



深圳市矽源特科技有限公司

ShenZhen ChipSourceTek Technology Co. ,Ltd.

FM582X

5.8GHz 毫米波雷达芯片

寄存器配置手册

深圳市矽源特科技有限公司

TEL: +86-0755-27595155 27595165

FAX: +86-0755-27594792

WEB: [Http://www.ChipSourceTek.com](http://www.ChipSourceTek.com)

E-mail: Tony.Wang@ChipSourceTek.com InFo@ChipSourceTek.com

V3.0



FM582X 寄存器配置手册 V3.0

1、FM582X 寄存器读写介绍

FM582X 内部有 233 个字节的寄存器可配置，偏移地址 0x00~0xe8。分别用于发射射频功率，接收放大器增益，PLL 频率，内部各模块电压设置等参数配置。

FM582X 可以通过 I2C 总线与 MCU 进行交互。通信时，I2C Slave 地址为 0011010x(x=0 写，x=1 读)。最高可支持 400Kbit/S 的快速读写模式。

2、I2C 读写说明

图 1 是一个完整的 I2C 数据传输周期，包括起始条件，主机寻址从机，响应，数据传输停止条件等。

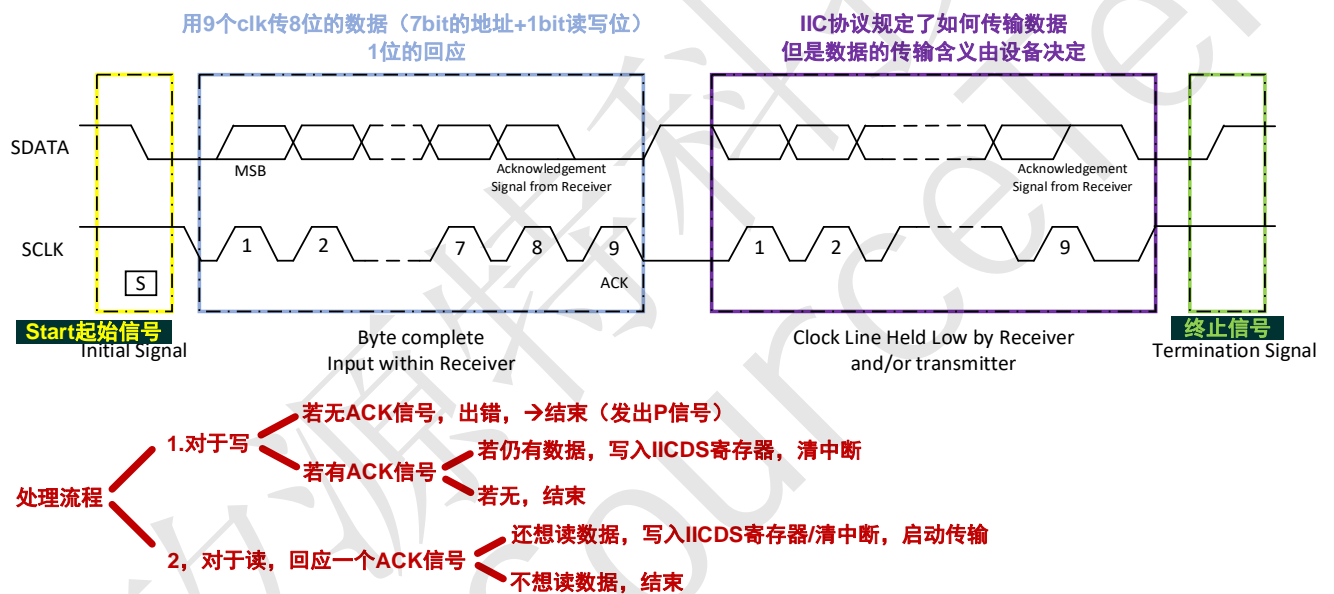


图 1 完整的数据传输



FM582X 寄存器配置手册 V3.0

3、寄存器配置说明

说明：调节TX发射频率

寄存器配置：

(1) 5.72G 上下调节：

| Reg.Address | Data | | Function |
|-------------|------|------|---|
| Reg0a | 0X84 | | |
| Reg0e | 0X0C | | 默认值0X08 (0X08 High Frequency Band) 0X0C Low Frequency Band |
| Reg0c | 0X21 | 0X27 | Adjust the frequency(5.72G up and down) |

(2) 5.82G 上下调节：

| Reg.Address | Data | | Function |
|-------------|------|------|---|
| Reg0a | 0X94 | | |
| Reg0e | 0X08 | | 默认值0X08 (0X08 High Frequency Band) 0X0C Low Frequency Band |
| Reg0c | 0X21 | 0X27 | Adjust the frequency(5.82G up and down) |

说明：调节TX发射功率

寄存器配置：

| Reg.Address | Data | | Function |
|-------------|------|------|------------------------------|
| Reg04 | 0X2E | 0X8E | Adjust the TX power 值越大 增益越小 |

注：示例：Reg04 的寄存器只能按照 2E\4E\8E 写入；

说明：调节RX接收增益

寄存器配置：

(1) 射频增益调节：

| Reg.Address | Data | | Function |
|-------------|------|------|---------------------------|
| Reg12 | 0X40 | 0X5A | Bit4~1; 0000~1111 值越大增益越大 |

