

保密等级：机密

SPECIFICATION

产品规格书

产品型号: **TP.MS628.PC821**

销售区域: 国内

产品形态: TV+POWER+LED

产品类型: Smart|DTMB

文档编码: 15043064

Approved by Shiyuan		
Checked by 审核	Rechecked by 复审	Approved by 批准

Please send the original back to us after you have approved and signed.

客户承认签章后敬请寄回正本一份。

Approved by customer		
Comments 确认意见	Approved by 批准签字	Company's seal 盖章
Customer's Name:		

REVISION HISTORY

VERSION	DATE	BOARD ID	PAGE	DESCRIPTION	AUTHOR
A0	2015.04.24	TP.MS628.PC821 A15116	All	First Issued.	Cathy
A1	2015.04.30	TP.MS628.PC821 A15116	All	Modified the standard configuration.	Cathy

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1. STANDARD CONFIGURATION（标准配置）

下表为我们主推的标准配置：

NO.	功能描述 Function Description	备注 Note
配置 1	【PC821_A21】RJ45,COAX/LINE OUT,VGA,PC AUDIO IN,HDMI#1,HDMI#2,TV,CVBS1/AUDIO IN1,CVBS2/AUDIO IN2,USB#1(USB3.0),USB#2/USB#3	IEC 头, RF 头加热缩套管
配置 2	【PC821_A11】RJ45,COAX/LINE OUT,VGA,PC AUDIO IN,HDMI#1,HDMI#2,TV,CVBS/AUDIO IN,YPbPr,USB#1(USB3.0),USB#2/USB#3	IEC 头, RF 头加热缩套管
可选功能	内置 WIFI 模块（2.4G 单频单天线，8188 模块） 内置 WIFI 模块（2.4G&5G 双频双天线） 内置 WIFI 模块（2.4G & 5.8G 双频双天线）& 蓝牙模块 外挂 MIC	3 个内置 WIFI 模块不能共存

备注：如以上表格不包含您需要的配置，请单独向我司销售人员进行申请。

Note: If the configurations above can't meet your demand, please apply to our sales stuff.

TP.MS628.PC821 匹配背光功率 100W 以下，主推背光电压范围 55V-212V 间，单路背光输出。

以上标准配置可与下列恒流规格任意搭配。具体的背光电流值依据客户的具体需求而定。如以下表格不包含您需要的配置，请单独向我司销售人员进行申请。

TP.MS628.PC821 with backlight power under 100W, and the main promotion backlight voltage is between 55V-212V, and single backlight output.

Standard configurations above could match any following backlight Spec. Specific backlight current can be selected according to customer's requirement. If the configurations below can't meet your demand, please apply to our sales stuff.

主推电源及背光规格			
Main Promotion Power and backlight Spec.			
功率 Power	电源输出 Power Output	恒流规格 Backlight Value	背光插座 Backlight Connectors
108W	12V	55V-110V/ X 1 路/80W	3PIN-2.0 立式+3PIN-2.0 立式 或 2PIN-2.0 立式+3PIN-2.0 立式
108W	12V	111V-212V/ X 1 路/80W	
138W	12V	55-110V/ X 1 路/100W	
138W	12V	111-212V/ X 1 路/100W	
注意：1. 背光电流的精度为 5%。			
Note: 1.The accuracy of backlight current is 5%.			

2. BOARD PICTURE (板卡外观图)

Pictures are for reference only, specific to prevail in kind.

