

Display Elektronik GmbH

DATA SHEET

LCD-MODULE

DEM 20489 SBH-PW-N

Product Specification

Ver.: 3

25.02.2016

Revision History

| VERSION | DATE | Note |
|----------------|-------------|---|
| 0 | 12.12.2011 | First Issue |
| 1 | 28.11.2012 | Modify Backlight Information |
| 2 | 19.08.2014 | Remove IC Information |
| 3 | 25.02.2016 | Modify Precautions in use of LCD Modules & Static Electricity Test |

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9. Inspection specification
10. Precautions in use of LCD Modules

1. General Specification

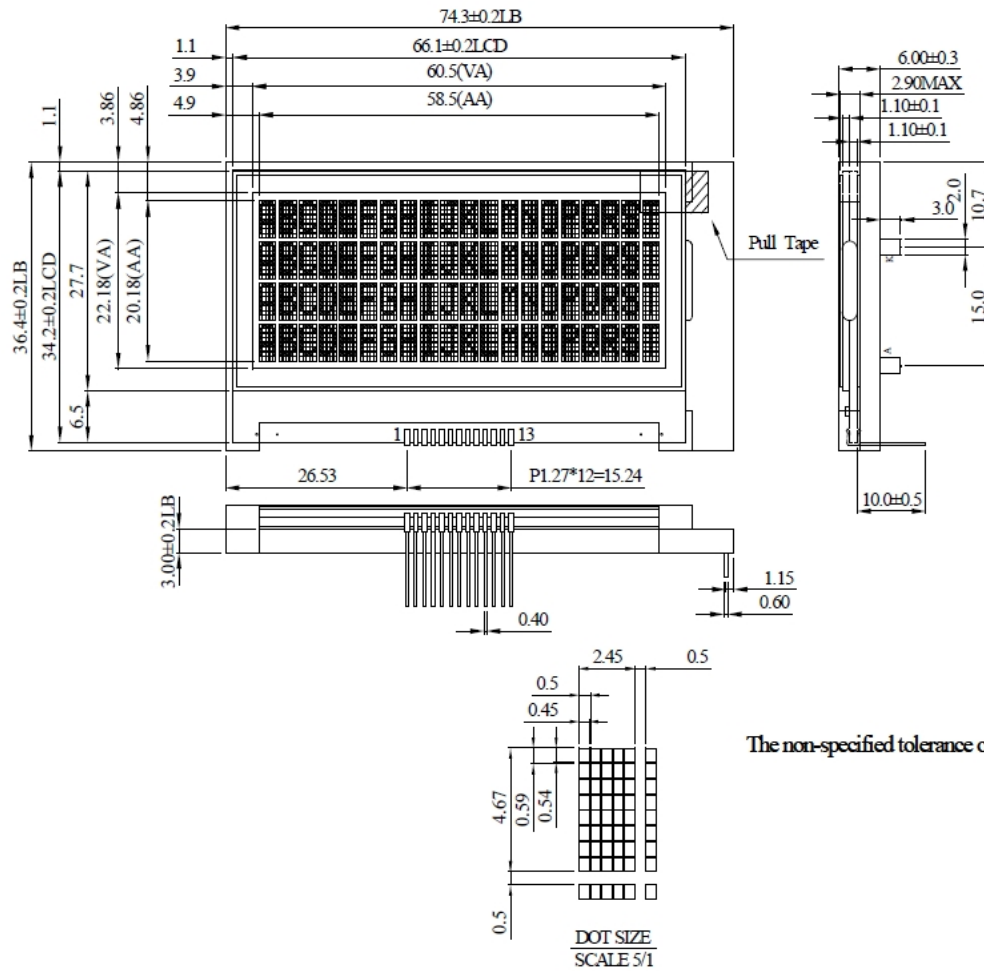
The Features is described as follow:

- Module Dimension: 74.30 x 36.40 x 6.00 mm
- View Area: 60.50 x 22.18 mm
- Active Area: 58.50 x 20.18 mm
- Dot Size: 0.45x 0.54 mm
- Dot Pitch: 0.50 x 0.59 mm
- Character Size: 2.45 x 4.67 mm
- Character Pitch: 2.95 x 5.17 mm
- LCD Type: STN-BLUE Negative Transmissive
- Duty: 1/33DUTY,1/6BIAS
- View Direction: 6 o'clock
- Backlight Type: LED, White
- IC: SSD1803AM1Z

