KLT-G4K-OV8858 V2.1

8MP OmniVision OV8858 MIPI Interface LED Auto Focus Camera Module


Front View

Back View

Specifications

Camera Module No.	KLT-G4K-OV8858 V2.1
Resolution	8MP
Image Sensor	OV8858
Sensor Type	1/4"
Pixel Size	1.12 um x 1.12 um
EFL	2.93 mm
F.NO	2.00
Pixel	3264 x 2448
View Angle	75.0°(DFOV) 62.8°(HFOV) 49.3°(VFOV)
Lens Dimensions	8.50 x 8.50 x 4.90 mm
Module Size	28.70 x 26.15 mm
Module Type	Auto Focus with LED
Interface	MIPI
Auto Focus VCM Driver IC	DW9714P
Lens Model	KLT-LENS-9570A3
Lens Type	650nm IR Cut
Operating Temperature	-30°C to +85°C
Mating Connector	FH12-30S-0.5SH

KLT-G4K-OV8858 V2.1
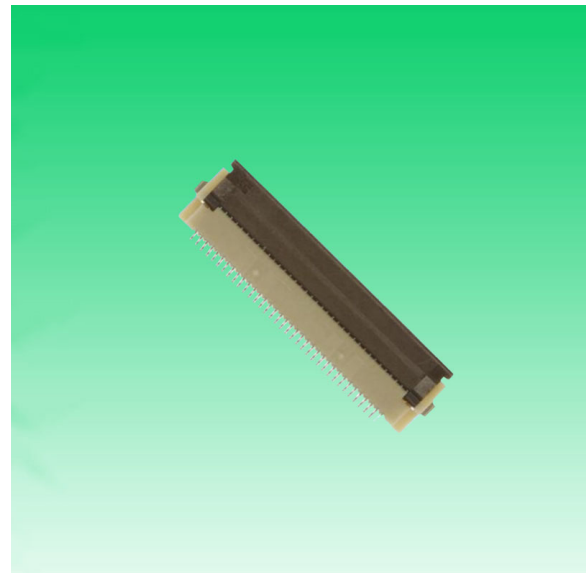## 8MP OmniVision OV8858 MIPI Interface LED Auto Focus Camera Module
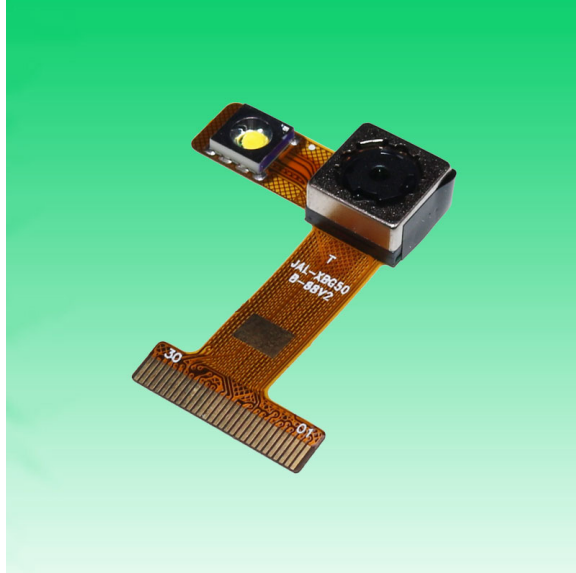
Top View

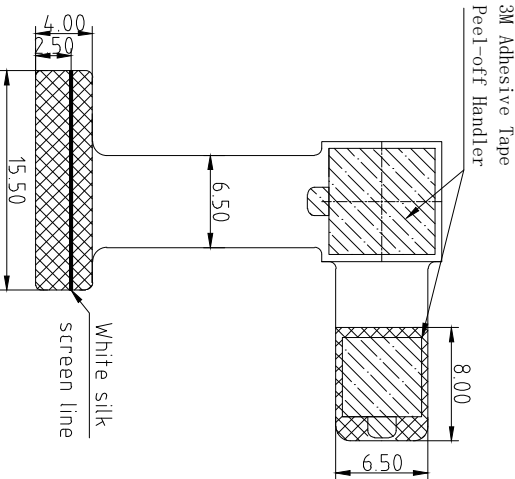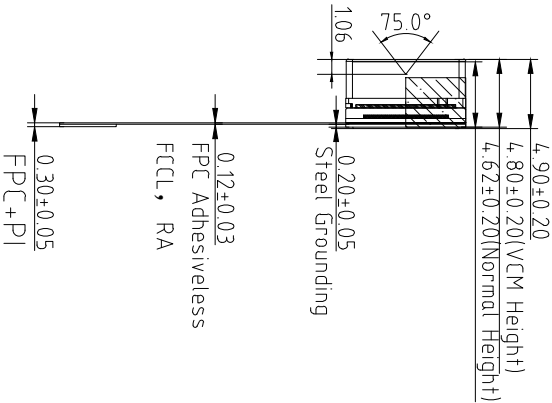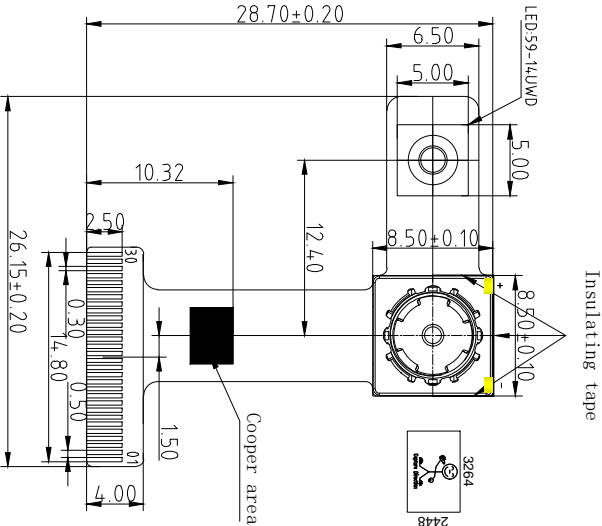Side View

