# SPECIFICATIONS

| | | |
|---|---|---|
| CUSTOMER | : | |
| SAMPLE CODE | : | SIA800480T033IHC07 |
| MASS PRODUCTION CODE | : | HIA800480T033IHC07 |
| SAMPLE VERSION | : | 01 |
| SPECIFICATIONS EDITION | : | 002 |
| DRAWING NO. (Ver.) | : | LMD-HIA800480T033IHC07 (Ver.002) |
| PACKAGING NO. (Ver.) | : | PKG-HIA800480T033IHC07 (Ver.001) |

## Customer Approved

Date:

| Approved | Checked | Designer |
|---|---|---|
| 林裘中<br>Daniel Lin | 呂清溪<br>Marcs Lu | 黃煜庭<br>Yuting Huang |

POWERTIP
2022.01.18
TW RD APR

☐ Preliminary specification for design input

■ Specification for sample approval

**POWERTIP TECH. CORP.**

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# 1. SPECIFICATIONS

## 1.1 Features

### Hardware

| | | |
|---|---|---|
| **CPU** | RISC Processor | i.MX8M Mini<br>Quad Cortex-A53 @ 1.6 GHz |
| **Memory** | On Board RAM | 2GB LPDDR4 SDRAM |
| | On Board ROM | 8GB eMMC Flash |
| | External Storage | 1x Micro SD (max. 32G) |
| **Display** | Resolution | 800 (RGB) x 480 DOTS |
| | LCD Type | a-Si TFT, Normally white, Transmissive type |
| | Screen Size | 5.0 inch |
| | Touch Panel | Projected Capacitive Touch (I2C) |
| **I/O** | Display Interface | 1x MIPI DSI<br>1x RGB |
| | USB | 1x USB OTG<br>2x USB1.1/2.0 Compliant Host<br>1x USB1.1/2.0 in Mini-PCIe Connector |
| | PCI Express | 1x Mini-PCIe Connector(1-lane) |
| | Ethernet | 10/100/1000 Mbps |
| | Analog Audio | 1 x Headphone Jack<br>1 x Input |
| | Wireless | WIFI IEEE 802.11 a/b/g/n/ac<br>Bluetooth 4.2 |
| | Serial | 2 x UART (one for Debug Used)<br>4 x I2C<br>1 x SPI |
| **Power Input** | DC | 9V ~ 24V |

### Software

| | | |
|---|---|---|
| **OS** | Embedded | Android / Yocto Linux |

## 1.2 Mechanical Specifications

| Item | Standard Value | Unit |
|---|---|---|
| Board Outline Dimension | 118.5(W) x 87.5 (L) x 25.0(H) MAX | mm |
| Display Active Area | 108.0 (W) * 64.8 (L) | mm |

## 1.3 Absolute Maximum Ratings

Ta = 25℃

| Item | Symbol | Condition | Min. | Max. | Unit |
|---|---|---|---|---|---|
| Power Supply | $V_{IN}$ | — | -0.3 | 26.0 | V |
| Operating Temperature | $T_{OP}$ | — | -20 | 70 | ℃ |
| Storage Temperature | $T_{ST}$ | — | -30 | 80 | ℃ |
| Humidity | $H_D$ | Ta=60 ℃ | 10 | 90 | %RH |

## 1.4 DC Electrical Characteristics

Ta = 25℃

| Item | Symbol | Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Power Supply Voltage | $V_{IN}$ | - | 9 | 12 | 24 | V |
| Power Supply Current | $I_{IN1}$ | $V_{IN}$ = 12V | - | 330 | - | mA |
| IO High-Level input voltage | $V_{IH}$ | - | 0.7x$V_{DD3V3}$ | - | $V_{DD3V3+}$0.3 | V |
| IO Low-Level input voltage | $V_{IL}$ | - | -0.3 | - | 0.3x$V_{DD3V3}$ | V |
| IO High-Level output voltage | $V_{OH}$ | - | - | - | 3.6 | V |
| IO Low-Level output voltage | $V_{OL}$ | - | -0.3 | - | - | V |

Note 1: $V_{IN}$ is connected to 'J4' connector.

