

|                |            |                  |                |  |                  |
|----------------|------------|------------------|----------------|--|------------------|
| MVT-L101001(L) |            | 1280 x 800       | LVDS Interface |  | Aurum TFT Series |
| Specification  |            |                  |                |  |                  |
| Version: 1     |            | Date: 09/12/2025 |                |  |                  |
| Revision       |            |                  |                |  |                  |
| 1              | 09/12/2025 | First issue      | Created By     |  | Checked By       |
|                |            |                  | WE             |  | AB               |
|                |            |                  | Box Quantity   |  | Weight / Display |
|                |            |                  | ---            |  | ---              |

| Display Features      |                          |
|-----------------------|--------------------------|
| Display Size          | 10.10"                   |
| Resolution            | 1280 x 800               |
| Orientation           | Landscape                |
| Appearance            | RGB                      |
| Supply Voltage        | 3.3V                     |
| Interface             | LVDS                     |
| Brightness            | 1200cd/m <sup>2</sup>    |
| Touchscreen           | ---                      |
| Module Size           | 229.70 x 149.15 x 5.00mm |
| Operating Temperature | -20°C ~ +70°C            |
| Pinout                | 40 way FFC               |
| Pitch                 | 0.5mm                    |



| Also Available   |                                                |
|------------------|------------------------------------------------|
| Part Number      | Description                                    |
| MVT-L101001(LCR) | 10.1" LVDS TFT, optional lugs, CTP and RTP     |
| MVT-H101001(LCR) | 10.1" HDMI TFT, optional lugs, CTP and RTP     |
| MVT-E101001(LCR) | 10.1" Embedded TFT, optional lugs, CTP and RTP |

| Display Accessories |                                   |
|---------------------|-----------------------------------|
| Part Number         | Description                       |
| MDIB-1416           | HDMI to LVDS Interface Board      |
| MCIB-40             | Aurum HDMI-to-LVDS Carrier Board  |
| MDIB-42             | Aurum Embedded HDMI to LVDS board |

For full design functionality, please use this specification in conjunction with the EK73215 + EK79001H display driver specification (provided separately)



# AURUM TFT Display Series Part Number System

|            |          |          |             |           |          |          |
|------------|----------|----------|-------------|-----------|----------|----------|
| <b>MVT</b> | <b>-</b> | <b>L</b> | <b>1010</b> | <b>01</b> | <b>L</b> | <b>C</b> |
| <b>1</b>   |          | <b>2</b> | <b>3</b>    | <b>4</b>  | <b>6</b> | <b>7</b> |

- 1 = MVT: Midas Versatile TFT
- 2 = Interface R=RGB L=LVDS  
H=HDMI E=Embedded
- 3 = Size: Diagonal in inches (0430 = 4.3")
- 4 = Series #: 00, 01, 02 etc
- 5 = Lugs Blank = No lugs  
L = Lugs
- 6 = PCAP touch Blank = No touch  
C = PCAP touch

