



Multi-Purpose LED TV
Control Board Specification
Model: M53V9.0

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1. GENERAL DESCRIPTION (整体概述) - 3 -

2. PRODUCTS FEATURES (产品特性) - 3 -

3. INTERFACE DEFINITION (接口定义) - 7 -

4. TERMINAL AND STRUCTURE DIAGRAM (端子与结构图) - 11 -

5. KEY & IR BOARD SYSTEM SCHEMATIC (按键和遥控系统原理图) - 13 -

6. MOUNT PRECAUTIONS (装配注意事项) - 14 -

7. ENVIRONMENTAL REQUIREMENT & NOTICE (环境要求和注意事项) - 14 -

RECORD OF REVISIONS (修改记录)			
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1. GENERAL DESCRIPTION (整体概述)

M53V9.0 is a multi-purpose LCD controller, it is suitable Global market. It is designed to support FULL HD LCD panel.

(M53V9.0 是一个多功能的 LCD 驱动板，适用于全球市场。可支持全高清液晶显示屏幕。)

M53V9.0 can support PC-RGB,PC AUDIO , HDMI, USB input. It can also support Earphone output.

(M53V9.0 支持 PC-RGB, PC AUDIO , HDMI,USB 输入，也支持耳机输出。)

Note: The specification of the board includes the description of all functions. Therefore, our clients can select the functions which they require to produce the board. But the specification can be introduced universally.

(注：此规格书为板卡全功能规格书，客户可以根据需要选择性的生产。此规格书具有通用性。)

2. PRODUCTS FEATURES (产品特性)

DETAILED FEATURE (详细特性)

CHIPSET (芯片)	TSUMV53RUU		
MARKET AREA (市场区域)	Global market (全球市场)		
OSD LANGUAGE (菜单语言)	English (英文), Chinese (中文), French (法语), Spanish (西班牙语), Polish (波兰语), Portuguese (葡萄牙语), Italian (意大利语), German (德语), Dutch (荷兰语), Russian (俄语) (Option)		
VIDEO INPUT	PC-RGB	Format (格式)	Up to 1920*1080@60HZ



(视频输入)		Color (颜色)	16bit, 24bit, 32bit
	HDMI	480i、480p、576i、576p、720p、1080i、1080p	
POWER (功率)	Build-in Single 12V power supply (内置单 12V 电源)	12V (Option)	
	To panel (驱屏电压)	3.3V,5V,12V	
	DC Adapter (直流适配器)	12V Input	
	Management (电源管理)	Low power consumable mode: standby≤0.25W (待机功耗≤0.25W)	
AUDIO INPUT (音频输入)	PC-RGB	YES	
EXPANSION FUNCTION (扩展功能)	USB	YES	
PANEL RESOLUTIONS (屏分辨率)	Support up to 8-bit dual LVDS FULL HD panel interface (最高可支持 8 位双 LVDS 全高清屏接口)		
KEY FUNCTIONS (按键功能)	CH-, CH+, MENU, VOL-, VOL+, AV/SEL, ON/OFF 频道-, 频道+, 菜单, 音量-, 音量+, 信号源, 开/关		
AUDIO OUTPUT (音频输出)	2*5 W @ 8Ω		



WEAK SIGNAL ENHANCEMENT (弱信号增强)	YES		
NOISE REDUCTION (降噪)	3D,2D		
A2, BTSC (立体声)	YES		
TERMINALS (端子)	Input	PC-RGB Input	1 D-SUB 15PIN terminal blue color (1 D-SUB 端子, 15PIN, 蓝色)
		HDMI Input	1 HDMI terminal (1 HDMI 端子)
		USB	1 USB terminal (1 USB 端子)
		PC AUDIO Input	1 Earphone terminal black color (1 耳机端子, 黑色)
	Output	To Panel	Double LVDS 30PIN/2.0 jack (双 LVDS 30PIN)
		Earphone Output	1 Earphone terminal black color (1 耳机端子, 黑色)

USB MULTIMEDIA PLAYBACK FORMAT (USB 多媒体支持格式)

