

# PN3020 各频段软件配置和硬件参数

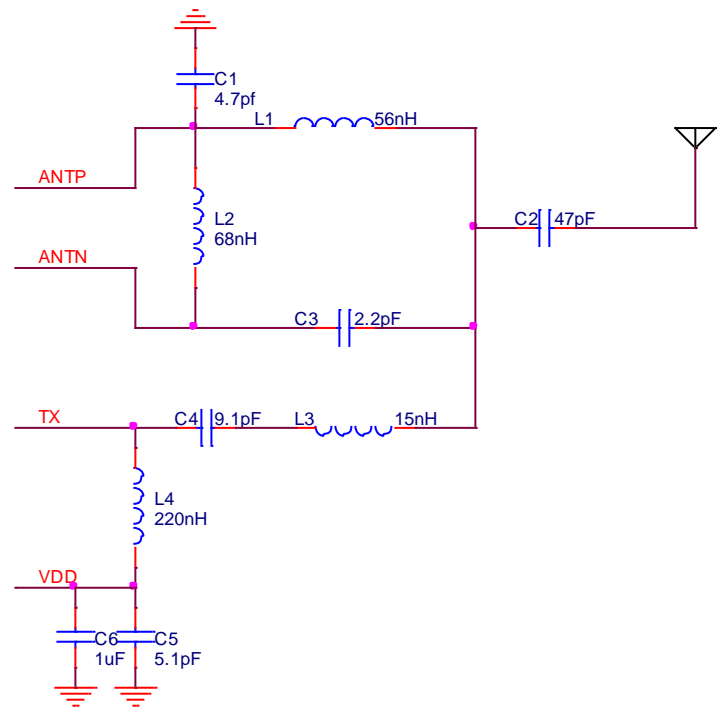
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# 1、匹配电路结构以及对应元器件的值

## 1)、匹配结构



## 2)、各频段对应匹配元件值

Frequency (MHz)	C1 (pF)	L1 (nH)	L2 (nH)	C3 (pF)	C4 (pF)	L3 (nH)	L4 (nH)	C2 (pF)
315	6.2	68	120	2.2	12	22	220	47
433	4.7	56	68	2.2	9.1	15	220	47
868	3.6	22	27	1.2	3.3	6	100	47
915	3.6	22	22	1	3	6	100	47

# 2、各频段频点配置

RF 发射输出频率可以通过调整分频值得到，分频值由整数部分和小数部分组成，其中整数部分 Fb 由一个 6 比特数表示，地址为 Reg\_06<5: 0>; 小数部分 Fc 由一个 9 比特表示，Fc<8: 1>地址为 Reg\_05<7: 0>和 Fc<0>地址为 Reg\_1E<3>。

各频段输出频率的计算公式为：

315MHz 为  $1/6 * f_{op}$  ；

433MHz 为  $1/4 * f_{op}$ ；

868MHz 和 915MHz 为  $1/2 * f_{op}$ ;

其中  $f_{op}=8M*(200+fb+fc/400)$ 。

以下给出了各个频段的配置实例:

频段	315MHz	433MHz	868MHz	915MHz
fb	0x25	0x12	0x11	0x1c
fc	0x20	0x20	0x20	0x20

## 3、各频段特殊寄存器配置

由于各个频段相关的配置,包括频率计算、频偏计算和锁相环相关配置都存在差异,这里直接给出了寄存器配置值。对于动态 payload 模式,以下各频段各种速率的 Dem\_cal2 寄存器配置都需要修改为{0x0B,0xE7,0x00,0x00}。

### 1)、315MHz 频段

#### 40Kpbs

```
uint8_t BB_cal_data[]      = {0x3f,0xFC,0x1F,0x1F,0x04};
uint8_t RF_cal1_data[]     = {0xC5,0xFF,0xFF,0x5F,0xD8};
uint8_t RF_cal2_data[]     = {0xC8,0x1E,0x68,0x39,0xF6};
uint8_t RF_cal3_data[]     = {0x01,0x08,0xD4,0x02,0x66};
uint8_t Dem_cal1_data[]    = {0x01,0x69,0x48,0x44,0x8C};
uint8_t Dem_cal2_data[]    = {0x0B,0xE7,0x00,0x01};
```

#### 80Kbps

```
uint8_t BB_cal_data[]      = {0x3f,0xFC,0x1F,0x1F,0x04};
uint8_t RF_cal1_data[]     = {0xC5,0xFF,0xFF,0xDF,0xD8};
uint8_t RF_cal2_data[]     = {0xC8,0x1E,0x68,0x39,0xF6};
uint8_t RF_cal3_data[]     = {0x01,0x08,0xD4,0x02,0x66};
uint8_t Dem_cal1_data[]    = {0x01,0xE9,0x48,0x74,0x8C};
uint8_t Dem_cal2_data[]    = {0x0B,0xE7,0x00,0x01};
```