## 1.5 Optical Characteristics

Ta=25℃

| Item | | Symbol | Condition | Min. | Typ. | Max. | unit | - |
|---|---|---|---|---|---|---|---|---|
| Response time | Tr + Tf | 25℃ | - | - | 30 | 45 | ms | Note2 |
| Viewing angle | Top | θY+ | CR ≥ 10 | | 60 | - | Deg. | Note4 |
| | Bottom | θY- | | | 60 | - | | |
| | Left | θX+ | | | 60 | - | | |
| | Right | θX+ | | | 60 | - | | |
| Contrast ratio | | CR | Ta=25℃ θX, θY = 0° | 500 | 600 | - | - | Note3 |
| Color of CIE Coordinate （With B/L & T/P） | White | X | | 0.24 | 0.29 | 0.34 | - | Note1 |
| | | Y | | 0.26 | 0.31 | 0.36 | | |
| | Red | X | | 0.51 | 0.56 | 0.61 | | |
| | | Y | | 0.28 | 0.33 | 0.38 | | |
| | Green | X | | 0.29 | 0.34 | 0.39 | | |
| | | Y | | 0.54 | 0.59 | 0.64 | | |
| | Blue | X | | 0.08 | 0.13 | 0.18 | | |
| | | Y | | 0.03 | 0.08 | 0.13 | | |
| Average Brightness Pattern=white display （With LCD & T/P）*1 | | IV | VCC=5.0V PWM=" High" (Duty=100%) | 680 | 850 | - | cd/m$^2$ | |
| Uniformity （With LCD & T/P）*2 | | △B | | 70 | - | - | % | |

