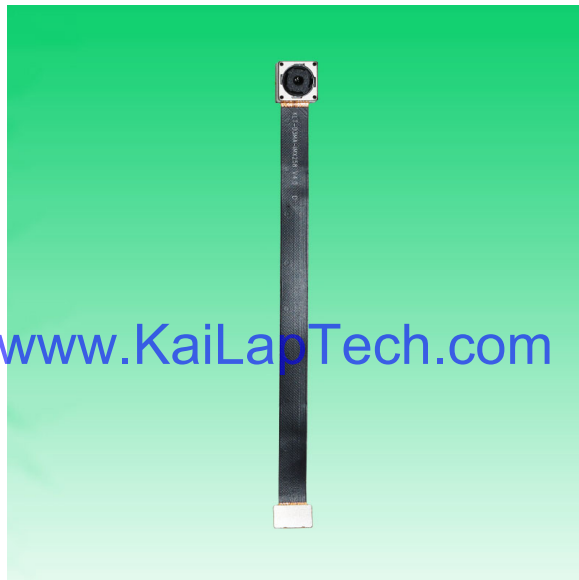# KLT-D3MA-IMX258 V4.0
13MP Sony IMX258 MIPI Interface Auto Focus Camera Module

Front View

Back View

Specifications

Camera Module No.	KLT-D3MA-IMX258 V4.0
Resolution	13MP
Image Sensor	IMX258
Sensor Type	1/3.06"
Pixel Size	1.12 um x 1.12 um
EFL	3.81 mm
F.NO	2.20
Pixel	4224 x 3136
View Angle	74.4°(DFOV) 62.7°(HFOV) 48.7°(VFOV)
Lens Dimensions	8.50 x 8.50 x 5.37 mm
Module Size	100.00 x 8.50 mm
Module Type	Auto Focus
Interface	MIPI
Auto Focus VCM Driver IC	DW9763
Lens Model	KLT-LENS-50013A1
Lens Type	650nm IR Cut
Operating Temperature	-20°C to +70°C
Mating Connector	BBR43-30KB533

KLT-D3MA-IMX258 V4.0
13MP Sony IMX258 MIPI Interface Auto Focus Camera Module

Top View

Side View

Bottom View

Mating Connector

RoHS		
0	SIGNAL	
1	GND	
2	GND	
3	GND	
4	GND	
5	AFVDD2.8V	
6	AFEN	
7	SDA	
8	DOVDD1.8V	
9	SCL	
10	DVDD1.2V	
11	GND	
12	XSHUTDOWN	
13	MCN	
14	NC	
15	MCP	
16	GND	
17	MD0N	
18	MCLK	
19	MD0P	
20	GND	
21	MD1N	
22	FLASH	
23	MD1P	
24	AVDD2.8V	
25	VPP(NC)	
26	AGND	
27	MD2N	
28	MD3N	
29	MD2P	
30	MD3P	
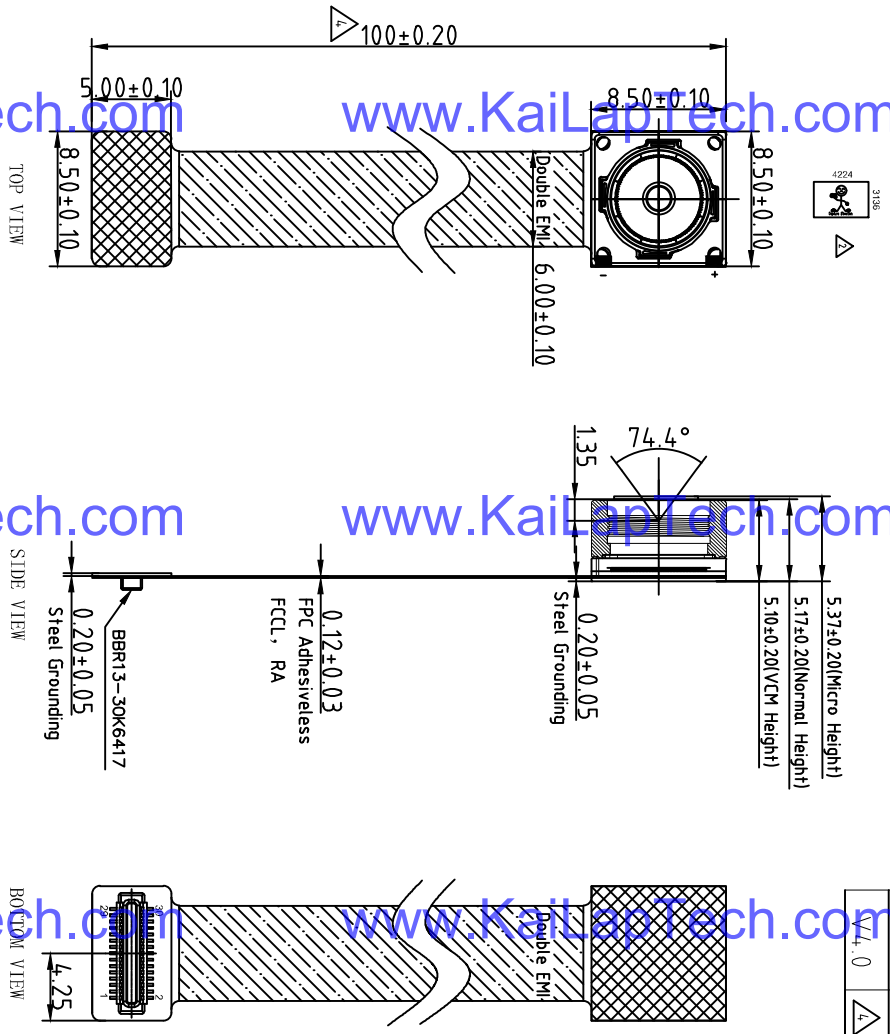
Parameters:

