承　　認　　書
APPROVAL SHEET

客戶 Customer	
機種名 Model Name	OV8865 PLCC
系統電子 品名規格 SYS Model No.	CAA-328865011C-1R
客戶料號 Customer P/N	
版本號 Revision No.	Rev000

系統簽名 SYS Signature	製作 Making	審核1 Check1	審核2 Check2	確認 Approved
	Alan	Kenny	Nick	Frank

客戶簽名 Customer Signature	審核1 Check1	審核2 Check2	確認 Approved

Revision History:

Revision	Date	History
000	2014/05/27	1st draft

Table of Contents

1. Introduction

The OV8865 color image sensor is a high performance, 8 megapixel RAW image sensor that delivers 3264X2448 at 30 fps using improved OmniBSI-2™ pixel technology. It provides options for multiple resolutions while maintaining full field of view. Users can program image resolution, frame rate, image quality parameters. Camera functions are controlled using the industry standard serial camera control bus (SCCB).
The OV8865 is capable of delivering 30 fps at full resolution allowing burst photography at full 8 megapixel resolution. With a complete 8 megapixel image array, the OV8865 contains all the image management functions to ensure high quality imaging solutions for high resolution digital still camera (DSC), HD camcorders and mobile handsets.
All required image processing functions are programmable through the SCCB interface. In addition, OmniVision image sensors utilize proprietary sensor technology to improve image quality by reducing or eliminating common lighting/electrical sources of image contamination, such as fixed pattern noise, smearing, etc., to produce a clean, fully stable, color image.