Bottom View

Mating Connector

ROHS

1	DGND
2	MCLK
3	DGND
4	AVDD2.8V
5	AGND
6	DVDD1.2V
7	DOVDD1.8V
8	DGND
9	AFVDD2.8V
10	SDA
11	SCL
12	RESET
13	PWDN
14	SID(GND)
15	DGND
16	MDP1
17	MDN1
18	DGND
19	MDP0
20	MDN0
21	DGND
22	MCP
23	MCN
24	DGND
25	LED1+
26	LED2+
27	LED1-
28	LED2-
29	STROBE
30	DGND

Parameters:

1、Sensor specification:

Image Sensor: OV8858-R2A

Pixel: 1.2um×1.2um

Lens Type: 1/4

Important Voltage Description: DVDD1.2V
(external power supply);

2、Lens specification:

FOV: 75°

F/NO: 2.0

TV distortion: <1.0%

Focal length: 2.93mm

IR Cut Coating: 650nm±10nm@50%

Sensor I2C:0X6C

TOP VIEW

28.70±0.20
6.50
5.00
5.00
LED-59-14UWD
10.32
12.40
26.15±0.20
2.50
8.50±0.10
8.50±0.10
Insulating tape
0.30
4.80
0.50
1.50
4.00
Cooper area
3264
2448

SIDE VIEW

1.06
75.0°
4.90±0.20
4.80±0.20(VCM Height)
4.62±0.20(Normal Height)
0.12±0.03
FPC Adhesiveless
FCCL, RA
0.20±0.05
Steel Grounding
0.30±0.05
FPC+PI
3M Adhesive Tape
Peel-off Handler

BOTTOM VIEW

4.00
2.50
15.50
6.50
8.00
6.50
White silk
screen line

Lens Model: KLT-LENS-9570A3

COMPOSITION:5 ELEMENTS,ALL PLASTIC
SENSOR:8M-1/4" CMOS(3.674×2.76,DIAGONAL=4.595)
EFLm=2.96
FB=3.74±0.1(AIR,INFINITY)
=3.81±0.1(AIR,INFINITY,WITH 0.21mm IR FILTER)
FNO=2±5%(INFINITE)
FIELD OF VIEW
  VERTICAL:49.3°(Y'=1.38)
  HORIZONTAL:62.8°(Y'=1.837)
  DIAGONAL:75°(Y'=2.297)
TV-DISTORTION (Traditional*2) <1%
RELATIVE ILLUMINANCE=38%(@Y'=2.297)(Ref.)
CHIEF RAY ANGLE < 32.6°
MAXIMUM IMAGE CIRCLE:φ4.8
LENS AR COATING:ALL SURFACE
IR-CUT COATING:NONE
BARREL MATERIAL:PC(BLACK)
VCM TYPE:TDK TVF-606
PATENT NO.:US8284291,US8233224,US8179614

45°
45°
2.65
φ4.2
φ4.5

Light entry area
φ5.5
77.6°
0.7
1.11
3.81±0.1(AT ∞)
3.9±0.1(AT 0.1m)
3.1
1.4
(0.71)
0.21(IR FILTER)
IMAGE PLANE
M6 P0.25

REV	DESCRIPTION	DSGN	APPD	DATE
TOLERANCE		3RD ANGLE PROJN		
±0.1/±30'				

