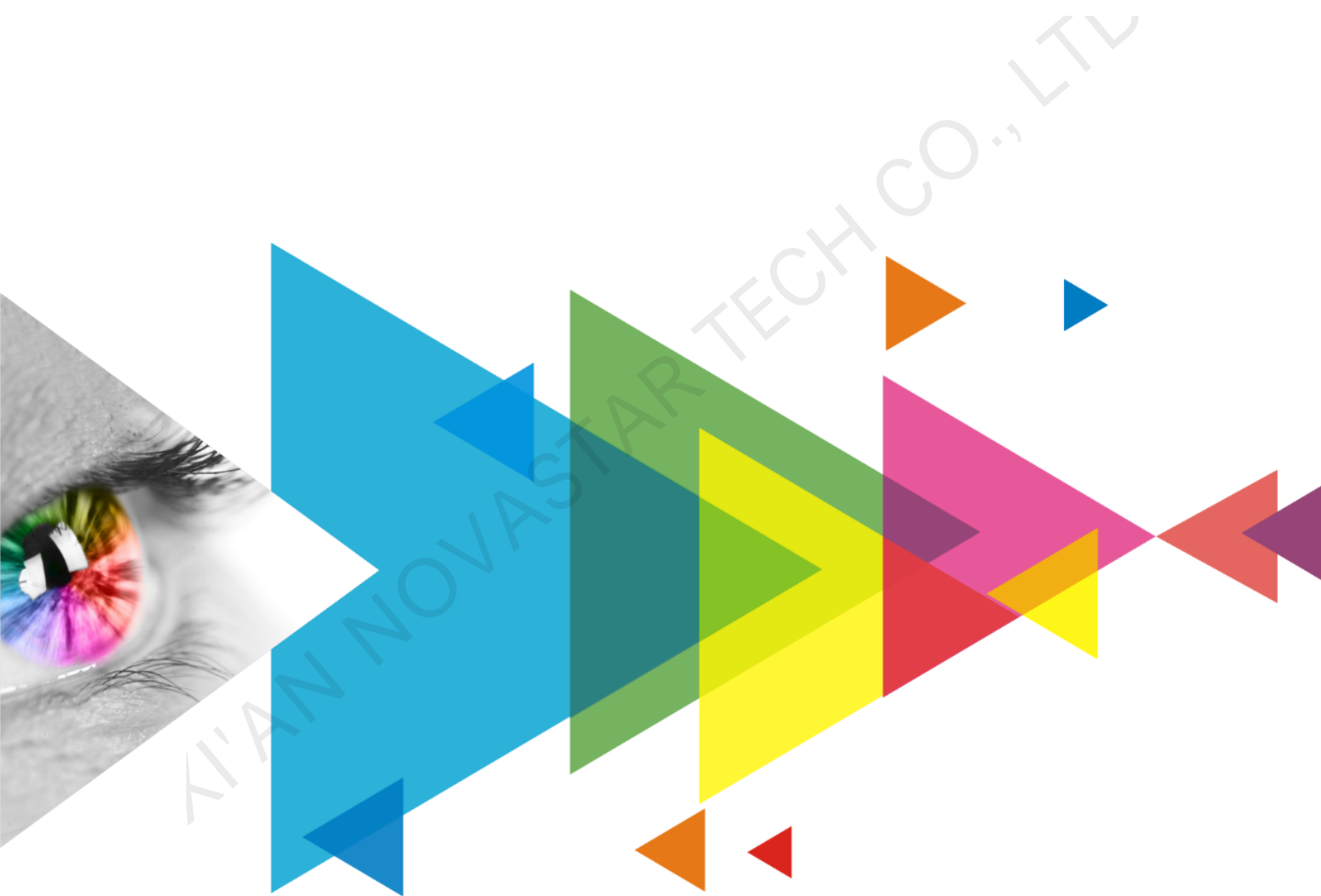


MRV432

Receiving Card



Specifications

Change History

Document Version	Release Date	Description
V1.1.0	2022-12-27	<ul style="list-style-type: none"> • Added the table of appearance description. • Added the dimensions diagram description. • Updated the description of the maximum resolution. • Updated the appearance diagram. • Updated the dimensions diagram. • Updated the input voltage. • Updated the packing information.
V1.0.2	2021-12-03	<ul style="list-style-type: none"> • Updated the certification description. • Updated the description of features.
V1.0.1	2021-07-30	Added the certification related description.
V1.0.0	2021-03-25	First release

