



Camera

Version: V0

CAM-JM2M018

SPCIFICATION FOR APPROVAL

MODEL NO.: CAM-JM2M018

Customer:

Customer Project:

Customer Approved		
Feedback :		
Appearance: OK NG		
Effect (view angle, color, brightness) : OK NG		
Function: OK NG		

J.M.O Approved		
PREPARED	CHECKED	APPROVED
xpc	kqb	zcg

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1.Product Drawing(Reference Dimensions:40*40*36MM)





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2. Technical Specification

Function	Parameter
Effective Pixel Size	2.8um*2.8um
Sensor	CMOS GC2053 200 万 1/2.9 "
ISP	FH8536
Image Output Format	AHD
Resolution	1920 (H) x1080 (V)
Frame Rate	30fps
Power Consumption/Operating Current	100mA±10%
Operating Voltage Range	12V
Gamma Correction	Support
Auto White Balance	Support
Dead Pixel Correction	Support
Minimum Illuminance	0.1Lux
Dynamic Range	Sensor Maximum Dynamic Range: 81dB
Signal-to-Noise Ratio (SNR)	38dB
Auxiliary Light	/
Waterproof Rating	IP67
Camera	2G+2P_1IR
Aperture Size F/NO ±10%	F/NO:2.0
HORIZONTAL/VERTICAL (±5°)	D=124.6°H=102°V=53.4°(±5°)
TV Distortion	<-51%
Lens Relative Illuminance	>88%



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Lens Incident Angle	<18°
Storage Temperature	-30~80°C
Operating Temperature	-20~70°C

3.The main parameters of camera sensor chips. :

GC2053 is a high quality 1080P CMOS image sensor, for security camera products, digital camera products and mobile phone camera applications. GC2053 incorporates a 1920 H x 1080V pixel array, on-chip 10-bit ADC, and image signal processor.

The full scale integration of high-performance and low-power functions makes the GC2053 best fit the design, reduce implementation process, and extend the battery life of Motion Camera, Car DVR, and a wide variety of mobile applications.

It provides RAW10 and RAW8 data formats with MIPI and DVP interface. It has a commonly used two-wire serial interface for host to control the operation of the whole sensor

Features

- ◆ Standard optical format of 1/2.9 inch
- ◆ 2.8um*2.8um
- ◆ Output formats: Raw Bayer 10bit/8bit

Power supply requirement: AVDD28: 2.7~2.9V(Typ.2.8V)

DVDD18:1.15-1.3V(Typ.1.2V)

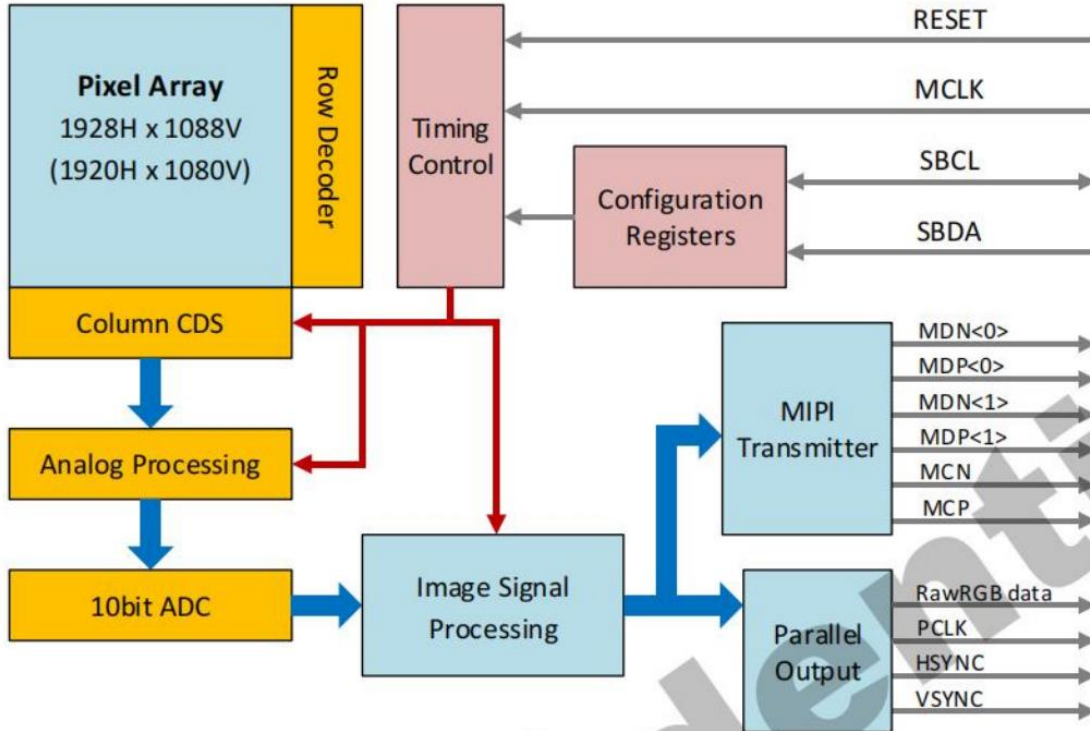
IOVDD: 1.7-2.8V(Typ.1.8V)

