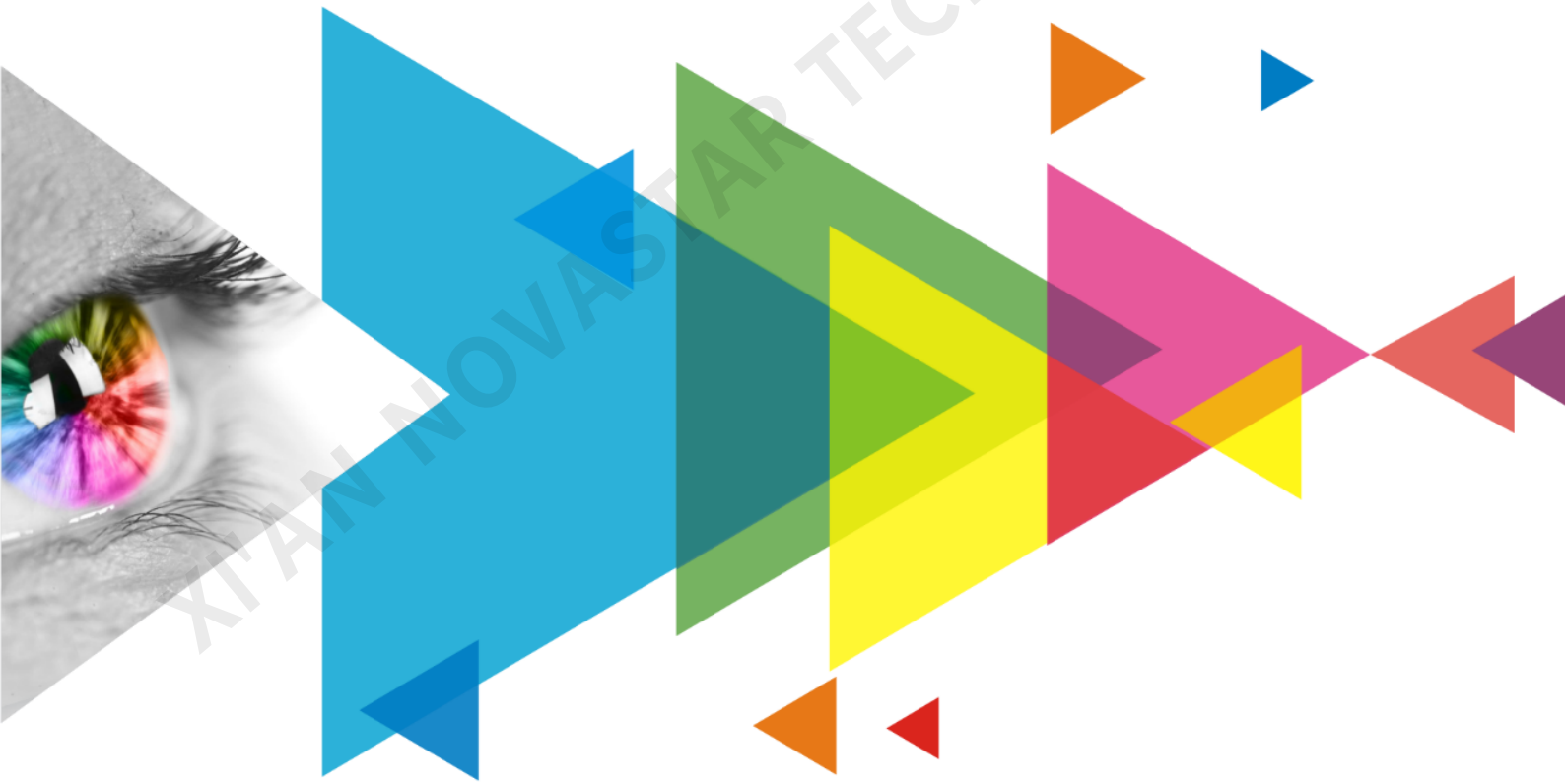
MRV210

Receiving Card

V2.2.1



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Specifications

Change History

Document Version	Release Date	Description
V2.2.1	2020-09-18	• Optimized the product introduction. • Optimized the feature description. • Optimized the legends in the appearance diagram. • Optimized the indicator description. • Optimized the dimensions diagram.
V2.2.0	2019-08-22	• Optimized the pin definitions. • Updated the appearance diagram. • Updated the dimensions diagram.

