

# Specification

Product Model: JDEPC-OV04

Camera Board's Version: VER:1.01

Camera Board's Dimension: 60\*9.0mm

| USER    |         |             | MANUFACTURER |            |             |
|---------|---------|-------------|--------------|------------|-------------|
| Quality | Project | Approved by | Prepared by  | Checked by | Approved by |
|         |         |             |              |            |             |

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# Content

|  |     |
|--|-----|
| Content .....  | 2   |
| Version.....   | 3   |
| 1. Profile .....   | 4   |
| 2. Characteristics.....  | 4   |
| 3. Capability Parameter .....                                  | 4-6 |
| 4. Optical Lens Specification .....                            | 6   |
| 5. Product Picture, Wiring diagram, Connector Definition ..... | 7   |
| 6. Structural Diagram.....                                     | 7   |
| 7. Test .....  | 8-9 |
| 8. Packing.....  | 9   |
| 9. Caution .....   | 9   |

# Version

| Date       | Version   | Content  |
|------------|-----------|--|
| 2011-06-02 | VER:RD001 | The First Version  |
| 2011-06-30 | VER:1.00  | The Second Version   |
| 2014-02-12 | VER:1.01  | The Third Version<br>(upper and lower structural increase 0.5mm) |
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## 1. Profile

JDEPC-OV04 VER:1.00 camera module, adopt the image of high quality for 1/4" CMOS Sensor, This product special use for the notebook PC, which support USB 1.1/2.0 interface and night-vision fill light function. This camera module is not only small, but also the image quality is better. (Color revert nicely, clear image, low consume, high dependability, etc.)

## 2. Character

- Lens socket size:8.0\*8.0mm
- Image format: VGA/CIF
- IR Filter (avoid infrared ray disturb filtrate lens).
- Working Temperature: 0℃ ~ 50℃
- Storage Temperature: -40℃ ~ +80℃

## 3. Capability Parameter

### 3.1 Sensor Specification:

| Items                     |              | Description  |
|---------------------------|--------------|--|
| Sensor Type               |              | OV2643   |
| Active pixel array area   |              | 3590um * 22710um   |
| Power Supply              | Core         | 1.5 V <sub>DC</sub> ± 5%   |
|                           | Analog       | 2.6 to 3.0 V <sub>dc</sub>   |
|                           | I/O          | 1.70V ~3.0V <sub>dc</sub>  |
| Temperature Range         | Operation    | -20℃ ~ 70℃   |
|                           | Stable Image | 0℃ ~ 50℃   |
| Output formats            |              | YUV / Ycb Cr 4:2:2 ; RGB 5:6:5 / 5:5:5 ; GBR 4:4:4 ; 8/10BIT RAW RGB Data                |
| Optical Format            |              | 1/4 inch   |
| Frame rate                |              | 15 fps for UXGA,30fps for SVGA, 30fps for 720P, 60 fps for QVGA and any lower resolution |
| Scan mode                 |              | Progressive  |
| Maximum Exposure Interval |              | 1227Xt <sub>row</sub>  |
| Gamma Correction          |              | Programmable   |
| Pixel Size                |              | 2.2 um x 2.2um   |
| Full resolution           |              | 1600x 1200 pixels (UXGA)   |
| Sensor Package Dimension  |              | 5035um x 4635um  |

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### 3.2 DSP Specification:

VC0347TLPA comes with programmable sensor master clock output and is integrated with the parallel sensor interface. VC0347TLPA has also integrated a JPEG encode engine providing high quality video streams. With a matched sensor, VC0347TLPA can stream video at 15fps under 1.3 Mega pixels resolution (SXGA or 1280x1024), or capture still images at up to 3 Mega pixels resolution. With these features, VC0347TLPA can also offer 30fps video streaming at HD 720P (1280x720).

VC0347TLPA is fully compliant with USB Video Class (UVC) 1.0 standards and USB HID Class 1.11. VC0347TLPA is fully compliant with USB 2.0 High-Speed (HS) and backward compatible with USB 1.1 protocol.

