



SPECIFICATION

CUSTOMER : _____

MODEL NO. : WLOF00101000JGAACSA00

| | |
|---|--|
| <p>APPROVED BY: (FOR CUSTOMER USE ONLY)</p> | |
|---|--|

| SALES BY | APPROVED BY | CHECKED BY | PREPARED BY |
|----------|-------------|-------------|-------------|
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| VERSION | DATE | REVISED PAGE NO. | SUMMARY |
|---------|------------|------------------|---|
| A | 2023/06/16 | 9 | Revise Min& Max in Electrical Characteristics |

TFT Display Inspection Specification: <https://www.winstar.com.tw/technology/download.html>

Precaution in use of TFT module: <https://www.winstar.com.tw/technology/download/declaration.html>

| RECORDS OF REVISION | | | DOC. FIRST ISSUE |
|----------------------------|-------------|-------------------------|---|
| VERSION | DATE | REVISED PAGE NO. | SUMMARY |
| 0 | 2023/03/28 | | First issue |
| A | 2023/06/16 | 9 | Revise Min& Max in Electrical Characteristics |

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1. Smart Display Classification Information

| | | | | | | | | | | |
|---|---|----|--------|-----|---|---|----|---|---|----|
| W | L | OF | 001010 | 00J | G | A | AC | S | A | 00 |
| ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ |

| | | | | | | | | | | | |
|---|--|---|---|--|--|--------------------------|--|--|--|--|--|
| ① | W: WINSTAR products | | | | | | | | | | |
| ② | Type: L:Standard K:Customization | | | | | | | | | | |
| ③ | Display Type: | Standard: | OH: Character STN OX: Graphic STN (TAB/COF) OF: TFT EH: Character OLED EX: OLED (TAB/COF) | | | | OG: Graphic STN OP: Graphic STN (COG) EG: Graphic OLED EP: OLED (COG) | | | | |
| | | Customization: | DH: Character DN: Graphic ED: OLED | | | | DG: Graphic STN OJ: TFT | | | | |
| ④ | Display size: (diagonal) / Display format: (resolution) | Character STN: | e.g., 8x1: 000801 16x2: 001602 24x4: 002404 | | | | | | | | |
| | | Graphic STN: | e.g., 128x64: 012864 320x240: 320240 | | | | | | | | |
| | | TFT Size (inch): | 000096-0.96" / 000350-3.5" / 000430-4.3" / 000570-5.7" 000700-7.0" / 000800-8.0" / 001020-10.2" / 001210-12.1" (The last two digits are two digits after the decimal point) | | | | | | | | |
| | OLED: | e.g., 128x64: 012864 Customization: 0001XX | | | | | | | | | |
| ⑤ | Serial No: | 0A1 ~ 0ZZ | Customization STN: 000 | | | | | | | | |
| ⑥ | Touch Panel Type: | N: Without TP T: RTP G: CTP | | | | | | | | | |
| ⑦ | Model Interface: | A: CAN | H: HDMI | | | X: Combined | | | | | |
| | | B: Bluetooth | R: Memory Specified | | | Y: Proprietary interface | | | | | |
| | | C: Controller Specified | N: Ethernet | | | | | | | | |
| | | D: RS485 | J: Analog I/O | | | | | | | | |
| | | E: RS232 | K: USB | | | | | | | | |
| | | F: USART | L: WIFI | | | | | | | | |
| | | G: Logic I/O | M: Zigbee | | | | | | | | |
| ⑧ | Interface Serial No.: | AA ~ ZZ | | | | | | | | | |
| ⑨ | Control Category: | S: Smart Display E: Entry N: Non-specified | | | | | | | | | |
| ⑩ | Special Code: | A → Generic B → Industrial C → Automotive D → Medical | | | | | | | | | |
| ⑪ | Model code: | 00 ~ ZZ | | | | | | | | | |

