

KLT-C7PA-HM5065 V3.4

5MP Himax HM5065 MIPI Interface Auto Focus Camera Module



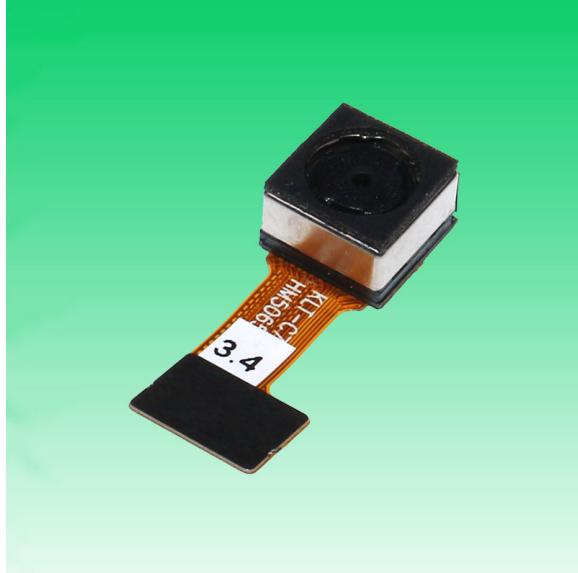
Front View



Back View

Specifications

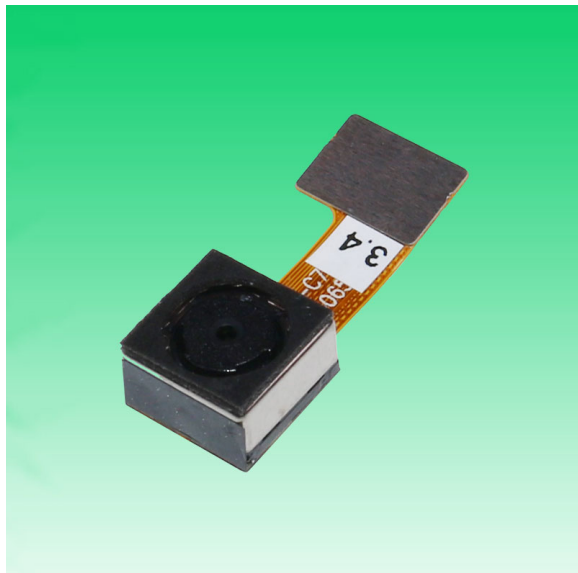
Camera Module No.	KLT-C7PA-HM5065 V3.4
Resolution	5MP
Image Sensor	HM5065
Sensor Type	1/4"
Pixel Size	1.4 um x 1.4 um
EFL	3.20 mm
F.NO	2.80
Pixel	2592 x 1944
View Angle	70.0°(DFOV) 58.6°(HFOV) 45.3°(VFOV)
Lens Dimensions	8.50 x 8.50 x 5.32 mm
Module Size	24.02 x 8.50 mm
Module Type	Auto Focus
Interface	MIPI
Auto Focus VCM Driver IC	Embedded
Lens Model	KLT-LENS-M5182
Lens Type	650nm IR Cut
Operating Temperature	-30°C to +70°C
Mating Connector	GB042-28S-H10