1、Sensor specification:

Image Sensor: IMX258
Pixel: 1.12um×1.12um
Important Voltage Description: DVDD1.2V
(external power supply);

2、Lens specification:

Lens Type: 1/3.06
F/NO.: 2.2
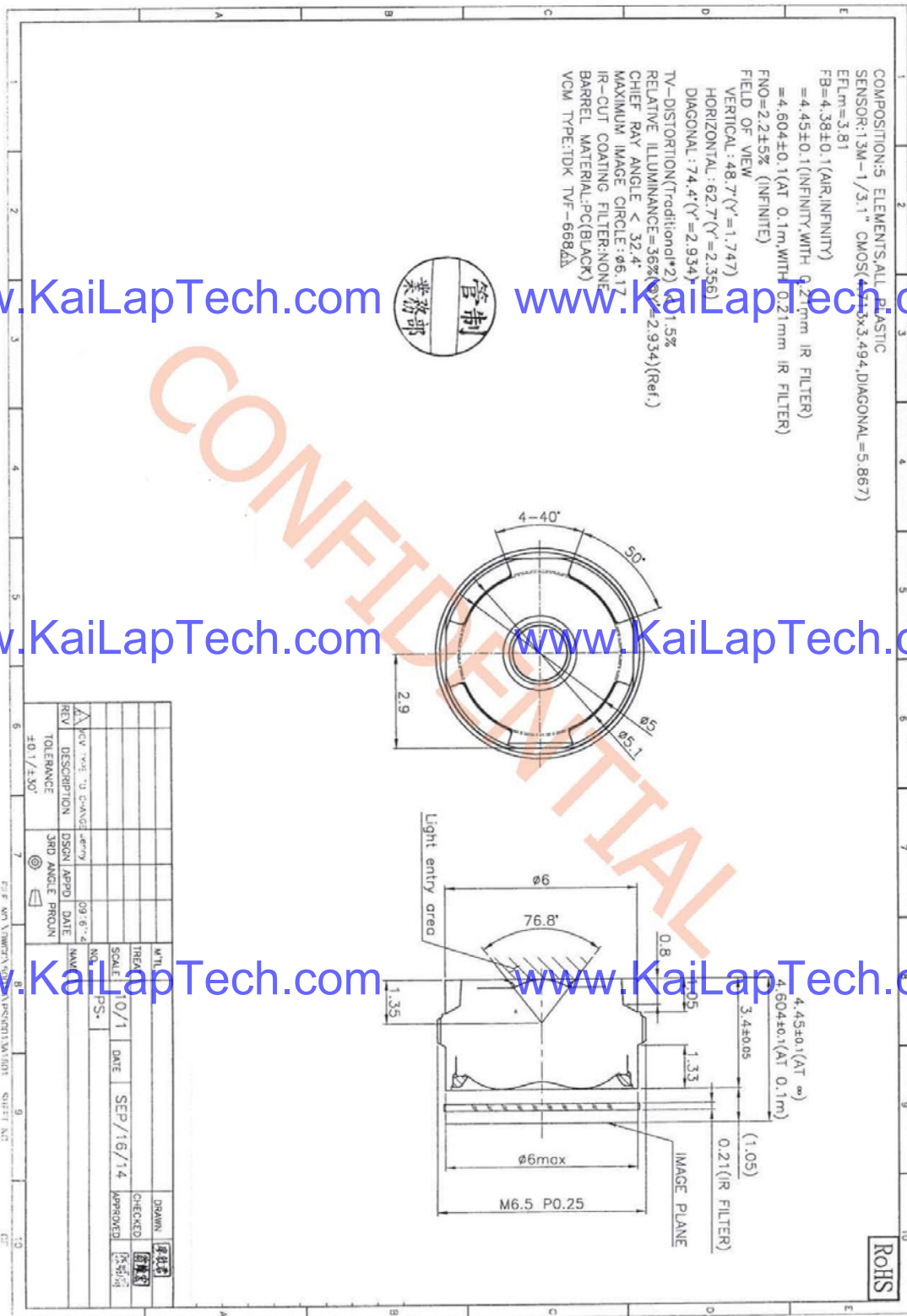TV Distortion: <1.5%
Focal length: 3.85mm
Composition: 5P
FOV: 74.4°

100±0.20

5.00±0.10

8.50±0.10

8.50±0.10

8.50±0.10

6.00±0.10

Double EMI

TOP VIEW

4224
3136

74.4°
135

5.37±0.20(Micro Height)
5.17±0.20(Normal Height)
5.10±0.20(VCM Height)

