



RFWORLD

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WM2500EVB2

User Manual

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1: Brief Introduction.....	3
2. Sock Configuration	4
J1	4
J2.....	4
J3	4
3. Electronic Specifications.....	5
4. Schematic	6
5. Specifications	7
6. How to use WM2500EVB to testing	9
7.PCB Layout of WM2500EVK-B	10
8 Photo of WM2500EVK-B	11

1: Brief Introduction

The WM2500-EVK Evaluation kit includes 2 WM2500-EVB2, which comprises WM2500S 2.4G wireless module and an on-board 8051 Microcontroller with integrated 8 Kbytes Flash memory, 256 Byte RAM. 8051 Chip is base on the MEGAWIN 82LE52.

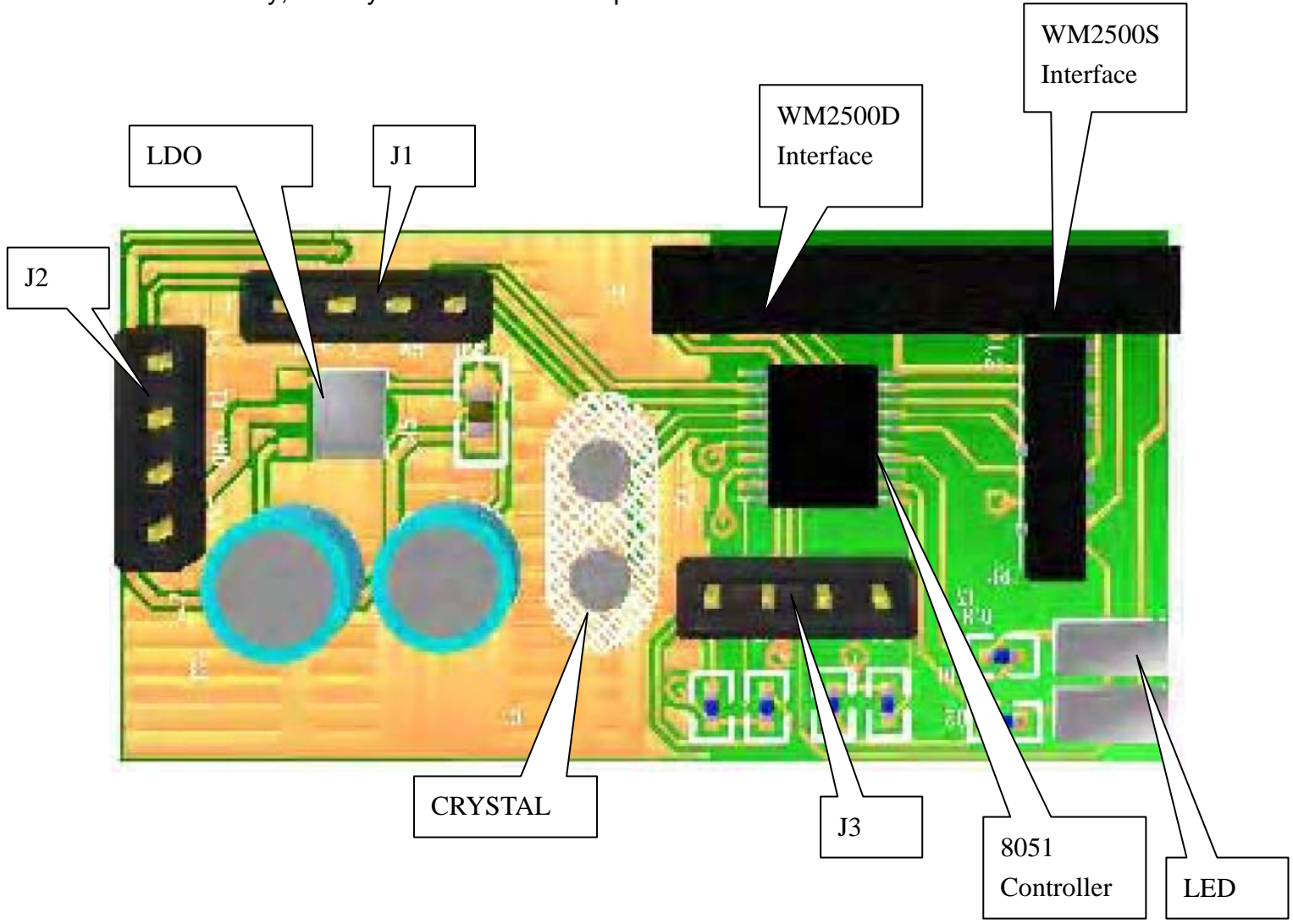


Figure 1: WM2500-EVB2



2. Sock Configuration

J1

Pin	Symbol	Function
1	VDD	Supply voltage / Flash program Power Supply
2	TXD	Serial output Tx data / Flash program Data input
3	RXD	Serial input Rx data
4	GND	Power GND / Flash program Power GND