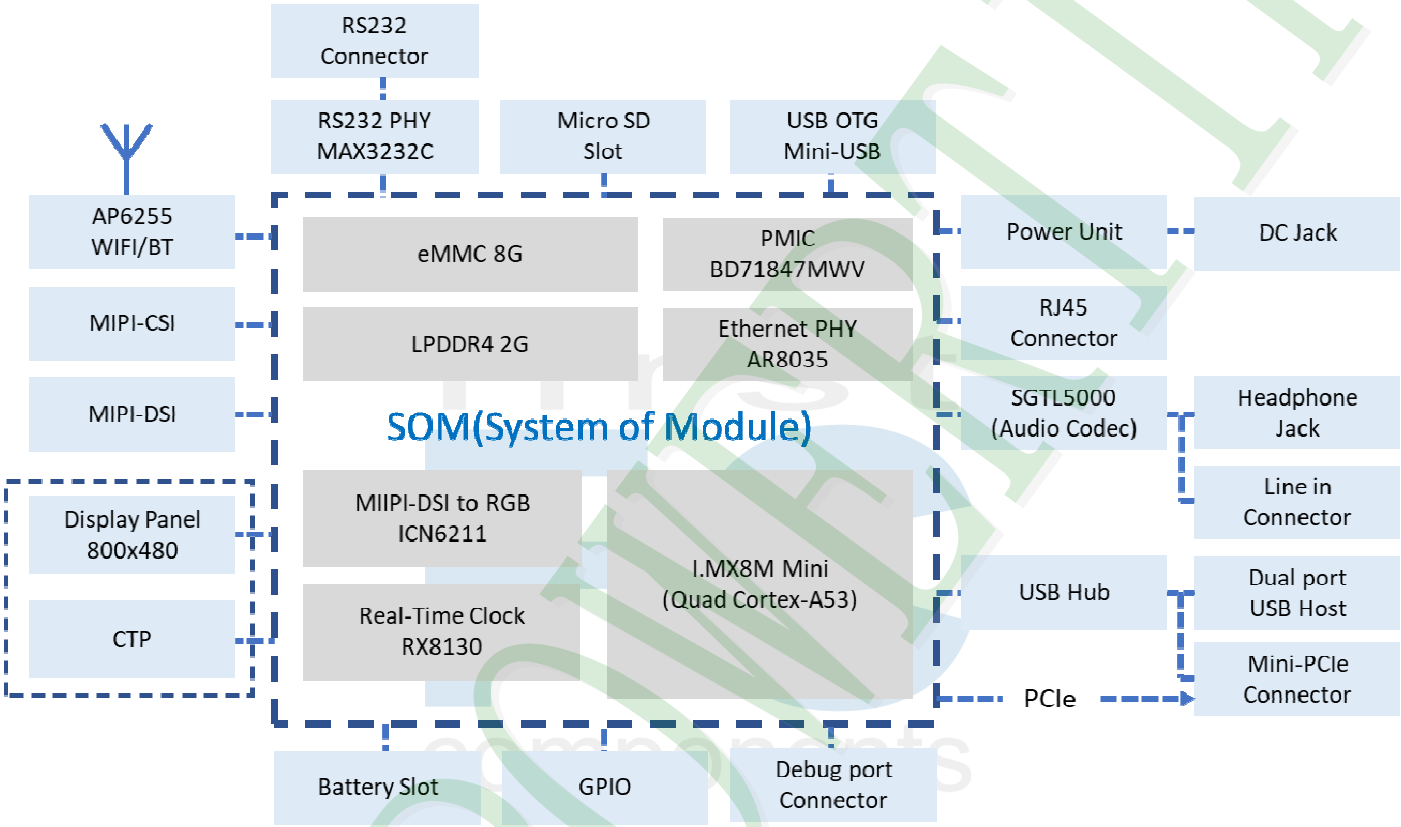
# 2. MODULE STRUCTURE

## 2.1 Counter Drawing

### 2.1.1 LCM Mechanical Diagram

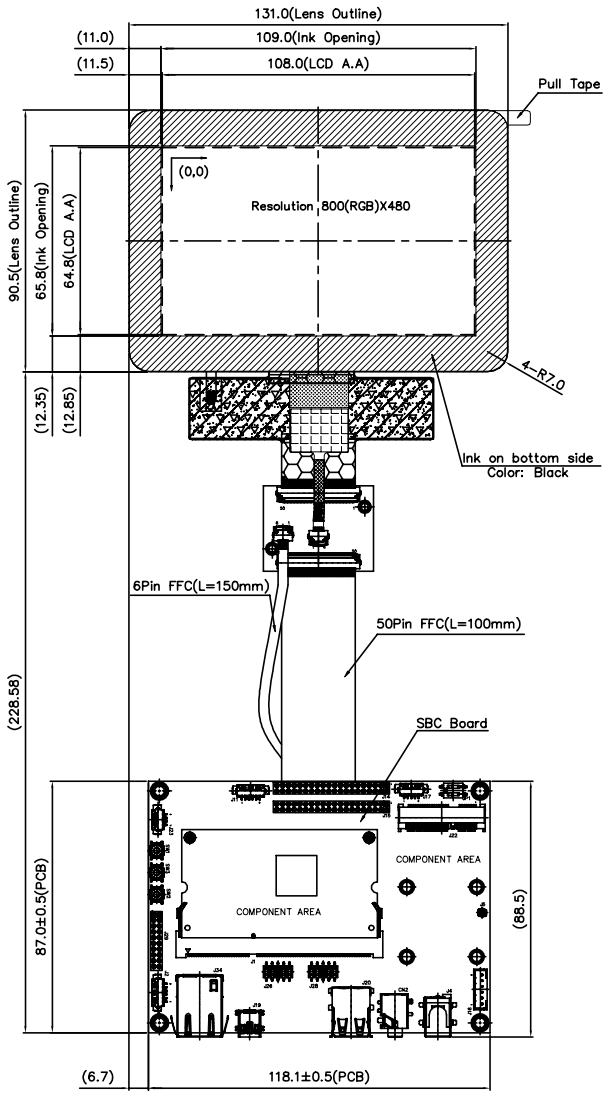
* See Appendix

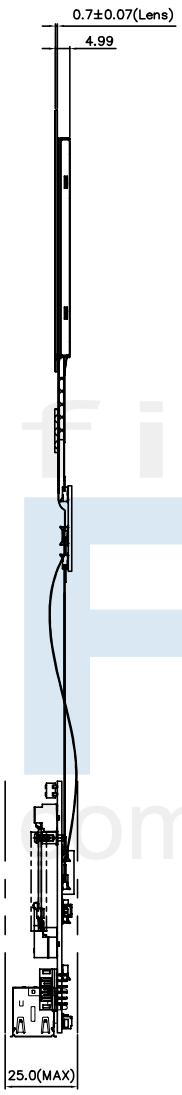
### 2.1.2 Block Diagram

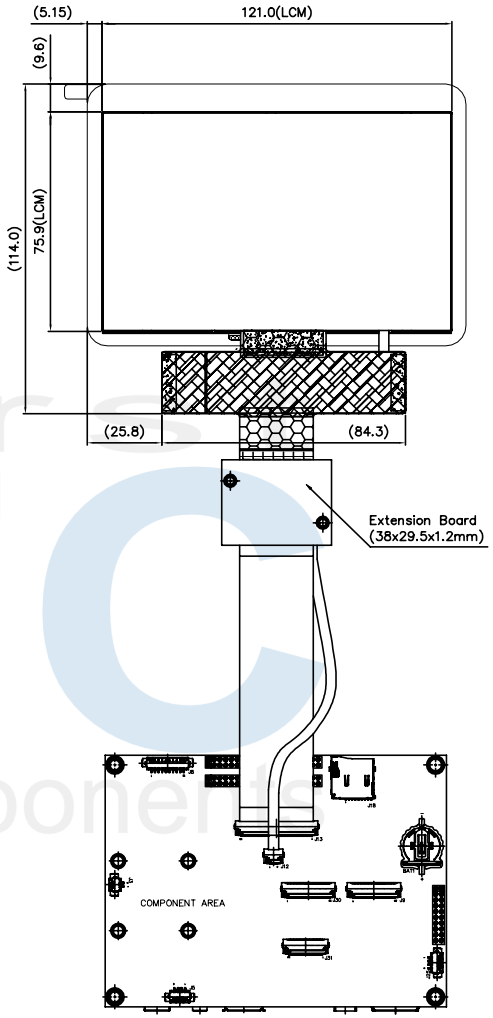


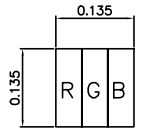
## 2.2 Connector list

| Symbol | Description | Note |
|---|---|---|
| J2 | Extension Power Pin | |
| J3 | RTC Power Supply (Pitch 1.25mm) | |
| J4 | Power Supply (DC Jack) | |
| J5 | Audio Signal Input (Pitch 1.25mm) | |