Steel Grounding
0.20±0.05

SIDE VIEW

0.20±0.05
Steel Grounding

BBR13-30K6417

0.12±0.03
FCCL, RA
FPC Adhesiveless

BOTTOM VIEW
4.25
Double EMI

www.KaiLapTech.com

Lens Model: KLT-LENS-50013A1

COMPOSITION:5 ELEMENTS,ALL PLASTIC
SENSOR:13M-1/3.1" CMOS(4.3x3.494,DIAGONAL=5.867)
EFLm=3.81
FB=4.38±0.1(AIR,INFINITY)
  =4.45±0.1(INFINITY,WITH 0.21mm IR FILTER)
  =4.604±0.1(AT 0.1m,WITH 0.21mm IR FILTER)
FNO=2.2±5% (INFINITE)
FIELD OF VIEW
  VERTICAL:48.7°(Y'=1.747)
  HORIZONTAL:62.7°(Y'=2.356)
  DIAGONAL:74.4°(Y'=2.934)
TV-DISTORTION(Traditional*2)1.5%
RELATIVE ILLUMINANCE=36%
CHIEF RAY ANGLE < 32.4°
MAXIMUM IMAGE CIRCLE:φ6.17
IR-CUT COATING FILTER:NONE
BARREL MATERIAL:PC(BLACK)
VCM TYPE:TDK TVF-668△

1. General Description

The DW9763 is a single 10-bit DAC with 100mA output current sinking capability and embedded 8KByte eFlash memory. Designed for linear control of voice coil motors, the DW9763 is capable of operating voltage up to 3.3V.

The SAC (Smart Actuator Control) mode is applied to minimize the mechanical vibration. The SAC mode highly improves the actuator's settling time and tolerance coverage compared with conventional LSC (Linear Slope Control) mode. The DAC and eFlash are controlled via an I2C compatible serial interface.

The DW9763 incorporates with a POR (Power On Reset) circuit, power down mode. POR circuit gets to operate when VDD (supply power) turns on. The output current keeps 0mA until valid register value takes place. During the power down mode, it consumes current max.1uA.

The DW9763 is designed for auto focus and optical zoom for mobile camera, digital still camera, camcorders and other nano actuator applications.

■ Features

10 bit resolution current sinking of 100mA for VCM

SAC (Smart Actuator Control) mode

Supply voltage range (VDD) : 2.3V to 3.3V

Fast mode I2C interface compatible (1.8V interface available)

Power down mode

Power on reset (POR)

Embedded 8KByte eFlash memory

Package : 8 pin WLCSP

Package Size : 0.77mm X 1.75mm X 0.3mm

■ Applications

Mobile camera

Digital still camera

Camcorder

Web camera

Nano actuator

DIM A

DIM B

DIM C

0.40 TYP.

0.10 TYP.

0.77

(0.92)

