|-------------------|--------------------------------------------|
| DESIGN Kawabata | CHECK | APPROVAL | DATE: 12/May/2020 | SPECIFICATION No.: TARGET SPECIFICATION |
| | | | REV. E | ROHM Co.,Ltd. |

Notice

• Precaution for Mounting / Circuit board design

- 1) When a highly active halogenous (chlorine, bromine, etc.) flux is used, the residue of flux may negatively affect product performance and reliability.
- 2) In principle, the reflow soldering method must be used.

• Precautions Regarding Application Examples and External Circuits

- 1) If change is made to the constant of an external circuit, please allow a sufficient margin considering variations of the characteristics of the Products and external components, including transient characteristics, as well as static characteristics.
- 2) You agree that application notes, reference designs, and associated data and information contained in this document are presented only as guidance for Products use. Therefore, in case you use such information, you are solely responsible for it and you must exercise your own independent verification and judgment in the use of such information contained in this document. ROHM shall not be in any way responsible or liable for damages, expenses or losses incurred by you or third parties arising from the use of such information.

• Precaution for Electrostatic

This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding Products maximum rating will not be applied to Products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of Ionizer, friction prevention and temperature / humidity control).

• Precaution for Storage / Transportation

- 1) Product performance and soldered connections may deteriorate if the Products are stored in the places where:
 - [a] the Products are exposed to sea winds or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - [b] the temperature or humidity exceeds those recommended by ROHM
Temperature: 5°C - 40°C, Humidity: 40% - 60%RH
 - [c] the Products are exposed to direct sunshine or condensation
 - [d] the Products are exposed to high Electrostatic
- 2) Even under ROHM recommended storage condition, solderability of products out of recommended storage time period may be degraded.
It is strongly recommended to confirm solderability before using Products of which storage time is exceeding the recommended storage time period.
 - Recommended storage condition: Temperature: 5°C - 40°C, Humidity: 40% - 60%RH
- 3) Store / transport cartons in the correct direction, which is indicated on a carton as a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.
- 4) Use Products within the specified time after opening a humidity barrier bag. Baking is required before using Products of which storage time is exceeding the recommended storage time period.
 - Maximum time : 72 hours, Temperature: 5°C - 40°C, Humidity: 40% - 60%RH
 - Baking condition: Single type: 125°C, 24 hours, up to once

Notice**• Precaution for product label**

QR code printed on ROHM product label is for ROHM's internal use only, and please do not use at customer site.

• Precaution for disposition

When disposing Products please dispose them properly using an authorized industry waste company.

• Precautions Regarding Intellectual Property Rights

- 1) All information and data including but not limited to application example contained in this document is for reference only. ROHM does not warrant that foregoing information or data will not infringe any intellectual property rights or any other rights of any third party regarding such information or data.
- 2) ROHM shall not have any obligations where the claims, actions or demands arising from the combination of the Products with other articles such as components, circuits, systems or external equipment (including software)
- 3) No license, expressly or implied, is granted hereby under any intellectual property rights or other rights of ROHM or any third parties with respect to the Products or the information contained in this document. Provided, however, that ROHM will not assert its intellectual property rights or other rights against you or your customers to the extent necessary to manufacture or sell products containing the Products, subject to the terms and conditions herein.

• Other Matters

- 1) This document may not be reprinted or reproduced, in whole or in part, without prior written consent of ROHM.
- 2) The Products may not be disassembled, converted, modified, reproduced or otherwise changed without prior written consent of ROHM.
- 3) In no event shall you use in any way whatsoever the Products and the related technical information contained in the Products or this document for any military purposes, including but not limited to, the development of mass-destruction weapons.
- 4) The proper names of companies or products described in this document are trademarks of registered trademarks of ROHM, its affiliated companies or third parties.
- 5) Return one (1) copy of this Specification with your receipt stamp put on it.
If you do not return the Specification even after three (3) months elapsed from the date of issue stated on the cover of the Specification, ROHM shall, at its discretion, deem the contents of the Specification to have been accepted by you.
- 6) Any questions as to the contents of this Specification shall be promptly resolved by consultation between the parties.

• Scope of Warranty

ROHM Co., Ltd. (hereinafter referred to "ROHM") shall warrant materials used in this Product and the Product as stated below.

- 1) In the event that any defect in any of the said materials or this Product through analysis made at ROHM, ROHM shall repair or replace free of charge for a period of twenty-four (24) months from the date of shipment from the warehouse of ROHM.
- 2) This warranty shall not apply to any damage caused by
 - (a) fire, earthquake, flood, theft, or other disaster; or
 - (b) repair, modification, misuse, abuse, or negligence.

ROHM shall have no legal responsibility for any sort of incidental and indirect damage (such as faults in or replacement of parts of your set product, or shipping charges of such parts) or for items that explicitly or implicitly indicate the breach of the warranty of this Product.

