

(j) Preliminary Specifications  
 (v) Final Specifications

|                   |                         |
|-------------------|-------------------------|
| <b>Module</b>     | 10.1 Inch Color TFT-LCD |
| <b>Model Name</b> | G101UAN01.0             |

|   |  |
|---|--|
| <p><b>Customer</b> _____</p> <p><b>Date</b> _____</p><br><p><b>Checked &amp; Approved by</b></p> <p>_____</p> | <p><b>Approved by</b> _____</p> <p><b>Date</b> _____</p> <p><u>LeaDer Feng</u>                      <u>2021/07/28</u></p><br><p><b>Prepared by</b></p> <p><u>Jon Tseng</u>                              <u>2021/07/28</u></p><br><p>General Display Business Unit/<br/>         AUO Display Plus Corporation</p> |
|---|--|

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## Record of Revision

| Version and Date                    | Page   | Old description   | New Description   |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|-------------------------------------|--|---|---|---------------------------------|---|--|-----------------------------|-----------------------|------------------------------|------------------------------------|--|--------------------------------------|-------------------------------------|------------------------------|------------------------|----------------------------------|----------------------|----------------------------|----------------------------------|----------------------|----------------------|----------------------|--|------------------------------------|-----------------------------------|----------------------|------------------------|-------------------------------|----------------------|------------------------|------------------------|---------------------------|----------------------|----------------------|----------------------|------------------------|--|-----------------------|--|---|---|---------------------|---|--|---|------------------------|---------------------------|----------------------|----------------------|----------------------|-----------------------|------------------------|---------------------|---|---------------------|---------------------|---------------------|------------------------|---|---------------------|-----------------------------|---|---------------------|---------------------|----------------------|--|------------------------|------------------------------------|---|---|----------------------|----------------------|------------------------|---------------------|---------------------------|---|----------------------|----------------------|------------------------|--|-----------------------|--|---|---|---------------------|---|
| 0.1 2017/03/24                      | All  | First draft specification   | -   |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| 0.2 2017/04/27                      | 5  | -   | <table border="1"> <tr> <td>Power Consumption<sup>1)</sup></td> <td>[Watt]<sup>2)</sup></td> <td>3.5W<sup>3)</sup></td> </tr> <tr> <td>Weight (Max.)<sup>4)</sup></td> <td>[Grams]<sup>5)</sup></td> <td>140g<sup>6)</sup></td> </tr> <tr> <td>Physical Size (Max.)<sup>7)</sup></td> <td>[mm]<sup>8)</sup></td> <td>228.02 x 148.12 x 5.35<sup>9)</sup></td> </tr> <tr> <td>Electrical Interface<sup>10)</sup></td> <td></td> <td>eDP1.2<sup>11)</sup></td> </tr> <tr> <td>Surface Treatment<sup>12)</sup></td> <td></td> <td>HC, LR<sup>13)</sup></td> </tr> </table> | Power Consumption <sup>1)</sup> | [Watt] <sup>2)</sup>                        | 3.5W <sup>3)</sup>   | Weight (Max.) <sup>4)</sup> | [Grams] <sup>5)</sup> | 140g <sup>6)</sup>           | Physical Size (Max.) <sup>7)</sup> | [mm] <sup>8)</sup>                     | 228.02 x 148.12 x 5.35 <sup>9)</sup> | Electrical Interface <sup>10)</sup> |                              | eDP1.2 <sup>11)</sup>  | Surface Treatment <sup>12)</sup> |                      | HC, LR <sup>13)</sup>      |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | Power Consumption <sup>1)</sup>                          | [Watt] <sup>2)</sup>  | 3.5W <sup>3)</sup>  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | Weight (Max.) <sup>4)</sup>                              | [Grams] <sup>5)</sup>   | 140g <sup>6)</sup>  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| Physical Size (Max.) <sup>7)</sup>  | [mm] <sup>8)</sup>                                       | 228.02 x 148.12 x 5.35 <sup>9)</sup>  |   |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| Electrical Interface <sup>10)</sup> |  | eDP1.2 <sup>11)</sup>   |   |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| Surface Treatment <sup>12)</sup>    |  | HC, LR <sup>13)</sup>   |   |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| 6                                   | -  | <table border="1"> <tr> <td>Red x<sup>14)</sup></td> <td>0.543<sup>15)</sup></td> <td>0.593<sup>16)</sup></td> <td>0.643<sup>17)</sup></td> </tr> <tr> <td>Red y<sup>18)</sup></td> <td>0.291<sup>19)</sup></td> <td>0.341<sup>20)</sup></td> <td>0.391<sup>21)</sup></td> </tr> <tr> <td>Green x<sup>22)</sup></td> <td>0.292<sup>23)</sup></td> <td>0.342<sup>24)</sup></td> <td>0.392<sup>25)</sup></td> </tr> <tr> <td>Green y<sup>26)</sup></td> <td>0.539<sup>27)</sup></td> <td>0.589<sup>28)</sup></td> <td>0.639<sup>29)</sup></td> </tr> <tr> <td>Blue x<sup>30)</sup></td> <td>0.104<sup>31)</sup></td> <td>0.154<sup>32)</sup></td> <td>0.204<sup>33)</sup></td> </tr> <tr> <td>Blue y<sup>34)</sup></td> <td>0.073<sup>35)</sup></td> <td>0.123<sup>36)</sup></td> <td>0.173<sup>37)</sup></td> </tr> <tr> <td>White x<sup>38)</sup></td> <td>0.263<sup>39)</sup></td> <td>0.313<sup>40)</sup></td> <td>0.363<sup>41)</sup></td> </tr> <tr> <td>White y<sup>42)</sup></td> <td>0.279<sup>43)</sup></td> <td>0.329<sup>44)</sup></td> <td>0.379<sup>45)</sup></td> </tr> </table>   | Red x <sup>14)</sup>  | 0.543 <sup>15)</sup>            | 0.593 <sup>16)</sup>                        | 0.643 <sup>17)</sup>   | Red y <sup>18)</sup>        | 0.291 <sup>19)</sup>  | 0.341 <sup>20)</sup>         | 0.391 <sup>21)</sup>               | Green x <sup>22)</sup>                 | 0.292 <sup>23)</sup>                 | 0.342 <sup>24)</sup>                | 0.392 <sup>25)</sup>         | Green y <sup>26)</sup> | 0.539 <sup>27)</sup>             | 0.589 <sup>28)</sup> | 0.639 <sup>29)</sup>       | Blue x <sup>30)</sup>            | 0.104 <sup>31)</sup> | 0.154 <sup>32)</sup> | 0.204 <sup>33)</sup> | Blue y <sup>34)</sup>  | 0.073 <sup>35)</sup>               | 0.123 <sup>36)</sup>              | 0.173 <sup>37)</sup> | White x <sup>38)</sup> | 0.263 <sup>39)</sup>          | 0.313 <sup>40)</sup> | 0.363 <sup>41)</sup>   | White y <sup>42)</sup> | 0.279 <sup>43)</sup>      | 0.329 <sup>44)</sup> | 0.379 <sup>45)</sup> |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| Red x <sup>14)</sup>                | 0.543 <sup>15)</sup>                                     | 0.593 <sup>16)</sup>  | 0.643 <sup>17)</sup>  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| Red y <sup>18)</sup>                | 0.291 <sup>19)</sup>                                     | 0.341 <sup>20)</sup>  | 0.391 <sup>21)</sup>  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| Green x <sup>22)</sup>              | 0.292 <sup>23)</sup>                                     | 0.342 <sup>24)</sup>  | 0.392 <sup>25)</sup>  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| Green y <sup>26)</sup>              | 0.539 <sup>27)</sup>                                     | 0.589 <sup>28)</sup>  | 0.639 <sup>29)</sup>  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| Blue x <sup>30)</sup>               | 0.104 <sup>31)</sup>                                     | 0.154 <sup>32)</sup>  | 0.204 <sup>33)</sup>  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
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| White x <sup>38)</sup>              | 0.263 <sup>39)</sup>                                     | 0.313 <sup>40)</sup>  | 0.363 <sup>41)</sup>  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| White y <sup>42)</sup>              | 0.279 <sup>43)</sup>                                     | 0.329 <sup>44)</sup>  | 0.379 <sup>45)</sup>  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| 14                                  | -  | <table border="1"> <thead> <tr> <th>Symbol<sup>46)</sup></th> <th>Parameter<sup>47)</sup></th> <th>Min.<sup>48)</sup></th> <th>Typ.<sup>49)</sup></th> <th>Max.<sup>50)</sup></th> </tr> </thead> <tbody> <tr> <td>VLED<sup>51)</sup></td> <td>Input Voltage<sup>52)</sup></td> <td>10.8<sup>53)</sup></td> <td>12<sup>54)</sup></td> <td>13.2<sup>55)</sup></td> </tr> <tr> <td>IVLED<sup>56)</sup></td> <td>Input Current<sup>57)</sup></td> <td>----<sup>58)</sup></td> <td>110<sup>59)</sup></td> <td>132<sup>60)</sup></td> </tr> <tr> <td>PVLED<sup>61)</sup></td> <td>Power Consumption<sup>62)</sup></td> <td>----<sup>63)</sup></td> <td>1.32<sup>64)</sup></td> <td>1.58<sup>65)</sup></td> </tr> <tr> <td>I<sub>F</sub><sup>66)</sup></td> <td>LED Forward Current<sup>67)</sup></td> <td>----<sup>68)</sup></td> <td>22<sup>69)</sup></td> <td>----<sup>70)</sup></td> </tr> <tr> <td>Operation Life<sup>71)</sup></td> <td>----<sup>72)</sup></td> <td>20,000<sup>73)</sup></td> <td>30,000<sup>74)</sup></td> <td>----<sup>75)</sup></td> </tr> </tbody> </table>   | Symbol <sup>46)</sup>   | Parameter <sup>47)</sup>        | Min. <sup>48)</sup>                         | Typ. <sup>49)</sup>  | Max. <sup>50)</sup>         | VLED <sup>51)</sup>   | Input Voltage <sup>52)</sup> | 10.8 <sup>53)</sup>                | 12 <sup>54)</sup>                      | 13.2 <sup>55)</sup>                  | IVLED <sup>56)</sup>                | Input Current <sup>57)</sup> | ---- <sup>58)</sup>    | 110 <sup>59)</sup>               | 132 <sup>60)</sup>   | PVLED <sup>61)</sup>       | Power Consumption <sup>62)</sup> | ---- <sup>63)</sup>  | 1.32 <sup>64)</sup>  | 1.58 <sup>65)</sup>  | I <sub>F</sub> <sup>66)</sup>  | LED Forward Current <sup>67)</sup> | ---- <sup>68)</sup>               | 22 <sup>69)</sup>    | ---- <sup>70)</sup>    | Operation Life <sup>71)</sup> | ---- <sup>72)</sup>  | 20,000 <sup>73)</sup>  | 30,000 <sup>74)</sup>  | ---- <sup>75)</sup>       |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| Symbol <sup>46)</sup>               | Parameter <sup>47)</sup>                                 | Min. <sup>48)</sup>   | Typ. <sup>49)</sup>   | Max. <sup>50)</sup>             |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| VLED <sup>51)</sup>                 | Input Voltage <sup>52)</sup>                             | 10.8 <sup>53)</sup>   | 12 <sup>54)</sup>   | 13.2 <sup>55)</sup>             |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| IVLED <sup>56)</sup>                | Input Current <sup>57)</sup>                             | ---- <sup>58)</sup>   | 110 <sup>59)</sup>  | 132 <sup>60)</sup>              |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| PVLED <sup>61)</sup>                | Power Consumption <sup>62)</sup>                         | ---- <sup>63)</sup>   | 1.32 <sup>64)</sup>   | 1.58 <sup>65)</sup>             |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| I <sub>F</sub> <sup>66)</sup>       | LED Forward Current <sup>67)</sup>                       | ---- <sup>68)</sup>   | 22 <sup>69)</sup>   | ---- <sup>70)</sup>             |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| Operation Life <sup>71)</sup>       | ---- <sup>72)</sup>                                      | 20,000 <sup>73)</sup>   | 30,000 <sup>74)</sup>   | ---- <sup>75)</sup>             |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| 0.3 2017/07/05                      | 21   | -   | Update drawing  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| 0.4 2017/07/28                      | 5  | Power consumption: 2.18W  | Power consumption: 2.37W  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 9  | -   | Update function block diagram   |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 11   | <table border="1"> <thead> <tr> <th>Symbol<sup>76)</sup></th> <th>Parameter<sup>77)</sup></th> <th>Min.<sup>78)</sup></th> <th>Typ.<sup>79)</sup></th> <th>Max.