2. Interface Pin Function

| Pin No. | Symbol | Description | | | | | | |
|---------|-----------------------------|---|--------|------|---|--------------------|---|-----------------------------|
| 1 | /RES | Reset Pin | | | | | | |
| 2 | VOUT | Output of the voltage converter | | | | | | |
| 3 | V0 | Regulated voltage from voltage converter for LCD driving | | | | | | |
| 4 | V1 | Bias voltage levels for LCD driving | | | | | | |
| 5 | V2 | | | | | | | |
| 6 | V3 | | | | | | | |
| 7 | V4 | | | | | | | |
| 8 | VDD | This pin is the power supply for logic circuit (VDD should rise within 10ms). In 3V IO application (VDDREG pulled low), this is a power input pin. In 5V IO application (VDDREG pulled high), this pin outputs 3V and should be connected with a capacitor to VSS. | | | | | | |
| 9 | VDDREG | This pin is used to enable VDD regulator in 5V I/O Application: <table border="1" data-bbox="475 1106 1094 1252"> <thead> <tr> <th>VDDREG</th> <th>Mode</th> </tr> </thead> <tbody> <tr> <td>H</td> <td>5V I/O Application</td> </tr> <tr> <td>L</td> <td>Low Voltage I/O Application</td> </tr> </tbody> </table> | VDDREG | Mode | H | 5V I/O Application | L | Low Voltage I/O Application |
| VDDREG | Mode | | | | | | | |
| H | 5V I/O Application | | | | | | | |
| L | Low Voltage I/O Application | | | | | | | |
| 10 | VDDIO | This pin is the power supply for bus IO buffer in both Low Voltage I/O and 5V I/O application. | | | | | | |
| 11 | VSS | Ground | | | | | | |
| 12 | SCL | This pin is used as clock input pin in I2C mode. | | | | | | |
| 13 | SDA | This pin is used as data/ acknowledge response output pin in I2C mode. | | | | | | |

3. Counter Drawing

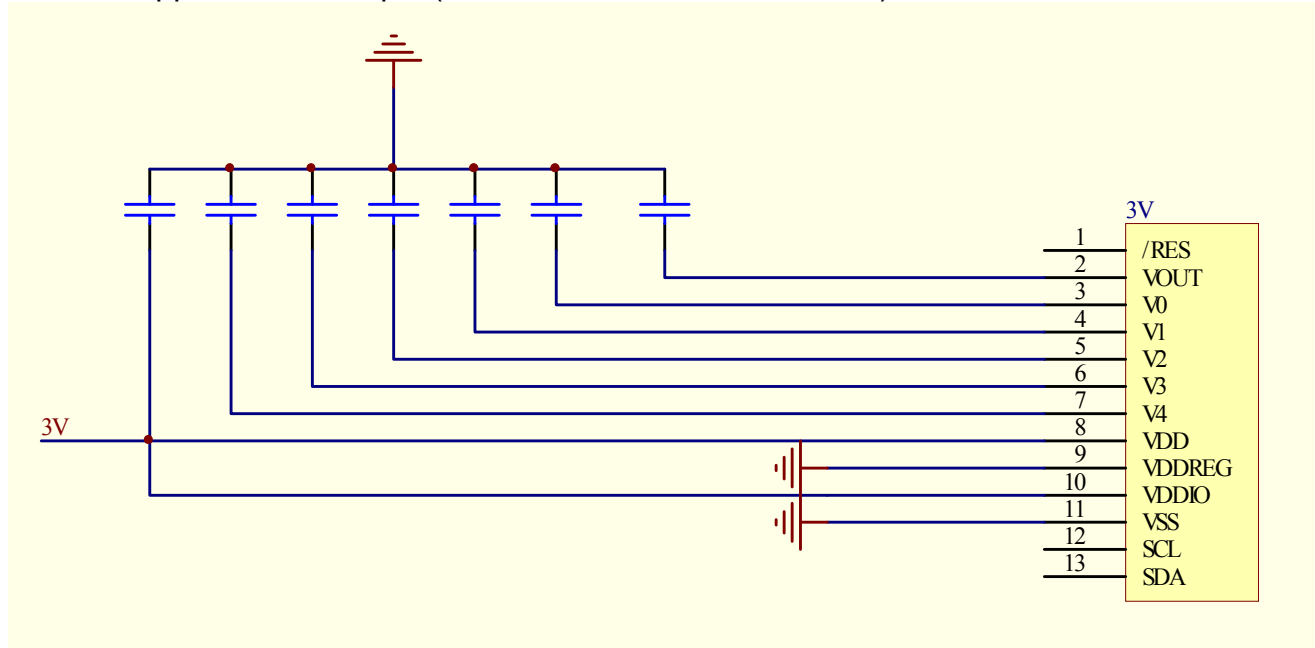


| PNDC | SYMBOL |
|------|--------|
| 1 | /RES |
| 2 | VOUT |
| 3 | V0 |
| 4 | V1 |
| 5 | V2 |
| 6 | V3 |
| 7 | V4 |
| 8 | VDD |
| 9 | VDDREG |
| 10 | VDDIO |
| 11 | VSS |
| 12 | SCL |
| 13 | SDA |

