Notebook Camera Module

AM-6GF5691
PEGA P/N : 0420-0173000

Product Specification

Version x0.2
Issued on Oct. 13, 2016
<table>
<thead>
<tr>
<th>Version</th>
<th>Date of Amendment</th>
<th>Amendment Description</th>
<th>Issued by</th>
</tr>
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<tr>
<td>v.01</td>
<td>2016/09/23</td>
<td>New Release for Applying Pega P/N</td>
<td>Lewis Lu</td>
</tr>
<tr>
<td>v.02</td>
<td>2016/10/13</td>
<td>Update COD/Connector/Tape drawing</td>
<td>Lewis Lu</td>
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1. Key Specification

This document defines the product specifications, interfaces and functionalities of the fixed focus camera module installed on notebooks. It combines the HD sensor IMX188 and platform RTS5843T for high quality PC image applications.

The IMX188 is a diagonal 2.16 mm (Type 1/8.32) back-illuminated type CMOS image sensor with a square pixel array and approx. 1.07 M active pixels. Adoption of column parallel A/D converter realized high-speed processing and changing fundamental structure to back-illuminated type enhanced imaging characteristics including sensitivity and low noise. R, G, and B pigment primary color mosaic filter is empryed. High sensitivity, low dark current features are achieved. It equips an electronic shutter with variable integration time. In addition, IMX188 is designed for use in pc camera, tablet pc, and cellular phone.

- Features
  - HD CMOS Sensor
  - USB2.0 Host Interface
  - Ultra Low Z-height module

- Application
  - NB Camera
  - UMPC, PDA
  - Game Console
  - PC Multimedia
  - Digital Still Cameras
## 2. Key Specification

