上海冠显光电科技有限公司
Shanghai Top Display Optoelectronics Co., LTD

MODEL	:	**TY040HDL02CF**
ISSUED DATE	:	**2025-02-13**
VERSION	:	**1.1**

Version Record

Issued Date	Description	Version	Editor	Audit
2024-05-22	Final release	1.0	Xenia	WLT
2025-02-13	Final release (Adding debugging tools)	1.1	Xenia	

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1. Hardware Introduction

This chapter mainly introduces the product appearance diagram and hardware configuration diagram.

1.1. Product Appearance

The following is the appearance of the product corresponding to this model (hardware interfaces, etc., vary according to the specific model of backplane components), as shown in Figure 1.1-1

Note: There is no key structural process modification or major layout adjustment, only changes in product process or reliability. The company will not initiate changes to the outside product appearance. The specific items are subject to the received goods.

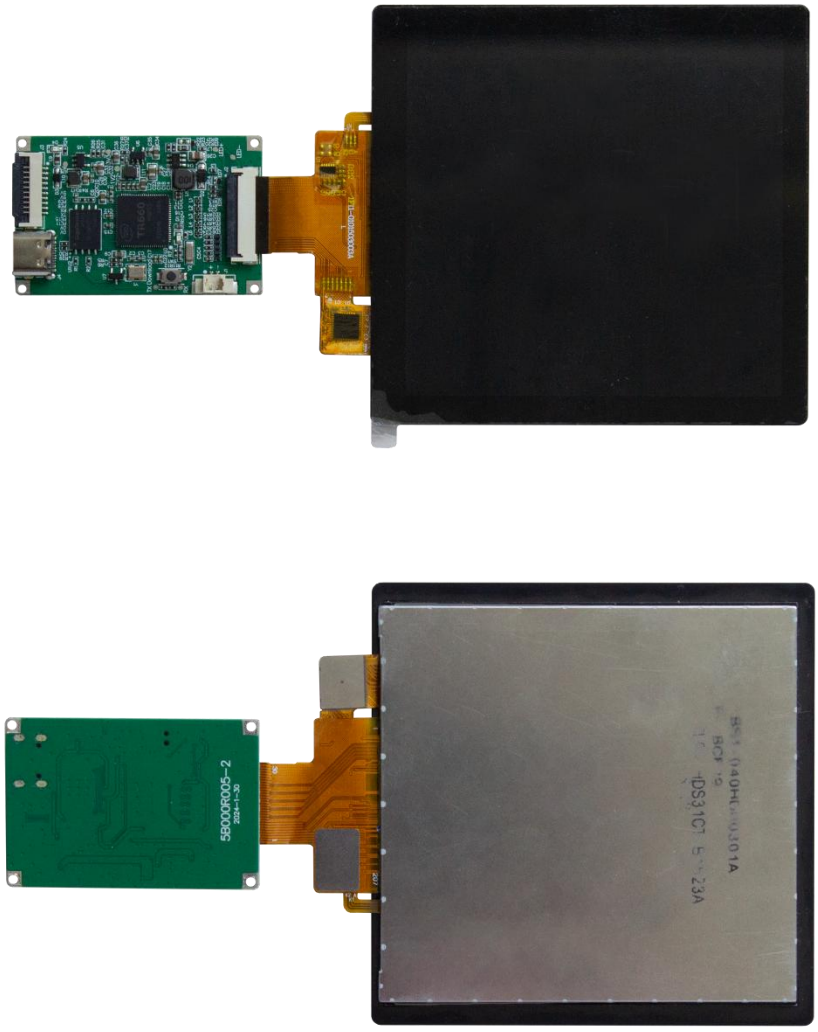


Figure 1.1-1 TY040HDL02CF structure appearance reference diagram

1.2. Pinout IO Definitions

Pin Name	Type	Reset state	Internal Configurable Pull-up and Pull-down Resistors	Default drive capability (mA)	Voltage	Function
5V	INPUT	-	-	-	-	POWER-INPUT, DC5V
5V	INPUT	-	-	-	-	POWER-INPUT, DC5V
PE9	I/O	-	-	-	-	GPIO-PE9
PE8	I/O	-	-	-	-	485-DIR
TX	-	-	-	-	3.3V	UART6-TX (to user's RX)
RX	-	-	-	-	3.3V	UART6-RX (to user's TX)
PE15	I/O	-	-	-	-	AUDIO-PA-EN (High with no audio output, low with audio output)
PE11	I/O	-	-	-	-	SPK (Connect to audio amplifier)
0V	POWER	0V	-	-	0V	POWER-GND
0V	POWER	0V	-	-	0V	POWER-GND