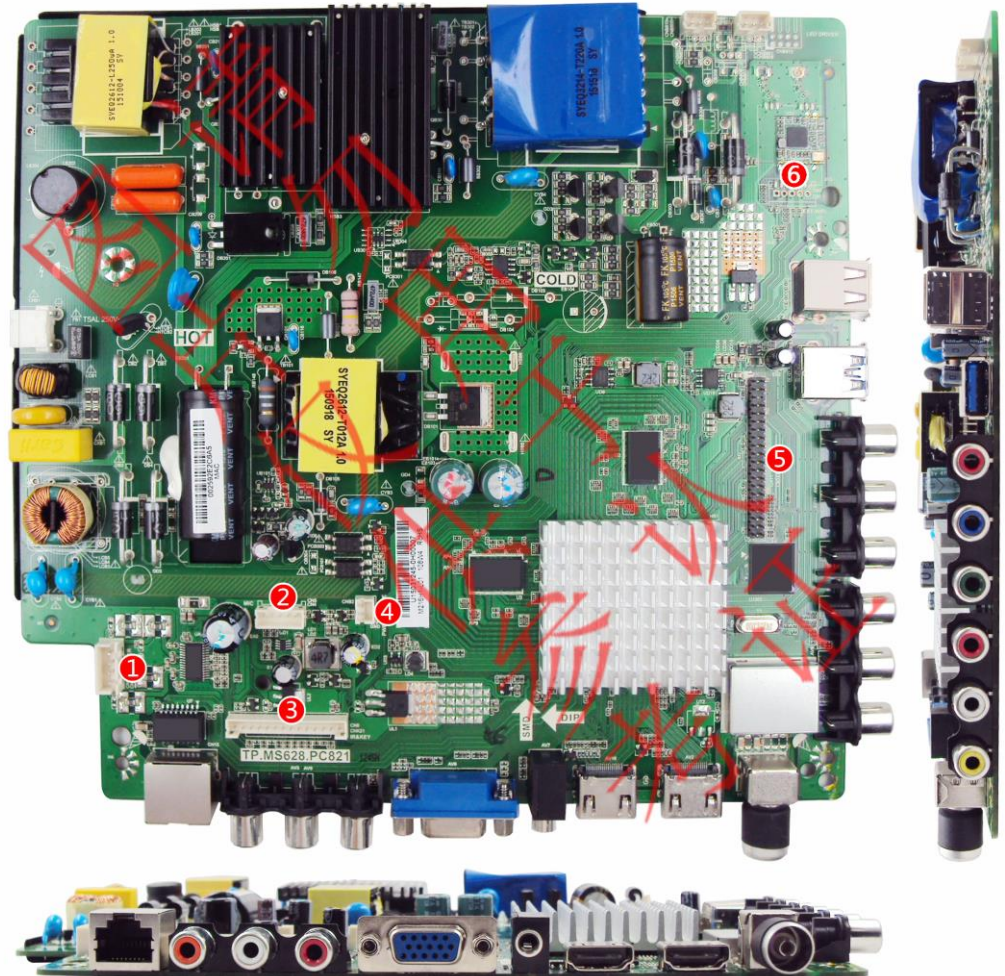
The optional connectors and functions are marked with “*”.

以下图片仅供参考, 请以【结构图】或【实物】为准。

可选的接口或者功能都以 “*” 标示。

尺寸: 210mm(L)*200mm(W)*1.6mm(H) (H 为 PCB 厚度)

No.	Position	Description
1	CN18	SPEAKER
2	CN4	MIC
3	CN6	IR&KEY
4	CNB2	PWR UPGRADE
5	CN11	LVDS
6	CN1	EXT-WIFI



备注 1: 需要外置 50 Ω 阻抗的 WIFI 天线, 否则会出现 WIFI 无法连接或信号弱的情况。

Note 1: External 50 Ω WIFI antenna is needed for the expandable function, otherwise the WIFI will be unable to connect or of weak signal.

备注 2: 本产品满足新国标高频头与保护地之间的绝缘电阻要求, 请在装配整机时, 不要将 RF 头与档板或主板的地相连。

Note 2: This product meet GB8898-2011 requirement of the insulation resistance between tuner and PGND. Please don't connect RF with IO sheet or the GND of the main board when fix up complete TV set.