<table>
<thead>
<tr>
<th>ITEM</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Image Sensor</strong></td>
<td></td>
</tr>
<tr>
<td>Image Format</td>
<td>1/8.32-inch HD CMOS sensor IMX188</td>
</tr>
<tr>
<td>Image Area</td>
<td>Diagonal 2.16mm (Type 1/8.32)</td>
</tr>
<tr>
<td>Active Array Size</td>
<td>1312(H) x 816(V)</td>
</tr>
<tr>
<td>Pixel Size</td>
<td>1.4um</td>
</tr>
<tr>
<td>Power Requirements</td>
<td>Standby: 5 uA(IF), 2000uA(digital), 40uA(analog)</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>Operation: -20°C to 75°C, Stable Image: -20°C to 60°C</td>
</tr>
<tr>
<td>Output Formats</td>
<td>Raw 8/10-bit</td>
</tr>
<tr>
<td>Image Size</td>
<td>Diagonal 2.16mm (Type 1/8.32)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Core: 1.2V (+/- 0.1), Analog: 2.7V (+0.2/-0.1), I/O: 1.8V +/- 0.1</td>
</tr>
<tr>
<td>Chip Size</td>
<td>3.285mm(H) X 2.549mm(V)</td>
</tr>
<tr>
<td>Max Image transfer rate</td>
<td>60 fps</td>
</tr>
<tr>
<td><strong>Lens</strong></td>
<td></td>
</tr>
<tr>
<td>Vendor</td>
<td>AOET 1L4B005G1</td>
</tr>
<tr>
<td>Element</td>
<td>4P</td>
</tr>
<tr>
<td>Lens Size</td>
<td>1/8.76'</td>
</tr>
<tr>
<td>EFLm</td>
<td>1.31 mm</td>
</tr>
<tr>
<td>F/No.</td>
<td>2.0 ± 5% (INFINITE)</td>
</tr>
<tr>
<td>Field of View</td>
<td>Vertical: 41° (y' = 0.0.504mm), Horizontal: 67.3° (y' = 0.896mm), Diagonal: 74.9° ± 3% (y' = 1.028mm)</td>
</tr>
<tr>
<td>TV-Distortion (Max.)</td>
<td>≤ 1%</td>
</tr>
<tr>
<td>Image circle</td>
<td>Ø 2.28mm (Max)</td>
</tr>
<tr>
<td>IR-CUT Coating Filter</td>
<td>T50% = 650±10nm</td>
</tr>
<tr>
<td>Chief of Angle</td>
<td>&lt; 36.2°</td>
</tr>
<tr>
<td>Relative Illuminance</td>
<td>≥ 36.8% (y' = 1.028mm)</td>
</tr>
<tr>
<td>Barrel &amp; Holder Material</td>
<td>PC (Black)</td>
</tr>
<tr>
<td>Torquor spec</td>
<td>20~140</td>
</tr>
<tr>
<td>Focus Distance</td>
<td>50cm</td>
</tr>
<tr>
<td>Focus Range</td>
<td>19cm~ ∞</td>
</tr>
<tr>
<td><strong>Image Processor</strong></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Realtek 5843T</td>
</tr>
<tr>
<td>Supporting Sensor</td>
<td>HD sensors</td>
</tr>
<tr>
<td>Interface</td>
<td>USB</td>
</tr>
<tr>
<td>Compatibility</td>
<td>USB 2.0 Video class Compliant</td>
</tr>
<tr>
<td>Capture Still Image</td>
<td>Up to HD720p</td>
</tr>
<tr>
<td>OS Supported</td>
<td>Vista 32-bit, 64-bit/Win7/Win 8.8.1 /Win 10</td>
</tr>
<tr>
<td><strong>Component</strong></td>
<td></td>
</tr>
<tr>
<td>Connector</td>
<td>ACE 51536-00801-001</td>
</tr>
<tr>
<td>ALS</td>
<td>JSA-1214</td>
</tr>
<tr>
<td><strong>FW Code</strong></td>
<td></td>
</tr>
<tr>
<td>Device Name</td>
<td>Web Camera - HD</td>
</tr>
<tr>
<td>Video Format</td>
<td>MJPEG and YUY2</td>
</tr>
<tr>
<td>Video Resolution</td>
<td>HD@30fps ; 960x540@30fps ; 848x480@30fps ; 848x480@15fps</td>
</tr>
<tr>
<td>Frame rate</td>
<td>HD@30fps ; 960x540@30fps ; 848x480@30fps ; 848x480@15fps</td>
</tr>
<tr>
<td>Version</td>
<td>TBC</td>
</tr>
<tr>
<td>PID / VID</td>
<td>5755 / 13D3</td>
</tr>
<tr>
<td>Module Dimension (L x W x H)</td>
<td>50 ± 0.2mm x 4.0 ± 0.15mm x 1.995 ± 0.10mm</td>
</tr>
<tr>
<td>Weight</td>
<td>TBC</td>
</tr>
<tr>
<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Operation Voltage</td>
<td>3.1V ~ 3.6V</td>
</tr>
<tr>
<td>Pixel Resolution</td>
<td>HD</td>
</tr>
<tr>
<td>Automatic image control</td>
<td>Exposure Control/White Balance Control</td>
</tr>
</tbody>
</table>

- **Pin Description**

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>USB 3.3V</td>
</tr>
<tr>
<td>2</td>
<td>D-</td>
</tr>
<tr>
<td>3</td>
<td>D+</td>
</tr>
<tr>
<td>4</td>
<td>NC</td>
</tr>
<tr>
<td>5</td>
<td>ALS_SDA</td>
</tr>
<tr>
<td>6</td>
<td>ALS_SCL</td>
</tr>
<tr>
<td>7</td>
<td>ALS_INT</td>
</tr>
<tr>
<td>8</td>
<td>DGND</td>
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</tbody>
</table>
- SCH

![SCH Diagram]

- LED

![LED Diagram]

- ISP RTS 5843T
MIIPI differential impedance
Zdiff = 100 ohm

Realtek
RT5843T

RT5843T_QPN32

Pull High

Please Close to IC

Please Close to IC

1.2V
3. Outline Specification

- COD Drawing

Outline Specification

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Definition</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>NC</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>+0.025/-0</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>+0.013/-0</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>+0.013/-0</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>+0.013/-0</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>-0.002/-0</td>
<td></td>
</tr>
</tbody>
</table>

