



## CAMERA MODULE

### 產品規格承認書

#### PRODUCTION SPECIFICATION FOR APPROVAL

**Model No. : AV5050A22-SJ-4A0**

|                               |  |
|-------------------------------|--|
| <b>Customer</b><br>客戶名稱       |  |
| <b>Date Submitted</b><br>送樣日期 |  |

|                        |
|------------------------|
| <b>Approve</b><br>確認回簽 |
|                        |

**Fangtec Corporation**



## Revision History

| Date       | Rev. | Contents             |
|------------|------|----------------------|
| 2012/12/25 | V1.0 | First release        |
| 2014/05/15 | V2.0 | Change VCM material. |



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## 1. General Description

The AV5050A22-SJ-4A0 is an USB Video Class (UVC) compliant camera module designed for portable notebook PC image applications. It is a highly integrated system that provides a cost-effective and performance solution for video capture application. It shall be a reliable device that is embedded in notebook PC to transfer video data through USB interface to notebook PC. It provides Auto Focus and LED flashlight functions.

## 2. Features

- Compliant USB Video Class
- Support snapshot and still image capture
- Automatic image control
  - ◆ Automatic Exposure Control (AEC)
  - ◆ Automatic White Balance (AWB)
  - ◆ Automatic Gain Control (AGC)
- Support for Auto Focus Control (AFC)
- Support for LED flashlight (1W)
- Support 720p/1080p frame rate up to 30fps
- Support for still image resolution: 2592(H) x 1944(V)
- Platform support Windows XP, Vista ,Win7, Win8.1 and Linux

### 3. Key Specification

| Module Specification      |                         |             |        |
|---------------------------|-------------------------|-------------|--------|
| CMOS sensor Active Pixels | 2592(H) x 1944(V)       |             |        |
| Dimension (mm)            | 60.0mm x 9.0mm x 7.25mm |             |        |
| Power Supply              | +3.15V ~ +5.25V         |             |        |
| Color Filter Array        | RGB Bayer Pattern       |             |        |
| Output Interface          | USB2.0 (480Mbit/sec)    |             |        |
| Operating Temperature     | -10°C to +55°C          |             |        |
| Compatibility             | USB Video Class         |             |        |
| Power Consumption         |                         |             |        |
|                           | Min                     | Type        | Max    |
| Input Supply Voltage      | 3.15                    | 3.3/5.0V DC | 5.25   |
| Un-configured Current     | -                       | 30 mA       | -      |
| Operating Current         | -                       | -           | 260 mA |
| Suspend Current           | -                       | 0.5 mA      | -      |

| DSP Specification |   |
|-------------------|---|
| Type              | USB 2.0 web camera controller                           |
| Support Sensor    | Most popular CMOS sensors                               |
| Compatibility     | USB 2.0 Video Class Compliant, Microsoft WHQL Certified |

| Sensor Specification |                                  |
|----------------------|----------------------------------|
| Optical format       | 1/4-inch QSXGA CMOS Image Sensor |
| Pixel size           | 1.4um x 1.4um                    |
| Maximum Image        | 2592(H)x1944(V)                  |

| Lens Specification      |           |
|-------------------------|-----------|
| Element                 | 4P+ IR    |
| F Number                | 2.8±5%    |
| Field of view(Diagonal) | 67°       |
| Focus Range             | 10 cm ~ ∞ |

| LED Flashlight Specification |          |
|------------------------------|----------|
| Luminous Flus                | 60~70 lm |
| View Angle $2\theta_{1/2}$   | 120°     |

| Connector Specification |                           |
|-------------------------|---------------------------|
| Brand Name              | Aces Electronics Co. Ltd. |
| Model No                | 87213-XXXX                |

