Confidentiality level: Secret

Specification

SPECIFICATION

Product Type: BTP-LC-RTD2513A-W25B

Product type (Customer): FHD

Product features (Customer):HDMI+2TYPE-C

Date Issued:2025-04-25

Confirmed	Approved	Signature

Customer Confirmation

Confirmed	Approved	Signature

Catalogue

1. Product Overview

1.1 Feature Overview

BTP-LC-RTD2513A-W25B is an FHD display driver board with built-in TYPE-C function and a maximum resolution of 1920X1080@60Hz.

∗Supports LVDS interface signal output.

∗Multiple OSD language options are available.

∗The software on the motherboard supports online updates.

∗Supports touch screen.

∗Supports HDMI 1.4.

∗Supports USB HUB functionality, allowing external USB2.0 ports to be connected via an external keyboard or mouse.

∗Supports PD bidirectional power supply protocol.

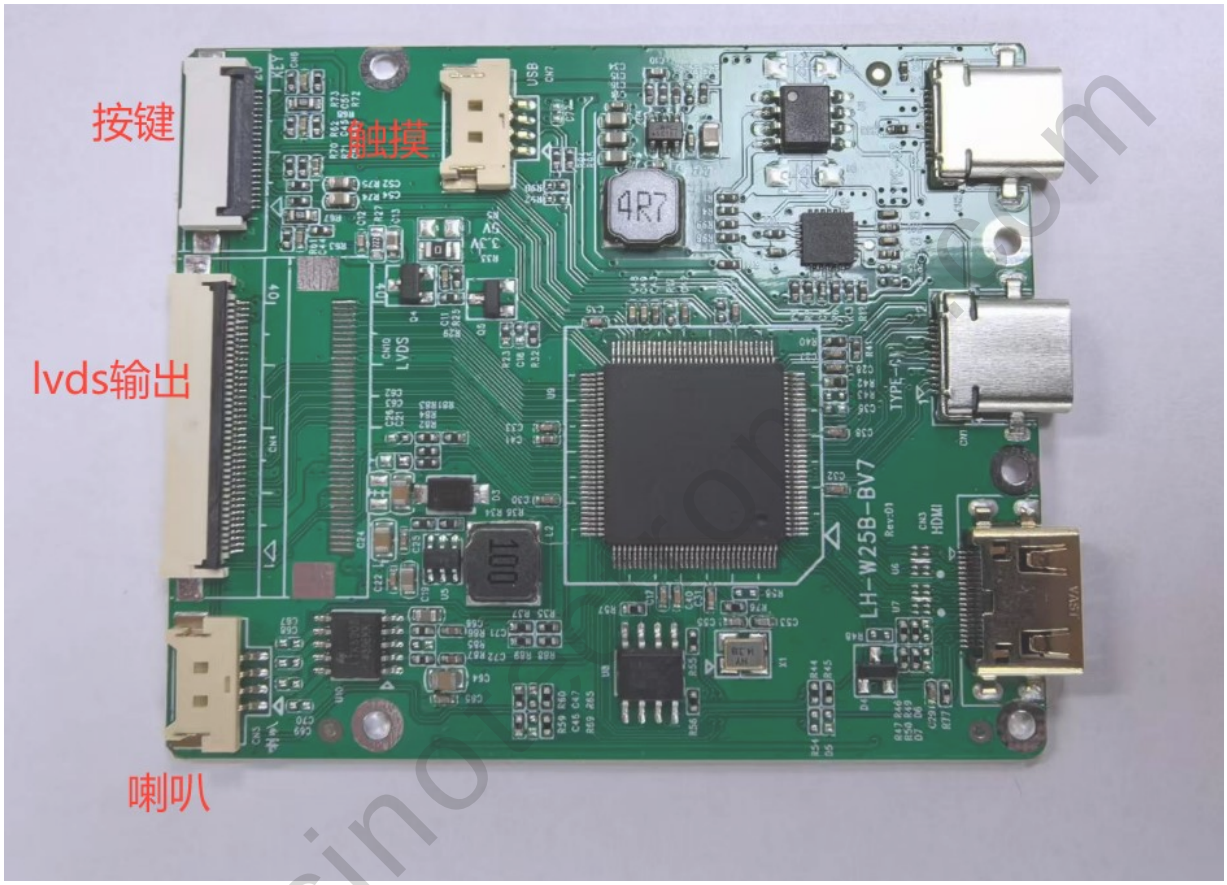
∗Supports 2x2W (4Ω) amplifier output

∗The TYPEC port supports DisplayPort Alt Mode

1.2 Board Characteristics

Video in	HDMI	1920X1080@60Hz	
		HDCP Version	1.4
	TYPE-C	1920X1080@60Hz	
		Bidirectional PD management	
		USB2.0 HUB	
Working power supply	DC 5V		
Standby power consumption	<0.25W		
PANEL	**Screen type**	TFT LCD	
	Screen interface	LVDS	
	Maximum resolution	1920X1080@60Hz	
	Drive out voltage	3.3V(R33),5V(R5)	
Headphone output	**>150MW (32 Ω/0dB signal)**		