- PLL support
- Support frame sync
- DVP /MIPI (2lane)interface support
- Horizontal/Vertical mirror
- Image processing module
- OTP support(1K for customers):Module information/WB



■ Package:CSP

4. Block Diagram



5. Pin Diagram(CSP)

A1	A2	A3	A4	A5	A6	A7	A8
AGND	INCLK	SBDA	RESRTB	VDDIO	DGND	VOTP	AGND
B1	B2	B3	B4	B5		B7	B8
AVDD28	DGND	VDDIO	DGND	HSYNC		FSYNC	AVDD28
C1	C2	C3	C4	C5	C6	C7	C8
DVDD1 2	PIXEL_ CLK	VSYNC	SBCL	POWER DOWN	I2C_ID_ SEL	DVDD12	VPIX
D1	D2	D3	D4	D5	D6	D7	D8
PIXEL< 7>	PIXEL< 5>	PIXEL< 4>	MCP	MCN	PIXEL<2>	PIXEL<1>	TXLOW
E1	E2	E3	E4	E5	E6	E7	E8
PIXEL<8>	VDDIO	DVDD1 2	MDP1	MDPO	MDNO	DGND	RSGLOW
F1	F2	F3	F4	F5	F6	F7	F8
PIXEL< 9>	PIXEL<6>	DGND	MDN1	MVDD	PIXEL<3>	PIXEL<0>	VREF

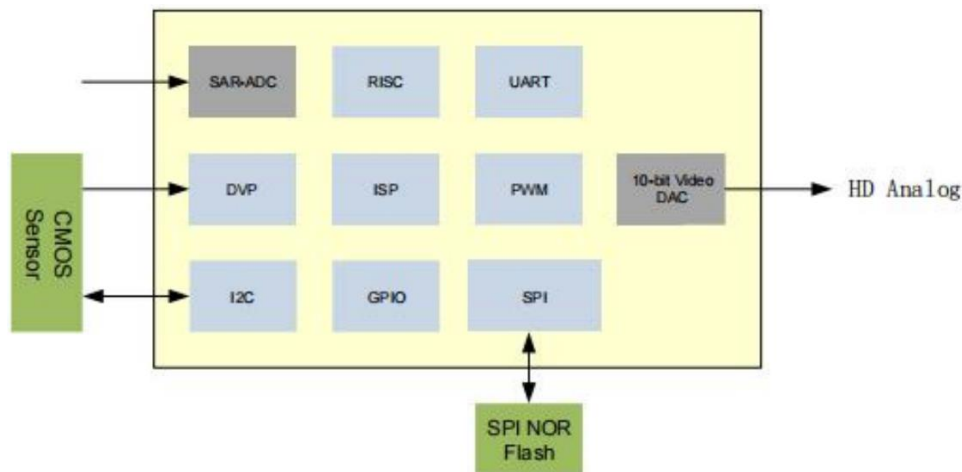


6.ISP Main Parameter :

1.Overview

The FH8536H is a new generation of high cost-performance image signal processing chip s pecifically designed for parallel interface CMOS image sensors, supporting 1Mega/2Mega/3M ega pixel RGB Bayer or RGB-IR CMOS image sensors. It features a new generation of 3D noise reduction technology, supports fisheye functionality, and supports 720P/1080P high-defi nition analog output.