1. Structure

Assembly using a printed circuit board

2. Product Name

Hybrid IC

3. Model Name

BP35C5

4. Application

Telecommunication equipment

5. Function

Specified low power radio module (920 MHz band)

6. Absolute Maximum Ratings

| No. | Parameter | Symbol | Rating | Unit | Condition |
|-----|-----------------------------|------------------|-----------------|------|-----------|
| 1 | Supply voltage | VDD | -0.3 to +3.9 | V | DC |
| 2 | Digital input voltage | V _{DIN} | -0.3 to VDD+0.3 | V | |
| 3 | Digital output voltage | V _{DO} | -0.3 to VDD+0.3 | V | |
| 5 | Digital output current | I _{DO} | -8 to +8 | mA | |
| 6 | Operating temperature range | T _{opr} | -30 to 85 | °C | |
| 7 | Storage temperature range | T _{stg} | -40 to 85 | °C | |

(Note) The absolute maximum ratings represent values that shall not be exceeded for even an instant on all operating or testing conditions.

Design systems with a margin for the ratings listed above.

7. Recommended Operating Conditions

| No. | Parameter | Symbol | Specification | | | Unit | Condition |
|-----|-----------------------------|----------------|---------------|------|------|------|-----------|
| | | | Min. | Typ. | Max. | | |
| 1 | Supply voltage | VDD | 2.6 | 3.3 | 3.6 | V | |
| 2 | Operating temperature range | T _a | -30 | 25 | 85 | °C | |

8. Major Performance

| Parameter | Description |
|-----------------------------------|-------------------------------------------------------------------------------------|
| Radio standards | Compliant with ARIB STD-T108, FCC Part 15 |
| Radio frequency | 920 MHz band |
| Modulation method | Binary GFSK |
| Data rate | 50 kbps, 100kbps, 150 kbps, 300kbps |
| Transmission power | 20 mW, 10 mW, 1 mW |
| Receiving sensitivity | -95dBm (Typ.) (150 kbps, BER<0.1%) |
| Frequency deviation | ±20 ppm or less |
| Current consumption (VDD=3.3V) | 40 mA (Typ.) [Transmission: 20 mW output] 20 mA (Typ.) [Reception] |
| (Data rate=150 kbps) | 5 μA(Typ.) [Sleep state] |
| Host interface | UART (115,200 bps) |

9. Block Diagram

Fig. 1. Block Diagram

10. Electrical Characteristics**Input current characteristics**

(Ta=25°C, VDD=3.3V)

| No. | Parameter | Condition | Specification | | | Unit |
|-----|----------------------------------------------|------------------------------------|---------------|------|------|------|
| | | | Min. | Typ. | Max. | |
| 1 | Current consumption (Data rate: 150 kbps) | Transmission state (set to 20 mW) | 30 | 40 | 50 | mA |
| 2 | | Reception state | 10 | 20 | 30 | mA |
| 3 | | Sleep state* (Held by register) | - | 5 | - | μA |

Measurement was made with the terminating end of 50 ohm measuring instrument connected with the antenna connector terminal of the module using RF cable.

Be noted that the parameter marked with "*" represents a design guaranteed value.

RF characteristics

Measurement conditions: Ta=25°C and VDD=3.3V

Modulation rate: 50kbps, 150 kbps

Modulation method: Binary GFSK

Channel spacing: 400 kHz

Measurement made at the antenna connector terminal of the module

Transmission characteristics

(Ta=25°C, VDD=3.3V)

| No. | Parameter | Condition | Specification | | | Unit |
|-----|------------------------------------------|----------------------------------------------|---------------|------|------|------|
| | | | Min. | Typ. | Max. | |
| 1 | Transmission output power | 20 mW mode | 11.0 | 13.0 | 15.0 | dBm |
| | | 10 mW mode | 8.0 | 10.0 | 12.0 | dBm |
| | | 1 mW mode | 0.3 | 1.9 | 3.6 | dBm |
| 2 | Occupied bandwidth | n=1 (50 kbps) | - | 89 | 200 | kHz |
| | | n=2 (150 kbps) | - | 166 | 400 | kHz |
| 3 | Adjacent channel leakage power [ACPR] | 20 mW mode ± 1 channel Bandwidth: 200 kHz | - | - | -15 | dBm |
| 4 | Frequency shift [Fdev]* | 50 kbps | - | 25 | - | kHz |
| | | 150 kbps | - | 37.5 | - | kHz |

Be noted that the parameter marked with "*" represents a design guaranteed value.

Transmission characteristics (continued)

(Ta=25°C, VDD=3.3V)

| No. | Parameter | Condition | Specification | | | Unit |
|-----|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------|------|------|
| | | | Min. | Typ. | Max. | |
| 5 | Spurious emission levels for transmission (in 20 mW mode) | 100 kHz bandwidth below 710 MHz | - | - | -36 | dBm |
| 6 | | 1 MHz bandwidth between 710 MHz and 900 MHz | - | - | -55 | dBm |
| 7 | | 100 kHz bandwidth between 900 MHz and 915 MHz | - | - | -55 | dBm |
| 8 | | 100 kHz bandwidth between 915 MHz and 930 MHz (except levels detuned by 400 kHz or less from the center of radio channels (n=2); provided that levels ranging from 920.5 MHz to 922.3 MHz and detuned by 300 kHz or less shall be excluded) | - | - | -36 | dBm |
| 9 | | 100 kHz bandwidth between 930 MHz and 1 GHz | - | - | -55 | dBm |
| 10 | | 1 MHz bandwidth between 1 GHz and 1.215 GHz | - | - | -45 | dBm |
| 11 | | 1 MHz bandwidth over 1.215 GHz (over second harmonic) | - | - | -30 | dBm |

Be noted that the parameter marked with "*" represents a design guaranteed value.