2. Summary

10.1 Inch Smart Display (Custom CAN ID series) Features

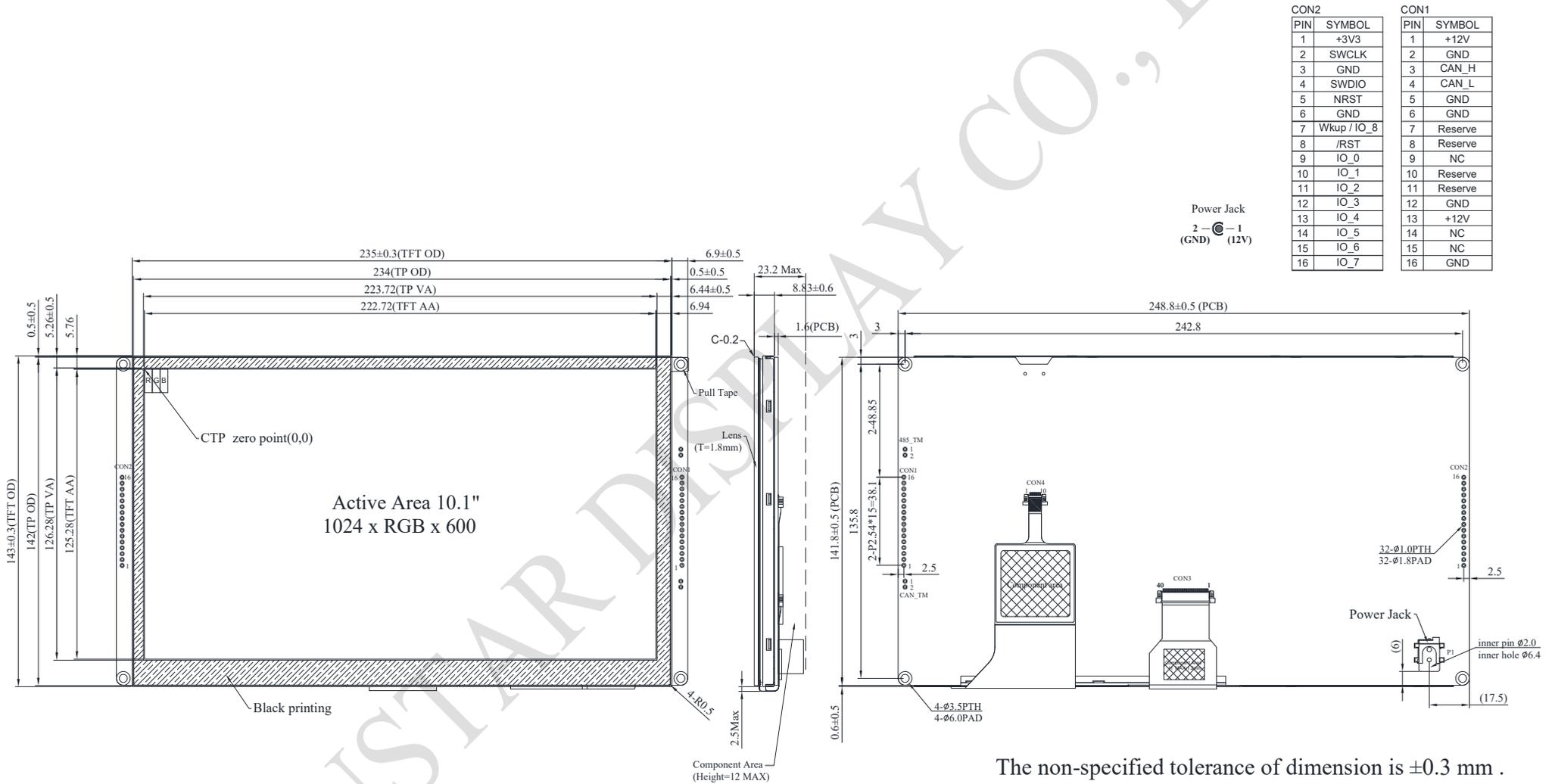
1. +12V power supply input, the power consumption is around 6W.
2. Self testing after booting function.
3. CAN bus communication interface.
4. Supports Custom CAN ID protocol. Default baud rate is at 250KB.
5. Built in flash memory, store the font and Object Dictionary Data.
6. Support capacitive touch panel (CTP).
7. Embedded buzzer controlled by Master Device.
8. Demo set HOST can be used on multiple platforms, such as Computer (with USB to CAN Dongle), MCU, Raspberry Pi (with PiCAN2).

