



UVG6

Uncooled Thermal Imaging Module

User Manual

V1.3



CONTENT

1. Product Introduction.....	1
1.1. Description	1
1.2. Features	1
1.3. Typical Applications	1
2. Product Selection.....	1
3. Technical Specifications.....	2
4. Interface Description	3
4.1. Standard Interfaces (CVBS+USB2.0)	3
5. Typical Structural Size	5
5.1. UVG6-0041A (Standard interface board, with 4.1mm fixed athermal lens)	5
5.2. UVG6-0068A (Standard interface board, with 6.8mm fixed athermal lens)	5

1. Product Introduction

1.1. Description

The UVG6 uncooled thermal imaging module integrates a new-generation wafer-level packaged 640×512 VOx infrared detector together with the latest image processing algorithms, delivering clear, stable, and highly detailed thermal images.

Featuring an ultra-compact mechanical design, the module measures only 17 × 17 mm. It offers low power consumption, rich interface options, strong expandability, and easy integration, making it ideal for rapid deployment into various compact and lightweight electro-optical systems. Its small form factor helps significantly reduce overall system size while enhancing design flexibility and integration efficiency.

The UVG6 module is well suited for a wide range of applications, including handheld thermal imagers, ADAS automobile driving assistance system, public security and surveillance systems, industrial inspection equipment, outdoor observation devices, and other embedded infrared imaging applications.

1.2. Features

- Outstanding Thermal Imaging Performance
- Low Power Consumption
- Multiple Video Output Formats Supported
- External Synchronization Input Supported
- 16-bit RAW Data Output Available
- Highly Expandable Architecture with Flexible Interface Options

1.3. Typical Applications

- Handheld thermal imagers
- ADAS automobile driving assistance system
- Security and surveillance system
- Outdoor Observation and Night Vision Applications

2. Product Selection

UVG6	0041	A	UV
Serial Name	Focal Length	Focusing Mode	Video Output
640*512	0000: No lens 0041: 4.1mm 0091: 9.1mm	N: No Lens A: Fixed Athermalized	CB: CVBS MP: MIPI UV: USB B6: BT656

3. Technical Specifications

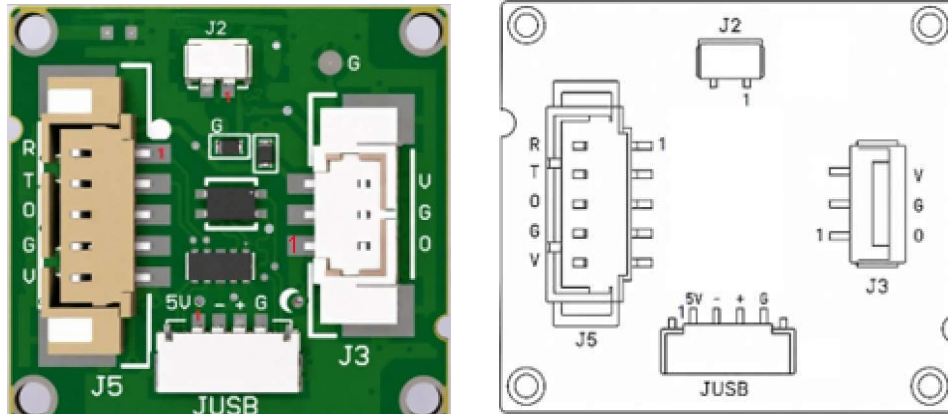
Detector	VOx uncooled microbolometer
Resolution/Pixel size	640×512 / 12μm
Spectral Range	8μm ~ 14μm
NETD	≤40mK@F1.0, 25°C
Frame Rate	50Hz (optional 60Hz)
Thermal Time Constant	< 12ms
Typical Lens Options	4.1/4.6/6.8/9.1/13/15/19mm, etc.
NUC Correction	Manual/Auto shutter correction
Brightness/Contrast	Manual/Auto Adjustment
Image Denoising/DDE	Adjustable
Dead-pixel Correction	Support
Digital Zoom	1× ~ 8×
Image Mirroring	Vertical/Horizontal/Diagonal
Image Palettes	White Hot/Black Hot/Various Pseudo-color modes
Analog Video Output	CVBS
Digital Video Output	USB2.0 (MIPI, BT656 customizable)
Power Supply	CVBS/MIPI: DC6-15V; USB2.0: DC5V
Typical Consumption	≤ 0.6W
Communication	UART (RS232/RS422/RS485 customizable)
Size	≤ 17.3mm×17.3mm× 23.5mm (without lens)
Weight	≤ 28g (without lens)
Humidity	5%RH~95%RH, non-condensing
Working Temperature	-40°C~+60°C
Storage Temperature	-50°C~+70°C
Vibration	6.06g, random vibration, all axes
Shock	80g@4ms, half-sine pulse, 3 axes & 6 directions
Extensible Functions	Crosshair, hot spot tracking, external sync., RAW16 output