3. FEATURES（特性说明）

OS 系统版本	Android 4.4		
OSD LANGUAGE OSD 语言	Asia	Chinese, English	
PANEL 面板	Panel Type	TFT LCD	
	Panel Size	42-60 寸	
	Interface	Single/Dual LVDS	
	Max Resolution	1920*1080	
VIDEO INPUT 视频输入	TV(Details in 3.1)	ATV(PAL,SECAM)/DTV(DTMB)	
	PC-RGB	Format	Up to 1920×1080@60Hz
	CVBS	Video System	PAL/NTSC
		Video level	1.0 Vp-p±10%
	Component	480i, 480p, 720p, 1080i, 1080p	
	HDMI	480i, 480p, 720p, 1080i, 1080p	
		*CEC, *ARC(HDMI 1)	
		HDMI Version	1.4a
		HDCP Version	1.4
AUDIO INPUT 音频输入	PC Audio	Earphone Input	0.2 ~ 2.0 V _{RMS}
	CVBS	L/R RCA input	0.2 – 2.0V _{RMS}
	Component		
AUDIO OUTPUT 音频输出	CVBS Audio	L/R RCA Output	250mV _{RMS} ±10%
	Frequency response	100Hz-15KHz @±3dB(1KHz 0dB reference signal)	
	Max Output power	2×8W(8Ω) THD+N<10%@1KHz (Audio Input: 0.5V _{RMS})	
POWER TO PANEL 驱屏电压	12V		
CONNECTION 网络	WI-FI	802.11 b/g/n, Built-In module optional, Need ANT	
	Ethernet	10Mbps, 100Mbps Base-T	
RJ45 NETWORK	10/100M auto-identification and DHCP		
USB FUNCTION USB 功能	软件升级, 多媒体播放 software upgrade, multimedia play		
按键类型 Button Types	对地按键接口 Button Interface to the ground		
客户特殊需求 Special Requirements	增加麦拉片 1 个+间隔柱 4 个 Add 1 Mylar+4 Space Supports		
Note: Licenses involved in specifications above are supposed to be obtained by customers themselves. 注意: 以上规格涉及 License 部分需要客户自己获取。			

3.1 TV SYSTEM (TV 制式)

ATV (PAL, SECAM)	Receiving Range(接收范围)	48.25MHz ~ 863.25MHz
	Input impedance(输入阻抗)	75Ω
	Video System(视频制式)	PAL
	Sound System(声音制式)	BG, DK, I
	Max Storage Channels(最大存台数)	99CH
DTV (DTMB)	Receiving Range(接收范围)	VHF (52.5MHz ~ 219MHz) UHF (474MHz ~ 866MHz)
	Input Impedance (输入阻抗)	75Ω
	Channel Bandwidth(带宽)	8MHz
	Modulation(调制)	TDS-OFDM
	Video System(视频制式)	MPEG-2,MPEG-4,H.264
	Sound System(声音制式)	MPEG-1 layer 1/2,MPEG-2 layer 2
	Basic Functions(基本功能)	EPG, Subtitle
	Max Storage Channels(最大存台数)	≥400CH(dynamic)

