

MY-TFT070V2

User Manual

Version V1.1

2015-03-16

Version History

| Version Number | Description | Time |
|-----------------------|--|-------------|
| V1.0 | Initial Version | 2014.11 |
| V1.1 | Update the pic of this product, and do some correcting | 2015.03.16 |

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Chapter 1 Product Overview

1.1 Product Description

MY-TFT070V2, 7-inch LCD module is a color active matrix thin-film transistor (TFT) liquid crystal display (LCD), launched by MYiR. It includes TFT LCD display (with resistive touch screen), connectors, control and drive circuit, PCB drive board. Drive board reserved 1.27mm pitch IDC connector (25pinX2) and 0.5mm pitch FPC connector. It is designed for development board of MYiR ARM family.

1.2 Product Features

MY-TFT070V2 is compatible with three types of touch input. There are “Resistive Touch Input”, “Internal Capacitive Touch Input” and “External Capacitive Touch Input”. Accord to the need to select a type, but there is only one can to be enable on the board.

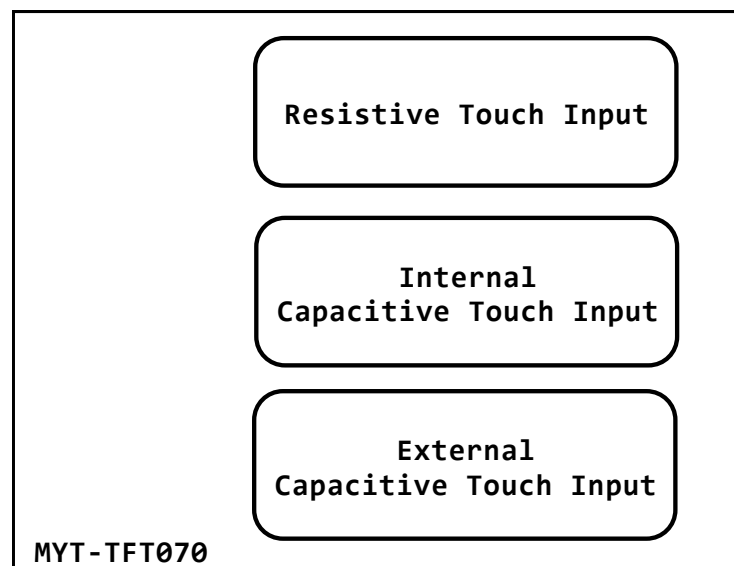


Figure 1-1

There is a store IC on back of MY-TFT070V2, the LCD information would be stored in this IC and could be automatic detected by the OS that run on MYiR board, the corresponding drivers can also be loaded according to this information.

1.3 General Specifications

| NO | Item | Specification | Remark |
|----|-----------------------------|-------------------------------|--------------|
| 1 | LCD size | 7 Inch (16:9) | Diagonal |
| 2 | Resolution | 800 (H) x3 (RGB) x480 (v) mm | |
| 3 | Display area | 95 (H) x 53.86 (V) mm | Note 1 |
| 4 | Outline Dimension | 165 (w) x104 (H) x5.5 (T) mm | Note 1 |
| 5 | Module size | 177 x 106 mm | Note 1 |
| 6 | Display mode | Normally White, Transmissive | |
| 7 | Dot pitch | 0.0642 (W) x 0.1790 (H) mm | |
| 8 | Surface treatment | Anti-Glare | |
| 9 | Operation Temperature | -20°C – 70°C | |
| 10 | Storage Temperature | -30°C – 80°C | |
| 11 | Interface | 50pin FPC | 0.5mm pitch |
| | | 50pin IDC connector (25pinX2) | 1.27mm pitch |
| 12 | Weight | 150g | Typ |
| 13 | Backlight power consumption | 1.674W | Typ |
| 14 | Panel power consumption | 0.226W | Typ |

Note1: Please refer to Mechanical Drawing.