| J6 | Antenna Connector | |
| J8 | - | No Function |
| J9 | Display – MIPI DSI (Pitch 0.5mm 30pin) | |
| J11 | CTP Interface (Pitch 1.25mm 6pin) | |
| J12 | CTP Interface (Pitch 0.5mm 6pin) | (CTP) |
| J13 | Display – Parallel RGB (Pitch 0.5mm 50pin) | (Display Panel) |
| J14 | - | No Function |
| J15 | Display – Parallel RGB (Pitch 2.0mm, 2x20pin) | |
| J16 | Backlight Power (Pitch 2.0mm 6 pin) | |
| J17 | USB 1.1/2.0 Host (Pitch 1.25mm, 5pin) | |
| J18 | Micro SD Card | |
| J19 | USB 2.0 Device USB Port Mini-B (USB OTG) | |
| J20 | USB 1.1/2.0 Host USB Port Type A | |
| J22 | Mini-PCIe Connector | |
| J23 | Power Output (Pitch 1.25mm) | |
| J25 | UART2 Debug (Pitch 1.25mm 4pin) | |
| J26 | RS232 (Pitch 2.0mm 2x5pin) | |
| J28 | - | No Function |
| J29 | GPIO (Pitch 2.0mm 2x10pin) | |
| J30 | Camera – MIPI CSI (Pitch 0.5mm 30pin) | |
| J31 | - | No Function |
| J34 | Ethernet RJ45 | |
| CN2 | Standard Headphone Jack ψ3.5mm. | |
| SW1 | Reset Button | |
| SW2 | ONOFF Power Button | |
| JP1 | Boot Switch | |
| BAT1 | Battery | |




