

版本 Version: V2.0

日期 Date: 2011.6.22

名称: 电子调谐器**Name: ELECTRONIC TUNER****型号: CDT-3SP5I2-36****Model:****软件:****Software:**

| 客 户 CUSTOMER | 客户承认 APPROVE (请盖印章) | 日 期 DATE |
|-----------------|------------------------|-------------|
| | | |

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DESIGN: _____

CHECK: _____

APPROVAL: _____

更改记录:

Reversion History:

| 版本 Version | 日期 Date | 更改内容 Modification |
|---------------|------------|----------------------|
| 1.0 | 2011-5-5 | 新版发行 |
| 2.0 | 2011-6-22 | 更改引脚结构,增加引脚序号 |
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1. 接收制式:

Receiving System: PAL B/G 、 I 、 D/K; SECAM L/L'

2. 使用和测试条件

Use and Test Conditions

| | 使用条件 Use Conditions | 测试条件 Test Conditions |
|---------------------------|------------------------|-------------------------|
| 温度 Temperature | -15~+60℃ | 25±5℃ |
| 相对湿度 Relative Humidity | ≤95% | 60±15% |
| 气压 Atmosphere | 86~106kPa | 86~106kPa |

3. 输入阻抗:

Input impedance: 75Ω Unbalance

4. 各端子电压电流:

Voltage & current at each terminal:

| 端子名称 Terminal Name | 端子电压 Terminal Voltage | 端子电流 Current |
|-----------------------|--------------------------|-----------------|
| AGC | 0.3V~4V | |
| BM | 4.75V~5.25V | 120mA |
| TU | 33±2V | 500μA |

5. 中频

Intermediate Frequency

| System | B/G | I | D/K |
|--------|-------|-------|-------|
| Fip | 38.9 | 38.9 | 38.9 |
| Fic | 34.47 | 33.57 | 33.57 |
| Fisl | 33.40 | 32.9 | 32.40 |

6. 电气指标

Electrical Data

调谐器部分(For Tuner Section:)

环境温度: Ambient Temperature: 25±5℃
相对湿度: Relative Humidity: 60±15%
电源电压: Supply Voltage: 5V±0.25V
天线阻抗: Input Impedance: 75Ω Unbalanced

6.1 本振频率覆盖范围

Frequency Cover Range of Local Oscillator

本振频率的最小范围应包括各频道标称本振频率之间全部频率, 且两端各有2MHz余量

The min. adjustable range of local frequency including all freq. of high-low channel nominal local freq. Of each band and the ends is over 2MHz

| 频段 Band | 频道 Channel | 频率覆盖范围 Frequency range |
|------------|---------------|---------------------------|
| VHF Low | E2~S6 | 45.25~140.25MHz |
| VHF High | S7~S36 | 147.25~423.25MHz |
| UHF | S37~DS-57 | 431.25~863.25MHz |

6.2 频率响应

Frequency Response

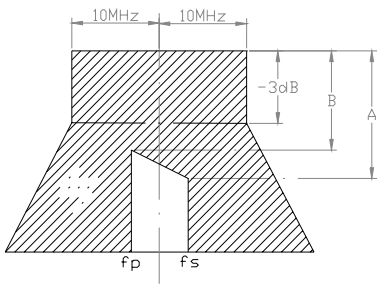
频率响应特性应落在图1 所示的阴影内，并符合表6 的规定。

The freq. response shall fall in the hatched area show chart 1, and accord with table 6.

table 6

| 频道范围 Frequency range | | A | B |
|-------------------------|------|----|----|
| VHF | Low | -9 | -4 |
| | High | -8 | -4 |
| UHF | | -8 | -4 |

chart 1



6.3 电气指标

Electrical Data

Table 7

| S/N | 参数PARAMETER | MIN. | TYP. | MAX. | UNIT |
|-------|---|------|------|------|------|
| 6.3.1 | 功率增益 Power Gain | | | | |
| | — VHF Low | 35 | 40 | — | dB |
| | — VHF High | 33 | 38 | — | |
| | — UHF | 33 | 37 | — | |
| 6.3.2 | 增益差 Gain Taper | | | | |
| | — VHF Low | — | — | 8.0 | dB |
| | — VHF High | — | — | 8.0 | |
| | — UHF | — | — | 8.0 | |
| 6.3.3 | AGC 控制范围 AGC Control Range | | | | |
| | — VHF Low | 40 | — | — | dB |
| | — VHF High | 40 | — | — | |
| | — UHF | 35 | — | — | |
| 6.3.4 | 噪声系数 Noise Figure | | | | |
| | — VHF Low | — | 5.5 | 8.0 | dB |
| | — VHF High | — | 5.5 | 8.0 | |
| | — UHF | — | 6.5 | 9.0 | |
| 6.3.5 | 天线输入端电压驻波比 Antenna Input VSWR | | | | |
| | — VHF Low | — | 2.5 | 5.0 | |
| | — VHF High | — | 2.5 | 5.0 | |
| | — UHF | — | 2.5 | 5.0 | |
| 6.3.6 | 假像抑制比 Image Rejection | | | | |
| | — VHF Low (under 300MHz) | 55 | — | — | dB |
| | — VHF High (under 300MHz) | 50 | — | — | |
| | — UHF | 49 | — | — | |
| 6.3.7 | 本振停振电压 Local Frequency Stop Voltage BM | | | 4.0 | V |
| 6.3.8 | 中频抑制比 IF Rejection | 65 | — | — | dB |
| 6.3.9 | 差频干扰抑制比 Beat Rejection Ratio | | | | |
| | DS-2 CH | 45 | — | — | dB |
| | DS-3 CH | 42 | — | — | |