**KLT-C7PA-HM5065 V3.4****5MP Himax HM5065 MIPI Interface Auto Focus Camera Module**

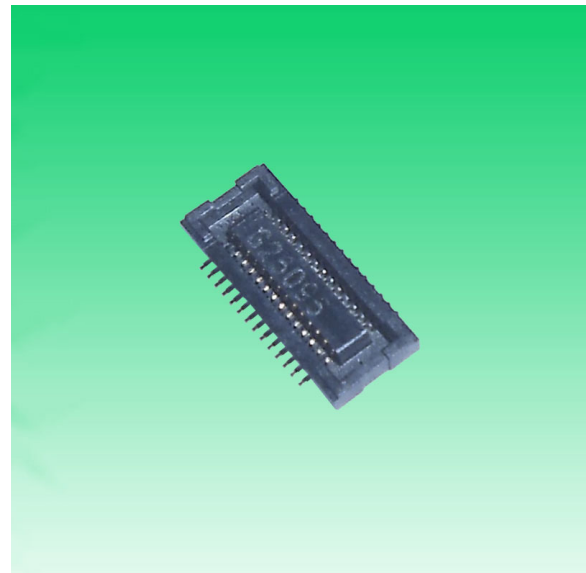
Top View



Side View



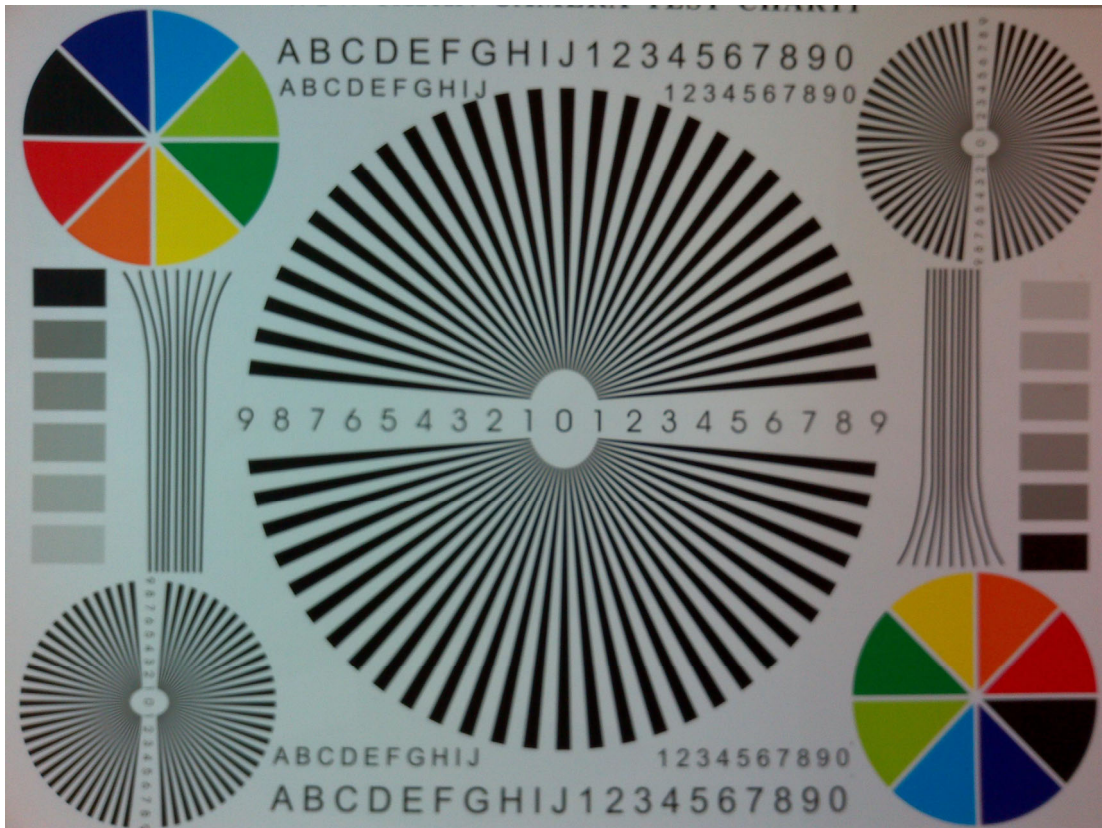
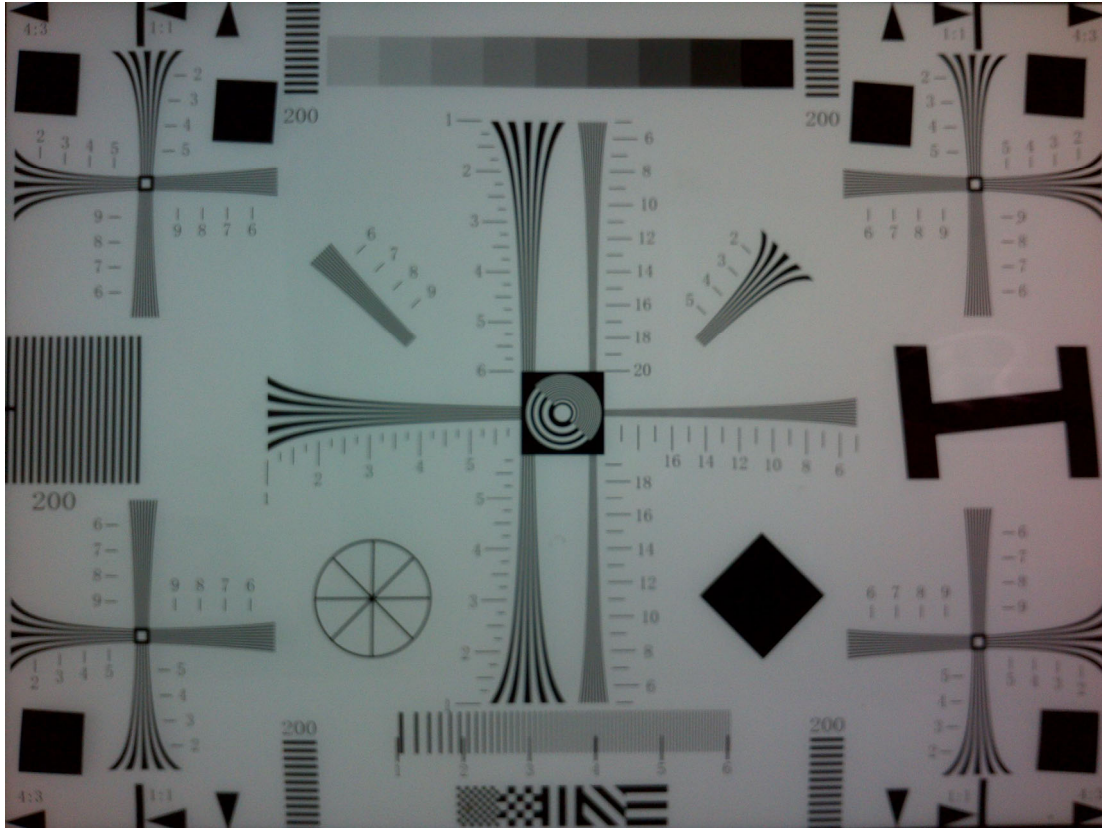
Bottom View