J2

Pin	Symbol	Function
1	+5V	Supply voltage / Flash program Power Supply
2	GND	Power GND / Flash program Power GND
3	TXD	Serial output Tx data / Flash program Data input
4	RXD	Serial input Rx data

J3

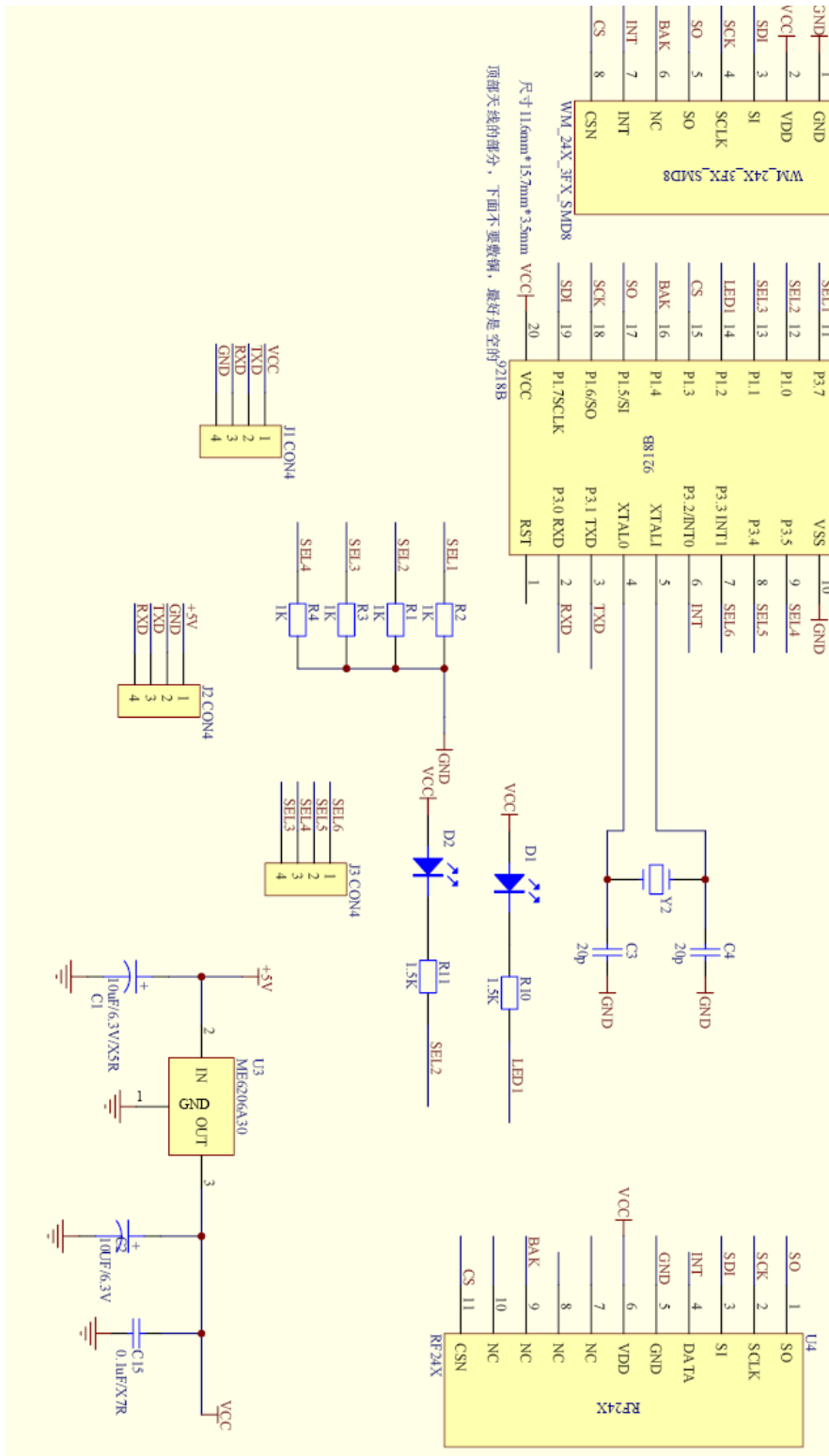
Pin	Symbol	Function
1	Reserve	Reserve
2	Reserve	Reserve
3	Reserve	Reserve
4	SENDER/RECEIVER	GND is SENDER, Float is RECEIVER