	NO.	NAME	MTL	
	SCALE		TREAT	
	PS	10/1		
	DATE	DEC/26/12	DRAWN	
			CHECKED	
			APPROVED	

DW9714P
Upgraded Conventional AF Driver IC

FEATURES

120mA output driver with 10-bit resolution DAC

Smart Actuator Control (SAC^{TM}) modes

Supply voltage (V_{DD}): 2.3V to 4.3V

I/O voltage (V_{IN}): 1.8V to V_{DD}

Fast mode and Fast mode plus I^{2}C interface compatible

Power On Reset (POR)

Power Down (PD) mode current consumption less than 1uA

Package: 6-pin WLCSP (0.77mm x 1.14mm x 0.30mm)

APPLICATIONS

Mobile camera

Digital still camera

Camcorder

Web camera

Action camera

GENERAL DESCRIPTION

The DW9714P designed for linear control of Voice Coil Motors (VCM). This device is compatible with DW9714. The DW9714P has a single 10-bit DAC with 120mA output current sink capability. This device features SAC^{TM} mode which can minimize the mechanical vibration and achieve very fast mechanical settling time. The SAC^{TM} is protected by patent and registered trademark of DONGWOON ANATECH.

The DW9714P operates from a single 2.3V to 4.3V supply. The internal DAC is controlled via an I^{2}C serial interface that operates at clock rate up to 1MHz. The I^{2}C address for the DW9714P is 0x18. The DW9714P offers PD mode with current consumption less than 1uA.

The DW9714P can be used for auto focus applications in mobile cameras, digital still cameras, camcorders, web cameras and action cameras.
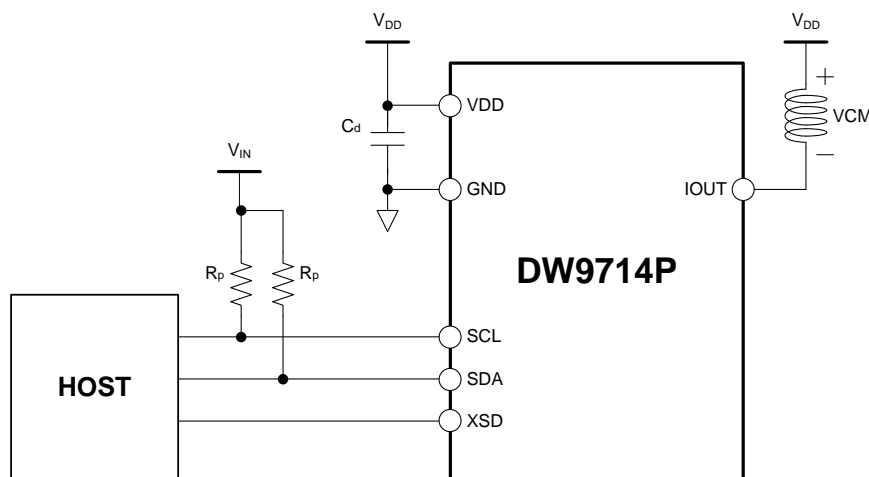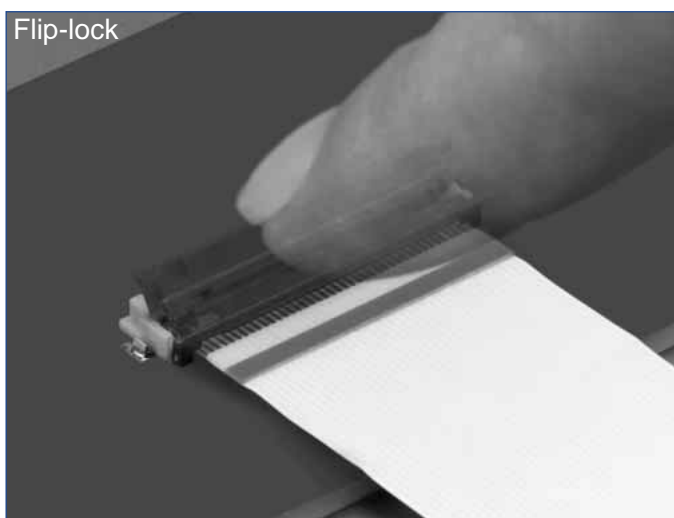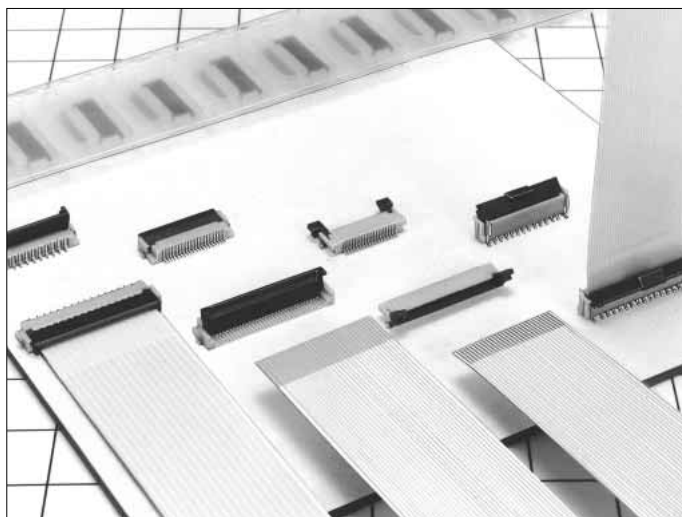
TYPICAL APPLICATION CIRCUIT