Reception characteristics

(Ta=25°C, VDD=3.3V)

| No. | Parameter | Condition | Specification | | | Unit |
|-----|-------------------------------------------|------------------------------|---------------|------------|------------|------|
| | | | Min. | Typ. | Max. | |
| 12 | Minimum receiving sensitivity | * BER<0.1%, 150 kbps mode | - | -95 | -85 | dBm |
| 13 | Maximum receiving input level* | 150 kbps mode | 0 | - | - | dBm |
| 14 | Minimum power detection (ED value) level* | - | - | - | -95 | dBm |
| 15 | Power detection range* | Dynamic range | - | 60 | - | dB |
| 16 | Power detection accuracy* | - | -10 | - | +10 | dB |

Be noted that the parameter marked with "*" represents a design guaranteed value.

Reception characteristics (continued)

(Ta=25°C, VDD=3.3V)

| No. | Parameter | Condition | Specification | | | Unit |
|-----|----------------------------|------------------------------------------------|---------------|------|------|------|
| | | | Min. | Typ. | Max. | |
| 17 | Subsidiary emission levels | 100 kHz bandwidth below 710 MHz* | - | - | -54 | dBm |
| 18 | | 1 MHz bandwidth between 710 MHz and 900 MHz* | - | - | -55 | dBm |
| 19 | | 100 kHz bandwidth between 900 MHz and 915 MHz* | - | - | -55 | dBm |
| 20 | | 100 kHz bandwidth between 915 MHz and 930 MHz | - | - | -54 | dBm |
| 21 | | 100 kHz bandwidth between 930 MHz and 1 GHz* | - | - | -55 | dBm |
| 22 | | 1 MHz bandwidth over 1 GHz * | - | - | -47 | dBm |

Be noted that the parameter marked with "*" represents a design guaranteed value.

11. Interface Characteristics

Terminal characteristics (design guarantee values)

(Operating supply voltage: VDD=2.6V to 3.6V, Ta=-30°C to +85°C)

| No. | Parameter | Symbol | Condition | Specification | | | Unit |
|-----|---------------------------|--------|---------------|---------------|------|-----------|------|
| | | | | Min. | Typ. | Max. | |
| 1 | High-level input voltage | VIH1 | (*)1) | VDD x 0.7 | - | VDD | V |
| 2 | Low-level input voltage | VIL1 | (*)1) | 0 | - | VDD x 0.3 | V |
| 3 | High-level output voltage | VOH | IOH=4mA (*2) | VDD -0.4 | - | VDD | V |
| 4 | Low-level output voltage | VOL | IOL=-4mA (*2) | - | - | 0.4 | V |

(*1) Pin shown as "I" in the "I/O" column in "Pin Description" table.

(*2) Pin shown as "O" in the "I/O" column in "Pin Description" table.

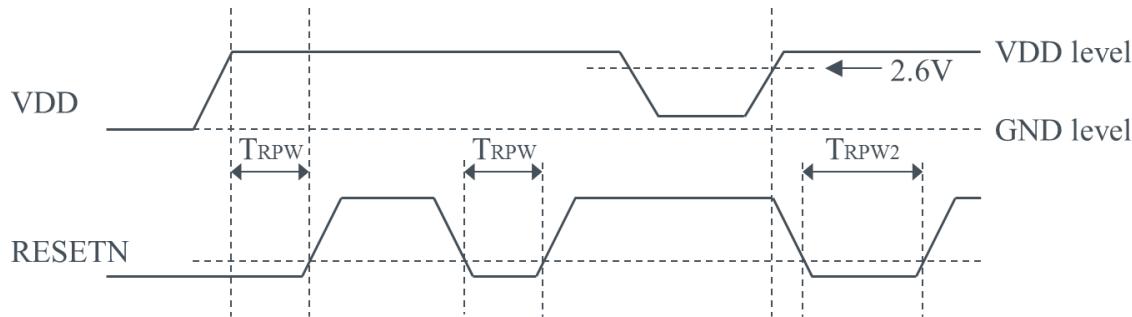
UART specification

| Parameter | Specification |
|-----------------|--------------------|
| Baud rate | 115,200 bps |
| Data width | 8 bits |
| Parity | Not provided |
| Stop bit | 1 bit |
| HW flow control | Disabled (Default) |

Reset characteristics (design guarantee value)

(Operating supply voltage: VDD=2.6V to 3.6V, Ta=-30 to +85°C)

| Parameter | Symbol | Condition | Specification | | | Unit |
|-----------------------------------------------------------|--------|-----------|---------------|------|------|------|
| | | | Min. | Typ. | Max. | |
| RESETN pulse period (When starting from VDD=0V) | TRPW | - | 200 | - | - | ns |
| RESETN pulse period 2 (*1) (When starting from VDD≠0V) | TRPW2 | VDD>2.6V | 1 | - | - | ms |



(*1) When starting from VDD≠0V, input a pulse to the RESETN signal after VDD exceeds 2.6V.