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R = Resistive touch

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## General Data

### Display

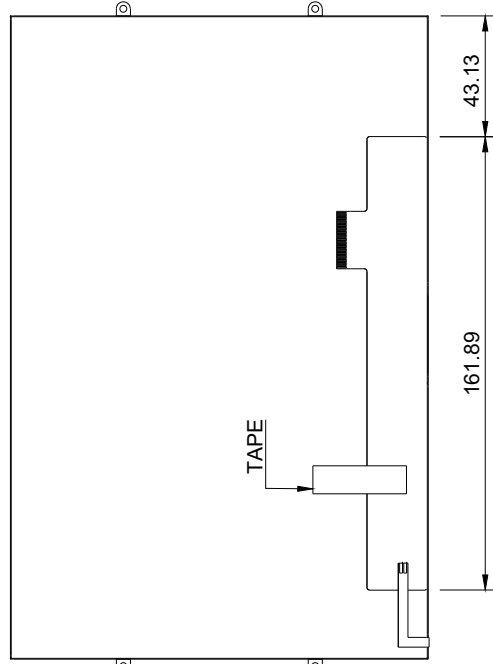
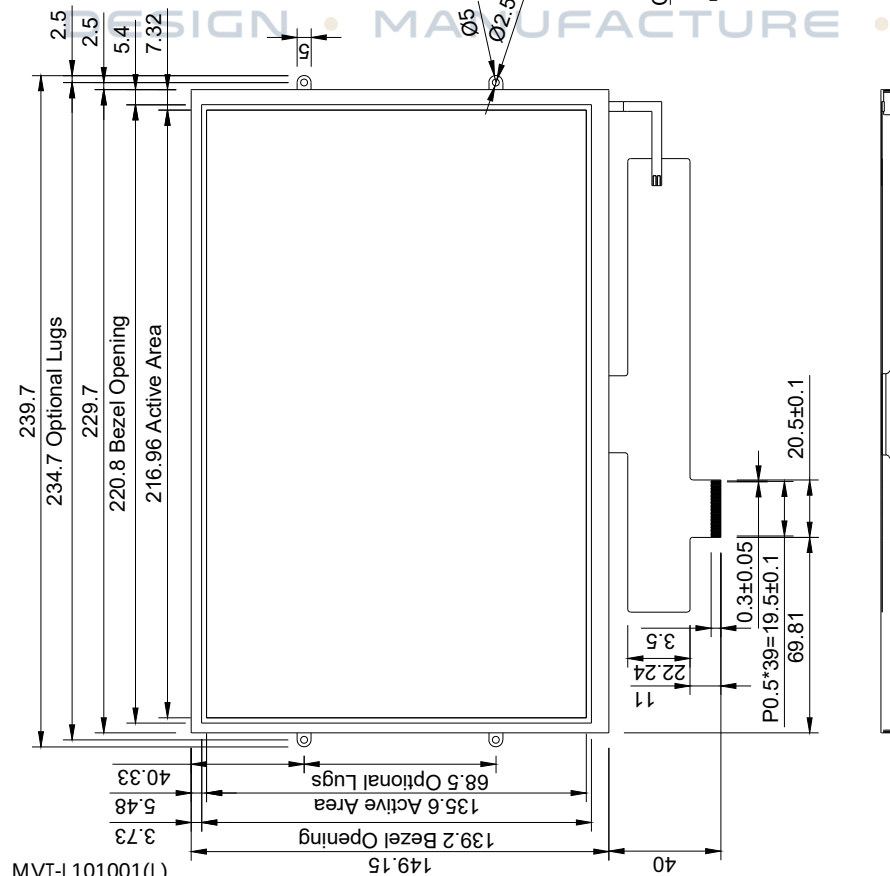
| Feature                                      | Value                               |
|----------------------------------------------|-------------------------------------|
| Size (inch)                                  | 10.10                               |
| Resolution (pixels)                          | 1280(Horizontal) x 800(Vertical)    |
| Type                                         | TFT/IPS/NORMALLY BLACK/TRANSMISSIVE |
| Display Size (mm)                            | 229.70 x 149.15 x 5.00              |
| Active Area (mm)                             | 216.96 x 135.60                     |
| Interface                                    | 24-bit LVDS                         |
| Connector type                               | 40-way FFC                          |
| Connector Pitch (mm)                         | 0.5                                 |
| Colour Depth                                 | 16.7 M                              |
| Pixel pitch (mm)                             | 0.1695 x 0.1695                     |
| LCD Driver IC                                | EK79202B                            |
| Luminance without touch (cd/m <sup>2</sup> ) | 1200                                |
| Viewing Direction (O'clock)                  | All                                 |



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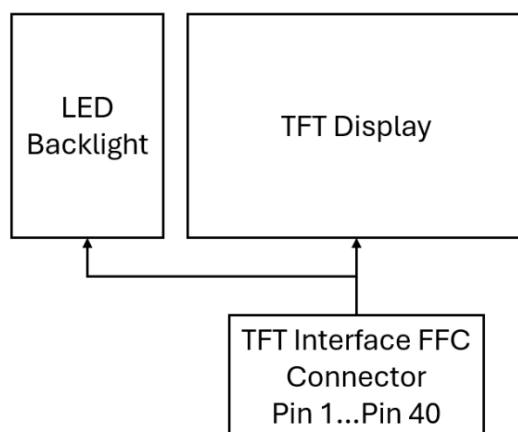


Drawing to scale  
Unspecified tolerances are  $\pm 0.5\text{mm}$   
Drawings are for reference only

| Created by     | Approved by | Metric | Drawing to scale                              |       |
|----------------|-------------|--------|-----------------------------------------------|-------|
| WE             | AB          |        | Unspecified tolerances are $\pm 0.5\text{mm}$ |       |
| Product Type   | DWG No.     | Rev.   | Date of issue                                 | Sheet |
| Display        | TBD         | 1      | 01/12/2025                                    | 1/1   |
| Title          |             |        |                                               |       |
| MVT-L101001(L) |             |        |                                               |       |

**MiDAS**  
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DISPLAYS

## Block Diagram



## Absolute Maximum Ratings

| Parameter             | Symbol | Min  | Max  | Unit |
|-----------------------|--------|------|------|------|
| Power Supply Voltage  | VDD    | -0.5 | +4.0 | V    |
| Operating temperature | Top    | -20  | +70  | °C   |
| Storage temperature   | Tst    | -30  | +80  | °C   |

