



Flat Panel TV Control Board Specification

平板电视控制板规格书

Customer(客户): _____

Product Type(产品型号): LA.MV9.P

Applicable Size(适用尺寸): 26 寸及以上

Date Issued(发布日期): 2012-12-7

| Approved By Customer(客户确认) | | |
|----------------------------|-------------|---------------|
| Confirmed/确认 | Approved/批准 | Signature /签章 |
| | | |

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Electrical Specification

History

| REV. 版本 | Description 说明 | Date 日期 | Drafter 拟制 | Checked 审核 | Approved 批准 |
|------------|-----------------------|------------|---------------|---------------|----------------|
| 1.0 | INITIAL ISSUE 首次发行 | Dec.7.2012 | | | |
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CONTENT(目 录)

| | |
|---|----|
| 1. General Description(概述) | 1 |
| 2. Product Photograph(产品外观图) | 2 |
| 3. Configuration & General Precautions(使用注意事项)..... | 3 |
| 4. Product Features(特性说明) | 4 |
| 5. PCB Dimension(结构尺寸图) | 7 |
| 6. IR & Key Schematic (IR & Key 原理图)..... | 8 |
| 7. Interface definition(接口定义)..... | 9 |
| 8. Environmental Characteristics(环境特性要求) | 12 |
| 8.1 Temperature(环境温度)..... | 12 |
| 8.2 Humidity(环境湿度)..... | 12 |
| 8.3 Altitude(海拔高度)..... | 12 |
| 8.4 High Temperature & Storage(高温负荷与存储)..... | 12 |
| 8.5 Low Temperature & Storage(低温负荷与存储)..... | 12 |
| 8.6 Humidity &Temperature Test(潮热试验)..... | 12 |
| 8.7 Vibration Test(振动试验)..... | 12 |
| 8.8 Drop Test(跌落试验) | 13 |



1. General Description(概述)

LA.MV9.P* is a flat panel TV control board designed for Asia-Pacific market, the board is excellent performance and mature. LA.MV9.P* can support LCD and LED panel, maximum resolution supported is 1920x1080. It's apt to drive a LCD or LED panel larger than 26' to get a cost-effective and high performance and popular flat panel analog TV set.

LA.MV9.P*是一款适用于亚太地区的平板电视控制板，性能优良，成熟稳定。LA.MV9.P*可支持LCD和LED屏，所支持的最高分辨率为1920x1080，适合驱动26'寸以上液晶屏以打造一台高性价比的主流模拟平板电视机。

LA.MV9.P* supports normal input type, such as HDMI, USB, AV, YPbPr, VGA, ATV etc.

LA.MV9.P*支持所有常见输入端口，包括HDMI，USB，AV，YPbPr，VGA，ATV等。

LA.MV9.P* can support three main chips :TSUMV29,TSUMV39,TSUMV59 . When TSUMV29 IC is adopted, LA.MV9.P*has no multimedia function. When TSUMV39 IC is adopted, it can play MP3 and image files through its USB slot. When TSUMV59 IC is adopted, LA.MV9.P* has powerful multimedia playback capability, can play most multimedia files through its USB slot, include 1080P video files .