MEDIA (媒体)	FILE EXTENSION (文件扩展名)	
Picture	JPEG、BMP、PNG	.jpg、.bmp、.png
Movie	MPEG1、MPEG2、MPEG4、	.avi、.mpg、.dat、.vob、.div、.mov、.mkv



	H264、*.RM、*.RMVB、MOV、 MJPEG、VC1、*.Divx、FLV、 H.265	*.rm、*.rmvb、.mp4、.mjpeg、.ts、.trp、 .wmv、.asf、.flv	
Music	*.WMA、MP3、M4A、*.AAC	*.wma、.mp3、.m4a	
FILE TYPE\THE RELEVANT PARAMETERS (文件类型/相关参数)	RESOLUTION (分辨率)	COMPRESSION OPTION (编码解码格式)	SUPPORT BOUNDARIES (支持范围)
JPEG	15360*8640	Progressive JPEG	Resolution Only Support 1024*768
		Baseline("standard")	Support
		Baseline Optimized	Support
BMP	9600*6400	homochromatism	Support
		16color	Support
		256color	Support
		16bit	Support
		24bit	Support
		32bit	Support
PNG	9600*6400	No interlacing	Support

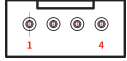
Realizing the above-mentioned USB functions when you approve the copyright of the related licenses, that they can be used. (*请注意只有获得相应的 USB 功能版权时,才可以使用上述 USB 功能.)

*Need the license to support. (*需要许可证来支持。)



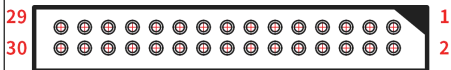
3. INTERFACE DEFINITION (接口定义)

ACN2 (4PIN/2.54) SPEAKER INTERFACE (喇叭)



NO. (管脚)	SYMBOL (板上丝印)	DESCRIPTION (描述)
1	R+	Positive right audio channel out (右声道音频输出正极)
2	R-	Negative right audio channel out (右声道音频输出负极)
3	L-	Negative left audio channel out (左声道音频输出负极)
4	L+	Positive left audio channel out (左声道音频输出正极)

CN5 (2*15PIN/2.0) LVDS PANEL INTERFACE (LVDS 接口)

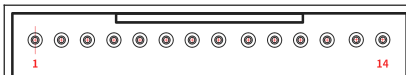


NO. (管脚)	SYMBOL (板上丝印)	DESCRIPTION (描述)
1	VCC	Power for panel
2	VCC	Power for panel
3	VCC	Power for panel
4	GND	Ground
5	GND	
6	NC	NC
7	RX00-	LVDS ODD 0- Signal
8	RX00+	LVDS ODD 0+ Signal
9	RX01-	LVDS ODD 1- Signal
10	RX01+	LVDS ODD 1+ Signal



11	RXO2-	LVDS ODD 2- Signal
12	RXO2+	LVDS ODD 2+ Signal
13	GND	Ground
14	GND	
15	RXOC-	LVDS ODD Clock- Signal
16	RXOC+	LVDS ODD Clock+ Signal
17	RXO3-	LVDS ODD 3- Signal
18	RXO3+	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

CN4 (14PIN/2.0) KEY & IR BOARD INTERFACE (按键和遥控接口)



NO.	SYMBOL	DESCRIPTION
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(管脚)	(板上丝印)	(描述)
1	GND	Ground (地)
2	K7	KEY K7(Reserved)
3	ON/OFF	ON/OFF Key (开/关)
4	MENU	MENU Key (菜单)
5	VOL-	VOL- Key (音量-)
6	VOL+	VOL+ Key (音量+)
7	CH-	CH- Key (频道-)
8	CH+	CH+ Key (频道+)
9	AV/SEL	AV/SEL Key (信号源)
10	GND	Ground (地)
11	IR_IN	Remote receiver (遥控信号输入端)
12	LED_G	Green indicator (绿色指示器)
13	LED_R	Red indicator (红色指示器)
14	5V	+5V DC power supply (+5V 直流供电)

CN2 (4PIN/2.0)SINGLE POWER +12V INPUT INTERFACE (+12V 单电源输入接口)