Introduction

The MRV210 is a general receiving card developed by NovaStar. A single MRV210 loads up to 256×256 pixels. Supporting various functions such as pixel level brightness and chroma calibration, and 3D, the MRV210 can greatly improve the display effect and user experience.

The MRV210 uses 4 hub connectors for communication, resulting in high stability. It supports up to 24 groups of parallel RGB data or 64 groups of serial data. Thanks to its EMC Class A compliant hardware design, the MRV210 is suitable to various on-site setups.

Features

Improvements to Display Effect

- Pixel level brightness and chroma calibration
  Working with NovaLCT and NovaCLB, the receiving card supports brightness and chroma calibration on each LED, which can effectively remove color discrepancies and greatly improve LED display brightness and chroma consistency, allowing for better image quality.
- 3D function
  Working with the sending card that supports 3D function, the receiving card supports 3D image output.

Improvements to Maintainability

- Setting of a pre-stored image in receiving card
  The image displayed on the screen during startup, or displayed when the Ethernet cable is disconnected or there is no video signal can be customized.
- Temperature and voltage monitoring
  The receiving card temperature and voltage can be monitored without using peripherals.
- Cabinet LCD
  The LCD module of the cabinet can display the temperature, voltage, single run time and total run time of the receiving card.
- Configuration parameter readback
  The receiving card configuration parameters can be read back and saved to the local computer.

Improvements to Reliability

- Loop backup
  The receiving card and sending card form a loop via the main and backup line connections. If a fault occurs at a location of the lines, the screen can still display the image normally.
- Dual backup of the application program
  Two copies of the application program are stored in the receiving card at the factory to avoid the problem that the receiving card may get stuck due to program update exception.

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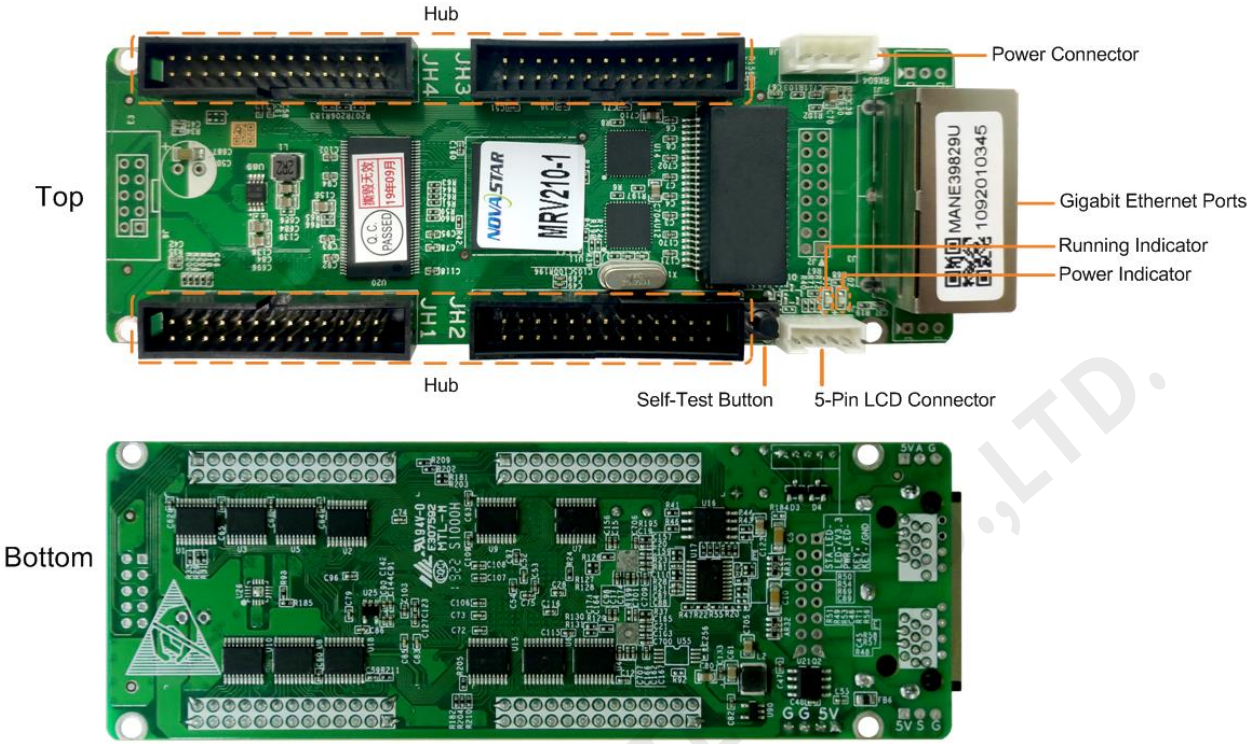
Appearance



All product pictures shown in this document are for illustration purpose only. Actual product may vary.