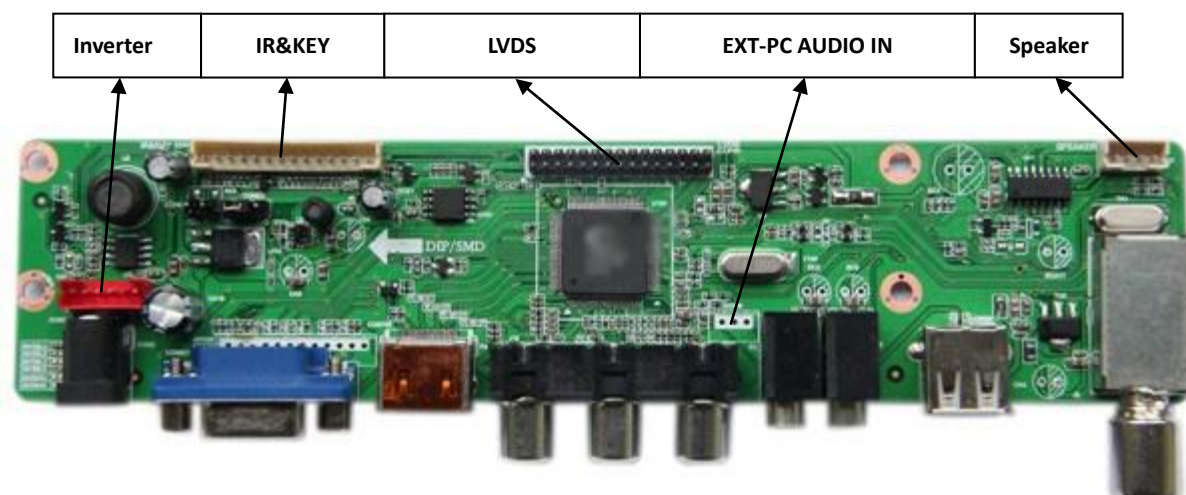
LA.MV9.P*支持V29、V39、V59三个主芯片，采用TSUMV29芯片时，LA.MV9.P*没有多媒体功能。采用TSUMV39芯片时，LA.MV9.P*可通过USB接口播放MP3、图片等多媒体文件。采用TSUMV59芯片时，具有强大的多媒体重放功能，通过USB接口可以播放绝大多数多媒体文件，可支持1080P的全高清视频。

It's very easy to upgrade firmware by a USB disk for LA.MV9.P*.

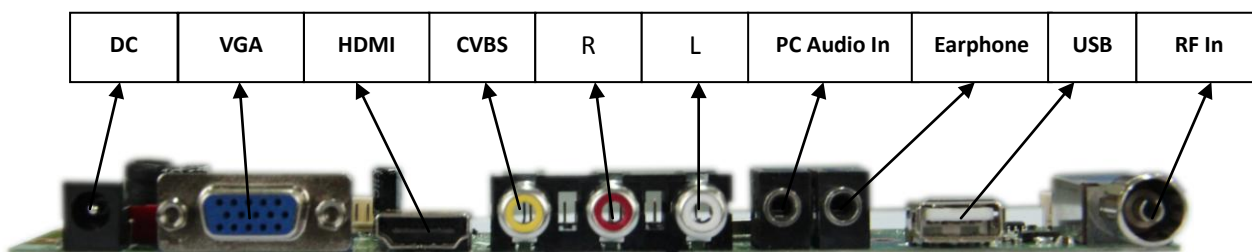
LA.MV9.P*可通过USB接口轻松快捷的升级软件。

2. Product Photograph(产品外观图)

Top View of LA.MV9.P*



Front View of LA.MV9.P*





3. Configuration & General Precautions(使用注意事项)

3.1 For Safety Issue, please keep the board 8.0mm away from metal parts of the TV at least.

基于安全考虑，请在安装本板时，确保板子与其他金属材料间保持 8mm 以上的距离。

3.2 A ESD shield bag is offered to protect the board from electrostatic or magnetic shock during delivery .But there is no metal case to ensure safety, so ESD handle is needed all time.

在产品交付的整个过程中均保证采用 ESD 屏蔽袋包装处理。然而，因为无外壳保护，请在任何时候务必注意防静电处理。

3.3 The brightness of panel is influence greatly by temperature. You must measure it in the same condition and wait until after power on 10~30 minutes.

基于液晶屏的特性，其亮度易受温度影响。量测时，请用同样的条件并于开机 10~30 分钟后读值。

3.4 Keep the board surface clean.Check appearance of the board to see if there are any issues that may cause failure or unreliability , such as dilapidate, weighty nick, etc.