2. Product Specifications

● Product parameter	
Model	TY040HDL02CF
Product serial	MINI 板
Core processor	TR660
Size	4.0 inch
Resolution	720RGB×720
Active area(mm)	71.93(W)×71.93(H)
Product size(mm)	84.00(W)×155.57(H)×5.80(T)
Color	24-bit 8R8G8B
Storage	Customer available 60M
Pictures format	JPG/PNG
Video player	MP4 format video only
Audio player	Support (Monophonic)
Download pictures	TYPE-C
Firmware update	TYPE-C
● LCD screen	
Display type	TFT LCD
Back light	LED
Brightness(cd/m²)	320
Backlight life(hour)	30000

Contrast	1000
Perspective(T/B/L/R)	(85/85/85/85)
● Touch panel	
Touch mode	Capacitive touch screen
Input mode	Finger
Touch type	Single point, sliding touch
● Environmental electrical parameters	
Voltage	4~5.5V, typical 5V DC
Power consumption	5V/320mA (Max brightness) 5V/180mA (Backlight off)
Working temperature	-20℃ ~ 70℃
Storage temperature	-30℃ ~ 80℃
Working humidity	10%~90%RH
Storage humidity	10%~90%RH
● Communication interface parameters	
Communication mode	3.3V TTL
Baud	2400~115200,typical value is 115200
Data frame format	8N1
Communication plug-in specification	10 Pin_FPC_1.00mm connector
● Other hardware specifications	
RTC	Support (External button cell battery required for use, connector MX-2P x 1.25mm)

USB flash disk	Support
● Product certification	
Environmental protection grade	RoSH II

3. Reliability Test

3.1. ESD Test

3.1.1. Implementation Standards

Implementation standards	GB/T 17626.2
Performance criteria	B

3.1.2. Test Environment

Test ambient temperature: 25℃

Test environment humidity: 50%

Test process: place the product on the test bench, conduct contact and air discharge in turn around the iron frame of the serial port screen and the display area, and observe whether there is any abnormal reset and restart display.

Test remarks: *The current tests are all bare product tests. On the actual product assembly machine, keep the screen and the machine well grounded, or the touch panel surface is protected by PVC or a cover plate, the ESD performance index of the whole machine will be higher.*



3.1.3. Test Data Results:

Discharge type	Discharge value	Test Results	Performance Criteria
Contact	±4KV	Test Passed	B
Discharge	±4KV	Test Passed	B