3. Product information

General information

| Item | Standard Value | Unit |
|-------------------------|--------------------------------|-------------|
| Operating voltage | 8V~28V dynamic | Vdc |
| Communication Interface | CAN bus differential ± 3.3 | Vpp |
| MCU | STM32F746 | N/A |
| Flash Memory | 16 | MB |
| SDRAM Frequency | 166 | MHz |
| LCD display size | 10.1 | inch |
| Dot Matrix | 1024 x RGBx600(TFT) | dot |
| Module dimension | 235(W) x 143(H) x 8.78(D) | mm |
| Active area | 222.72 (H) x 125.28(V) | mm |
| Dot pitch | 0.2175(W) x 0.2088(H) | mm |
| Brightness | Min:300; Typ:400 | |
| LCD type | LED, Normally White | |
| View Direction | 85/85/85/85 | |
| Aspect Ratio | 16:9 | |
| With /Without TP | With CTP | |
| Surface | Glare | |

4. Contour Drawing



The non-specified tolerance of dimension is ±0.3 mm .

5. Absolute Maximum Ratings

| Item | Symbol | Min | Typ | Max | Unit |
|-----------------------|--------|-----|-----|-----|------|
| Operating Temperature | TOP | -20 | — | +70 | °C |
| Storage Temperature | TST | -30 | — | +80 | °C |

Note: Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above
1. Temp. $\leq 60^{\circ}\text{C}$, 90% RH MAX. Temp. $> 60^{\circ}\text{C}$, Absolute humidity shall be less than 90% RH at 60°C

