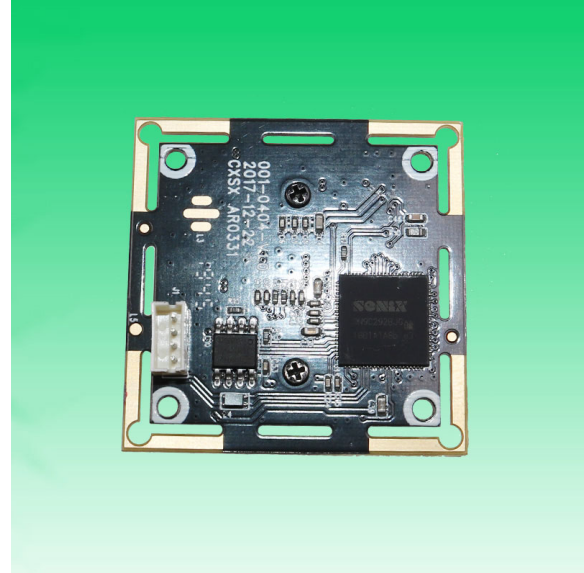
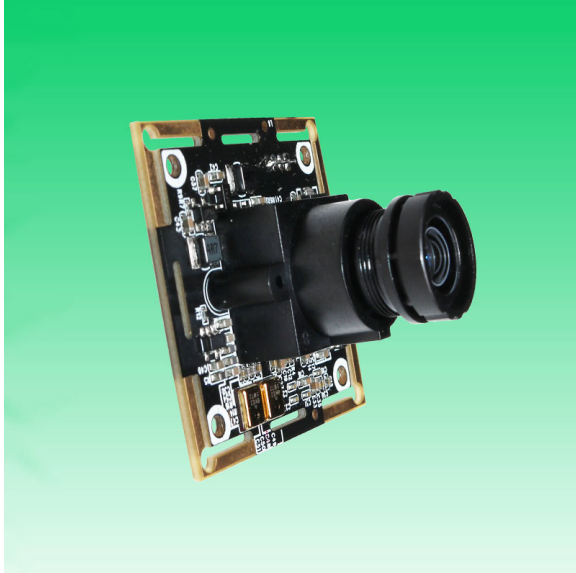


**KLT-USB-0404 V1****3.1MP OnSemi AR0331 M12 Fixed Focus USB 2.0 Camera Module**

KLT-USB-0404 V1 is a 3.1MP Fixed Focus USB camera module based on 1/3" AR0331 image sensor. It delivers high-speed, 3K resolution ultra sharp image.

The S-mount (M12) lens holder enables customers to choose different lens as per varies applications. This camera module is ideal solution for face recognition, identity detection, access control.

Key Features

- 3K resolution (2048 x 1536) OnSemi AR0331 sensor
- High speed USB 2.0 Plug and Play
- MJPG and YUV2 output format
- Low power consumption
- Compact size
- UVC compliant to Windows, Linux, OS with UVC driver
- USB OTG (On-The-Go) support



KLT-USB-0404 V1

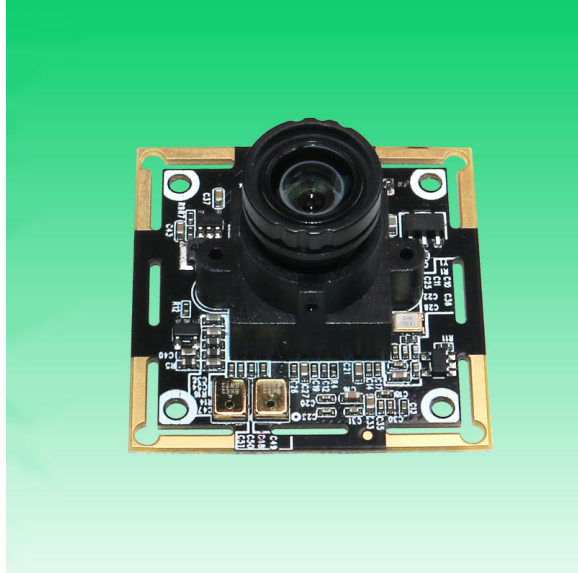
3.1MP OnSemi AR0331 M12 Fixed Focus USB 2.0 Camera Module

