| MCOT128064H1V-WM | $128 \times 64$ | White | OLED Module |
| :---: | :---: | :---: | :---: |
| Specification |  |  |  |
| Version: 1 | Date: 07/06/2017 |  |  |
| Revision |  |  |  |


| Display Features |  |  |  |
| :---: | :---: | :---: | :---: |
| Resolution | $128 \times 64$ |  |  |
| Appearance | White on Black |  | -18 |
| Logic Voltage | 3 V |  | - |
| Interface | Parallel / SPI / I2C |  | plian |
| Module Size | $60.50 \times 37.00 \times 2.15 \mathrm{~mm}$ |  |  |
| Operating Temperature | $-40^{\circ} \mathrm{C} \sim+80^{\circ} \mathrm{C}$ | Box Quantity | Weight / Display |
| Construction | TAB | --- | --- |


| Display Accessories |  |
| :---: | :--- |
| Part Number | Description |
| MPBV6 | FFC to cable. Supports up to 40 <br> way. Any driver board that supports <br> 1mm pitch SHDR-40V-S-B <br> receptacle. |
| MCIB12 | UC32 Breakout Board with SD card <br> and LED back light driver. Used in <br> conjunction with MPBV6. |
|  |  |


| Optional Variants |  |
| :--- | :--- |
| Appearance | Voltage |
| Green on Black <br> Yellow on Black <br> Blue on Black |  |
|  |  |
|  |  |
|  |  |


| Mechanical Specifications |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Module Size | $60.50 \times 37.00 \times 2.15$ (With Backlight) |  |  |  | $\mathrm{W} \times \mathrm{H} \times \mathrm{D} \mathrm{mm}$ |
| Active Area | $55.01 \times 27.49$ | $\mathrm{~W} \times \mathrm{H} \mathrm{mm}$ | Hole-to-Hole | --- | $\mathrm{W} \times \mathrm{H} \mathrm{mm}$ |
| Dot Size | $0.40 \times 0.40$ | $\mathrm{~W} \times \mathrm{H} \mathrm{mm}$ | Dot Pitch | $0.43 \times 0.43$ | $\mathrm{~W} \times \mathrm{H} \mathrm{mm}$ |






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| Pin layout |  |  |  |
| :---: | :---: | :---: | :---: |
| Pin | Symbol | Description | Remarks |
| 1 | NC(Ground) | No Connection (ground). |  |
| 2 | VSS | Ground Pin. Connect to external ground. |  |
| 3~10 | NC | No Connection. |  |
| 11 | VDD | Power Supply Pin for core logic operation. |  |
| 12 | BS1 | MCU bus interface selection pins. Select appropriate logic settings: <br> Note: " 0 " is connected to VSS and " 1 " is connected to VDD. <br> I2C = BS1: 1 BS2: 0 <br> 4-Wire SPI = BS1: 0 BS2: 0 <br> 8-bit 6800 Parallel = BS1:0 BS2:1 <br> 8 -bit 8080 Parallel = BS1: 1 BS2: 1 |  |
| 13 | BS2 |  |  |
| 14 | NC | No Connection. |  |
| 15 | CS\# | Chip Select Input, connecting to MCU. Chip is enabled for MCU communication when CS\# is pulled Low. |  |
| 16 | RES\# | Reset Signal Input. Initialisation for chip is executed when pulled Low. Keep pulled High during normal operation. |  |
| 17 | D/C\# | Data / Command control pin connecting to the MCU. Pin pulled High= Data at $D(7: 0)$ will be interpreted as data. Pin pulled Low= Data at $\mathrm{D}(7: 0)$ will be transferred to a command register. I2C Mode= Pin acts as SAO for slave address selection. 3 -wire SPI Serial= This pin must be connected to VSS. |  |
| 18 | R/W\# | Read / Write control input pin connecting to the MCU interface. 6800 Mode $=$ This pin will be used as Read/Write ( R/W\#). Read will be carried out when pin pulled High and Write mode when pulled Low. 8080 Mode= This pin will be the Write (WR\#) input. Data Write initiated when on pulled Low and chip selected. <br> I2C or SPI= Must connect to VSS. |  |
| 19 | E/RD\# | MCU Interface Input. <br> 6800 Mode $=$ Pin will be used as $\mathrm{E}(\mathrm{E})$ signal. Read/Write operation initiated when pin is pulled High and chip selected. <br> 8080 Mode= Pin receives Read (RD\#) signal. Read operation initiated when pin pulled Low and chip selected. <br> I2C or SPI= Must connect to VSS. |  |
| 20~27 | D0~D7 | Bi-directional data bus connecting to MCU data bus. Unused pints to tie Low. <br> SPI Mode= D0 will be Serial Clock input (SCLK), D1 will be Serial Data input (DIN) and D2 to be kept NC. <br> I2C Mode= D2 and D1 tied to be tied together and serve as SDAout , SDAin application and DO is Serial Clock input (SCL). |  |
| 28 | IREF | Segment Output Current Reference pin. <br> IREF supplied externally. <br> A Resistor to be connected between this pin and VSS to maintain $10 \mu \mathrm{~A}$ current. |  |
| 29 | VCOMH | COM Signal deselected voltage Level. Capacitor connected between this pin and VSS. |  |
| 30 | VCC | Power Supply for Panel Driving Voltage. |  |
| 31 | NC(Ground) | No Connection (ground). |  |