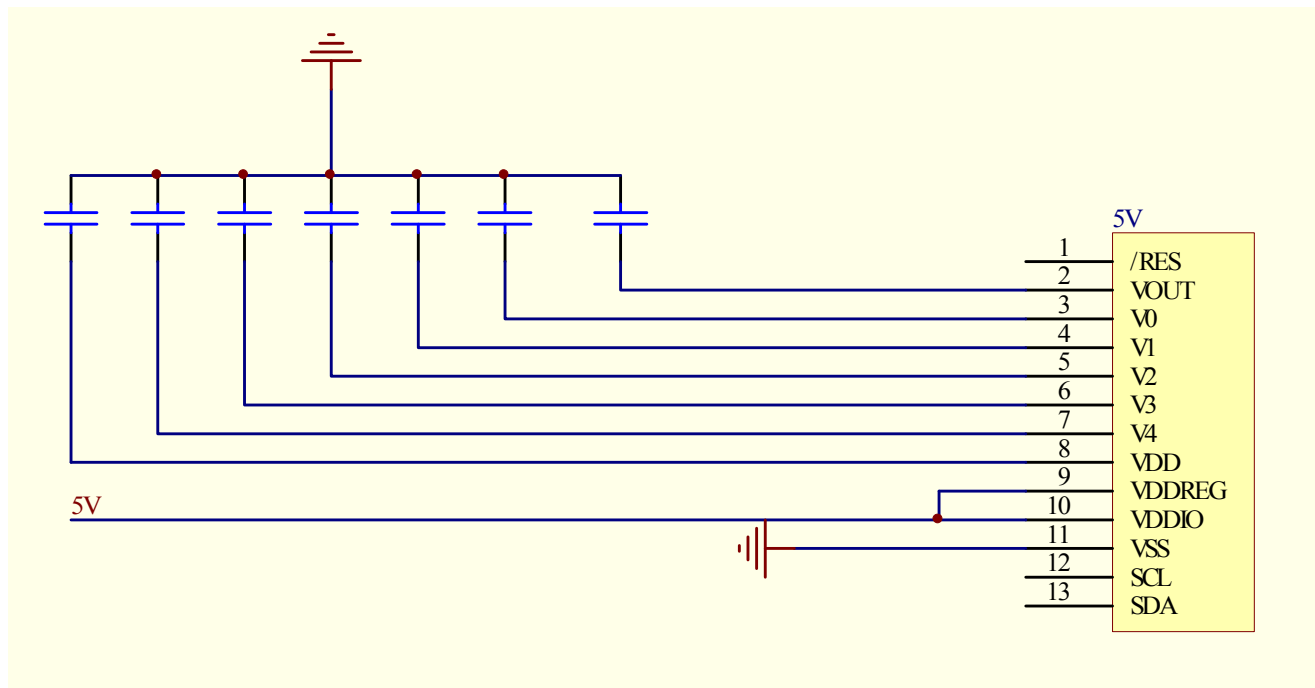
The non-specified tolerance of dimension is ± 0.2 mm.

3.1 APPLICATION EXAMPLES

3.1.1 Application Example (I2C interface, 3V VDDIO mode)



3.1.2 Application Example (I2C interface, 5V IO mode)

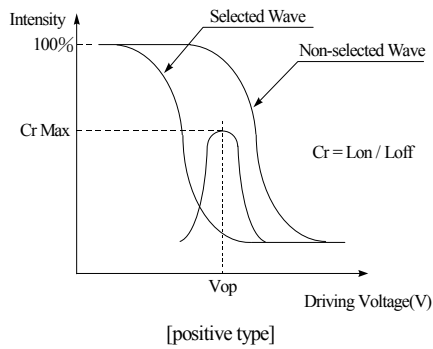


Capacitance = 1µF

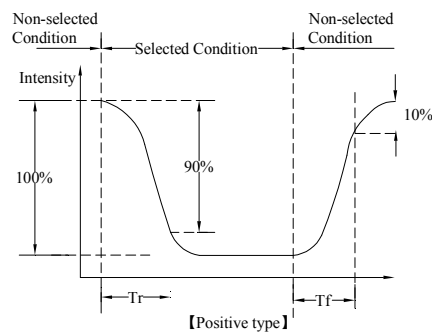
4. Optical Characteristics

| Item | Symbol | Condition | Min | Typ | Max | Unit |
|----------------|----------|-------------|-----|-----|-----|--------------------|
| View Angle | θ | $CR \geq 2$ | 0 | — | 20 | $\psi = 180^\circ$ |
| | θ | $CR \geq 2$ | 0 | — | 40 | $\psi = 0^\circ$ |
| | θ | $CR \geq 2$ | 0 | — | 30 | $\psi = 90^\circ$ |
| | θ | $CR \geq 2$ | 0 | — | 30 | $\psi = 270^\circ$ |
| Contrast Ratio | CR | — | — | 3 | — | — |
| Response Time | T Rise | — | — | 150 | 200 | ms |
| | T Fall | — | — | 150 | 200 | ms |

Definition of Operation Voltage (Vop)



