

|                     |        |                      |            |
|---------------------|--------|----------------------|------------|
| MC41605A6W-FPTLA-V2 | 4 x 16 | 5mm Character Height | LCD Module |
| Specification       |        |                      |            |
| Version: 1          |        | Date: 20/10/2016     |            |
| Revision            |        |                      |            |
|                     |        |                      |            |

| Display Features      |                          |              |                  |
|-----------------------|--------------------------|--------------|------------------|
| Character Count       | 4 x 16                   |              |                  |
| Appearance            | Black on Amber           |              |                  |
| Logic Voltage         | 5V                       |              |                  |
| Interface             | Parallel                 |              |                  |
| Font Set              | English / Japanese       |              |                  |
| Display Mode          | Transflective            |              |                  |
| Character Height      | 4.76mm                   |              |                  |
| LC Type               | FSTN                     |              |                  |
| Module Size           | 87.00 x 60.00 x 14.50 mm |              |                  |
| Operating Temperature | -20°C ~ +70°C            |              |                  |
| Construction          | COB                      | Box Quantity | Weight / Display |
| LED Backlight         | Amber                    | 30 pcs       | 75 grams         |



\* - For full design functionality, please use this specification in conjunction with the ST7066U specification. (Provided Separately)

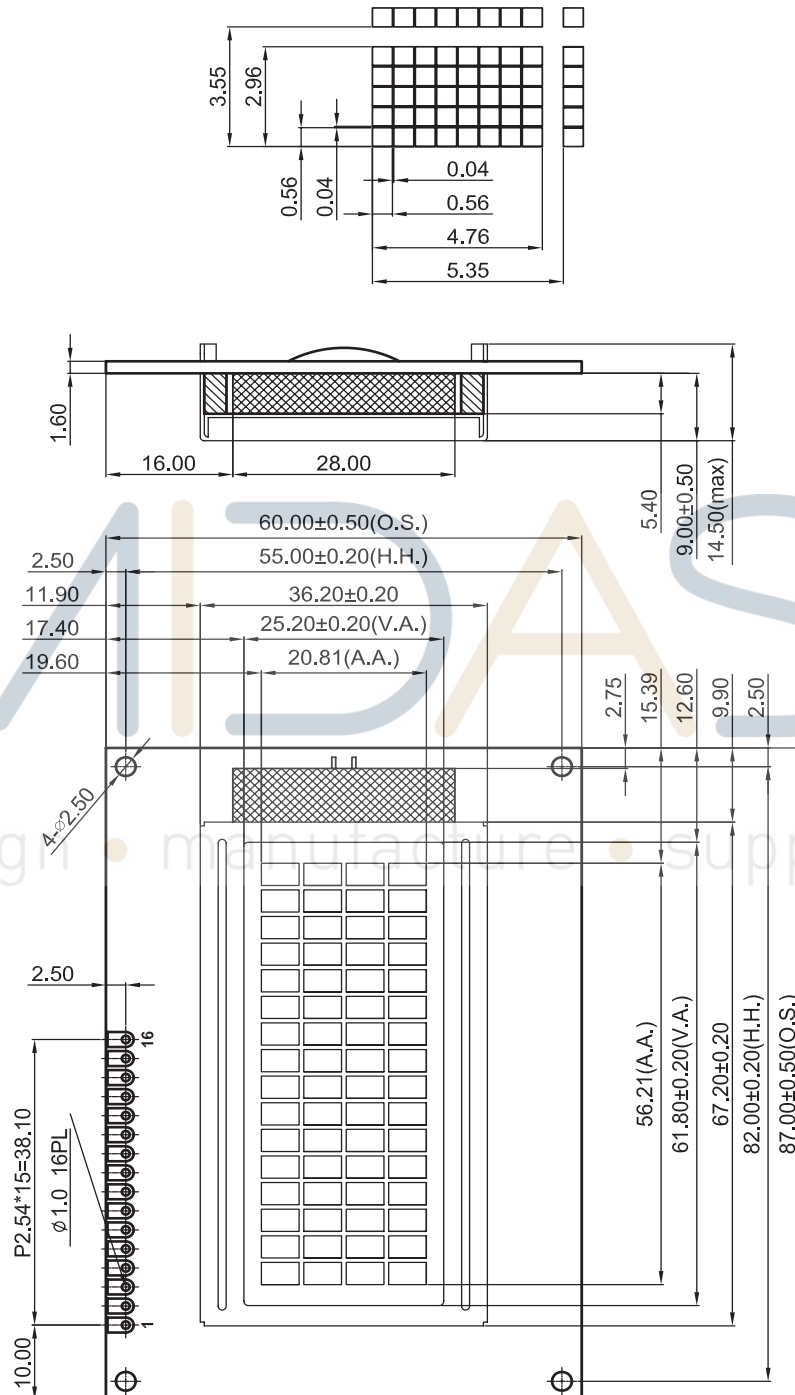
| Display Accessories      |                                                                                                      |
|--------------------------|------------------------------------------------------------------------------------------------------|
| Part Number              | Description                                                                                          |
| MCCMDB-16SIL             | LCD Interconnect board, can be driven from either a PC or a single Board computer with a USB output. |
| MCCBL1A16SLIP-16DILS-150 | 16 Way, Single in-line to Dual In-line connector Cable.                                              |
| MCCBL1A16SLIP-16SILS-150 | 16 Way, Single in-line to Single In-line connector Cable.                                            |