| | |
|-------------------------|------------------------------------------------------------------------------------------------------------------------|
| Camera Module No. | KLT-USB-0404 V1 |
| Resolution | 3.1MP |
| Image Sensor | AR0331 |
| Sensor Type | 1/3" |
| Pixel Size | 2.2 um x 2.2 um |
| EFL | N/A |
| F.NO | N/A |
| Pixel | 2048 x 1536 |
| View Angle | 90°(DFOV) |
| Lens Dimensions | 15.90 x 15.90 x 17.80 mm |
| Module Type | Fixed Focus |
| Lens Model | KLT-LENS-0404 V1 |
| Interface | USB 2.0 |
| Output Format | MJPEG / YUV2 |
| Auto Control | Saturation, Contrast, Acutance White Balance, Exposure |
| Audio | None |
| Input Voltage | DC 5V |
| Working Current | Max 500mA |
| PCB Size | 38 x 38 mm / 32 x 32 mm |
| System Compatibility | Windows XP (SP2, SP3), Vista, 7, 8, 10, 11 Android, Mac OS, Linux or OS with UVC Driver Raspberry Pi by USB Port |
| Software for USB Camera | AMCAP, Webcam Viewer, V4L2 Controls Contacam, VLC Player, MotionEye OS iSpy, ZoneMider, Yawcam |
| Lens Type | 650nm IR Cut |
| Operating Temperature | -30°C to +85°C |
| USB Cable | KLT-Cable-U015 |

Wide Compatibility with Windows, Android, Mac OS, Linux, or Raspberry Pi



www.KaiLapTech.com sales@KaiLapTech.com Tel: (852) 6908 1256 Fax: (852) 3017 6778