## Electrical Characteristics

### Display

| Item                 | Symbol | Min       | Typ. | Max       | Unit |
|----------------------|--------|-----------|------|-----------|------|
| Power Supply         | VDD    | 3.0       | 3.3  | 3.6       | V    |
| Input voltage        | Vil    | GND       | -    | 0.3 x VDD | V    |
|                      | Vih    | 0.7 x VDD | -    | VDD       | V    |
| TFT gate on voltage  | VGH    | -         | 18   | -         | V    |
| TFT gate off voltage | VGL    | -         | -10  | -         | V    |
| TFT common voltage   | Vcom   | -1.5      | -    | -0.5      | V    |

### Backlight

| Item              | Symbol | Values |        |       | Unit |
|-------------------|--------|--------|--------|-------|------|
|                   |        | Min    | Typ.   | Max   |      |
| Supply Voltage    | Vf     | 16.2   | 18     | 19.8  | V    |
| Supply Current    | IL     | -      | 420    | -     | mA   |
| Power consumption | P      | 6.804  | 7.56   | 8.316 | W    |
| LED lifetime      |        | -      | 50,000 | -     | Hr   |



# Pin Assignment

## Display

| Pin No. | Symbol   | Description                            |
|---------|----------|----------------------------------------|
| 1       | NC       | No connect                             |
| 2       | VDD      | Power voltage                          |
| 3       | VDD      | Power voltage                          |
| 4       | NC       | No connect                             |
| 5       | /RESET   | Display reset input, active low        |
| 6       | STBYB    | Standby mode, normally high            |
| 7       | GND      | Power ground                           |
| 8       | RXIN0-   | LVDS data 0 negative input             |
| 9       | RXIN0+   | LVDS data 0 positive input             |
| 10      | GND      | Power ground                           |
| 11      | RXIN1-   | LVDS data 1 negative input             |
| 12      | RXIN1+   | LVDS data 1 positive input             |
| 13      | GND      | Power ground                           |
| 14      | RXIN2-   | LVDS data 2 negative input             |
| 15      | RXIN2+   | LVDS data 2 positive input             |
| 16      | GND      | Power ground                           |
| 17      | RXCLKIN- | LVDS clock negative input              |
| 18      | RXCLKIN+ | LVDS clock positive input              |
| 19      | GND      | Power ground                           |
| 20      | RXIN3-   | LVDS data 3 negative input             |
| 21      | RXIN3+   | LVDS data 3 positive input             |
| 22      | GND      | Power ground                           |
| 23      | NC       | No connect                             |
| 24      | NC       | No connect                             |
| 25      | GND      | Power ground                           |
| 26      | NC       | No connect                             |
| 27      | NC       | No connect                             |
| 28      | SELB     | Low for 8 bit, high for 6 bit          |
| 29      | NC       | No connect                             |
| 30      | GND      | Power ground                           |
| 31      | LED-     | Cathode of LED backlight               |
| 32      | LED-     | Cathode of LED backlight               |
| 33      | L/R      | Scan mode left or right, normally high |
| 34      | U/D      | Scan mode up or down, normally low     |
| 35      | NC       | No connect                             |
| 36      | NC       | No connect                             |
| 37      | NC       | No connect                             |
| 38      | NC       | No connect                             |
| 39      | LED+     | Anode of LED backlight                 |
| 40      | LED+     | Anode of LED backlight                 |

## Solder Links

| Link      | Description                                          |
|-----------|------------------------------------------------------|
| I2C Touch | Short R7 and disconnect R6 on top right of Touch FPC |
| USB Touch | Short R6 and disconnect R7 on top right of Touch FPC |