Introduction

The MRV432 is a general receiving card developed by developed by Xi'an NovaStar Tech Co., Ltd. (hereinafter referred to as NovaStar). For PWM driver ICs, a single MRV432 supports resolutions up to 512×512@60Hz. For common driver ICs, a single MRV432 supports resolutions up to 512×384@60Hz. Supporting various functions such as pixel level brightness and chroma calibration, quick adjustment of dark or bright lines, 3D, individual Gamma adjustment for RGB, and image rotation in 90° increments, the MRV432 can significantly improve the display effect and user experience.

The MRV432 uses 8 HUB320 connectors for communication. It supports up to 32 groups of parallel RGB data or 64 groups of serial data. Thanks to its EMC compliant hardware design, the MRV432 has improved electromagnetic compatibility and is suitable for various on-site setups.

Certifications

RoHS, EMC Class A

If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please contact NovaStar to confirm or address the problem. Otherwise, the customer shall be responsible for the legal risks caused or NovaStar has the right to claim compensation.

Features

Improvements to Display Effect

- Pixel level brightness and chroma calibration
Work with the high-precision calibration system to perform brightness and chroma calibration on each LED to effectively remove brightness differences and chroma differences, enabling high brightness consistency and chroma consistency.
- Quick adjustment of dark or bright lines
The dark or bright lines caused by splicing of modules or cabinets can be adjusted to improve the visual experience. The adjustment can be easily made and takes effect immediately.

- 3D
Working with the sending card that supports 3D function, the receiving card supports 3D output.
- Individual Gamma adjustment for RGB
Working with NovaLCT (V5.2.0 or later) and the sending card that supports this function, the receiving card supports individual adjustment of red Gamma, green Gamma and blue Gamma,

Improvements to Maintainability

- Mapping function
The cabinets can display the receiving card number and Ethernet port information, allowing users to easily obtain the locations and connection topology of receiving cards.
- 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.

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 configuration parameters
The receiving card configuration parameters are stored in the application area and factory area of the receiving card at the same time. Users usually use the configuration parameters in the