**KLT-USB-0404 V1****3.1MP OnSemi AR0331 M12 Fixed Focus USB 2.0 Camera Module**

Top View



Side View



Bottom View



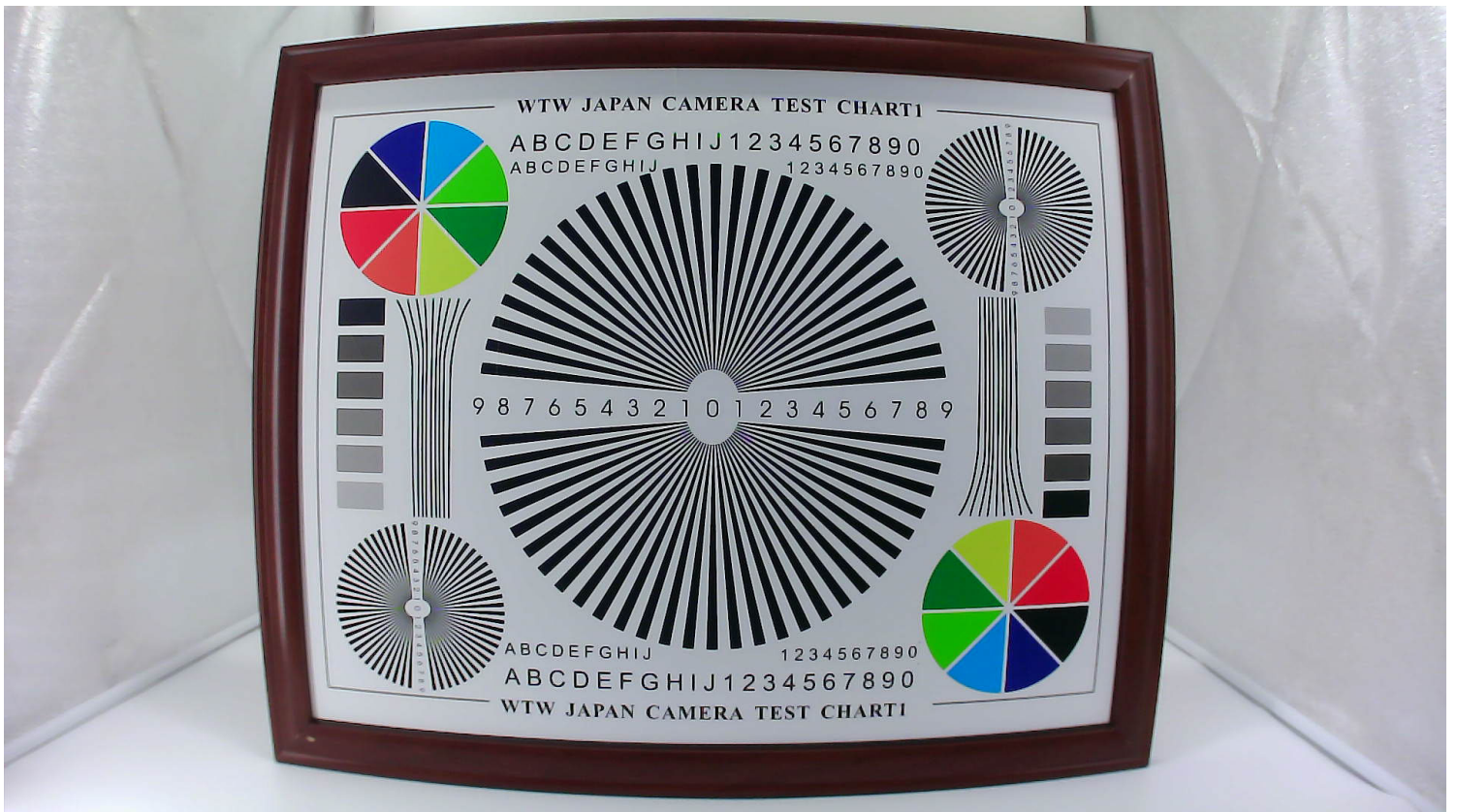
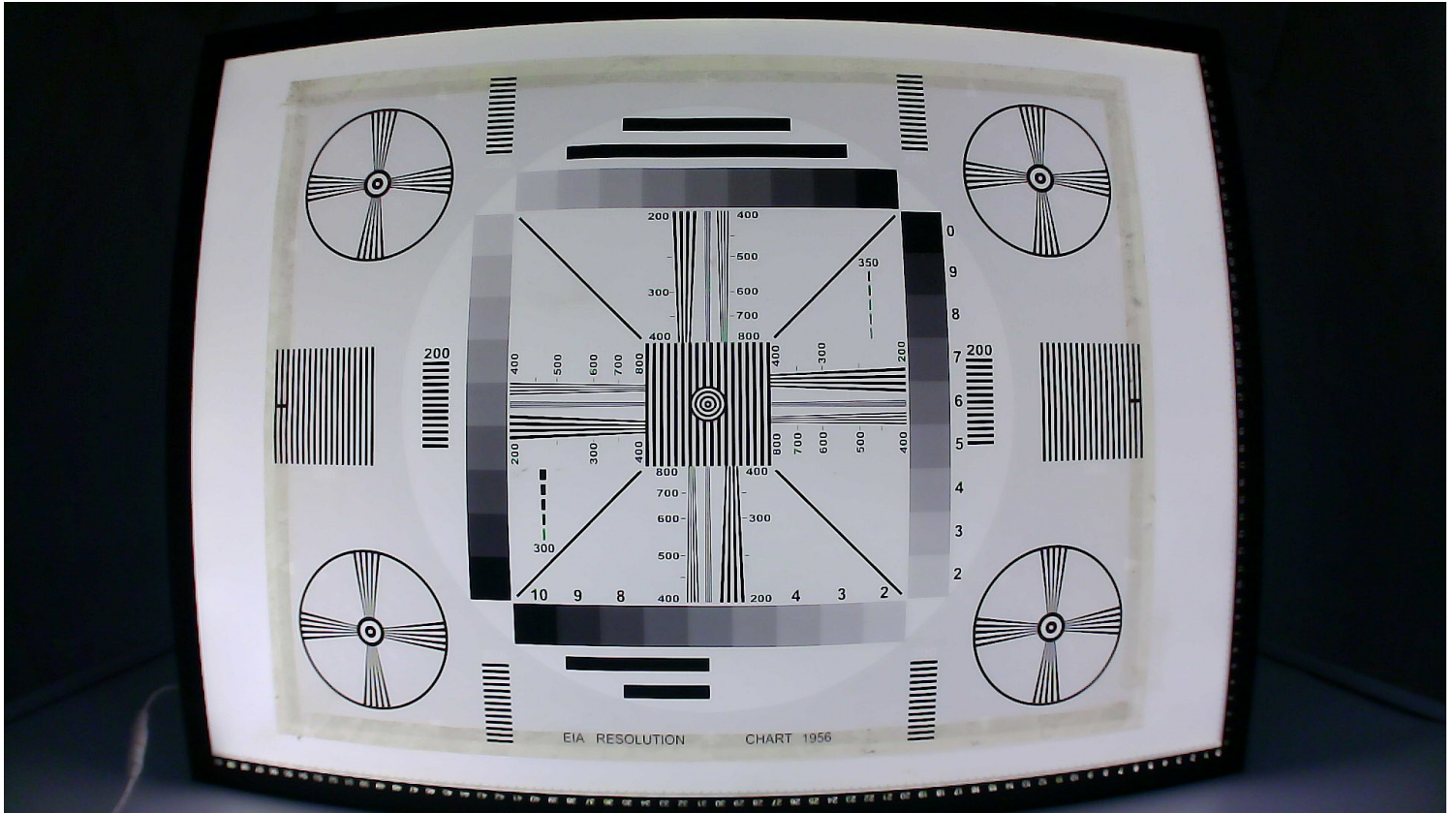
Mating Connector