3.2 HARDWARE CONFIGURATION (硬件配置)

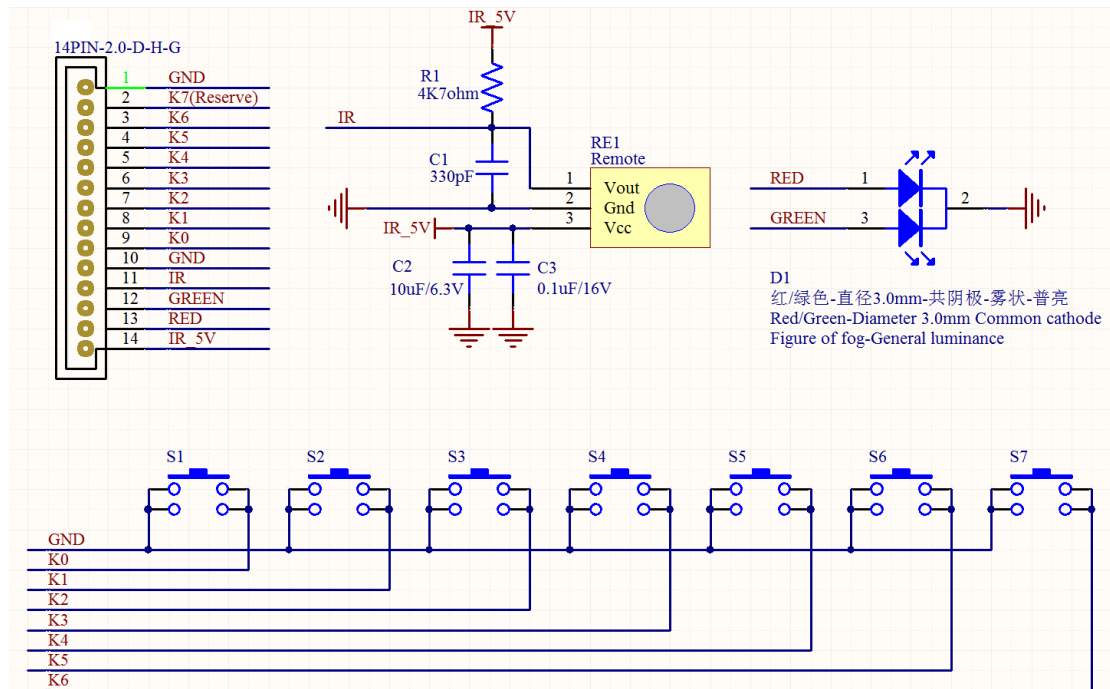
CPU	ARM Cortex A7 Quad Core CPU
GPU	Quad-Core Mali-450MP2
CPU Frequency	1G Hz
GPU Frequency	400MHz
DDR SIZE	1G Byte
eMMC Flash	4G Byte
Notes	

3.3 CRITICAL MATERIALS of TV Part (TV 部分关键物料清单)

The table is for reference only, specific to prevail in kind. 此表仅供参考，请以实物为准。

NAME 物料名称	TYPE 型号	BRAND 品牌	BACKUP 备用型号	BACKUP 备用品牌
MAIN CHIPSET	MSD6A628VX-Z1-ST (不带 DD)	Mstar	--	--
TUNER	R840	Rafael	--	--
AMPLIFIER	OB6220RVPA	On-bright	--	--
FLASH	THGBMBG5D1KBAIL	Toshiba	--	--
DDR	K4B4G1646D-BCMA	Samsung	--	--
晶振	SPXO,24MHz,±20PPM,20pF,HC-49 SMD,SMD,49SMD 24.000MHz	JWT	SPXO,24MHz,±20PPM, 20pF,HC-49SMD,SMD	LM
	SPXO,16MHz,±20PPM,20pF,HC-49 SMD,SMD,HC-49SMD 16.000MHz	JWT	--	--

4. SCHEMATICS OF IR & KEY BOARD（遥控按键原理图）



按键功能: 信号源, 菜单, 音量+, 音量-, 频道+, 频道-, 电源

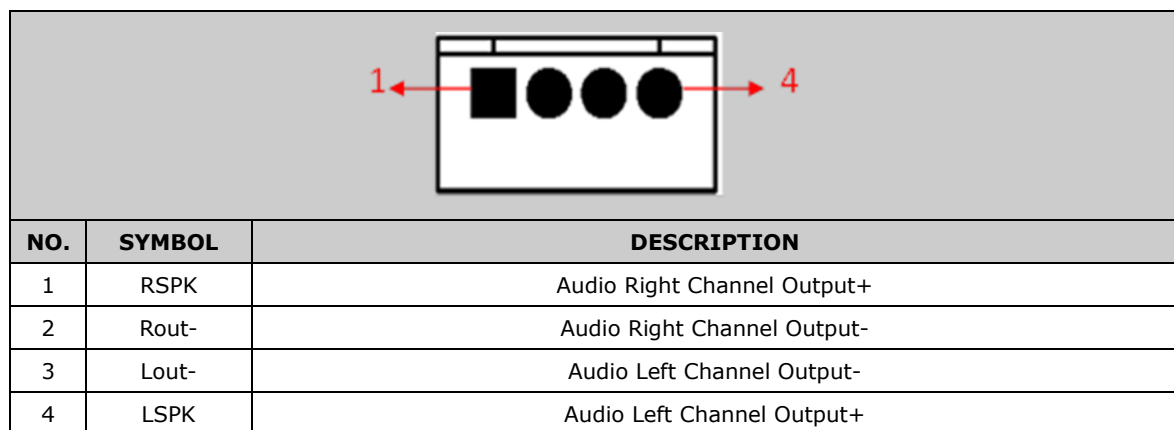
KEY FUNCTION: TV/AV, MENU, VOL+, VOL-, CH+, CH-, POWER