6.4 彩色副载波干扰抑制比

Color Carrier Frequency Rejection Ratio

调谐器对彩色副载波干扰信号（fi）抑制能力应大于或等于46 dB

Tuner' s rejection ratio against color carrier freq. Interference signal (fi) more than 46dB.

fi=(fo-fp)-(fs-fc)=fip-(fic -fis)

fo---本振 fip---图像中频

The freq. of local oscillator The picture IF.

fp---图像载频 fis--- 伴音中频

The picture carrier freq. The sound IF.

fc---彩色载频 fic---彩色中频

The color carrier freq. The color IF.

fs---伴音载频

The sound carrier freq.

7.1.1 逻辑图表(写模式, R/W=0)

Logic Diagram (Write Mode, R/W=0)

Table 10

| | | | | | | | | | |
|----------------------------|----|-----|-----|-----|-----|-----|-----|-----|---|
| 地址字节 Address Byte | 1 | 1 | 0 | 0 | 0 | MA1 | MA0 | R/W | A |
| 分频比字节1 Prog. Div. Byte1 | 0 | n14 | n13 | n12 | n11 | n10 | n9 | n8 | A |
| 分频比字节2 Prog. Div. Byte2 | n7 | n6 | n5 | n4 | n3 | n2 | n1 | n0 | A |
| 控制命令字节1 Control Byte1 | 1 | CP | 0 | 0 | 1 | RSA | RSB | OS | A |
| 控制命令字节2 Control Byte2 | X | X | X | X | BS4 | BS3 | BS2 | BS1 | A |

“A” 为应答信号（Acknowledge ）

7.1.2 分频比字节(字节1 和字节2)

Programmable Divider setting (Byte1and 2)

分频比(一般设定 RSA=0 , RSB=0 即参考分频比=80)

Prog.Div. Ratio (RSA=0 , RSB=0 reference Prog.Div. Ratio=80)

$$N=20 \times (Frf.pc (MHz) + Fif.pc (MHz))=20* Fosc (MHz)$$

$$N=8192 \times n13 + 4096 \times n12 + 2048 \times n11 + 1024 \times n10 + 512 \times n9 + 256 \times n8 + 128 \times n7 + 64 \times n6 + 32 \times n5 + 16 \times n4 + 8 \times n3 + 4 \times n2 + 2 \times n1 + n0$$

Frf.pc 为接收频道图像载频

Frf.pc The picture carrier frequency of receiving channel

Fif.pc 为图像中频频率

Fif.pc Picture intermediate frequency

Fosc 为接收频道本振频率

Fosc Frequency of local oscillator

7.1.3 控制信息字节1

Control info byte1

充电泵设置(Charge Pump setting) :

CP 可以设置为0 或1 CP, can be set to either 0 or 1
CP=0 充电泵电流60 μ A CP=0, Charge Pump Current 60 μ A
CP=1 充电泵电流280 μ A CP=1, Charge Pump Current 280 μ A

锁相环设置(PLL Setting) :
OS=0: 常规操作, 调谐电压打开 (For normal operation OS=0 and tuning voltage is ON)
OS=1:调谐电压关闭, 成高阻状态 (When OS=1 tuning voltage is OFF) (High impedance)
分频比选择: (一般设定RSA=0, RSB=0)
Programmable Div. Ratio select (RSA=0, RSB=0)

Table 11

| RSA | RSB | 参考分频比 Reference Prog. Div. Ratio | 频率步长 Frequency Step (KHz) |
|-----|-----|-------------------------------------|------------------------------|
| 0 | 0 | 80 | 50 |
| 0 | 1 | 128 | 31.25 |
| 1 | 0 | 80 | 50 |
| 1 | 1 | 64 | 62.5 |

7.1.4 控制信息字节2 (波段选择)
Control info byte2 (Bandswitching Select)

Table 12

| 波段开关 Band switching | BS1 | BS2 | BS3 | BS4 |
|------------------------|-----|-----|-----|-----|
| VHF Low | 1 | 0 | 0 | 0 |
| VHF High | 0 | 1 | 0 | 0 |
| UHF | 0 | 0 | 0 | 1 |

地址选择 (Table 13: Address Selection)

table 13

| AS 端子供给电压 Voltage applied on AS | MA1 | MA0 |
|------------------------------------|-----|-----|
| 0v~0.1Vcc | 0 | 0 |
| OPEN OR 0.2Vcc~0.3Vcc | 0 | 1 |
| 0.4Vcc~0.6Vcc | 1 | 0 |
| 0.9Vcc~Vcc | 1 | 1 |