		
NO. (管脚)	SYMBOL (板上丝印)	DESCRIPTION (描述)
1	12V	+12V DC power supply (+12V 直流供电)
2	12V	
3	GND	Ground (地)
4	GND	



CN3(6PIN/2.0MM) Constant current plate interface (恒流板接口)

		
NO. (管脚)	SYMBOL (板上丝印)	DESCRIPTION (描述)
1	GND	Ground (地)
2	GND	Ground (地)
3	ADJ	Brightness adjustment (亮度调节)
4	BK	Back-light ON/OFF control (背光开关控制)
5	12V	+12V DC Power supply (+12v 直流供电)
6	12V	+12V DC Power supply (+12v 直流供电)

CN7 (16PIN/2.0MM) HDMI INTERFACE (HDMI 接口)

		
NO. (管脚)	SYMBOL (板上丝印)	DESCRIPTION (描述)
1	GND	Ground (地)
2	GND	Ground (地)
3	RX2N	HDMI1-RX2N Signal (差分数据 2-)
4	RX2P	HDMI1-RX2P Signal (差分数据 2+)
5	RX1P	HDMI1-RXIN Signal (差分数据 1-)
6	RX1P	HDMI1-RX1P Signal (差分数据 1+)
7	RX0N	HDMI1-RXON Signal (差分数据 0-)
8	RX0P	HDMI1-RXOP Signal (差分数据 0+)
9	CKN	HDMI1-CLKN Signal (差分时钟-)

