

|                 |                  |                   |             |
|-----------------|------------------|-------------------|-------------|
| MCOB21605GX-EGP | 2 x 16           | Euro/Jap/Cyrillic | OLED Module |
| Specification   |                  |                   |             |
| Version: 1      | Date: 16/05/2017 |                   |             |
| Revision        |                  |                   |             |
|                 |                  |                   |             |

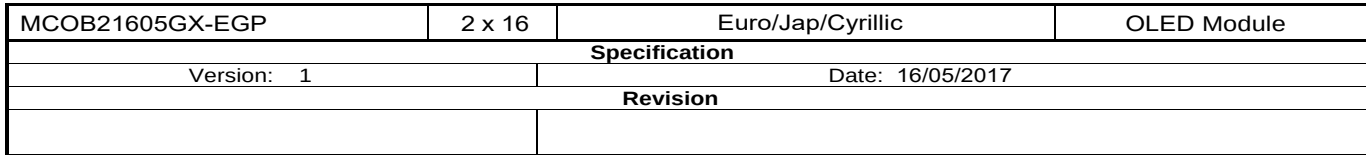
| Display Features      |                               |  |                  |
|-----------------------|-------------------------------|--------------------------------------------------------------------------------------|------------------|
| Character Count       | 2 x 16                        |                                                                                      |                  |
| Appearance            | Green on Black                |                                                                                      |                  |
| Logic Voltage         | 5V                            |                                                                                      |                  |
| Interface             | Parallel                      |                                                                                      |                  |
| Font Set              | English / European / Cyrillic |                                                                                      |                  |
| Character Height      | 5.95 mm                       |                                                                                      |                  |
| Module Size           | 80.00 x 36.00 x 9.10 mm       |                                                                                      |                  |
| Operating Temperature | -40°C ~ +80°C                 |                                                                                      |                  |
| Construction          | COB                           | Box Quantity                                                                         | Weight / Display |
|                       |                               | ---                                                                                  | ---              |

\* - For full design functionality, please use this specification in conjunction with the SSD1311 specification. (Provided Separately)

| Display Accessories    |                                                                                                      |
|------------------------|------------------------------------------------------------------------------------------------------|
| Part Number            | Description                                                                                          |
| MCCMDB-16SIL           | LCD Interconnect board, can be driven from either a PC or a single Board computer with a USB output. |
| MCCBL1A16SILP-DILS-150 | 16 Way, Single in-line to Dual in-line connector cable.                                              |
| MCCBL1A16SILP-SILS-150 | 16 Way, Single in-line to Single in-line connector cable.                                            |

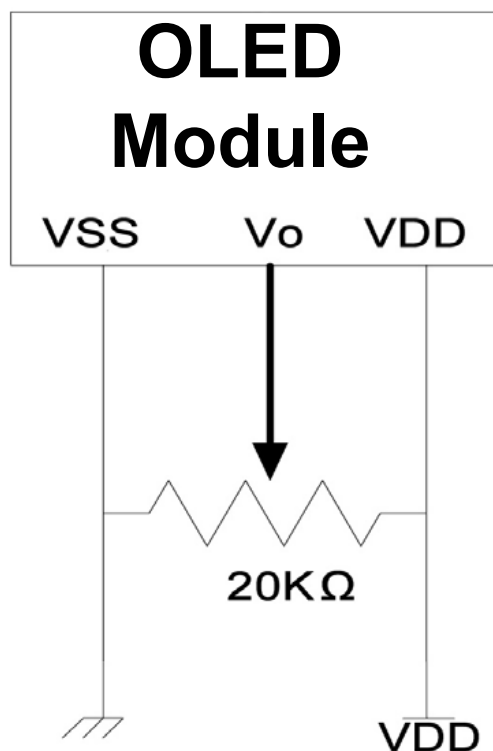
| Optional Variants                                                  |         |
|--------------------------------------------------------------------|---------|
| Appearance                                                         | Voltage |
| Blue on Black<br>White on Black<br>Yellow on Black<br>Red on Black |         |