Note: The dividing resistor which is corresponding to the power key must be zero(equivalent to the voltage is zero). Otherwise, the board will not work. K6 is default power.

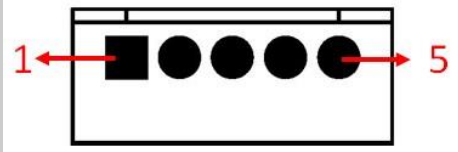
5. INTERFACE DEFINITION（接口定义）

The optional connectors and terminals are marked with “*”.标 “*” 的为可选。

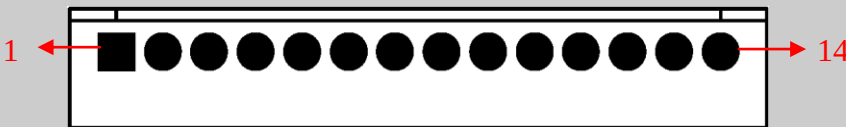
◆ CN18(4PIN/2.54): SPEAKER CONNECTOR (喇叭输出接口)



◆ **CN4(5PIN/2.0): EXT-MIC CONNECTOR (外挂麦克风接口)**

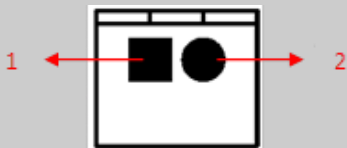
		
NO.	SYMBOL	DESCRIPTION
1	GND	Ground
2	GND	
3	12V IN	+12V DC Power Supply
4	L IN/R IN	Left/Right Audio IN
5	L IN	Left Audio IN

◆ **CN6(14PIN/2.0): IR & KEY CONNECTOR(遥控和按键控制接口)**

		
NO.	SYMBOL	DESCRIPTION
1	GND	Ground
2	K7	Key7(Reserved)
3	K6	Key6
4	K5	Key5
5	K4	Key4
6	K3	Key3
7	K2	Key2
8	K1	Key1
9	K0	Key0
10	GND	Ground
11	IR	IR Receiver
12	GRN	Green Indicator
13	RED	Red Indicator
14	5V	+5V DC Power Supply

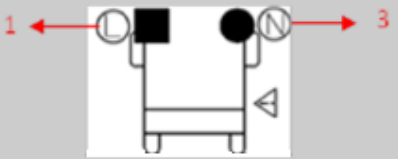
◆ **CNB2(2PIN/2.0):POWER SUPPLY FOR UPGRADE CONNECTOR**

(升级用供电接口)

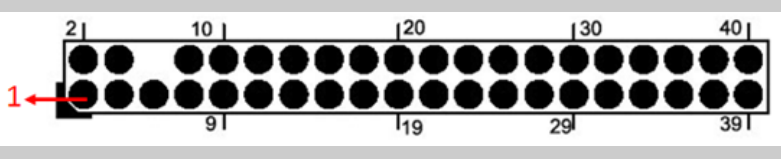
		
NO.	SYMBOL	DESCRIPTION
1	GND	Ground

2	12V	+12V DC Power Supply
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◆ **CNB2 (2PIN/7.92): AC INPUT CONNECTOR (交流输入接口)**