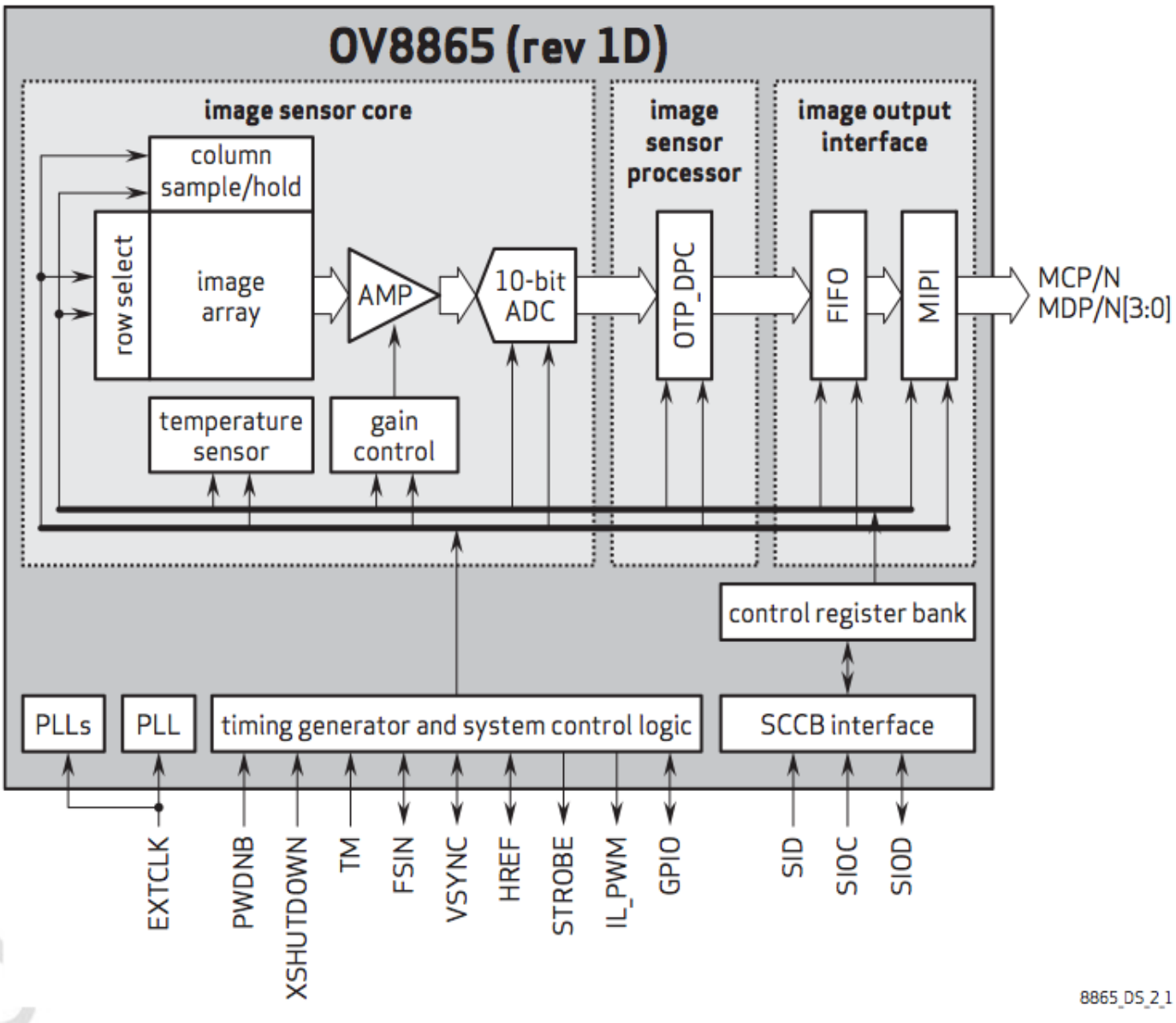
2. Product Features

- 1.4um x 1.4um pixel size.
- Optical size of 1/3.2”
- 32.2^{o} CRA non-linear
- Programmable controls for frame rate, mirror and flip, cropping and windowing
- Supports images sizes:
  - 8MP (4:3 – 3264x2448),
  - 8MP (16:9 – 3264x1836),
  - EIS 1080p (2816x1584),
  - 1080p (1632x1224),
  - EIS 720p (1408x792), and more
- 8MP at 30 fps
- Standard serial SCCB interface
- 1,536 bytes of embedded one-time programmable (OTP) memory for customer use
- Two on-chip phase lock loops (PLLs)
- Image quality control:
  - Static defective pixel canceling,
  - Automatic black level calibration (ABLC),
- Built-in temperature sensor
- Suitable for module size of 8.5mm x 8.5 mm x ~4mm