1.4 Product Overview



Figure 1-2 Product Front View

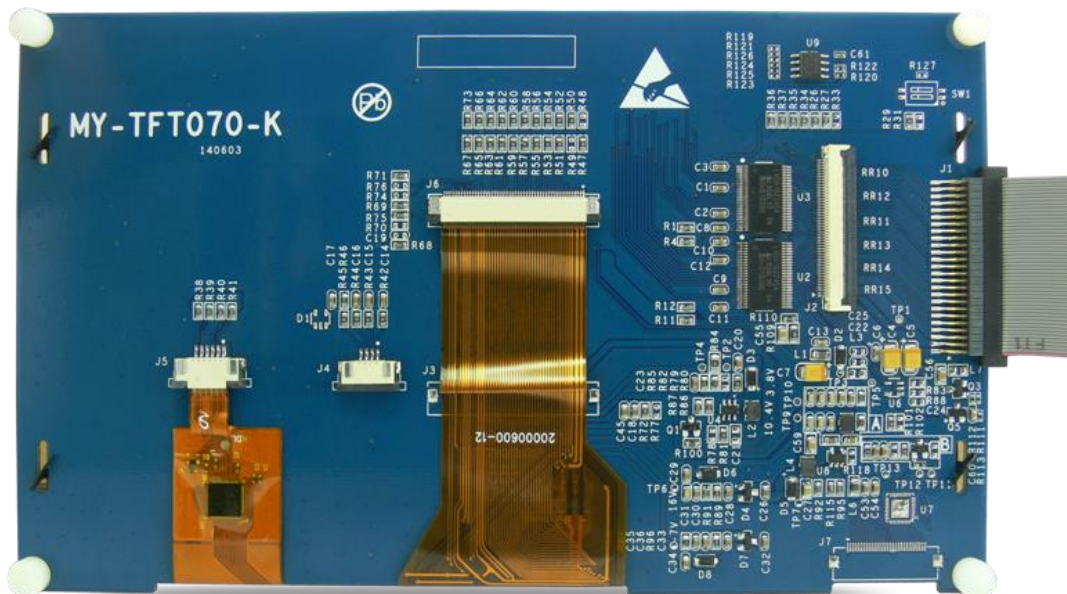


Figure 1-3 Product Back View

Chapter 2 Hardware Resource

2.1 Board Interface

Board Interface is shown in figure 2-1:

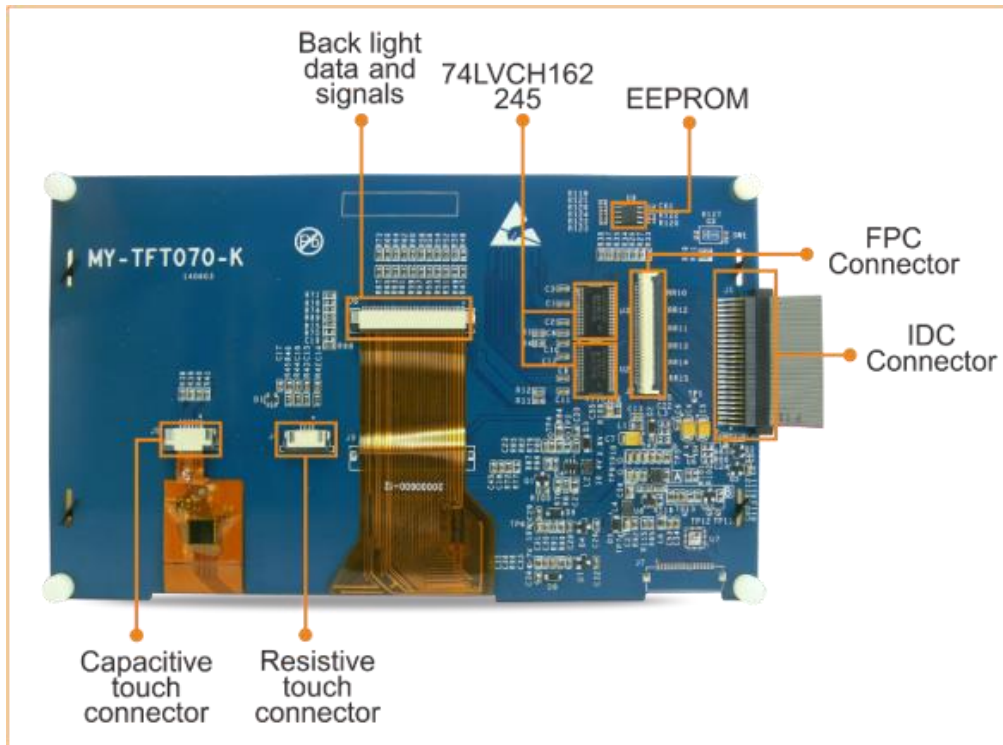


Figure 2-1 Board Interface

As shown above, drive board reserved 1.27mm pitch 50pin IDC connector (J1) and 0.5mm pitch 50pin FPC connector (J2),and default connect IDC cable. J4 is resistive touch signal connections, J5 and J7 are capacitive touch control signals respectively, the default selection is J5 capacitive touch mode. J3 and J6 are LCD backlighting, data and control signals , and default connect J6.

2.2 Pin Assignment

| Function | Symbol | Pin No. | Pin No. | Symbol | Function |
|--------------------|--------|---------|---------|--------|---------------------|
| 5V Power supply | +5V | 1 | 2 | +5V | 5V Power supply |
| 3.3V Power supply | +3V3 | 3 | 4 | +3V3 | 3.3V Power supply |
| Power ground | GND | 5 | 6 | GND | Power ground |
| LCD Blue data (B0) | BLUE0 | 7 | 8 | BLUE1 | LCD Blue data((B1) |

| | | | | | |
|---------------------------------------|-----------|----|----|-----------|--|
| LCD Blue data (B2) | BLUE2 | 9 | 10 | BLUE3 | LCD Blue data((B3) |
| LCD Blue data (B4) | BLUE4 | 11 | 12 | BLUE5 | LCD Blue data((B5) |
| LCD Blue data (B6) | BLUE6 | 13 | 14 | BLUE7 | LCD Blue data((B7) |
| LCD Green data (G0) | GREEN0 | 15 | 16 | GREEN1 | LCD Green data (G1) |
| LCD Green data (G2) | GREEN2 | 17 | 18 | GREEN3 | LCD Green data (G3) |
| LCD Green data (G4) | GREEN4 | 19 | 20 | GREEN5 | LCD Green data (G5) |
| LCD Green data (G6) | GREEN6 | 21 | 22 | GREEN7 | LCD Green data (G7) |
| LCD Red data (R0) | RED0 | 23 | 24 | RED1 | LCD Red data (R1) |
| LCD Red data (R2) | RED2 | 25 | 26 | RED3 | LCD Red data (R3) |
| LCD Red data (R4) | RED4 | 27 | 28 | RED5 | LCD Red data (R5) |
| LCD Red data (R6) | RED6 | 29 | 30 | RED7 | LCD Red data (R7) |
| Power ground | GND | 31 | 32 | BL_CN | Backlight control (PWM) |
| LCD Power enable | PWR_EN_R1 | 33 | 34 | PWR_EN_R2 | LCD Power enable |
| Interrupt signal | TP_INTn | 35 | 36 | TP_RESET | Global reset pin. |
| I2C1 Clock | I2C1_SCL | 37 | 38 | I2C1_SDA | I2C1 Data |
| Power ground | GND | 39 | 40 | VDEN | LCD Data enable |
| LCD Vertical sync signal | VSYNC | 41 | 42 | HSYNC | LCD Horizontal sync signal |
| LCD Pixel clock | VCLK | 43 | 44 | GND | Power ground |
| Right electrode - differential analog | TP_XR | 45 | 46 | TP_XL | Left electrode - differential analog |
| Top electrode - differential analog | TP_YD | 47 | 48 | TP_YU | Bottom electrode - differential analog |
| DNP | DNP | 49 | 50 | GND | Power ground |

2.3 Electrical Characteristics

Typical voltage Consumption:

| Item | Symbol | Min. | Typ. | Max. |
|---------------------------------|--------|---------|--------|---------|
| Power voltage | VDD | 3.0V | 3.3V | 3.6V |
| | AVDD | 10.2V | 10.4 V | 10.6V |
| | VGH | 15.3 V | 16.0 V | 16.7 V |
| | VGL | -7.7 V | -7.0 V | -6.3 V |
| Input signal voltage | VCOM | 2.6V | 3.6 V | 4.6 V |
| Input logic high voltage | VIH | 0.7 VDD | - | VDD |
| Input logic low voltage | VIL | 0 | - | 0.3 VDD |