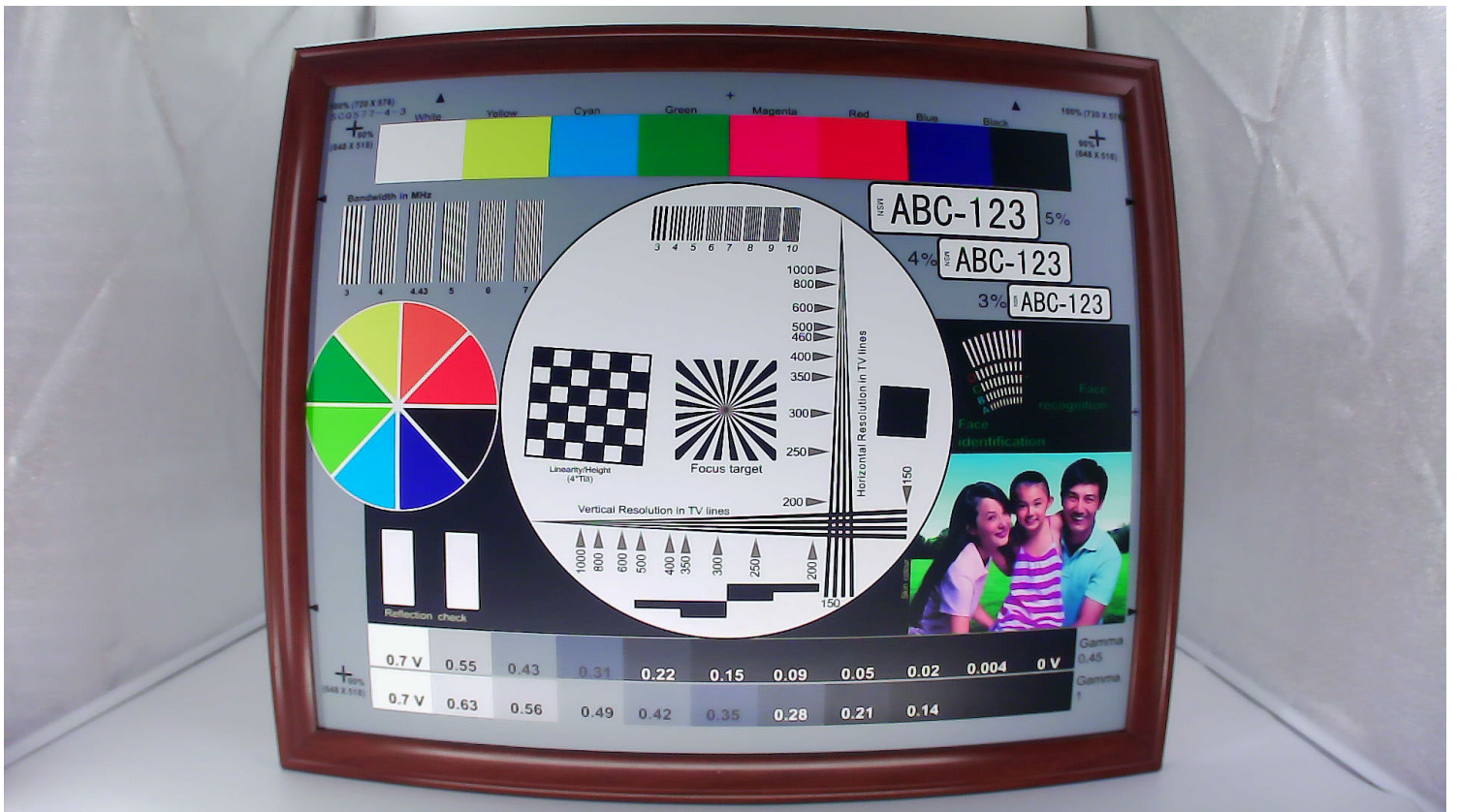
**KLT-USB-0404 V1****3.1MP OnSemi AR0331 M12 Fixed Focus USB 2.0 Camera Module**

| FORMAT | RESOLUTION | FRAME RATE |
|--------|---------------------|------------|
| | | USB 2.0 |
| MJPG | 640 x 480 (VGA) | 25 FPS |
| | 1280 x 720 (720P) | 25 FPS |
| | 1920 x 1080 (1080P) | 25 FPS |
| YUV2 | 640 x 480 (VGA) | 25 FPS |
| | 1280 x 720 (720P) | 10 FPS |
| | 1920 x 1080 (1080P) | 5 FPS |



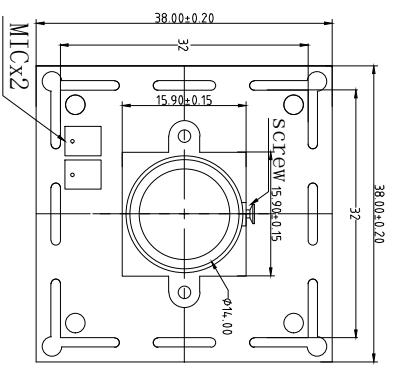
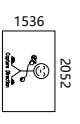




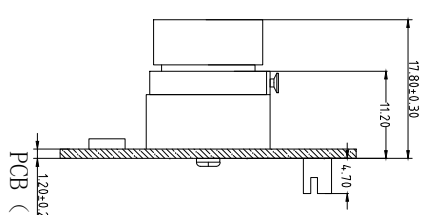


| Version | Information | Date |
|---------|---------------|-----------|
| V1.0 | First Version | 4-24-2022 |