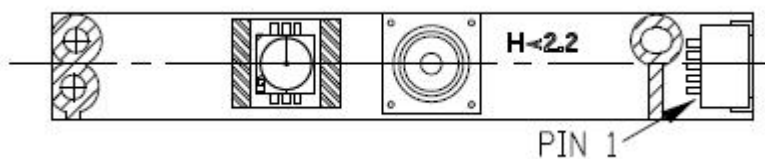
#### 4. Max Frame Rates (fps): MJPEG

| QQVGA    | QCIF      | QVGA      | CIF       | VGA     | SVGA    | XGA      |
|----------|-----------|-----------|-----------|---------|---------|----------|
| 160x120  | 176x144   | 320x240   | 352x288   | 640x480 | 800x600 | 1024x768 |
| 25 ~ 30  | 25 ~ 30   | 25 ~ 30   | 25 ~ 30   | 25 ~ 30 | 25 ~ 30 | 25 ~ 30  |
| WXGA     | Full HD   | UXGA      | QSXGA     |         |         |          |
| 1280x720 | 1920x1080 | 1600x1200 | 2592x1944 |         |         |          |
| 25 ~ 30  | 25 ~ 30   | 13 ~ 15   | 13 ~ 15   |         |         |          |

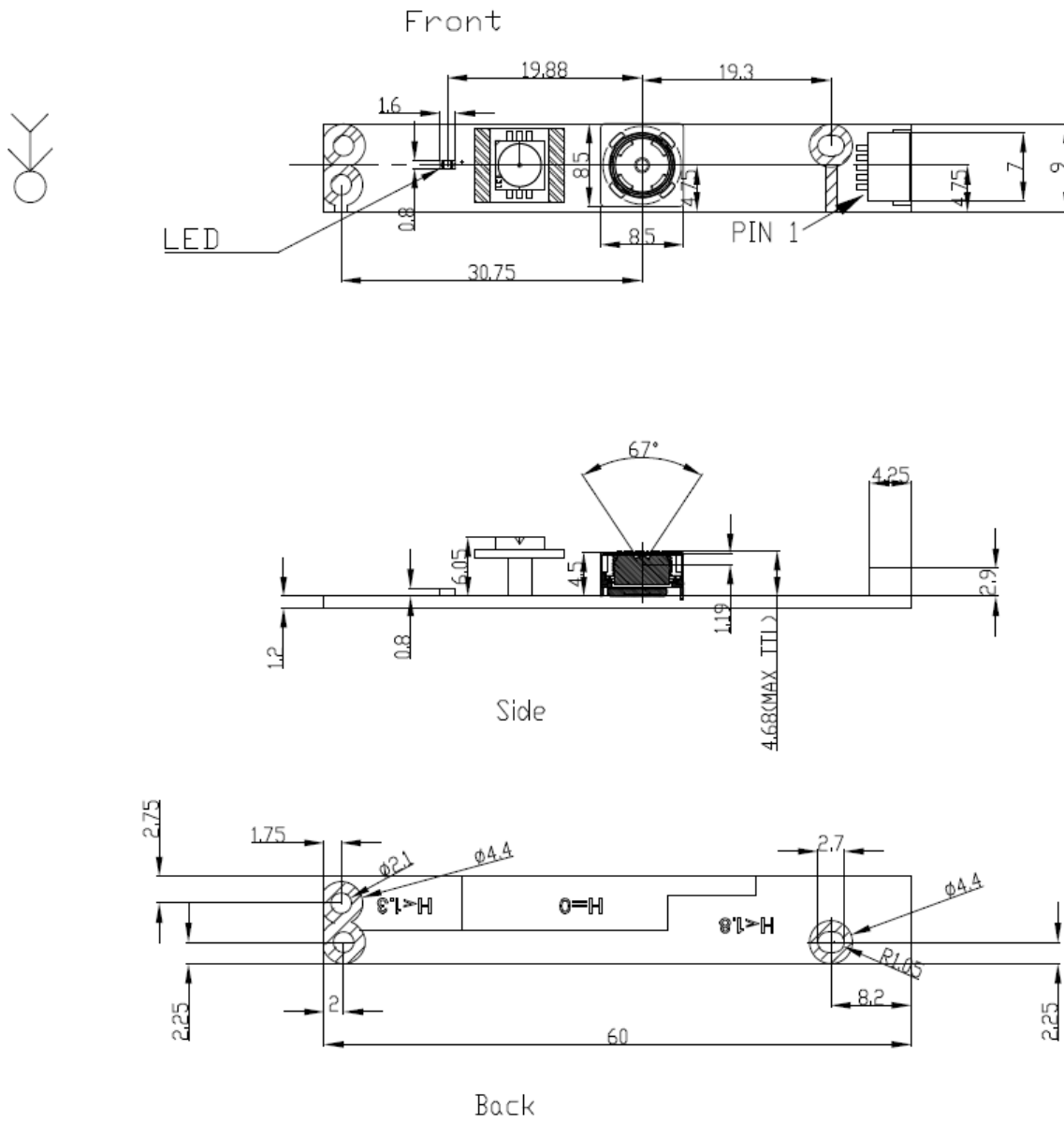
#### 5. Pin Description

| Pin Description |      |          |                            |
|-----------------|------|----------|----------------------------|
| Pin Number      | Name | Pin Type | Function Description       |
| 1               | VCC  | Power    | USB Power Supply +3.3/5.0V |
| 2               | D-   | Data Pin | USB Data Transmission      |
| 3               | D+   | Data Pin | USB Data Transmission      |
| 4               | GND  | GND      | System Ground              |
| 5               | SNAP | GPIO     | Snap, Low active           |

Note: USB Connector pin-5 require an external 10K $\Omega$  pull high if “Snap” is required. NC if not required.



## 6. Outline Specification



H=0

| No.  | Pin Description                 |
|------|---------------------------------|
| PIN1 | VDD +3.3V~5V                    |
| PIN2 | D- USB data -                   |
| PIN3 | D+ USB data +                   |
| PIN4 | GND GND                         |