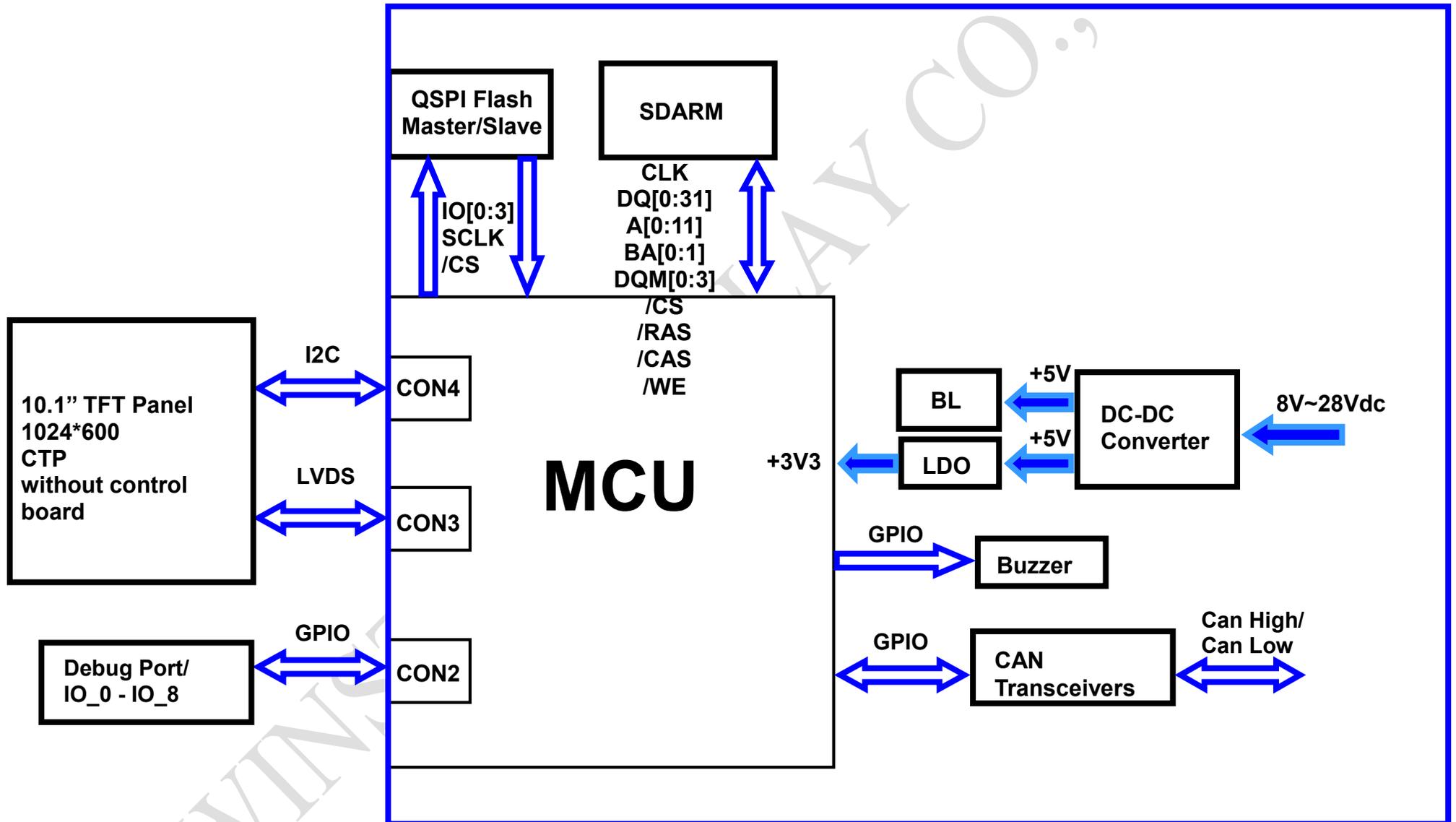
6. Electrical Characteristics

| Item | Symbol | Condition | Min | Typ | Max | Unit |
|--------------------|--------|-----------|-----|-----|-----|------|
| Supply Voltage | VCC | — | 8 | 12 | 28 | V |
| Supply LCM current | I(mA) | - | - | 530 | - | mA |

7. BOM

| Item | Description | Remark |
|------|----------------------|--------|
| LCM | WF101JTYAHLNB0# | |
| PCBA | SV10010R100JB00N0100 | |

8. Block diagram



9. Interface

CON1 definition:

| Pin | Symbol | Function | Remark |
|-----|---------|-----------------------------|---------|
| 1 | +12V | Power supply12V input | Input |
| 2 | GND | Power supply GND input | Input |
| 3 | CAN_H | CAN bus D+ | I/O |
| 4 | CAN_L | CAN bus D- | I/O |
| 5 | GND | Power supply GND input | GND |
| 6 | GND | Power supply GND input | GND |
| 7 | Reserve | USB_D- | Reserve |
| 8 | Reserve | USB_D+ | Reserve |
| 9 | NC | - | - |
| 10 | Reserve | USART RX interface(Reserve) | Reserve |
| 11 | Reserve | USART TX interface(Reserve) | Reserve |
| 12 | GND | Power supply GND input | GND |
| 13 | +12V | Power supply12V input | Input |
| 14 | NC | - | - |
| 15 | NC | - | - |
| 16 | GND | Power supply GND input | Input |