| Mechanical Specifications |                                        |          |                 |               |              |
|---------------------------|----------------------------------------|----------|-----------------|---------------|--------------|
| Module Size               | 80.00 x 36.00 x 9.10 ( With Backlight) |          |                 |               | W x H x D mm |
| Viewing Area              | 58.22 x 13.52                          | W x H mm | Hole-to-Hole    | 75.00 x 31.00 | W x H mm     |
| Character Size            | 3.55 x 5.95                            | W x H mm | Character Pitch | 3.60 x 6.30   | W x H mm     |
| Dot Size                  | 0.57 x 0.67                            | W x H mm | Dot Pitch       | 0.60 x 0.70   | W x H mm     |

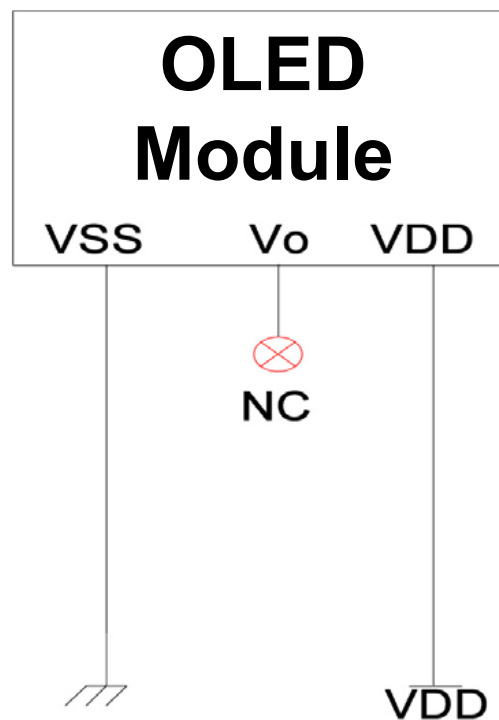


| Pin layout |            |                                                                                                                     |         |
|------------|------------|---------------------------------------------------------------------------------------------------------------------|---------|
| Pin        | Symbol     | Description                                                                                                         | Remarks |
| 1          | VSS        | Ground                                                                                                              | 5V      |
| 2          | VDD        | Supply Voltage for Logic                                                                                            |         |
| 3          | Vo         | Contrast Adjustment                                                                                                 |         |
| 4          | RS (D/C#)  | Register select signal. H: Data L: Command                                                                          | MPU     |
| 5          | R/W# (WR#) | 6800-Interface.<br>Read/Write select signal: R/W=1 Read R/W=0 Write.<br>8080-Interface.<br>Active Low write signal. |         |
| 6          | E or R/D   | 6800-Interface.<br>Operational enable signal. Falling edge triggered.<br>8080-Interface.<br>Active low read signal. | MPU     |
| 7-14       | DB0~DB7    | 8-Bit Bi-Directional data bus lines.                                                                                | MPU     |
| 15-16      | NC         | No Connection                                                                                                       |         |

Adjust Brightness by Software & Hardware(VR)



Adjust Brightness by Software(Only)



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# Font Map

| Upper<br>4bit<br>Lower<br>4bit | LLLL             | LLLH | LLHL | LLHH | LHLL | LHLH | LHHL | LHHH | HLLL | HLLH | HLHL | HLHH | HHLL | HHLH | HHHL | HHHH |
|--------------------------------|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| LLLL                           | CG<br>RAM<br>(1) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LLLH                           | (2)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LLHL                           | (3)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LLHH                           | (4)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LHLL                           | (5)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LHLH                           | (6)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LHHL                           | (7)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LHHH                           | (8)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HLLL                           | (1)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HLLH                           | (2)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HLHL                           | (3)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HLHH                           | (4)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HHLL                           | (5)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HHLH                           | (6)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HHHL                           | (7)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HHHH                           | (8)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