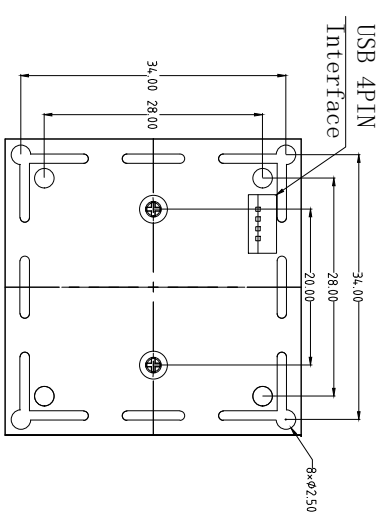
| PIN NO | SIGNAL |
|--------|--------|
| PIN1 | USB 5V |
| 02 | D- |
| 03 | D+ |
| 04 | DGND |



TOP VIEW



SIDE VIEW



BOTTOM VIEW

Parameter:

- Sensor specification:
 - Image Sensor: AR0331
 - Pixel: 3.0um×3.0um
 - Lens Type: 1/2.2
 - Important Voltage Description: USB 5V (external power supply);
- Lens specification:
 - FOV: 90°(D)
 - F/NO.: TBD
 - TV distortion: TBD
 - Focal length: TBD
 - Composition: 2G2P+IR FILTER
 - IR Cut Coating: 650nm±10nm@50%

Kai Lap Technologies Group Ltd

| | | | | | |
|-------------|-----------|------------------|------------------|-----------|--------|
| Designed By | Kevin | Model Name: | KLT-USB-003-0404 | | |
| Checked By | Aouly_Yan | Projection Type: | Unit: | Material: | |
| | | Third Angle | mm | Sheet: | 1 of 1 |
| | | | Scale: | Version: | 1/0 |

Product Overview

AR0331: 3 MP 1/3" CMOS Image Sensor

For complete documentation, see the data sheet.

The 3.1-megapixel sensor was created to meet the needs of the growing full HD video-centric surveillance market with the exceptional performance of the new 2.2-micron pixel sensor featuring ON Semiconductor's A-Pix technology. The AR0331 targets the mainstream 1/3-inch optical format surveillance camera market with excellent image quality. The sensor provides surveillance camera manufacturers with a performance upgrade to current 3-megapixel sensor designs with a best-in-class feature set to combining full HD video with wide dynamic range (WDR) capability and built-in adaptive local tone mapping. The new sensor provides HD video of up to 1080p at 60 fps employing advanced binning techniques to enable the sensors' sub 1-lux low light performance. The second HD image sensor in ON Semiconductor's surveillance portfolio, like the MT9M033 (720p/60fps), the AR0331 image sensor's low light and dynamic range capabilities enable a surveillance camera to capture HD video in the most challenging environments.

Features

- High Dynamic Range

Applications

- Security

| Part Electrical Specifications | | | | | | | | | | | |
|--------------------------------|-------------|--------|------|------------|------------------|----------------|--------------------|-----------------|------------------|-------------|--------------|
| Product | Compliance | Status | Type | Megapixels | Frame Rate (fps) | Optical Format | Shutter Type | Pixel Size (µm) | Output Interface | Color | Package Type |
| AR0331SRSC00SHCA0-DRBR | Pb-free | Active | CMOS | 3.1 | 60 | 1/3 inch | Electronic Rolling | 2.2 x 2.2 | HiSPi™ | Bayer Color | ILCC-48 |
| | Halide free | | | | | | | | | | |
| AR0331SRSC00SHCA0-DRBR1 | Pb-free | Active | CMOS | 3.1 | 60 | 1/3 inch | Electronic Rolling | 2.2 x 2.2 | HiSPi™ | Bayer Color | ILCC-48 |
| | Halide free | | | | | | | | | | |
| AR0331SRSC00SUCA0-DPBR | Pb-free | Active | CMOS | 3.1 | 60 | 1/3 inch | Electronic Rolling | 2.2 x 2.2 | Multi | Bayer Color | ILCC-48 |
| | Halide free | | | | | | | | | | |
| AR0331SRSC00SUCA0-DPBR1 | Pb-free | Active | CMOS | 3.1 | 60 | 1/3 inch | Electronic Rolling | 2.2 x 2.2 | Multi | Bayer Color | ILCC-48 |
| | Halide free | | | | | | | | | | |
| AR0331SRSC00SUCA0-DRBR | Pb-free | Active | CMOS | 3.1 | 60 | 1/3 inch | Electronic Rolling | 2.2 x 2.2 | Multi | Bayer Color | ILCC-48 |
| | Halide free | | | | | | | | | | |
| AR0331SRSC00SUCA0-DRBR1 | Pb-free | Active | CMOS | 3.1 | 60 | 1/3 inch | Electronic Rolling | 2.2 x 2.2 | Multi | Bayer Color | ILCC-48 |
| | Halide free | | | | | | | | | | |
| AR0331SRSC00XUEE0-DPBR | Pb-free | Active | CMOS | 3.1 | 60 | 1/3 inch | Electronic Rolling | 2.2 x 2.2 | Multi | Bayer Color | IBGA-63 |
| | Halide free | | | | | | | | | | |
| AR0331SRSC00XUEE0-DRBR | Pb-free | Active | CMOS | 3.1 | 60 | 1/3 inch | Electronic Rolling | 2.2 x 2.2 | Multi | Bayer Color | IBGA-63 |
| | Halide free | | | | | | | | | | |
| AR0331SRSC00XUEE0-DRBR1 | Pb-free | Active | CMOS | 3.1 | 60 | 1/3 inch | Electronic Rolling | 2.2 x 2.2 | Multi | Bayer Color | IBGA-63 |
| | Halide free | | | | | | | | | | |