## Touch

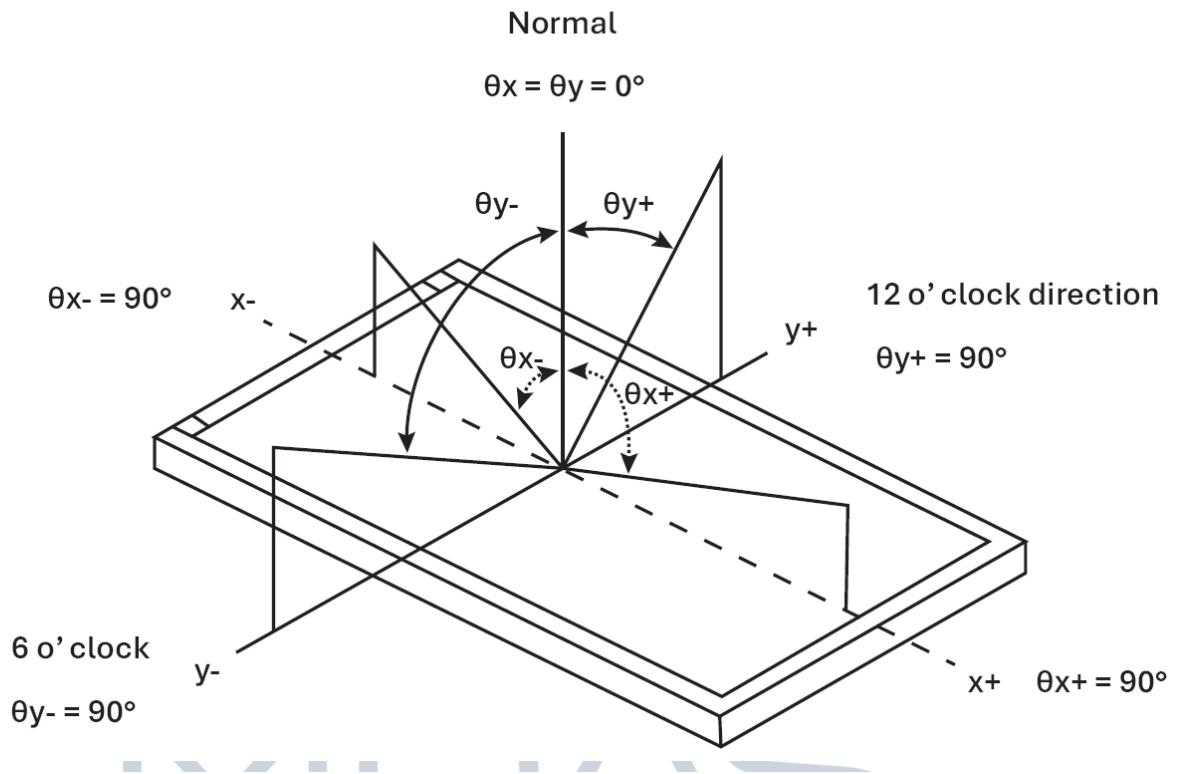
| Pin No. | Symbol     | Description                    |
|---------|------------|--------------------------------|
| 1       | VDD_USB 5V | Positive power supply          |
| 2       | USB_D-     | USB interface, D- signal.      |
| 3       | USB_D+     | USB interface, D+ signal.      |
| 4       | USB_VSS    | Negative supply (USB)          |
| 5       | VSS        | Negative supply (I2C)          |
| 6       | SDA        | I2C Serial data input/output   |
| 7       | SCL        | I2C Serial clock input/output  |
| 8       | VDDT 3.3V  | Positive power supply          |
| 9       | /RST       | Global reset input, active low |
| 10      | /IN        | External Interrupt, output     |

## Optical Characteristics

| Item                  |         | Symbol        | Conditions           | Specifications |       |       | Unit              |
|-----------------------|---------|---------------|----------------------|----------------|-------|-------|-------------------|
|                       |         |               |                      | Min            | Typ.  | Max   |                   |
| Luminance             |         | L             |                      | -              | 1200  | -     | cd/m <sup>2</sup> |
| Contrast ratio        |         | CR            | $\theta=0^\circ$     | 700            | 900   | -     |                   |
| Response time         | Rising  | Tr            | 25°C                 | -              | 30    | -     | ms                |
|                       | Falling | Tf            |                      |                |       |       |                   |
| CIE Colour Coordinate | RED     | XR            | Normal Viewing Angle | -0.02          | 0.608 | +0.02 |                   |
|                       |         | YR            |                      |                | 0.318 |       |                   |
|                       | GREEN   | XG            |                      |                | 0.325 |       |                   |
|                       |         | YG            |                      |                | 0.532 |       |                   |
|                       | BLUE    | XB            |                      |                | 0.126 |       |                   |
|                       |         | YB            |                      |                | 0.135 |       |                   |
|                       | WHITE   | XW            |                      |                | 0.312 |       |                   |
|                       |         | YW            |                      |                | 0.334 |       |                   |
| Viewing Angle         | Hor.    | $\theta_{x+}$ | CR $\geq$ 10         | -              | 80    | -     | Degree            |
|                       |         | $\theta_{x-}$ |                      | -              | 80    | -     |                   |
|                       | Ver.    | $\theta_{y+}$ |                      | -              | 80    | -     |                   |
|                       |         | $\theta_{y-}$ |                      | -              | 80    | -     |                   |