MIXER 增益会放大直流信号成分，在增加增益时需要注意防范造成 mixer 输出直流饱和风险。测试方法：分别测量芯片 mixer_outp, mixer_outn 这两个 pin 脚的对地直流电压。这两个电压之差越小则越不容易饱和。若电压差值过大则表接近直流饱和，需要适当降低 mixer 增益。一般情况下， mixer_outp, mixer_outn 差值不超过 400mV。



FM582X 寄存器配置手册 V3.0

(2) 内部 LPF 增益

接收增益的调整由滤波器来实现，其包含输入电阻和反馈电阻，增益由反馈电阻和输入电阻的比值绝定。增益以及电阻的配置如下表所示：

| 寄存器地址 | Bit | 名称 | 功能 |
|-------|--------|------|------------------------|
| REG15 | BIT4~1 | 输入电阻 | 增益 0001~1101, 3db/steb |
| REG17 | BIT7~5 | 反馈电阻 | 增益 111~000, 6db/steb |

| REG15 BIT4~1 | 输入电阻 | REG17 BIT7~5 | 反馈电阻 |
|--------------|--------|--------------|-------|
| 1101 | 1k | 111 | 20k |
| 1100 | 1.4k | 110 | 40k |
| 1011 | 2k | 101 | 80k |
| 1010 | 2.9k | 100 | 160k |
| 1001 | 4.4k | 011 | 320k |
| 1000 | 6.3k | 010 | 640k |
| 0111 | 8.7k | 001 | 1.28M |
| 0110 | 12k | 000 | 2.56M |
| 0101 | 17.6k | | |
| 0100 | 25.4k | | |
| 0011 | 36.6k | | |
| 0010 | 51.8k | | |
| 0001 | 77.6k | | |
| 0000 | 108.2k | | |

计算公式：

$$A = \frac{\text{反馈电阻}}{\text{输入电阻}}$$

| A | 增益 |
|----|------|
| 2 | 6dB |
| 4 | 12dB |
| 8 | 18dB |
| 16 | 24dB |
| 32 | 30dB |
| 64 | 36dB |



FM582X 寄存器配置手册 V3.0

4、I2C 读写程序说明示例

```
Write_IIC_Command(0X34,0x00,0xFA);
Write_IIC_Command(0X34,0x01,0xEE);
Write_IIC_Command(0X34,0x02,0xE6);
Write_IIC_Command(0X34,0x03,0xDF);
Write_IIC_Command(0X34,0x04,0x4E); // 2E 4E 8E Change TX Power
Write_IIC_Command(0X34,0x05,0x80);
Write_IIC_Command(0X34,0x06,0xDA);
Write_IIC_Command(0X34,0x07,0x40);
Write_IIC_Command(0X34,0x08,0x00);
Write_IIC_Command(0X34,0x09,0x00);
Write_IIC_Command(0X34,0x0a,0x84); //Change Frequency: 74 84 94
Write_IIC_Command(0X34,0x0b,0x69);
Write_IIC_Command(0X34,0x0c,0x23); //21~27 Micro Change Frequency some MHz?
Write_IIC_Command(0X34,0x0d,0xC2); //First C2
Write_IIC_Command(0X34,0x0e,0x08);
Write_IIC_Command(0X34,0x0f,0x95); //LNA 90 95
Write_IIC_Command(0X34,0x10,0xAB);
Write_IIC_Command(0X34,0x11,0x12); //
Write_IIC_Command(0X34,0x12,0x50); //48 50
Write_IIC_Command(0X34,0x13,0x00); //LPF_GAIN MAX 00
Write_IIC_Command(0X34,0x14,0x05);
Write_IIC_Command(0X34,0x15,0x00);
Write_IIC_Command(0X34,0x16,0x0A);
Write_IIC_Command(0X34,0x17,0x61);
Write_IIC_Command(0X34,0x18,0x02);
Write_IIC_Command(0X34,0x19,0x02);
Write_IIC_Command(0X34,0x1a,0x02);
Write_IIC_Command(0X34,0x1b,0x02);
Write_IIC_Command(0X34,0x1c,0x02);
Write_IIC_Command(0X34,0x1d,0x02);
Write_IIC_Command(0X34,0x1e,0x02);
Write_IIC_Command(0X34,0x1f,0x37);
Write_IIC_Command(0X34,0x20,0x15);
Write_IIC_Command(0X34,0x21,0x15);
Write_IIC_Command(0X34,0x22,0x15);
Write_IIC_Command(0X34,0x23,0x5A); //First 5A
Write_IIC_Command(0X34,0x24,0x09);
Write_IIC_Command(0X34,0x25,0xC4);
Write_IIC_Command(0X34,0x26,0x00);
Write_IIC_Command(0X34,0x27,0x02);
Write_IIC_Command(0X34,0x28,0x8B);
Write_IIC_Command(0X34,0x29,0xFE);
Write_IIC_Command(0X34,0x2a,0xC7);
Write_IIC_Command(0X34,0x2b,0x2F);
Write_IIC_Command(0X34,0x2c,0x00);
Write_IIC_Command(0X34,0x2d,0x6A);
Write_IIC_Command(0X34,0x2e,0x12);

Write_IIC_Command(0X34,0x23,0x00); //Second 00
EA = 1;
DelayMs(50);
EA = 0;
Write_IIC_Command(0X34,0x0d,0x82); // Second 82
```



FM582X 寄存器配置手册 V3.0

5、芯片应用原理图