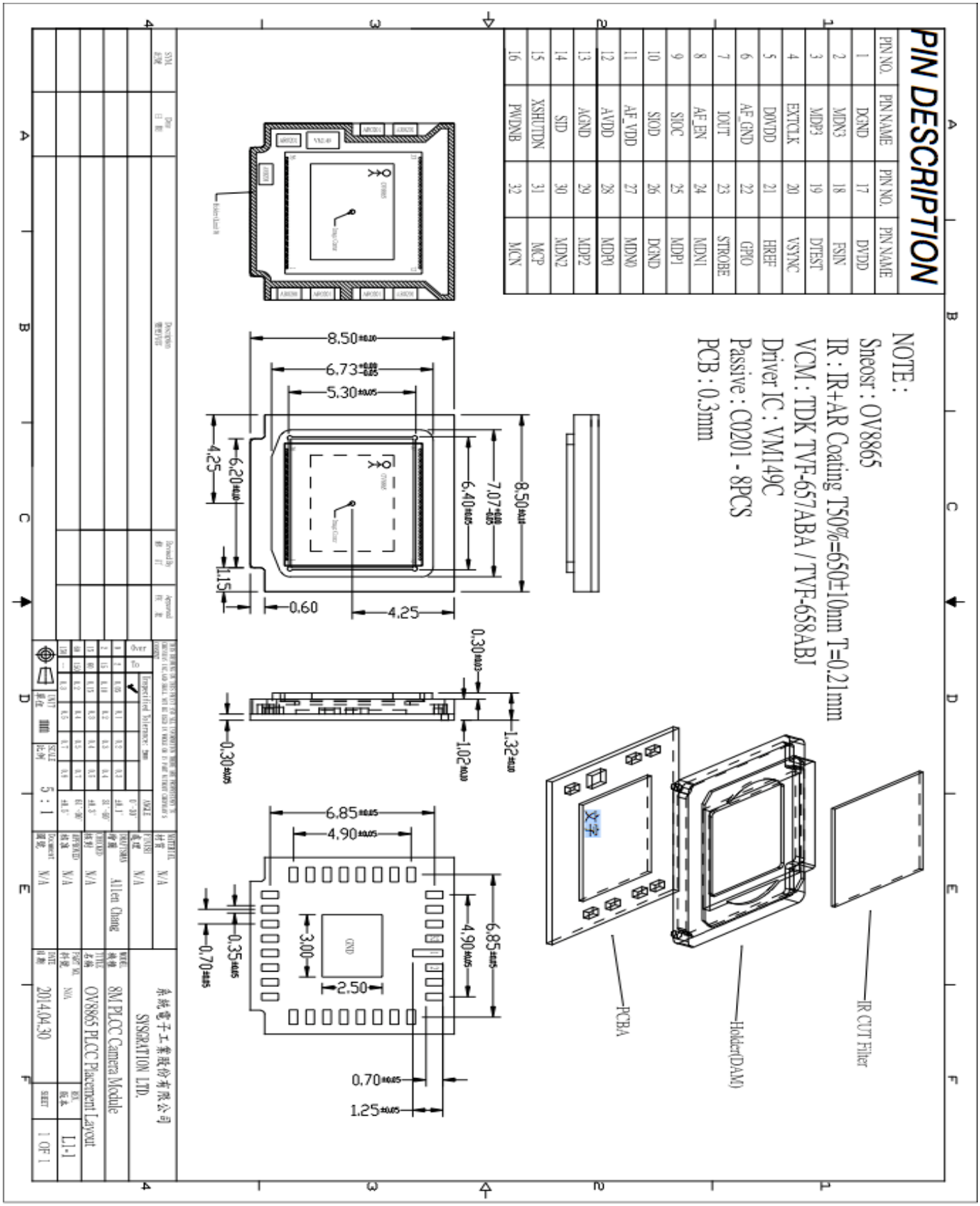
3. Product Specifications

- Active array size: 3264 x 2448
- Power supply:
  - Analog: 2.8V nominal
  - Core: 1.2V nominal
  - I/O: 1.8V or 2.8V nominal
- 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 data
- Lens size: 1/3.2”
- Lens chief ray angle: 32.2° non-linear
- Input clock frequency: 6~27 MHz
- Maximum image transfer rate:
  - 3264x2448: 30fps
  - 3264x1836: 30fps
  - 2816x1584: 30fps
  - 1632x1224: 30fps
  - 1408x792: 60fps
- Max S/N ratio: 36.7 dB,
- Dynamic range: 68.8 dB,
- Sensitivity: 940 mV/Lux-sec,
- Scan mode: progressive
- Pixel size: 1.4um x 1.4um
- Image area: 4614.4um x 3472um