Table 1-1 Connector description

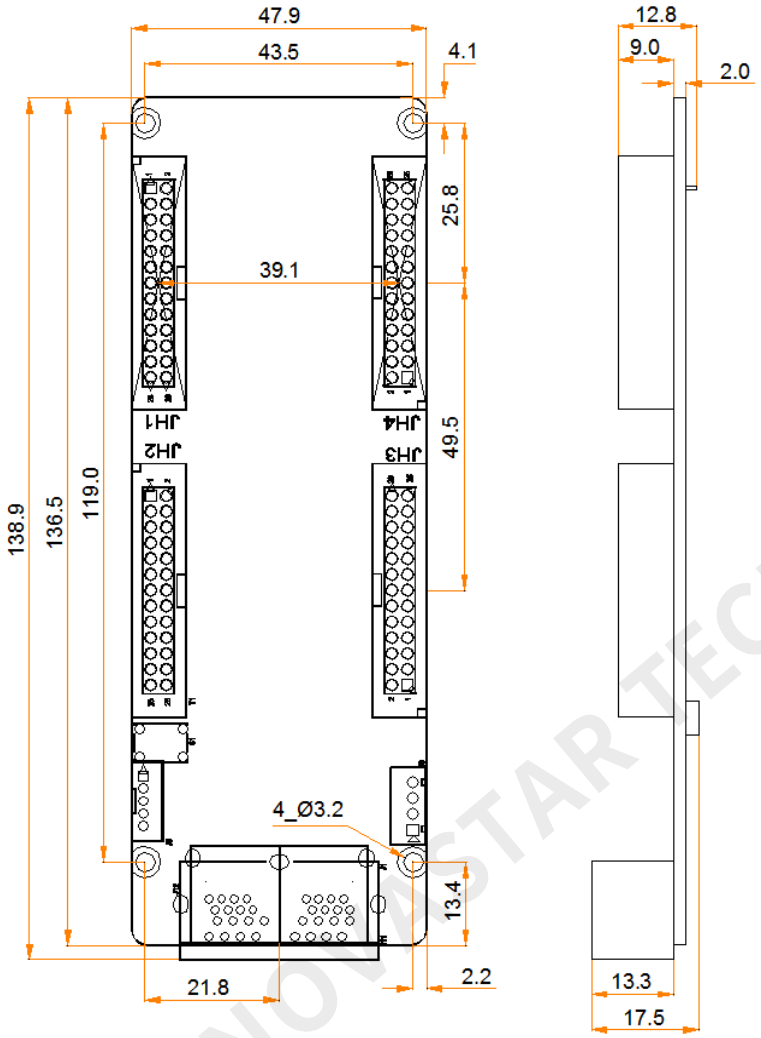
Name	Packaging	Description
Power connector	XH-4A	4-Pin header, 2.54 mm pitch
	XH-4Y	4-Pin terminal, 2.54 mm pitch, purchased by the customer
5-Pin LCD connector	PH-5A	5-Pin header, 2.0 mm pitch
	PH-5Y	5-Pin terminal, 2.0 mm pitch, purchased by the customer

Indicators

Indicator	Color	Status	Description
Running indicator	Green	Flashing once every 1s	The receiving card is functioning normally. Ethernet cable connection is normal, and video source input is available.
		Flashing once every 3s	Ethernet cable connection is abnormal.
		Flashing 3 times every 0.5s	Ethernet cable connection is normal, but no video source input is available.
		Flashing once every 0.2s	The receiving card failed to load the program in the application area and now is using the backup program.
		Flashing 8 times every 0.5s	A redundancy switchover occurred on the Ethernet port and the loop backup has taken effect.
Power indicator	Red	Always on	The power supply is normal.

Dimensions

The board thickness is not greater than 2.3 mm, and the total thickness (board thickness + thickness of components on the top and bottom sides) is not greater than 18.0 mm. Ground connection (GND) is enabled for mounting holes.