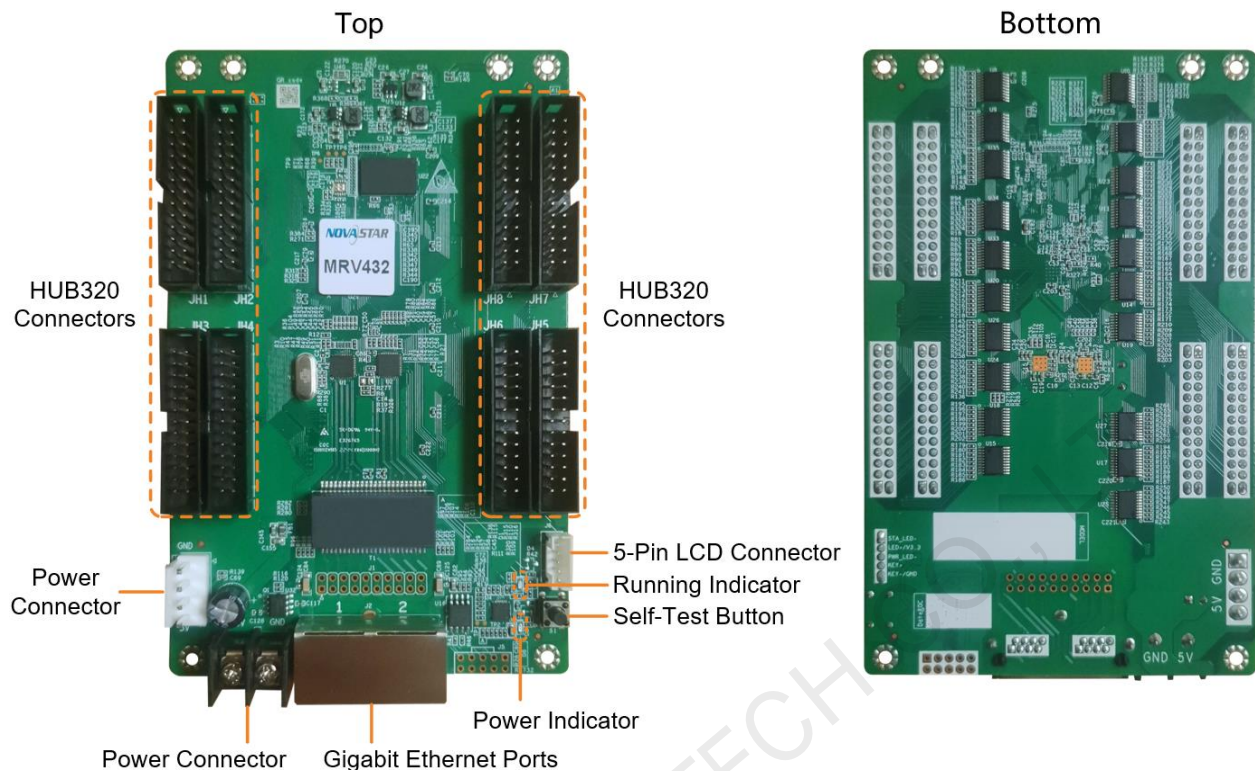
which can effectively control image non-uniformity under low grayscale and white balance offset, allowing for a more realistic image.

- Image rotation in 90° increments
The display image can be set to rotate in multiples of 90° (0°/90°/180°/270°).
- Bite error detection
The Ethernet port communication quality of the receiving card can be monitored and the number of erroneous packets can be recorded to help troubleshoot network communication problems.
NovaLCT V5.2.0 or later is required.
- Firmware program readback
The receiving card firmware program can be read back and saved to the local computer.
NovaLCT V5.2.0 or later is required.
- Configuration parameter readback
The receiving card configuration parameters can be read back and saved to the local computer.

application area. If necessary, users can restore the configuration parameters in the factory area to the application area.

- Dual program backup
Two copies of firmware program are stored in the application area of the receiving card at the factory to avoid the problem that the receiving card may get stuck abnormally during program update.

Appearance



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

Name	Description
HUB320 Connectors	Connect to the module.
Power Connector	Connect to the input power. Either of the connectors can be chosen.
Gigabit Ethernet Ports	Connect to the sending card, and cascade other receiving cards. Each connector can be used as input or output.
Self-Test Button	Set the test pattern. After the Ethernet cable is disconnected, press the button twice, and the test pattern will be displayed on the screen. Press the button again to switch the pattern.
5-Pin LCD Connector	Connect to the LCD.