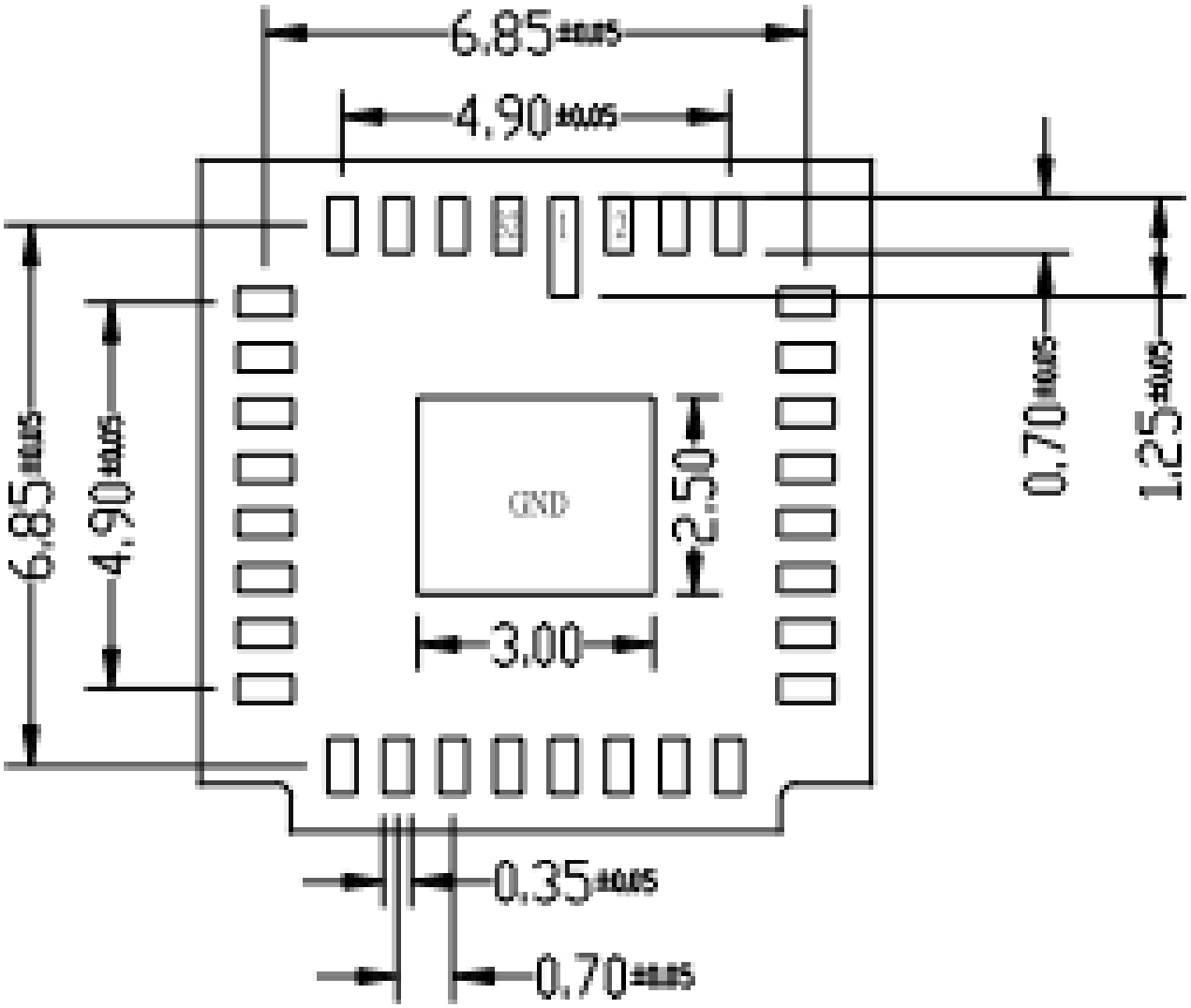
4. Functional Block Diagram



5. Module Specifications (unit: mm)



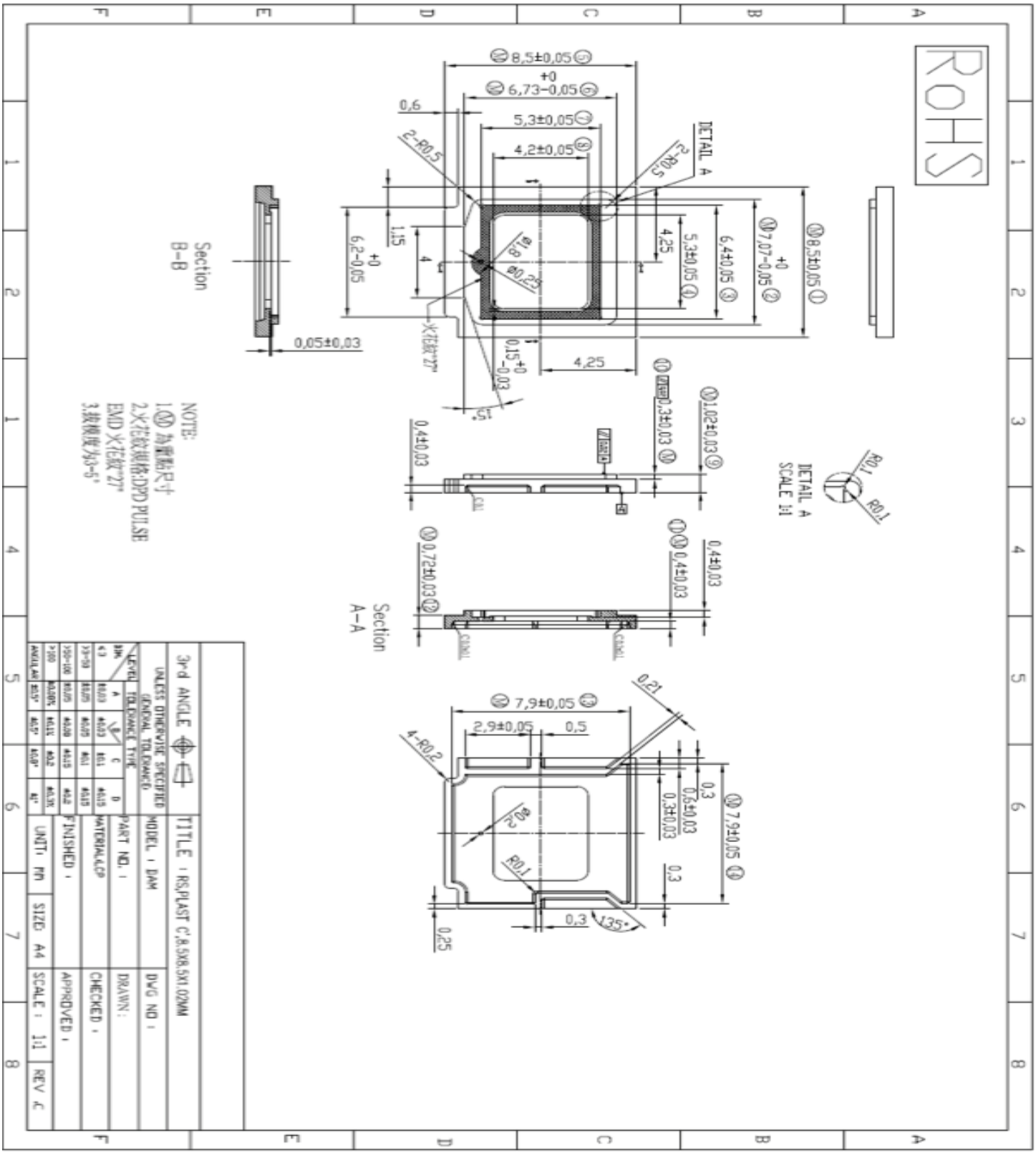
6. Pin Assignment



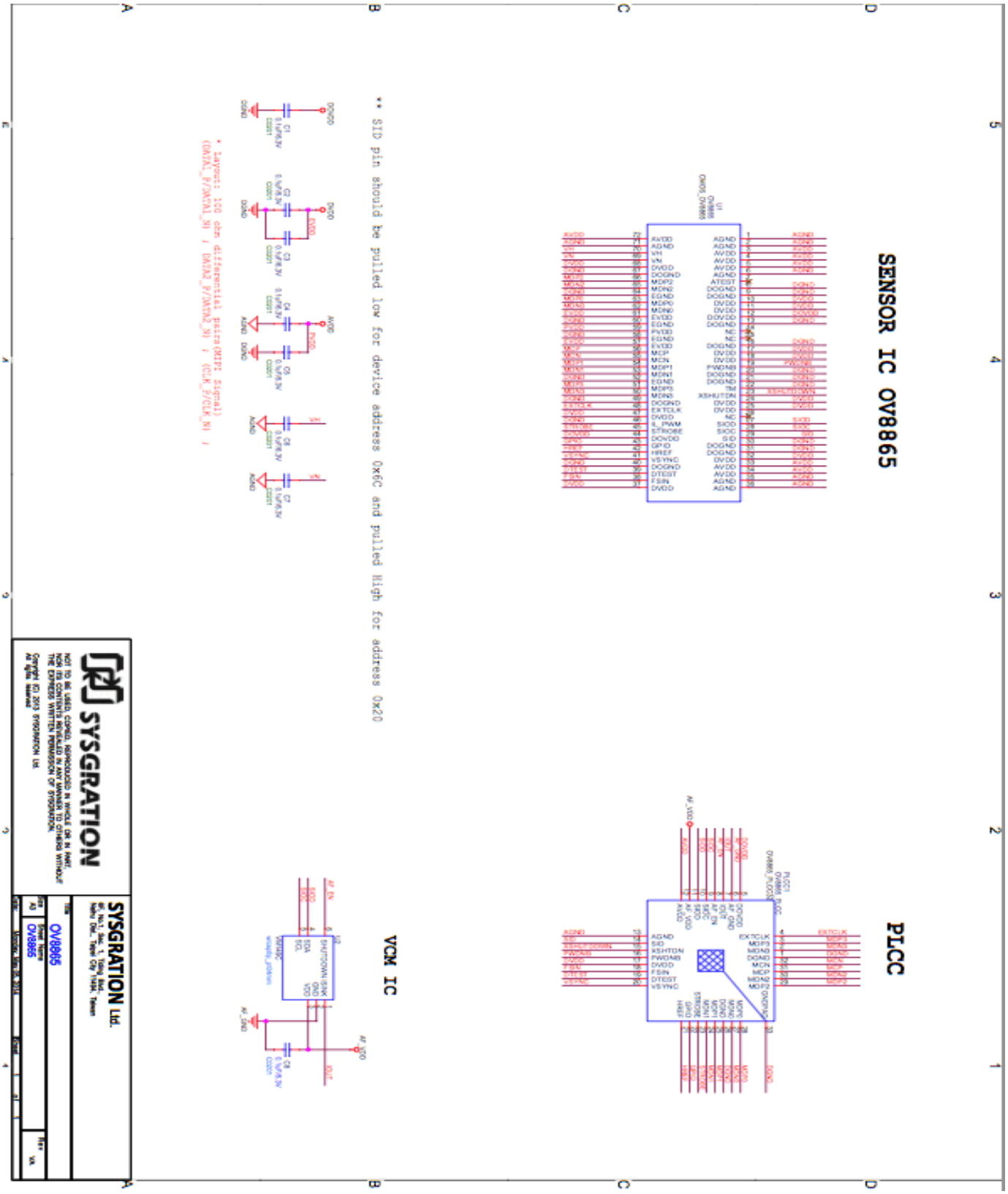
7. Pin Description

Pin Number	Name	Pin type	Function/Description
Pin 1#	DGND	Ground	Ground for digital circuit
Pin 2#	MDN3	Output	MIPI output(DATA-)
Pin 3#	MDP3	Output	MIPI output(DATA+)
Pin 4#	EXTCLK	Input	System input clock
Pin 5#	DOVDD	Power	Power for I/O circuit
Pin 6#	AF_GND	Ground	Ground for VCM
Pin 7#	IOUT	Input	VCM Sink circuit