DOTS DETAIL
SCALE: 200X

NOTES:
1. LCD TYPE: TFT LCD
2. LCD DISPLAY: POSITIVE/TRANSMISSIVE
3. VIEW DIRECTION: 6 O'CLOCK
4. The tolerance unless classified ±0.3mm

| REV | REV BY | REVISER | DATE |
|---|---|---|---|
| 007 | | | |
| 006 | | | |
| 005 | | | |
| 004 | | | |
| 003 | | | |
| 002 | REMOVE J7、J10、J27 | Nini | 2021/12/14 |
| 001 | NEW DRAWING | Nini | 2021/04/12 |

PART NO: HIA800480T033IHC07

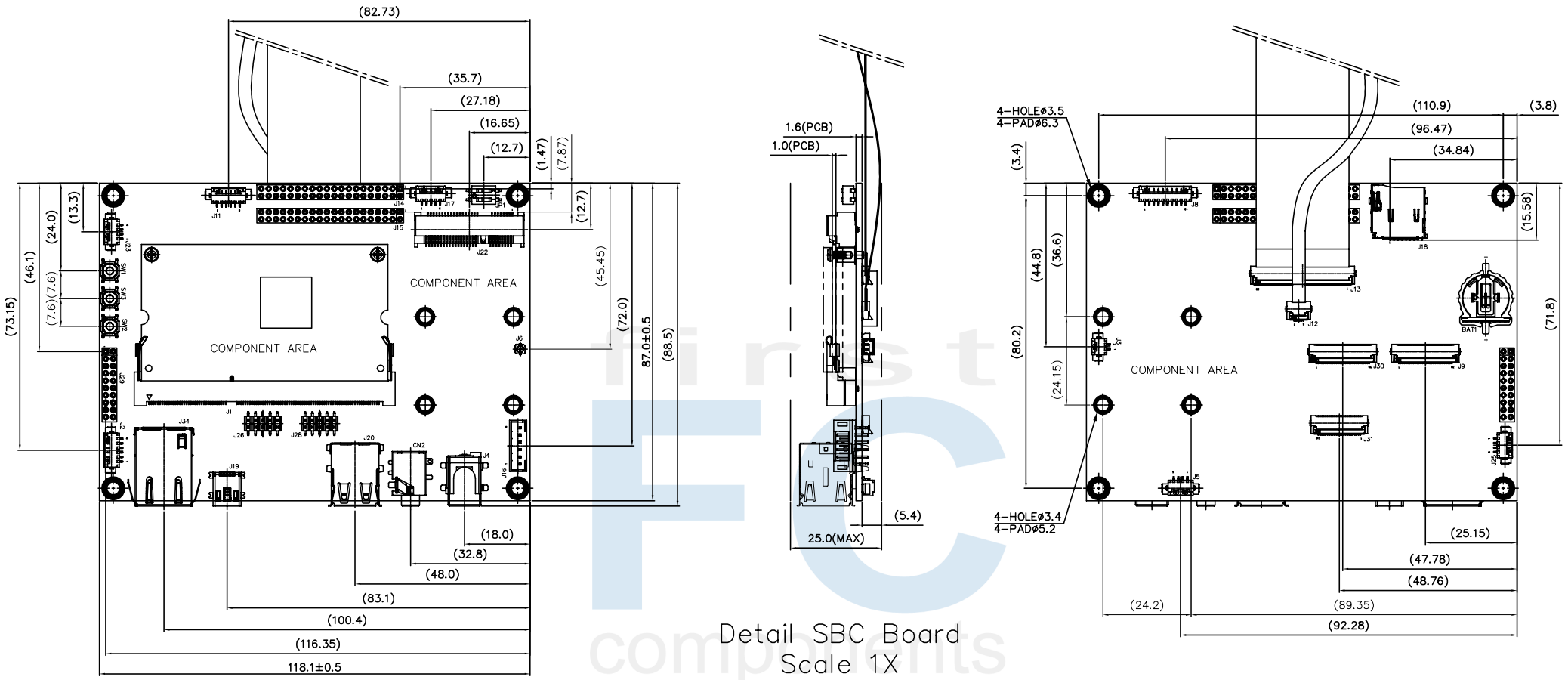
DRAWING NAME : LMD-HIA800480T033IHC07

TITLE: LCD MODULE DRAWING

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POWERTIP TECHNOLOGY CORPORATION

| | | | | | |
|---|---|---|---|---|---|
| Design | Nini Chen | (3) | Surface | | |
| Check | Marcs Lu | Unit | MM | Material | |
| Approve | Daniel Lin | Scale | FIT | Thickness | |
| | | Page | 1/2 | Quantity | |

| Length(Min) (mm) \ Tolerance \ Precision | Level |
|---|---|
| 1 ~ 4 | - |
| 4 ~ 16 | - |
| 16 ~ 63 | - |
| 63 ~ 250 | - |
| 250 ~ 1000 | - |




Detail SBC Board
Scale 1X

NOTES:

5.J2 ,J11: Molex 532610671 or Compatible
6.J3: Molex 532610271 or Compatible
7.J5 ,J23 ,J25: Molex 532610471 or Compatible
8.J8: Molex 532611071 or Compatible
9.J9 ,J30: OMRON XF2M-3015-1A or Compatible
10.J16: Molex 894000610 or Compatible
11.J17: Molex 532610571 or Compatible
12.J31: OMRON XF2M-2415-1A or Compatiblele

| REV | REV BY | REVISER | DATE |
|---|---|---|---|
| 007 | | | |
| 006 | | | |
| 005 | | | |
| 004 | | | |
| 003 | | | |
| 002 | REMOVE J7、J10、J27 | Nini | 2021/12/14 |
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DRAWING NAME : HIA800480T033IHC07