| PIN5 | Snap normal pull high, low Snap |

## 7. Reliability Test

| No | ITEM                                | Test condition  | Test Result |
|----|-------------------------------------|---|-------------|
| 1  | High Temp. storage                  | 65±2°C, 72Hrs   | PASS        |
| 2  | Low Temp. storage                   | -20±2°C, 72Hrs  | PASS        |
| 3  | High Temp. & High Humidity          | 60±2°C, 90%RH, 120Hrs   | PASS        |
| 4  | Thermal Shock                       | 1. Temp. : -10±3°C, +65±3°C<br>2. Soak Time : 30min<br>The cycles is repeated 100 times   | PASS        |
| 5  | ESD                                 | HBM : 2.0KV<br>MM : 150V  | PASS        |
| 6  | Vibration Test                      | Sinusoidal vibration, Frequency 10~2000Hz<br>Max. Acceleration : 1.5mm, 2G<br>X, Y, Z time : 20min/ each (45hrs)                    | PASS        |
| 7  | Drop Test                           | 150cm Height free fall<br>Surface : concrete or steel<br>Number of drop : 3 times   | PASS        |
| 8  | Vibration Test (packing)            | Air Frequency 2~300Hz, Max. Acceleration : 1.48G<br>Truck Frequency 1~200Hz, Max. Acceleration : 0.73G<br>X, Y, Z time : 1 Hr/ each | PASS        |
| 9  | Drop Test (packing)                 | 100cm Height free fall<br>Surface : concrete or steel<br>Number of drop : 10 times  | PASS        |
| 10 | Connector Mating                    | (1). Mating/Un-mating male & female connector<br>(2). Duration : 25 cycles<br>(3). Function test every 5 cycles                     | PASS        |
| 11 | Power ON/OFF test (USB plug in/out) | ON (5 sec.) OFF(5 sec.) 20 cycles   | PASS        |