<sup>80)</sup></th> <th>Units<sup>81)</sup></th> <th>Remark<sup>82)</sup></th> </tr> </thead> <tbody> <tr> <td>VDD<sup>83)</sup></td> <td>Logic/LCD Drive Voltage<sup>84)</sup></td> <td>3.0<sup>85)</sup></td> <td>3.3<sup>86)</sup></td> <td>3.6<sup>87)</sup></td> <td>[Volt]<sup>88)</sup></td> <td>-</td> </tr> <tr> <td>IDD<sup>89)</sup></td> <td>VDD Current<sup>90)</sup></td> <td>-</td> <td>160<sup>91)</sup></td> <td>190<sup>92)</sup></td> <td>[mA]<sup>93)</sup></td> <td>All Black Pattern<sup>94)</sup><br/>(VDD=3.3V, at 60Hz)<sup>95)</sup></td> </tr> <tr> <td>Inrush<sup>96)</sup></td> <td>LCD Inrush Current<sup>97)</sup></td> <td>-</td> <td>-</td> <td>1500<sup>98)</sup></td> <td>[mA]<sup>99)</sup></td> <td>Note 1<sup>100)</sup></td> </tr> <tr> <td>PDD<sup>101)</sup></td> <td>VDD Power<sup>102)</sup></td> <td>-</td> <td>0.53<sup>103)</sup></td> <td>0.63<sup>104)</sup></td> <td>[Watt]<sup>105)</sup></td> <td>All Black Pattern<sup>106)</sup><br/>(VDD=3.3V, at 60Hz)<sup>107)</sup></td> </tr> <tr> <td>VDDrp<sup>108)</sup></td> <td>Allowable Logic/LCD Drive Ripple Voltage<sup>109)</sup></td> <td>-</td> <td>-</td> <td>100<sup>110)</sup></td> <td>[mV]<sup>111)</sup><br/>P-P<sup>112)</sup></td> <td>All Black Pattern<sup>113)</sup><br/>(VDD=3.3V, at 60Hz)<sup>114)</sup></td> </tr> </tbody> </table> | Symbol <sup>76)</sup>   | Parameter <sup>77)</sup>        | Min. <sup>78)</sup>                         | Typ. <sup>79)</sup>  | Max. <sup>80)</sup>         | Units <sup>81)</sup>  | Remark <sup>82)</sup>        | VDD <sup>83)</sup>                 | Logic/LCD Drive Voltage <sup>84)</sup> | 3.0 <sup>85)</sup>                   | 3.3 <sup>86)</sup>                  | 3.6 <sup>87)</sup>           | [Volt] <sup>88)</sup>  | -                                | IDD <sup>89)</sup>   | VDD Current <sup>90)</sup> | -                                | 160 <sup>91)</sup>   | 190 <sup>92)</sup>   | [mA] <sup>93)</sup>  | All Black Pattern <sup>94)</sup><br>(VDD=3.3V, at 60Hz) <sup>95)</sup> | Inrush <sup>96)</sup>              | LCD Inrush Current <sup>97)</sup> | -                    | -                      | 1500 <sup>98)</sup>           | [mA] <sup>99)</sup>  | Note 1 <sup>100)</sup> | PDD <sup>101)</sup>    | VDD Power <sup>102)</sup> | -                    | 0.53 <sup>103)</sup> | 0.63 <sup>104)</sup> | [Watt] <sup>105)</sup> | All Black Pattern <sup>106)</sup><br>(VDD=3.3V, at 60Hz) <sup>107)</sup> | VDDrp <sup>108)</sup> | Allowable Logic/LCD Drive Ripple Voltage <sup>109)</sup> | - | - | 100 <sup>110)</sup> | [mV] <sup>111)</sup><br>P-P <sup>112)</sup> | All Black Pattern <sup>113)</sup><br>(VDD=3.3V, at 60Hz) <sup>114)</sup> | <table border="1"> <thead> <tr> <th>Symbol<sup>115)</sup></th> <th>Parameter<sup>116)</sup></th> <th>Min.<sup>117)</sup></th> <th>Typ.<sup>118)</sup></th> <th>Max.<sup>119)</sup></th> <th>Units<sup>120)</sup></th> <th>Remark<sup>121)</sup></th> </tr> </thead> <tbody> <tr> <td>VDD<sup>122)</sup></td> <td>Logic/LCD Drive Voltage<sup>123)</sup></td> <td>3.0<sup>124)</sup></td> <td>3.3<sup>125)</sup></td> <td>3.6<sup>126)</sup></td> <td>[Volt]<sup>127)</sup></td> <td>-</td> </tr> <tr> <td>IDD<sup>128)</sup></td> <td>VDD Current<sup>129)</sup></td> <td>-</td> <td>200<sup>130)</sup></td> <td>240<sup>131)</sup></td> <td>[mA]<sup>132)</sup></td> <td>All White Pattern<sup>133)</sup><br/>(VDD=3.3V, at 60Hz)<sup>134)</sup></td> </tr> <tr> <td>Inrush<sup>135)</sup></td> <td>LCD Inrush Current<sup>136)</sup></td> <td>-</td> <td>-</td> <td>1500<sup>137)</sup></td> <td>[mA]<sup>138)</sup></td> <td>Note 2<sup>139)</sup></td> </tr> <tr> <td>PDD<sup>140)</sup></td> <td>VDD Power<sup>141)</sup></td> <td>-</td> <td>0.66<sup>142)</sup></td> <td>0.79<sup>143)</sup></td> <td>[Watt]<sup>144)</sup></td> <td>All White Pattern<sup>145)</sup><br/>(VDD=3.3V, at 60Hz)<sup>146)</sup></td> </tr> <tr> <td>VDDrp<sup>147)</sup></td> <td>Allowable Logic/LCD Drive Ripple Voltage<sup>148)</sup></td> <td>-</td> <td>-</td> <td>100<sup>149)</sup></td> <td>[mV]<sup>150)</sup><br/>P-P<sup>151)</sup></td> <td>All White Pattern<sup>152)</sup><br/>(VDD=3.3V, at 60Hz)<sup>153)</sup></td> </tr> </tbody> </table> | Symbol <sup>115)</sup> | Parameter <sup>116)</sup> | Min. <sup>117)</sup> | Typ. <sup>118)</sup> | Max. <sup>119)</sup> | Units <sup>120)</sup> | Remark <sup>121)</sup> | VDD <sup>122)</sup> | Logic/LCD Drive Voltage <sup>123)</sup> | 3.0 <sup>124)</sup> | 3.3 <sup>125)</sup> | 3.6 <sup>126)</sup> | [Volt] <sup>127)</sup> | - | IDD <sup>128)</sup> | VDD Current <sup>129)</sup> | - | 200 <sup>130)</sup> | 240 <sup>131)</sup> | [mA] <sup>132)</sup> | All White Pattern <sup>133)</sup><br>(VDD=3.3V, at 60Hz) <sup>134)</sup> | Inrush <sup>135)</sup> | LCD Inrush Current <sup>136)</sup> | - | - | 1500 <sup>137)</sup> | [mA] <sup>138)</sup> | Note 2 <sup>139)</sup> | PDD <sup>140)</sup> | VDD Power <sup>141)</sup> | - | 0.66 <sup>142)</sup> | 0.79 <sup>143)</sup> | [Watt] <sup>144)</sup> | All White Pattern <sup>145)</sup><br>(VDD=3.3V, at 60Hz) <sup>146)</sup> | VDDrp <sup>147)</sup> | Allowable Logic/LCD Drive Ripple Voltage <sup>148)</sup> | - | - | 100 <sup>149)</sup> | [mV] <sup>150)</sup><br>P-P <sup>151)</sup> |
| Symbol <sup>76)</sup>               | Parameter <sup>77)</sup>                                 | Min. <sup>78)</sup>   | Typ. <sup>79)</sup>   | Max. <sup>80)</sup>             | Units <sup>81)</sup>                        | Remark <sup>82)</sup>  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| VDD <sup>83)</sup>                  | Logic/LCD Drive Voltage <sup>84)</sup>                   | 3.0 <sup>85)</sup>  | 3.3 <sup>86)</sup>  | 3.6 <sup>87)</sup>              | [Volt] <sup>88)</sup>                       | -  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| IDD <sup>89)</sup>                  | VDD Current <sup>90)</sup>                               | -   | 160 <sup>91)</sup>  | 190 <sup>92)</sup>              | [mA] <sup>93)</sup>                         | All Black Pattern <sup>94)</sup><br>(VDD=3.3V, at 60Hz) <sup>95)</sup>   |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| Inrush <sup>96)</sup>               | LCD Inrush Current <sup>97)</sup>                        | -   | -   | 1500 <sup>98)</sup>             | [mA] <sup>99)</sup>                         | Note 1 <sup>100)</sup>   |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| PDD <sup>101)</sup>                 | VDD Power <sup>102)</sup>                                | -   | 0.53 <sup>103)</sup>  | 0.63 <sup>104)</sup>            | [Watt] <sup>105)</sup>                      | All Black Pattern <sup>106)</sup><br>(VDD=3.3V, at 60Hz) <sup>107)</sup> |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| VDDrp <sup>108)</sup>               | Allowable Logic/LCD Drive Ripple Voltage <sup>109)</sup> | -   | -   | 100 <sup>110)</sup>             | [mV] <sup>111)</sup><br>P-P <sup>112)</sup> | All Black Pattern <sup>113)</sup><br>(VDD=3.3V, at 60Hz) <sup>114)</sup> |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| Symbol <sup>115)</sup>              | Parameter <sup>116)</sup>                                | Min. <sup>117)</sup>  | Typ. <sup>118)</sup>  | Max. <sup>119)</sup>            | Units <sup>120)</sup>                       | Remark <sup>121)</sup>   |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| VDD <sup>122)</sup>                 | Logic/LCD Drive Voltage <sup>123)</sup>                  | 3.0 <sup>124)</sup>   | 3.3 <sup>125)</sup>   | 3.6 <sup>126)</sup>             | [Volt] <sup>127)</sup>                      | -  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| IDD <sup>128)</sup>                 | VDD Current <sup>129)</sup>                              | -   | 200 <sup>130)</sup>   | 240 <sup>131)</sup>             | [mA] <sup>132)</sup>                        | All White Pattern <sup>133)</sup><br>(VDD=3.3V, at 60Hz) <sup>134)</sup> |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| Inrush <sup>135)</sup>              | LCD Inrush Current <sup>136)</sup>                       | -   | -   | 1500 <sup>137)</sup>            | [mA] <sup>138)</sup>                        | Note 2 <sup>139)</sup>   |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| PDD <sup>140)</sup>                 | VDD Power <sup>141)</sup>                                | -   | 0.66 <sup>142)</sup>  | 0.79 <sup>143)</sup>            | [Watt] <sup>144)</sup>                      | All White Pattern <sup>145)</sup><br>(VDD=3.3V, at 60Hz) <sup>146)</sup> |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| VDDrp <sup>147)</sup>               | Allowable Logic/LCD Drive Ripple Voltage <sup>148)</sup> | -   | -   | 100 <sup>149)</sup>             | [mV] <sup>150)</sup><br>P-P <sup>151)</sup> | All White Pattern <sup>152)</sup><br>(VDD=3.3V, at 60Hz) <sup>153)</sup> |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| 0.5 2017/10/12                      | 5  | Physical Size (Max.) : 228.02 x 148.12 x 5.35   | Physical Size (Max.) : 228.22 x 148.32 x 5.35   |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 5  | Surface Treatment : LR  | Surface Treatment : HCLR  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 6  | White Luminance ILED= 22mA<br>Min.340 Typ.400   | White Luminance ILED= 19.6mA<br>Min.350 Typ.410   |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 9  | VLED 3~5V   | VLED 12V  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 10   | -   | Add Storage Humidity<br>Add note 1  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 14   | LED Forward Current =22mA   | LED Forward Current =19.6mA   |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 14   | -   | Add VEN & VPWM voltage  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 14   | Operation Life IF=22mA  | Operation Life IF=19.6mA  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 16   | -   | Modify pin name   |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 18   | -   | Modify Input Timing Diagram   |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 19   | LED_PWM must be pull low(GND) when it is not pull high.   | VPWM must be pull low(GND) when it is not pull high.  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 23   | --  | Modify Shipping label & Carton Package  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
| 1.0 2017/12/18                      | 6  | Power Consumption : 2.37W   | Power Consumption : 2.95W   |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 7  | White Luminance min : 350, typ : 410  | White Luminance min : 320, typ : 380  |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |
|                                     | 14   | Delete 6.5 Power ON/OFF Sequence<br>Add 5.1.3 Power ON/OFF Sequence   | Modify Power ON/OFF Sequence data   |                                 |   |  |                             |                       |                              |                                    |  |                                      |                                     |                              |                        |                                  |                      |                            |                                  |                      |                      |                      |  |                                    |                                   |                      |                        |                               |                      |                        |                        |                           |                      |                      |                      |                        |  |                       |  |   |   |                     |   |  |   |                        |                           |                      |                      |                      |                       |                        |                     |   |                     |                     |                     |                        |   |                     |                             |   |                     |                     |                      |  |                        |                                    |   |   |                      |                      |                        |                     |                           |   |                      |                      |                        |  |                       |  |   |   |                     |   |