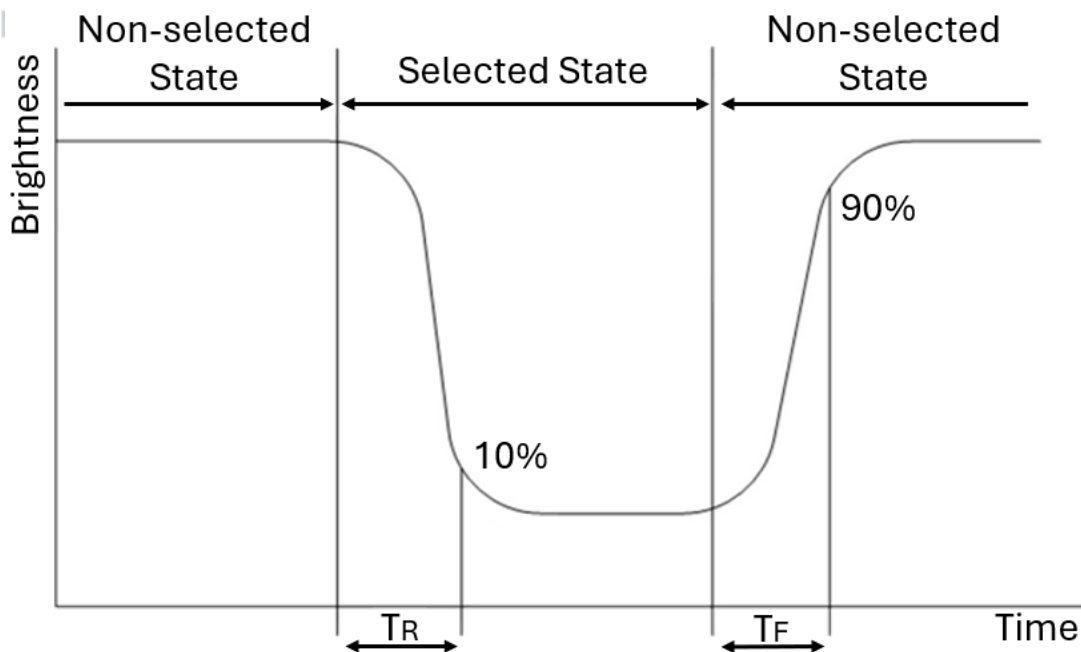
Definition of viewing angle  $\theta_x$  and  $\theta_y$ :



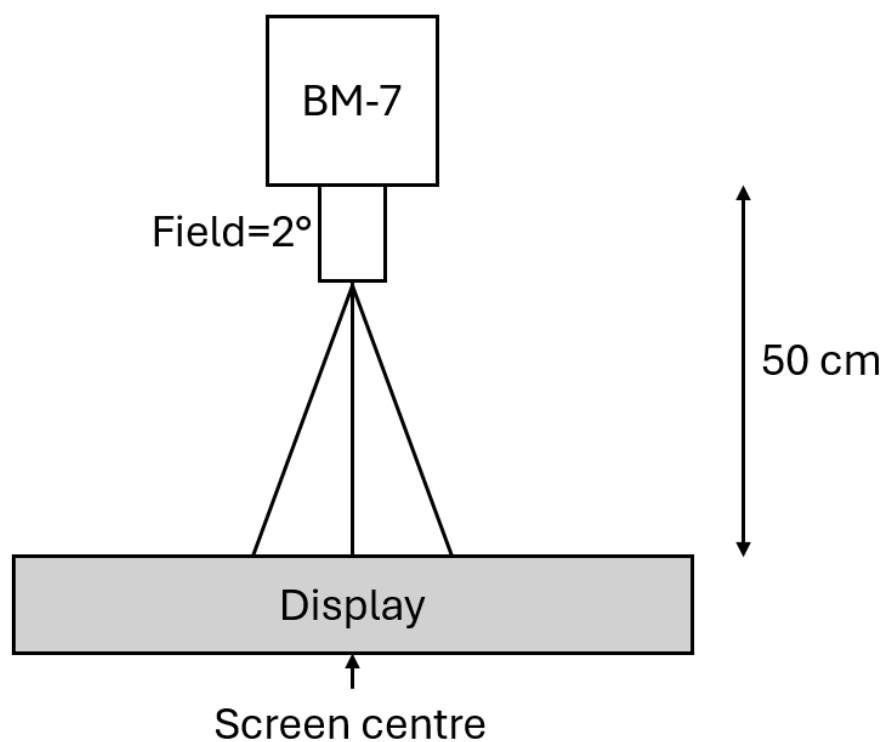
Definition of contrast ratio:

$$CR = \frac{\text{Brightness of non-selected dots (white)}}{\text{Brightness of selected dots (black)}}$$

Definition of response time:

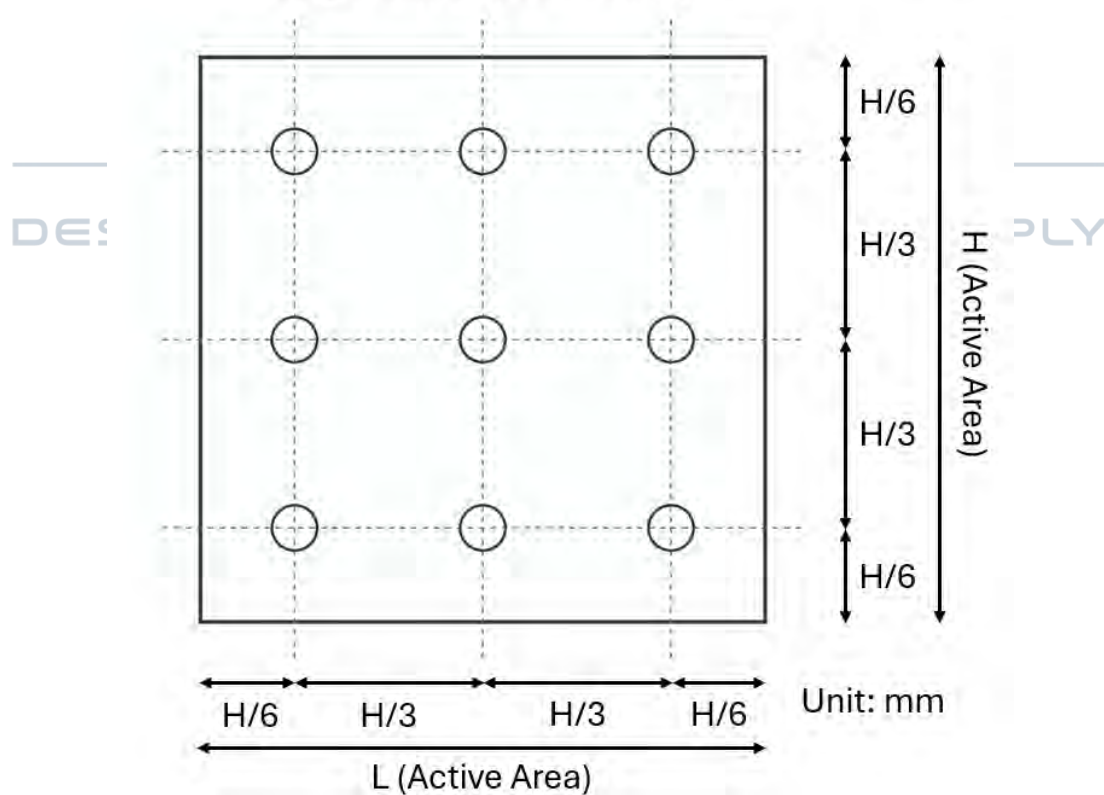


## Brightness Test Equipment Setup



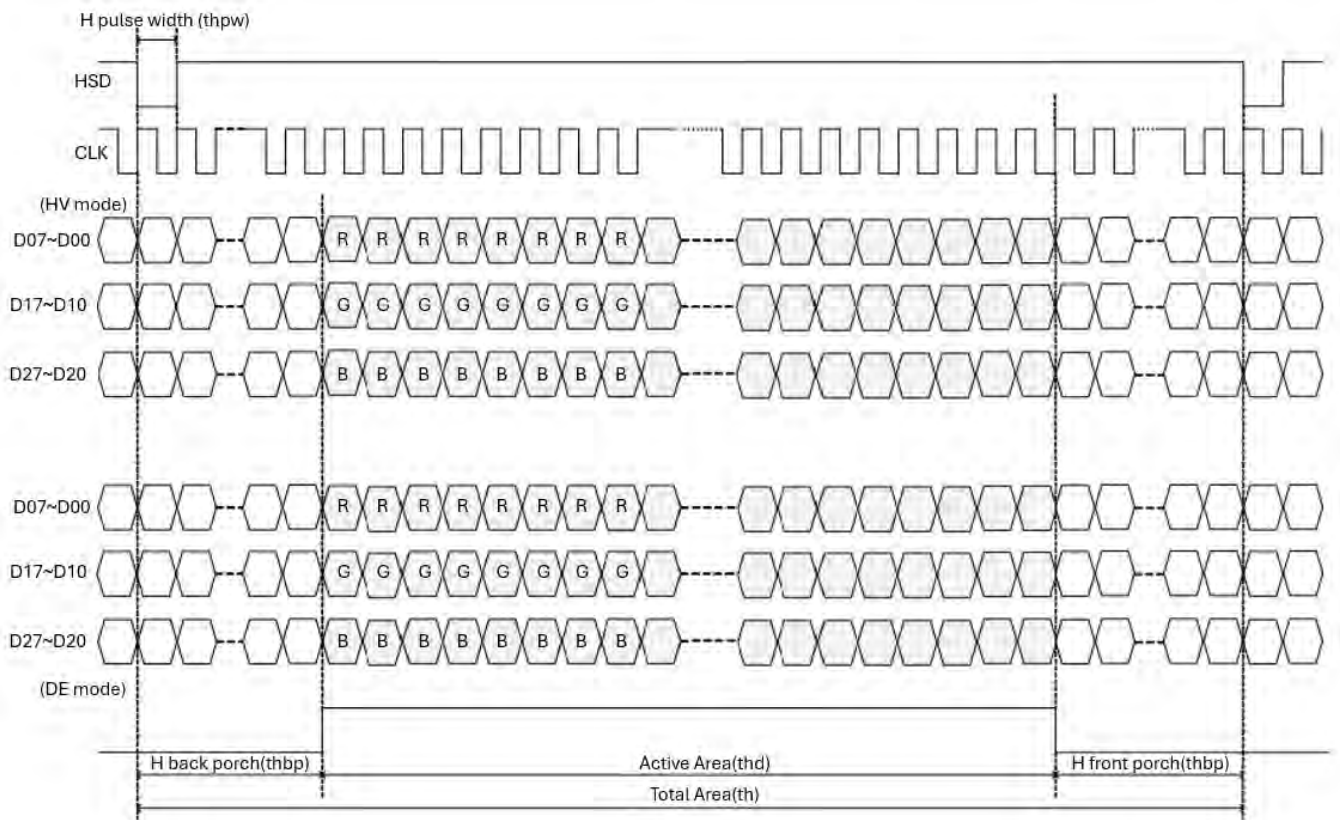
Field = 2° (As measuring "black" image, field = 2° is the best testing condition)