#### 200Kbps

```
uint8_t BB_cal_data[]      = {0x3f,0xFC,0x1F,0x1F,0x04};
uint8_t RF_cal1_data[]     = {0xC5,0xFF,0xFF,0xDF,0xD9};
uint8_t RF_cal2_data[]     = {0xC8,0x1E,0x68,0x39,0xF6};
uint8_t RF_cal3_data[]     = {0x01,0x08,0xD4,0x02,0x66};
uint8_t Dem_cal1_data[]    = {0x01,0xE8,0x48,0x74,0x84};
uint8_t Dem_cal2_data[]    = {0x0B,0xE7,0x00,0x01};
```

#### 400Kbps

```
uint8_t BB_cal_data[]      = {0x3f,0xFC,0x1F,0x1F,0x04};
uint8_t RF_cal1_data[]     = {0xC5,0xFF,0xFF,0xDF,0xDB};
uint8_t RF_cal2_data[]     = {0xC8,0x1E,0x68,0x39,0xF6};
uint8_t RF_cal3_data[]     = {0x01,0x08,0xD4,0x02,0x66};
```

```
uint8_t Dem_cal1_data[] = {0x01,0xea,0x48,0x74,0x80};
uint8_t Dem_cal2_data[] = {0x0B,0xE7,0x00,0x01};
```

## 2)、433MHz 频段

### 40Kpbs

```
uint8_t BB_cal_data[] = {0x3f,0xFC,0x1F,0x1F,0x04};
uint8_t RF_cal1_data[] = {0xC4,0xFF,0xFF,0x5F,0xD8};
uint8_t RF_cal2_data[] = {0xC8,0x1E,0x68,0x39,0xF6};
uint8_t RF_cal3_data[] = {0x01,0x08,0xD4,0x02,0x66};
uint8_t Dem_cal1_data[] = {0x01,0x4D,0x48,0x34,0x8C};
uint8_t Dem_cal2_data[] = {0x0B,0xE7,0x00,0x01};
```

### 80Kbps

```
uint8_t BB_cal_data[] = {0x3f,0xFC,0x1F,0x1F,0x04};
uint8_t RF_cal1_data[] = {0xC4,0xFF,0xFF,0xDF,0xD8};
uint8_t RF_cal2_data[] = {0xC8,0x1E,0x68,0x39,0xF6};
uint8_t RF_cal3_data[] = {0x01,0x08,0xD4,0x02,0x66};
uint8_t Dem_cal1_data[] = {0x01,0x8D,0x48,0x4C,0x8C};
uint8_t Dem_cal2_data[] = {0x0B,0xE7,0x00,0x01};
```

### 200Kbps

```
uint8_t BB_cal_data[] = {0x3f,0xFC,0x1F,0x1F,0x04};
uint8_t RF_cal1_data[] = {0xC4,0xFF,0xFF,0xDF,0xD9};
uint8_t RF_cal2_data[] = {0xC8,0x1E,0x68,0x39,0xF6};
uint8_t RF_cal3_data[] = {0x01,0x08,0xD4,0x02,0x66};
uint8_t Dem_cal1_data[] = {0x01,0x8C,0x48,0x4C,0x84};
uint8_t Dem_cal2_data[] = {0x0B,0xE7,0x00,0x01};
```

### 400Kbps

```
uint8_t BB_cal_data[] = {0x3f,0xFC,0x1F,0x1F,0x04};
uint8_t RF_cal1_data[] = {0xC4,0xFF,0xFF,0xDF,0xDB};
uint8_t RF_cal2_data[] = {0xC8,0x1E,0x68,0x39,0xF6};
uint8_t RF_cal3_data[] = {0x01,0x08,0xD4,0x02,0x66};
uint8_t Dem_cal1_data[] = {0x01,0x8e,0x48,0x4c,0x80};
uint8_t Dem_cal2_data[] = {0x0B,0xE7,0x00,0x01};
```

## 3)、868MHz 频段

### 40Kbps

```
uint8_t BB_cal_data[] = {0x3f,0xFC,0x1F,0x1F,0x04};
uint8_t RF_cal1_data[] = {0xd0,0xFF,0xFF,0x5F,0xD8};
uint8_t RF_cal2_data[] = {0xC8,0x1E,0x68,0x39,0xF6};
uint8_t RF_cal3_data[] = {0x01,0x08,0xD4,0x02,0x66};
uint8_t Dem_cal1_data[] = {0x01,0x09,0x80,0x19,0x5C};
```

```
uint8_t Dem_cal2_data[] = {0x0B,0xE7,0x00,0x01};
```