|                     | 17   | IVLED : typ 110、Max 132   |                    | IVLED : typ 152、Max 180                         |                       |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
|---------------------|--|---|--------------------|---|-----------------------|---------------------|-----|-----|-----|----------|---------------------|--------------------|----------------------------|----|-----|---|----------|---------------------|--|-----|-----|-----|---|---|----------|-----------------------|-------------------|-----|-----|-----|----------|---------------------|----------------------------|----|----|-----|---|---------------------|--|-----|-----|-----|-----|
|                     | 17   | PVLED : typ 1.32 Max 1.58   |                    | PVLED : typ 1.82 Max 2.16                       |                       |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
|                     | 19   | -   |                    | Modify Pin Assignment                           |                       |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
|                     | 21   | Delete 6.3 The Input Data Format  |                    | --  |                       |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
|                     | 23   | --  |                    | Add Detail A Drawing                            |                       |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
|                     | 24   | --  |                    | Add Connect Pin 1 and more dimension            |                       |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
| 1.1 2018/09/19      | 7  | <table border="1"> <tr> <td rowspan="2">Viewing Angle</td> <td>(degree)</td> <td>Horizontal<br/>CR = 10</td> <td>(Right)<br/>(Left)</td> <td>80</td> <td>85</td> <td>---</td> </tr> <tr> <td>(degree)</td> <td>Vertical<br/>CR = 10</td> <td>(Upper)<br/>(Lower)</td> <td>80</td> <td>85</td> <td>---</td> </tr> <tr> <td></td> <td>(degree)</td> <td></td> <td></td> <td>80</td> <td>85</td> <td>---</td> </tr> </table>       | Viewing Angle      | (degree)  | Horizontal<br>CR = 10 | (Right)<br>(Left)   | 80  | 85  | --- | (degree) | Vertical<br>CR = 10 | (Upper)<br>(Lower) | 80                         | 85 | --- |   | (degree) |                     |  | 80  | 85  | --- | <table border="1"> <tr> <td rowspan="2">Viewing Angle</td> <td>(degree)</td> <td>Horizontal<br/>CR = 10</td> <td>(Right)<br/>(Left)</td> <td>80</td> <td>89</td> <td>---</td> </tr> <tr> <td>(degree)</td> <td>Vertical<br/>CR = 10</td> <td>(Upper)<br/>(Lower)</td> <td>80</td> <td>89</td> <td>---</td> </tr> <tr> <td></td> <td>(degree)</td> <td></td> <td></td> <td>80</td> <td>89</td> <td>---</td> </tr> </table> | Viewing Angle   | (degree) | Horizontal<br>CR = 10 | (Right)<br>(Left) | 80  | 89  | --- | (degree) | Vertical<br>CR = 10 | (Upper)<br>(Lower)         | 80 | 89 | --- |   | (degree)            |  |     | 80  | 89  | --- |
| Viewing Angle       | (degree)                                       | Horizontal<br>CR = 10   |                    | (Right)<br>(Left)                               | 80                    | 85                  | --- |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
|                     | (degree)                                       | Vertical<br>CR = 10   | (Upper)<br>(Lower) | 80  | 85                    | ---                 |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
|                     | (degree)                                       |   |                    | 80  | 85                    | ---                 |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
| Viewing Angle       | (degree)                                       | Horizontal<br>CR = 10   | (Right)<br>(Left)  | 80  | 89                    | ---                 |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
|                     | (degree)                                       | Vertical<br>CR = 10   | (Upper)<br>(Lower) | 80  | 89                    | ---                 |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
|                     | (degree)                                       |   |                    | 80  | 89                    | ---                 |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
| 1.2 2018/10/24      | 17   | --  |                    | Add PWM Input Frequency & PWM Duty Ratio        |                       |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
| 1.3 2019/01/28      | 6  | Physical Size (Max.) :<br>228.22 x 148.32 x 5.35  |                    | Physical Size (Max.) :<br>228.22 x 148.3 x 5.35 |                       |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
|                     | 23   |   |                    |   |                       |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
| 1.4 2020/01/13      | 25   |   |                    |   |                       |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
| 1.5 2021/07/28      | 6  | Surface Treatment : HCLR  |                    | Surface Treatment : HC                          |                       |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
|                     | 14   | <table border="1"> <thead> <tr> <th colspan="2">Display port AUX_CH</th> <th>Min</th> <th>Typ</th> <th>Max</th> <th>unit</th> </tr> </thead> <tbody> <tr> <td>VCM</td> <td>AUX DC Common Mode Voltage</td> <td>-</td> <td>0</td> <td>-</td> <td>V</td> </tr> <tr> <td>VDiff<sub>pp</sub></td> <td>AUX Peak-to-peak Voltage at a receiving Device</td> <td>0.4</td> <td>0.6</td> <td>0.8</td> <td>V</td> </tr> </tbody> </table> |                    |   |                       | Display port AUX_CH |     | Min | Typ | Max      | unit                | VCM                | AUX DC Common Mode Voltage | -  | 0   | - | V        | VDiff <sub>pp</sub> | AUX Peak-to-peak Voltage at a receiving Device | 0.4 | 0.6 | 0.8 | V   | <table border="1"> <thead> <tr> <th colspan="2">Display port AUX_CH</th> <th>Min</th> <th>Typ</th> <th>Max</th> <th>unit</th> </tr> </thead> <tbody> <tr> <td>VCM</td> <td>AUX DC Common Mode Voltage</td> <td>-</td> <td>0</td> <td>-</td> <td>V</td> </tr> <tr> <td>VDiff<sub>pp</sub></td> <td>AUX Peak-to-peak Voltage at a receiving Device</td> <td>0.4</td> <td>0.6</td> <td>0.8</td> <td>V</td> </tr> </tbody> </table> |          | Display port AUX_CH   |                   | Min | Typ | Max | unit     | VCM                 | AUX DC Common Mode Voltage | -  | 0  | -   | V | VDiff <sub>pp</sub> | AUX Peak-to-peak Voltage at a receiving Device | 0.4 | 0.6 | 0.8 | V   |
| Display port AUX_CH |  | Min   | Typ                | Max   | unit                  |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
| VCM                 | AUX DC Common Mode Voltage                     | -   | 0                  | -   | V                     |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
| VDiff <sub>pp</sub> | AUX Peak-to-peak Voltage at a receiving Device | 0.4   | 0.6                | 0.8   | V                     |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
| Display port AUX_CH |  | Min   | Typ                | Max   | unit                  |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
| VCM                 | AUX DC Common Mode Voltage                     | -   | 0                  | -   | V                     |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |
| VDiff <sub>pp</sub> | AUX Peak-to-peak Voltage at a receiving Device | 0.4   | 0.6                | 0.8   | V                     |                     |     |     |     |          |                     |                    |                            |    |     |   |          |                     |  |     |     |     |   |   |          |                       |                   |     |     |     |          |                     |                            |    |    |     |   |                     |  |     |     |     |     |

## 1. Operating Precautions

- 1) Since front polarizer is easily damaged, please be cautious and not to scratch it.
- 2) Be sure to turn off power supply when inserting or disconnecting from input connector.
- 3) Wipe off water drop immediately. Long contact with water may cause discoloration or spots.
- 4) When the panel surface is soiled, wipe it with absorbent cotton or soft cloth.
- 5) Since the panel is made of glass, it may be broken or cracked if dropped or bumped on hard surface.
- 6) To avoid ESD (Electro Static Discharge) damage, be sure to ground yourself before handling TFT-LCD Module.
- 7) Do not open nor modify the module assembly.
- 8) Do not press the reflector sheet at the back of the module to any direction.
- 9) In case if a module has to be put back into the packing container slot after it was taken out from the container, do not press the center of the LED light bar edge. Instead, press at the far ends of the LED light bar edge softly. Otherwise the TFT Module may be damaged.
- 10) At the insertion or removal of the Signal Interface Connector, be sure not to rotate nor tilt the Interface Connector of the TFT Module.
- 11) TFT-LCD Module is not allowed to be twisted & bent even force is added on module in a very short time. Please design your display product well to avoid external force applying to module by end-user directly.
- 12) Small amount of materials having no flammability grade is used in the LCD module. The LCD module should be supplied by power complied with requirements of Limited Power Source (IEC60950 or UL1950), or be applied exemption.
- 13) Severe temperature condition may result in different luminance, response time and lamp ignition voltage.
- 14) Continuous operating TFT-LCD display under low temperature environment may accelerate lamp exhaustion and reduce luminance dramatically.
- 15) The data on this specification sheet is applicable when LCD module is placed in landscape position.
- 16) Continuous displaying fixed pattern may induce image sticking. It's recommended to use screen saver or shuffle content periodically if fixed pattern is displayed on the screen.
- 17) In order not to damage the touch panel, please remove the protected film as slow as possible in an environment with a humidity range from 60% to 80%

## 2. General Description

G101UAN01.0 is a Color Active Matrix Liquid Crystal Display composed of a TFT LCD panel and LED backlight system. The screen format is intended to support the 16:10 WUXGA, 1920(H) x 1200(V) screen and 16.7M colors (RGB 6-bits + Hi-FRC) with LED backlight driving circuit. All input signals are eDP 1.2 interface compatible.