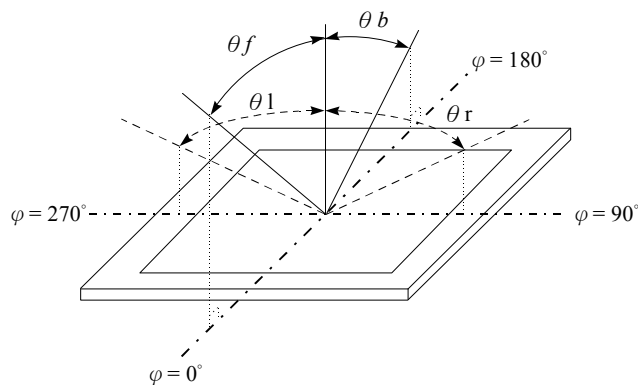
Definition of Response Time (Tr, Tf)



Conditions :

Operating Voltage : Vop Viewing Angle(θ , φ) : 0° , 0°
 Frame Frequency : 64 Hz Driving Waveform : 1/N duty , 1/a bias

Definition of viewing angle($CR \geq 2$)



5. Absolute Maximum Ratings

| Item | Symbol | Min | Typ | Max | Unit |
|-----------------------|-----------------|------|-----|----------------------|------|
| Operating Temperature | TOP | -20 | — | +70 | °C |
| Storage Temperature | TST | -30 | — | +80 | °C |
| Input Voltage | VIN | -0.3 | — | V _{DD} +0.3 | V |
| Power Supply Voltage | V _{DD} | -0.3 | — | 6.0 | V |
| LCD Driver Voltage | VLCD | -0.3 | — | 15.0 | V |

6. Electrical Characteristics

| Item | Symbol | Condition | Min | Typ | Max | Unit |
|--------------------------|---------------------------------|-------------------------|-----------------------|-----|-----------------------|------|
| Supply Voltage For Logic | V _{DDIO} | Low Voltage I/O App. | 2.4 | 3.0 | V _{DD} | V |
| | | 5V I/O App. | 4.5 | 5.0 | 5.5 | V |
| | V _{DD} | — | 2.4 | 3.0 | 3.6 | V |
| Supply Voltage For LCD | V _O -V _{SS} | Ta=-20°C | — | — | — | V |
| | | Ta=25°C | 7.6 | 7.8 | 8.0 | V |
| | | Ta=70°C | — | — | — | V |
| Input High Volt. | V _{IH} | — | 0.8 V _{DDIO} | — | V _{DDIO} | V |
| Input Low Volt. | V _{IL} | — | — | — | 0.2 V _{DDIO} | V |
| Output High Volt. | V _{OH} | — | 0.8 V _{DDIO} | — | V _{DDIO} | V |
| Output Low Volt. | V _{OL} | — | — | — | 0.2 V _{DDIO} | V |
| Supply LCM current | I _{DD} | V _{DD} =3.0V | — | 1.0 | 2.0 | mA |

Please kindly consider to design the Vop to be adjustable while programing the software to match LCD contrast tolerance.

7. Backlight Information

Specification

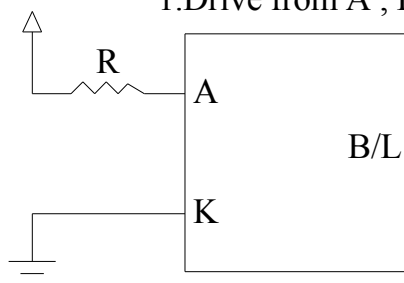
| PARAMETER | SYMBOL | MIN | TYP | MAX | UNIT | TEST CONDITION |
|---------------------------------------|------------------|-----|-------|-----|-------------------|---|
| Supply Current | I _{LED} | — | 48 | 60 | mA | V=3.5V |
| Supply Voltage | V | 3.4 | 3.5 | 3.6 | V | — |
| Reverse Voltage | V _R | — | — | 5 | V | — |
| Luminance (Without LCD) | I _V | 560 | 700 | — | CD/M ² | I _{LED} =48mA |
| LED Life Time (For Reference only) | — | — | 50000 | — | Hr. | I _{LED} =48mA 25°C, 50-60%RH, (Note 1) |
| Color | White | | | | | |

Note: The LED of B/L is drive by current only, drive voltage is for reference only.
drive voltage can make driving current under safety area (current between minimum and maximum).

Note 1: 50000 hours is only an estimate for reference.