#### **80Kbps**

```
uint8_t BB_cal_data[] = {0x3f,0xFC,0x1F,0x1F,0x04};
```

```
uint8_t RF_cal1_data[] = {0xD0,0xFF,0xFF,0xDF,0xD8};
```

```
uint8_t RF_cal2_data[] = {0xC8,0x1E,0x68,0x39,0xF6};
```

```
uint8_t RF_cal3_data[] = {0x01,0x08,0xD4,0x02,0x66};
```

```
uint8_t Dem_cal1_data[] = {0x01,0x09,0x00,0x21,0x5C};
```

```
uint8_t Dem_cal2_data[] = {0x0B,0xE7,0x00,0x01};
```

#### **200Kbps**

```
uint8_t BB_cal_data[] = {0x3f,0xFC,0x1F,0x1F,0x04};
```

```
uint8_t RF_cal1_data[] = {0xd0,0xFF,0xFF,0xDF,0xD9};
```

```
uint8_t RF_cal2_data[] = {0xC8,0x1E,0x68,0x39,0xF6};
```

```
uint8_t RF_cal3_data[] = {0x01,0x08,0xD4,0x02,0x66};
```

```
uint8_t Dem_cal1_data[] = {0x01,0x89,0x48,0x4c,0x9c};
```

```
uint8_t Dem_cal2_data[] = {0x0B,0xE7,0x00,0x01};
```

#### **400Kbps**

```
uint8_t BB_cal_data[] = {0x3f,0xFC,0x1F,0x1F,0x04};
```

```
uint8_t RF_cal1_data[] = {0xd0,0xFF,0xFF,0xDF,0xDB};
```

```
uint8_t RF_cal2_data[] = {0xC8,0x1E,0x68,0x39,0xF6};
```

```
uint8_t RF_cal3_data[] = {0x01,0x08,0xD4,0x02,0x66};
```

```
uint8_t Dem_cal1_data[] = {0x01,0x88,0x48,0x4c,0x94};
```

```
uint8_t Dem_cal2_data[] = {0x0B,0xE7,0x00,0x01};
```

## **4)、915MHz 频段**

#### **40Kbps**

```
uint8_t BB_cal_data[] = {0x3f,0xFC,0x1F,0x1F,0x04};
```

```
uint8_t RF_cal1_data[] = {0xd0,0xFF,0xFF,0x5F,0xD8};
```

```
uint8_t RF_cal2_data[] = {0xC8,0x1E,0x68,0x39,0xF6};
```

```
uint8_t RF_cal3_data[] = {0x01,0x08,0xD4,0x02,0x66};
```

```
uint8_t Dem_cal1_data[] = {0x01,0x1d,0x48,0x34,0x8C};
```

```
uint8_t Dem_cal2_data[] = {0x0B,0xE7,0x00,0x01};
```

#### **80Kbps**

```
uint8_t BB_cal_data[] = {0x3f,0xFC,0x1F,0x1F,0x04};
```

```
uint8_t RF_cal1_data[] = {0xD0,0xFF,0xFF,0xDF,0xD8};
```

```
uint8_t RF_cal2_data[] = {0xC8,0x1E,0x68,0x39,0xF6};
```

```
uint8_t RF_cal3_data[] = {0x01,0x08,0xD4,0x02,0x66};
```

```
uint8_t Dem_cal1_data[] = {0x01,0x1d,0x00,0x44,0x7C};
```

```
uint8_t Dem_cal2_data[] = {0x0B,0xE7,0x00,0x01};
```

#### **200Kpbs**

```
uint8_t BB_cal_data[] = {0x3f,0xFC,0x1F,0x1F,0x04};
```

```
uint8_t RF_cal1_data[] = {0xD0,0xFF,0xFF,0xDF,0xD9};
```

```
uint8_t RF_cal2_data[] = {0xC8,0x1E,0x68,0x39,0xF6};
```

```
uint8_t RF_cal3_data[] = {0x01,0x08,0xD4,0x02,0x66};
```

```
uint8_t Dem_cal1_data[] = {0x01,0x9d,0x48,0x54,0x8c};  
uint8_t Dem_cal2_data[] = {0x0B,0xE7,0x00,0x01};
```

#### **400Kbps**

```
uint8_t BB_cal_data[] = {0x3f,0xFC,0x1F,0x1F,0x04};  
uint8_t RF_cal1_data[] = {0xd0,0xFF,0xFF,0xDF,0xDB};  
uint8_t RF_cal2_data[] = {0xC8,0x1E,0x68,0x39,0xF6};  
uint8_t RF_cal3_data[] = {0x01,0x08,0xD4,0x02,0x66};  
uint8_t Dem_cal1_data[] = {0x01,0x9c,0x48,0x54,0x84};  
uint8_t Dem_cal2_data[] = {0x0B,0xE7,0x00,0x01};
```