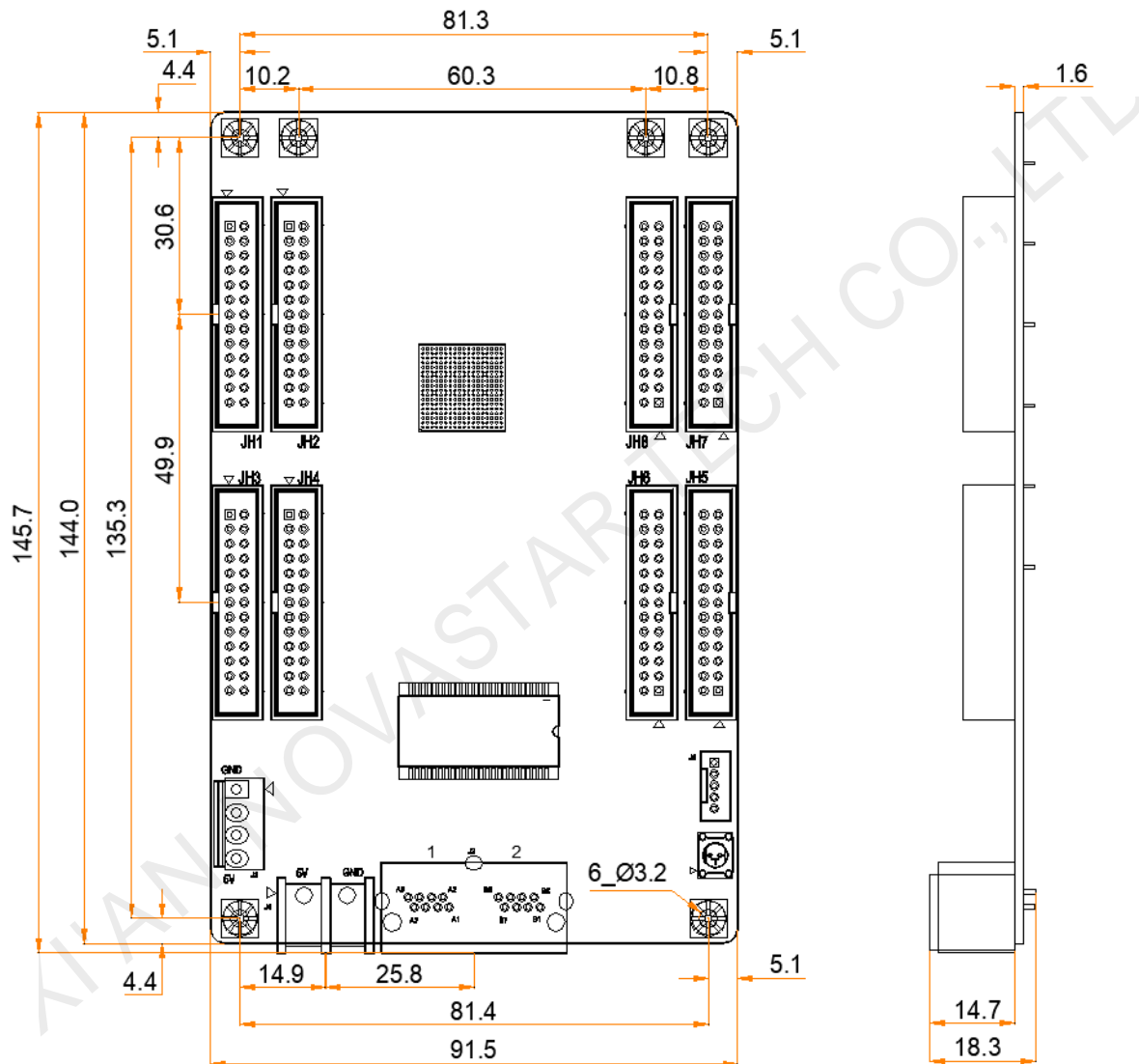
Indicators

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 is now using the backup program.

Indicator	Color	Status	Description
		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 input is normal.

Dimensions

The board thickness is not greater than 2.0 mm, and the total thickness (board thickness + thickness of components on the top and bottom sides) is not greater than 19.0 mm. Ground connection (GND) is enabled for mounting holes.



Tolerance: ± 0.3 Unit: mm

To make molds or trepan mounting holes, please contact NovaStar for a higher-precision structural drawing.

Pins

32 Groups of Parallel RGB Data

JH1					
R1	1	2	G1		
B1	3	4	GND		
R2	5	6	G2		
B2	7	8	GND		
R3	9	10	G3		
B3	11	12	GND		
R4	13	14	G4		
B4	15	16	GND		
HA1	17	18	HB1		
HC1	19	20	HD1		
HE1	21	22	GND		
HDCLK1	23	24	HLAT1		
HOE1	25	26	GND		

JH2					
R5	1	2	G5		
B5	3	4	GND		
R6	5	6	G6		
B6	7	8	GND		
R7	9	10	G7		
B7	11	12	GND		
R8	13	14	G8		
B8	15	16	GND		
HA2	17	18	HB2		
HC2	19	20	HD2		
HE2	21	22	GND		
HDCLK2	23	24	HLAT2		
HOE2	25	26	GND		