Pin 8#	AF_EN	Input	VCM enable
Pin 9#	SIOC	Input	SCCB interface input clock
Pin 10#	SIOD	I/O	SCCB interface data pin
Pin 11#	AF_VDD	Power	Power for VCM
Pin 12#	AVDD	Power	Power for analog circuit
Pin 13#	AGND	Ground	Ground for analog circuit
Pin 14#	SID	Input	SCCB last bit ID input
Pin 15#	XSHUTDN	Input	Reset and power down (active low with pull down resistor)
Pin 16#	PWDNB	Input	Power down (active low)
Pin 17#	DVDD	Power	Power for digital circuit
Pin 18#	FSIN	I/O	Frame sync
Pin 19#	DTEST	I/O	Internal test pad, tie to ground
Pin 20#	VSYNC	I/O	VSYNC output
Pin 21#	HREF	I/O	Video output horizontal signal
Pin 22#	GPIO	I/O	General purpose I/O
Pin 23#	STROBE	Output	Frame exposure output indicator
Pin 24#	MDN1	Output	MIPI output(DATA-)
Pin 25#	MDP1	Output	MIPI output(DATA+)
Pin 26#	DGND	Ground	Ground for digital circuit
Pin 27#	MDN0	Output	MIPI output(DATA-)
Pin 28#	MDP0	Output	MIPI output(DATA+)
Pin 29#	MDP2	Output	MIPI output(DATA+)
Pin 30#	MDN2	Output	MIPI output(DATA-)
Pin 31#	MCP	Output	MIPI clock+ output
Pin 32#	MCN	Output	MIPI clock- output

