| MCOT128064B1V-WM | $128 \times 64$ | White | OLED Module |
| :---: | :---: | :---: | :---: |
| Specification |  |  |  |
| Version: 1 | Date: 16/05/2017 |  |  |
| Revision |  |  |  |


| Display Features |  |  |  |
| :---: | :---: | :---: | :---: |
| Resolution | $128 \times 64$ |  |  |
| Appearance | White on Black |  |  |
| Logic Voltage | 3 V |  |  |
| Interface | Parallel / SPI / I2C |  |  |
| Module Size | $42.04 \times 27.22 \times 1.45 \mathrm{~mm}$ |  |  |
| Operating Temperature | $-40^{\circ} \mathrm{C} \sim+80^{\circ} \mathrm{C}$ | Box Quantity | Weight / Display |
| Construction | TAB | --- | --- |

*     - For full design functionality, please use this specification in conjunction with the SSD1309ZC specification. (Provided Separately)

| Display Accessories |  |
| :---: | :--- |
| Part Number | Description |
| MPBV7 | 30 Way FFC to cable and wires. <br> Driven by any driver board that can <br> be wired to a 1mm pith <br> SHDR-30V-S-B receptacle. |
| MCIB-12 | UC32 Breakout Board. With SD <br> Card and LED backlight driver. <br> Used in conjunction with MPBV7 |
|  |  |


| Optional Variants |  |
| :--- | :--- |
| Appearance | Voltage |
| Yellow on Black |  |
|  |  |
|  |  |
|  |  |


| Mechanical Specifications |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Module Size | $42.04 \times 27.22 \times 1.45$ (With Backlight) |  |  | $\mathrm{W} \times \mathrm{H} \times \mathrm{D} \mathrm{mm}$ |  |
| Viewing Area | $37.05 \times 19.52$ | $\mathrm{~W} \times \mathrm{H} \mathrm{mm}$ | Hole-to-Hole | --- | $\mathrm{W} \times \mathrm{H} \mathrm{mm}$ |
| Dot Size | $0.249 \times 0.249$ | $\mathrm{~W} \times \mathrm{H} \mathrm{mm}$ | Dot Pitch | $0.274 \times 0.274$ | $\mathrm{~W} \times \mathrm{H} \mathrm{mm}$ |



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| Pin layout |  |  |  |
| :---: | :---: | :---: | :---: |
| Pin | Symbol | Description | Remarks |
| 1 | NC (Ground) | No Connection |  |
| 2 | VLSS | Analog ground Pin. |  |
| 3 | VSS | Ground. |  |
| 4 | NC | No Connection. |  |
| 5 | VDD | Power Supply pin for core logic operation. |  |
| 6 | BS1 | MCU bus interface selection pins. Select appropriate logic setting, as described below: (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 68XX = BS1:0 BS2: 1 <br> 8-bit 80XX = BS1: 1 BS2: 1 |  |
| 7 | BS2 |  |  |
| 8 | CS\# | Chip Select Input connecting to MCU. Chip is enabled for MCU communication when CS\# is pulled Low. |  |
| 9 | RES\# | Reset Signal Input. Initialisation is executed when pulled Low. Keep pulled High during normal operation. |  |
| 10 | D/C\# | Data / Command control pin connect to MCU. High= Data at $D(7: 0)$ interpreted as data. Low= Data at $D(7: 0)$ transferred to command register. <br> I2C mode = SAO for slave address selection. <br> 3-Wire SPI = Connect to VSS |  |
| 11 | R/W\# | Read / Write input pin, connecting to MCU interface. 6800 Mode $=$ R/W (R/W\#) selection input, read mode carried out when pulled High, write mode when Low. <br> 8080 Mode= WR (W/R\#) input, data write initiated when pin is pulled Low and chip is selected. <br> I2C or SPI selected = Connect to VSS. |  |
| 12 | E/RD\# | MCU Interface Input. <br> 6800 Mode= Enable signal pin, Read/Write initiated when pin is pulled High and chip is selected. <br> 8080 Mode= Read (RD\#) signal pin, read operation initiated when pin is pulled Low and chip is selected. <br> I2C or SPI selected = Connect to VSS. |  |
| 13~20 | D0~D7 | Bi-directional data bus connecting to MCU data bus. Unused pins to tie low. <br> SPI Mode= D0 will be Serial Clock input (SCLK). D1 will be the Serial Data input (SDIN) and D2 should be kept NC. <br> I2C Mode= D2 and D1 should be tied together and serve as SDAout, SDAin in application and DO is Serial Clock input (SCL). |  |
| 21 | IREF | Segment output current reference pin. IREF supplied externally. |  |
| 22 | VCOMH | COM signal deselected voltage level. Capacitor between here and VSS. |  |
| 23 | VCC | Power Supply for driving voltage. Positive power voltage supply pin. |  |
| 24 | NC (GND) | No Connection |  |



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


| Electronic Characteristics |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Item | Symbol | Condition | Minimum | Typical | Maximum | Unit |
| Input High Voltage | VIH | --- | 0.80 | --- | VDD | V |
| Input Low Voltage | VIL | --- | GND | --- | 0.20 | V |
| Output High Voltage | VOH | --- | 0.90 | --- | VDD | V |
| Output Low Voltage | VOL | --- | GND | --- | 0.10 | V |
| Supply Voltage for Logic | VDD | --- | 2.80 | 3.00 | 3.30 | V |
| Supply Voltage for Display | VCC | --- | 12.00 | 12.50 | 13.00 | V |
| 50\% Checkboard <br> Operating Current. | IDD | VDD=12.5V | --- | 16.00 | 45.00 | mA |


| OLED Characteristics |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Item | Symbol | Condition | Minimum | Typical | Maximum | Unit |
| Viewing Angle | (V) $\theta$ | --- | 160 | --- | --- | Deg |
|  | (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 |  |  | 100 | 120 | --- | $\mathrm{cd} / \mathrm{m}^{2}$ |
| CIEx(White) |  | (CIE1931) | 0.26 | 0.28 | 0.30 | --- |
| CIEy(White) |  | (CIE1931) | 0.30 | 0.32 | 0.34 | --- |


| OLED Life Time |  |  |  |
| :---: | :---: | :---: | :---: |
| Item | Conditions | Typical | Remark |
| Operating Life Time | Ta=25 <br> C. Initial checkboard <br> brightness, $50 \%$. | 20,000 Hours | --- |


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| :---: | :---: | :---: | :---: |
| Version: 1 | Specification | OLED Module |  |
|  | Date: $16 / 05 / 2017$ |  |  |
|  |  |  |  |

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