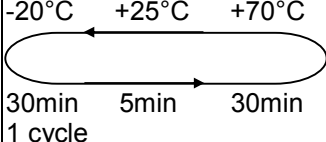
LED B\L Drive Method

1. Drive from A , K



8. Reliability

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

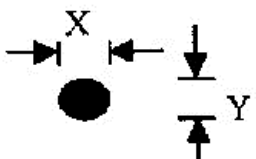
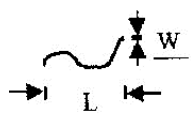
| Environmental Test | | | |
|------------------------------------|---|---|------|
| Test Item | Content of Test | Test Condition | Note |
| High Temperature storage | Endurance test applying the high storage temperature for a long time. | +80°C 200hrs | 2 |
| Low Temperature storage | Endurance test 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 storage | The module should be allowed to stand at 60□,90%RH max For 96hrs under no-load condition excluding the polarizer, Then taking it out and drying it at normal temperature. | +60°C,90%RH 96hrs | 1,2 |
| Thermal shock resistance | The sample should be allowed stand the following 10 cycles of operation -20°C +25°C +70°C  30min 5min 30min 1 cycle | -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 | — |

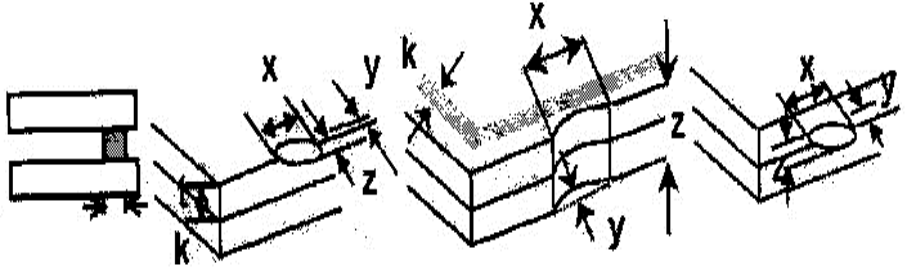
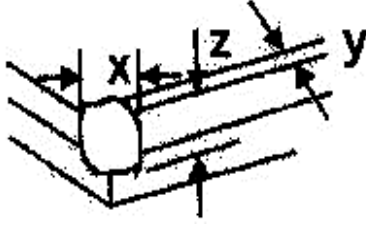
Note1: No dew condensation to be observed.

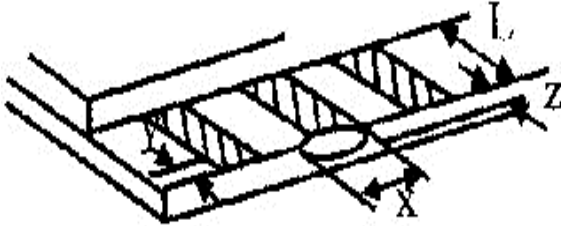
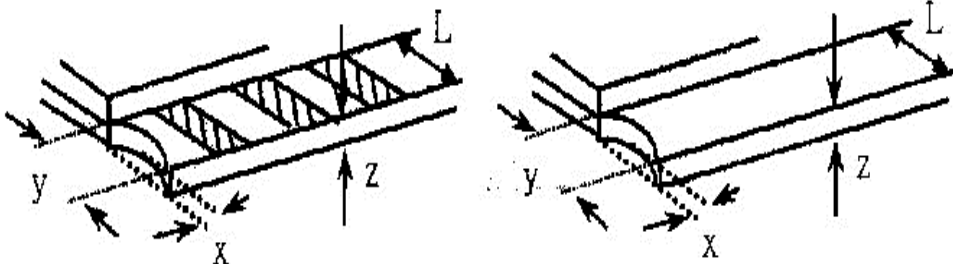
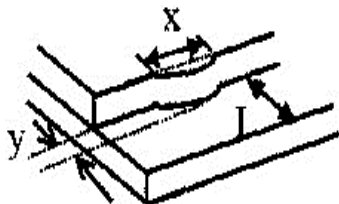
Note2: The function test shall be conducted after 4 hours storage at the normal Temperature and humidity after remove from the test chamber.

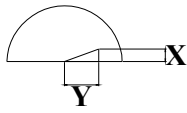
Note3: The packing have to including into the vibration testing.