## Brightness Test Point Setup

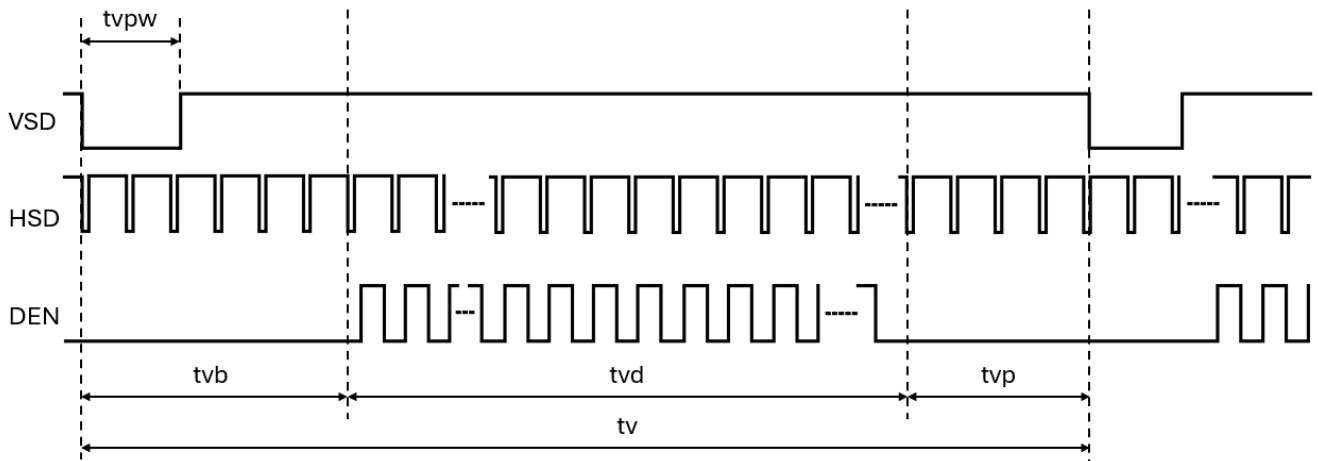


# Display Timing Characteristics

## Horizontal Input Timing



## Vertical Input Timing



## Display Timing

| Item                    | Symbol    | Min. | Typ. | Max. | Unit |
|-------------------------|-----------|------|------|------|------|
| DCLK Frequency          | Fclk      | 66.3 | 72.4 | 78.9 | MHz  |
| Horizontal Display Area | Thd       | 1280 |      |      | DCLK |
| HSYNC Period Time       | Th        | 1380 | 1440 | 1500 | DCLK |
| HSYNC Blanking          | Thbp+Thfp | 100  | 160  | 220  | H    |
| HSYNC Back Porch        | Thbp      | 88   | 88   | 88   | H    |
| HSYNC Front Porch       | Thfp      | 12   | 72   | 132  | H    |
| Vertical Display Area   | Tvd       | 800  |      |      | H    |
| VSYNC Period            | Tv        | 824  | 838  | 872  | H    |
| VSYNC Blanking          | Tvbp+Tvfp | 24   | 38   | 72   | H    |
| VSYNC Back Porch        | Tvbp      | 23   | 23   | 23   | H    |
| VSYNC Front Porch       | Tvfp      | 1    | 15   | 49   | H    |

## Scanning Mode

| Scan Input |      | Scanning Direction        |
|------------|------|---------------------------|
| U/D        | L/R  |                           |
| GND        | DVDD | Up to down, right to left |
| DVDD       | GND  | Down to up, left to right |
| GND        | GND  | Up to down, left to right |
| DVDD       | DVDD | Down to up, right to left |