Mating Connector

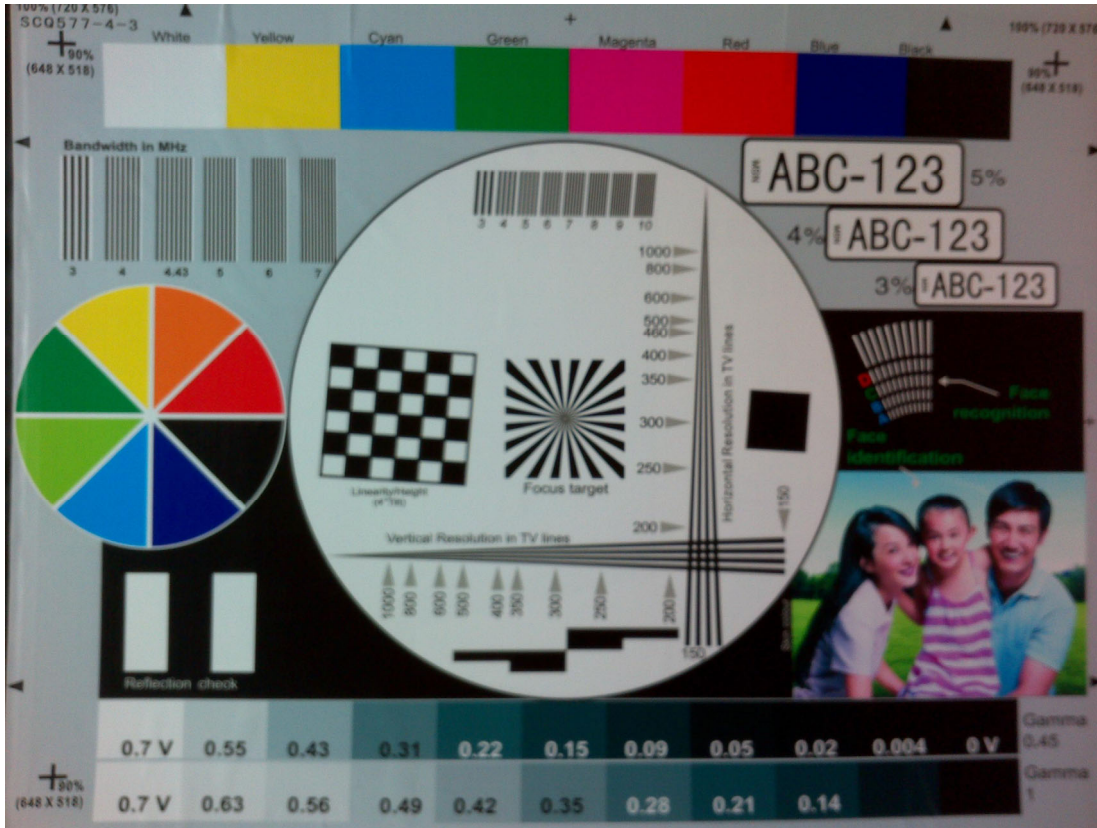


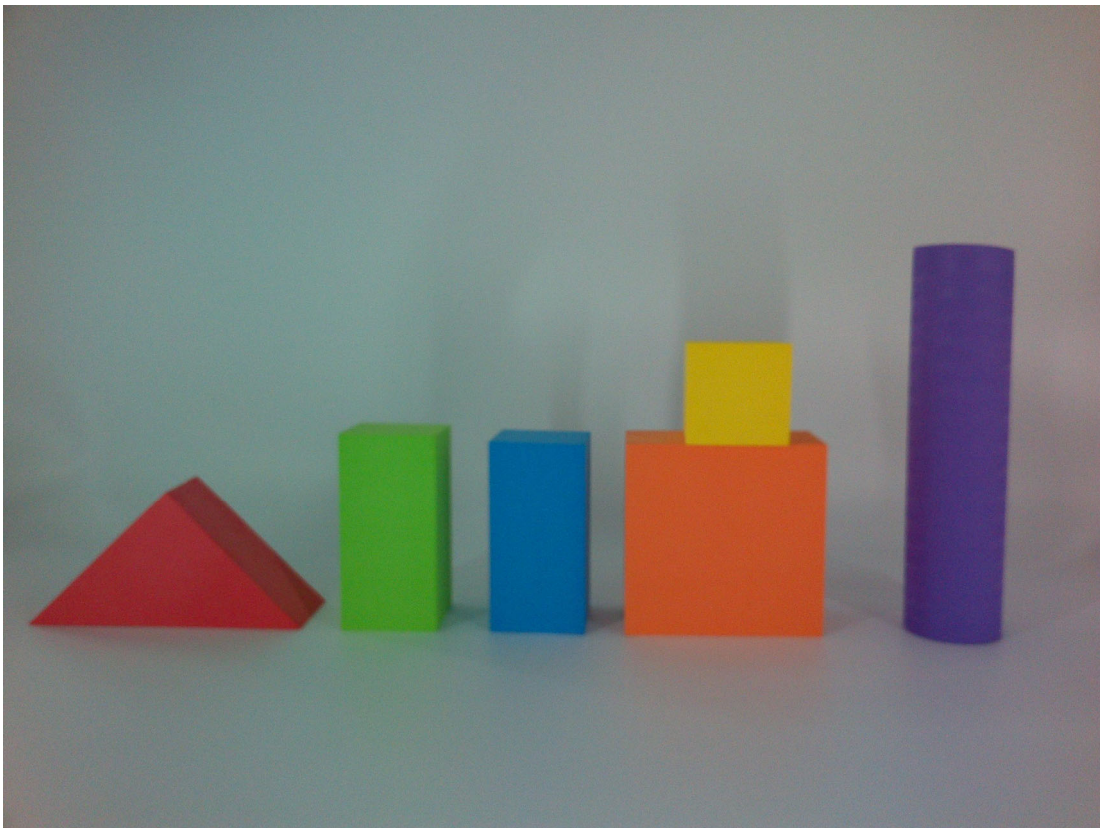
your BEST camera module partner