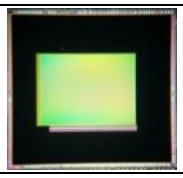
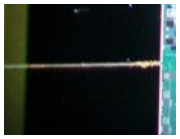
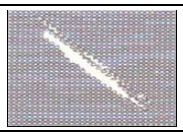
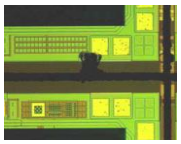
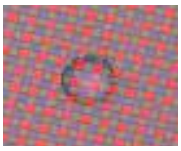
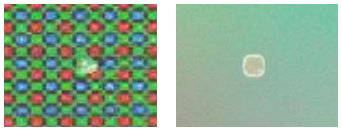
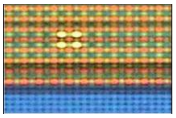
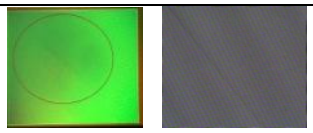
8. DAM Specification



9. Schematic


SENSOR IC OV8865
PLCC
VCM IC
** SID pin should be pulled low for device address 0x6C and pulled High for address 0x20
SYSGRATION
SYSGRATION Ltd.
OV8865

10. Visual Inspection Criteria

Visual Inspection Item	Photo	Specification to Adjust
Acceptable		No contamination, scratch, crack or flow mark on lens surface visible to naked eyes at 30cm distance.
Sensor Scratch		Reject.
Circuit Scratch		Accepted only if no image damage, otherwise reject.
Micro-lens defect		Reject.
Chipping/Broken		Accepted only if no image damage, otherwise reject.
Sensor Contamination		Size < 2x2 – Accepted. Size in (2x2 ~ 4x4), count < 4 pcs – Accepted. Size > 4x4 – Reject.
Sensor Contamination		Ditto
Foreign Object		Ditto
Pixel Defect		Ditto
Development Defect		Accepted only if no image damage, otherwise reject.
Water Mark or Sensor Stripe		Accepted only if no image damage, otherwise reject.

11. Reliability Test

NO.	Test Item	Test Condition
1	High Temperature/ Humidity & Low Temperature Operating Test	-15 ℃:4H→55℃、95%RH:4H
2	Life Test	Total test time are 9 days (216 hrs),The first day (24 hrs) perform a function test every 2 hrs, The second day(25~48 hrs) perform a function test every 4 hrs, The third days and after (49 ~216 hrs) perform a function test every 8~12 hrs
3	High Temperature/Humidity & Low Temperature Storage Test	-35 ℃:72H→60℃、95%RH:72H
4	Thermal Shock Test	(-30℃ 1hrs→ -30℃~70℃ <5min→+70℃ 1hrs→ +70℃~-30℃ <5min) X 12cycles
5	Vibration test (Not applicable for PLCC)	10~55~10Hz frequency; The amplitude of vibration :2mm; Each direction (XYZ) duration for 10±0.5 minutes
6	Drop Test (Not applicable for PLCC)	1.2M / one corner, three side and six face Total:2cycles (20times)
7	Pull In & Pull Out Test (Not applicable for PLCC)	Total 20 times, and perform a function test after each five times.
8	Electrostatic Discharge Test (Not applicable for PLCC)	Air discharge is ±12KV,Contact discharge is ±8 KV
9	FPC bending test (Not applicable for PLCC)	Fold the FPC cable as +/-60~80degree from PCB side to connector side; Total test cycles: 100 times