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| Upper<br>4bit<br>Lower<br>4bit |                  | LLLL | LLH | LLHL | LLHH | LHLL | LHLH | LHHL | LHHH | HLLL | HLLH | HLHL | HLHH | HHLL | HHLH | HHHL | HHHH |
|--------------------------------|------------------|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| LLLL                           | CG<br>RAM<br>(1) |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LLH                            | (2)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LLHL                           | (3)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LLHH                           | (4)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LHLL                           | (5)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LHLH                           | (6)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LHHL                           | (7)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LHHH                           | (8)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HLLL                           | (1)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HLLH                           | (2)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HLHL                           | (3)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HLHH                           | (4)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HHLL                           | (5)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HHLH                           | (6)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HHHL                           | (7)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HHHH                           | (8)              |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

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| Upper<br>4bit<br>Lower<br>4bit | LLLL             | LLHH | LLHL | LLHH | LHLL | LHLH | LHHL | LHHH | HLLL | HLLH | HLHL | HLHH | HHLL | HHLH | HHHL | HHHH |
|--------------------------------|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| LLLL                           | CG<br>RAM<br>(1) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LLHH                           | (2)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LLHL                           | (3)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LLHH                           | (4)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LHLL                           | (5)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LHLH                           | (6)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LHHL                           | (7)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LHHH                           | (8)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HLLL                           | (1)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HLLH                           | (2)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HLHL                           | (3)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HLHH                           | (4)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HHLL                           | (5)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HHLH                           | (6)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HHHL                           | (7)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| HHHH                           | (8)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

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| Absolute Maximums Ratings |                |         |         |         |      |
|---------------------------|----------------|---------|---------|---------|------|
| Item                      | Symbol         | Minimum | Typical | Maximum | Unit |
| Supply Voltage for Logic  | V <sub>O</sub> | -0.30   | 5.00    | 5.50    | V    |
| Input Voltage             | V <sub>I</sub> | -0.30   | 5.00    | 5.50    | V    |

| Electronic Characteristics |                 |                              |         |         |                 |      |
|----------------------------|-----------------|------------------------------|---------|---------|-----------------|------|
| Item                       | Symbol          | Condition                    | Minimum | Typical | Maximum         | Unit |
| Input Voltage for I/O Pins | V <sub>I</sub>  | Wide voltage I/O application | 2.80    | 5.00    | 5.30            |      |
| Input High Voltage         | V <sub>IH</sub> | ---                          | 0.80    | ---     | V <sub>DD</sub> | V    |
| Input Low Voltage          | V <sub>IL</sub> | ---                          | GND     | ---     | 0.20            | V    |
| Output High Voltage        | V <sub>OH</sub> | ---                          | 0.90    | ---     | V <sub>DD</sub> | V    |
| Output Low Voltage         | V <sub>OL</sub> | ---                          | GND     | ---     | 0.10            | V    |
| Supply Voltage for Logic   | V <sub>DD</sub> | Wide voltage I/O application | 2.80    | 5.00    | 5.30            | V    |
| Supply Current for Logic   | I <sub>DD</sub> | ---                          | ---     | 30      | ---             | mA   |
| Sleep Mode Current         | I <sub>DD</sub> | ---                          | ---     | 1       | 10              | μA   |

| OLED Characteristics      |        |           |           |         |         |                   |
|---------------------------|--------|-----------|-----------|---------|---------|-------------------|
| Item                      | Symbol | Condition | Minimum   | Typical | Maximum | Unit              |
| Viewing Angle             | (V)θ   | ---       | ---       | Free    | ---     | Deg               |
|                           | (H)φ   | ---       | ---       | Free    | ---     | Deg               |
| Contrast Ratio            | CR     | Dark      | >10,000:1 | ---     | ---     | ---               |
| Brightness                | LBR    | ---       | ---       | 140     | ---     | cd/m <sup>2</sup> |
| CIE <sub>x</sub> (Yellow) |        | (CIE1931) | 0.27      | 0.31    | 0.35    | ---               |
| CIE <sub>y</sub> (Yellow) |        | (CIE1931) | 0.58      | 0.62    | 0.66    | ---               |

| OLED Life Time      |                                                           |               |        |
|---------------------|-----------------------------------------------------------|---------------|--------|
| Item                | Conditions                                                | Typical       | Remark |
| Operating Life Time | T <sub>a</sub> =25°C. Initial checkboard brightness, 50%. | 100,000 Hours | ---    |

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