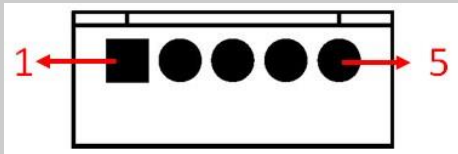
		
NO.	SYMBOL	DESCRIPTION
1	L	LIVE (火线)
3	N	NEUTRAL (零线)

◆ **CN11(2×20PIN/2.0): LVDS INTERFACE (LVDS 接口)**

		
NO.	SYMBOL	DESCRIPTION
1	VSEL	Power Supply for Panel
2	VSEL	
3	VSEL	
4	GND	Ground
5	GND	
6	NC	No Connection
7	RX00-	LVDS ODD 0- Signal
8	RX00+	LVDS ODD 0+ Signal
9	RX01-	LVDS ODD 1- Signal
10	RX01+	LVDS ODD 1+ Signal
11	RX02-	LVDS ODD 2- Signal
12	RX02+	LVDS ODD 2+ Signal
13	GND	Ground
14	GND	
15	RXOC-	LVDS ODD Clock- Signal
16	RXOC+	LVDS ODD Clock+ Signal
17	RX03-	LVDS ODD 3- Signal
18	RX03+	LVDS ODD 3+ Signal
19	RXE0-	LVDS EVEN 0- Signal
20	RXE0+	LVDS EVEN 0+ Signal
21	RXE1-	LVDS EVEN 1- Signal
22	RXE1+	LVDS EVEN 1+ Signal
23	RXE2-	LVDS EVEN 2- Signal
24	RXE2+	LVDS EVEN 2+ Signal
25	GND	Ground

26	GND	
27	RXEC-	LVDS EVEN Clock- Signal
28	RXEC+	LVDS EVEN Clock+ Signal
29	RXE3-	LVDS EVEN 3- Signal
30	RXE3+	LVDS EVEN 3+ Signal
*31	GND	Ground
*32	ADJ/PWM	ADJ/PWM
*33	3D_FLAG	3D_FLAG
*34	3D_ENABLE	3D_ENABLE
*35	M_SCL	Main I ² C SCL
*36	M_SDA	Main I ² C SDA
*37	RXO4-	LVDS ODD4- Signal
*38	RXO4+	LVDS ODD4+ Signal
*39	RXE4-	LVDS EVEN 4- Signal
*40	RXE4+	LVDS EVEN 4+ Signal

◆ ***CN1 (5PIN/2.0): EXT-WIFI CONNECTOR (外挂 WIFI 接口)**

		
NO.	SYMBOL	DESCRIPTION
1	RST	RST
2	PWR	Power Supply for WIFI
3	DM	WIFI Data-
4	DP	WIFI Data+
5	GND	Ground

6. ELECTRICAL CHARACTERISTICS (电气特性)

6.1 INPUT ELECTRICAL SPECIFICATIONS (输入特性)

Input	Minimum	Nominal	Rating	Maximum	Unit
Voltage	90	115/230	100~240	264	Vac
Current	—	—	—	1.8	A
Frequency	47	60/50	—	63	Hz
Efficiency	≥80%min(Full load with input AC voltage of 115Vac @ 60Hz and 230Vac @ 50Hz)				
Standby Power Consumption	≤0.5W At 240Vac input and no load condition				
Leakage Current	Less Than 0.35mA, 240Vac input				

Input Fuse	T5AL/250Vac
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6.2 DIMMING CHARACTERISTICS (调光特性)

Dimming Characteristic						
Dimming type		Digital dimming				
Parameter		Symbol	Min.	Typ	Max.	Note
Dimming PWM Voltage Input		--	0.0V	--	3.3V	3.3V Maximum Brightness
Dimming PWM Input	Duty	--	15%	--	99%	99%Maximum Duty Maximum Brightness
	Frequency		--	25KHZ	--	--