3.74 TYP

3.06

0.08

ALL OF PLACES

REV.	EC#	DESCRIPTION	DATE	DRAWN	CHECKED	APPROVED
A	TJECR10018-02	NEW RELEASE PER NPR10009	11/05/10'	RAIN	SteveM eng	Jeff
B	TJECR13014	X1,AX1	05/13/13'	RAIN		
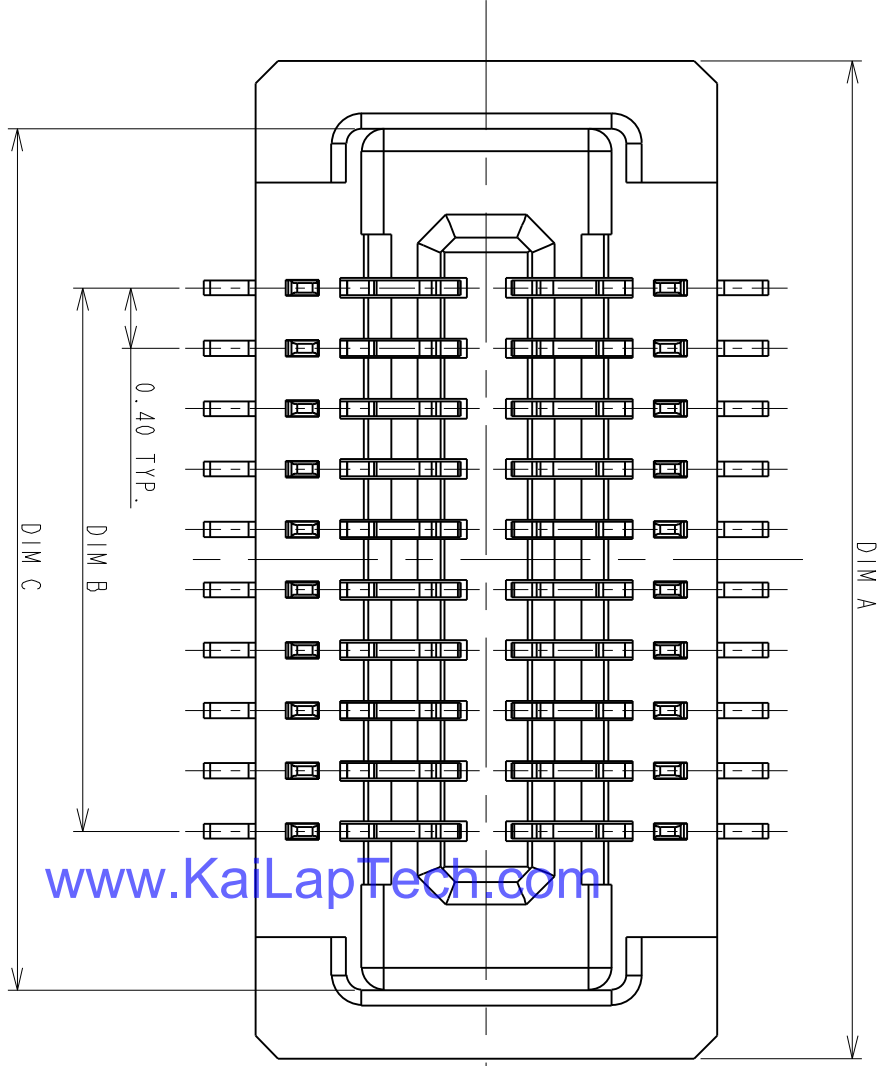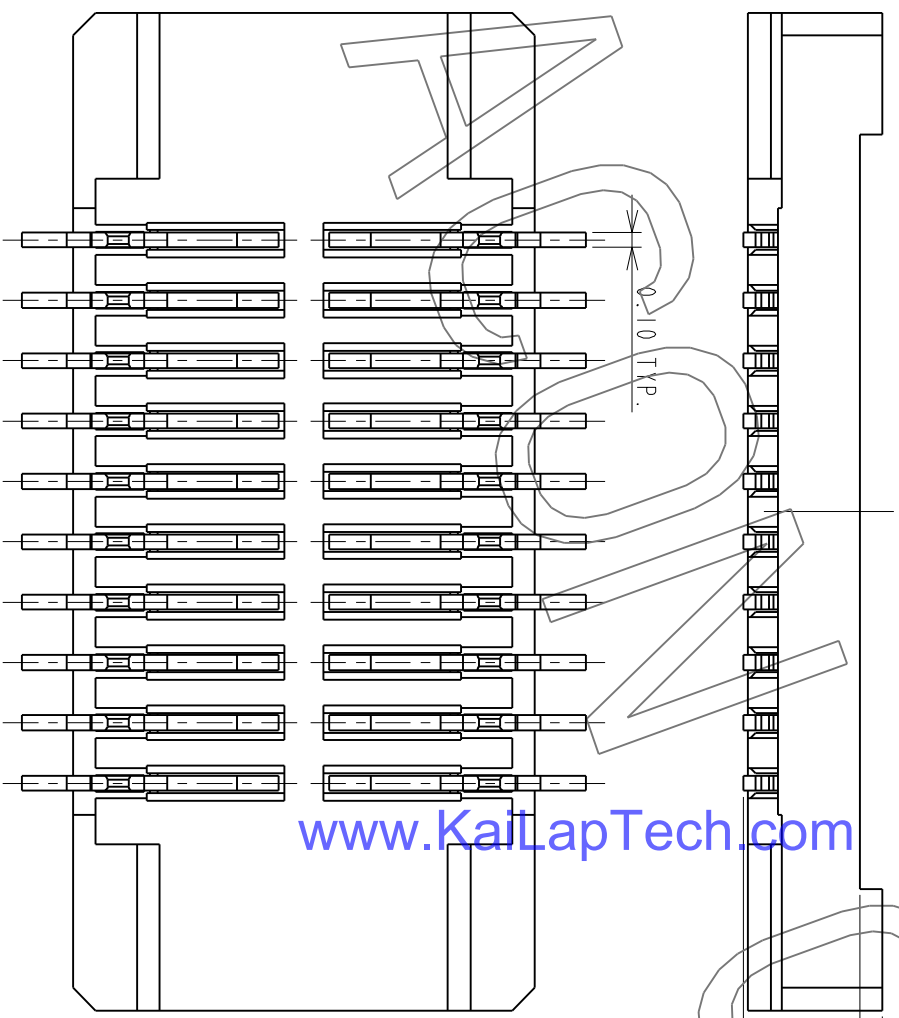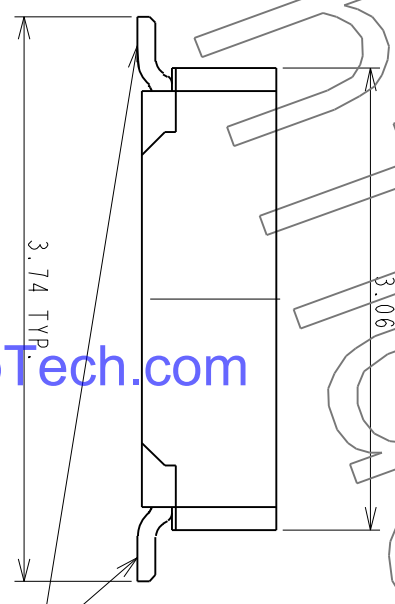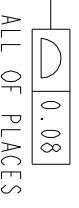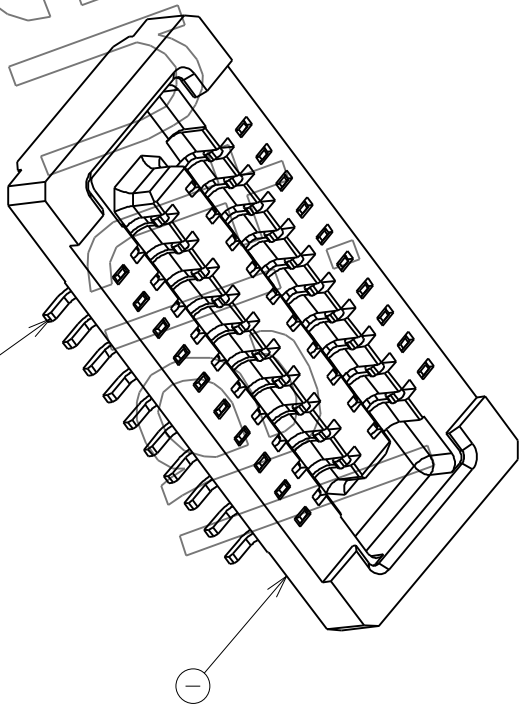
ITEM	NAME	PART #	MATERIAL / FINISH
1	HOUSING	1-BBR43-100X30	HIGH TEMP RESIN/UL 94 V-0
2	CONTACT	1-BBR43-1XXX33	COPPER ALLOY/PLATING GOLD