Tolerance: ±0.1 Unit: mm

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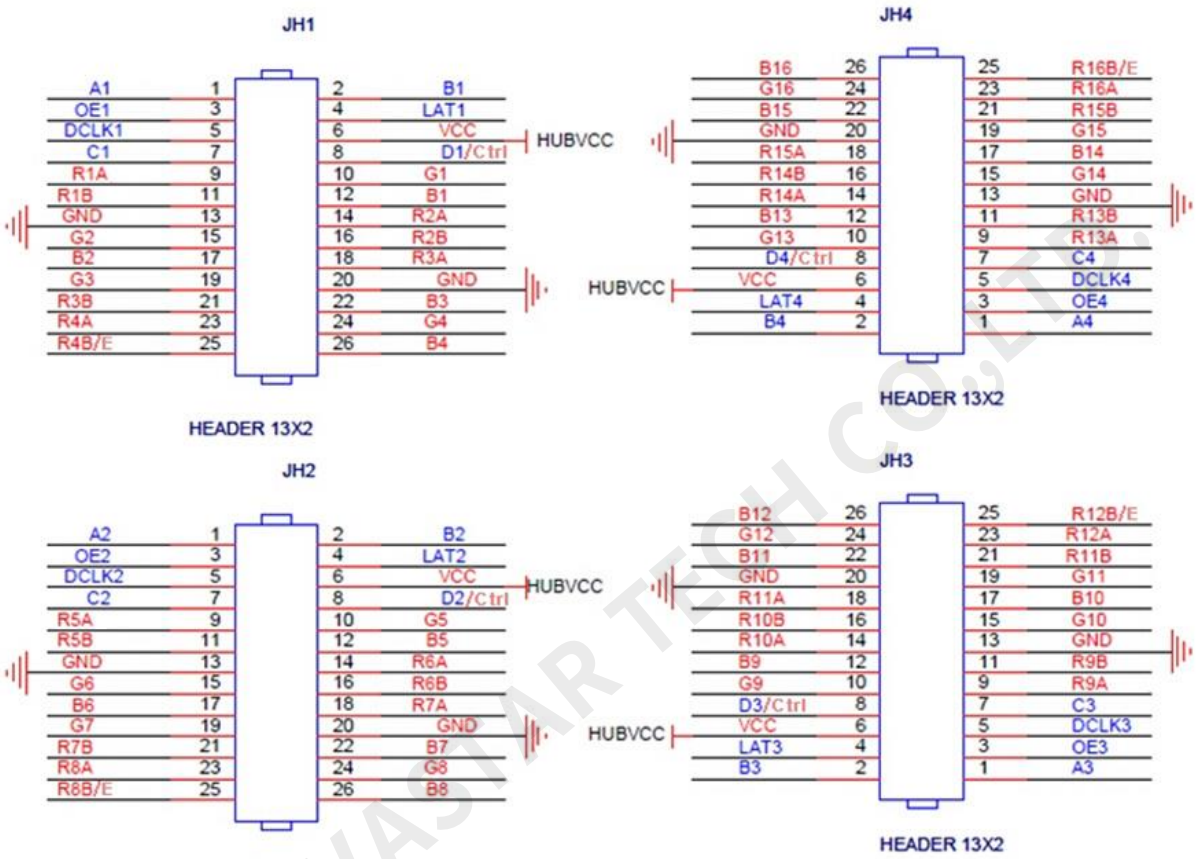
Pins

16 Groups of Parallel RGBR' Data

This mode supports 1/32 scan. The R4B, R8B, R12B and R16B can be reused as the E signal.



Pin Definitions (Take JH1 as an example)					
Line decoding signal	A1	1	2	B1	Line decoding signal
Display enable signal	OE1	3	4	LAT1	Latch signal
Shift clock signal	DCLK1	5	6	VCC	Reserved 3.3 V output pin with a maximum output current of 50 mA
Line decoding signal	C1	7	8	D1/Ctrl	Line decoding signal
/	R1A	9	10	G1	/
/	R1B	11	12	B1	/
Ground	GND	13	14	R2A	/
/	G2	15	16	R2B	/
/	B2	17	18	R3A	/
/	G3	19	20	GND	Ground
/	R3B	21	22	B3	/
/	R4A	23	24	G4	/
/	R4B/E	25	26	B4	/