2.System Block Diagram



3. Specification

3.1、 CIS Input

- Supports parallel interface CMOS image sensors
- Supports RGB Bayer or RGB-IR
- Supports maximum data bit width of 10-bits
- Supports sampling clock positive or negative edge sampling configuration
- Supports sync signal polarity configuration
- Supports maximum pixel clock of 120MHz
- Supports providing clock for CIS
- Supports providing V-SYNC for CIS
- Supports maximum frame size of 3Mega (2048x1536)



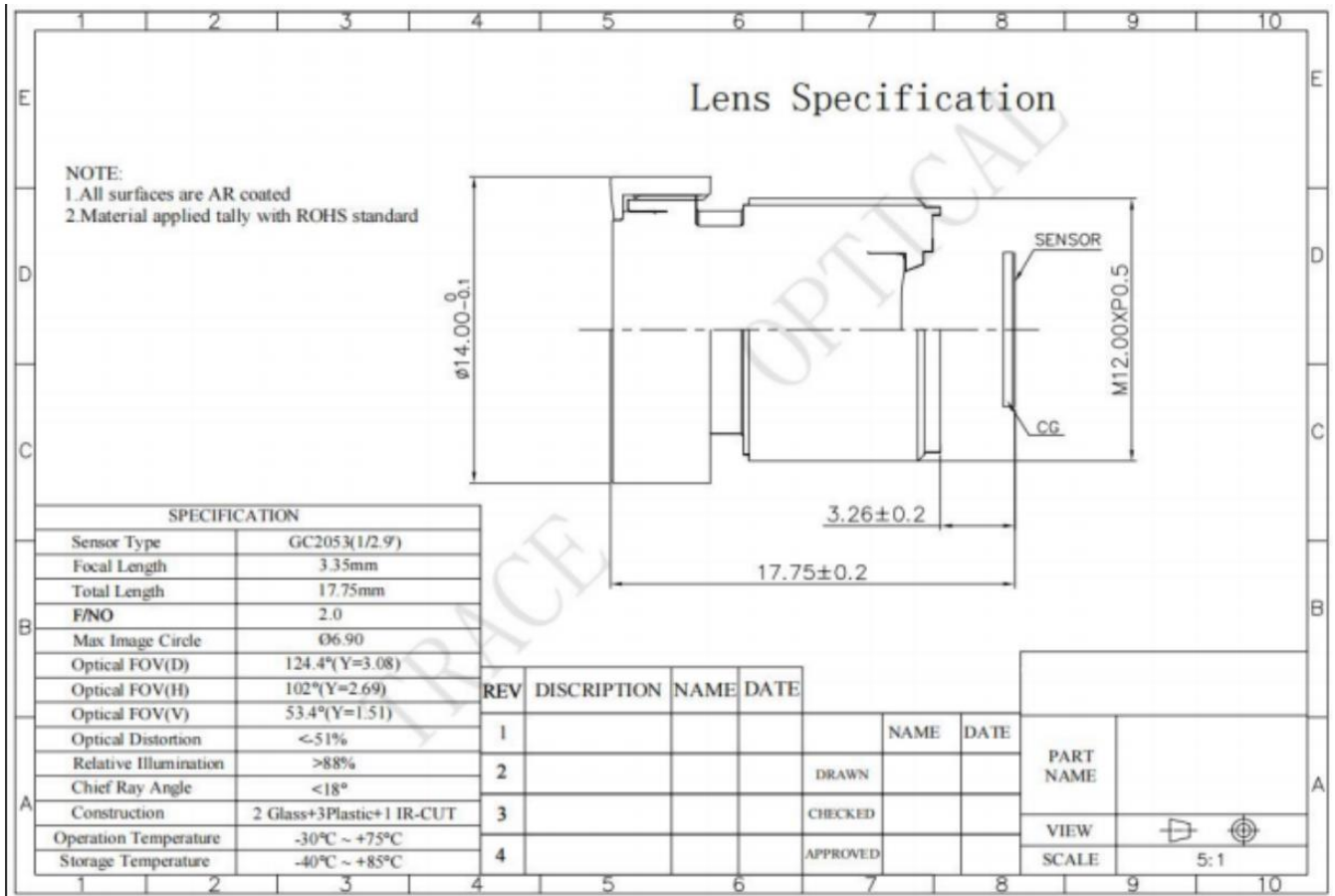
- Supports various CIS data formats
 - Supports standard RGB Bayer, 2x2 Pattern configurable
 - Supports RGB-IR, 4x4 Pattern configurable
- Supports color bar test mode
- Supports per-channel linear correction (LUT)
- Supports horizontal mirror (HMIR)
- Supports fixed pattern noise elimination
 - Supports automatic black level elimination (CLAMP)
 - Supports automatic detection and elimination of dead pixels (DPC)
- Supports corner compensation (LSC)
 - Four-channel independent processing
 - Center point and correction strength factor configurable
- Bayer domain spatial-temporal noise reduction (NR3D)
 - Support By-Pass
- Adaptive YC spatial domain noise reduction (YNR & CNR)
- Image Information Statistics
 - Support AE statistics
 - Support AWB related statistics
 - Support HIST histogram statistics
- Support AE/AWB
- Support 256 -zone motion detection(MD)
- Supports automatic exposure
- High-performance CFA filter(CFA)
- Supports color correction for configurable color space conversion RGB2RGB(RGBB)
- Supports Gamma correction,Gamma table configurable(GAMMA)
- Supports image seamless scaling(SCALER)