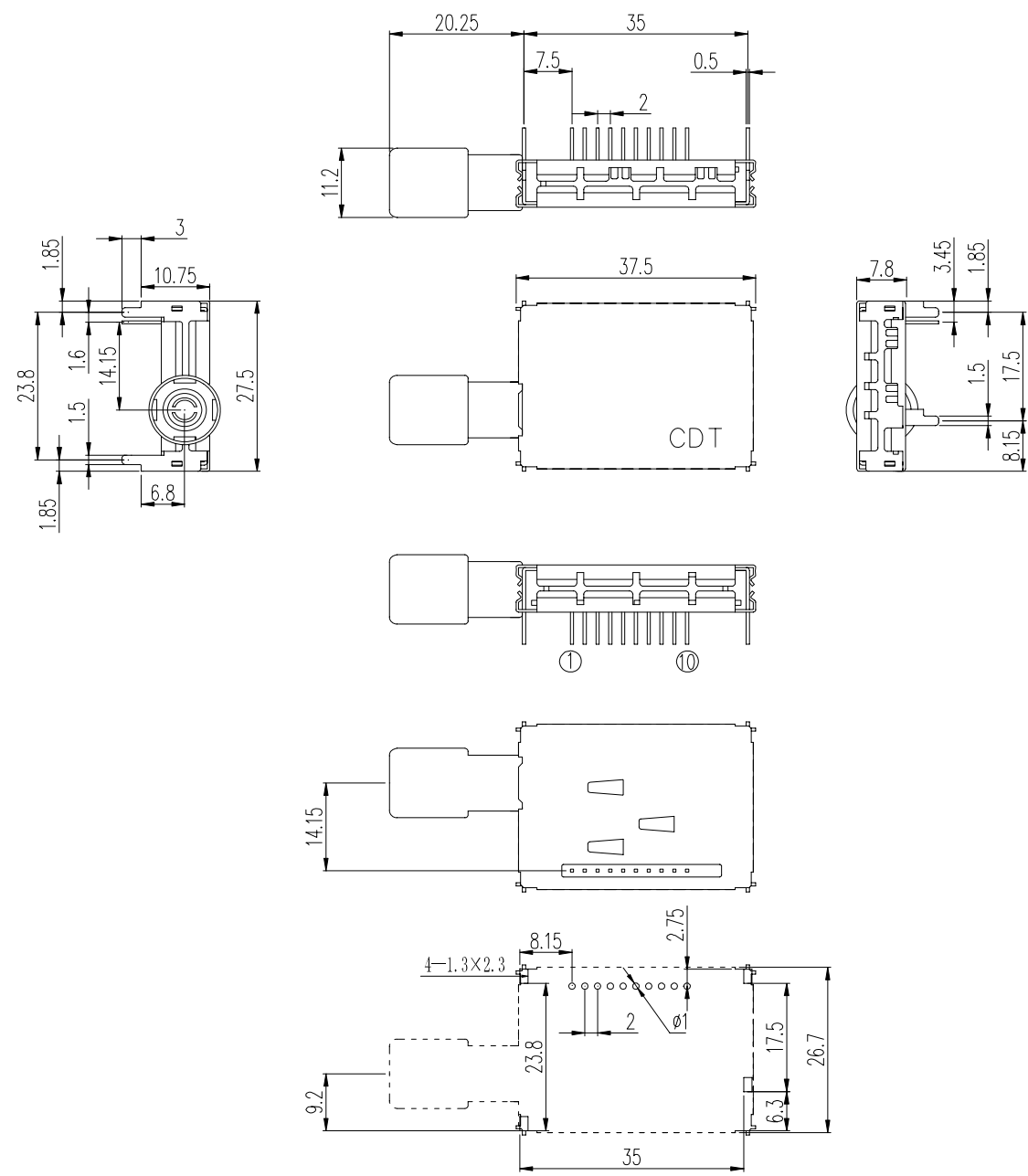
7.1.5 读模式 (R/W=1)

Read Mode

| 地址信息 (Address) | 1 | 1 | 0 | 0 | 0 | MA1 | MA0 | R/W=0 | A |
|-------------------|-----|----|---|---|---|-----|-----|-------|---|
| 状态字节 (Data) | POR | FL | 1 | 1 | 1 | A2 | A1 | A0 | A |

POR 电源标志 (POWER ON, POR=1)

8. 外形及安装尺寸 Dimensions 单位 (mm)



| Term No. | Term Name | Description |
|----------|-----------|-------------------|
| 1 | VT | Not connected |
| 2 | AGC | RF AGC input 0~4V |
| 3 | TU | 33V |
| 4 | GND | Ground |
| 5 | AS | Address select |
| 6 | SDA | Data |
| 7 | SCL | Clock |
| 8 | VCC | Supply voltage 5v |
| 9 | IF1 | IF output 1 |
| 10 | IF2 | IF output 2 |