Startup time

Insert “WAIT” period of **three** seconds or more before the first command is issued after turning ON the power supply or resetting.

12. Channel Setting

For Japan region (ARIB STD-T108)

| Region | Japan | Japan | Japan | Japan |
|----------------------|----------|----------|----------|----------|
| Data Rate | 50 kbps | 100 kbps | 150 kbps | 300 kbps |
| n unit radio channel | 1 | 2 | 2 | 3 |
| Modulation Index | 1 | 1 | 0.5 | 0.5 |
| Channel space | 200 kHz | 200 kHz | 200 kHz | 200 kHz |
| F_Dev | 25.0 kHz | 50.0 kHz | 37.5 kHz | 75.0 kHz |

| Channel Number | Center Frequency [kHz] | Center Frequency [kHz] | Center Frequency [kHz] | Center Frequency [kHz] |
|----------------|---------------------------|---------------------------|---------------------------|---------------------------|
| 24 | 920.6 | 920.7 | 920.7 | 920.8 |
| 25 | 920.8 | 920.9 | 920.9 | 921.0 |
| 26 | 921.0 | 921.1 | 921.1 | 921.2 |
| 27 | 921.2 | 921.3 | 921.3 | 921.4 |
| 28 | 921.4 | 921.5 | 921.5 | 921.6 |
| 29 | 921.6 | 921.7 | 921.7 | 921.8 |
| 30 | 921.8 | 921.9 | 921.9 | 922.0 |
| 31 | 922.0 | 922.1 | 922.1 | 922.2 |
| 32 | 922.2 | 922.3 | 922.3 | 922.4 |
| 33 | 922.4 | 922.5 | 922.5 | 922.6 |
| 34 | 922.6 | 922.7 | 922.7 | 922.8 |
| 35 | 922.8 | 922.9 | 922.9 | 923.0 |
| 36 | 923.0 | 923.1 | 923.1 | 923.2 |
| 37 | 923.2 | 923.3 | 923.3 | 923.4 |
| 38 | 923.4 | 923.5 | 923.5 | 923.6 |
| 39 | 923.6 | 923.7 | 923.7 | 923.8 |
| 40 | 923.8 | 923.9 | 923.9 | 924.0 |
| 41 | 924.0 | 924.1 | 924.1 | 924.2 |
| 42 | 924.2 | 924.3 | 924.3 | 924.4 |
| 43 | 924.4 | 924.5 | 924.5 | 924.6 |
| 44 | 924.6 | 924.7 | 924.7 | 924.8 |
| 45 | 924.8 | 924.9 | 924.9 | 925.0 |
| 46 | 925.0 | 925.1 | 925.1 | 925.2 |
| 47 | 925.2 | 925.3 | 925.3 | 925.4 |
| 48 | 925.4 | 925.5 | 925.5 | 925.6 |
| 49 | 925.6 | 925.7 | 925.7 | 925.8 |
| 50 | 925.8 | 925.9 | 925.9 | 926.0 |
| 51 | 926.0 | 926.1 | 926.1 | 926.2 |
| 52 | 926.2 | 926.3 | 926.3 | 926.4 |
| 53 | 926.4 | 926.5 | 926.5 | 926.6 |
| 54 | 926.6 | 926.7 | 926.7 | 926.8 |
| 55 | 926.8 | 926.9 | 926.9 | 927.0 |
| 56 | 927.0 | 927.1 | 927.1 | 927.2 |
| 57 | 927.2 | 927.3 | 927.3 | 927.4 |
| 58 | 927.4 | 927.5 | 927.5 | 927.6 |
| 59 | 927.6 | 927.7 | 927.7 | 927.8 |
| 60 | 927.8 | 927.9 | 927.9 | - |
| 61 | 928.0 | - | - | - |

For United States region (FCC Part 15) (1/4)

| Region | US | US | US | US |
|------------------|----------|----------|----------|-----------|
| Data Rate | 50 kbps | 150 kbps | 300 kbps | 600 kbps |
| | | | | |
| Modulation Index | 1 | 0.5 | 0.5 | 0.4 |
| Channel space | 200 kHz | 400 kHz | 600 kHz | 1000 kHz |
| F_Dev | 25.0 kHz | 37.5 kHz | 75.0 kHz | 120.0 kHz |