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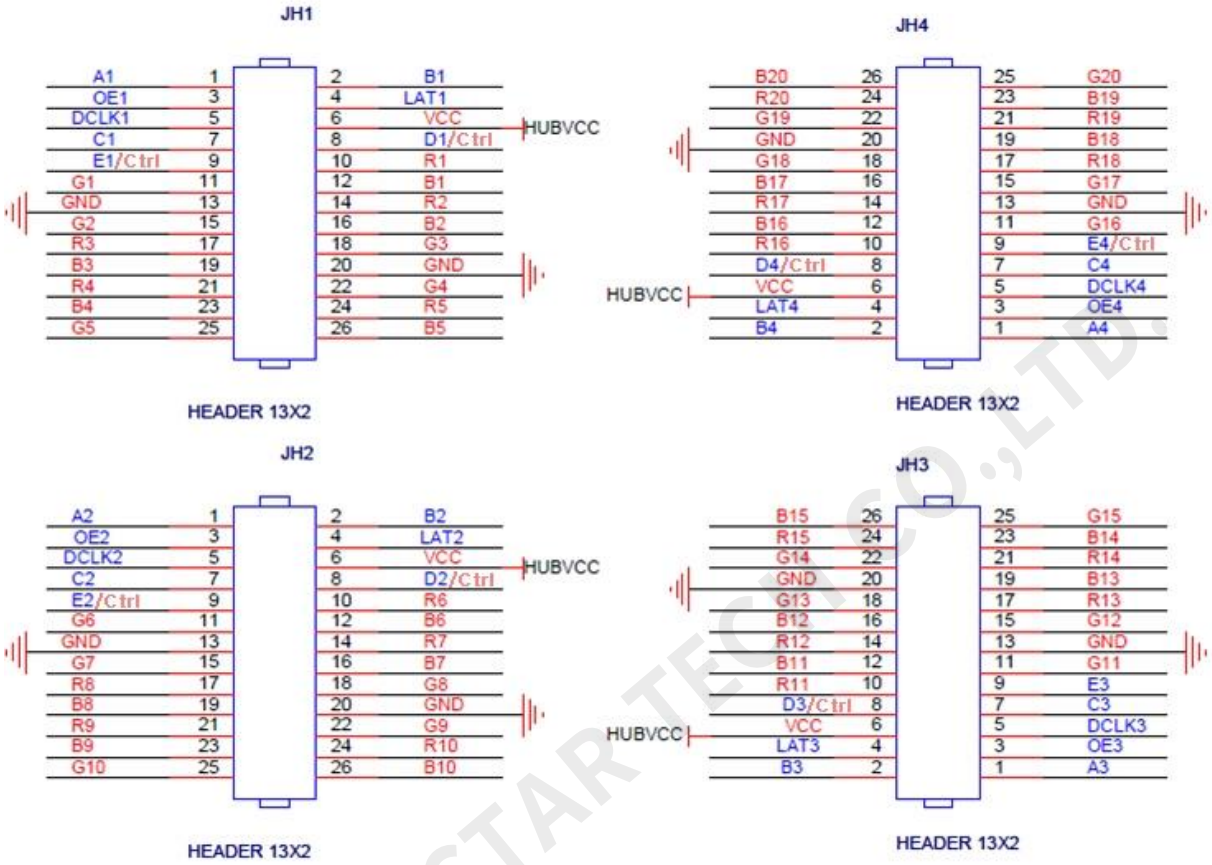
20 Groups of Parallel RGB Data

This mode uses 1/16 scan. Pin 9 outputs the Ctrl signal.



Pin Definitions (Take JH1 as an example)					
Line decoding signal	A1	1	2	B1	Line decoding signal
Display enable signal	OE1	3	4	LAT1	Latch signal
Shift clock signal	DCLK1	5	6	VCC	Reserved 3.3 V output pin with a maximum output current of 50 mA
Line decoding signal	C1	7	8	D1/Ctrl	Line decoding signal
Line decoding signal	E1/Ctrl	9	10	R1	/
/	G1	11	12	B1	/
Ground	GND	13	14	R2	/
/	G2	15	16	B2	/
/	R3	17	18	G3	/
/	B3	19	20	GND	Ground
/	R4	21	22	G4	/
/	B4	23	24	R5	/
/	G5	25	26	B5	/