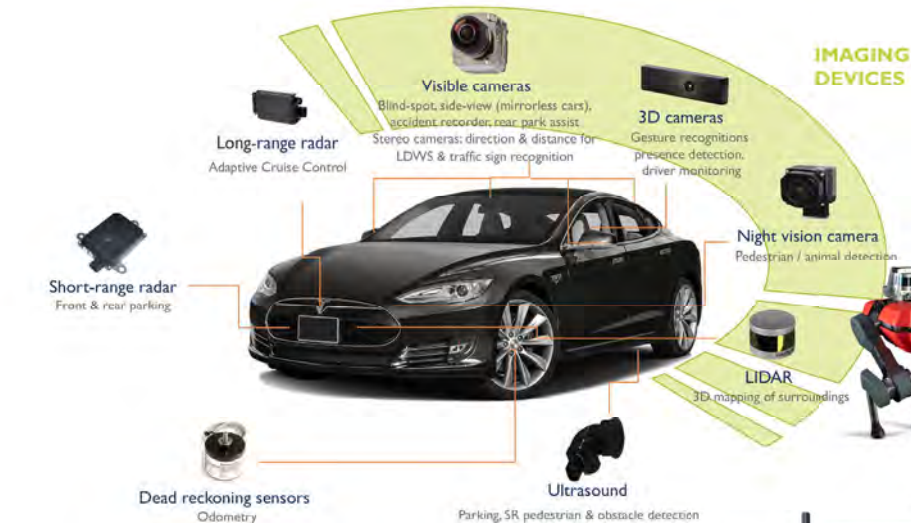
For more information please contact your local sales support at www.onsemi.com.

Created on: 9/30/2017



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Cameras Applications





Camera Reliability Test

| Reliability Inspection Item | | Testing Method | Acceptance Criteria | |
|-----------------------------|-----------------------------|-------------------------------------------------------------------|-------------------------|-------------------------|
| Category | Item | | | |
| Environmental | Storage Temperature | High 60°C 96 Hours | Temperature Chamber | No Abnormal Situation |
| | | Low -20°C 96 Hours | Temperature Chamber | No Abnormal Situation |
| | Operation Temperature | High 60°C 24 Hours | Temperature Chamber | No Abnormal Situation |
| | | Low -20°C 24 Hours | Temperature Chamber | No Abnormal Situation |
| | Humidity | 60°C 80% 24 Hours | Temperature Chamber | No Abnormal Situation |
| | Thermal Shock | High 60°C 0.5 Hours Low -20°C 0.5 Hours Cycling in 24 Hours | Temperature Chamber | No Abnormal Situation |
| Physical | Drop Test (Free Falling) | Without Package 60cm | 10 Times on Wood Floor | Electrically Functional |
| | | With Package 60cm | 10 Times on Wood Floor | Electrically Functional |
| | Vibration Test | 50Hz X-Axis 2mm 30min | Vibration Table | Electrically Functional |
| | | 50Hz Y-Axis 2mm 30min | Vibration Table | Electrically Functional |
| | | 50Hz Z-Axis 2mm 30min | Vibration Table | Electrically Functional |
| | Cable Tensile Strength Test | Loading Weight 4 kg 60 Seconds Cycling in 24 Hours | Tensile Testing Machine | Electrically Functional |
| Electrical | ESD Test | Contact Discharge 2 KV | ESD Testing Machine | Electrically Functional |
| | | Air Discharge 4 KV | ESD Testing Machine | Electrically Functional |
| | Aging Test | On/Off 30 Seconds Cycling in 24 Hours | Power Switch | Electrically Functional |
| | USB Connector | On/Off 250 Times | Plug and Unplug | Electrically Functional |