### 2.1 Display Characteristics

The following items are characteristics summary under 25 °C condition:

| Items   | Unit         | Specifications                                    |
|---|--------------|---|
| Screen Diagonal   | [inch]       | 10.1"   |
| Active Area   | [mm]         | 216.81(H) x 135.5(V)                              |
| Pixels H x V  |              | 1920 x 1200                                       |
| Pixel Pitch   | [mm]         | 0.11292 X 0.11292                                 |
| Pixel Arrangement   |              | R.G.B. Vertical Stripe                            |
| Display Mode  |              | AHVA, Normally Black                              |
| Nominal Input Voltage VDD                                 | [Volt]       | 3.3 (Typical)                                     |
| Power Consumption   | [Watt]       | 2.95 (Max)  |
| Weight (Max.)   | [Grams]      | 140g  |
| Physical Size (Max.)                                      | [mm]         | 228.22 x 148.3 x 5.35                             |
| Electrical Interface                                      |              | eDP1.2  |
| Surface Treatment   |              | HC  |
| Support Color   |              | 16.7M colors (RGB 6-bit + Hi-FRC)                 |
| Temperature Range<br>Operating<br>Storage (Non-Operating) | [°C]<br>[°C] | -10 to +60 (Front and rear surface)<br>-20 to +60 |
| RoHS Compliance   |              | RoHS Compliance                                   |

## 2.2 Optical Characteristics

The optical characteristics are measured under stable conditions at 25 °C (Room Temperature):

| Item  | Unit                 | Conditions                                | Min.  | Typ.  | Max.  | Note |
|---|----------------------|---|-------|-------|-------|------|
| White Luminance                             | [cd/m <sup>2</sup> ] | I <sub>LED</sub> = 19.6mA<br>(5p average) | 320   | 380   | ---   |      |
| Uniformity                                  | %                    | 5 points                                  | 70%   |       | ---   |      |
| Contrast Ratio                              |                      |   | 600   | 800   | ---   |      |
| Response Time                               | [msec]               | Rising + Falling                          | ---   | 25    | 35    |      |
| Viewing Angle                               | [degree]             | Horizontal (Right)<br>CR = 10 (Left)      | 80    | 89    | ---   |      |
|   | [degree]             |   | 80    | 89    | ---   |      |
|   | [degree]             | Vertical (Upper)<br>CR = 10 (Lower)       | 80    | 89    | ---   |      |
|   | [degree]             |   | 80    | 89    | ---   |      |
| Color / Chromaticity Coordinates (CIE 1931) |                      | Red x                                     | 0.543 | 0.593 | 0.643 |      |
|   |                      | Red y                                     | 0.291 | 0.341 | 0.391 |      |
|   |                      | Green x                                   | 0.292 | 0.342 | 0.392 |      |
|   |                      | Green y                                   | 0.539 | 0.589 | 0.639 |      |
|   |                      | Blue x                                    | 0.104 | 0.154 | 0.204 |      |
|   |                      | Blue y                                    | 0.073 | 0.123 | 0.173 |      |
|   |                      | White x                                   | 0.263 | 0.313 | 0.363 |      |
|   |                      | White y                                   | 0.279 | 0.329 | 0.379 |      |
| Color Gamut                                 | %                    |   | ---   | 50    | ---   |      |

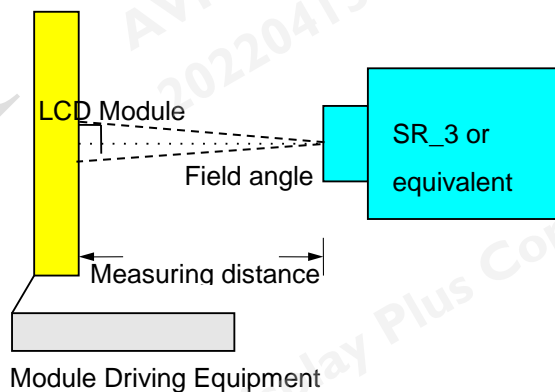
Note 1: Measurement method

Equipment Pattern Generator, Power Supply, Digital Voltmeter, Luminance meter (SR\_3 or equivalent)

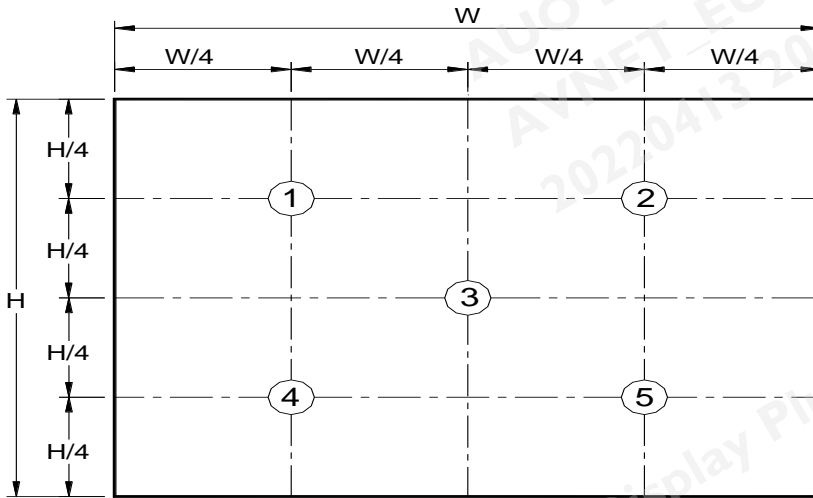
Aperture Field angle 2° with 50cm measuring distance

Test Point Follow Note 2 position

Environment < 1 lux



Note 2: Definition of 5 points position



Note 3: The luminance uniformity of 5 points is defined by dividing the minimum luminance values by the maximum test point luminance

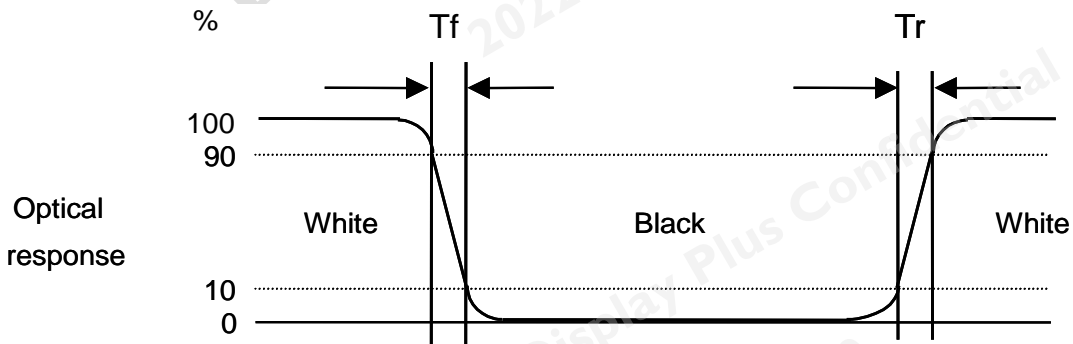
$$\delta_{w5} = \frac{\text{Minimum Brightness of five points}}{\text{Maximum Brightness of five points}}$$

Note 4: Definition of contrast ratio (CR):

$$\text{Contrast ratio (CR)} = \frac{\text{Brightness on the "White" state}}{\text{Brightness on the "Black" state}}$$

Note 5: Definition of response time:

The output signals of photo detector are measured when the input signals are changed from "White" to "Black" (falling time) and from "Black" to "White" (rising time), respectively. The response time interval is between 10% and 90% of amplitudes. Please refer to the figure as below.

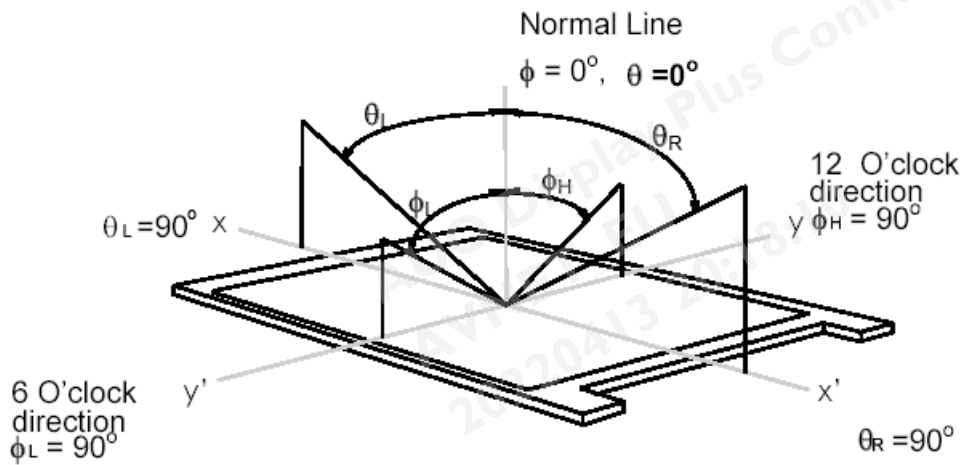




**AUO Display+**

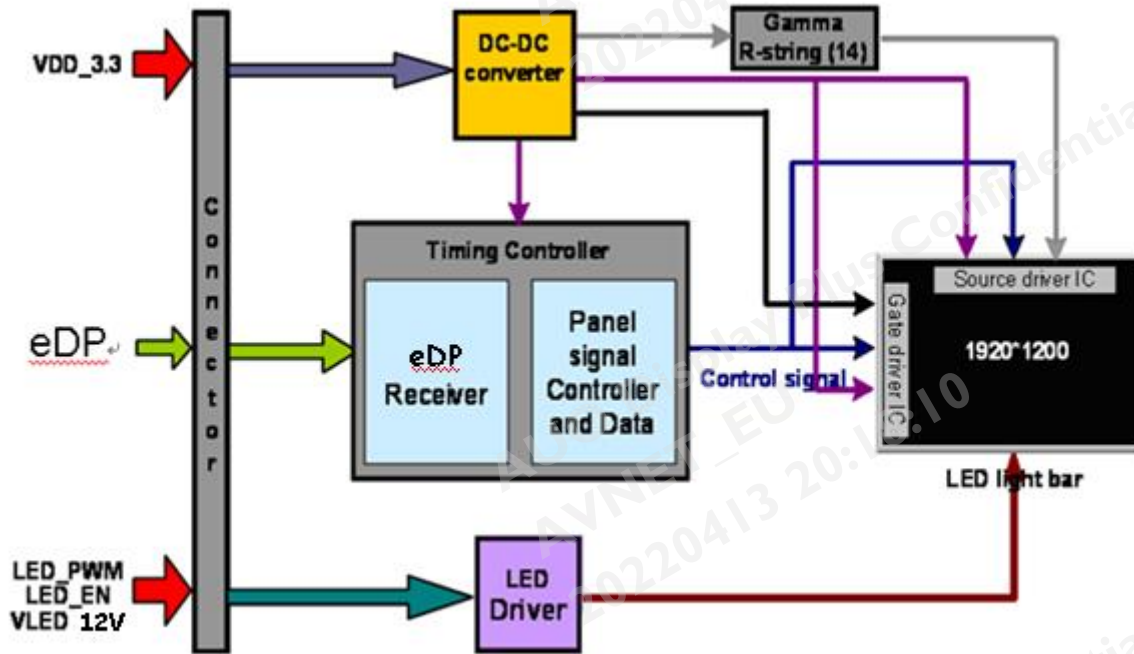
**Note 6: Definition of viewing angle**

Viewing angle is the measurement of contrast ratio  $\geq 10$ , at the screen center, over a  $180^\circ$  horizontal and  $180^\circ$  vertical range (off-normal viewing angles). The  $180^\circ$  viewing angle range is broken down as below:  $90^\circ$  ( $\theta$ ) horizontal left and right, and  $90^\circ$  ( $\Phi$ ) vertical high (up) and low (down). The measurement direction is typically perpendicular to the display surface with the screen rotated to its center to develop the desired measurement viewing angle.