保持产品表面清洁，美观大方，焊锡完整可靠。进行外观检查以检测是否有影响到产品使用或可靠性方面的明显问题存在，如：破损，严重划痕等。

3.5 Keep the board away from conductor when it is working.

请确保板卡工作时远离导体。

3.6 Don't press, distort or disassemble the board.

请勿强压、扭曲或拆解板卡。

3.7 Clean the board with soft dry cloth when it's dirty.

如果板卡脏了，请用干布擦拭。

3.8 Don't wire in the board to power supply before panel is correctly connected.

正确接好驱屏线前请勿接通电源。



4. Product Features(特性说明)

| | | | |
|---------------------------------|--|----------------------------------|---|
| Chipset (主芯片) | TSUMV29LU, TSUMV29LE | | |
| | TSUMV39LU, TSUMV39LE | | |
| | TSUMV59XU(With Dolby 支持杜比) | | |
| | TSUMV59XU-Z1(Without Dobby 不支持杜比) | | |
| Target Market (目标市场) | Asia(亚洲) | | |
| OSD Language (OSD 语言) | S. Chinese(简体中文), T.Chinese(繁体中文),English(英文),Arab(阿拉伯语), Uighur(维吾尔语), German(德语),French(法语),Spanish(西班牙语),... | | |
| Panel (屏) | Panel Type (屏类型) | LCD/LED | |
| | Panel Interface (驱屏接口) | Single/Double LVDS (单/双 LVDS) | |
| | Max Resolution (最大分辨率) | 1920x1080 | |
| TV INPUT (电视输入) | TV | Receive Range (接收范围) | 48.25MHz – 863.25MHz |
| | | Input Impedance (输入阻抗) | 75Ω |
| | | Color System (彩色制式) | PAL/SECAM/NTSC |
| | | Sound System (声音制式) | B/G, D/K, I,M/N |
| | | | NICAM/A2,BTSC |
| | | Channels (预存频道) | 200 |
| TELETEXT | V59: 1000 Pages(页) V29: 10 Pages(页) V39: 10 Pages(页) | | |
| VIDEO INPUT (视频输入) | PC | Format (格式) | Max Resolution (最高支持) 1920x1080@60Hz |
| | | Color System | PAL/NTSC/SECAM |
| | AV | | |



| | | | |
|--------------------------------|--|--|--------------|
| | | (彩色制式) | |
| | | Video Level (视频信号幅度) | 1.0Vp-p±5% |
| | HDMI, YPbPr | 480i, 480p, 576i, 576p, 720p, 1080i, 1080p | |
| Audio Input (音频输入) | PC | Input Level (输入幅度) | 0.2~2.0 VRMS |
| | AV | Input Level (输入幅度) | 0.2~2.0 VRMS |
| Audio Output (音频输出) | Frequency Response (频率响应) | 100Hz~15K Hz @±3dB(1KHz, 0dB reference signal) | |
| | Max Output Power (最大输出功率) | 2x8W(8Ω) THD+N<10%@1KHz | |
| Power (电源) | Power Supply (供电输入) | 12V | |
| | Panel Power (驱屏电压) | 3.3V,5V,12V | |
| | Power Management (电源管理) | Standby Power Consumption <0.3W(Board Only) (板卡待机功耗小于 < 0.3W) | |
| Comb Filter (梳状滤波器) | 2D (TSUMV29LE,TSUMV29LU) | | |
| | 3D (TSUMV39LE,TSUMV39LU, TSUMV59XU,TSUMV59XU-Z1) | | |
| De interlace (隔行转逐行) | 2D (TSUMV29LE,TSUMV29LU) | | |
| | 3D (TSUMV39LE,TSUMV39LU, TSUMV59XU,TSUMV59XU-Z1) | | |



TSUMV59 USB MULTIMEDIA FORMAT (TSUMV59 USB 多媒体播放支持格式列表)