Current Consumption:

| Item | Symbol | Min. | Typ. | Max. | Remark |
|--------------------|--------|------|--------|-------|-------------|
| Current for Driver | IGH | - | 0.2 mA | 1.0mA | VGH =16.0V |
| | IGL | - | 0.2 mA | 1.0mA | VGL = -7.0V |
| | IVDD | - | 4.0 mA | 10mA | VDD =3.3V |
| | IAVDD | - | 20 mA | 50mA | AVDD =10.4V |

2.4 Timing

Horizontal Timing:

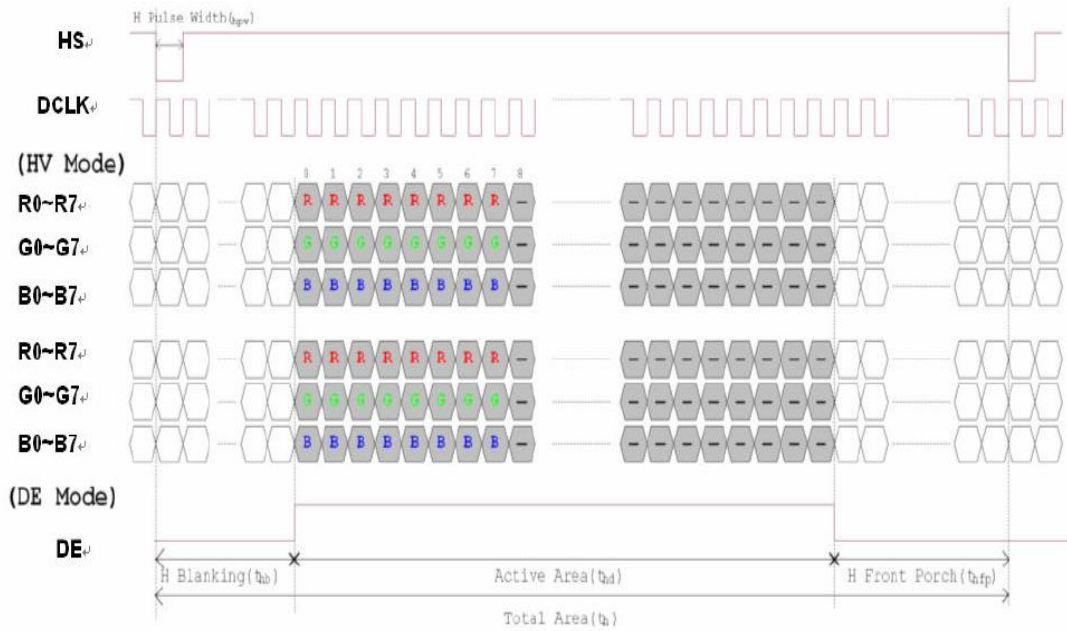
| Item | Symbol | Min. | Typ. | Max. |
|-------------------------|--------|---------|----------|----------|
| Horizontal Display Area | thd | - | 800DCLK | - |
| DCLK Frequency | fclk | 26.4MHz | 33.3MHz | 46.8MHz |
| One Horizontal Line | th | 862DCLK | 1056DCLK | 1200DCLK |
| HS pulse width | Thpw | 1 | - | 40DCLK |
| HS Blanking | thb | 46DCLK | 46DCLK | 46DCLK |
| HS Front Porch | thfp | 16DCLK | 210DCLK | 354DCLK |

Vertical Timing:

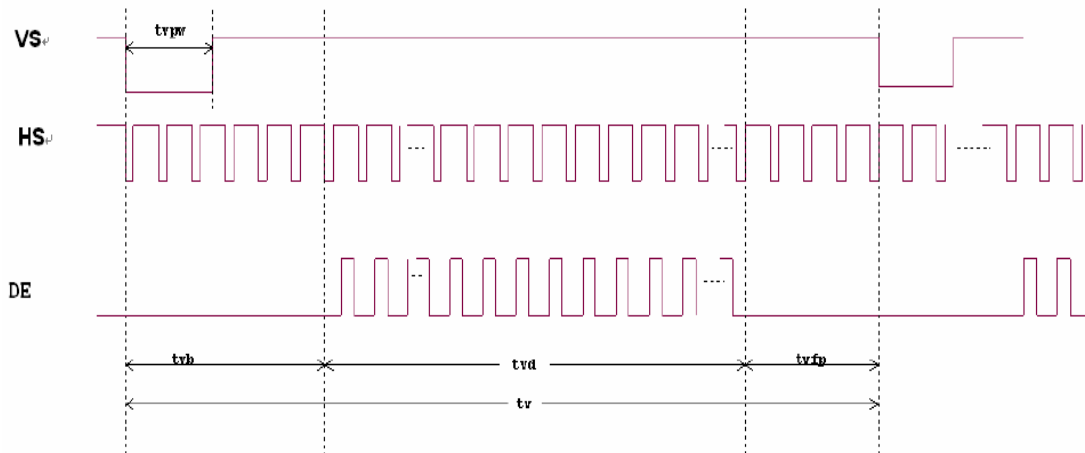
| Item | Symbol | Min. | Typ. | Max. |
|-----------------------|--------|--------|--------|--------|
| Vertical Display Area | tvd | - | 480TH | - |
| VS period time | tv | 510 TH | 525 TH | 650 TH |
| VS pulse width | tvpw | 1 TH | - | 20 TH |
| VS Blanking | tvb | 23 TH | 23 TH | 23 TH |
| VS Front Porch | tvfp | 7 TH | 22 TH | 147 TH |

Data Input Format

Horizontal input timing diagram:



Vertical input timing diagram:



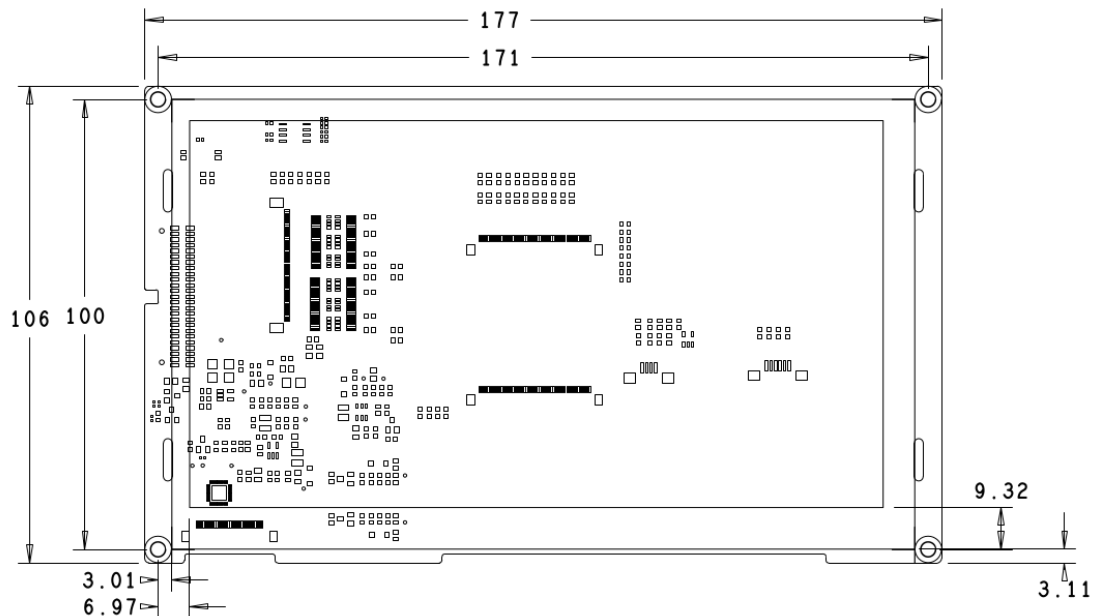
Optical Specifications:

| Item | Symbol | Condition | Min. | Typ. | Max. |
|----------------------------------|------------|---------------------------------|------|-------|-------|
| Viewing angle (CR≥ 10) | θ_L | $\Phi=180^\circ$ (9 'clock) | 60 | 70 | - |
| | θ_R | $\Phi=0^\circ$ (3 o'clock) | 60 | 70 | - |
| | θ_T | $\Phi=90^\circ$ (12 'clock) | 40 | 50 | - |
| | θ_B | $\Phi=270^\circ$ (6 'clock) | 60 | 70 | - |
| Response time | TON | Normal $\theta=\Phi=0^\circ$ | - | 10ms | 20 ms |
| | TOFF | | - | 15 ms | 30ms |
| Contrast ratio | CR | | 400 | 500 | - |

| Item | Symbol | Condition | Min. | Typ. | Max. |
|-----------------------------|--------|-----------|----------------------|----------------------|------|
| Color chromaticity | WX | | 0.26 | 0.31 | 0.36 |
| | WY | | 0.28 | 0.33 | 0.38 |
| Luminance | L | | 200cd/m ² | 250cd/m ² | - |
| Luminance uniformity | YU | | 70% | 75% | = |

Chapter 3 Mechanical Dimensions

Mechanical Dimensions:



UNIT : MM

Figure3-1 MY-TFT070V2 Mechanical Dimensions

Electrical Dimensions:

- LCD size: 7 Inch (16:9)
- Resolution: 800x3 (RGB) x480
- Operation Temperature: -20 – 70 °C
- Storage Temperature: -30 – 80 °C
- Environment Temperature: -50°C ~+100°C
- Power supply:
 - 3.3V/2A
 - 5V/2A
- LCD consumption:
 - Backlight power consumption: 1.674W
 - Panel power consumption: 0.226W
- Interface Type:
 - 50PIN IDC connector, 2.0mm pitch

- 50PIN FPC, 0.5mm pitch
- Mechanical Dimensions:
 - Outline Dimension: [165*1040] mm
 - Module size: [177*106] mm

Appendix

The MY-TFT070V2 7-inch LCD module (resolution of 800×480) has two models: MY-TFT070RV2 (7-inch LCD with Resistive touch screen) and MY-TFT070CV2 (7-inch LCD Module with Capacitive touch screen).

General Precautions:

1. The LCD panel is plate glass. Do not subject the panel to mechanical shock or to excessive force on its surface.
2. The polarizer attached to the display is easily damaged. Please handle it carefully to avoid scratch or other damages.
3. To avoid contamination on the display surface, do not touch the module surface with bare hands.
4. Keep a space so that the LCD panels do not touch other components.
5. Put cover board such as acrylic board on the surface of LCD panel to protect panel from damages.
6. Transparent electrodes may be disconnected if you use the LCD panel under environmental conditions where the condensation of dew occurs.
7. Do not leave module in direct sunlight to avoid malfunction of the ICs.

Appendix 1 Warranty & Technical Support Services

MYIR Tech Limited is a global provider of ARM hardware and software tools, design solutions for embedded applications. We support our customers in a wide range of services to accelerate your time to market.

MYIR is an ARM Connected Community Member and work closely with ARM and many semiconductor vendors. We sell products ranging from board level products such as development boards, single board computers and CPU modules to help with your evaluation, prototype, and system integration or creating your own applications. Our products are used widely in industrial control, medical devices, consumer electronic, telecommunication systems, Human Machine Interface (HMI) and more other embedded applications. MYIR has an experienced team and provides custom design services based on ARM processors to help customers make your idea a reality.

The contents below introduce to customers the warranty and technical support services provided by MYIR as well as the matters needing attention in using MYIR's products.

Service Guarantee

MYIR regards the product quality as the life of an enterprise. We strictly check and control the core board design, the procurement of components, production control, product testing, packaging, shipping and other aspects and strive to provide products with best quality to customers. We believe that only quality products and excellent services can ensure the long-term cooperation and mutual benefit.

Price

MYIR insists on providing customers with the most valuable products. We do not pursue excess profits which we think only for short-time cooperation. Instead, we hope to establish long-term cooperation and win-win business with customers. So we will offer reasonable prices in the hope of making the business greater with the customers together hand in hand.