3. Electronic Specifications

Parameters	Min	Max	Unit
Supply Voltage	2.7	3.6	V
Temperature ambient	-10	60	°C
Supply Current	20	35	MA

4. Schematic





5. Specifications

Customer can use the WM2500EVB2 as a reference to check their own program.

#1 WM2500EVB2 as Receiver

#2 WM2500EVB2 as Sender

Below is working parameter of CC2500:

Num	Symbol	Value
1	Data Rate:	2400
2	FEC	Enable
3	Data Length	4
4	Data Content	0x03,0x66,0xbb,0xcc
5	Address Recognition	Disable
6	Frequency Channel	0x44

Below is register setting of CC2500 of the Demo:

```
CC2500 Register setting  
  
// Chipcon  
// Product = CC2500  
// Chip version = E  
// Crystal accuracy = 10 ppm  
// X-tal frequency = 26 MHz  
// RF output power = 1 dBm  
// RX filterbandwidth = 203.125000 kHz  
// Deviation = 38 kHz  
// Datarate = 2.398968 kbps  
// Modulation = (0) 2-FSK  
// Manchester enable = (0) Manchester disabled  
// RF Frequency = 2432.999908 MHz  
// Channel spacing = 199.951172 kHz  
// Channel number = 0  
// Optimization = Sensitivity  
// Sync mode = (3) 30/32 sync word bits detected  
// Format of RX/TX data = (0) Normal mode, use FIFOs for RX and TX  
// CRC operation = (1) CRC calculation in TX and CRC check in RX enabled
```



```
// Forward Error Correction = (1) FEC enabled
// Length configuration = (1) Variable length packets, packet length configured by the first
received byte after sync word.
// Packetlength = 255
// Preamble count = (2) 4 bytes
// Append status = 1
// Address check = (0) No address check
// FIFO autoflush = 1
// Device address = 0
// GDO0 signal selection = (6) Asserts when sync word has been sent / received, and
de-asserts at the end of the packet
// GDO2 signal selection = (11) Serial Clock
RF_SETTINGS code rfSettings = {
    0x08, // FSCTRL1 Frequency synthesizer control.
    0x00, // FSCTRL0 Frequency synthesizer control.
    0x5D, // FREQ2 Frequency control word, high byte.
    0x93, // FREQ1 Frequency control word, middle byte.
    0xB1, // FREQ0 Frequency control word, low byte.
    0x86, // MDMCFG4 Modem configuration.
    0x83, // MDMCFG3 Modem configuration.
    0x03, // MDMCFG2 Modem configuration.
    0xA2, // MDMCFG1 Modem configuration.
    0xF8, // MDMCFG0 Modem configuration.
    0x00, // CHANNR Channel number.
    0x44, // DEVIATN Modem deviation setting (when FSK modulation is enabled).
    0x56, // FREND1 Front end RX configuration.
    0x10, // FRENDO Front end RX configuration.
    0x18, // MCSM0 Main Radio Control State Machine configuration.
    0x16, // FOCCFG Frequency Offset Compensation Configuration.
    0x6C, // BSCFG Bit synchronization Configuration.
    0x03, // AGCCTRL2 AGC control.
    0x40, // AGCCTRL1 AGC control.
    0x91, // AGCCTRL0 AGC control.
    0xA9, // FSCAL3 Frequency synthesizer calibration.
    0x0A, // FSCAL2 Frequency synthesizer calibration.
    0x00, // FSCAL1 Frequency synthesizer calibration.
    0x11, // FSCAL0 Frequency synthesizer calibration.
```