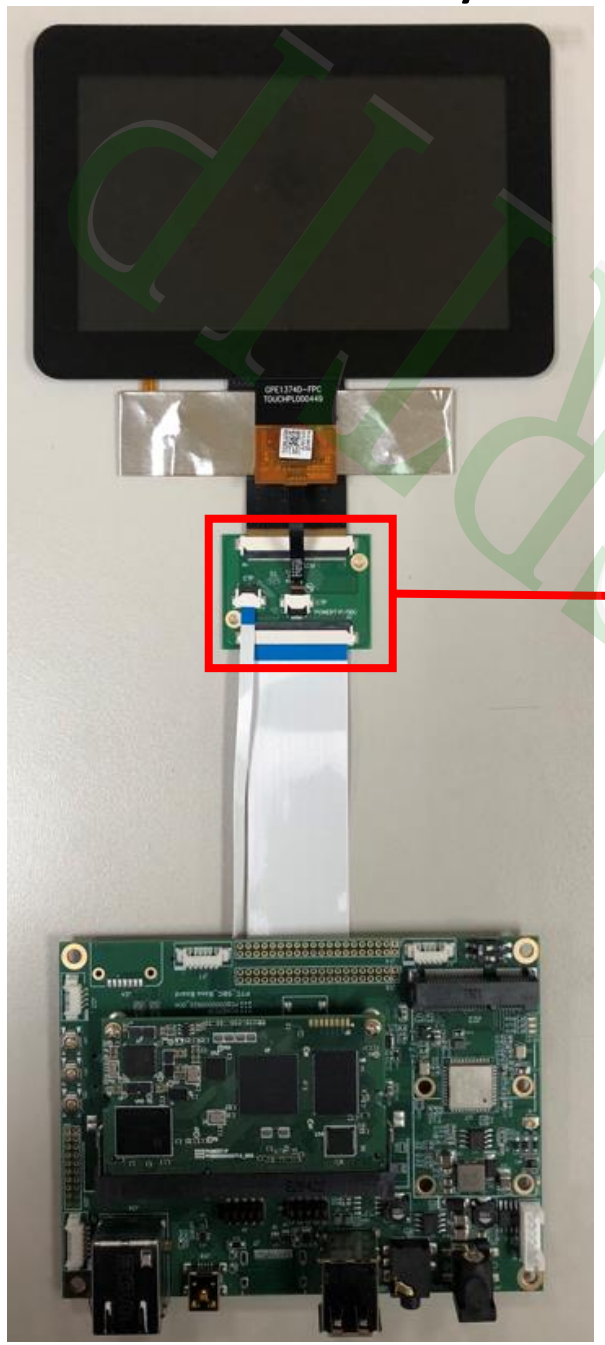
TITLE: LCD MODULE DRAWING

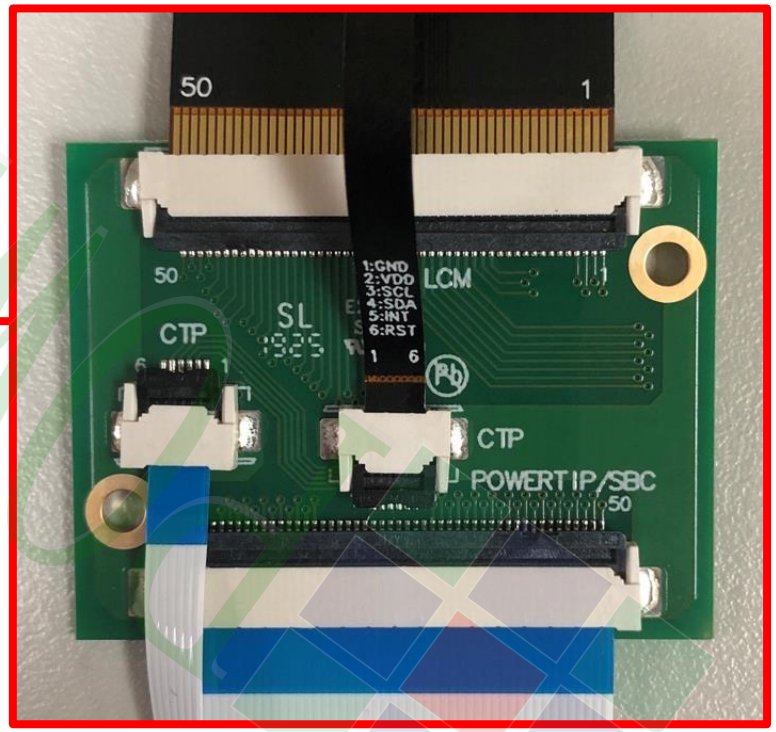
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| | | | | | |
|---|---|---|---|---|---|
| Design | Nini Chen | (3) | Surface | | |
| Check | Marcs Lu | Unit | MM | Material | |
| Approve | Daniel Lin | Scale | FIT | Thickness | |
| | | Page | 2/2 | Quantity | |

| Length(Min) (mm) \ Tolerance \ Precision | Level |
|---|---|
| 1 ~ 4 | - |
| 4 ~ 16 | - |
| 16 ~ 63 | - |
| 63 ~ 250 | - |
| 250 ~ 1000 | - |