Delivery Time

MYIR will always keep a certain stock for its regular products. If your order quantity is less than the amount of inventory, the delivery time would be within three days; if your order quantity is greater than the number of inventory, the delivery time would be always four to six weeks. If for any urgent delivery, we can negotiate with customer and try to supply the goods in advance.

Technical Support

MYIR has a professional technical support team. Customer can contact us by email (support@myirtech.com), we will try to reply you within 48 hours. For mass production and customized products, we will specify person to follow the case and ensure the smooth production.

After-sale Service

MYIR offers one year free technical support and after-sales maintenance service from the purchase date. The service covers:

1. Technical support service
 - a) MYIR offers technical support for the hardware and software materials which have provided to customers;
 - b) To help customers compile and run the source code we offer;
 - c) To help customers solve problems occurred during operations if users follow the user manual documents;
 - d) To judge whether the failure exists;
 - e) To provide free software upgrading service.

However, the following situations are not included in the scope of our free technical support service:

- a) Hardware or software problems occurred during customers' own development;
- b) Problems occurred when customers compile or run the OS which is tailored by themselves;
- c) Problems occurred during customers' own applications development;
- d) Problems occurred during the modification of MYIR's software source code.

2. After-sales maintenance service

The products except LCD, which are not used properly, will take the twelve months free maintenance service since the purchase date. But following situations are not included in the scope of our free maintenance service:

- a) The warranty period is expired;
- b) The customer cannot provide proof-of-purchase or the product has no serial number;
- c) The customer has not followed the instruction of the manual which has caused the damage the product;
- d) Due to the natural disasters (unexpected matters), or natural attrition of the components, or unexpected matters leads the defects of appearance/function;
- e) Due to the power supply, bump, leaking of the roof, pets, moist, impurities into the boards, all those reasons which have caused the damage of the products or defects of appearance;
- f) Due to unauthorized weld or dismantle parts or repair the products which has caused the damage of the products or defects of appearance;
- g) Due to unauthorized installation of the software, system or incorrect configuration or

computer virus which has caused the damage of products.

Warm tips:

- 1) MYIR does not supply maintenance service to LCD. We suggest the customer first check the LCD when receiving the goods. In case the LCD cannot run or no display, customer should contact MYIR within 7 business days from the moment get the goods.
- 2) Please do not use finger nails or hard sharp object to touch the surface of the LCD.
- 3) MYIR suggests user purchasing a piece of special wiper to wipe the LCD after long time use, please avoid clean the surface with fingers or hands to leave fingerprint.
- 4) Do not clean the surface of the screen with chemicals.
- 5) Please read through the product user manual before you using MYIR's products.
- 6) For any maintenance service, customers should communicate with MYIR to confirm the issue first. MYIR's support team will judge the failure to see if the goods need to be returned for repair service, we will issue you RMA number for return maintenance service after confirmation.

3. Maintenance period and charges

- a) MYIR will test the products within three days after receipt of the returned goods and inform customer the testing result. Then we will arrange shipment within one week for the repaired goods to the customer. For any special failure, we will negotiate with customers to confirm the maintenance period.
- b) For products within warranty period and caused by quality problem, MYIR offers free maintenance service; for products within warranty period but out of free maintenance service scope, MYIR provides maintenance service but shall charge some basic material cost; for products out of warranty period, MYIR provides maintenance service but shall charge some basic material cost and handling fee.

4. Shipping cost

During the warranty period, the shipping cost which delivered to MYIR should be responsible by user; MYIR will pay for the return shipping cost to users when the product is repaired. If the warranty period is expired, all the shipping cost will be responsible by users.

5. Products Life Cycle

MYIR will always select mainstream chips for our design, thus to ensure at least ten years continuous supply; if meeting some main chip stopping production, we will inform customers in time and assist customers with products updating and upgrading.

Value-added Services

1. MYIR provides services of driver development base on MYIR's products, like serial port, USB, Ethernet, LCD, etc.
2. MYIR provides the services of OS porting, BSP drivers' development, API software

development, etc.

3. MYIR provides other products supporting services like power adapter, LCD panel, etc.
4. ODM/OEM services.



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