### 3. Functional Block Diagram

The following diagram shows the functional block of the 10.1 inch color TFT/LCD module:



## 4. Absolute Maximum Ratings

### 4.1 Absolute Ratings of TFT LCD Module

| Item                     | Symbol              | Min  | Max     | Unit   |
|--------------------------|---------------------|------|---------|--------|
| Logic/LCD drive Voltage  | VDD                 | -0.3 | +4.0    | [Volt] |
| LCD Input Signal Voltage | V <sub>SIGNAL</sub> | -0.3 | VDD+0.3 | [Volt] |

### 4.2 Absolute Ratings of Environment

| Item                  | Symbol | Min | Max | Unit  |
|-----------------------|--------|-----|-----|-------|
| Operating Temperature | TOP    | -10 | +60 | [°C]  |
| Humidity              | HOP    | 5   | 90  | [%RH] |
| Storage Temperature   | TST    | -20 | +60 | [°C]  |
| Storage Humidity      | HST    | 5   | 90  | [%RH] |

Note 1: At Ta (25°C)

Note 2: Permanent damage to the device may occur if exceed maximum values

Note 3: Maximum wet-bulb temperature is less than 39 oC and no condensation

Note 4: Operating temperature means "Front and rear surface" of panel

## 5. Electrical Characteristics

### 5.1 TFT LCD Module

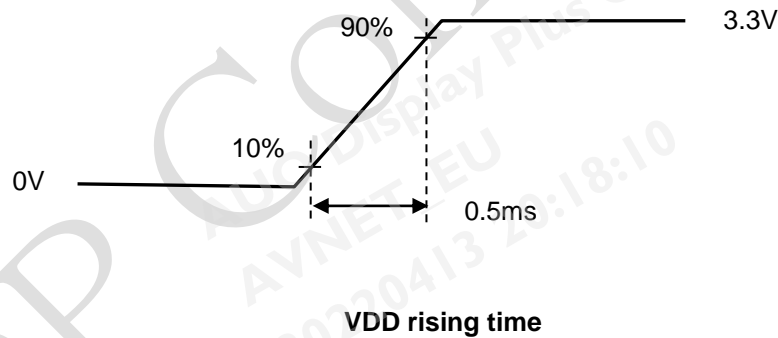
#### 5.1.1 Power Specification

The power specification are measured under 25°C and frame frequency under 60Hz

| Symbol | Parameter                                | Min | Typ  | Max  | Units       | Remark                                   |
|--------|--|-----|------|------|-------------|--|
| VDD    | Logic/LCD Drive Voltage                  | 3.0 | 3.3  | 3.6  | [Volt]      |  |
| IDD    | VDD Current                              | -   | 200  | 240  | [mA]        | All White Pattern<br>(VDD=3.3V, at 60Hz) |
| Irush  | LCD Inrush Current                       | -   | -    | 1500 | [mA]        | Note 2                                   |
| PDD    | VDD Power                                | -   | 0.66 | 0.79 | [Watt]      | All White Pattern<br>(VDD=3.3V, at 60Hz) |
| VDDrp  | Allowable Logic/LCD Drive Ripple Voltage | -   | -    | 100  | [mV]<br>P-P | All White Pattern<br>(VDD=3.3V, at 60Hz) |

Note 1 : Maximum Measurement Condition : White Pattern at 3.3V driving voltage. ( $P_{max}=V_{3.3} \times I_{white}$ )

Note 2 : Measure Condition



**5.1.2 Signal Electrical Characteristics**

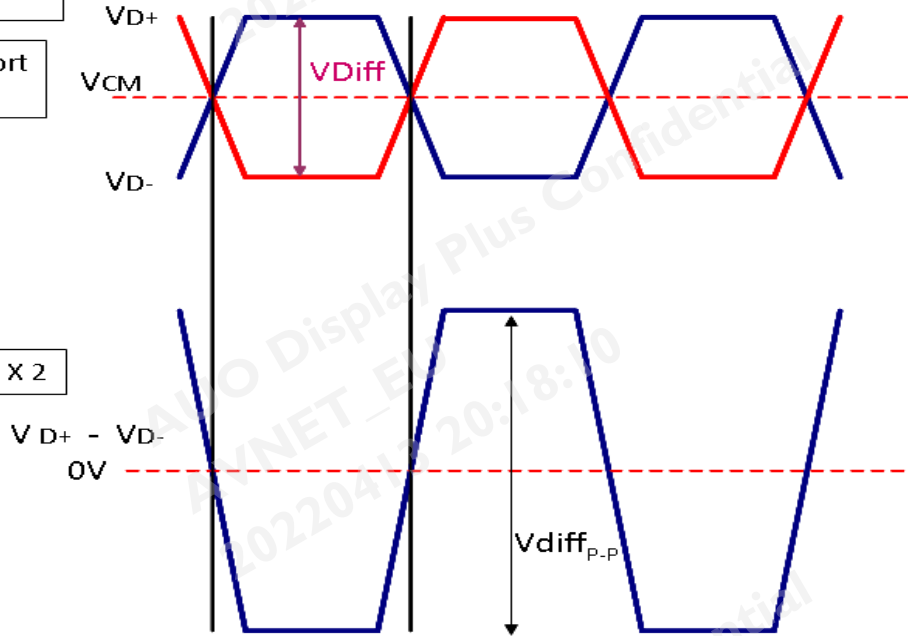
Signal electrical characteristics are as follows:

**Display Port main link signal:**

Differential pair VD+ , VD-  
Which is one Display port  
Main link

VCM of Display port  
Main link

$$V_{diff_{P-P}} = [(VD+) - (VD-)] \times 2$$

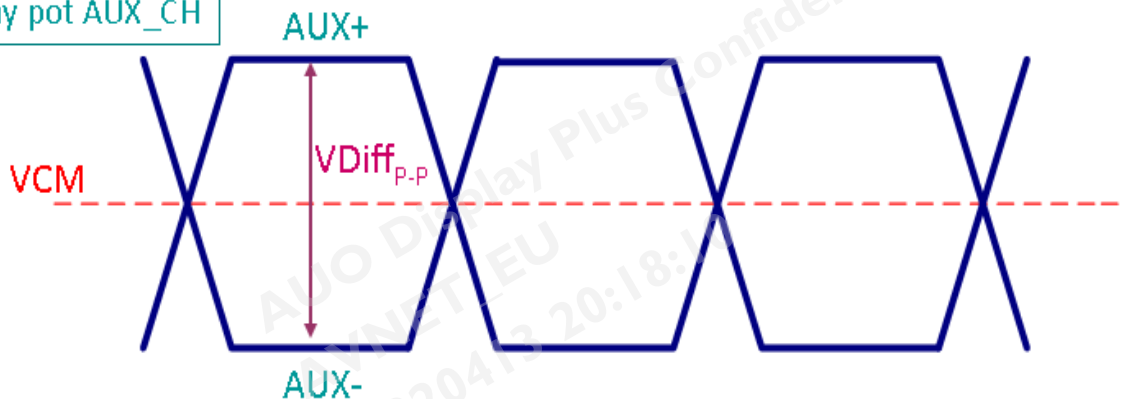


| Display port main link |  |     |     |      |      |
|------------------------|--|-----|-----|------|------|
|                        |  | Min | Typ | Max  | unit |
| VCM                    | RX input DC Common Mode Voltage            |     | 0   |      | V    |
| VDiff <sub>P-P</sub>   | Peak-to-peak Voltage at a receiving Device | 150 |     | 1320 | mV   |

Follow as VESA display port standard V1.1a

**Display Port AUX\_CH signal:**

Differential AUX+ , AUX-  
Which is Display port AUX\_CH



| Display port AUX_CH  |  |     |     |     |      |
|----------------------|--|-----|-----|-----|------|
|                      |  | Min | Typ | Max | unit |
| VCM                  | AUX DC Common Mode Voltage                     |     | 0   |     | V    |
| VDiff <sub>P-P</sub> | AUX Peak-to-peak Voltage at a receiving Device | 0.4 | 0.6 | 0.8 | V    |

Follow as VESA display port standard V1.1a.

### Display Port VHPD signal:

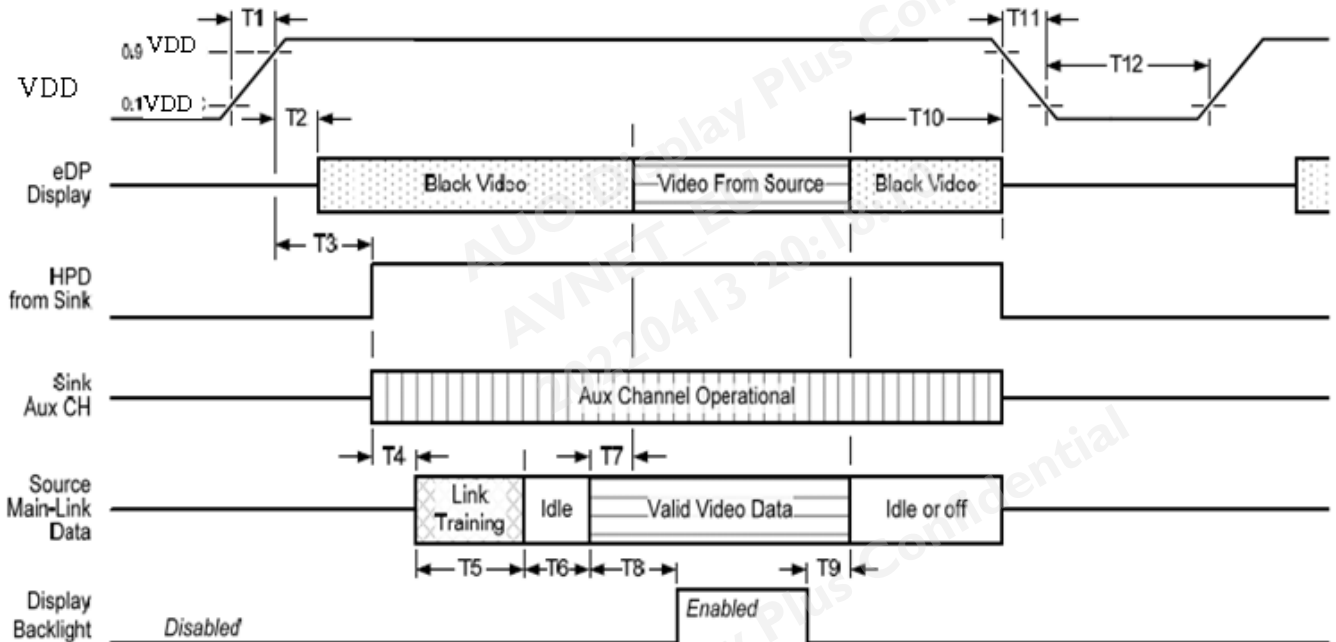
| Display port VHPD |             |      |     |      |      |
|-------------------|-------------|------|-----|------|------|
|                   |             | Min  | Typ | Max  | unit |
| VHPD              | HPD Voltage | 2.25 | -   | 2.75 | V    |

Follow as VESA display port standard V1.1a.