	NAME	DATE
DRAWN	RAIN	04/15/10'
DESIGN	RAIN	04/15/10'
CHECKED		
APPROVED	DICK.LEE	04/24/10'
HARDWARE	RAIN	04/24/10'

TOLERANCES UNLESS OTHERWISE SPECIFIED
GENERAL X.
.X ±0.38
.XX ±0.13
.XXX ±0.05
ANGLES
±3.0°
±2.0°
±1.0°

SCALE 20:1
SHEET 1 OF 2
UNIT mm

TITLE
P0.4*H1.0mm BOARD TO BOARD
CONN.RECEPTACLE
WITHOUT HOLD DOWN

SERIES BBR

DWG NO. C-BBR43-04-01

SIZE A3

REV. B

CUSTOMER DRAWING

ADVANCED—CONNECTEK INC.
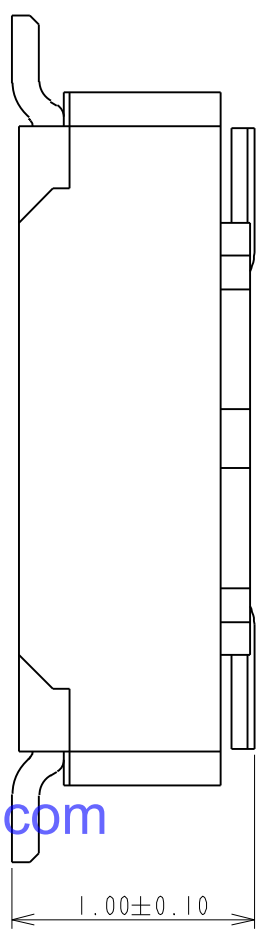
PRODUCT NUMBERING CODE:

BBR43 - XX K X X 5 X X
      1 2 3 4 5 6 7

1.PRODUCTION CODE:
BBR43:BOARD TO BOARD 0.4 PITCH RECEPTACLE

2.POSITIONS:
XX: POSITIONS(SEE TABLE A)

3.INSULATOR COLOR:
K: BLACK

4.CONTACT PLATING:
1:GOLD 1u" MIN
2:GOLD 5u" MIN
3:GOLD 10u" MIN
B:GOLD 4u" MIN
ALL OVER Ni 50-100u"
AC:POSITIONS FOR SPOT PLATING

5.TYPE OF HEIGHT:
5: H=0.77mm

6. TYPE OF HOLD DOWN:
3: WITHOUT HOLD DOWN

7.OTHER
2: WITH POST,FINISHED PRODUCTS
3: WITHOUT POST,FINISHED PRODUCTS

NOTES:
1.0: RATING:
1.1: VOLTAGE:60V AC/DC
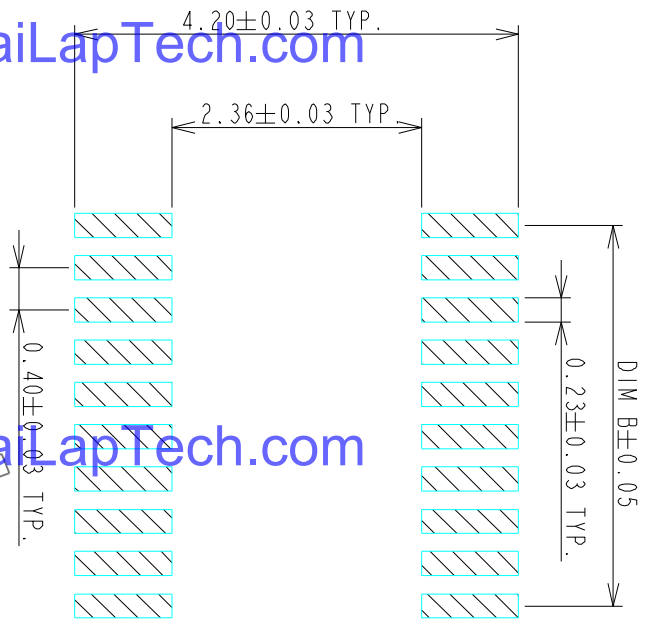1.2: CURRENT:0.5 AMPS
1.3: OPERATION TEMPERATURE:-40°C TO +85°C
2.0: ELECTRICAL CHARACTERISTIC:
2.1: CONTACT RESISTANCE: 50 mΩ MAX INITIAL
2.2: INSULATION RESISTANCE: 1000 MΩ MIN INITIAL
2.3: DIELECTRIC WITHSTANDING VOLTAGE:250V AC FOR ONE MINUTE
3.0 TOLERANCES UNLESS OTHERWISE SPECIFIED
GENERAL:
DIMENSION >10.00   ±0.13
DIMENSION 5.00~10.00   ±0.10
DIMENSION <5.00   ±0.05
⚠ 4.0 ALL COPLANARITY IS 0.08mm MAX.BEFORE REFLOW
ALL COPLANARITY IS 0.10mm MAX.AFTER REFLOW