Figure 1. Typical application circuit

0.5mm and 1mm Pitch Connectors For FPC/FFC

FH12 Series

Flip-lock

■Features

1. Ease of Use and Space Savings

Only one finger or 6.9N (Newtons) of force is required to lock Hirose's rotational actuator (flip-lock) as compared to using 2 fingers and 39.2N to close a FFC/FPC connector from our competition.

The Flip-Lock design also allows customers to place 2 or more connectors side by side as there is no need to waste additional board space for a side latch.

2. Strengthened Flip-lock Actuator

The standard Flip-Lock requires only 2.0mm height above the board. A strengthened lock lever is available which only requires an additional 0.4mm.

3. Supports Thin FPC (0.18mm)

Hirose does not require double-sided FPC to have any additional strengthening plate or stiffener and can therefore support a thickness of as little as 0.18mm +/- 0.05.

4. Hirose Ensures Reliability

Hirose's patented half tuning fork contacts maintain the required normal force without relying on the connector housing. With our competitor's conventional products the housing walls support the contact force, which does not provide for long-term reliability.
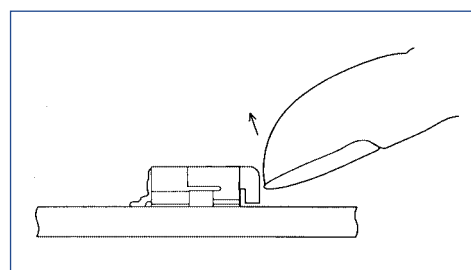
5. Prevention of Solder Bridge

Excess solder cavity absorbs excessive solder and avoids solder bridging.

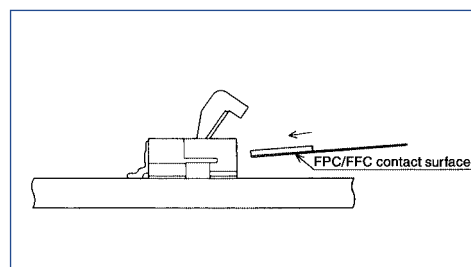### 6. Three different assembly types

FH12 is offered in Top & Bottom Contact and Vertical Mount and offered in both a 0.5mm contact pitch as well as a 1.0mm contact pitch (bottom contact only).
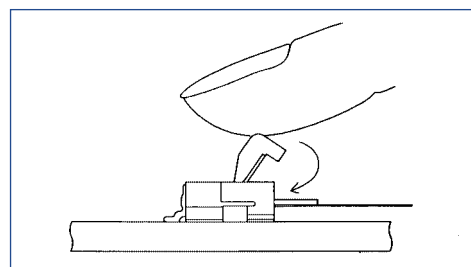
■Applications

Notebook computers, printers, PDAs, digital cameras and other compact devices for interconnecting the main circuit board with the LCD, HDD or other device.

Rotating One-touch Mechanism

①

②

FPC/FFC contact surface

③

The product information in this catalog is for reference only. Please request the Engineering Drawing for the most current and accurate design information.
All non-RoHS products have been discontinued, or will be discontinued soon. Please check the products status on the Hirose website RoHS search at www.hirose-connectors.com, or contact your Hirose sales representative.

FH12 Series 0.5mm and 1mm Pitch Connectors For FPC/FFC

■Product Specifications

Rating	Current rating: 0.5A DC(Note 1)	Operating Temperature Range:−40 to +70℃ (Note 2)	Storage Temperature Range:−10 to +50℃ (Note 3)
	Voltage rating: 50V AC	Operating Humidity Range:Relative humidity, 90% max. (Not dewed)	Storage Humidity Range:Relative humidity, 90% max. (Not dewed)