VC0347TLPA is a UVC device that will work with any Operating System that support UVC standards, such as Windows XP (with Service Pack 2) and Vista, without the need to install the Vimicro driver. To provide for additional powerful functions such as better video quality and other special effects, the Vimicro UVC driver needs to be installed to operate these functions.

VC0347TLPA has integrated 2 channels of PDM interface for connecting digital microphones.

- ⌘ Support for off-shelf VGA/SXGA/UXGA CMOS sensor
- USB2.0 PHY compatible with USB2.0 HS/FS and USB 1.1
- Fully compliant with USB Video Class 1.0 standards
- Support HID (configurable by EEPROM)
- Microsoft WHQL compliance
- Support Win 2000 using a Vimicro driver (only for certain FW versions)
- Vista Premium Logo compliance
- Support various OS including 32-bit and 64-bit Windows
- Build-in OTP (One Time Programmable device, max. size 64K) ROM
- Support motion JPEG sensors data bypass mode
- Support Watch-Dog function
- Support programmable sensor clock output (12MHz, 24MHz, 25MHz, 27MHz, 36MHz, 48MHz, 50MHz, 54MHz, 64MHz, etc.) and enables targeted sensor to

- output
- max frame rate
- Support Parallel sensor interface
- Imaging Applications
- Video streaming up to 60fps@VGA resolution, 15fps@SXGA, 30fps@720P and 15fps@UXGA under USB Isochronous mode
- Still image capture and preview at up to 3M pixel resolution
- JPEG compression for video streaming
- Be able to insert sync markers for every row of microblocks
- 1080P JPEG at 15fps
- Hardware digital size on YUV
- 1x ~ 2x scale up (support 800x600 scale up to 1600x1200)
- Flexible scale down
- Output Video Format
- YUY2
- MJPEG
- Bayer (raw 8 or 10 bits/pixel), need Vimicro driver support
- One dedicated PWM output
- Separate 2-wire serial bus for sensor and EEPROM
- GPIOs for Typical Camera Control Support
- Snapshot button
- LED indicator
- Support remote wake up from suspend status by GPIO triggers
- PDM (Pulse Density Modulated) interface for digital microphone
- Power Management
- Optimized design for low power consumption
- Normal mode
- Suspend mode
- Unconfig mode

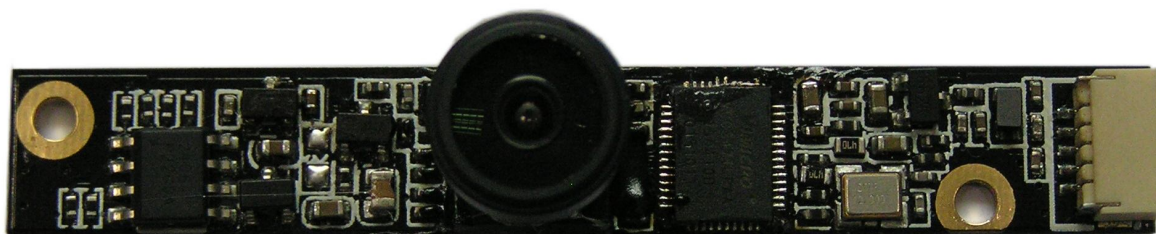
|                     |           |            |           |         |         |
|---------------------|-----------|------------|-----------|---------|---------|
| Maximum Frame       | 1080P     | 720P       | UXVGA     | SXVGA   | VGA     |
| Rate                | 1920x1080 | 1280 x 720 | 1600x1200 | 800x600 | 640x480 |
| Non-compressed MJPG | 15fps     | 30fps      | 15 fps    | 30 fps  | 30 fps  |