9. Inspection specification

| NO | Item | Criterion | AQL | | | | | | | | | | | | |
|--|---|--|-----------------|-----------------|------------------|-----------------|-------------------------|----------------------|-------------------------|--------------|----------------------|-----|------------|---------------|-----|
| 01 | Electrical Testing | 1.1 Missing vertical, horizontal segment, segment contrast defect. 1.2 Missing character , dot or icon. 1.3 Display malfunction. 1.4 No function or no display. 1.5 Current consumption exceeds product specifications. 1.6 LCD viewing angle defect. 1.7 Mixed product types. 1.8 Contrast defect. | 0.65 | | | | | | | | | | | | |
| 02 | Black or white spots on LCD (display only) | 2.1 White and black spots on display $\leq 0.25\text{mm}$, no more than three white or black spots present. 2.2 Densely spaced: No more than two spots or lines within 3mm | 2.5 | | | | | | | | | | | | |
| 03 | LCD black spots, white spots, contamination (non-display) | 3.1 Round type : As following drawing $\Phi = (x + y) / 2$  <table border="1" data-bbox="805 981 1332 1236"> <thead> <tr> <th>SIZE</th> <th>Acceptable Q TY</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.10$</td> <td>Accept no dense</td> </tr> <tr> <td>$0.10 < \Phi \leq 0.20$</td> <td>2</td> </tr> <tr> <td>$0.20 < \Phi \leq 0.25$</td> <td>1</td> </tr> <tr> <td>$0.25 < \Phi$</td> <td>0</td> </tr> </tbody> </table> | SIZE | Acceptable Q TY | $\Phi \leq 0.10$ | Accept no dense | $0.10 < \Phi \leq 0.20$ | 2 | $0.20 < \Phi \leq 0.25$ | 1 | $0.25 < \Phi$ | 0 | 2.5 | | |
| | | SIZE | Acceptable Q TY | | | | | | | | | | | | |
| $\Phi \leq 0.10$ | Accept no dense | | | | | | | | | | | | | | |
| $0.10 < \Phi \leq 0.20$ | 2 | | | | | | | | | | | | | | |
| $0.20 < \Phi \leq 0.25$ | 1 | | | | | | | | | | | | | | |
| $0.25 < \Phi$ | 0 | | | | | | | | | | | | | | |
| 3.2 Line type : (As following drawing)  <table border="1" data-bbox="699 1321 1332 1572"> <thead> <tr> <th>Length</th> <th>Width</th> <th>Acceptable Q TY</th> </tr> </thead> <tbody> <tr> <td>---</td> <td>$W \leq 0.02$</td> <td>Accept no dense</td> </tr> <tr> <td>$L \leq 3.0$</td> <td>$0.02 < W \leq 0.03$</td> <td rowspan="2">2</td> </tr> <tr> <td>$L \leq 2.5$</td> <td>$0.03 < W \leq 0.05$</td> </tr> <tr> <td>---</td> <td>$0.05 < W$</td> <td>As round type</td> </tr> </tbody> </table> | Length | Width | Acceptable Q TY | --- | $W \leq 0.02$ | Accept no dense | $L \leq 3.0$ | $0.02 < W \leq 0.03$ | 2 | $L \leq 2.5$ | $0.03 < W \leq 0.05$ | --- | $0.05 < W$ | As round type | 2.5 |
| Length | Width | Acceptable Q TY | | | | | | | | | | | | | |
| --- | $W \leq 0.02$ | Accept no dense | | | | | | | | | | | | | |
| $L \leq 3.0$ | $0.02 < W \leq 0.03$ | 2 | | | | | | | | | | | | | |
| $L \leq 2.5$ | $0.03 < W \leq 0.05$ | | | | | | | | | | | | | | |
| --- | $0.05 < W$ | As round type | | | | | | | | | | | | | |
| 04 | Polarizer bubbles | If bubbles are visible, judge using black spot specifications, not easy to find, must check in specify direction. <table border="1" data-bbox="826 1691 1332 1993"> <thead> <tr> <th>Size Φ</th> <th>Acceptable Q TY</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.20$</td> <td>Accept no dense</td> </tr> <tr> <td>$0.20 < \Phi \leq 0.50$</td> <td>3</td> </tr> <tr> <td>$0.50 < \Phi \leq 1.00$</td> <td>2</td> </tr> <tr> <td>$1.00 < \Phi$</td> <td>0</td> </tr> <tr> <td>Total Q TY</td> <td>3</td> </tr> </tbody> </table> | Size Φ | Acceptable Q TY | $\Phi \leq 0.20$ | Accept no dense | $0.20 < \Phi \leq 0.50$ | 3 | $0.50 < \Phi \leq 1.00$ | 2 | $1.00 < \Phi$ | 0 | Total Q TY | 3 | 2.5 |
| Size Φ | Acceptable Q TY | | | | | | | | | | | | | | |
| $\Phi \leq 0.20$ | Accept no dense | | | | | | | | | | | | | | |
| $0.20 < \Phi \leq 0.50$ | 3 | | | | | | | | | | | | | | |
| $0.50 < \Phi \leq 1.00$ | 2 | | | | | | | | | | | | | | |
| $1.00 < \Phi$ | 0 | | | | | | | | | | | | | | |
| Total Q TY | 3 | | | | | | | | | | | | | | |