### 5.1.3 Power ON/OFF Sequence

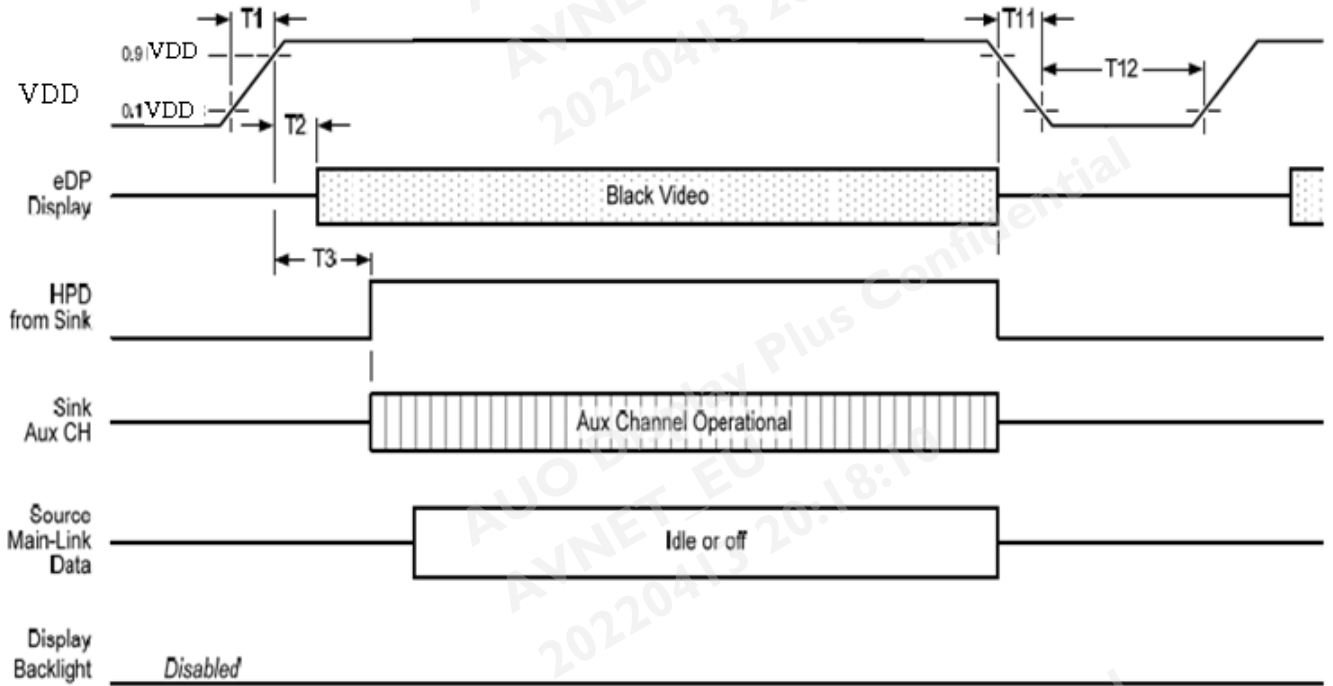
VDD power and lamp on/off sequence is as below. Interface signals are also shown in the chart. Signals from any system shall be Hi-Z state or low level when VDD is off.

### Display Port panel power sequence:



### Display port interface power up/down sequence, normal system operation

**Display Port AUX\_CH transaction only:**



**Display port interface power up/down sequence, AUX\_CH transaction only**

**Display Port panel power sequence timing parameter:**

| Timing parameter | Description   | Reqd. by | Limits |      |       | Notes  |
|------------------|---|----------|--------|------|-------|--|
|                  |   |          | Min.   | Typ. | Max.  |  |
| T1               | power rail rise time, 10% to 90%                            | source   | 0.5ms  |      | 10ms  |  |
| T2               | delay from LCDVDD to black video generation                 | sink     | 0ms    |      | 200ms | prevents display noise until valid video data is received from the source                  |
| T3               | delay from LCDVDD to HPD high                               | sink     | 0ms    |      | 200ms | sink AUX_CH must be operational upon HPD high.   |
| T4               | delay from HPD high to link training initialization         | source   |        |      |       | allows for source to read link capability and initialize.                                  |
| T5               | link training duration                                      | source   |        |      |       | dependant on source link to read training protocol.  |
| T6               | link idle   | source   |        |      |       | Min accounts for required BS-Idle pattern.<br>Max allows for source frame synchronization. |
| T7               | delay from valid video data from source to video on display | sink     | 0ms    |      | 50ms  | max allows sink validate video data and timing.  |
| T8               | delay from valid video data from source to backlight enable | source   |        |      |       | source must assure display video is stable.  |
| T9               | delay from backlight disable to end of valid video data     | source   |        |      |       | source must assure backlight is no longer illuminated.                                     |
| T10              | delay from end of valid video data from source to power off | source   | 0ms    |      | 500ms |  |
| T11              | power rail fall time, 90% to 10%                            | source   |        |      | 10ms  |  |
| T12              | power off time  | source   | 500ms  |      |       |  |

1: The sink must include the ability to generate black video autonomously. The sink must automatically enable black video under the following conditions:

- upon LCDVDD power on (with in T2 max)-when the "Novideostream\_Flag" (VB-ID Bit 3) is received from the source (at the end of T9).
- when no main link data, or invalid video data, is received from the source. Black video must be displayed within 64ms (typ) from the start of either condition. Video data can be deemed invalid based on MSA and timing information, for example.

Note 2: The sink may implement the ability to disable the black video function, as described in Note 1, above, for system development and debugging purpose.

Note 3: The sink must support AUX\_CH polling by the source immediately following LCDVDD power on without causing damage to the sink device (the source can re-try if the sink is not ready). The sink must be able to respond to an AUX\_CH transaction with the time specified within T3 max.



## 5.2 Backlight Unit

### 5.2.1 Parameter guideline for LED

Following characteristics are measured under a stable condition using an inverter at 25°C (Room Temperature):

| Symbol              | Parameter                   | Min.   | Typ.   | Max. | Unit   | Remark                                      |
|---------------------|-----------------------------|--------|--------|------|--------|---|
| VLED                | Input Voltage               | 10.8   | 12     | 13.2 | [Volt] |   |
| I <sub>VLED</sub>   | Input Current               | ---    | 152    | 180  | [mA]   | 100% Brightness<br>(VLED = 12V)             |
| P <sub>VLED</sub>   | Power Consumption           | ---    | 1.82   | 2.16 | [Watt] | 100% Brightness<br>(VLED = 12V)             |
| I <sub>F</sub>      | LED Forward Current         | ---    | 19.6   | ---  | [mA]   | Ta = 25°C                                   |
| VEN                 | LED Enable Input High Level | 1.8    | -      | 5.5  | [Volt] |   |
|                     | LED Enable Input Low Level  | -      | -      | 0.8  | [Volt] |   |
| VPWM                | PWM Logic Input High Level  | 1.8    | -      | 5.5  | [Volt] |   |
|                     | PWM Logic Input Low Level   | -      | -      | 0.8  | [Volt] |   |
| PWM Input Frequency | FPWM                        | 200    | -      | 20K  | Hz     |   |
| PWM Duty Ratio      | Duty                        | 10     | -      | 100  | %      |   |
| Operation Life      | ---                         | 20,000 | 30,000 | ---  | Hrs    | (Ta=25°C), Note 2<br>I <sub>F</sub> =19.6mA |

Note 1: Ta means ambient temperature of TFT-LCD module.

Note 2: V<sub>LED</sub>, I<sub>VLED</sub>, P<sub>VLED</sub> are defined for LED backlight.(100% duty of PWM dimming)

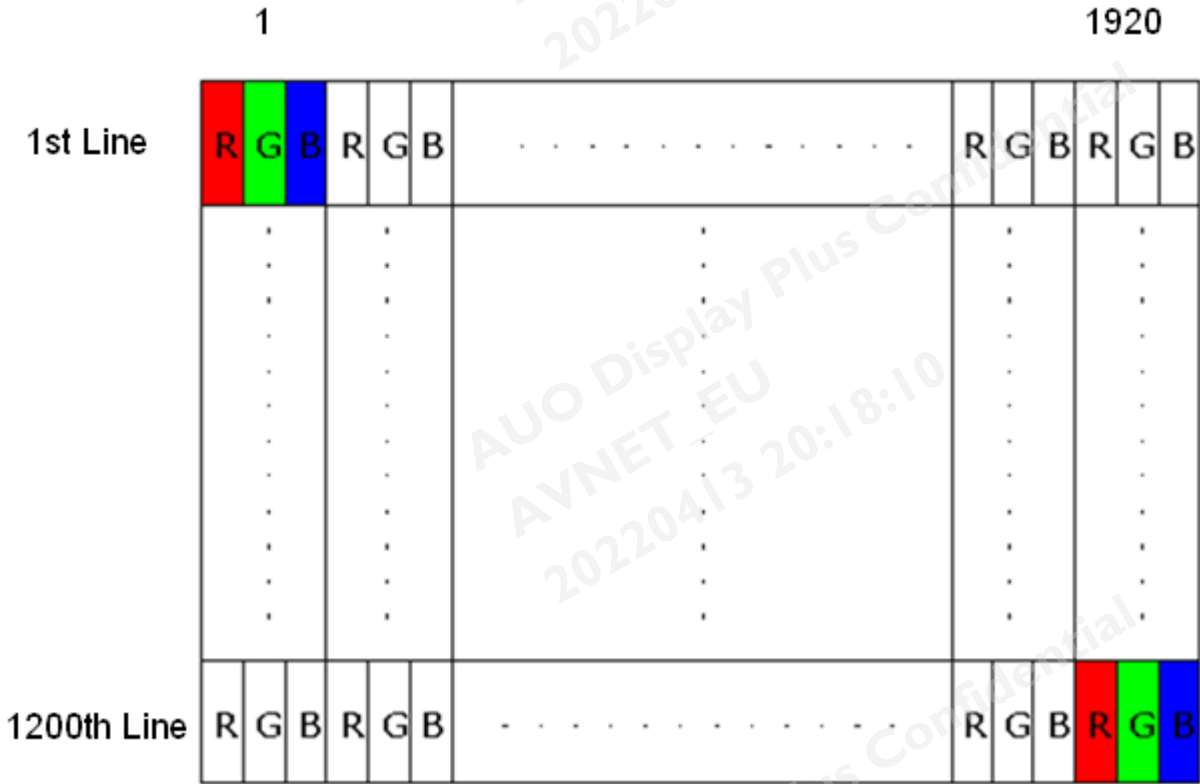
Note 3: If G101UAN01.0 module is driven by high current or at high ambient temperature & humidity condition. The operating life will be reduced.