Applicable FPC	t=0.3±0.05 Gold plated	t=0.18 ± 0.05 for FH12F-✱S-0.5SH

Item	Specification	Conditions
1. Insulation resistance	500M ohms minimum	100V DC
2. Withstanding voltage	No flashover or insulation breakdown.	150V AC/1 minute
3. Contact resistance	50m ohms maximum	1mA
4. Durability (Insertion/withdrawal)	Contact resistance: 50m ohms maximum No damage, cracks, or parts dislocation.	20 cycles
5. Vibration	No electrical discontinuity of 1μs or more Contact resistance: 50m ohms maximum. No damage, cracks, or parts dislocation.	Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 2 hours in each of the 3 directions.
6. Shock	No electrical discontinuity of 1μs or more Contact resistance: 50m ohms maximum. No damage, cracks, or parts dislocation.	Acceleration of 490 m/s², 11 ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis.
7. Humidity(Steady state)	Contact resistance: 50m ohms maximum. Insulation resistance: 50M ohms minimum. No damage, cracks, or parts dislocation.	96 hours at 40℃ and humidity of 90% to 95%
8. Temperature Cycle	Contact resistance: 50m ohms maximum. Insulation resistance: 50M ohms minimum. No damage, cracks, or parts dislocation.	Temperature: -40℃ → 15 to 35℃ → 85℃ → 15 to 35℃, Time: 30 → 5 max. → 30 → 5 max.(minutes) 5 cycles
9.Resistance to Soldering heat	No deformation of components affecting performance.	Reflow: At the recommended temperature profile Manual soldering: 350±5℃ for 3 seconds

Note 1: When passing the current through all of the contacts,use 70% of the current rating.
Note 2: Includes temperature rise caused by current flow.
Note 3: The term "storage" refers to products stored for long period of time prior to mounting and use. Operating Temperature Range and Humidity range covers nonconducting condition of installed connectors in storage, shipment or during transportation.

■Material

Part	Material	Finish	Remarks
Insulator	Polyamide, LCP(60 pos.)	Color : Beige	UL94V-0
Actuator	PPS	Color : Dark brown	UL94V-0
Contact	Phosphor bronze	Gold plated	———
Metal Fittings	Brass	Tin plated	———

■Ordering Information

FH12 A - 10 (4) - S A - 0.5 SH (55)
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾
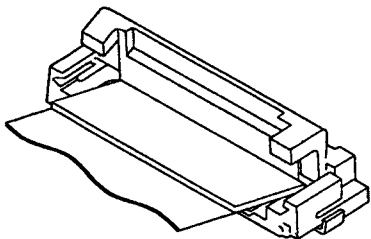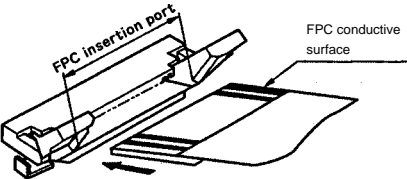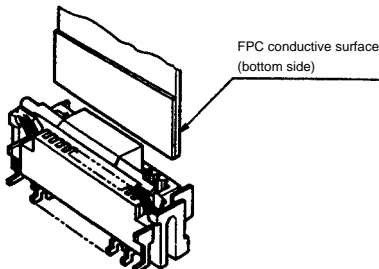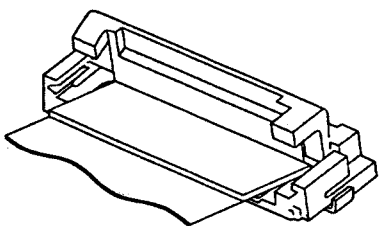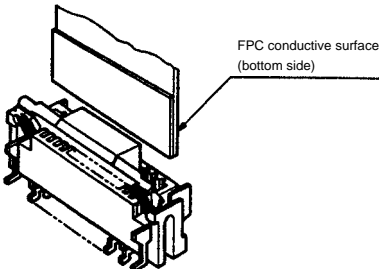
❶ Series Name : FH12	❺ Contact alignment: Single
❷ Blank : standard type A : Top contact type S : Type with strengthed flip-lock actuator F : Type with 0.18mm FPC End Thickness	❻ Eccentric direction: Blank : standard type A : Eccentric type
	❼ Contacts Pitch : 0.5mm, 1mm
❸ Standard type : Number of contacts Eccentric type : Number of contacts in 0.5mm housing	❽ Contact type SH : SMT horizontal mounting type SV : SMT vertical mounting type
❹ Standard type : Blank Eccentric type : Number of contacts	❾ Plating specification (55) : Gold plated

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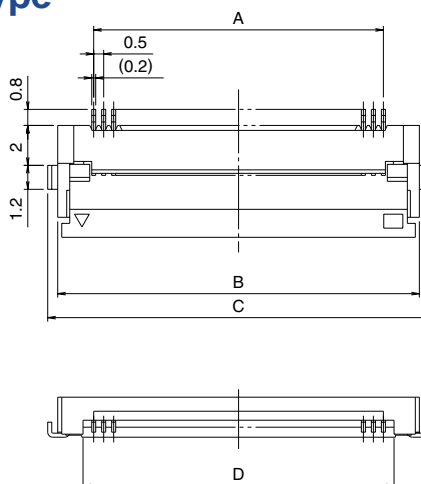
FH12 Series●0.5mm and 1mm Pitch Connectors For FPC/FFC