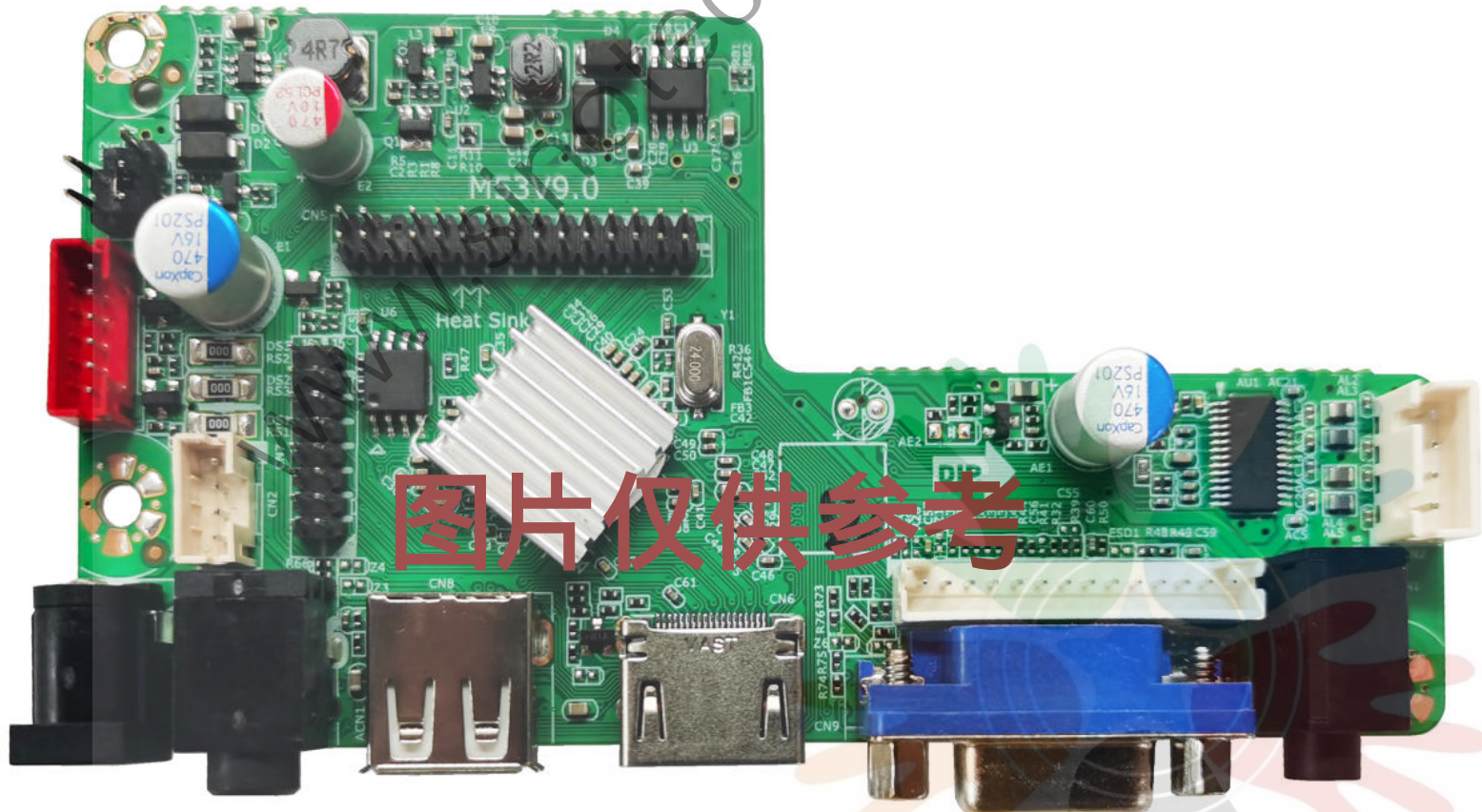


10	CKP	HDMI1-CLKP Signal (差分时钟+)
11	SCL	HDMI1-DDC-SCL Signal(IIC 时钟线)
12	NC	NC
13	PLUG	HDMI1-HPD Signal(热插拔检测)
14	SDA	HDMI1-DDC-SDA Signal (IIC 数据线)
15	GND	Ground (地)
16	H5V	+5V DC POWER SUPPLY (+5V 直流供电)

4. TERMINAL AND STRUCTURE DIAGRAM (端子与结构图)

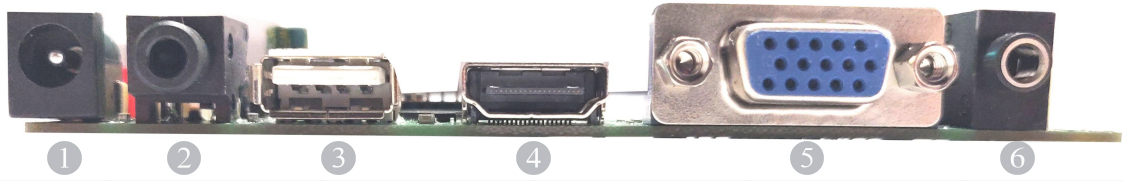
All of pictures below are only for reference. Please take the actual objects as a standard.

(以下图片仅供参考,请以实物为准)





Front View Of M53V9.0 (前视图)



1	2	3	4	5	6
DC	EARPHONE	USB	HDMI	VGA	PC AUDIO

CAD DIMENSIONS (CAD 尺寸)

接口说明: 配置1

1	DC IN	2	EARPHONE
3	USB	4	HDMI
5	VGA	6	PC AUDIO

PCB Tolerance

PCB size	±0.15mm
PCB thickness	≤1.0mm ±0.1mm
PCB thickness	>1.0mm ±10%

Connector Tolerance
(Unless Otherwise Stated)

±0.5mm	
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深圳鼎科实业有限公司
Shenzhen TOP-TECH Industrial CO.,LTD

型号 Model	M53V9.0	审核 Auditing	
日期 Date	2019.10.10	批准 Approve	
设计 Design		单位 Unit	
备注 Remarks			