| Media (媒体) | File Ext. (扩展名) | Codec(编解码器) | | Remark(备注) | |
|---------------|--------------------|---------------------------------|--|---|---|
| | | Video(视频) | Audio(音频) | | |
| Movie | .avi | MJPEG | MP3, WMA, AAC, MP2, PCM, AC3 | Max Resolution And Frame Rate: 640×480@30fps Max Data Rate: 10 Mbps | |
| | | Xvid,MPEG-2,MPEG-4, DivX,H.264 | | | |
| | .mp4 | MPEG-2, MPEG-4, DivX,H.264 | | | Max Resolution And Frame Rate: 1920×1080@30fps Max Data Rate: 20 Mbps |
| | .ts/ .trp | MPEG-2,H.264 | | | |
| | .mkv/ .mov | MPEG-4, H.264 | | | |
| | .mpg | MPEG-1, MPEG-2 | | | |
| | .dat | MPEG-1 | | | |
| | .vob | MPEG-2 | | | Max Resolution: 720×576 Max Data Rate: 20 Mbps |
| .rm/ .rmvb | V8, RV9, RV10 | COOK | Max Resolution And Frame Rate: 1280×720@30fps Max Data Rate: 10 Mbps | | |
| Music | .mp3 | -- | MP3 | Sample Rate: 32K~48KHz Bit Rate: 128K~320Kbps Channel: Mono/Stereo | |
| | .wma | -- | WMA | Bit Rate: 8K~48Kbps Sample Rate: 128K~320Kbps Channel: Mono/Stereo | |
| | .m4a/ .aac | -- | AAC | Sample Rate: 8K~48KHz Bit Rate: 128K~442Kbps Channel: Mono/Stereo | |
| Photo | .jpg/ .jpeg | Progressive JPEG | | Max Resolution: 1024×768 | |
| | | Baseline JPEG | | Max Resolution: 15360×8640 | |
| | .bmp | -- | | Max Resolution: 9600×6400 | |
| | .png | Non-Interlaced | | Max Resolution: 9600×6400 | |
| Interlaced | | Max Resolution: 1200×800 | | | |
| Text | .txt | ANSI/UNICODE GB/UTF8 | | File Size: Max 1MB | |

File system: Hi Speed FS, FAT32, FAT16, NTFS(NTFS compressed file is not supported).

文件系统: Hi Speed FS, FAT32, FAT16, NTFS (不支持 NTFS 压缩文件。)

Note:

1.Licenses involved in specifications above are supposed to be obtained by customers themselves, eg:AC3 and DivX.