◆Series Configuration

Pitch	Bottom Contact Type	Top Contact Type	Vertical mounting Type
0.5mm	**FH12- ✳ S-0.5SH** **P.12** Number of contacts 6, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 24, 25, 26, 28, 30, 32, 33, 34, 35, 36, 40, 45, 50, 53 Type with Strengthened Lock Lever **FH12S- ✳ S-0.5SH** **P.13** Number of contacts 30, 40, 45, 50, 53 Type with 0.18mm FPC End Thickness **FH12F- ✳ S-0.5SH** **P.14** Number of contacts 6, 8, 10, 12, 13, 14, 15, 16, 18, 20, 22, 24, 25, 26, 28, 30, 32, 34, 36, 40	 **FH12A- ✳ S-0.5SH** **P.15** Number of contacts 10, 12 ,15, 16, 18, 20, 22, 24, 26, 28, 29, 30, 32, 33, 34, 36, 40, 42, 45, 50	FPC conductive surface (bottom side) **FH12- ✳ S-0.5SV** **P.16** Number of contacts 10, 12, 13, 15, 16, 17, 18, 20, 22, 24, 26, 30, 32, 33, 34, 36, 40, 45, 49, 50, 60
1mm	Standard **FH12- ✳ S-1SH** **P.18** Eccentric **FH12- ✳ (✳✳) SA-1SH** Standard Number of contacts 5, 6, 7, 8, 9, 11, 12,16,17,22,26 Eccentric Number of contacts 4, 6, 8, 10, 11, 14, 19, 24		FPC conductive surface (bottom side) **FH12- ✳ S-1SV** **P.19** Number of contacts 6, 7, 8, 16, 20, 22, 24

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FH12 Series●0.5mm and 1mm Pitch Connectors For FPC/FFC

■0.5mm Pitch Bottom Contact Type

Mated Cross-sectional Diagram

FPC/FFC Contact Surface

(2.1)
(3.1)   (1.3)
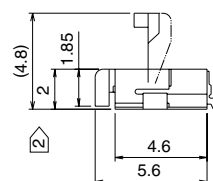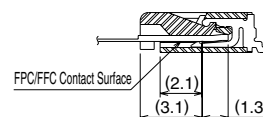
Unit:mm

	Part Number	CL No.	Number of Contacts	A	B	C	D	RoHS
	FH12- 6S-0.5SH(55)	586-0582-5-55	6	2.5	6.1	7.1	3.57	
	FH12- 8S-0.5SH(55)	586-0744-5-55	8	3.5	7.1	8.1	4.57	
	FH12-10S-0.5SH(55)	586-0522-3-55	10	4.5	8.1	9.1	5.57	
	FH12-11S-0.5SH(55)	586-0600-5-55	11	5	8.6	9.6	6.07	
	FH12-12S-0.5SH(55)	586-0704-0-55	12	5.5	9.1	10.1	6.57	
	FH12-13S-0.5SH(55)	586-0549-0-55	13	6	9.6	10.6	7.07	
	FH12-14S-0.5SH(55)	586-0533-0-55	14	6.5	10.1	11.1	7.57	
	FH12-15S-0.5SH(55)	586-0523-6-55	15	7	10.6	11.6	8.07	
	FH12-16S-0.5SH(55)	586-0531-4-55	16	7.5	11.1	12.1	8.57	
	FH12-17S-0.5SH(55)	586-0606-1-55	17	8	11.6	12.6	9.07	
	FH12-18S-0.5SH(55)	586-0530-1-55	18	8.5	12.1	13.1	9.57	
	FH12-19S-0.5SH(55)	586-0534-2-55	19	9	12.6	13.6	10.07	
	FH12-20S-0.5SH(55)	586-0524-9-55	20	9.5	13.1	14.1	10.57	
	FH12-22S-0.5SH(55)	586-0532-7-55	22	10.5	14.1	15.1	11.57	
	FH12-24S-0.5SH(55)	586-0521-0-55	24	11.5	15.1	16.1	12.57	YES
	FH12-25S-0.5SH(55)	586-0692-3-55	25	12	15.6	16.6	13.07	
	FH12-26S-0.5SH(55)	586-0576-2-55	26	12.5	16.1	17.1	13.57	
	FH12-28S-0.5SH(55)	586-0612-4-55	28	13.5	17.1	18.1	14.57	
Note ②〉	FH12-30S-0.5SH(55)	586-0525-1-55	30	14.5	18.1	19.1	15.57	
	FH12-32S-0.5SH(55)	586-0681-7-55	32	15.5	19.1	20.1	16.57	
	FH12-33S-0.5SH(55)	586-0520-8-55	33	16	19.6	20.6	17.07	
	FH12-34S-0.5SH(55)	586-0617-8-55	34	16.5	20.1	21.1	17.57	
	FH12-35S-0.5SH(55)	586-0740-4-55	35	17.0	20.6	21.6	18.07	
	FH12-36S-0.5SH(55)	586-0526-4-55	36	17.5	21.1	22.1	18.57	
Note ②〉	FH12-40S-0.5SH(55)	586-0527-7-55	40	19.5	23.1	24.1	20.57	
Note ②〉	FH12-45S-0.5SH(55)	586-0528-0-55	45	22	25.6	26.6	23.07	
Note ②〉	FH12-50S-0.5SH(55)	586-0529-2-55	50	24.5	28.1	29.1	25.57	
Note ②〉	FH12-53S-0.5SH(55)	586-0595-7-55	53	26	29.6	30.6	27.07	

