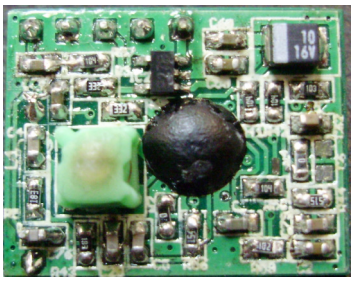


1.0 Introduction

The LW103HM is a 850MHz to 930MHz receiver module employing super-regenerative amplitude-shift-keying (ASK) modulation (or On-Off keying, OOK). Customer can specify the receiving frequency and the factory will preset the receiving frequency accordingly. Working together with LW203M, a transmitter module, LW103HM will achieve a communication range of 150 meter in open field. LW103HM is designed to operate for low power device (LPD) applications.

2.0 Features

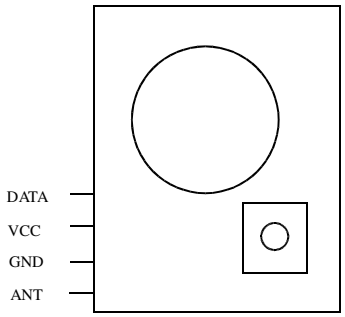
- Frequency range from 850 MHz to 930 MHz
- High sensitivity
- Small size (24mm x 19mm)
- Low power consumption
- Operate from -20 °C to 70 °C
- Low cost
- Low RF emission

3.0 Applications

- Remote controllers
- Security systems such as car alarm
- Wireless door bells
- Garage openers
- Radio controlled toys
- Monitoring systems

**Patent Pending*

4.0 Pin Description



Pin no.	Symbol	Description
1	ANT	Antenna input
2	GND	RF ground
3	VCC	Power supply
4	DATA	Data output

5.0 Electrical Characteristics

5.1 Maximum ratings

Rating	Symbol	Value	Unit
Power Supply Voltage	V_{BATT}	6	Vdc
RF Input Power	P_{max}	-25	dBm
Junction Temperature	T_J	125	℃
Storage Temperature Range	T_{STg}	-55 to 125	℃

5.2 Recommended Operating Conditions

Characteristics	Value	Unit
Supply voltage	2.5 – 3.3	V
RF frequency range	850 - 930	MHz
Max data rate	5	Kbps

5.3 DC Electrical Characteristics

Characteristics	Minimum	Typical	Maximum	Unit
Standby current	1	-	10	μA
Operating current	1.5	-	3	mA
Input Low Voltage	0.8*Vdd	-	Vdd	V
Input High Voltage	Vss	-	0.1*Vdd	V

5.4 AC Electrical Characteristics

Characteristics	Minimum	Typical	Maximum	Unit
Sensitivity (500Hz)	-	-105	-	dBm
(1KHz)	-	-102	-	dBm
Stabilization time	-	-	50	ms

6.0 Functional Descriptions

LW103HM is a super-regenerative receiver module. It employs Lexiwave's receiver RFIC LW103H as the core component in the module. The heart of the chip is an oscillator operating in super-regenerative mode. The demodulated baseband signal is filtered by a low pass filter. The filtered signal is then amplified by an operational amplifier. The amplified signal is compared with reference voltage at a data comparator. The transmitted "0" and "1" will be exported at the DATA output.

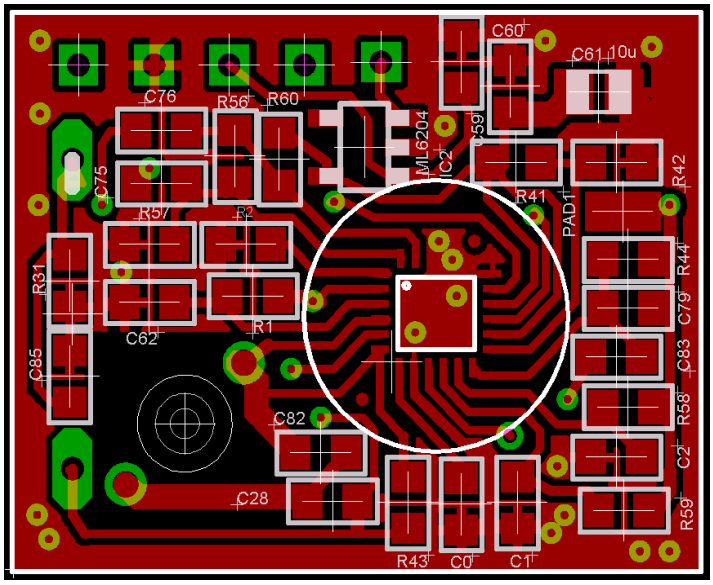
A bandgap reference is implemented inside the chip for stable operation over temperature and supply voltages. In addition, our patent pending approach allows the module operates normally from 2.5V to 3.3V and remain stable at component variations. The chip is thus ideal for mass production applications of which no tight tolerance components are required.

LW103HM makes use of the internal Low Noise Amplifier (LNA) to achieve higher sensitivity and isolation to meet emission requirements. At the time when oscillation frequency of the super-regenerative oscillator is affected by a closing object, (hand effect), LNA will offer signal isolation and minimize receiver sensitivity degradation.

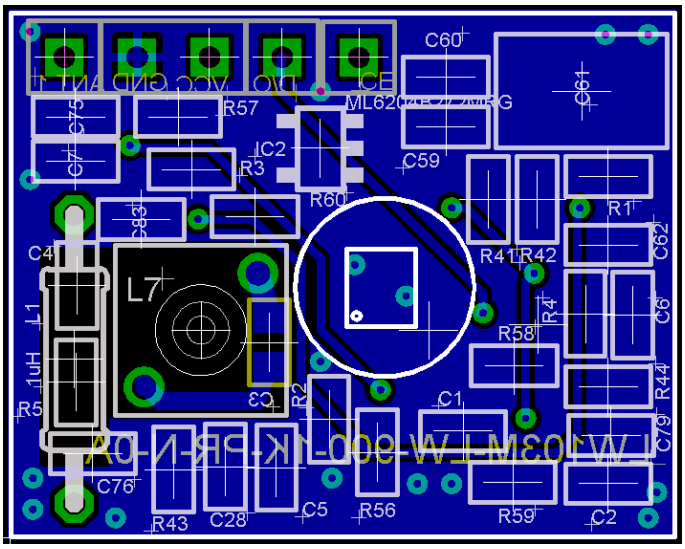
7.0 Evaluation Board

LW103HM PCB Bottom Layer (23.3 x 18.5 x 1 mm)

Antenna, GND, VCC ,DATA, EN



LW103HM PCB Bottom Layer (23.3 x 18.5 x 1 mm)



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