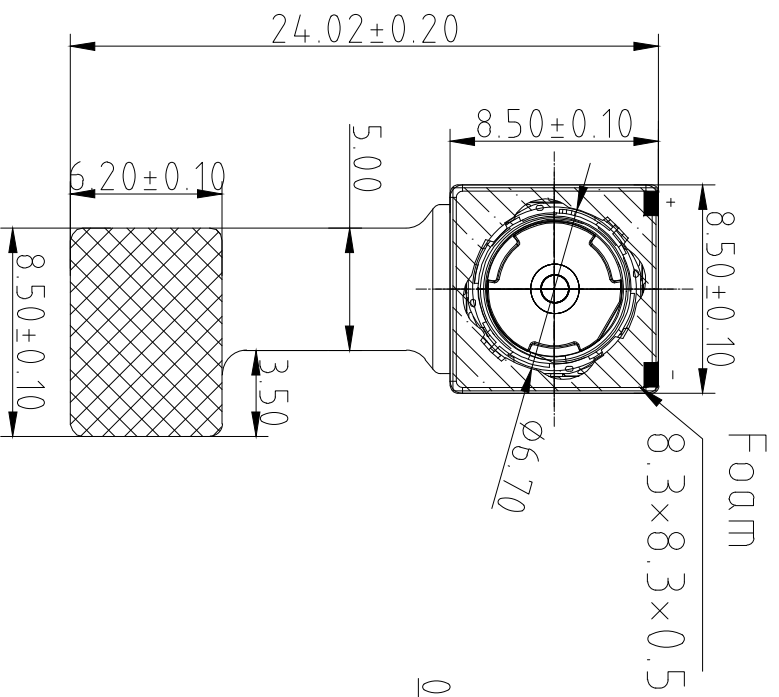
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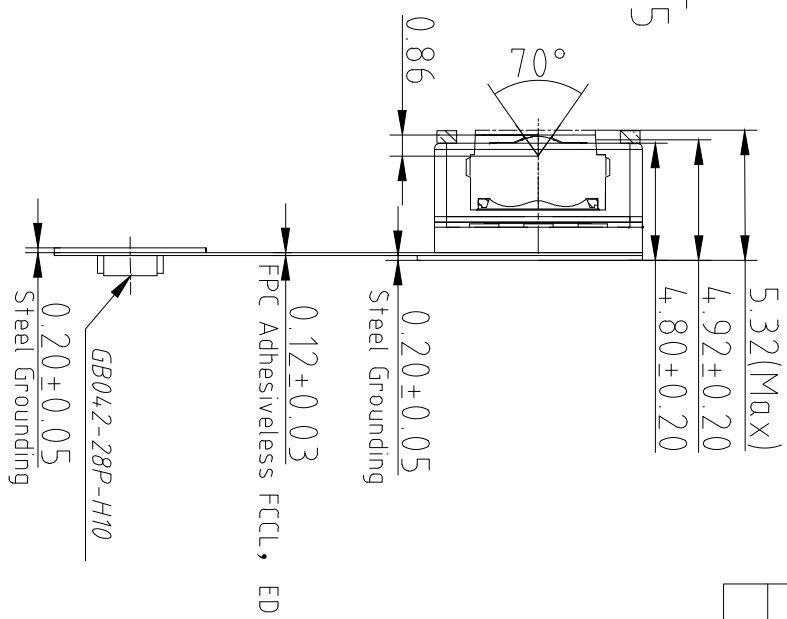