Note 1 : Embossed tape reel packaging (2,000 pieces/reel).
　　　　 Order by number of reels.
Note②〉: If there is no problem with the connector height, we recommend the type with the
　　　　 strengthened Flip-lock actuator (FH12S-＊S-0.5SH).
　　　　　　 Standard type connector height: 2 mm
　　　　　　 Connector height of type with strengthened Flip-lock actuator: 2.4 mm
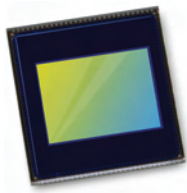
OV8858 8MP product brief

lead free

available in
a lead-free
package

Cost-Effective 1/4-Inch 8-Megapixel Image Sensor with Video-in-Video Support for Mainstream Mobile Devices

OmniVision's OV8858 is a 1/4-inch 8-megapixel PureCel® image sensor for the rapidly growing mainstream smartphone and tablet market. The compact and cost-effective OV8858 sensor delivers dramatically reduced power consumption and best-in-class performance, making it a highly competitive solution for the next-generation of mobile devices.

Compared to OmniVision's previous-generation 1/4-inch 8-megapixel sensor, the OV8858 delivers a number of performance enhancements, including dramatically improved full-well capacity (FWC) and sensitivity for enhanced high- and low-light performance. It also offers a significant reduction in power consumption and form factor.

The sensor also features OmniVision's Video-in-Video (ViV®) technology, which stitches together images from the front- and rear-cameras, applies enhancements such as independent lens correction and color compensation, and sends the combined image to the host ISP. In ViV mode, users can capture a portrait scene perfectly alongside their own face, record video while narrating for

high quality video blogging, or utilize the feature for video conferencing. This is made possible by a special input MIPI receiver on the OV8858 that can accept image data from a wide range of OmniVision image sensors designed for front-facing applications of 2-megapixel and below, thus saving a camera port on the host ISP.

The OV8858 supports an active array of 3264 x 2448 pixels (8-megapixel) operating at 30 frames per second (fps) for zero shutter lag, enabling high-speed photography. The sensor is capable of recording 1080p high definition (HD) video at 60 fps, or 720p HD video at 90 fps, each with additional pixels for electronic image stabilization (EIS). The OV8858, when paired with OmniVision's latest 2-megapixel sensors, can provide full resolution ViV snapshot images at 15 fps and preview ViV video at 30 fps.

The OV8858 fits into an 8.5 x 8.5 mm camera module with a build height of approximately 4 mm.

Find out more at www.ovt.com.

OmniVision®

OV8858

Applications

- Cellular Phones
- Tablets
- PC Multimedia

Product Features

- 1.12 μm x 1.12 μm pixel
- optical size of 1/4"
- 32.9° CRA for -4 mm Z-height
- programmable controls for:
  - frame rate
  - mirror and flip
  - cropping
  - windowing
- supports images sizes:
  - 8MP (4:3 - 3264x2448)
  - 8MP (16:9 - 3264x1836)
  - EIS 1080p (2112x1188)
  - 1080p (1920x1080)
  - EIS 720p (1408x792), and more
- 8MP at 30 fps (720 Mbps/4-lane or 10-8 DPCM 1.104 Gbps/2-lane)
- two on-chip phase lock loops (PLLs)
- two-wire serial bus control (SCCB)
- built-in temperature sensor
- frame exposure mode for still image (with mechanical shutter)
- 4k bits of embedded one-time programmable (OTP) memory for customer use
- supports Video-in-Video (ViV®) mode using an on-chip 1-lane MIPI receiver and a secondary sensor
- special ViV features include:
  - ViV video at up to 30 fps
  - ViV snapshot at up to 15 fps
  - arbitrary positions and shapes for ViV window
  - separate AWB compensation for secondary sensor, and more
- image quality control:
  - defect pixel correction
  - automatic black level calibration
  - lens shading correction
  - alternate row HDR
- suitable for module size of 8.5 x 8.5 x -4 mm

Ordering Information

- OV08858-G04A
  (color, chip probing, 200 μm backgrinding, reconstructed wafer with good die)