JH3					
R9	1	2	G9		
B9	3	4	GND		
R10	5	6	G10		
B10	7	8	GND		
R11	9	10	G11		
B11	11	12	GND		
R12	13	14	G12		
B12	15	16	GND		
HA3	17	18	HB3		
HC3	19	20	HD3		
HE3	21	22	GND		
HDCLK3	23	24	HLAT3		
HOE3	25	26	GND		

JH4					
R13	1	2	G13		
B13	3	4	GND		
R14	5	6	G14		
B14	7	8	GND		
R15	9	10	G15		
B15	11	12	GND		
R16	13	14	G16		
B16	15	16	GND		
HA4	17	18	HB4		
HC4	19	20	HD4		
HE4	21	22	GND		
HDCLK4	23	24	HLAT4		
HOE4	25	26	GND		

JH5					
R17	1	2	G17		
B17	3	4	GND		
R18	5	6	G18		
B18	7	8	GND		
R19	9	10	G19		
B19	11	12	GND		
R20	13	14	G20		
B20	15	16	GND		
HA5	17	18	HB5		
HC5	19	20	HD5		
HE5	21	22	GND		
HDCLK5	23	24	HLAT5		
HOE5	25	26	GND		

JH6					
R21	1	2	G21		
B21	3	4	GND		
R22	5	6	G22		
B22	7	8	GND		
R23	9	10	G23		
B23	11	12	GND		
R24	13	14	G24		
B24	15	16	GND		
HA6	17	18	HB6		
HC6	19	20	HD6		
HE6	21	22	GND		
HDCLK6	23	24	HLAT6		
HOE6	25	26	GND		

JH7					
R25	1	2	G25		
B25	3	4	GND		
R26	5	6	G26		
B26	7	8	GND		
R27	9	10	G27		
B27	11	12	GND		
R28	13	14	G28		
B28	15	16	GND		
HA7	17	18	HB7		
HC7	19	20	HD7		
HE7	21	22	GND		
HDCLK7	23	24	HLAT7		
HOE7	25	26	GND		

JH8					
R29	1	2	G29		
B29	3	4	GND		
R30	5	6	G30		
B30	7	8	GND		
R31	9	10	G31		
B31	11	12	GND		
R32	13	14	G32		
B32	15	16	GND		
HA8	17	18	HB8		
HC8	19	20	HD8		
HE8	21	22	GND		
HDCLK8	23	24	HLAT8		
HOE8	25	26	GND		

JH1-JH8					
/	R	1	2	G	/
/	B	3	4	GND	Ground
/	R	5	6	G	/
/	B	7	8	GND	Ground
/	R	9	10	G	/
/	B	11	12	GND	Ground
/	R	13	14	G	/
/	B	15	16	GND	Ground
Line decoding signal	HA	17	18	HB	Line decoding signal
Line decoding signal	HC	19	20	HD	Line decoding signal
Line decoding signal	HE	21	22	GND	Ground
Shift clock	HDCLK	23	24	HLAT	Latch signal
Display enable signal	HOE	25	26	GND	Ground

64 Groups of Serial Data

Data1	1	2	Data2
Data3	3	4	GND
Data4	5	6	Data5
Data6	7	8	GND
Data7	9	10	Data8
Data9	11	12	GND
Data10	13	14	Data11
Data12	15	16	GND
HA1	17	18	HB1
HC1	19	20	HD1
HE1	21	22	GND
HDCLK1	23	24	HLAT1
HOE1	25	26	GND

Data13	1	2	Data14
Data15	3	4	GND
Data16	5	6	Data17
Data18	7	8	GND
Data19	9	10	Data20
Data21	11	12	GND
Data22	13	14	Data23
Data24	15	16	GND
HA2	17	18	HB2
HC2	19	20	HD2
HE2	21	22	GND
HDCLK2	23	24	HLAT2
HOE2	25	26	GND