Note 4: Operating life means brightness goes down to 50% initial brightness. Minimum operating life time is estimated data.

## 6. Signal Characteristic

### 6.1 Pixel Format Image

Following figure shows the relationship between input signal and LCD pixel format.



## 6.2 Signal Description

The module uses a eDP1.2 receiver embedded in AUO's ASIC. eDP 1.2 is a differential signal technology for LCD interface and a high-speed data transfer device.

### 6.2.1 eDP Connector Description

Physical interface is described as for the connector on module.

These connectors are capable of accommodating the following signals and will be following components.

| Connector Name / Designation | For Signal Connector             |
|------------------------------|----------------------------------|
| Manufacturer                 | IPEX or compatible               |
| Type / Part Number           | IPEX 20455-030E-12 or compatible |
| Mating Housing/Part Number   | IPEX 20455-030T-11 or compatible |

### 6.2.2 Pin Assignment (2 Lane)

eDP lane is a differential signal technology for LCD interface and high speed data transfer device.

| PIN NO | Symbol   | Function                      |
|--------|----------|-------------------------------|
| 1      | NC       | No Connect                    |
| 2      | H_GND    | High Speed Ground             |
| 3      | Lane 1_N | Comp Signal Link Lane 1       |
| 4      | Lane 1_P | True Signal Link Lane 1       |
| 5      | H_GND    | High Speed Ground             |
| 6      | Lane0_N  | Comp Signal Link Lane 0       |
| 7      | Lane0_P  | True Signal Link Lane 0       |
| 8      | H_GND    | High Speed Ground             |
| 9      | AUX_CH_P | True Signal Auxiliary Ch.     |
| 10     | AUX_CH_N | Comp Signal Auxiliary Ch.     |
| 11     | H_GND    | High Speed Ground             |
| 12     | VDD      | LCD logic and driver power    |
| 13     | VDD      | LCD logic and driver power    |
| 14     | NC       | No connect                    |
| 15     | LCD GND  | LCD logic and driver ground   |
| 16     | LCD GND  | LCD logic and driver ground   |
| 17     | HPD      | HPD signale pin               |
| 18     | BL_GND   | Backlight_ground              |
| 19     | BL_GND   | Backlight_ground              |
| 20     | BL_GND   | Backlight_ground              |
| 21     | BL_GND   | Backlight_ground              |
| 22     | VEN      | Backlight On / Off            |
| 23     | VPWM     | System PWM signal Input       |
| 24     | NC       | No connect                    |
| 25     | NC       | No connect                    |
| 26     | VLED     | Backlight power (10.8V~13.2V) |
| 27     | VLED     | Backlight power (10.8V~13.2V) |
| 28     | VLED     | Backlight power (10.8V~13.2V) |
| 29     | VLED     | Backlight power (10.8V~13.2V) |
| 30     | NC       | No Connect                    |

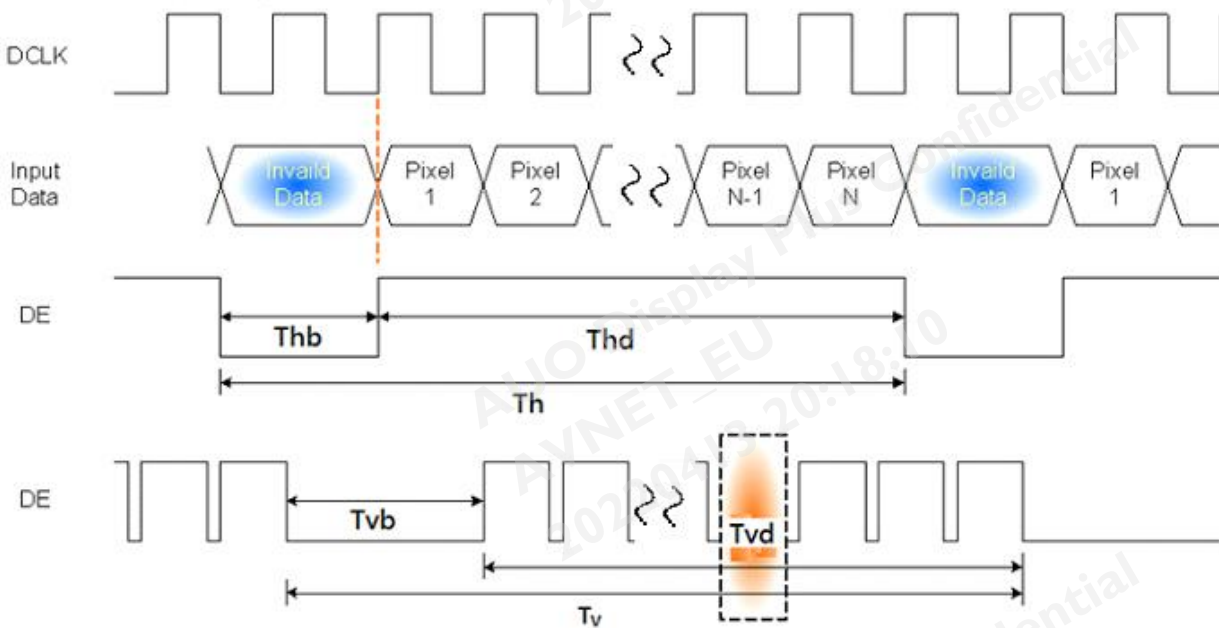
## 6.3 Interface Timing

### 6.3.1 Timing Characteristics

| Signal             | Symbol               | Min.     | Typ.   | Max.   | Unit |                    |
|--------------------|----------------------|----------|--------|--------|------|--------------------|
| Clock Frequency    | $1/T_{\text{Clock}}$ | 155.43   | 157.08 | 158.73 | MHz  |                    |
| Vertical Section   | Period               | $T_V$    | 1206   | 1212   | 1218 | $T_{\text{Line}}$  |
|                    | Active               | $T_{VD}$ | 1200   |        |      |                    |
|                    | Blanking             | $T_{VB}$ | 6      | 12     | 18   |                    |
| Horizontal Section | Period               | $T_H$    | 2148   | 2160   | 2172 | $T_{\text{Clock}}$ |
|                    | Active               | $T_{HD}$ | 1920   |        |      |                    |
|                    | Blanking             | $T_{HB}$ | 228    | 240    | 252  |                    |
| Frame Rate         | F                    | ---      | 60     | ---    | Hz   |                    |

Note : DE mode.

### 6.3.2 Input Timing Diagram



## 7. Reliability Test Criteria

| Items                      | Required Condition   | Note   |
|----------------------------|--|--------|
| Temperature Humidity Bias  | 40 °C /90%,300Hr   |        |
| High Temperature Operation | 60 °C, 300Hr (center point of panel surface)   |        |
| Low Temperature Operation  | -10 °C, 300Hr  |        |
| Hot Storage                | 60 °C, 300Hr   |        |
| Cold Storage               | -20 °C, 300Hr  |        |
| Thermal Shock Test         | -10 °C /30 min , 60 °C /30 min , 20cycles  |        |
| Hot Start Test             | 60 °C /1 Hr min. power on/off per 5 minutes, 5 times                                 |        |
| Cold Start Test            | -10 °C /1 Hr min. power on/off per 5 minutes, 5 times                                |        |
| On/off test                | On/10 sec, Off/10 sec, 30,000 cycles   |        |
| ESD                        | Contact : ± 8KV/ operation, Class B<br>Air : ± 15KV / operation, Class B             | Note 1 |
| Shock test                 | 220G,2ms, Half-sine wave, 1 times for each direction ( ±X, ±Y, ±Z),<br>non-operation |        |
| Vibration test             | 1.5G, (10~500Hz, random), 30 mins / axis (X, Y, Z), non-operation                    |        |

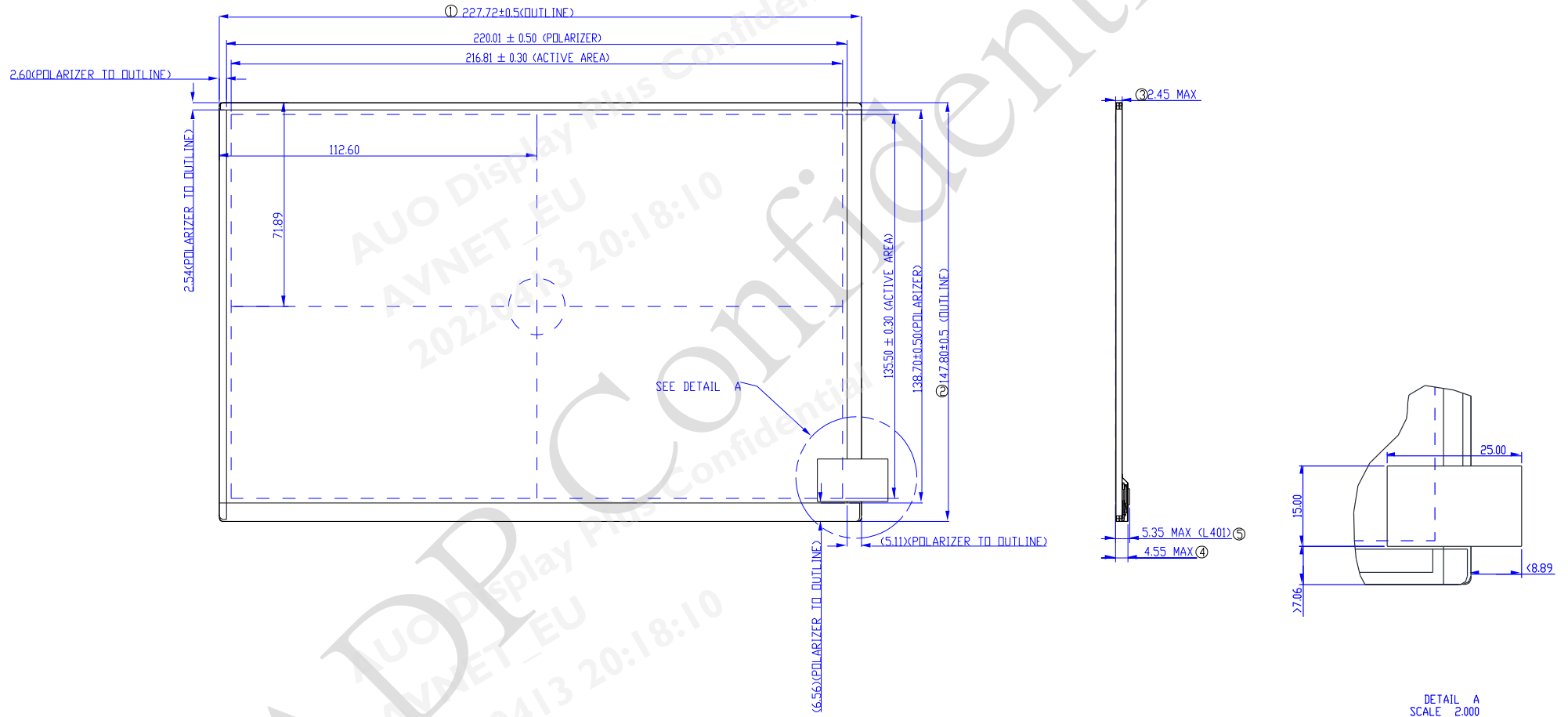
Note1: According to EN61000-4-2 , ESD class B: Some performance degradation allowed. No data lost  
. Self-recoverable. No hardware failures.