Version	Information	Date
V1.0	First Version	5-7-2020
V3.0	Change lens and VCM	10-31-2020
V3.2	Add Foam	11-23-2020
V3.4	Change lens	5-25-2021

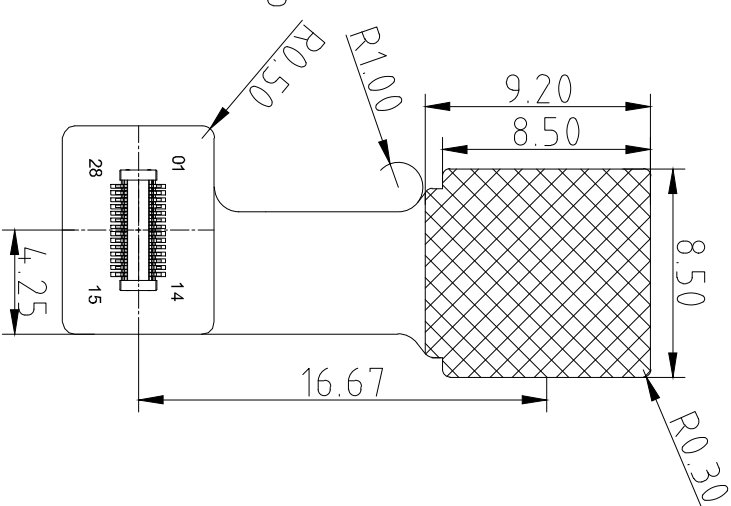
RoHS	
0	SIGNAL
1	GND
2	PCLK
3	STANDBY
4	MCLK
5	RESET
6	NC
7	SDA
8	SCL
9	VSYNC
10	DOVDD1.8V
11	AFVDD1.8V
12	AVDD2.8V
13	GND
14	GND
15	GND
16	GND
17	HSYNC
18	D0
19	D1
20	D2
21	D3
22	D4
23	D5
24	D6
25	D7
26	GND
27	GND
28	VPP(OTP/NC)



TOP VIEW



SIDE VIEW



BOTTOM VIEW

NOTE:
1.The device slave address:0x9E

Parameters:

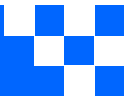
1、Sensor specification:

Image Sensor: HM5065
Pixel: 1.4um×1.4um
Lens Type: 1/4
Important Voltage Description: DVDD1.8V

2、Lens specification:

FOV: 70°
F/NO.: 2.8
TV distortion: <1.0%
Focal length: 3.2mm
Composition: 4P

Kai Lap Technologies Group Ltd			
Designed By	Kevin	Model Name:	KLT-C7PA-HM5065 V3.4
Checked By	Aouly_Yan	Projection Type:	Third Angle
		Unit:	mm
		Scale:	1:1
		Material:	-----
		Sheet:	1 of 1
		Version:	1/0