3.2. Electrical fast transient group pulse testing (EFT)

3.2.1. Implementation standards

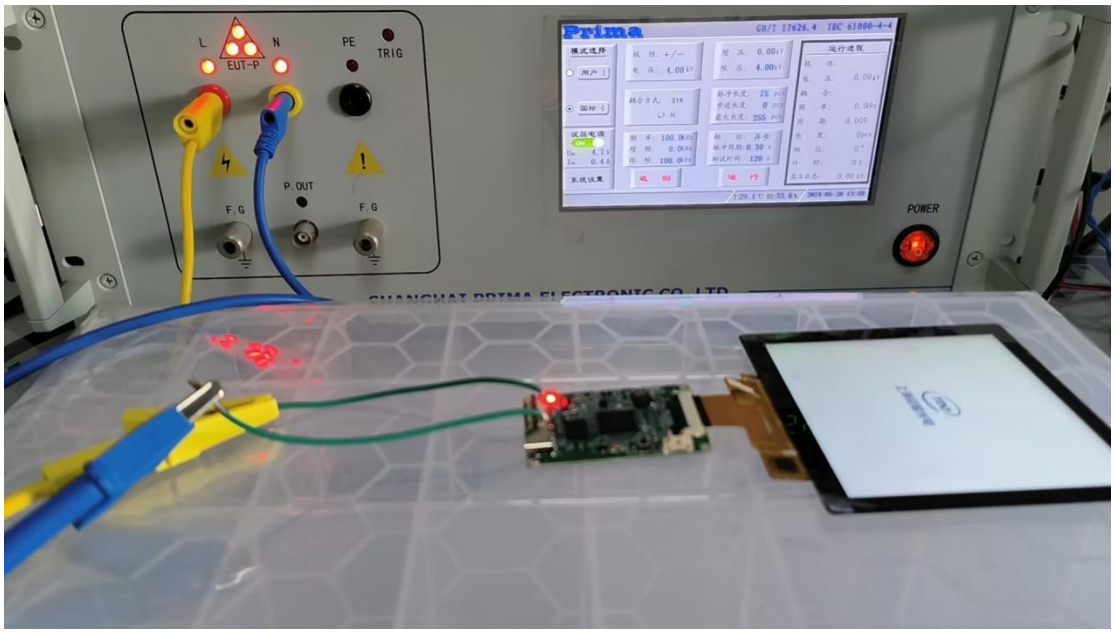
Implementation standards	GB/T 17626.4

3.2.2. Test Environment

Test ambient temperature: 25℃

Test environment humidity: 50%

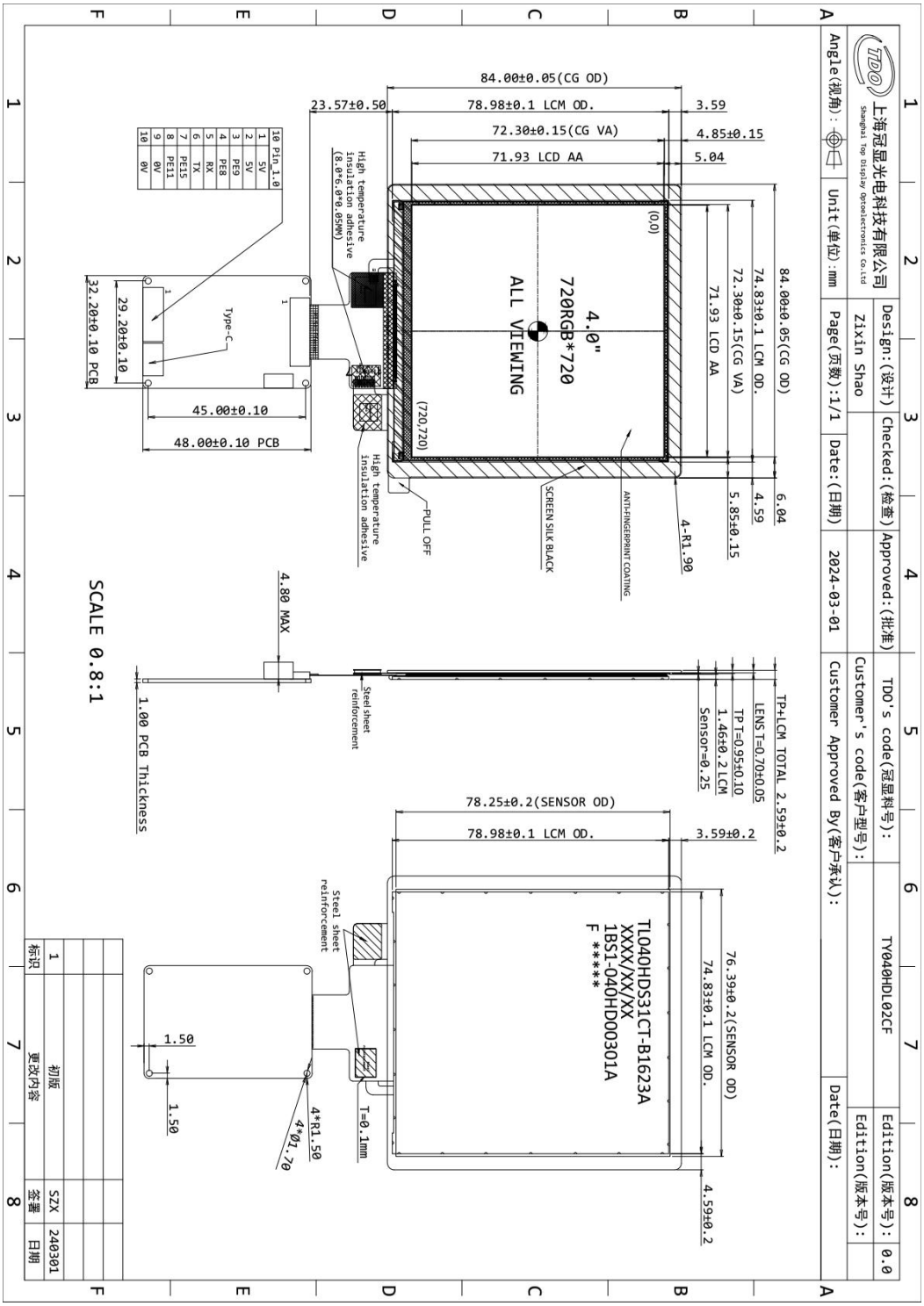
Test process: place the product in the high and low temperature test box, and power the screen through the power supply after the pulse group is coupled by the group pulse generator, and observe whether there is abnormal reset and restart display and other phenomena**.**