Product Specifications

- active array size: 3264 x 2448
- power supply:
  - analog: 2.6 to 3.0V (2.8V nominal)
  - core: 1.14 to 1.26V (1.2V nominal)
  - I/O: 1.7 to 3.0V (1.8V or 2.8V nominal)
- power requirements:
  - active: 153 mW
  - standby: 160 μW
  - XSHUTDOWN: 0.3 μW
- temperature range:
  - operating: -30°C to +85°C junction temperature
  - stable image: 0°C to +60°C junction temperature
- output formats: up to 4-lane MIPI serial output
- output formats: 10-bit RAW RGB data
- lens chief ray angle: 32.9° non-linear
- lens size: 1/4"
- input clock frequency: 6 - 27 MHz
- max S/N ratio: 35.8 dB
- dynamic range: 64.4 dB @ 8x gain
- maximum image transfer rate:
  - 3264 x 2448: 30 fps
  - 3264 x 1836: 30 fps
  - 2112 x 1184: 60 fps
  - 1920 x 1080: 60 fps
  - 1408 x 792: 90 fps
- sensitivity: 486 mV/Lux-sec
- scan mode: progressive
- pixel size: 1.12 μm x 1.12 μm
- dark current: 17 e-/sec @ 60°C junction temperature
- image area: 3678.3 μm x 2767.68 μm
- die dimensions:
  - COB: 5040 μm x 4590 μm
  - RW: 5090 μm x 4640 μm

Functional Block Diagram
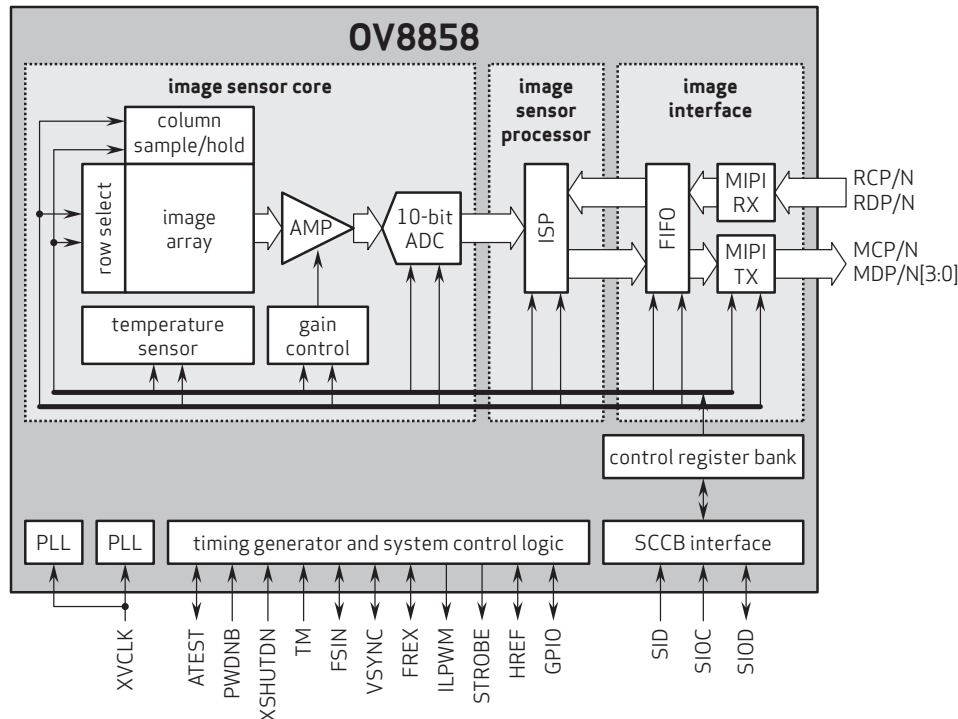
OmniVision.

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

your BEST camera module partner

Cameras Applications

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

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
	Storage Temperature — Low -20°C 96 Hours	Temperature Chamber	No Abnormal Situation
	Operation Temperature — High 60°C 24 Hours	Temperature Chamber	No Abnormal Situation
	Operation Temperature — 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
	Drop Test (Free Falling) — With Package 60cm	10 Times on Wood Floor	Electrically Functional
	Vibration Test — 50Hz X-Axis 2mm 30min	Vibration Table	Electrically Functional
	Vibration Test — 50Hz Y-Axis 2mm 30min	Vibration Table	Electrically Functional
	Vibration Test — 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
	ESD Test — 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

CMOS CAMERA MODULES

your BEST camera module partner

Camera Modules Package Solution

Full Tray of Cameras

Cover Tray with Lid

Put Tray into Anti-Static Bag

Vacuum the Anti-Static Bag

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

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

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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

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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

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

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

Connectors Large Order Package Solution

Connectors in a Wheel

Label Connectors in the Wheel
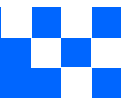

The Wheel is Perfectly Fitting the Box

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.

USB camera module

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