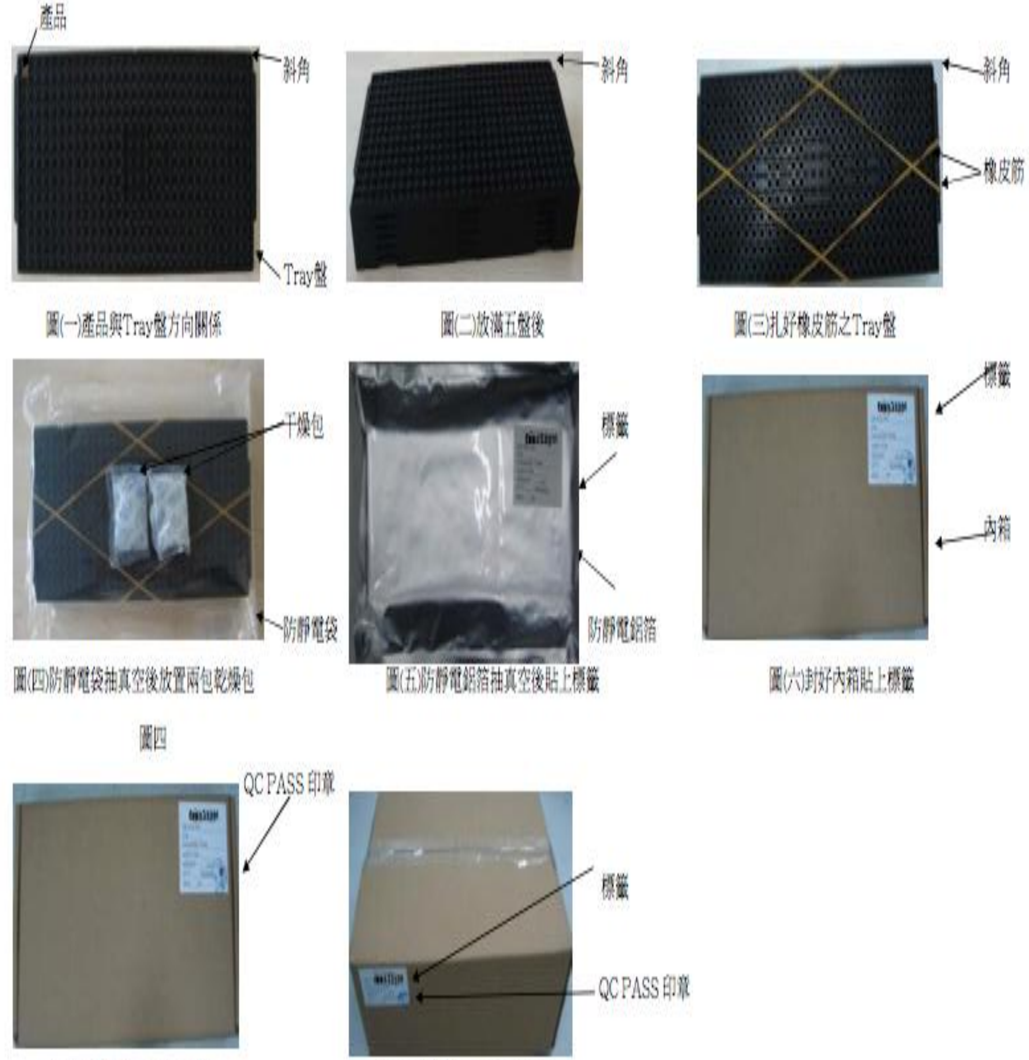
12. Package

操作內容：

1. 取 Tray盤放置於工作台上,Tray盤印刷字體面朝上,斜角在右上角,Tray盤放置好後取產品放置Tray盤上，產品人像標誌之箭頭朝上,如右圖(一)放置;
2. 產品放滿一盤後,疊第二個Tray盤於第一個Tray盤之上,擺滿第二盤後,再疊第三個Tray盤,如此累計擺滿五盤後,疊第六個Tray盤,但是第六個Tray盤無需擺產品,如右圖(二)放置好;
3. 將放好產品之Tray盤扎上橡皮筋,如右圖(三);
4. 將扎好橡皮筋之Tray盤放入防靜電袋內,封口抽真空後放上兩包乾燥包,如右圖(四)
5. 將放好乾燥包之產品放入防靜電鋁箔內,封口後再抽真空,如右圖(五)貼上標籤;
6. 將已真空包裝產品放入內箱,封好內箱貼上標籤,如圖示(六);
7. QC確認後在內箱上蓋QC PASS印章,如圖示(七);
8. 將裝滿產品的6個內箱裝入外箱中，貼上標籤，經QC確認後在外箱上蓋QC PASS印章如圖（八）;
9. 入庫。

NOTE:

＊ Tray盤放置產品時，一定要保持產品方向一致!



圖(一)產品與Tray盤方向關係

圖(二)放滿五盤後

圖(三)扎好橡皮筋之Tray盤

圖(四)防靜電袋抽真空後放置兩包乾燥包

圖(五)防靜電鋁箔抽真空後貼上標籤

圖(六)封好內箱貼上標籤

圖四

圖(七) 內箱蓋QC PASS印章

圖(八) 外箱蓋QC PASS印章