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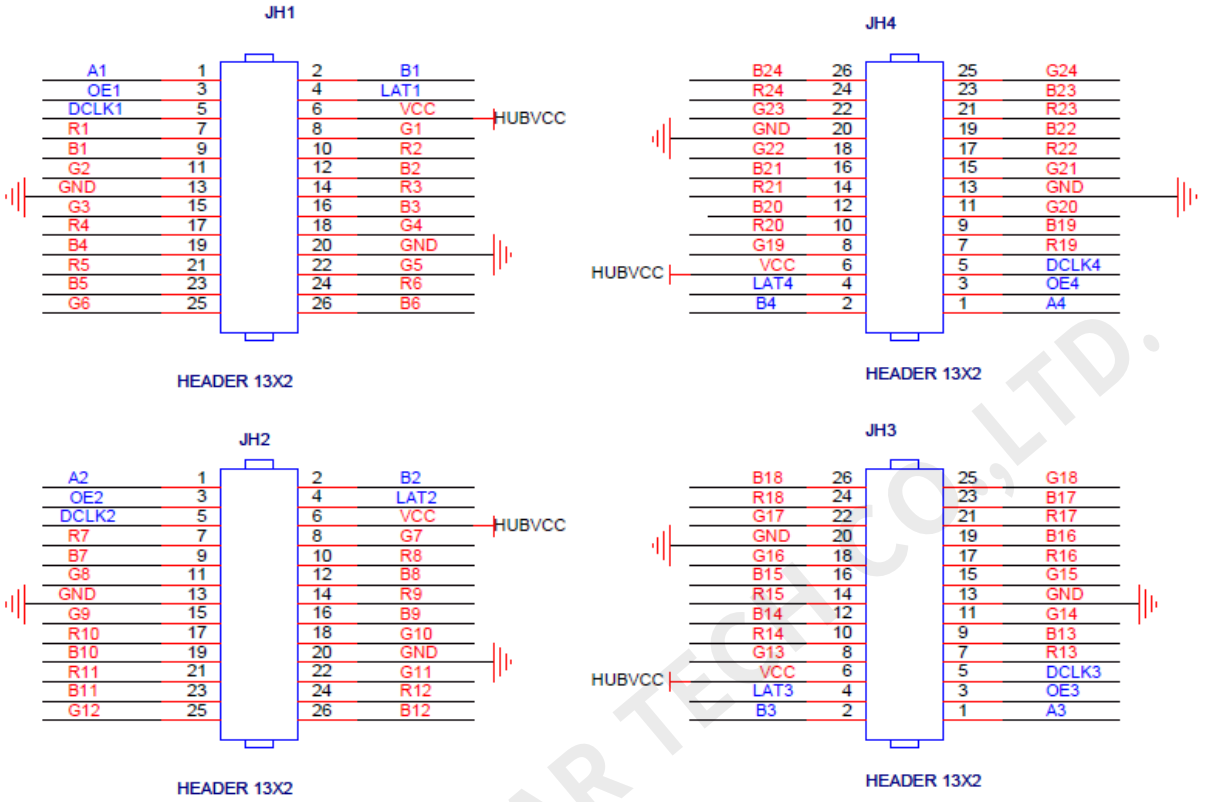
24 Groups of Parallel RGB Data

This mode supports 1/4 scan only.



Pin Definitions (Take JH1 as an example)					
Line decoding signal	A1	1	2	B1	Line decoding signal
Display enable signal	OE1	3	4	LAT1	Latch signal
Shift clock signal	DCLK1	5	6	VCC	Reserved 3.3 V output pin with a maximum output current of 50 mA
/	R1	7	8	G1	/
/	B1	9	10	R2	/
/	G2	11	12	B2	/
Ground	GND	13	14	R3	/
/	G3	15	16	B3	/
/	R4	17	18	G4	/
/	B4	19	20	GND	Ground
/	R5	21	22	G5	/
/	B5	23	24	R6	/
/	G6	25	26	B6	/