| Channel Number | Center Frequency [kHz] | Center Frequency [kHz] | Center Frequency [kHz] | Center Frequency [kHz] |
|----------------|---------------------------|---------------------------|---------------------------|---------------------------|
| 0 | 902.2 | 902.4 | 902.6 | 903.0 |
| 1 | 902.4 | 902.8 | 903.2 | 904.0 |
| 2 | 902.6 | 903.2 | 903.8 | 905.0 |
| 3 | 902.8 | 903.6 | 904.4 | 906.0 |
| 4 | 903.0 | 904 | 905 | 907.0 |
| 5 | 903.2 | 904.4 | 905.6 | 908.0 |
| 6 | 903.4 | 904.8 | 906.2 | 909.0 |
| 7 | 903.6 | 905.2 | 906.8 | 910.0 |
| 8 | 903.8 | 905.6 | 907.4 | 911.0 |
| 9 | 904.0 | 906 | 908 | 912.0 |
| 10 | 904.2 | 906.4 | 908.6 | 913.0 |
| 11 | 904.4 | 906.8 | 909.2 | 914.0 |
| 12 | 904.6 | 907.2 | 909.8 | 915.0 |
| 13 | 904.8 | 907.6 | 910.4 | 916.0 |
| 14 | 905.0 | 908 | 911 | 917.0 |
| 15 | 905.2 | 908.4 | 911.6 | 918.0 |
| 16 | 905.4 | 908.8 | 912.2 | 919.0 |
| 17 | 905.6 | 909.2 | 912.8 | 920.0 |
| 18 | 905.8 | 909.6 | 913.4 | 921.0 |
| 19 | 906.0 | 910 | 914 | 922.0 |
| 20 | 906.2 | 910.4 | 914.6 | 923.0 |
| 21 | 906.4 | 910.8 | 915.2 | 924.0 |
| 22 | 906.6 | 911.2 | 915.8 | 925.0 |
| 23 | 906.8 | 911.6 | 916.4 | 926.0 |
| 24 | 907.0 | 912 | 917 | 927.0 |
| 25 | 907.2 | 912.4 | 917.6 | - |
| 26 | 907.4 | 912.8 | 918.2 | - |
| 27 | 907.6 | 913.2 | 918.8 | - |
| 28 | 907.8 | 913.6 | 919.4 | - |
| 29 | 908.0 | 914 | 920 | - |
| 30 | 908.2 | 914.4 | 920.6 | - |
| 31 | 908.4 | 914.8 | 921.2 | - |
| 32 | 908.6 | 915.2 | 921.8 | - |
| 33 | 908.8 | 915.6 | 922.4 | - |
| 34 | 909.0 | 916 | 923 | - |
| 35 | 909.2 | 916.4 | 923.6 | - |
| 36 | 909.4 | 916.8 | 924.2 | - |
| 37 | 909.6 | 917.2 | 924.8 | - |

For United States region (FCC Part 15) (2/4)

| Region | US | US | US | US |
|------------------|----------|----------|----------|-----------|
| Data Rate | 50 kbps | 150 kbps | 300 kbps | 600 kbps |
| Modulation Index | 1 | 0.5 | 0.5 | 0.4 |
| Channel space | 200 kHz | 400 kHz | 600 kHz | 1000 kHz |
| F_Dev | 25.0 kHz | 37.5 kHz | 75.0 kHz | 120.0 kHz |

| | | | | |
|----|-------|-------|-------|---|
| 38 | 909.8 | 917.6 | 925.4 | - |
| 39 | 910.0 | 918 | 926 | - |
| 40 | 910.2 | 918.4 | 926.6 | - |
| 41 | 910.4 | 918.8 | 927.2 | - |
| 42 | 910.6 | 919.2 | - | - |
| 43 | 910.8 | 919.6 | - | - |
| 44 | 911.0 | 920 | - | - |
| 45 | 911.2 | 920.4 | - | - |
| 46 | 911.4 | 920.8 | - | - |
| 47 | 911.6 | 921.2 | - | - |
| 48 | 911.8 | 921.6 | - | - |
| 49 | 912.0 | 922 | - | - |
| 50 | 912.2 | 922.4 | - | - |
| 51 | 912.4 | 922.8 | - | - |
| 52 | 912.6 | 923.2 | - | - |
| 53 | 912.8 | 923.6 | - | - |
| 54 | 913.0 | 924 | - | - |
| 55 | 913.2 | 924.4 | - | - |
| 56 | 913.4 | 924.8 | - | - |
| 57 | 913.6 | 925.2 | - | - |
| 58 | 913.8 | 925.6 | - | - |
| 59 | 914.0 | 926 | - | - |
| 60 | 914.2 | 926.4 | - | - |
| 61 | 914.4 | 926.8 | - | - |
| 62 | 914.6 | 927.2 | - | - |
| 63 | 914.8 | 927.6 | - | - |
| 64 | 915.0 | - | - | - |
| 65 | 915.2 | - | - | - |
| 66 | 915.4 | - | - | - |
| 67 | 915.6 | - | - | - |
| 68 | 915.8 | - | - | - |
| 69 | 916.0 | - | - | - |
| 70 | 916.2 | - | - | - |
| 71 | 916.4 | - | - | - |
| 72 | 916.6 | - | - | - |
| 73 | 916.8 | - | - | - |
| 74 | 917.0 | - | - | - |
| 75 | 917.2 | - | - | - |
| 76 | 917.4 | - | - | - |
| 77 | 917.6 | - | - | - |