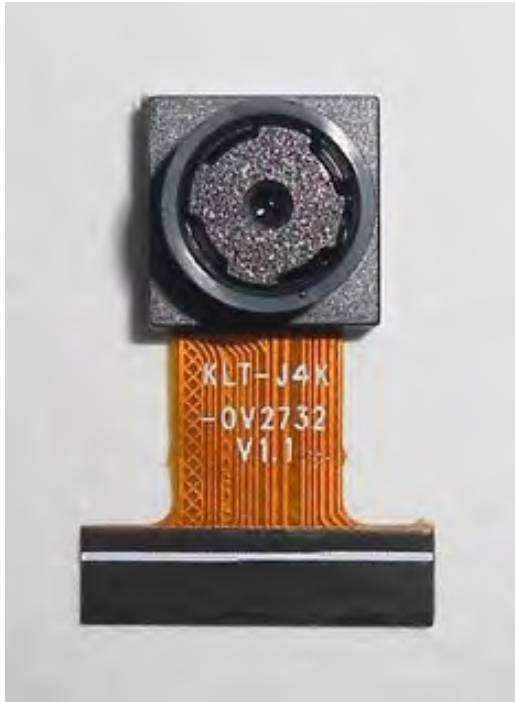


| Inspection Item | | Inspection Method | Standard of Inspection | | |
|------------------|----------|-------------------|-----------------------------|--------------------------------------------|---------------------------------|
| Category | Item | | | | |
| Appearance | FPC/ PCB | Color | The Naked Eye | Major Difference is Not Allowed. | |
| | | Be Torn/Chopped | The Naked Eye | Copper Crack Exposure is Not Allowed. | |
| | | Marking | The Naked Eye | Clear, Recognizable (Within 30cm Distance) | |
| | Holder | Scratches | The Naked Eye | The Inside Crack Exposure is Not Allowed | |
| | | Gap | The Naked Eye | Meet the Height Standard | |
| | | Screw | The Naked Eye | Make Sure Screws Are Presented (If Any) | |
| | | Damage | The Naked Eye | The Inside Crack Exposure is Not Allowed | |
| | Lens | Scratch | The Naked Eye | No Effect On Resolution Standard | |
| | | Contamination | The Naked Eye | No Effect On Resolution Standard | |
| | | Oil Film | The Naked Eye | No Effect On Resolution Standard | |
| | | Cover Tape | The Naked Eye | No Issue On Appearance. | |
| | Function | Image | No Communication | Test Board | Not Allowed |
| | | | Bright Pixel | Black Board | Not Allowed In the Image Center |
| Dark Pixel | | | White board | Not Allowed In the Image Center | |
| Blurry | | | The Naked Eye | Not Allowed | |
| No Image | | | The Naked Eye | Not Allowed | |
| Vertical Line | | | The Naked Eye | Not Allowed | |
| Horizontal Line | | | The Naked Eye | Not Allowed | |
| Light Leakage | | | The Naked Eye | Not Allowed | |
| Blinking Image | | | The Naked Eye | Not Allowed | |
| Bruise | | | Inspection Jig | Not Allowed | |
| Resolution | | | Chart | Follows Outgoing Inspection Chart Standard | |
| Color | | | The Naked Eye | No Issue | |
| Noise | | | The Naked Eye | Not Allowed | |
| Corner Dark | | | The Naked Eye | Less Than 100px By 100px | |
| Color Resolution | | | The Naked Eye | No Issue | |
| Dimension | Height | The Naked Eye | Follows Approval Data Sheet | | |
| | Width | The Naked Eye | Follows Approval Data Sheet | | |
| | Length | The Naked Eye | Follows Approval Data Sheet | | |
| | Overall | The Naked Eye | Follows Approval Data Sheet | | |