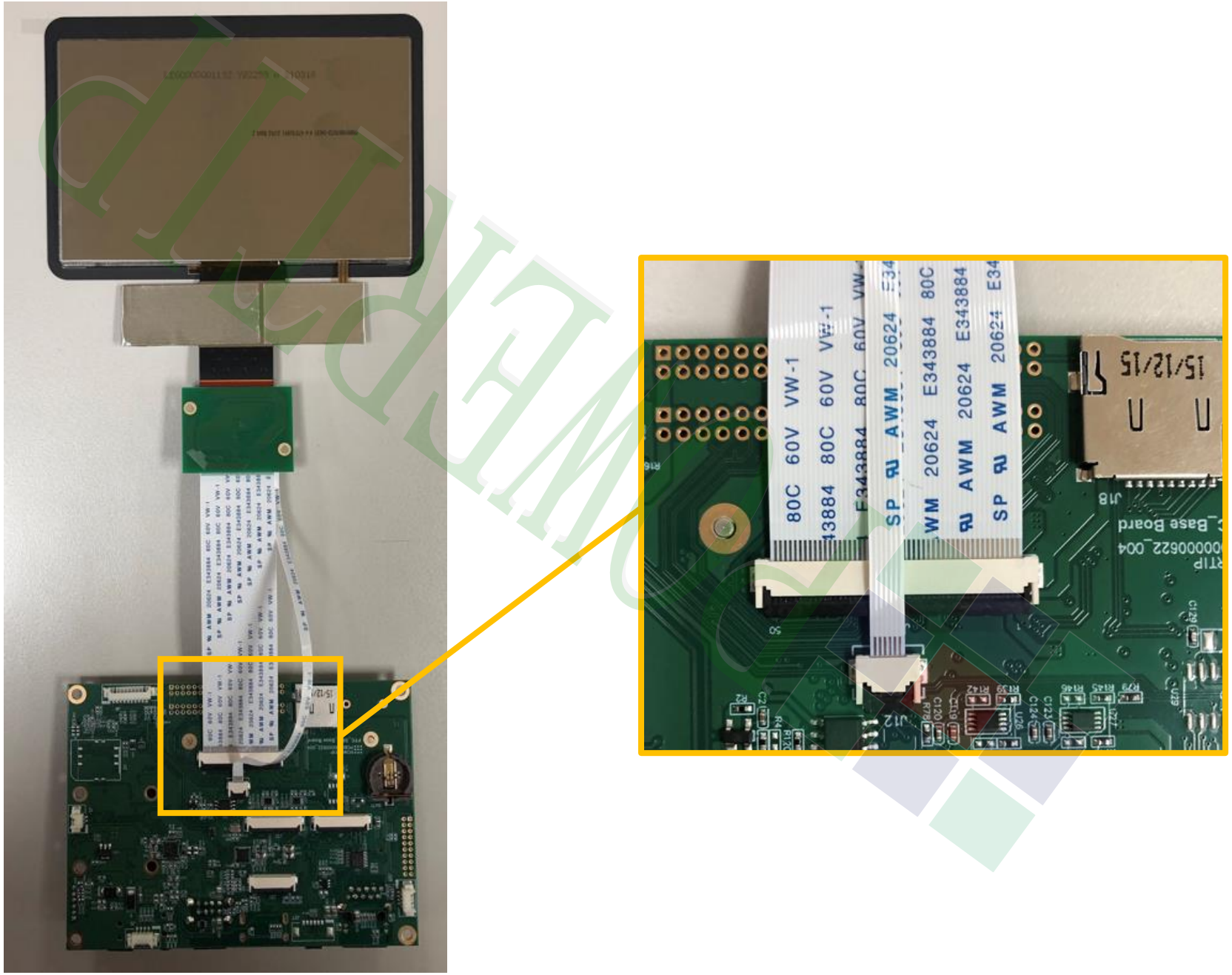
# HIA800480T033IHC07 Assembly Guide(TOP)






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# HIA800480T033IHC07 Assembly Guide(BOTTOM)



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