For United States region (FCC Part 15) (3/4)

| Region | US | US | US | US |
|------------------|----------|----------|----------|-----------|
| Data Rate | 50 kbps | 150 kbps | 300 kbps | 600 kbps |
| Modulation Index | 1 | 0.5 | 0.5 | 0.4 |
| Channel space | 200 kHz | 400 kHz | 600 kHz | 1000 kHz |
| F_Dev | 25.0 kHz | 37.5 kHz | 75.0 kHz | 120.0 kHz |

| | | | | |
|-----|-------|---|---|---|
| 78 | 917.8 | - | - | - |
| 79 | 918.0 | - | - | - |
| 80 | 918.2 | - | - | - |
| 81 | 918.4 | - | - | - |
| 82 | 918.6 | - | - | - |
| 83 | 918.8 | - | - | - |
| 84 | 919.0 | - | - | - |
| 85 | 919.2 | - | - | - |
| 86 | 919.4 | - | - | - |
| 87 | 919.6 | - | - | - |
| 88 | 919.8 | - | - | - |
| 89 | 920.0 | - | - | - |
| 90 | 920.2 | - | - | - |
| 91 | 920.4 | - | - | - |
| 92 | 920.6 | - | - | - |
| 93 | 920.8 | - | - | - |
| 94 | 921.0 | - | - | - |
| 95 | 921.2 | - | - | - |
| 96 | 921.4 | - | - | - |
| 97 | 921.6 | - | - | - |
| 98 | 921.8 | - | - | - |
| 99 | 922.0 | - | - | - |
| 100 | 922.2 | - | - | - |
| 101 | 922.4 | - | - | - |
| 102 | 922.6 | - | - | - |
| 103 | 922.8 | - | - | - |
| 104 | 923.0 | - | - | - |
| 105 | 923.2 | - | - | - |
| 106 | 923.4 | - | - | - |
| 107 | 923.6 | - | - | - |
| 108 | 923.8 | - | - | - |
| 109 | 924.0 | - | - | - |
| 110 | 924.2 | - | - | - |
| 111 | 924.4 | - | - | - |
| 112 | 924.6 | - | - | - |
| 113 | 924.8 | - | - | - |
| 114 | 925.0 | - | - | - |
| 115 | 925.2 | - | - | - |
| 116 | 925.4 | - | - | - |
| 117 | 925.6 | - | - | - |

For United States region (FCC Part 15) (4/4)

| Region | US | US | US | US |
|------------------|----------|----------|----------|-----------|
| Data Rate | 50 kbps | 150 kbps | 300 kbps | 600 kbps |
| Modulation Index | 1 | 0.5 | 0.5 | 0.4 |
| Channel space | 200 kHz | 400 kHz | 600 kHz | 1000 kHz |
| F_Dev | 25.0 kHz | 37.5 kHz | 75.0 kHz | 120.0 kHz |

| | | | | |
|-----|-------|---|---|---|
| 118 | 925.8 | - | - | - |
| 119 | 926.0 | - | - | - |
| 120 | 926.2 | - | - | - |
| 121 | 926.4 | - | - | - |
| 122 | 926.6 | - | - | - |
| 123 | 926.8 | - | - | - |
| 124 | 927.0 | - | - | - |
| 125 | 927.2 | - | - | - |
| 126 | 927.4 | - | - | - |
| 127 | 927.6 | - | - | - |
| 128 | 927.8 | - | - | - |

13. Setting of Communication Time Limit and Carrier Sensing Time

This Product has acquired the Technical Regulations Conformity Certification with the settings listed in the table below. The Product is not allowed to be used with any setting outside the setting range listed below.

| Unit Channel Number | Data rate setting (Number of channels to use at a time) | Carrier sensing time | Transmission time limit | Pause time | Total of transmission time per hour |
|---------------------|-------------------------------------------------------------------|-----------------------------------------------|---------------------------------|--------------|-------------------------------------------------------------------|
| 33-61(JP) | 50 kbps (n=1) 100kbps (n=2), 150kbps (n=2) 300kbps (n=3) | 128 μ s or more (Sensing at all times) | 400 ms or less per transmission | 2 ms or more | 360 sec. or less With channel hopping; 720 sec. or less |

| Unit Channel Number | Data rate setting | Carrier sensing time | Transmission time limit | Pause time | Total of transmission time per hour |
|---------------------|------------------------------------------|-----------------------------------------------|---------------------------------|--------------|-------------------------------------|
| 0-128(US) | 50 kbps 150kbps 300kbps 600kbps | 128 μ s or more (Sensing at all times) | 400 ms or less per transmission | 2 ms or more | - |