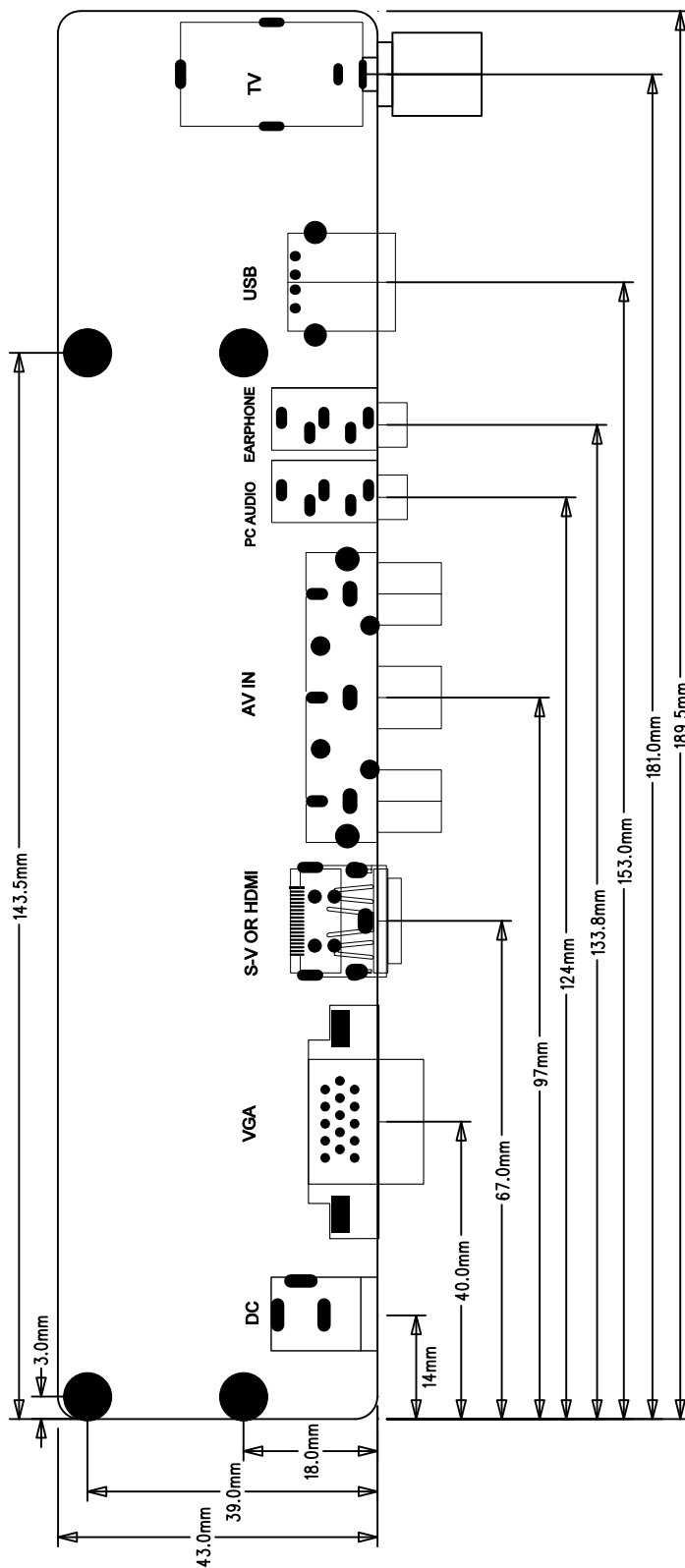
1.以上规格涉及 License 部分需要客户自己获取。

2.MP4 cannot support GMC.

2. MP4 不支持 GMC。



5. PCB Dimension(结构尺寸图)



UNIT(单位): MM



6. IR & Key Schematic (IR & Key 原理图)

LA.MV9.P *supports keypad of 7 IO keys, but also supports keypad of 1 AD input.

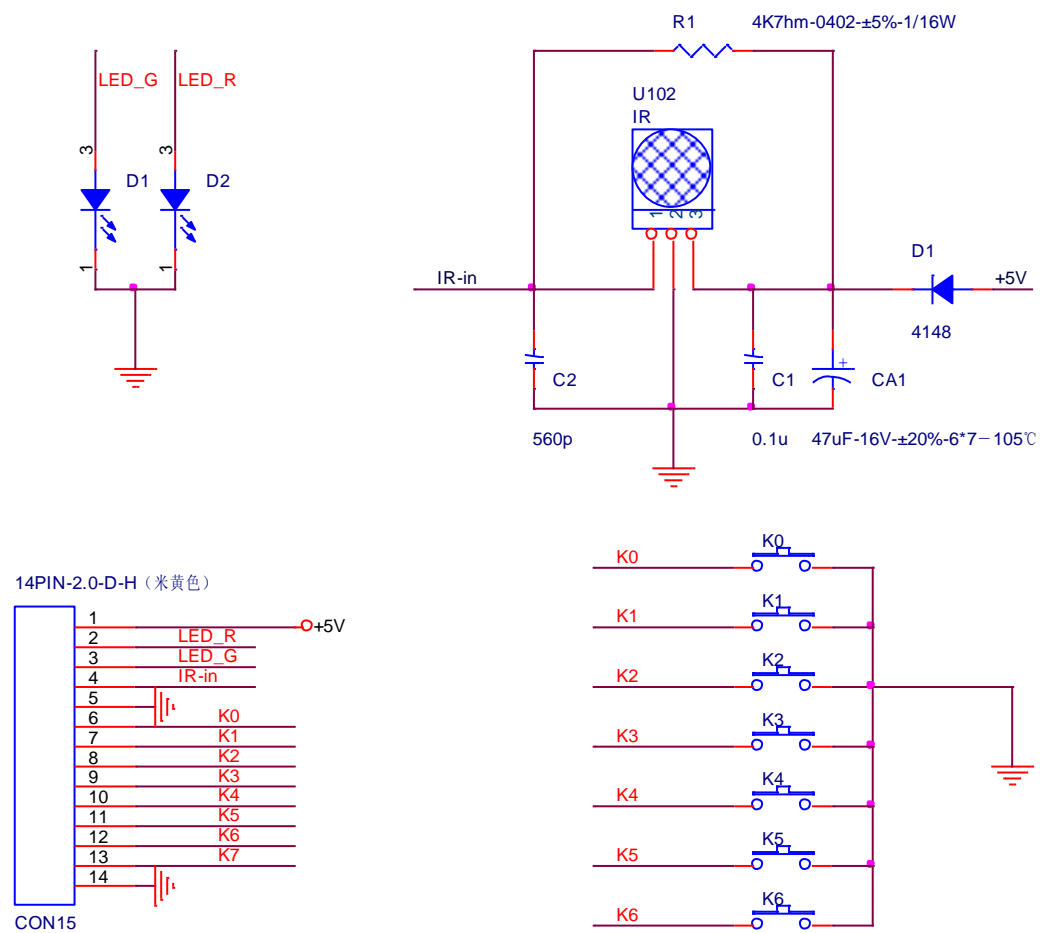
LA.MV9.P*默认支持对地 7 键按键板,可按客户需求改为 1 输入 AD 型按键板。

The LEDs (Green, Red) are Common cathode.