3.2.3. Test Data Results:

Implementation standards	GB/T 17626.4
Performance criteria	B

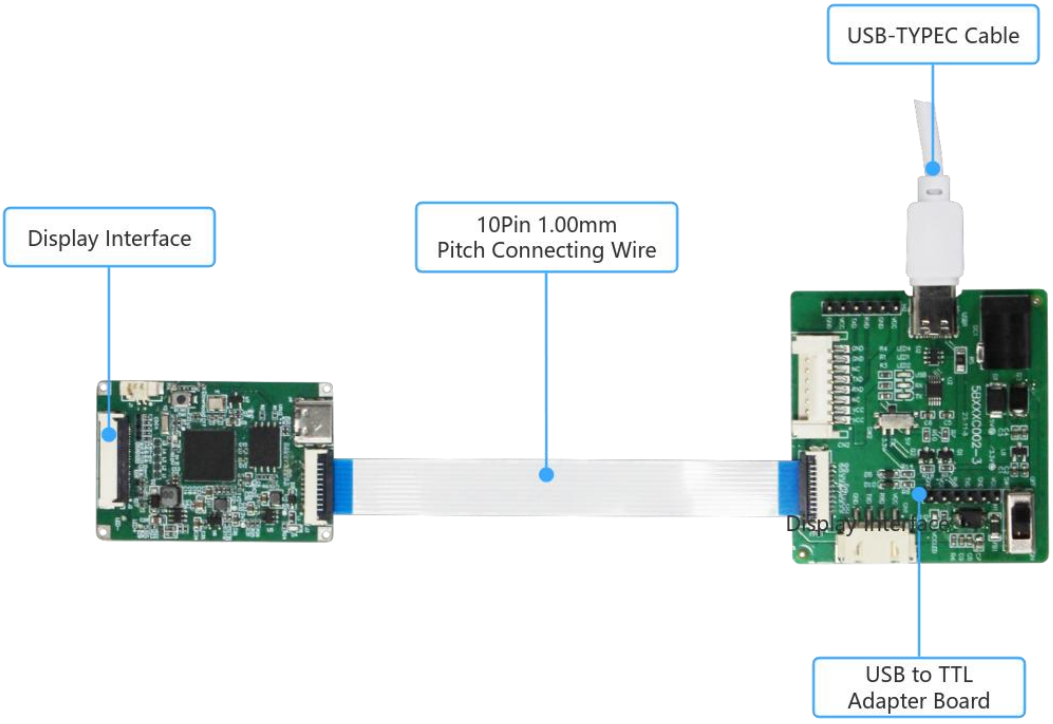
4. Product Size



(Product drawings)

5. Debugging Tools

It is recommended for new users of TDO smart LCMs to purchase official accessories. For more details, please refer to customer service center.



6. Model Definition

T	Y	040	HD	L	02	C	F
1	2	3	4	5	6	7	8

① : 1 position--TDO abbreviation, fixed。

② : 1 position--U(U series serial port)/P(parallel port)/Y(Y series serial port)/H(HDMI interface type)/S(adapter board)/L

③ : 3 position--size,eg.040->4.0 inch

④ : 2 position--resolution abbreviation

⑤ : 1 position--H (standard series)/C (basic series)/L (MINI board series)/P (with housing series)/M (medical series)/A (AV series)

⑥ : 2 position---serial number

⑦ : 1 position---C (with capacitive touch panel)/R (with resistive touch panel)/N (without touch panel)

⑧ : 1 position-----Platform: F-TR660 / G-TR540 / H-TR230M /J -TR240 / K-TR661 / D-TR670 / 0-Android / 1-Linux

Note: There is no key structural process modification or major layout adjustment, only changes in product process or reliability. The company will not initiate changes to the outside world. The specific items are subject to the received items.

7. Packaging and Physical Dimensions

Single product weight					
Net weight (G)	TBD				
Packaging standard and total weight					
Packing box model	Packing box size (length*width*height, unit: mm)	Layers	Quantity (PCS)/layer	Total quantity (pieces)	Total weight (KG)

8. Sale and Service



TEL:021-6429098

FAX:021-6429089

EMAIL:sales@shtdo.com

WEB:www.shtdo.com

ADDR:Shanghai, Minhang district, Xinjunhuan Road 88, Building13A, 4th floor

Online shop:http://shtdo.en.alibaba.com/

9. Disclaimer

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