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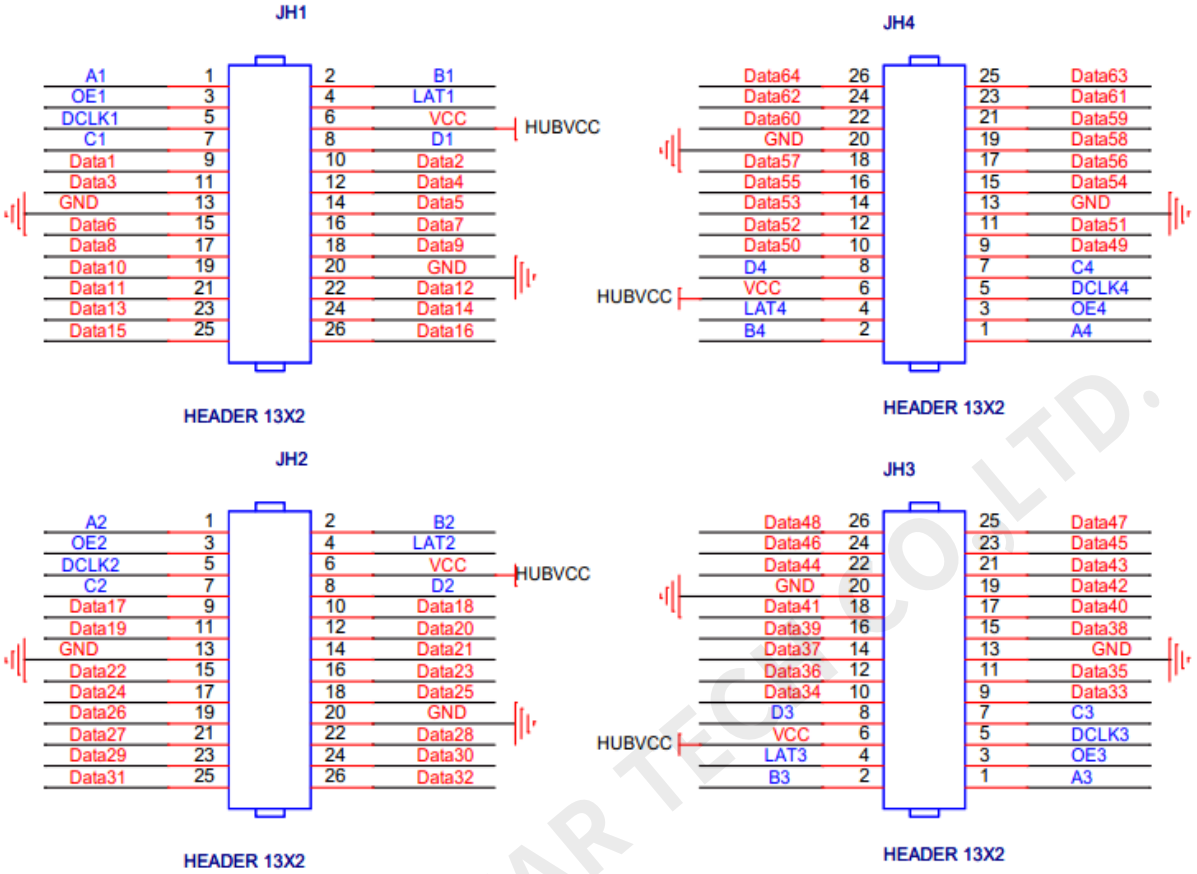
64 Groups of Serial Data



Pin Definitions (Take JH1 as an example)					
Line decoding signal	A1	1	2	B1	Line decoding signal
Display enable signal	OE1	3	4	LAT1	Latch signal
Shift clock signal	DCLK1	5	6	VCC	Reserved 3.3 V output pin with a maximum output current of 50 mA
Line decoding signal	C1	7	8	D1	Line decoding signal
/	Data1	9	10	Data2	/
/	Data3	11	12	Data4	/
Ground	GND	13	14	Data5	/
/	Data6	15	16	Data7	/
/	Data8	17	18	Data9	/
/	Data10	19	20	GND	Ground
/	Data11	21	22	Data12	/
/	Data13	23	24	Data14	/
/	Data15	25	26	Data16	/

Specifications

Maximum Loading Capacity	256 × 256 pixels	
Electrical Specifications	Input voltage	DC 3.3 V to 5.5 V
	Rated current	0.5 A
	Rated power consumption	2.5 W
Operating	Temperature	–20°C to +70°C

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Environment	Humidity	10% RH to 90% RH, non-condensing
Storage Environment	Temperature	–25°C to +125°C
	Humidity	0% RH to 95% RH, non-condensing
Physical Specifications	Dimensions	138.9 mm × 47.9 mm × 17.5 mm
	Net weight	58.4 g
Packing Information	Packing specifications	An antistatic bag and anti-collision foam are provided for each receiving card. Each packing box contains 100 receiving cards.
	Packing box dimensions	650.0 mm × 500.0 mm × 200.0 mm
Certifications	RoHS, EMC Class A	

The amount of current and power consumption may vary depending on factors such as product settings, usage, and environment.

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