Lens Model: KLT-LENS-M5182

SPECIFICATION		ANGLE		SERVICE		FINISH							
1. SENSOR SIZE	1/4" (9M COB)	RANGE	DIN	WORKER	NAME	DATE	REV.						
2. MAX IMAGE CIRCLE	φ4.85mm	ANGLE	±0.5°	DRAWING	BY tomli	2016-12-05	A-01						
3. TOTAL TRACK	4.0±0.1mm	X, XXX	±0.010	CHECKED	BY								
4. EFL	3.2mm	X, XX	±0.05	RECEIVED	BY								
5. OPTICAL EFL	1.32mm	X, X	±0.1	SCALE	10 : 1								
6. MECHANICAL EFL	0.96mm												
7. F.NO	2.8±0.05												
8. VIEW FIELD	VERTICAL												
	HORIZONTAL												
	DIAGONAL												
9. OPTICAL DISTORTION	<1.0%	NOTE:											
10. TV DISTORTION	<1.0%	1. 镜头表面不可有油污、灰尘、毛丝等异物。											
11. RELATIVE ILLUMINATION	>42.2%	2. 镜头配VCM纵附高度为 4.2±0.1mm, 扭力为20--120gf.cm.											
12. CONSTRUCTION	4P	3. 镜头承受推力为≥2.0kg.											
13. CHIEF RAY ANGLE	<25°	4. 镜头组品质参数需符合图中要求。											
14. CUT FREQUENCY AT 50%	√												
15. THREAD	M6.0X0.35P												
16. IMAGE QUALITY	AXIS												
	0.7Y												
17. APPEARANCE QUALITY	CENTER												
	EDGE												
NO		MODIFY CONTENT		NAME		DATE							

GB042 series

0.4mm pitch PCB to PCB Connector



Features

- GB042 series Connector is 0.4 mm pitch, low profile PCB to PCB SMT type connector.
- Improved contact reliability with plug and receptacle contacting at 2 point simultaneously.
- Stable unmating mechanism preventing receptacle contact from being deformed.

Applications

- Mobile phone
- Compact portable devices, etc

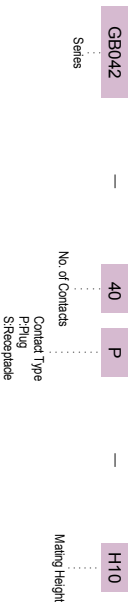
Materials & Finishes

Parts	Materials / Finishes
Insulator	Heat Resistant Plastic
Contact	Plug Copper Alloy
	Recept. Copper Alloy
	AU Plating
	AU Plating

Specifications

No. of Contacts	10-80
Stacking Height	1.0mm
Contact Spacing	0.4mm
Current Rating	AC, DC 0.3A/pin
Voltage Rating	AC, DC 50V
Dielectric Withstanding Voltage	AC 250V (r.m.s for one minute)
Insulation Resistance	1000MΩ
Contact Resistance	70mΩ
Operating Temp.	-25°C ~ +85°C

Ordering Information

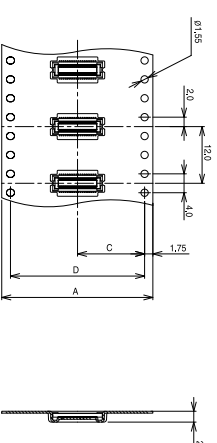
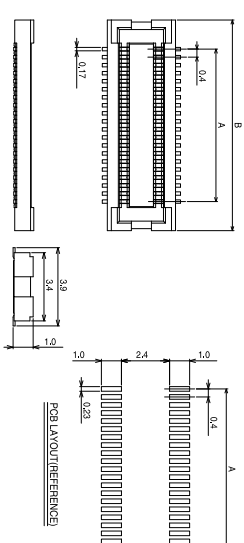
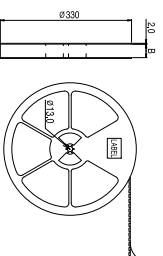


Receptacle



Embossed Tape Assembly

Bobbin



No. of Pin	Part Number	Receptacle		Embossed Tape Assembly			
		A	B	A	B	C	D
10	GB042-10S-**-H10-E3000	1.6	4.5				
20	GB042-20S-**-H10-E3000	3.6	6.5	16.0	18.0	7.5	-
24	GB042-24S-**-H10-E3000	4.4	7.3				
28	GB042-28S-**-H10-E3000	5.2	8.1				
30	GB042-30S-**-H10-E3000	5.6	8.5				
34	GB042-34S-**-H10-E3000	6.4	9.3				
40	GB042-40S-**-H10-E3000	7.6	10.5				
44	GB042-44S-**-H10-E3000	8.4	11.3	24.0	26.0	11.5	-
50	GB042-50S-**-H10-E3000	9.6	12.5				
54	GB042-54S-**-H10-E3000	10.4	13.3				
60	GB042-60S-**-H10-E3000	11.6	14.5				
64	GB042-64S-**-H10-E3000	12.4	15.3	32.0	34.0	14.2	28.4
70	GB042-70S-**-H10-E3000	13.6	16.5				



DATA SHEET

(DOC No. HM5065-DS)



HM5065

5MP CMOS Image Sensor SoC

Preliminary version 03 June, 2012

>> HM5065

5.0MP CMOS Image Sensor SoC 1/4" format

Preliminary Features



Himax Imaging, Inc.