| NO | Item | Criterion | AQL | | | | | | | | | | | | | | | | | | |
|--------------------|-----------------------|--|-------------------|---------------|----------------|---------------|-----------------------|---------------|--------------------|-----------------|---------------|-------------------|---------------|----------------|---------------|-----------------------|---------------|--------------------|-----------------|---------------|-----|
| 05 | Scratches | Follow NO.3 LCD black spots, white spots, contamination | | | | | | | | | | | | | | | | | | | |
| 06 | Chipped glass | <p>Symbols Define: x: Chip length y: Chip width z: Chip thickness k: Seal width t: Glass thickness a: LCD side length L: Electrode pad length:</p> <p>6.1 General glass chip : 6.1.1 Chip on panel surface and crack between panels:</p>  <table border="1" data-bbox="443 974 1353 1182"> <thead> <tr> <th>z: Chip thickness</th> <th>y: Chip width</th> <th>x: Chip length</th> </tr> </thead> <tbody> <tr> <td>$Z \leq 1/2t$</td> <td>Not over viewing area</td> <td>$x \leq 1/8a$</td> </tr> <tr> <td>$1/2t < z \leq 2t$</td> <td>Not exceed 1/3k</td> <td>$x \leq 1/8a$</td> </tr> </tbody> </table> <p>⊙ If there are 2 or more chips, x is total length of each chip.</p> <p>6.1.2 Corner crack:</p>  <table border="1" data-bbox="443 1617 1353 1825"> <thead> <tr> <th>z: Chip thickness</th> <th>y: Chip width</th> <th>x: Chip length</th> </tr> </thead> <tbody> <tr> <td>$Z \leq 1/2t$</td> <td>Not over viewing area</td> <td>$x \leq 1/8a$</td> </tr> <tr> <td>$1/2t < z \leq 2t$</td> <td>Not exceed 1/3k</td> <td>$x \leq 1/8a$</td> </tr> </tbody> </table> <p>⊙ If there are 2 or more chips, x is the total length of each chip.</p> | z: Chip thickness | y: Chip width | x: Chip length | $Z \leq 1/2t$ | Not over viewing area | $x \leq 1/8a$ | $1/2t < z \leq 2t$ | Not exceed 1/3k | $x \leq 1/8a$ | z: Chip thickness | y: Chip width | x: Chip length | $Z \leq 1/2t$ | Not over viewing area | $x \leq 1/8a$ | $1/2t < z \leq 2t$ | Not exceed 1/3k | $x \leq 1/8a$ | 2.5 |
| z: Chip thickness | y: Chip width | x: Chip length | | | | | | | | | | | | | | | | | | | |
| $Z \leq 1/2t$ | Not over viewing area | $x \leq 1/8a$ | | | | | | | | | | | | | | | | | | | |
| $1/2t < z \leq 2t$ | Not exceed 1/3k | $x \leq 1/8a$ | | | | | | | | | | | | | | | | | | | |
| z: Chip thickness | y: Chip width | x: Chip length | | | | | | | | | | | | | | | | | | | |
| $Z \leq 1/2t$ | Not over viewing area | $x \leq 1/8a$ | | | | | | | | | | | | | | | | | | | |
| $1/2t < z \leq 2t$ | Not exceed 1/3k | $x \leq 1/8a$ | | | | | | | | | | | | | | | | | | | |

| NO | Item | Criterion | AQL | | | | | | | | | | | | | | | | |
|-----------------------|----------------|---|---------------|----------------|-------------------|-----------------------|---------------|----------------|---------------|----------------|-------------------|------------|---------------|----------------|----------|-----------|---------------|------------|-----|
| 06 | Glass crack | <p>Symbols :</p> <p>x: Chip length y: Chip width z: Chip thickness k: Seal width t: Glass thickness a: LCD side length L: Electrode pad length</p> <p>6.2 Protrusion over terminal :</p> <p>6.2.1 Chip on electrode pad :</p>  <table border="1" data-bbox="363 853 1286 952"> <thead> <tr> <th>y: Chip width</th> <th>x: Chip length</th> <th>z: Chip thickness</th> </tr> </thead> <tbody> <tr> <td>$y \leq 0.5\text{mm}$</td> <td>$x \leq 1/8a$</td> <td>$0 < z \leq t$</td> </tr> </tbody> </table> <p>6.2.2 Non-conductive portion:</p>  <table border="1" data-bbox="434 1337 1262 1451"> <thead> <tr> <th>y: Chip width</th> <th>x: Chip length</th> <th>z: Chip thickness</th> </tr> </thead> <tbody> <tr> <td>$y \leq L$</td> <td>$x \leq 1/8a$</td> <td>$0 < z \leq t$</td> </tr> </tbody> </table> <ul style="list-style-type: none"> ⊙ If the chipped area touches the ITO terminal, over 2/3 of the ITO must remain and be inspected according to electrode terminal specifications. ⊙ If the product will be heat sealed by the customer, the alignment mark not be damaged. <p>6.2.3 Substrate protuberance and internal crack.</p>  <table border="1" data-bbox="772 1753 1335 1852"> <thead> <tr> <th>y: width</th> <th>x: length</th> </tr> </thead> <tbody> <tr> <td>$y \leq 1/3L$</td> <td>$x \leq a$</td> </tr> </tbody> </table> | y: Chip width | x: Chip length | z: Chip thickness | $y \leq 0.5\text{mm}$ | $x \leq 1/8a$ | $0 < z \leq t$ | y: Chip width | x: Chip length | z: Chip thickness | $y \leq L$ | $x \leq 1/8a$ | $0 < z \leq t$ | y: width | x: length | $y \leq 1/3L$ | $x \leq a$ | 2.5 |
| y: Chip width | x: Chip length | z: Chip thickness | | | | | | | | | | | | | | | | | |
| $y \leq 0.5\text{mm}$ | $x \leq 1/8a$ | $0 < z \leq t$ | | | | | | | | | | | | | | | | | |
| y: Chip width | x: Chip length | z: Chip thickness | | | | | | | | | | | | | | | | | |
| $y \leq L$ | $x \leq 1/8a$ | $0 < z \leq t$ | | | | | | | | | | | | | | | | | |
| y: width | x: length | | | | | | | | | | | | | | | | | | |
| $y \leq 1/3L$ | $x \leq a$ | | | | | | | | | | | | | | | | | | |