- Supports sensitive area masking(PM)
 - Region coordinates/fill content configurable
 - Supports 8 rectangular areas or 4 convex polygonal areas
- Supports OSD
 - Support graphic overlay(for reversing line function)
 - Support small logo overlay
 - Support one character-type OSD(frame/dot matrix/size configurable)
- Image enhancement
 - Brightness,contrast,hue,and saturation adjustment(positive&Chrome Adjust)
 - Adaptive image sharpening(APC)
 - Purple fringe elimination(PURPLE)
 - Highlight recovery(HLR)
- Supports fisheye correction(STE)



7. Lens Parameters



8. Reliability test specification

NO	Item	Specification/Test	Remark
01	High and low temperature testing(Storage)	High temperature +75°for 4 hours(After recovery at room temperature for 6-8 hours, testing is normal), low temperature -30°C for 4 hours Low temperature-30°C for 4 hours (After recovery at room temperature for 6-8 hours, testing is normal)	Development phase testing



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02	High temperature and high humidity testing (Storage)	High temperature +75°C with 60%RH humidity for 4 hours (After recovery at room temperature for 6-8 hours, testing is normal).	
03	Temperature cycling test (storage)	Low temperature -30°C for 30 minutes to high temperature 75°C for 30 minutes, two cycles (After recovery at room temperature for 6-8 hours, testing is normal)	
04	Drop test (Finish Product)	height 0.6 meters, number of drops 3 times The finish product is dropped vertically from a free fall (with outer cardboard packaging required).	
05	Vibration Test(Finish product)	Frequency: 10Hz to 50Hz, duration: 3 minutes The finish device is tested on a vibration testing machine	
06	Room temperature aging test	Aging with power supply at room temperature, After 4 hours, the image test is normal	Full Inspection
07	Waterproof Test	IP67	Full Inspection

9. Lens Inspection Standards



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NO	Item	Specifications/Testing Conditions	Remark
01	Scratches/Bright spots: After assembly, 600/400	Scratches with a width of 600µm (0.6mm) and a length of 4 times the diameter (4×diameter) are acceptable, and bright spots with a diameter of 400µm (0.4mm) are acceptable.	Full Inspection
02	White Spot	0.3mm in the center is acceptable, 0.4mm at the edge is acceptable, provided it does not affect the imaging principle	
03	Dust Spot	Acceptable dust spots that can be blown away	
04	Appearance	The end cap must be free of discolored spots and residual adhesive.	

10. Cable Inspection Standards :

No	Item	Specifications/Testing Conditions	Remark
01	Plugging and Unplugging Cycles	After 20 cycles of plugging and unplugging, the functionality should be tested to ensure it is operating normally.	Sampling Inspection
02	Pull Force Test	The connector should be subjected to a 3kg test weight to verify that it does not detach due to the pull force.	
03	Wire Outer Diameter Test	The outer diameter of the wire should be measured to ensure it meets the specified dimensions.	
04	Wire Length Test	The length of the wire must be within a tolerance of ±15mm to be considered acceptable.	

Product Maintenance:



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When the camera lens surface has dust or dirt, it can affect the normal image quality. In this case, you can apply a small amount of alcohol on a soft dry cloth or lens paper and gently wipe the lens surface until the surface glass is clean.

Warning!



1. Do not use sharp or hard objects or cleaning agents for cleaning, as these may damage the equipment.