June, 2012

- 5.0 megapixel resolution (2592H x 1944V) with 16 border pixels in 1/4" optical format
- Support up to 15 fps with 5MP (JPEG422), 30 fps with analog binning 2x2, 60 fps with analog binning 4x4
- Integrated Image Processing Pipeline functions
 - Pixel defect correction
 - Binning resampling
 - Luminance and color noise reduction
 - Lens shade correction
 - Hue / Saturation adjustment
 - Brightness / Contrast control
 - Edge enhancement
 - Color interpolation and correction
 - Gamma correction
- Embedded imaging sensor controller for automatic exposure control, automatic white balance control, black level compensation, contrast stretching, 50/60 Hz flicker detection and cancelling, and flash support
- Fully programmable independent H and V scaling with derating (max. 1600x1200 FFOV)
- ITU-R BT.656-4 YUV (YCbCr) 4:2:2, RGB 565, RGB 444, RGB 555, JPEG 422 output formats
- 8-bit parallel video interface, horizontal and vertical syncs, 89 MHz (max) clock
- Fully integrated auto-focus VCM Driver
- MIPI CSI-2 dual lanes interface option
- Two-wire serial control interface
- On-chip PLL with SSCG support, 6 MHz to 27 MHz clock input

Key Parameter

Sensor Parameters	Value
Active Pixel Array	2608 x 1960
Optical Format	1/4"
Pixel Size	1.4μ
Image Area Diagonal	4567μm diagonal
Color Filter Array	Bayer RGB
Scan Mode	Progressive
Shutter	Electronic Rolling Shutter
ADC Resolution	10-bit
S/N Ratio (maximum)	35.6dB
Dynamic Range	68dB
Sensitivity (@ 530nm)	520 mV / Lux-sec
CRA (maximum)	25.8° non-linear

Device Parameters	Value	
Power Supply	Analog	2.8V
	Digital	1.8V (typical) or 2.6V
Serial Register	SDA, SCL	
Output Lane	MIPI-CSI2, Parallel (ITU)	
Input Reference Clock	6 to 27MHz	
Maximum Readout		15fps@full (JPEG422)
		15fps@1080p (Crop)
		30fps@720p (Crop)
		60fps@VGA
Maximum Readout	MIPI	357MHz per lane
	YUV	89MHz
Data Output Format	YUV (YCbCr422), JPEG422 RGB565 / 555 / 444, RAW	
Power	Full Frame	255mW (1.8V Vdd, JPEG)
Consumption	PWDN	<10μW

Order Information

Part Number	CFA	Package Type
HM5065-AGA	Bayer (Color)	Bare Die (RW)
HM5065-APA	Bayer (Color)	PLCC-28
HM5065-APB	Bayer (Color)	PLCC-32
HM5065-APC	Bayer (Color)	PLCC-28
HM5065-APD	Bayer (Color)	PLCC-32

Preliminary HM5065 Datasheet – Himax Imaging Proprietary and Confidential

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Camera Module Pinout Definition Reference Chart

OmniVision	Sony	Samsung	On-Semi	Aptina	Himax	GalaxyCore	PixArt	SmartSens	Sensors
Pin Signal									
Description									
DGND	GND								
AGND									
PCLK	DCK								
XCLR	PWDN	XSHUTDOWN	STANDBY						
MCLK	XVCLK	XCLK	INCK						
RESET	RST								
NC	NULL								
SDA	SIO_D	SIOD							
SCL	SIO_C	SIOC							
VSYNC	XVS	FSYNC							
HREF	XHS								
DOVDD									
AFVDD									
AVDD									
DVDD									
STROBE	FSTROBE								
FSIN									
SID									
ILPWM									
FREX									
GPIO									
SLASEL									
AFEN									
MIPI Interface									
MDN0	DN0	MD0N	DATA_N	DMO1N					
MDP0	DP0	MD0P	DATA_P	DMO1P					
MDN1	DN1	MD1N	DATA2_N	DMO2N					
MDP1	DP1	MD1P	DATA2_P	DMO2P					
MDN2	DN2	MD2N	DATA3_N	DMO3N					
MDP2	DP2	MD2P	DATA3_P	DMO3P					
MDN3	DN3	MD3N	DATA4_N	DMO4N					
MDP3	DP3	MD3P	DATA4_P	DMO4P					
MCN	CLKN	CLK_N	DCKN						
MCP	CLKP	MCP	CLK_P	DCKN					
DVP Parallel Interface									
D0	DO0	Y0							
D1	DO1	Y1							
D2	DO2	Y2							
D3	DO3	Y3							
D4	DO4	Y4							
D5	DO5	Y5							
D6	DO6	Y6							
D7	DO7	Y7							
D8	DO8	Y8							
D9	DO9	Y9							
D10	DO10	Y10							
D11	DO11	Y11							



