

版本 Version: V1.0

日期 Date: 2011.7.27

名称: 电子调谐器

Name: ELECTRONIC TUNER

型号: CDT-3FC2I1-21

Model:

软件:

Software:

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

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更改记录:

Reversion History:

版本 Version	日期 Date	更改内容 Modification
1.0	2011-7-27	新版发行

1. 接收制式:

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

2. 使用和测试条件 (见表1)

Use and Test Conditions (see table 1)

Table 1

	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. 中频

Intermediate Frequency

Table 2

System	
Fip	38.0
Fic	33.57
Fisl	31.50

5. 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

5.1 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 (见表3)

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(see table 3)

Table 3

频段 Band	频道 Channel	频率覆盖范围 Frequency range
VHF Low	E2~S9	45.25~161.25MHz
VHF High	Z-7~Z-38	160.25~464.25MHz
UHF	S41~DS-57	463.25~863.25MHz

5.2 频率响应

Frequency Response

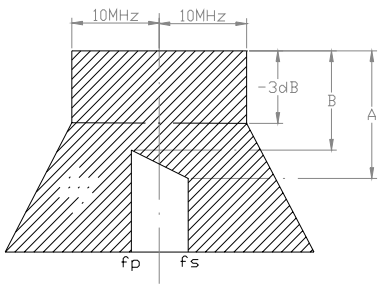
频率响应特性应落在图1 所示的阴影内，并符合表4 的规定。

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

table 4

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

chart 1



5.3 电气指标

Electrical Data

Table 5

S/N	参数PARAMETER	MIN.	TYP.	MAX.	UNIT
5.3.1	功率增益 Power Gain				
	— VHF Low	35	40	—	dB
	— VHF High	33	38	—	
	— UHF	33	37	—	
5.3.2	增益差 Gain Taper				
	— VHF Low	—	—	8.0	dB
	— VHF High	—	—	8.0	
	— UHF	—	—	8.0	
5.3.3	AGC 控制范围 AGC Control Range				
	— VHF Low	40	—	—	dB
	— VHF High	40	—	—	
	— UHF	35	—	—	
5.3.4	噪声系数 Noise Figure				
	— VHF Low	—	5.5	8.0	dB
	— VHF High	—	5.5	8.0	
	— UHF	—	6.5	9.0	
5.3.5	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	
5.3.6	假像抑制比 Image Rejection				
	— VHF Low (under 300MHz)	55	—	—	dB
	— VHF High (under 300MHz)	50	—	—	
	— UHF	49	—	—	
5.3.7	本振停振电压 Local Frequency Stop Voltage BM			4.0	V
5.3.8	中频抑制比 IF Rejection	65	—	—	dB
5.3.9	差频干扰抑制比 Beat Rejection Ratio				
	DS-2 CH	45	—	—	dB
	DS-3 CH	42	—	—	

5.4 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.

6.1.1 逻辑图表(写模式, R/W=0)

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

Table 6

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)

6.1.2 分频比字节(字节1 和字节2)

Programmable Divider setting (Byte1 and 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)

$$N = 20 \times (\text{Frf.pc (MHz)} + \text{Fif.pc (MHz)}) = 20 \times \text{Fosc (MHz)}$$

$$N = 8192 \times n13 + 4096 \times n12 + 2048 \times n11 + 1024 \times n10 + 512 \times n9$$

$$+ 256 \times n8 + 128 \times n7 + 64 \times n6 + 32 \times n5 + 16 \times n4 + 8 \times n3 + 4 \times n2 + 2 \times n1 + n0$$

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

6.1.3 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 7

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

6.1.4 控制信息字节2 (波段选择)

Control info byte2 (Bandswitching Select)

Table 8

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 9

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

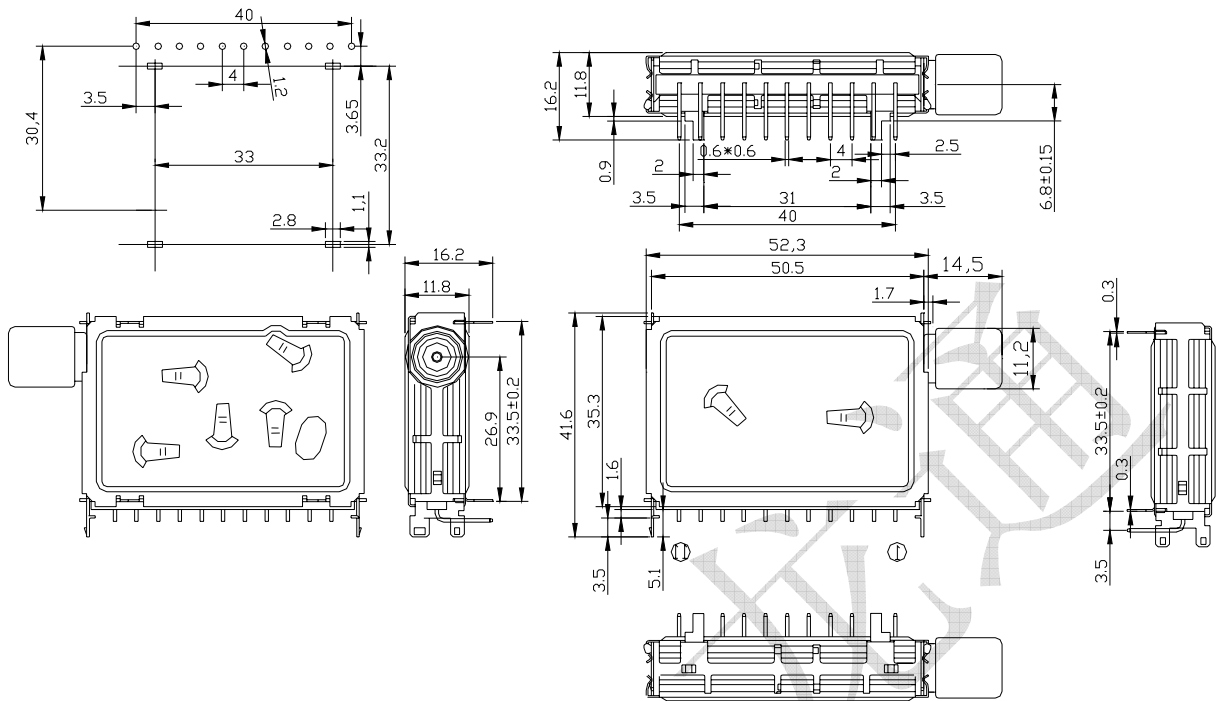
6.1.5 读模式 (R/W=1)

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)

7. 外形及安装尺寸 Dimensions 单位 (mm)



Term No.	Term Name	Supply Voltage(v)
1	AGC	4
2	TU	---
3	AS	---
4	SCL	---
5	SDA	---
6	NC	---
7	BM	5.0
8	NC	---
9	NC	---
10	NC	---
11	IF	---