## 4. Optical Lens Specification

| Feature           | Description |               |          |
|-------------------|-------------|---------------|----------|
| Lens Model        | 4001-A1-017 | 7035-711-2-M7 | 8082B-N1 |
| Focal Length      | 3.75mm      | 2.8mm         | 2.0mm    |
| Back Focal Length | 1.6mm       | 1.87          | 2.8mm    |
| F no.             | 2.8         | 3             | 2.5      |
| Max Field of View | 66°         | 80            | 110°     |
| TV DISTORTION     | <1%         | <1%           | <-88%    |
| Element           | 4P+IR       | 5p+IR         | 4E+IR    |
| Lens Height       | 6.5mm       | 11.6mm        | 13mm     |

## 5. Wiring diagram

### 5.1 Product Picture



### 5.2 Wiring Diagram



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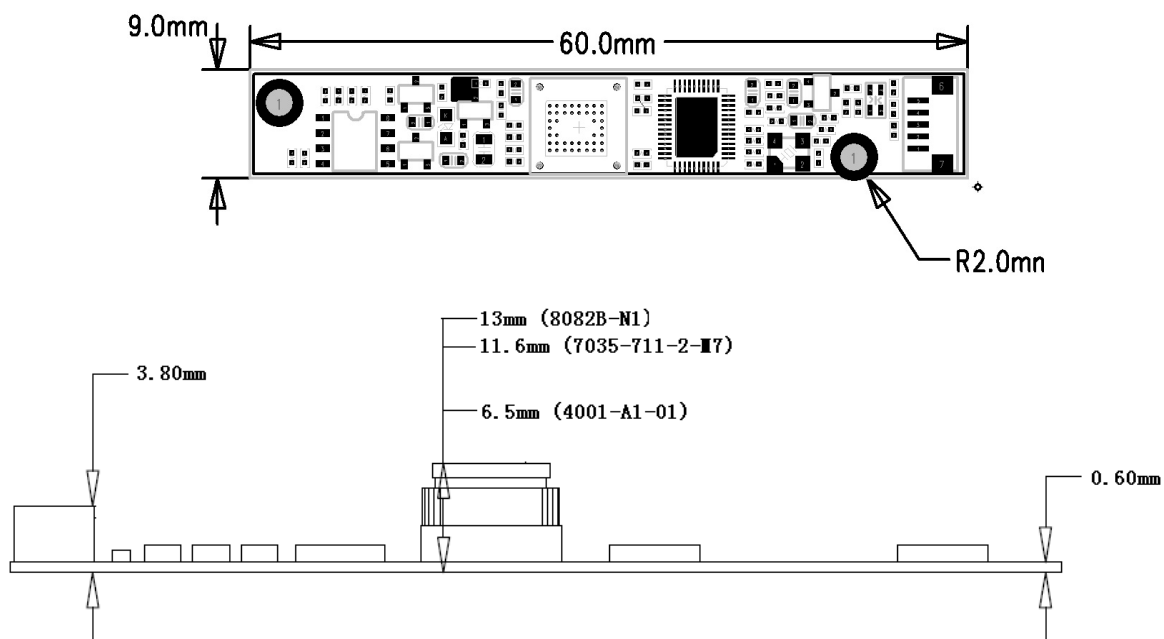
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### 5.3 Connector Definition

| Pin No. | Symbol | Input/output | Description      | Remark |
|---------|--------|--------------|------------------|--------|
| 1       | USB+5V | I            | +5V power supply |        |
| 2       | USB-D+ | O            | USB data cable+  |        |
| 3       | USB-D- | O            | USB data cable-  |        |
| 4       | BTN    |              | BTN              |        |
| 5       | GND    | I            | GND              |        |

### 6. Structural Diagram





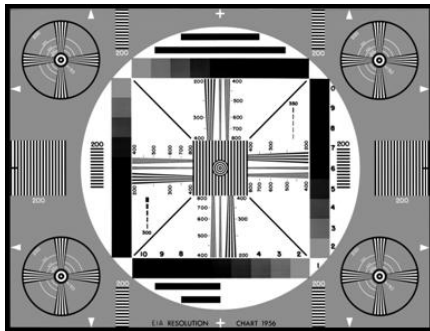
**7. Test**

➤ **MODULE Function Test.**

✓ **Optical Test Condition:**

- ◆ All the tests are under the environment level of 100K without dust.
- ◆ The brightness of Test Board: Brightness 400~500Lux, the brightness difference between center and four corners will be less than 15%.