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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



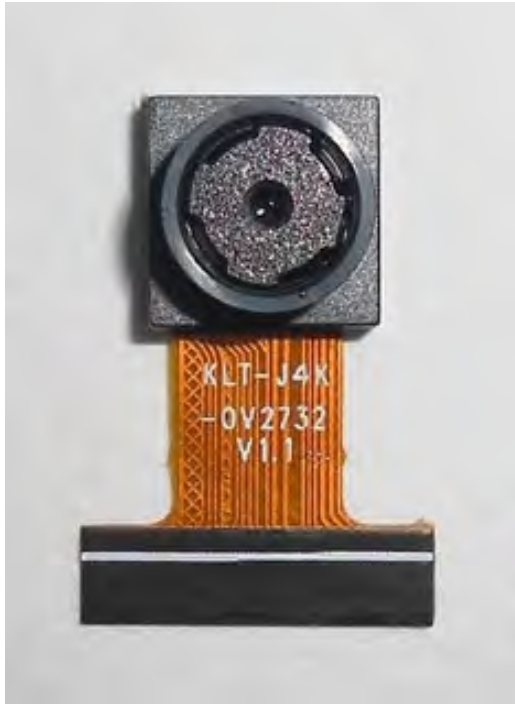


Inspection Item		Inspection Method	Standard of Inspection		
Category	Item				
Appearance	FPC/ PCB	Color	The Naked Eye	Major Difference is Not Allowed.	
		Be Torn/Chopped	The Naked Eye	Copper Crack Exposure is Not Allowed.	
		Marking	The Naked Eye	Clear, Recognizable (Within 30cm Distance)	
	Holder	Scratches	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



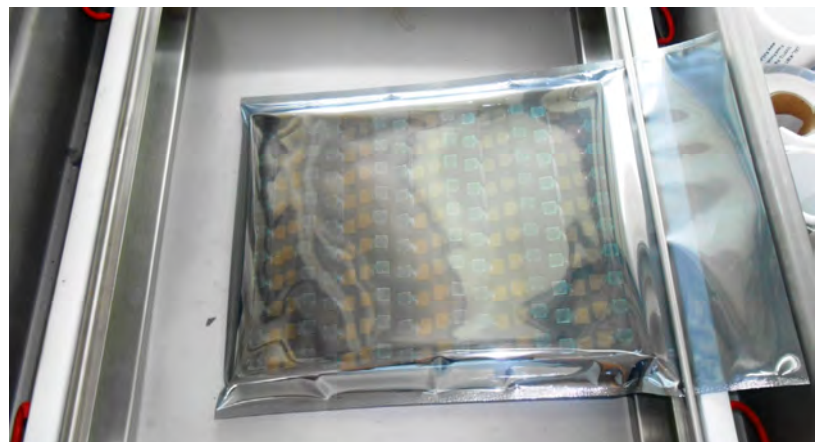
Cover Tray with Lid



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





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

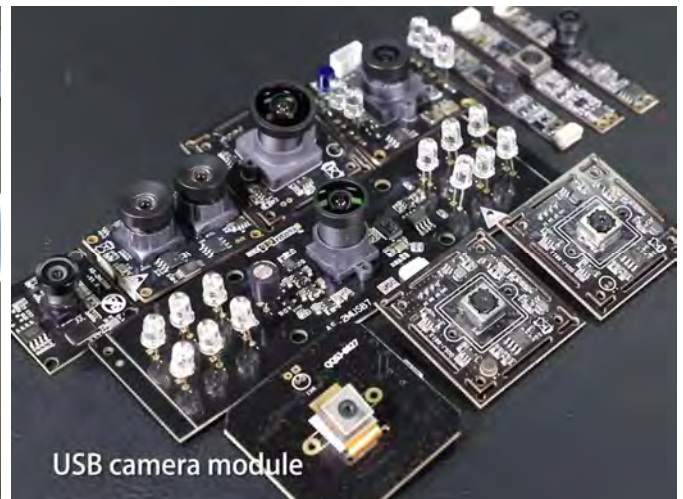


Company Kai Lap Technologies (KLT)

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.





CMOS CAMERA MODULES



your BEST camera module partner

KLT Strength

Powerful Factory



Professional Service



Promised Delivery



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