| Absolute Maximums Ratings |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Item | Symbol | Minimum | Typical | Maximum | Unit |
| Supply Voltage for Logic | VDD | -0.30 | -- | 4.00 | V |
| Supply Voltage for Display | VCC | 0.00 | -- | 15.00 | V |
| Operating Temperature | TOP | -40 | -- | 70 | ${ }^{\circ} \mathrm{C}$ |
| Storage Temperature | TSTG | -40 | --- | 80 | ${ }^{\circ} \mathrm{C}$ |


| Electronic Characteristics |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Item | Symbol | Condition | Minimum | Typical | Maximum | Unit |  |
| Input High Voltage | VIH | --- | $0.80 \times$ VDD | --- | VDD | V |  |
| Input Low Voltage | VIL | --- | GND | --- | $0.20 x$ VDD | V |  |
| Output High Voltage | VOH | --- | $0.90 x$ VDD | --- | VDD | V |  |
| Output Low Voltage | VOL | --- | GND | --- | $0.10 x$ VDD | V |  |
| Supply Voltage for Logic | VDD | --- | 2.80 | 3.00 | 3.30 | V |  |
| Supply Voltage for Display | VCC | --- | 12.00 | 13.00 | 15.00 | V |  |
| $50 \%$ Checkboard | IDD | VDD $=13 \mathrm{~V}$ | 15 | 18 | 22 | mA |  |
| Operating Current. | --- | (CIE1931) | 0.26 | 0.28 | 0.30 | --- |  |
| CIEx(White) | --- | (CIE1931) | 0.30 | 0.32 | 0.34 | --- |  |
| CIEy(White) | -- |  |  |  |  |  |  |


| OLED Characteristics |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Item | Symbol | Condition | Minimum | Typical | Maximum | Unit |
| Viewing Angle | (V) $\theta$ | --- | 160 | --- | --- | Deg |
|  | $(\mathrm{H}) \varphi$ | --- | 160 | -- | --- | Deg |
| Contrast Ratio | CR | Dark | $2000: 1$ | -- | --- | -- |
| Response Time | T Rise | --- | --- | 10 | --- | $\mu \mathrm{s}$ |
|  | T Fall | --- | --- | 10 | --- | $\mu \mathrm{s}$ |
| Display with 50\% Checkboard Brightness |  | 70 | 90 | --- | $\mathrm{cd} / \mathrm{m}^{2}$ |  |


| OLED Life Time |  |  |  |
| :---: | :---: | :---: | :---: |
| Item | Conditions | Typical | Remark |
| Operating Life Time | $\mathrm{Ta}=25^{\circ} \mathrm{C}$. Initial checkboard <br> brightness, $50 \%$. | 50,000 Hours | --- |


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|  |  | Revision |  |  |

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