RECOMMENDED P.C.BOARD PATTERN DIMENSION (WITHOUT HOLD DOWN)

1.00±0.10
4.20±0.03 TYP.
2.36±0.03 TYP
0.40±0.03 TYP.
0.23±0.03 TYP.
DIM B±0.05

TABLE A:

POSITIONS	DIM A	DIM B	DIM C
10	4.61	1.60	3.71
14	5.41	2.40	4.51
16	5.81	2.80	4.91
20	6.21	3.20	5.31
22	6.61	3.60	5.71
24	7.01	4.00	6.11
26	7.41	4.40	6.51
30	7.81	4.80	6.91
32	8.61	5.60	7.71
34	9.01	6.00	8.11
40	9.41	6.40	8.51
44	10.61	7.60	9.71
48	11.41	8.4	10.51
50	12.21	9.20	11.31
54	12.61	9.60	11.71
60	13.41	10.40	12.51
70	14.61	11.60	13.71
80	16.61	13.60	15.71
	18.61	15.60	17.71

CUSTOMER DRAWING

TITLE: P0.4*H1.0mm BOARD TO BOARD CONN.RECEPTACLE WITHOUT HOLD DOWN

DWG NO. C-BBR43-04-01
SERIES BBR
SIZE A3
REV B
SHEET 2 of 2
SCALE 20:1
UNIT mm

	DATE	
DRAWN	RAIN	04/15/10'
DESIGN	RAIN	04/15/10'
CHECKED	RAIN	04/24/10'
APPROVED	DICK.LEE	04/24/10'
HARDWARE		

TOLERANCES UNLESS OTHERWISE SPECIFIED
GENERAL:
.X ±0.38
.XX ±0.25
.XXX ±0.13
.XXXX ±0.05
ANGLES
X° ±3.0°
.X° ±2.0°
.XX° ±1.0°

ADVANCED-CONNECTEK INC.

SONY

[Product Brief]

Ver.1.0

IMX258

Diagonal 5.867 mm (Type 1/3.06) 13Mega-Pixel CMOS Image Sensor with Square Pixel for Color Cameras

Description

IMX258 is a diagonal 5.867mm (Type 1/3.06) 13 Mega-pixel CMOS active pixel type stacked image sensor with a square pixel array. It adopts Exmor RS™ technology to achieve high speed image capturing by column parallel A/D converter circuits and high sensitivity and low noise image (comparing with conventional CMOS image sensor) through the backside illuminated imaging pixel structure. R, G, and B pigment primary color mosaic filter is employed. By introducing spatially multiplexed exposure technology, high dynamic range still pictures and movies are achievable. It
equips an electronic shutter with variable integration time. It operates with three power supply voltages: analog 2.7 V, digital 1.2 V and 1.8 V for input/output interface and achieves low power consumption.
In addition, this product is designed for use in cellular phone and tablet pc. When using this for another application, Sony does not guarantee the quality and reliability of product. Therefore, don't use this for applications other than cellular phone and tablet pc. Consult your Sony sales representative if you have any questions.

Functions and Features

◆ Back-illuminated and stacked CMOS image sensor Exmor RSTM

◆ Phase Detection pixel data output for Phase Detection Auto Focus

◆ High Dynamic Range (HDR) mode with raw data output.

◆ High signal to noise ratio (SNR).

◆ Full resolution @30fps (Normal / HDR). 4K2K @30fps (Normal / HDR) 1080p @60fps (Normal)

◆ Output video format of RAW10/8.

◆ Pixel binning readout and V sub-sampling function.

◆ Independent flipping and mirroring.

◆ CSI-2 serial data output (MIPI 2lane/4lane, Max. 1.3Gbps/lane, D-PHY spec. ver. 1.1 compliant)

◆ 2-wire serial communication.

◆ Two PLLs for independent clock generation for pixel control and data output interface.

◆ Dynamic Defect Pixel Correction.

◆ Fast mode transition. (on the fly)

◆ Dual sensor synchronization operation.

◆ 4K bit of OTP ROM for users.

◆ Built-in temperature sensor.