双色 LED(绿,红)为共阴极类型。

The following schematic is for reference only:

下列原理图仅供参考:





7. Interface definition(接口定义)

注：■ 方形焊盘定义为 NO.1

通用性板卡的插座定义是按照插座开口向内，从左向右开始计数(客户订制型板卡除外)。

7.1 Inverter (6PIN/2.0)(背光接口)

| No.(管脚) | Symbol(板上丝印) | Description(描述) |
|---------|--------------|---|
| 1 | +12V | +12V Power Supply for Backlight (背光板用+12V电源输出) |
| 2 | +12V | |
| 3 | BLON | Backlight On/Off Control(背光开关信号) |
| 4 | ADJ | Brightness Adjust Voltage Signal (亮度调节电压信号) |
| 5 | GND | Ground(地) |
| 6 | GND | |

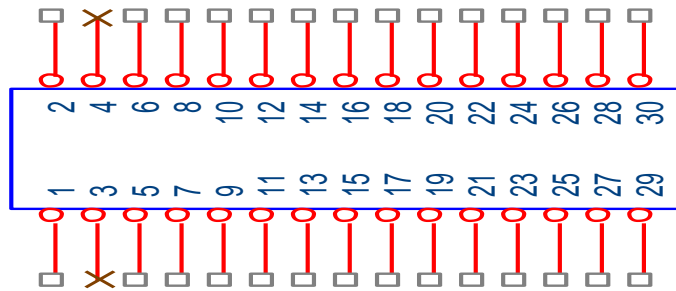
7.2 IR and Key Board Connector (14PIN/2.0) (遥控板和按键板接口)

| NO.(引脚) | Symbol(板上丝印) | Description(描述) |
|---------|--------------|---------------------------------------|
| 1 | +5V | +5V Power Supply for IR(遥控器头用+5V电源输出) |
| 2 | IR-IN | IR Input(遥控器头信号输入) |
| 3 | GND | Ground(地) |
| 4 | K0 | (默认情况下) Power(电源) |
| 5 | LEDR | Red LED(红色LED) |
| 6 | LEDG | Green LED(绿色LED) |
| 7 | GND | Ground(地) |
| 8 | K1 | (默认情况下) Menu(菜单) |
| 9 | K2 | (默认情况下) Input Sour(输入) |
| 10 | K3 | (默认情况下) VOL+(音量+) |
| 11 | K4 | (默认情况下) VOL-(音量-) |
| 12 | K5 | (默认情况下) CH+(频道+) |
| 13 | K6 | (默认情况下) CH-(频道-) |
| 14 | K7 | (默认情况下) Reserved(预留) |

注：如客户对按键定义有特殊需求时，可以按照客户的实际需求修改按键定义。可作为 POWER 键的引脚默认为 K0。



7.3 LVDS Interface (2x15PIN/2.0) (LVDS 驱屏接口)



| No.(管脚) | Symbol(板上丝印) | Description(描述) |
|---------|--------------|------------------------|
| 1 | VSEL | Power Supply for Panel |
| 2 | VSEL | |
| 3 | NC | NC(空) |
| 4 | NC | NC(空) |
| 5 | GND | Ground(地) |
| 6 | GND | |
| 7 | TX00- | LVDS ODD 0- Signal |
| 8 | TX00+ | LVDS ODD 0+ Signal |
| 9 | TX01- | LVDS ODD 1- Signal |
| 10 | TX01+ | LVDS ODD 1+ Signal |
| 11 | TX02- | LVDS ODD 2- Signal |
| 12 | TX02+ | LVDS ODD 2+ Signal |
| 13 | GND | Ground(地) |
| 14 | GND | |
| 15 | TXOC- | LVDS ODD Clock- Signal |
| 16 | TXOC+ | LVDS ODD Clock+ Signal |
| 17 | TX03- | LVDS ODD 3- Signal |
| 18 | TX03+ | LVDS ODD 3+ Signal |
| 19 | TXE0- | LVDS EVEN 0- Signal |
| 20 | TXE0+ | LVDS EVEN 0+ Signal |
| 21 | TXE1- | LVDS EVEN 1- Signal |
| 22 | TXE1+ | LVDS EVEN 1+ Signal |
| 23 | TXE2- | LVDS EVEN 2- Signal |
| 24 | TXE2+ | LVDS EVEN 2+ Signal |
| 25 | GND | Ground(地) |