Data25	1	2	Data26
Data27	3	4	GND
Data28	5	6	Data29
Data30	7	8	GND
Data31	9	10	Data32
Data33	11	12	GND
Data34	13	14	Data35
Data36	15	16	GND
HA3	17	18	HB3
HC3	19	20	HD3
HE3	21	22	GND
HDCLK3	23	24	HLAT3
HOE3	25	26	GND

Data37	1	2	Data38
Data39	3	4	GND
Data40	5	6	Data41
Data42	7	8	GND
Data43	9	10	Data44
Data45	11	12	GND
Data46	13	14	Data47
Data48	15	16	GND
HA4	17	18	HB4
HC4	19	20	HD4
HE4	21	22	GND
HDCLK4	23	24	HLAT4
HOE4	25	26	GND

Data49	1	2	Data50
Data51	3	4	GND
Data52	5	6	Data53
Data54	7	8	GND
Data55	9	10	Data56
Data57	11	12	GND
Data58	13	14	Data59
Data60	15	16	GND
HA5	17	18	HB5
HC5	19	20	HD5
HE5	21	22	GND
HDCLK5	23	24	HLAT5
HOE5	25	26	GND

Data61	1	2	Data62
Data63	3	4	GND
Data64	5	6	NC
NC	7	8	GND
NC	9	10	NC
NC	11	12	GND
NC	13	14	NC
NC	15	16	GND
HA6	17	18	HB6
HC6	19	20	HD6
HE6	21	22	GND
HDCLK6	23	24	HLAT6
HOE6	25	26	GND

NC	1	2	NC
NC	3	4	GND
NC	5	6	NC
NC	7	8	GND
NC	9	10	NC
NC	11	12	GND
NC	13	14	NC
NC	15	16	GND
HA7	17	18	HB7
HC7	19	20	HD7
HE7	21	22	GND
HDCLK7	23	24	HLAT7
HOE7	25	26	GND

NC	1	2	NC
NC	3	4	GND
NC	5	6	NC
NC	7	8	GND
NC	9	10	NC
NC	11	12	GND
NC	13	14	NC
NC	15	16	GND
HA8	17	18	HB8
HC8	19	20	HD8
HE8	21	22	GND
HDCLK8	23	24	HLAT8
HOE8	25	26	GND

JH1-JH5					
/	Data	1	2	Data	/
/	Data	3	4	GND	Ground
/	Data	5	6	Data	/
/	Data	7	8	GND	Ground
/	Data	9	10	Data	/
/	Data	11	12	GND	Ground
/	Data	13	14	Data	/
/	Data	15	16	GND	Ground
Line decoding signal	HA	17	18	HB	Line decoding signal
Line decoding signal	HC	19	20	HD	Line decoding signal
Line decoding signal	HE	21	22	GND	Ground
Shift clock	HDCLK	23	24	HLAT	Latch signal
Display enable signal	HOE	25	26	GND	Ground

JH6					
/	Data	1	2	Data	/
/	Data	3	4	GND	Ground
/	Data	5	6	NC	/
/	NC	7	8	GND	Ground
/	NC	9	10	NC	/
/	NC	11	12	GND	Ground
/	NC	13	14	NC	/
/	NC	15	16	GND	Ground
Line decoding signal	HA	17	18	HB	Line decoding signal
Line decoding signal	HC	19	20	HD	Line decoding signal
Line decoding signal	HE	21	22	GND	Ground
Shift clock	HDCLK	23	24	HLAT	Latch signal
Display enable signal	HOE	25	26	GND	Ground

Specifications

Maximum Resolution	512×512@60Hz (PWM driver ICs) 512×384@60Hz (Common driver ICs)	
Electrical Specifications	Input voltage	DC 3.8 V to 5.5 V
	Rated current	0.5 A
	Rated power consumption	2.5 W
Operating Environment	Temperature	−20°C to +70°C
	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	145.7 mm × 91.5 mm × 18.3 mm
	Net weight	100.0 g Note: It is the weight of a single receiving card only.
Packing Information	Packing specifications	Each receiving card is packaged in a blister pack. Each packing box contains 100 receiving cards.
	Packing box dimensions	625.0 mm × 180.0 mm × 470.0 mm

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

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