Loudspeaker output	2x2W(4Ω) THD+N＜10%@1KHZ		
LED	**Dimming method**	PWM	
Key	**POWER, KEY1, KEY2, AUTO, MENU, optional**		
OSD language	**Chinese, English, German, Korean, French, Spanish, Japanese, and other languages**		

1.3 Board Appearance Diagram



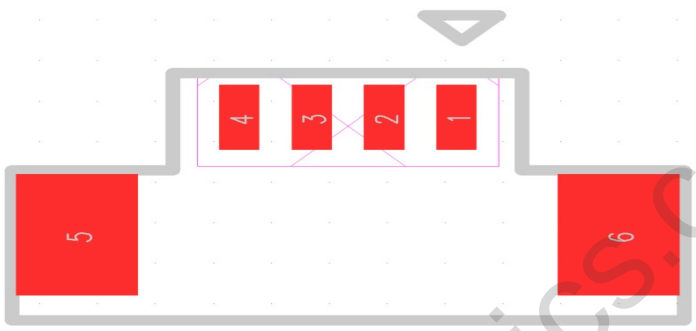
Note: The images above are for reference only. The actual product will be the same as the large quantity shown.

1.4 Interface Function

Order number	Item	Function
1	CN3	**HDMI joggle**
2	CN1	**TYPEC interface (signal input)**
3	CN2	**TYPEC port (power input)**
4	CN7	**Built-in USB port**
5	CN6	**Keyboard output port + USB2.0 input port**
6	CN4	**LVDS screen interface**
	CN10	**LVDS screen interface**
7	CN5	**Lubricated interface (4Ω2W)**

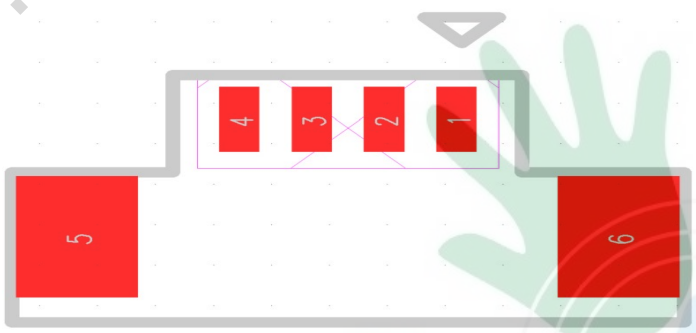
2. Main Interface Definition

◆The CNA7 (4P-1.25mm) features a built-in USB port



PIN sequence number	Definition	Description
1	GND	**The earth**
2	DP	**USB data +**
3	DM	**USB data -**
4	+5V	**Source**

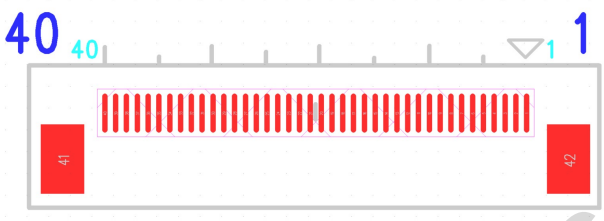
◆CN5 (4P-1.25mm) speaker jack



PIN sequence number	Definition	Description
1	R−	**Right channel negative**
2	R+	**Right channel of the horn is positive**
3	L+	**Left channel positive**

4	L-	**Left channel negative**

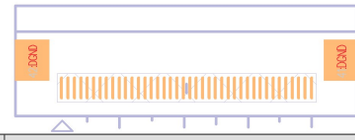
◆CN4(40P-0.5MM flip-chip, bottom-mount, horizontal): LVDS signal output interface