KLT Package Solutions

KLT Camera Module



Complete with Lens Protection Film



Tray with Grid and Space



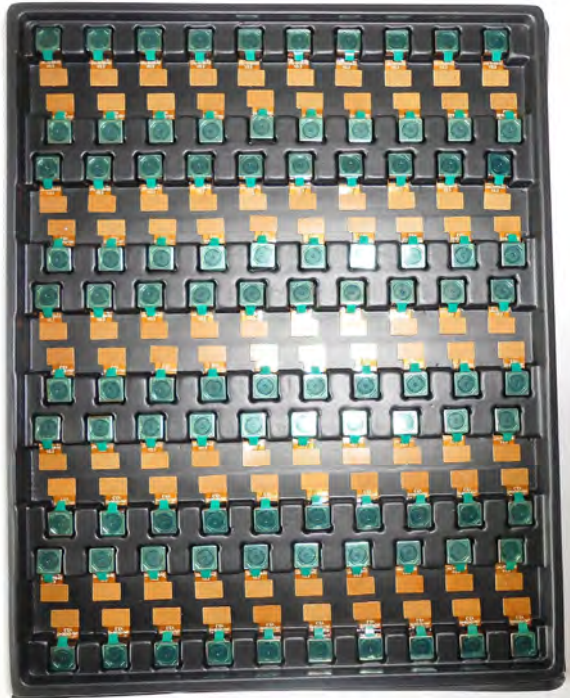
Place Cameras on the Tray





Camera Modules Package Solution

Full Tray of Cameras



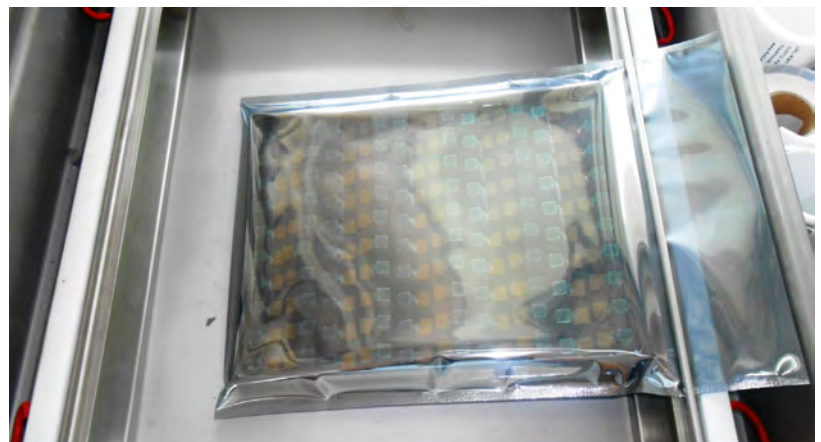
Cover Tray with Lid



Put Tray into Anti-Static Bag



Vacuum the Anti-Static Bag





Camera Modules Package Solution

Sealed Vacuum Bag with Labels

- 1. Model and Description 2. Quantity 3. Shipping Date 4. Caution**





Large Order Package Solution

Place Foam Sheets Between Trays



Foam Sheets are Slightly Larger than Trays



Place Foam Sheets and Trays into Box



Foam Sheets are Tightly Fitting Box





Small Order Package Solution

Place Foam Sheets and Trays into Small Box



Foam Sheets are Nicely Fitting the Small Box



Package in Small Box for Shipment



Place Small Boxes into Larger Box





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Carbon Box Package Solution

Seal the Carbon Box

Final Package Labelled Box



Carbon Box Ready for Shipment

1. Delivery Address and Phone No. 2. Box No. and Ship Date 3. Fragile Caution





Sample Order Package Solution

Place Sample into Small Anti-Static Bag



Place Connectors into Small Ant-Static Bag



Sample Labels on the Small Bag

- 1. Camera Module or Connector Model
- 2. Shipping Date and Quantity
- 3. Caution





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Connectors Large Order Package Solution

Connectors in a Wheel



Label Connectors in the Wheel



The Wheel is Perfectly Fitting the Box



Connectors Box Ready for Shipment

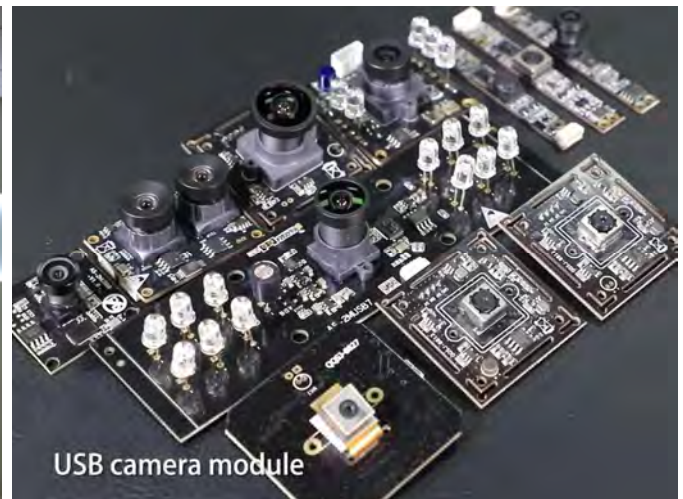


Company Kai Lap Technologies (KLT)

Kai Lap Technologies Group Limited. (KLT) was established in 2009, a next-generation technology driven manufacturer specialized in research, design, and produce of audio and video products. KLT is occupying 20,000 square feet automated plants with 100 employees of annual throughput 30,000,000 units cameras.

KLT provides OEM, ODM design, contract manufacturing, and builds the camera products. You may provide the requirements to us, even with a hand draft, our sales and engineering work together to meet your needs. We consider ourselves your last-term partner in developing practical and innovative solutions.

Our team covers everything from initial concept development to mass produced product. KLT specializes in customized camera design, raw material, electronic engineering, firmware/software development, product testing, and packing design. Our experienced strategic supply systems offer a robust and dependable manufacturing capacity for orders of various sizes.



Limited Warranty

KLT provides the following limited warranty if you purchased the Product(s) directly from KLT company or from KLT's website, www.KaiLapTech.com. Product(s) purchased from other sellers or sources are not covered by this Limited Warranty. KLT guarantees that the Product(s) will be free from defects in materials and workmanship under normal use for a period of one (1) year from the date you receive the product ("Warranty Period").

For all Product(s) that contain or develop material defects in materials or workmanship during the Warranty Period, KLT will, at its sole option, either: (i) repair the Product(s); (ii) replace the Product(s) with a new or refurbished Product(s) (replacement Product(s) being of identical model or functional equivalent); or (iii) provide you a refund of the price you paid for the Product(s).

This Limited Warranty of KLT is solely limited to repair and/or replacement on the terms set forth above. KLT is not reliable or responsible for any subsequent events.





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KLT Strength

Powerful Factory



Professional Service



Promised Delivery



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