Dimensions:
- Scale 1:100
- Bottom Side for PCB

Note:
- All Critical Dimensions Refer to Tolerance Table.
- Unless Otherwise Stated, Dimensions Are Body Dimensions.
- Do Not Allow Tolerance and Precise the Actual Body Stated.
- All Material Must AzureWave's Standard Reel and HP Specification "APP-01-A".
Lens Specification

CONSTRUCTION 4 ELEMENTS,(4 PLASTICS)
SENSOR: CMOS 1/8.76"
EFL = 1.31
F/FL=0.575 (Object at 60cm, with 0.21mm IRF)
FNO = 2.0±5%
FIELD OF VIEW
  VERTICAL: 41° (y=0.504mm)
  HORIZONTAL: 67.3° (y=0.896mm)
  DIAGONAL: 74.9°±3% (y=1.028mm)
TV-DISTORTION≤±0.1%
RELATIVE ILLUMINATION≥36.8% (y=1.028mm)(Ref.)
CRA<36.2°
Max image circle size: R2.26mm (Ref.)
Barrel Material: PC-L1225Y
Holder Material: LCP-E4631

Adhesive Drawing

Tape-01
Connector Drawing
4. Packing Information

- Packing Material

<table>
<thead>
<tr>
<th>Material</th>
<th>Item and Spec</th>
<th>Q'ty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture barrier bag</td>
<td>Moisture barrier bag 620*425mm</td>
<td>2</td>
</tr>
<tr>
<td>Carton</td>
<td>Carton 453<em>381</em>256mm For camera [上海大鑫]</td>
<td>1</td>
</tr>
<tr>
<td>天地板</td>
<td>天地板 435*365mm For camera [上海大鑫]</td>
<td>2</td>
</tr>
<tr>
<td>Sponge</td>
<td>Pink sponge 435x365mmx5mm for camera [思脉]</td>
<td>2</td>
</tr>
<tr>
<td>上隔板</td>
<td>隔板 435*230mm For camera [上海大鑫]</td>
<td>2</td>
</tr>
<tr>
<td>下隔板</td>
<td>隔板 365*230mm (25mm make a groove) For camera</td>
<td>3</td>
</tr>
</tbody>
</table>

- Device Label Rule

(Ref: PEGATRON 2010 New Part Number LABEL Barcode Rule) (TBC)

A: BARCODE: BARCODE内容只包含: PEGATRON P/N，版本+模號、D/C，S/N且掃描後只顯示上述包含內容；不包含HINGE+SPEAKER编码

B: PEGATRON Part Number及相關文字敘述，此敘述會包含HINGE+SPEAKER编码

C: CUSTOMER Part Number

- Carton Label

TBC
Packing Method

Packing Procedure
1. Attach SN label on CCM module and place it in the tray with lens upwardly. (Figure 1)
   Add an empty tray on the top of 10 layer-stacked trays when spaces of trays are fully placed with modules and then tie with rubber bands. (Figure 2)
2. Put desiccant on the tray and then seal all in the antistatic bag. (Figure 2)
3. Pump air out of bag in the vacuum machine. (Figure 3)
4. Fold the open and corners of bag and fixed by adhesive taps. (Figure 4)
5. Put two partition plates and fix them in the slots of carton. Place packaged products between two plates. Fix products with inserting sponge. (Figure 5)
6. Attach one shipping label on the carton and the other one the bag. The contents of two labels are the same. Attach yellow balance label on the box while not full.
7. Attach QC pass shipping label on the bag and stamp QC seal on it after QC checked.
8. Seal carton with AzureWave taps to finish packing. (Figure 6)

Illustration

5. Product Photo

- Front
  ➔ TBC

- Back
  ➔ TBC