Footnote number	Definition	Description
1	NC	**Empty**
2	VLCD	**Screen voltage**
3	VLCD	**Screen voltage**
4	VLCD	**Screen voltage**
5	NC	**Empty**
6	NC	**Empty**
7	NC	**Empty**
8	MRXE0+	**LVDS differential data 0+**
9	MRXE0-	**LVDS differential data 0-**
10	GND	**The earth**
11	MRXE1+	**LVDS differential data 1+**
12	MRXE1-	**LVDS differential data 1-**
13	GND	**The earth**
14	MRXE2+	**LVDS differential data 2+**
15	MRXE2-	**LVDS differential data 2-**
16	GND	**The earth**
17	MRXEC+	**LVDS clock signal C+**

18	MRXEC-	**LVDS clock signal C-**
19	NC	**Empty**
20	MRXE3+	**LVDS differential data 3+**
21	MRXE3-	**LVDS differential data 3-**
22	GND	**The earth**
23	NC	**Empty**
24	NC	**Empty**
25	GND	**The earth**
26	NC	**Empty**
27	NC	**Empty**
28	GND	**The earth**
29	NC	**Empty**
30	NC	**Empty**
31	GND	**The earth**
32	GND	**The earth**
33	GND	**The earth**
34	NC	**Empty**
35	BKL_PWM	**Backlight brightness adjustment**
36	BKL_EN	**Backlight switch**
37	NC	**Empty**
+12V	**Backlight power supply**	+12V
+12V	**Backlight power supply**	+12V
+12V	**Backlight power supply**	+12V

◆CN10 (40P-0.5MM flip-chip, bottom-mount, horizontal): LVDS signal output interface

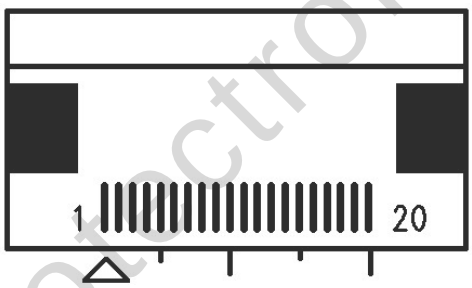


Order number	Definition	Description
1	BL_VCC	**Backlight input voltage**
2	BL_VCC	**Backlight input voltage**
3	BL_VCC	**Backlight input voltage**
4	BL_VCC	**Backlight input voltage**
5	NC	NC
6	BKL_PWM	**Backlight brightness adjustment**
7	BKL_EN	**Backlight switch**
8	GND	**The earth**
9	GND	**The earth**
10	NC	NC
11	VLCD	**PANEL_ source**
12	VLCD	**PANEL_ source**
13	VLCD	**PANEL_ source**
14	VLCD	**PANEL_ source**
15	NC	NC
16	GND	**The earth**
17	GND	**The earth**
18	NC	NC
19	NC	NC
20	GND	**The earth**
21	MRXE0+	**LVDS differential data 0+**
22	MRXE0-	**LVDS differential data 0-**
23	MRXE1+	**LVDS differential data 1+**
24	MRXE1-	**LVDS differential data 1-**
25	MRXE2+	**LVDS differential data 2+**
26	MRXE2-	**LVDS differential data 2-**
27	MRXEC+	**LVDS clock signal C+**
28	MRXEC-	**LVDS clock signal C-**
29	MRXE3+	**LVDS differential data 3+**
30	MRXE3-	**LVDS differential data 3-**
31	GND	**The earth**

32	MRXO0+	**LVDS differential data 0+**
33	MRXO0-	**LVDS differential data 0-**
34	MRXO1+	**LVDS differential data 1+**
35	MRXO1-	**LVDS differential data 1-**
36	MRXO2+	**LVDS differential data 2+**
37	MRXO2-	**LVDS differential data 2-**
38	MRXO3+	**LVDS differential data 3+**
39	MRXO3-	**LVDS differential data 3-**
40	GND	**The earth**