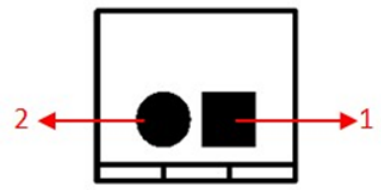
6.3 LED DRIVER POWER OUTPUT CONNECTOR

(LED 背光供电控制接口)

CNB805, CNB806, *CNB803 (3PIN/2.0)

	
NO.	Signal Name
1	LED+
2	NC
3	LED-

***CNB801, *CNB802(2PIN/2.0)**

	
NO.	Signal Name
1	LED+
2	LED-

OUTPUT PROTECTION SPECIFICATION (输出保护)

Signal Name	LED Short Protection	LED Open Protection
	Specification	Specification
LED output	Auto restart	Shut down or auto restart

7. FUSE PROTECTION (保险丝保护)

To protect the power module, the Fuse will be disconnected to cut off the power supply when the AC input current exceeds the rated current of fuse.

当输入交流电流超过保险丝的额定工作电流时，电源保险丝将断开，关闭电源供应以保护电源模块。

8. INTERNATIONAL STANDARDS (国际标准)

8.1 SAFETY (安规)

Conforming:

UL60950/UL60065;
EN60950-1/EN60065;
GB4943-2011/ GB8898-2011;
IEC 60950/IEC 60065.

8.2 HI-POT AND INSULATION RESISTANCE (耐压性能和绝缘阻抗)

HI-POT (耐压性能)

Primary to secondary (一次侧对二次侧): 3000VAC, 10mA for 60s.

Insulation resistance (绝缘阻抗)

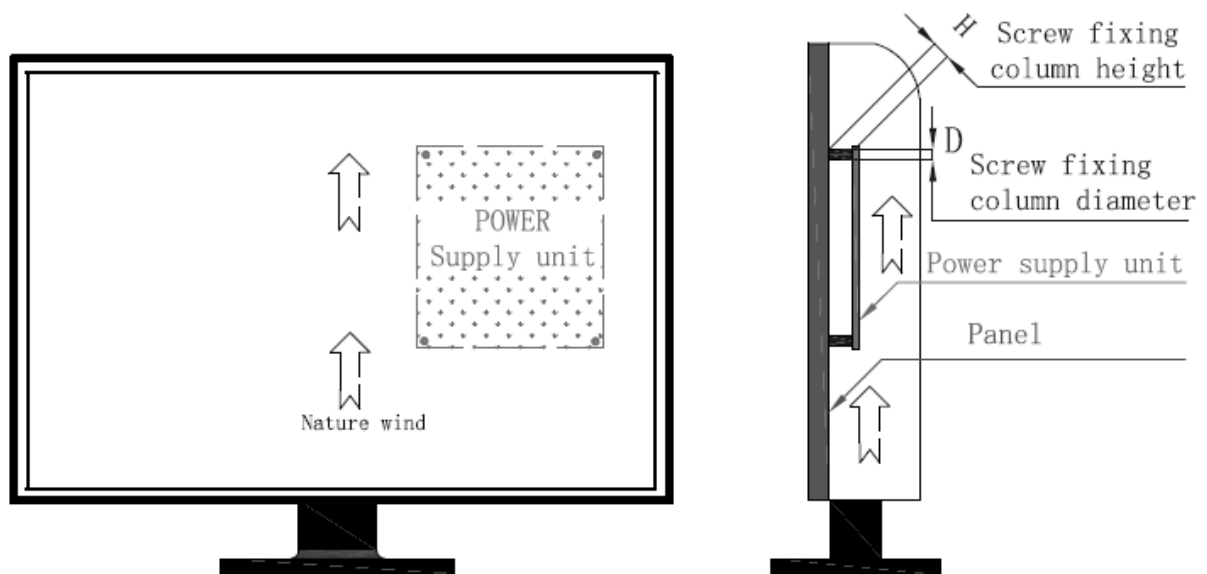
between primary and secondary (一次侧与二次侧之间): 500VDC/60s, $\geq 50M\Omega$.

