

RFM-003

Operation Manual

2004/03/26

Ver 1.00B

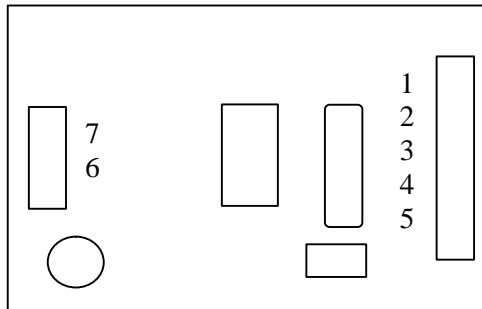
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1. Introduction of RFM-003 module

1.1 Pin connection description

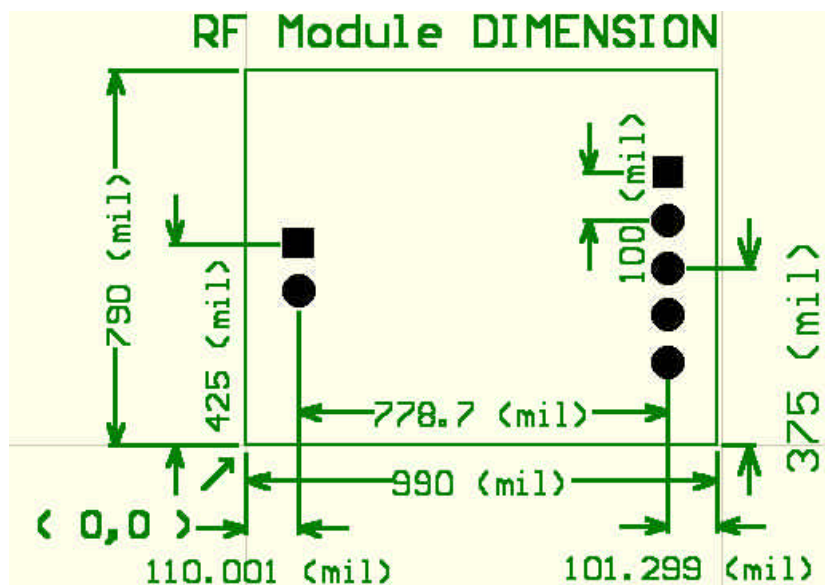
RFM-003 (Pin position)



| Pin No. | Name | Function |
|---------|--------|--------------------|
| 1 | SCLK | Serial clock input |
| 2 | In/Out | Serial data In/Out |
| 3 | GND | GND |
| 4 | GND | GND |
| 5 | VDD | VDD |
| 6 | ANT2 | Antenna out 2 |
| 7 | ANT1 | Antenna out 1 |

1.2 Dimension specification

L=25mm W=20mm H=11mm



2. Electrical characteristics

2.1 Operation Specification

Temperature: $T_{amb} = -40^{\circ}$ to $+85^{\circ}$

Supply Voltage: $V_{dd} = 4.1V$ to $5.5V$

| PARAMETERS AND CONDITIONS | SYMBOL | NOTE | MIN. | TYP. | MAX. | UNIT |
|--|---------------|------|-------------|------|-------------|------|
| Power Supply | | | | | | |
| Supply Voltage | V_{DD} | | 4.1 | 5 | 5.5 | V |
| Supply current power down mode | $I_{DDsleep}$ | | | 1 | 5 | uA |
| Supply current excluding antenna current | I_{DDon} | | | 5 | 10 | mA |
| Logic Signals | | | | | | |
| Input logic high | V_{IH} | | $0.7V_{DD}$ | | | V |
| Input logic low | V_{IL} | | | | $0.3V_{DD}$ | V |
| Output logic high | V_{OH} | | $0.9V_{DD}$ | | | V |
| Output logic low | V_{OL} | | | | $0.1V_{DD}$ | V |
| Input leakage current | | | -1 | | 1 | uA |

| PLL | SYMBOL | NOTE | MIN. | TYP | MAX. | UNIT |
|---------------------------------|--------------|------|------|-----|------|------|
| Antenna capture frequency range | F_{ANT_C} | | 100 | | 150 | KHz |
| Antenna locking frequency range | F_{ANT_L} | | 100 | 125 | 150 | KHz |

| NAME | SYMBOL | NOTE | MIN. | TYP | MAX. | UNIT |
|--|-----------|------|------|-----|------|-----------------|
| Current through ANT1 and ANT2 pins. Continuous wave | I_{ANT} | | | | 180 | mA _p |
| Current through ANT1 and ANT2 pins. Duty cycle 20% $t_{on} < 400ms$ | I_{ANT} | | | | 400 | mA _p |

| Antenna driver | SYMBOL | NOTE | MIN. | TYP | MAX. | UNIT |
|--------------------------------------|--------|------|------|-------------|------|------|
| Diagnostic ANT driver threshold high | V_H | | | $0.5V_{DD}$ | | V |
| Diagnostic ANT driver threshold low | V_L | | | $0.5V_{DD}$ | | V |

2.2 Antenna Specification

Antenna inductance = 430uH ~ 460uH

Standard Antenna = 14 * 10.5 cm (Inductance = 425uH)

3. Electric circuit example

3.1 Example of how to connect to Micro-Control Unit (MCU)