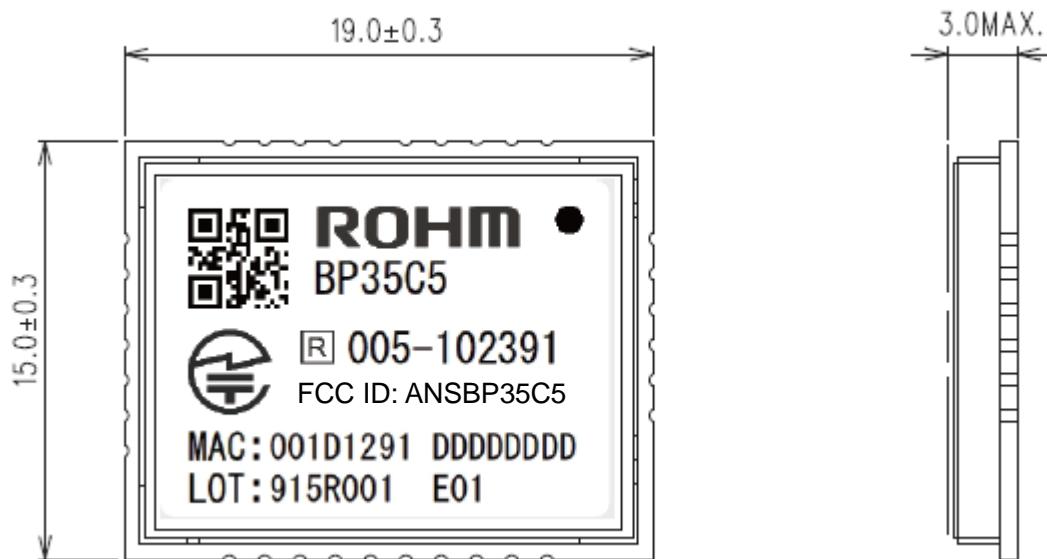
14. List of Pins

15. Reference Peripheral Circuit DiagramsRouter / Leaf mode (UART : 1 port)

Fig. 2.1. Reference Peripheral Circuit Diagrams (for Router / Leaf mode)

Border Router mode (UART : 2 ports)

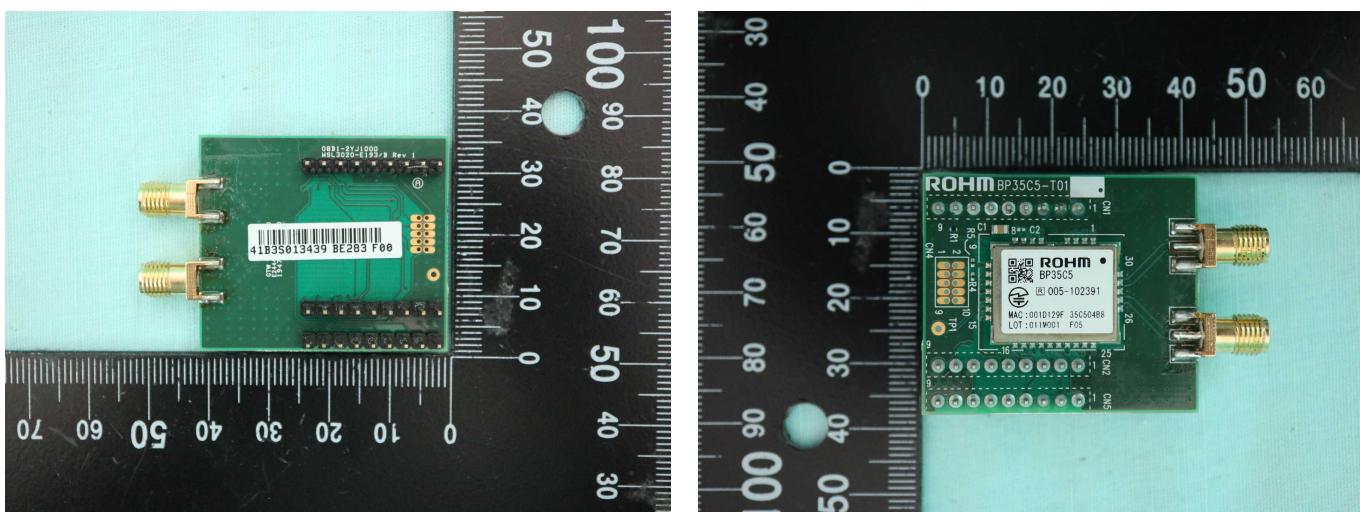
Fig. 2.2. Reference Peripheral Circuit Diagrams (for Border Router mode)

16. Outline Dimensions

UNIT: mm

Fig. 3. Outline Dimensions Diagram

*Any defects in the appearance other than scratches and dents harmful to the practical use of this Product are overlooked.



17. Product Marking and Labeling Specification

The following items are indicated on the product.

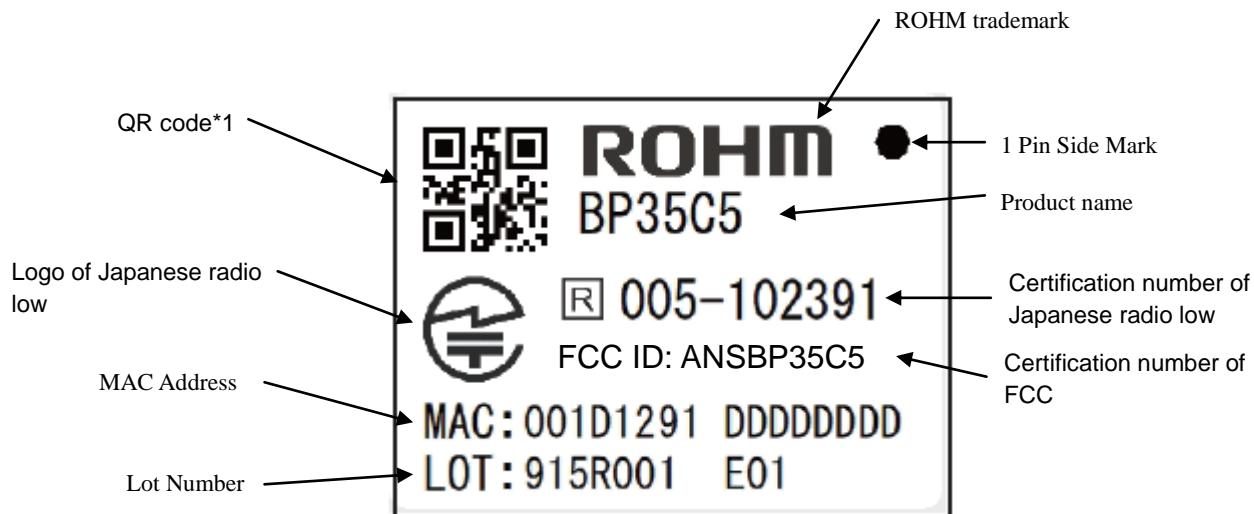


Fig. 4. Marking Specification

*1 QR code has a product serial number as information.