## Reliability Test

| Environmental Item                           | CONDITIONS    |              |
|----------------------------------------------|---------------|--------------|
| High Temperature Storage                     | TA=80°C       | 96H          |
| Low Temperature Storage                      | TA=-30°C      | 96H          |
| High Temperature Operation                   | TA=70°C       | 96H          |
| Low Temperature Operation                    | TA=-20°C      | 96H          |
| High Temperature and High Humidity Operation | +60°C, 90%RH  | 96H          |
| Thermal Shock                                | -30°C → +80°C | 0.5H:5CYCLES |



## Handling Precautions

- The display panel is constructed of glass. Refrain from exposing it to mechanical shock, such as dropping it from a height.
- The display should not be disassembled as this can impact the functionality.
- In the event of damage to the display panel resulting in leakage of the liquid crystal substance, it is imperative not to ingest the substance. If contact occurs with skin or clothing, please wash the affected area thoroughly with soap and water immediately.
- Do not apply excessive force to the display surface or adjoining areas, as this may cause colour tone variations.
- The polariser covering the display surface of the LCD module is soft and easily scratched. Handle this polariser carefully.
- To prevent damage to the elements by static electricity, maintain an optimal work environment.
- Ensure that the body is grounded when handling the LCD module.
- Tools required for assembly, such as soldering irons, must be properly grounded.
- To reduce the generation of static electricity, avoid conducting assembly and other work under dry conditions.
- The LCD module is coated with a film to protect the display surface. Exercise caution when peeling off this protective film, as static electricity may be generated.
- Use only specific solvents, like Isopropyl or Ethyl alcohol, for cleaning the display. Clean with a soft, clean cloth and avoid submerging the display.
- The removal of the protective tape over components may result in damage or cause detachment from their solder pads.
- To minimise potential performance degradation of the LCD modules due to static electricity or other factors, please exercise caution when handling the modules. Avoid touching the following areas:
  - o The exposed sections of the printed circuit board
  - o The terminal electrode sections.

## Assembly Precautions

- Do not make alterations or modifications to the display, including the glass, printed circuit board, components or FFC/FPC unless advised by Midas.
- Solder should only be applied to the specified terminals. For direct solder displays, a hot bar should be used, with 250-300°C for 3-5 seconds.
- The mounting method should consider mechanical stresses placed upon the display.
- Assembling operators should be grounded during the entire process of handling the display. Likewise, any tools, such as soldering irons, should be properly grounded.
- Avoid cleaning solutions from the assembly process, such as solder flux cleaning fluids, from getting onto the display as this can leak into the housing and cause internal damage.
- Assembly should not be conducted under ESD safe conditions to reduce the risk of static electricity.
- Continuous high temperatures during assembly may cause deformation or damage.
- Care should be taken when bending the FFC/FPC, as continuous bends may wear out the circuitry.
- The plating of the FFC/FPC can be worn down by multiple insertions.
- Lead free solder should be used to adhere with RoHS



## Operation Precautions

- The maximum ratings of the display should never be exceeded, or functionality cannot be guaranteed.
- Sudden shutdown caused by forced removal of the power supply may cause damage to the electronics of the display.
- Temperature and environment can influence the display and electronics, and the display should be tested by the end customer within expected working conditions to check for satisfactory performance.
- The user should implement external over-current and over-voltage protection.
- Do not apply signals to the logic input if the display is not powered
- A constant current source is recommended for the operation of the backlight. Using a constant voltage source without adequate current limitations can permanently damage the backlights operation.
- If the LCD modules have been operating for a long time showing the same display patterns may remain on the screen as ghost images and a slight contrast irregularity may also appear. Abnormal operating status can be resumed to be normal condition by suspending use for some time. It should be noted that this phenomenon does not adversely affect performance reliability.

## Others

- Liquid crystals solidify at low temperature (below the storage temperature range) leading to defective orientation of liquid crystal or the generation of air bubbles (black or white). Air bubbles may also be generated if the module is subjected to a strong shock at a low temperature.
- When storing the LCD modules, avoid exposure to direct sunlight or light from fluorescent lamps. Keep the modules in bags designed to prevent static electricity charging under low temperature and normal humidity conditions (avoid high temperature, high humidity, and temperatures below 0°C). Whenever possible, store the LCD modules in the same packaging as when they were shipped from Midas.
- Midas maintains the right to change the passive components, and the PCB revision without informing the customer with the intent to continue supplying the product with the same or better performance.
- This display is supplied as a component for use within a completed assembly. As such it should be tested within the completed unit for suitability. Performance may vary depending on external components.
- This device will have susceptibility to external noise and interference; care should be taken to isolate or shield the product if necessary. Cables may require additional shielding or shortening.
- The disposal of a display should be handled by qualified industrial waste management and is not for standard waste disposal.
- Midas's warranty liability is strictly confined to the repair and replacement of purchased products. Midas shall not be held liable for any consequential damages.