Note: All above parameters are measured under laboratory conditions. Actual specifications and test methods shall be subject to the test report.

4. Interface Description

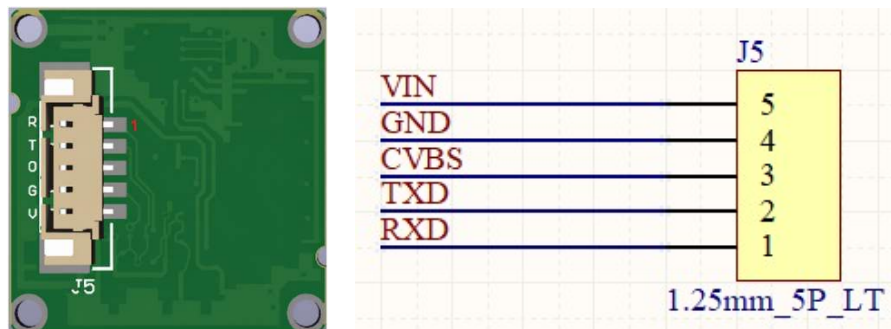
4.1. Standard Interfaces (CVBS+USB2.0)

The standard interface board of the UVG6 infrared thermal imaging module is equipped with CVBS analog video output (5-pin and 3-pin options available) and USB 2.0 digital video output. It also features an external synchronization input interface (optional, not pre-soldered at factory by default).



4.1.1. Standard CVBS Output (J5)

The standard CVBS analog video output interface (PAL format by default) adopts vertically mounted 1.25mm 5-pin connector.

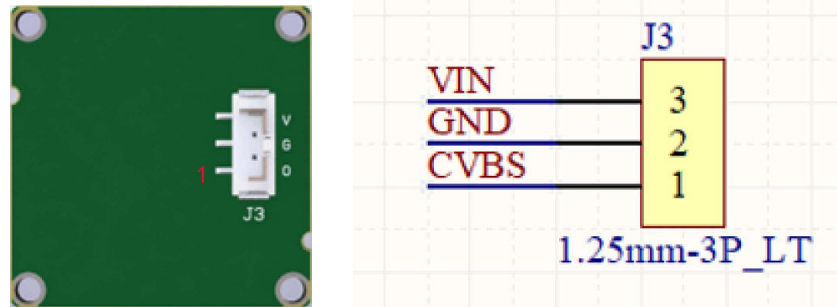


1.25mm-5P connector pin definition

Pin No.	Pin Name	Type	Description
1 (R)	RXD	Input	UART, 3.3V logic level
2 (T)	TXD	Output	
3 (O)	CVBS	Output	Analog Video, PAL
4 (G)	GND	Power	GROUND
5 (V)	VIN	Power	Power in 6~15V

4.1.2. Spare CVBS Output (J3)

The standard interface board also comes with a spare CVBS analog video output interface (PAL format by default), fitted with a vertically mounted 1.25 mm 3-pin connector.