✓ **Resolution Test (Chart &Condition).**



| Items                                 | Contents  |
|---------------------------------------|---|
| Test Picture                          | MTF Test drawings   |
| Condition(Effective distance: 35cm~∞) | Lamp Source: Cold lamp-house<br>Color Temperature: 6500K<br>Brightness: 450±50Lux,<br>Test height:400mm |
| MTF Spec.                             | Center: 300TV/LINES<br>Four Corners: 200TV/LINES  |

✓ **Dark Corner Test:**

| Item          | Contents  |
|---------------|---|
| Test Drawings | Test Drawing(Right Drawings)  |
| Condition     | Lamp Source: Cold lamp-house<br>Color Temperature: 6500K<br>Brightness: 450±50Lux,<br>Test height:400mm |
| Standard      | No obviously dark corner by eyes.   |



✓ **Spot Test.**


| Condition   | Specification   |
|---|---|
| Makes the camera to white light board and check if have spots | The difference of brightness between spot and nearby this spot will be less than 5% |


✓ **Wounded & Dead pixel Test**

Model: All of CCM

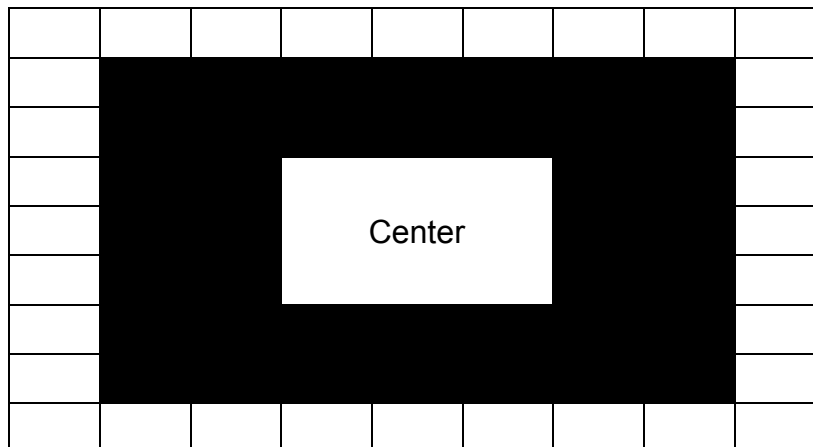
Product name: All of the Semi finished Product and Finished-Products

Contents: Make the picture to nine frames after getting it. (P1-1), not allowed any CSP spots at the

center, The area of labeled as  in the picture, allowed 2 WOUNDED PIXEL or only 1

DEAD PIXEL. The area of labeled as  in the picture, allowed 1 WOUNDED PIXEL or 1 DEAD pixel.

|               |            |              |  |
|---------------|------------|--------------|--|
| DEAD Pixel    |            |              | No any reaction for light, it looks like either white pixel or black pixels. The brightness of pixels changed nothing.                             |
| WOUNDED Pixel |            |              | Will be appeared in irregularly because the light ray bright or dark, and pixels will have difference brightness because bright or dark light ray. |
| Pixel         | All blocks | Total pixels | Pixels in each block   |
| 0.3           | 81         | 307200       | 3793   |
| 1.3           | 81         | 1336400      | 16499  |



## 8. Packing

TBD

## 9. Caution

1. Don't input the voltage higher than prescriptive value.
2. Don't make the connector in converse, if yes, the board will be broken very easy.
3. The product is electornic product, please take care to protect it in static.
4. Lens are glasswork, please take it very careful.
5. Lens are glasswork, please notice it without dust and damage