Device Structure

◆ CMOS image sensor

◆ Image size :   Diagonal 5.867 mm (Type 1/3.06)

◆ Total number of pixels :   4224 (H) × 3192 (V) approx. 13.48 M pixels

◆ Number of effective pixels :   4224 (H) × 3144 (V) approx. 13.28 M pixels

◆ Number of active pixels :   4208 (H) × 3120 (V) approx. 13.13 M pixels

◆ Chip size :   5.990 mm (H) × 3.908 mm (V)

◆ Unit cell size :   1.12 μm (H) × 1.12 μm (V)

◆ Substrate material :   Silicon

System block diagram
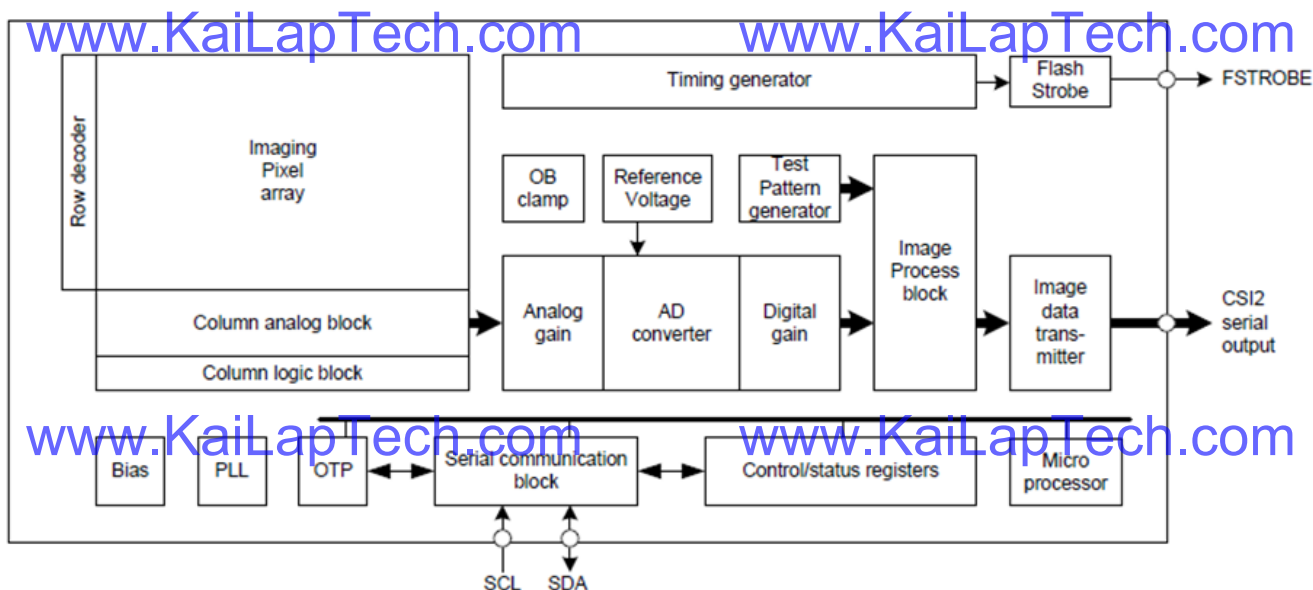
Exmor RS

* Exmor RS is a trademark of Sony Corporation. The Exmor RS is a Sony's CMOS image sensor with high-resolution, high-performance and
   compact size by replacing a supporting substrate in Exmor R™ which changed fundamental structure of Exmor™ pixel adopted column
   parallel A/D converter to back-illuminated type, with layered chips formed signal processing circuits.

Camera Module Pinout Definition Reference Chart

OmniVision Sony Samsung On-Semi Aptina Himax GalaxyCore PixArt SmartSens Sensors	
Pin Signal	**Description**
DGND GND	ground for digital circuit
AGND	ground for analog circuit
PCLK DCK	DVP PCLK output
XCLR PWDN XSHUTDOWN STANDBY	power down active high with internal pull-down resistor
MCLK XVCLK XCLK INCK	system input clock
RESET RST	reset active low with internal pull-up resistor
NC NULL	no connect
SDA SIO_D SIOD	SCCB data
SCL SIO_C SIOC	SCCB input clock
VSYNC XVS FSYNC	DVP VSYNC output
HREF XHS	DVP HREF output
DOVDD	power for I/O circuit
AFVDD	power for VCM circuit
AVDD	power for analog circuit
DVDD	power for digital circuit
STROBE FSTROBE	strobe output
FSIN	synchronize the VSYNC signal from the other sensor
SID	SCCB last bit ID input
ILPWM	mechanical shutter output indicator
FREX	frame exposure / mechanical shutter
GPIO	general purpose inputs
SLASEL	I2C slave address select
AFEN	CEN chip enable active high on VCM driver IC
MIPI Interface	
MDN0 DN0 MD0N DATA_N DMO1N	MIPI 1st data lane negative output
MDP0 DP0 MD0P DATA_P DMO1P	MIPI 1st data lane positive output
MDN1 DN1 MD1N DATA2_N DMO2N	MIPI 2nd data lane negative output
MDP1 DP1 MD1P DATA2_P DMO2P	MIPI 2nd data lane positive output
MDN2 DN2 MD2N DATA3_N DMO3N	MIPI 3rd data lane negative output
MDP2 DP2 MD2P DATA3_P DMO3P	MIPI 3rd data lane positive output
MDN3 DN3 MD3N DATA4_N DMO4N	MIPI 4th data lane negative output
MDP3 DP3 MD3P DATA4_P DMO4P	MIPI 4th data lane positive output
MCN CLKN CLK_N DCKN	MIPI clock negative output
MCP CLKP MCP CLK_P DCKN	MIPI clock positive output
DVP Parallel Interface	
D0 DO0 Y0	DVP data output port 0
D1 DO1 Y1	DVP data output port 1
D2 DO2 Y2	DVP data output port 2
D3 DO3 Y3	DVP data output port 3
D4 DO4 Y4	DVP data output port 4
D5 DO5 Y5	DVP data output port 5
D6 DO6 Y6	DVP data output port 6
D7 DO7 Y7	DVP data output port 7
D8 DO8 Y8	DVP data output port 8
D9 DO9 Y9	DVP data output port 9
D10 DO10 Y10	DVP data output port 10
D11 DO11 Y11	DVP data output port 11