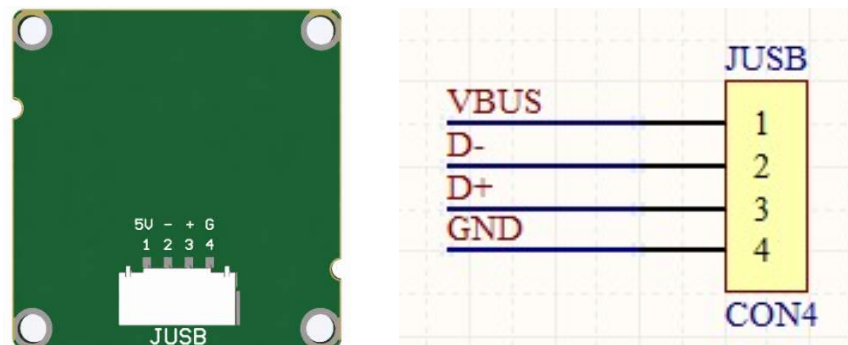


1.25mm-3P connector pin definition

Pin No.	Pin Name	Type	Description
1 (O)	CVBS	Output	Analog Video, PAL
2 (G)	GND	Power	GROUND
3(V)	VIN	Power	Power in 6~15V

4.1.3. USB2.0 Output (JUSB)

The USB 2.0 video output interface adopts a horizontally mounted 0.8 mm 4-pin connector, which supports the UVC video protocol and driver-free.

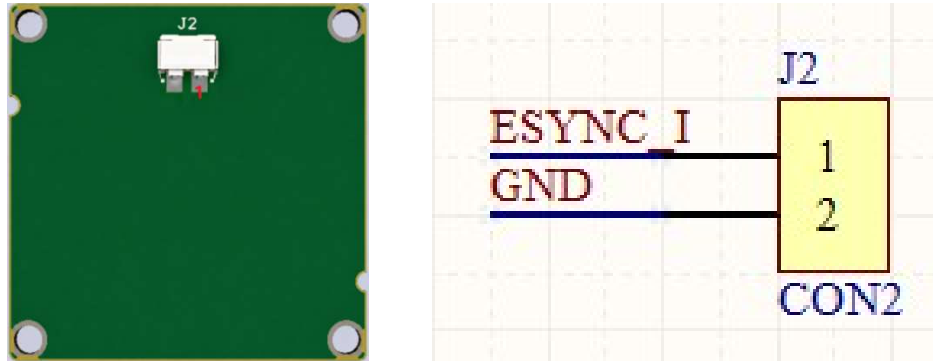


0.8mm-4P connector pin definition

Pin No.	Pin Name	Type	Description
1	VBUS	Power	USB Power in 5V
2	USB_D-	Output	USB2.0 data signal
3	USB_D+	Output	
4	GND	Power	GROUND

4.1.4. External Synchronization Interface (J2, reserved)

The standard interface board reserves an external synchronization input interface, which uses a horizontally mounted 0.8 mm 2-pin connector.

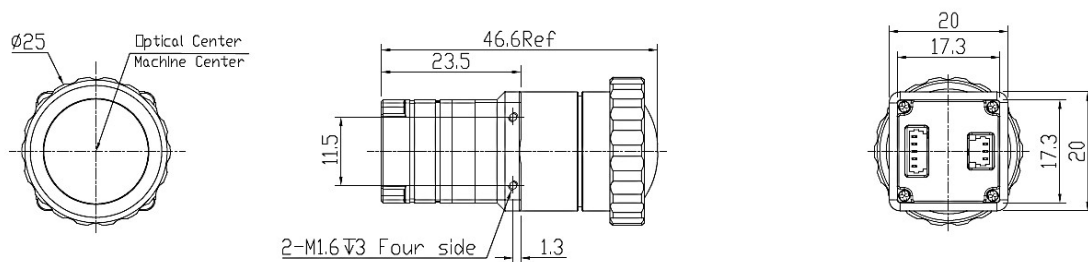


0.8mm-2P connector pin definition

Pin No.	Pin Name	Type	Description
1	ESYNC_I	Signal	External Synchronization Input
2	GND	Power	GROUND

5. Typical Structural Size

5.1. UVG6-0041A (Standard interface board, with 4.1mm fixed athermal lens)



5.2. UVG6-0068A (Standard interface board, with 6.8mm fixed athermal lens)