| NO | Item | Criterion | AQL |
|----|--------------------|--|--|
| 07 | Cracked glass | The LCD with extensive crack is not acceptable. | 2.5 |
| 08 | Backlight elements | 8.1 Illumination source flickers when lit. 8.2 Spots or scratched that appear when lit must be judged. Using LCD spot, lines and contamination standards. 8.3 Backlight doesn't light or color wrong. | 0.65 2.5 0.65 |
| 09 | Bezel | 9.1 Bezel may not have rust, be deformed or have fingerprints, stains or other contamination. 9.2 Bezel must comply with job specifications. | 2.5 0.65 |
| 10 | PCB - COB | 10.1 COB seal may not have pinholes larger than 0.2mm or contamination. 10.2 COB seal surface may not have pinholes through to the IC. 10.3 The height of the COB should not exceed the height indicated in the assembly diagram. 10.4 There may not be more than 2mm of sealant outside the seal area on the PCB. And there should be no more than three places. 10.5 No oxidation or contamination PCB terminals. 10.6 Parts on PCB must be the same as on the production characteristic chart. There should be no wrong parts, missing parts or excess parts. 10.7 The jumper on the PCB should conform to the product characteristic chart. 10.8 If solder gets on bezel tab pads, LED pad, zebra pad or screw hold pad, make sure it is smoothed down. 10.9 The Scraping testing standard for Copper Coating of PCB  $X * Y \leq 2\text{mm}^2$ | 2.5 2.5 0.65 2.5 2.5 0.65 2.5 2.5 |
| 11 | Soldering | 11.1 No un-melted solder paste may be present on the PCB. 11.2 No cold solder joints, missing solder connections, oxidation or icicle. 11.3 No residue or solder balls on PCB. 11.4 No short circuits in components on PCB. | 2.5 2.5 2.5 0.65 |

| NO | Item | Criterion | AQL |
|----|--------------------|---|------|
| 12 | General appearance | 12.1 No oxidation, contamination, curves or, bends on interface Pin (OLB) of TCP. | 2.5 |
| | | 12.2 No cracks on interface pin (OLB) of TCP. | 0.65 |
| | | 12.3 No contamination, solder residue or solder balls on product. | 2.5 |
| | | 12.4 The IC on the TCP may not be damaged, circuits. | 2.5 |
| | | 12.5 The uppermost edge of the protective strip on the interface pin must be present or look as if it cause the interface pin to sever. | 2.5 |
| | | 12.6 The residual rosin or tin oil of soldering (component or chip component) is not burned into brown or black color. | 2.5 |
| | | 12.7 Sealant on top of the ITO circuit has not hardened. | 0.65 |
| | | 12.8 Pin type must match type in specification sheet. | 0.65 |
| | | 12.9 LCD pin loose or missing pins. | 0.65 |
| | | 12.10 Product packaging must the same as specified on packaging specification sheet. | 0.65 |
| | | 12.11 Product dimension and structure must conform to product specification sheet. | 0.65 |
| | | 12.12 Visual defect outside of VA is not considered to be rejection. | |

10. Precautions in use of LCD Modules

- (1) Avoid applying excessive shocks to the module or making any alterations or modifications to it.
- (2) Don't make extra holes on the printed circuit board, modify its shape or change the components of LCD module.
- (3) Don't disassemble the LCM.
- (4) Don't operate it above the absolute maximum rating.
- (5) Don't drop, bend or twist LCM.
- (6) Soldering: only to the I/O terminals.
- (7) Storage: please storage in anti-static electricity container and clean environment.
- (8) DISPLAY have the right to change the passive components, including R3,R6 & backlight adjust resistors. (Resistors,capacitors and other passive components will have different appearance and color caused by the different supplier.)
- (9) DISPLAY have the right to change the PCB Rev. (In order to satisfy the supplying stability, management optimization and the best product performance...etc, under the premise of not affecting the electrical characteristics and external dimensions, DISPLAY have the right to modify the version.)
- (10) To ensure the stability of the display screen, please apply screen saver after showing 30 minutes of fixed display content.