Note2:

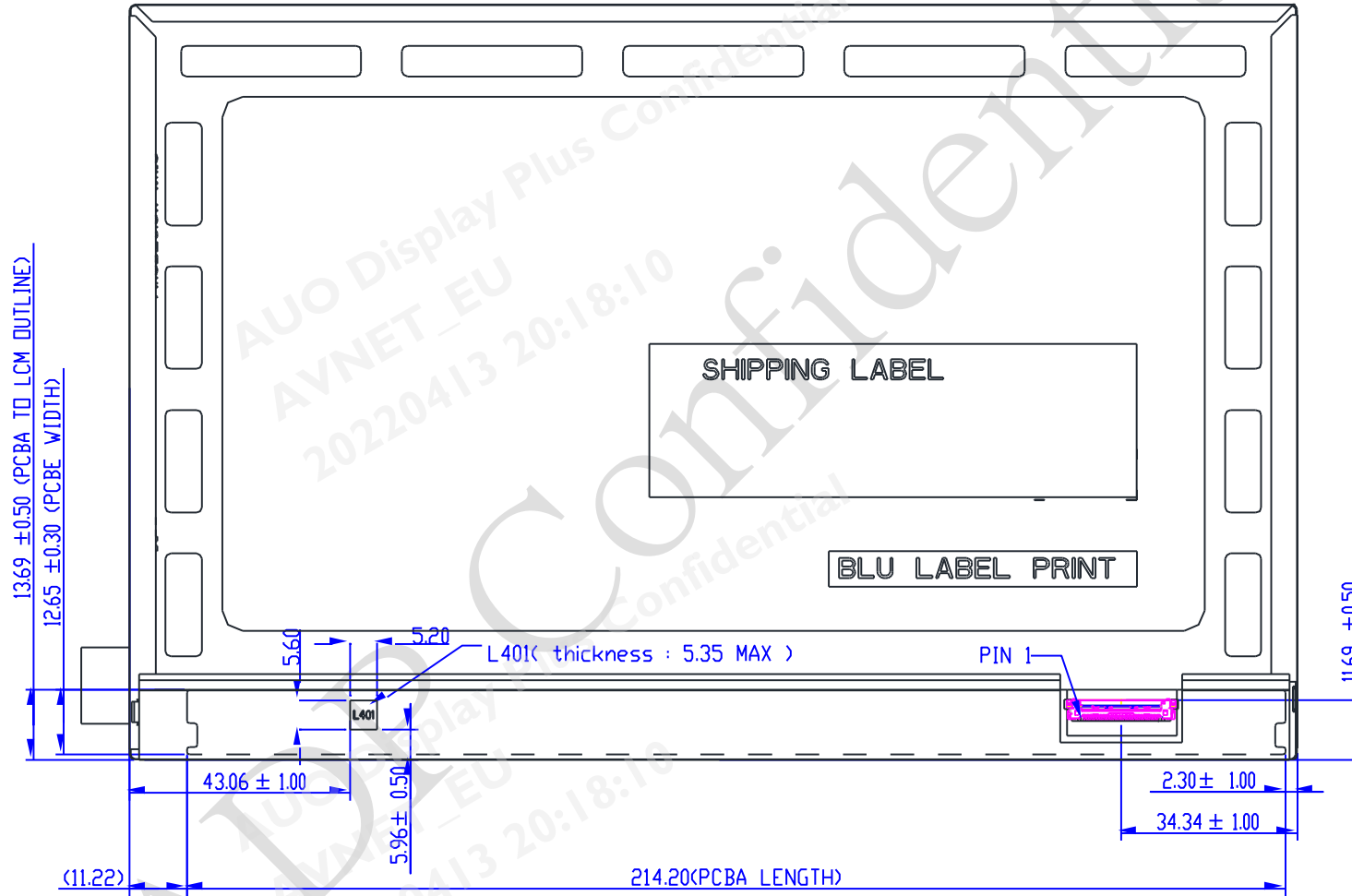
- Water condensation is not allowed for each test items.
- Each test is done by new TFT-LCD module. Don't use the same TFT-LCD module repeatedly for reliability test.
- The reliability test is performed only to examine the TFT-LCD module capability.
- To inspect TFT-LCD module after reliability test, please store it at room temperature and room humidity for 24 hours at least in advance.

**8. Mechanical Characteristics**

**8.1 Outline Dimension (Front View)**



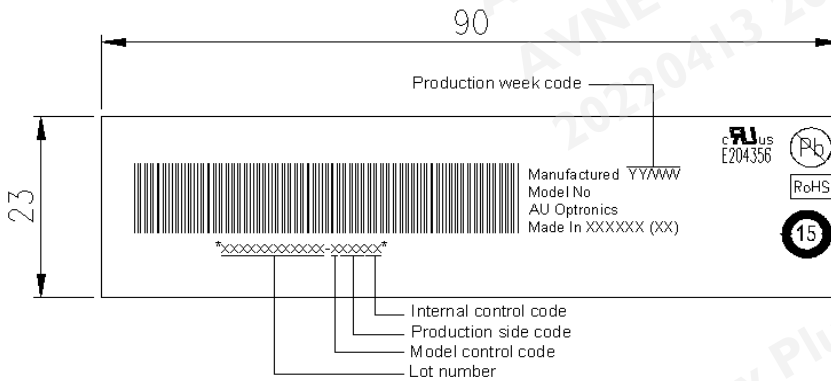
**8.2 Outline Dimension (Rear View)**



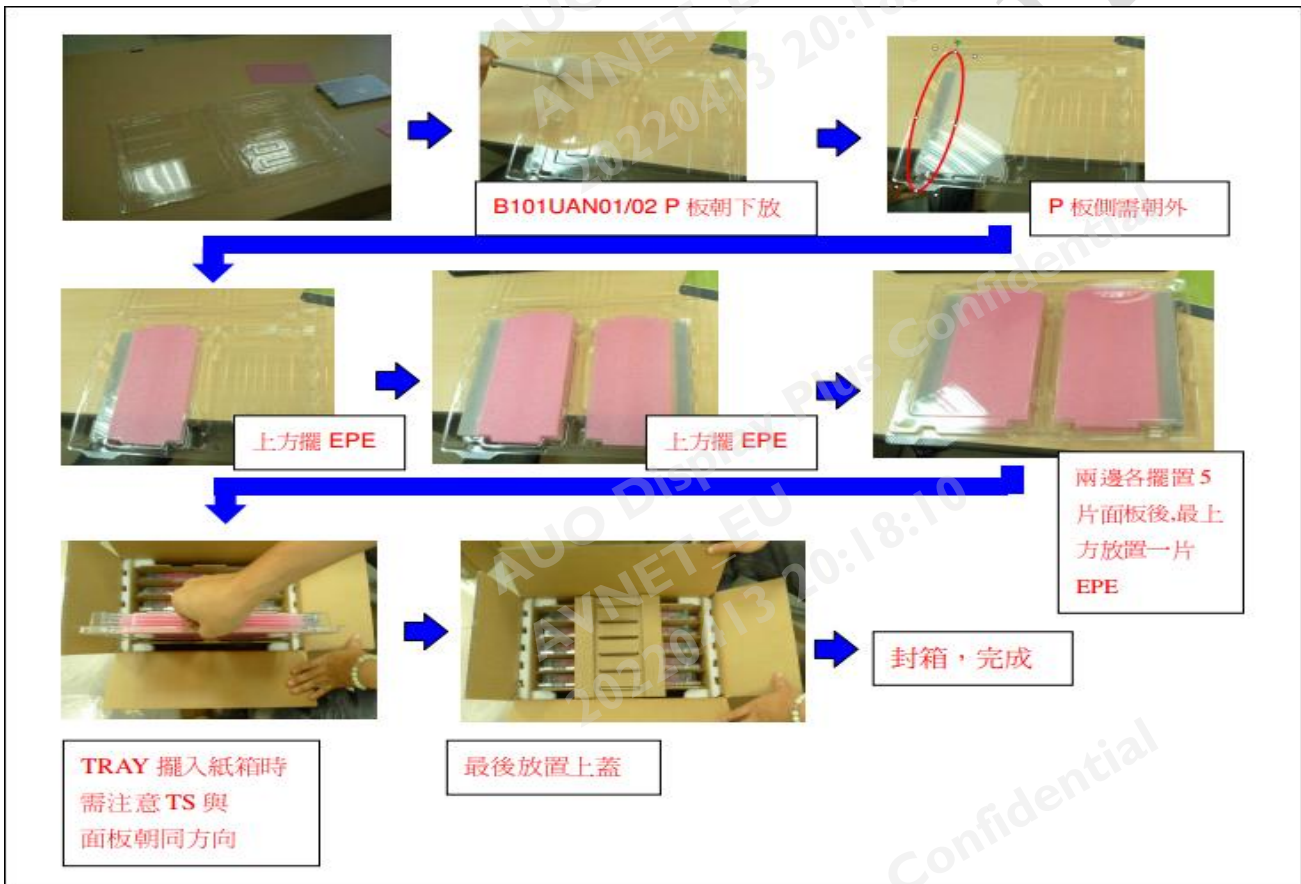


## 9. Label and Packaging

### 9.1 Shipping Label (on the rear side of TFT-LCD display)



### 9.2 Carton/Pallet Package



Max capacity : 50 TFT-LCD module per carton

Outside dimension of carton: 445mm(H)\*283mm(W)\*377mm(H)

Pallet size : 1150 mm \* 910 mm \* 132mm

入庫堆棧層數: 3 層

Box stacked

Module by air : (4\*2) \*3layers , one pallet put 24 boxes , total 1250pcs module

Module by sea : (4 \* 2) \*3layers+(4 \* 2) \*2layers, two pallets put 40boxes , total 2000pcs module

Module by sea\_HQ : (4\*2) \*3 layers+(4 \* 2) \*3layers, two pallets put 48 boxes , total 2400pcs module

## 10 Safety

### 10.1 Sharp Edge Requirements

There will be no sharp edges or corners on the display assembly that could cause injury.

### 10.2 Materials

#### 10.2.1 Toxicity

There will be no carcinogenic materials used anywhere in the display module. If toxic materials are used, they will be reviewed and approved by the responsible AUO toxicologist.

#### 10.2.2 Flammability

All components including electrical components that do not meet the flammability grade UL94-V1 in the module will complete the flammability rating exception approval process.

The printed circuit board will be made from material rated 94-V1 or better. The actual UL flammability rating will be printed on the printed circuit board.

### 10.3 Capacitors

If any polarized capacitors are used in the display assembly, provisions will be made to keep them from being inserted backwards.

### 10.4 National Test Lab Requirement

The display module will satisfy all requirements for compliance to:

UL 60950-1 second edition

U.S.A. Information Technology Equipment