CON2 definition:

| Pin | Symbol | Function | Remark |
|-----|------------|--|--------------------------|
| 1 | VDD3V | 3.3V power for JTAG interface | Output |
| 2 | JTAG_SWCLK | CLK pin for JTAG interface | Input |
| 3 | GND | GND for JTAG interface | Output |
| 4 | JTAG_SWDIO | Data pin for JTAG interface | I/O |
| 5 | NRST | Reset pin for JTAG interface | Input |
| 6 | GND | GND | Output |
| 7 | Wkup/ IO_8 | (PA0) for system Resume from suspend (Reserve) | WKup,ADC,Timer,Event,I/O |
| 8 | /RST | Reset (active Low) | I |
| 9 | IO_0 | ADC,DAC,Timer,Event,I/O | PA5 |
| 10 | IO_1 | ADC,Timer,Event,I/O | PA6 |
| 11 | IO_2 | ADC,Timer,Event,I/O | PA7 |
| 12 | IO_3 | RST,Timer,Event,I/O | PA8 |
| 13 | IO_4 | RST,Timer,Event,I/O | PC13 |
| 14 | IO_5 | ADC,Timer,Event,I/O | PB11 |
| 15 | IO_6 | RST,Timer,Event,I/O | PA15 |
| 16 | IO_7 | RST,ADC,Event,I/O | PD11 |

10. Reliability

Content of Reliability Test (Wide temperature, -20°C~70°C)

| Environmental Test | | | |
|--------------------------------------|--|--|------|
| Test Item | Content of Test | Test Condition | Note |
| High Temperature storage | Endurance test applying the high storage temperature for a long time. | 80°C 200hrs | 2 |
| Low Temperature storage | Endurance test applying the low storage temperature for a long time. | -30°C 200hrs | 1,2 |
| High Temperature Operation | Endurance test applying the electric stress (Voltage & Current) and the thermal stress to the element for a long time. | 70°C 200hrs | — |
| Low Temperature Operation | Endurance test applying the electric stress under low temperature for a long time. | -20°C 200hrs | 1 |
| High Temperature/ Humidity Operation | The module should be allowed to stand at 40°C,90%RH max | 60°C,90%RH 96hrs | 1,2 |
| Thermal shock resistance | The sample should be allowed stand the following 10 cycles of operation <div style="text-align: center;"> <p style="margin: 0;">-20°C 25°C 70°C</p> <p style="margin: 0;">←—————→</p> <p style="margin: 0;">30min 5min 30min</p> <p style="margin: 0;">1 cycle</p> </div> | -20°C/70°C 10 cycles | — |
| Vibration test | Endurance test applying the vibration during transportation and using. | Total fixed amplitude : 1.5mm Vibration Frequency : 10~55Hz One cycle 60 seconds to 3 directions of X,Y,Z for Each 15 minutes | 3 |
| Static electricity test | Endurance test applying the electric stress to the terminal. | VS=±600V(contact) ,±800v(air), RS=330Ω CS=150pF 10 times | — |

Note1: No dew condensation to be observed.

Note2: The function test shall be conducted after 4 hours storage at the normal Temperature and humidity after remove from the test chamber.

Note3: The packing have to including into the vibration testing.

11. Product inspection check list

Check samples by meter V_{IN} , I_{system}

| Item | No 1 | No 2 | No 3 | Note |
|-------------------|-------|-------|-------|------|
| V_{IN} (V) | 12.1 | 12.1 | 12.1 | |
| I_{system} (mA) | 0.533 | 0.535 | 0.537 | |

Check sample Reliability Test

| Item | Result | Note |
|----------------------------|--------|--|
| Thermal shock | — | -20°C/70°C 20 cycles |
| High Temperature Operation | — | 70°C 96hrs |
| Low Temperature Operation | — | -20°C 96hrs |
| Static electricity test | — | VS=±2KV~±6KV(contact),±2KV~±8KV (air), RS=330Ω CS=150pF 10 times |
| Vibration test | — | Total fixed amplitude : 1.5mm Vibration Frequency : 10~55Hz One cycle 60 seconds to 3 directions of X,Y,Z for Each 15 minutes |

- Prepare sets for testing