9. CONFIGURATION & GENERAL PRECAUTIONS (使用注意事项)

- Relative humidity: $\leq 80\%$.
- 相对湿度: $\leq 80\%$.
- Storage temperature: $-10\sim 60^{\circ}\text{C}$.
- 存储温度: $-10\sim 60^{\circ}\text{C}$.
- Operation temperature: $0\sim 40^{\circ}\text{C}$.
- 使用温度: $0\sim 40^{\circ}\text{C}$.
- Protect the board from static electricity in case of damage to the IC.
- 请使板卡远离静电。
- Keep the board away from conductor when it is working.
- 请确保板卡工作时远离导体。
- Don't push or pull the connectors when the board is working.
- 板卡工作时请勿按压和扭曲。
- Don't press, distort or disassemble the board.

- 请勿拆解板卡。
- Clean the board with soft dry cloth when it's dirty.
- 如果板卡脏了，请用干布擦拭。
- Don't power on before panel is correctly connected.
- 正确接好驱屏线前请勿接通电源。
- Speaker line must be twisted.
- 喇叭线必须使用双绞方式。

10. MOUNT PRECAUTIONS（组装注意事项）



Note1: The height of H should be more than or equal to 8mm, otherwise you must add the mylar under PCB bottom.

H 的高度必须大于等于 8mm,如果小于 8mm,则必须在 PCB 底层加麦拉片绝缘。

Note2: The diameter of D should be less than 8mm. Use M3 screw to mount the power supply unit on the screw fixing column. The maximum torque force is 0.4N-M.

D 的直径须小于 8mm，将电源锁在螺丝柱上需使用 M3 的螺丝。最大扭矩为 0.4N-M。

Note3: The Power supply unit is designed without the case. Pay attention to ESD protection at any time.

因为本产品为无外壳之设计，故在任何时候均应注意静电防护。

Note4: Speaker line must be twisted.

喇叭线必须使用双绞方式。

Note5: Speaker line cannot be parallel to the AC line, if they are parallel to each other, the distance should not be less than 8cm.

喇叭线和整机 AC 线不可以平行走线，如果平行走线，距离不可小于 8cm。

11. DECLARATION (声明)

- 该款方案的 USB 接口兼容性和 PC 有差异，它可以支持绝大多数的存储设备，如硬盘、U 盘等，若出现不识别情况，可能与设备的驱动有关。
- The product's USB supports most of the storage devices. If the device is not recognized, it may be caused by the device driver.
- 本机的 USB 接口提供的电压与电流参见规格部分定义，与板卡适配 5V 液晶屏负载有一定相关。某些存储设备由于采用的接口规范与标准 USB 协议有差异，因而会影响到电视中播放器的正确识别。
- Please refer to the specification for the value of voltage and current which is supplied by the USB slot, and the value is related to the loads of 5V LCD panel. Due to the difference of USB standard protocol and the interface specification of device, the device may cannot be recognized by TV player correctly.
- 设备及设备存储容量的不同会影响到电视中播放器读取信息的时间，有可能出现信息读取速度的暂时变慢。
- The difference of device and device capacity may leads to the TV player's reading speed slow down temporarily.
- 文件读取过程中请勿插拔 USB 设备，否则有可能损害您的系统文件。
- Please don't plug the USB device while the file is being read.
- 本机采用多系统工作，类似于电脑系统，在文件读取播放时，由于 USB 设备的兼容性和稳定性的差异，可能会出现画面停止或功能不作用的现象，请尝试断电后初始化系统。
- Due to the differences of USB's compatibility and stability, please initialize the system if the image stopped or not function.
- 若出现硬盘不识别的情况，请尝试通过外接电源给硬盘供电或更换较短的标准 USB2.0 硬盘线。
- If the hard disk cannot be recognized, please power on the hard disk with external power supply or change the wire into shorter USB2.0 wire.