◆ JK1 (20P-0.5MM): Button, USB2.0 input port

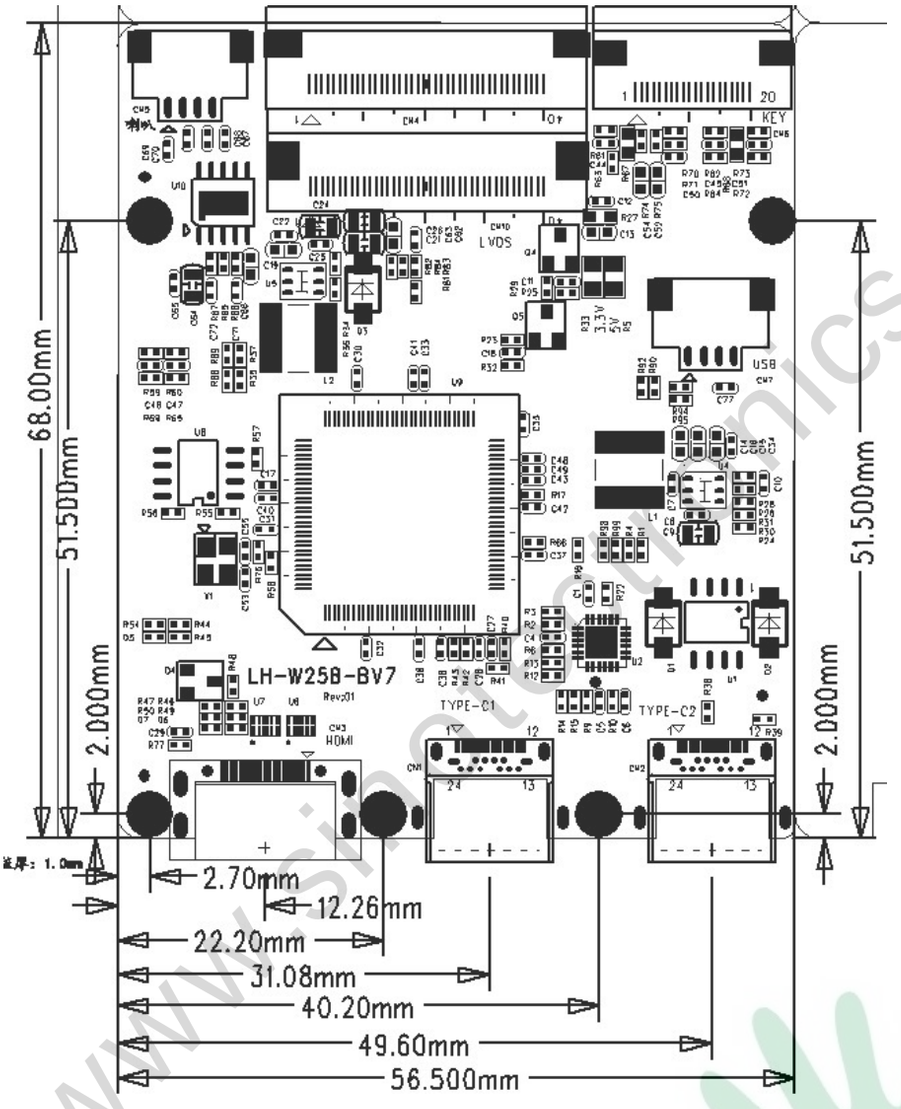
* All keys must be at 0V when pressed; otherwise, the key value will be incorrect.



Order number	Definition	Description
1	KEY1	**Button 1**
2	KEY2	**Button 2**
3	GND	**The earth**
4	PHONER	**Right earphone**
5	PHONEL	**Left earphone**
6	HP_DET	**Earphone detection foot**
7	GND	**The earth**
8	D+	**USB1 data+**
9	D-	**USB1 data-**
10	LED_G	**Pilot lamp**

11	+5V	**USB source**
12	NC	NC
13	NC	NC
14	GND	**The earth**
15	LED_O	**Pilot lamp**
16	KEY3	**Button 3**
17	KEY4	**Button 4**
18	POWER	**POWER key**
19	NC	NC
20	NC	NC