The design of marking is subject to change without prior notice.

Marking information

ROHM

BP35C5

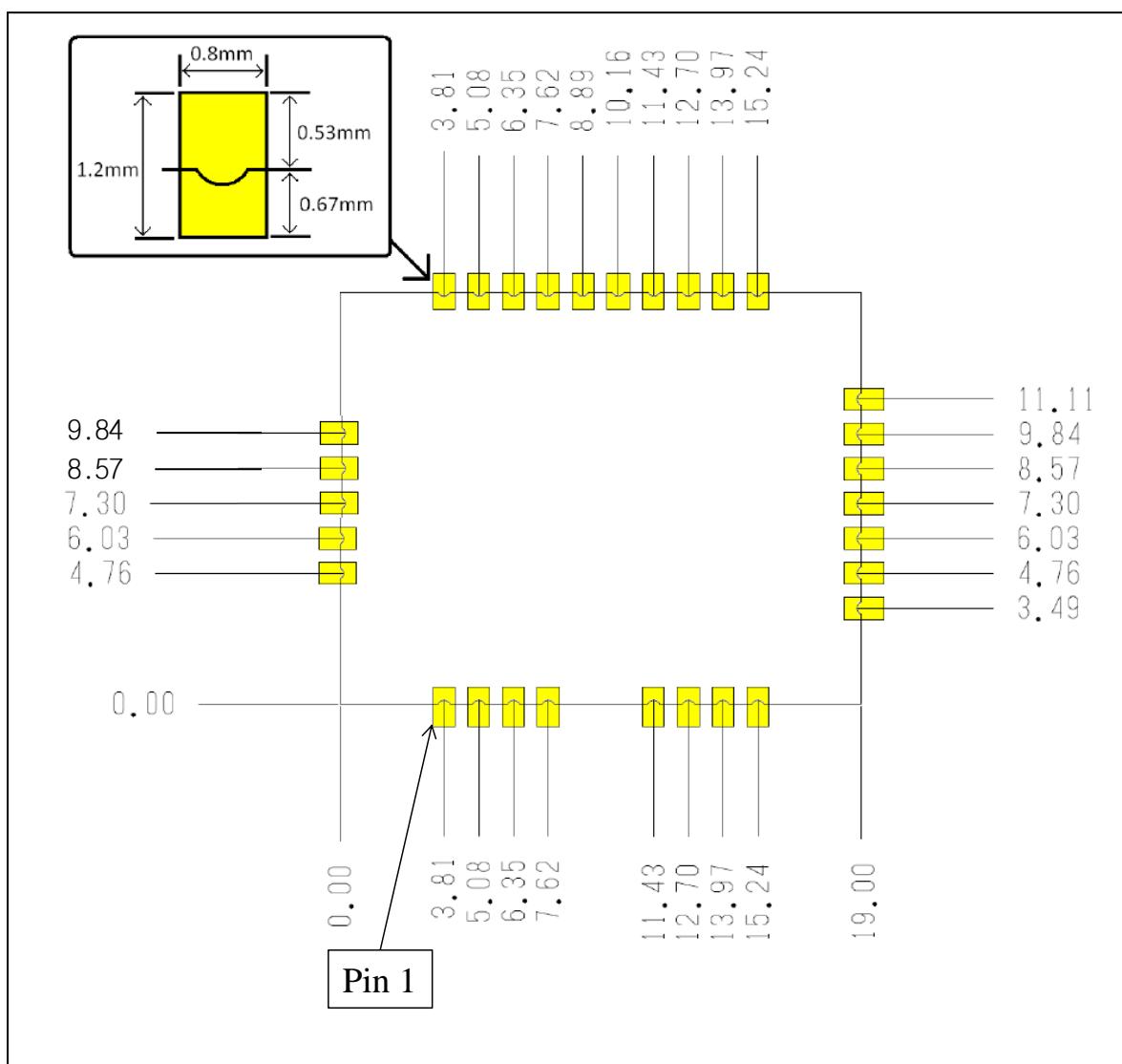
915R001

: ROHM Trademark

: Product name

: Manufacturing Lot Number

(Example) 915▲▲▲▲→2019_15th week_▲▲▲▲
(▲▲▲▲: Secret number)

18. RECOMMENDED LAND PATTERN

UNIT: mm

Fig.5. Recommended Land Pattern

Caution: There are patterning on the soldering surface (bottom side).

Please be sure not to wire (including GND) on the part of PCB under the module except land pattern.