![KLT logo]

your BEST camera module partner

Cameras Applications

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IMAGING DEVICES

Visible cameras
Blind-spot, side-view (mirrorless cars),
accident recorder, rear park assist
Stereo cameras: direction & distance for
LDWS & traffic sign recognition

3D cameras
Gesture recognitions
presence detection,
driver monitoring

Long-range radar
Adaptive Cruise Control

Short-range radar
Front & rear parking

Night vision camera
Pedestrian / animal detection

LIDAR
3D mapping of surroundings

Dead reckoning sensors
Odometry

Ultrasound
Parking, SR pedestrian & obstacle detection

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Day

Night

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

CMOS CAMERA MODULES

Camera Inspection Standard

| 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)
Appearance — 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
Appearance — 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

your BEST camera module partner

KLT Package Solutions

KLT Camera Module

www.KaiLapTech.com

Complete with Lens Protection Film

www.KaiLapTech.com
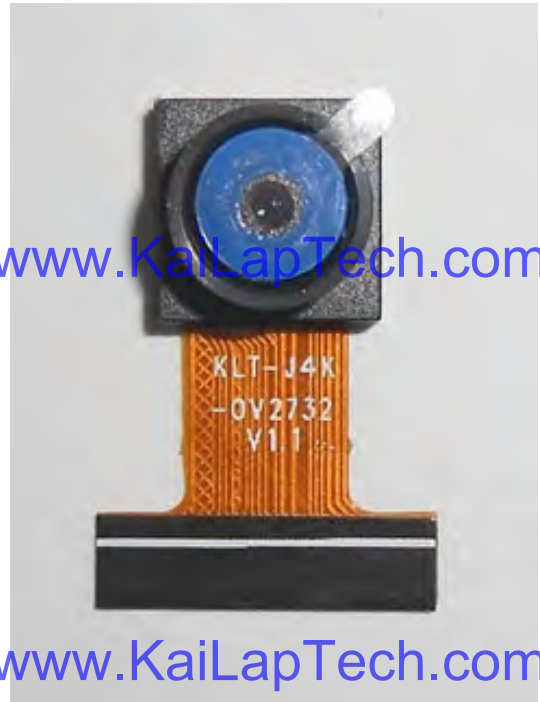
Tray with Grid and Space

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

KLT-J4K-OV2732 V1.1
OV2732, MIPI & Parallel
Fixed Focus, 67.4 Degree
www.KaiLapTech.com

100 PIECES

Shipping Date
10 August 2017

CAUTION
STATIC SENSITIVE DEVICES
NOT TO BE HANDLED
BY UNAUTHORISED
PERSONNEL

Large Order Package Solution

Place Foam Sheets Between Trays

Foam Sheets are Slightly Larger than Trays

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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

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Package in Small Box for Shipment

Place Small Boxes into Larger Box

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www.KaiLapTech.com

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

Please deliver to:

Kai Lap Technologies Group Ltd.

Kai Lap Technologies Group Ltd.
64-66A Sha Tsui Road, Tsuen Wan
HONG KONG

Attn: Sharon Chan
Phone: + 852 6908 1256

KLT KLT Camera Modules
www.KaiLapTech.com

PKG:
1 of 1

10 August 2017
MADE IN CHINA

KLT KLT Camera Modules
www.KaiLapTech.com

fragile
HANDLE WITH CARE

Sample Order Package Solution

Place Sample into Small Anti-Static Bag

Place Connectors into Small Ant-Static Bag

www.KaiLapTech.com

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www.KaiLapTech.com

www.KaiLapTech.com

Sample Labels on the Small Bag
1. Camera Module or Connector Model 2. Shipping Date and Quantity 3. Caution

www.KaiLapTech.com

www.KaiLapTech.com

KLT-J4K-OV2732 V1.1
OV2732 MIPI & Parallel
Fixed Focus, 67.4 Degree
www.KaiLapTech.com

Shipping Date
10 August 2017

CAUTION
STATIC SENSITIVE
DEVICES
NOT TO BE HANDLED
BY UNAUTHORISED
PERSONNEL

FH12-24S-0.5SH
Mating Connector for
KLT-J4K-OV2732 V1.0
www.KaiLapTech.com

10
PIECES

CAUTION
STATIC SENSITIVE
DEVICES
NOT TO BE HANDLED
BY UNAUTHORISED
PERSONNEL

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

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 subsequential events.

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

KLT Strength

Powerful Factory

Professional Service

Promised Delivery