| | | |
|----|-------|-------------------------|
| 26 | GND | |
| 27 | TXEC- | LVDS EVEN Clock- Signal |
| 28 | TXEC+ | LVDS EVEN Clock+ Signal |
| 29 | TXE3- | LVDS EVEN 3- Signal |
| 30 | TEX3+ | LVDS EVEN 3+ Signal |

7.4 EXT-PC AUDIO IN(3PIN/2.0) (外挂 PC AUDIO IN)

| No.(管脚) | Symbol(板上丝印) | Description(描述) |
|---------|--------------|---------------------------------|
| 1 | PC-R | PC Right Channel Input(PC右声道输入) |
| 2 | GND | Ground(地) |
| 3 | PC-L | PC Left Channel Input(PC左声道输入) |

7.5 Speaker (4PIN/2.0) (喇叭)

| NO. (引脚) | Symbol(定义) | Description(描述) |
|----------|------------|-------------------------------|
| 1 | LOUT+ | Left Channel Output+(左声道输出+) |
| 2 | LOUT- | Left Channel Output-(左声道输出-) |
| 3 | ROUT- | Right Channel Output-(右声道输出-) |
| 4 | ROUT+ | Right Channel Output+(右声道输出+) |

7.6 VGA Connector(VGA 接口)

| No.(管脚) | Symbol (定义) | Description(描述) |
|---------|-------------|--------------------------------------|
| 1 | GND | Ground(地) |
| 2 | VS | Vertical Synchroniz Signal(场同步信号) |
| 3 | HS | Horizontal Synchroniz Signal (行同步信号) |
| 4 | GND | Ground(地) |
| 5 | R | Red Signal Input(红信号输入) |
| 6 | GND | Ground(地) |
| 7 | G | Green Signal Input(绿信号输入) |
| 8 | GND | Ground(地) |
| 9 | B | Blue Signal Input(蓝信号输入) |
| 10 | GND | Ground(地) |
| 11 | SDA | SDA(数据传输) |
| 12 | SCL | SCL (时钟控制) |



8. Environmental Characteristics(环境特性要求)

8.1 Temperature(环境温度)

Operating: 0°C to +40°C

Store: -20°C to +70°C

8.2 Humidity(环境湿度)

Operating: 10% to 90% (non-condensing)

Store: 5% to 95% (non-condensing)

8.3 Altitude(海拔高度)

Operating: 10,000 ft.(max)

Store: 20,000ft.(max)

8.4 High Temperature & Storage(高温负荷与存储)

Test method &condition Please refer to GB2423.2 "Test Bd & Bb".

测试方法和测试条件参见GB2423.2“试验Bd & Bb”之说明。

8.5 Low Temperature & Storage(低温负荷与存储)

Test method &condition Please refer to GB2423.1 "Test Ad & Ab".

测试方法和测试条件参见GB2423.1“试验Ad & Ab”之说明。

8.6 Humidity &Temperature Test(潮热试验)

Test method &condition Please refer to GB2423.3 "Test Ca" & GB2423.22"Test Nb".

测试方法和测试条件参见GB2423.3“试验Ca”和GB2423.22“试验Nb”之说明。

8.7 Vibration Test(振动试验)

Test method &condition Please refer to GB2423.10"Test Fc".

测试方法和测试条件参见GB2423.10“试验Fc”之说明。



8.8 Drop Test(跌落试验)

Test method &condition Please refer to GB4857.5 Item 3.5.2 a.

测试方法和测试条件参见GB4857.5中3.5.2条a的之说明。

After all the test from item 8.4 to 8.8, The product must be meet all the requirements on this Specification.

通过上述8.4至8.8项的所有测试后，本品仍应符合本规格书中规定的各项电性与机械强度要求。