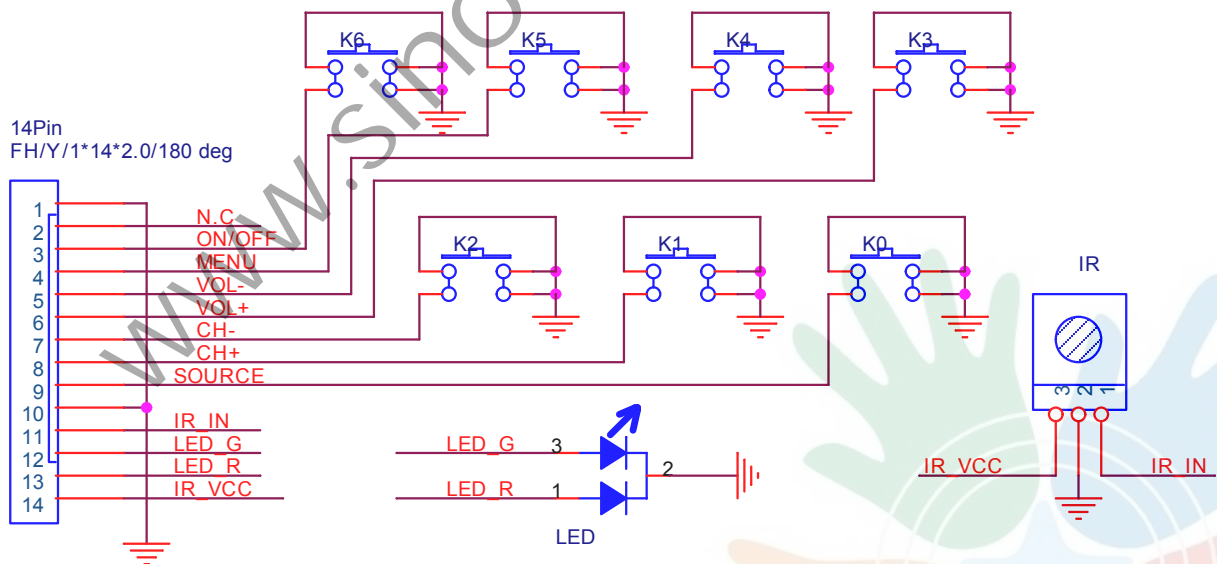


5. ELECTRICAL CHARACTERISTICS (电气特性)

◆ DC Input Electrical Specifications (DC 输入特性)

Parameter	Min.	Typ.	Max.	Unit	Remark
+12V Supply voltage	10	12.0	14	V	-
Current setting per string	-	4	-	A	-

6. KEY & IR BOARD SYSTEM SCHEMATIC (按键和遥控系统原理图)



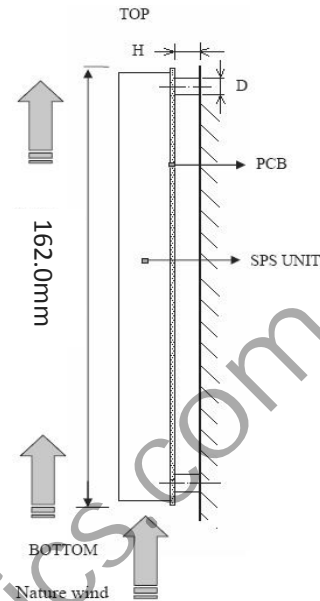


7. MOUNT PRECAUTIONS (装配注意事项)

D	$\leq 5.5\text{mm}$
H	$\geq 7.0\text{mm}$

Note:

- ◆ Mount the TV board to the mounting board using M3 screw. The maximum value of the tightening torque is 0.4N/M. The insertion depth of the screw should be less 5.5 mm.
- ◆ If $H \geq 7.0\text{mm}$.Add Mylar under PCB bottom.



8. ENVIRONMENTAL REQUIREMENT & NOTICE (环境要求和注意事项)

- ◆ Do not pressed and distorted. (禁止挤压和弯曲)
- ◆ Keep away from static and water. (远离静电和水)
- ◆ Relative humidity : 10% ~ 90%. (相对湿度 : 10% ~ 90%)
- ◆ Storage humidity : 5% ~ 95%. (储存湿度 : 5% ~ 95%)
- ◆ Storage temperature: $-45 \sim +85^{\circ}\text{C}$. (储存温度 : $-45 \sim +85^{\circ}\text{C}$)
- ◆ Operation temperature: $-30 \sim +80^{\circ}\text{C}$. (操作温度 : $-30 \sim +80^{\circ}\text{C}$)
- ◆ Cooling Method: Ventilation cooling. (冷却方式 : 通风)
- ◆ The production shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on it. (该产品不能遭到水滴或水溅 , 而且设备上不能放置诸如花瓶一类装满液体的物品)
- ◆ Please use it under the condition of good aeration. (该产品使用时需有良好通风)