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```
0x59, // FSTEST    Frequency synthesizer calibration.
0x81, // TEST2     Various test settings.
0x35, // TEST1     Various test settings.
0x0B, // TEST0     Various test settings.
0x0B, // IOCFG2    GDO2 output pin configuration.
0x06, // IOCFG0D    GDO0 output pin configuration. Refer to SmartRF?Studio User
Manual for detailed pseudo register explanation.
0x0C, // PKTCTRL1  Packet automation control.
0x45, //White Enable, CRC Enable, Variable length //0x05, // PKTCTRL0  Packet
automation control.
0x00, // ADDR      Device address.
0x10 // PKTLEN    Packet length.
};
```

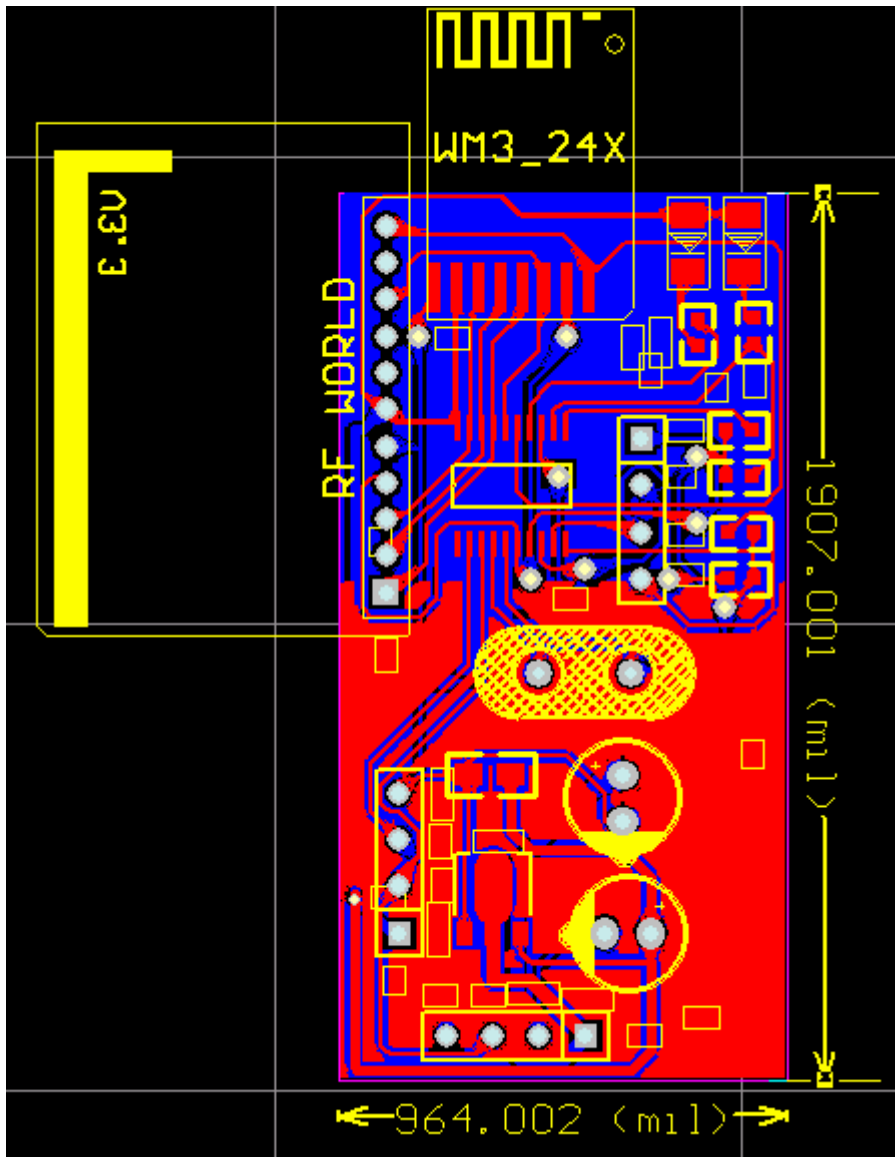
P.S. Channel must changed to 0x44 while working normally!

6. How to use WM2500EVB to testing

1. After Power on, #2 WM2500EVB (**Send**) : RED LED will be on after auto checking. Green Led will start to flash every 0.5 second while sending the 4 byte data as working parameter of CC2500 above.
2. You can design your own RX program to receive data sent by #2.
3. After Power on, #1 WM2500EVB (**Receive**) : Both RED LED and Green LED are on . Green LED will be alternative after receiving a whole package as working parameter of CC2500 above.
4. You can design your own TX program and see whether Green Led of #1 is flash.



7.PCB Layout of WM2500EVK-B





8 Photo of WM2500EVK-B