3. Mainboard Structure and Dimensions (unit: Mm)



Control board PCB dimensions and specifications

1. The PCB thickness plus the maximum height of the component must not exceed 7mm.

2.PCB length =68mm

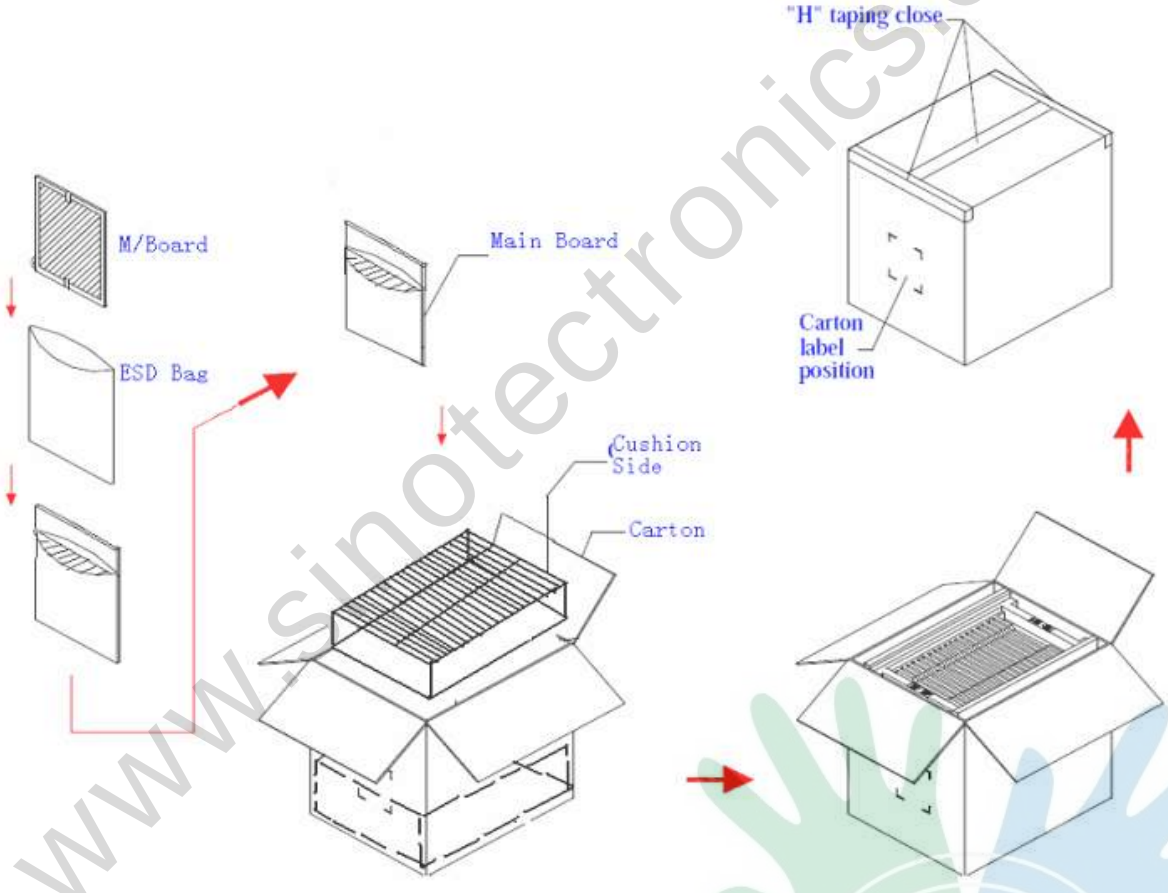
3.PCB width =56.5mm

4.PCB board thickness =1.0 mm

Screw hole specifications: 2.0mm diameter, with hole size and coordinates as shown in the structural diagram

4. Packaging and Outer Box Labeling

Carton specifications	Bubble bag specifications	Number of boxes



5. Transportation, Storage, and Usage Requirements

To ensure proper operation of this product and prevent accidents such as electric shock or fire, please read and understand all usage requirements and operating procedures before use. Strictly follow the following requirements:

1. The DC power supply for this product is generated by an AC/DC power adapter, which should be kept away from heat sources and placed in a well-ventilated area.

2. AC power sockets and cables must be properly grounded and capable of handling sufficient current demand.

3. This product requires a DC power supply with an input voltage of +5V, tolerating ±0.5V deviation. The current demand depends on the LED screen and overall power requirements. We recommend using a power adapter rated at least 15W.

4. Ensure proper ventilation and heat dissipation; do not place in a sealed, non-conductive casing or box; and avoid direct sunlight or exposure to other heat sources.

5. Avoid excessive moisture and dust to prevent circuit corrosion and malfunctions.

6. During assembly, ensure sufficient clearance to facilitate surface air convection for thermal dissipation and prevent electrical contact between live conductors and board components.

7. During assembly, extra pressure should be avoided to prevent the driver board from warping.

8. During assembly, ensure proper electrical connections between the driver board, LED screen, key panel, and other components. Select the correct LED operating voltage (too low may cause display abnormalities, while too high could damage the LED screen). Power on only after confirming all connections are correct.

9. The program on the drive board should match the corresponding LED screen.

10. During PCB assembly, ensure proper electrostatic protection and prevent short circuits or static electricity from hands from damaging the circuit board.

11. All input/output interfaces must be operated with the power disconnected (by unplugging connectors).

12. This product is suitable for general commercial and household use, with an operating temperature range of-10 to +40°C and relative humidity ≤80%.

13. Unplug the power supply when not in use for a long time.