| Optional Variants                       |                                                                          |         |
|-----------------------------------------|--------------------------------------------------------------------------|---------|
| Fonts                                   | Appearances                                                              | Voltage |
| English / European<br>English / Russian | Black on Yellow/Green<br>Black on White<br>Black on Red<br>White on Blue | 3V      |



## Mechanical Specifications

| Module Size    | 87.00 x 60.00 x 14.5 ( With Backlight) |          |                 |               | W x H x D mm |
|----------------|----------------------------------------|----------|-----------------|---------------|--------------|
| Viewing Area   | 61.80 x 25.20                          | W x H mm | Hole-to-Hole    | 82.00 x 55.00 | W x H mm     |
| Character Size | 2.96 x 4.76                            | W x H mm | Character Pitch | 0.59 x 0.59   | W x H mm     |
| Dot Size       | 0.56 x 0.56                            | W x H mm | Dot Pitch       | 0.04 x 0.04   | W x H mm     |

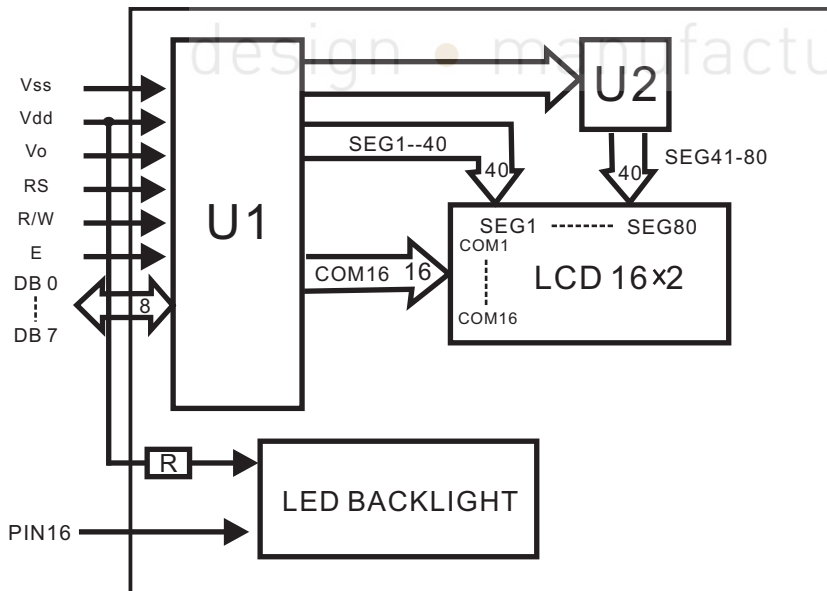


|                     |        |                      |            |
|---------------------|--------|----------------------|------------|
| MC41605A6W-FPTLA-V2 | 4 x 16 | 5mm Character Height | LCD Module |
| Specification       |        |                      |            |
| Version: 1          |        | Date: 20/10/2016     |            |
| Revision            |        |                      |            |
|                     |        |                      |            |

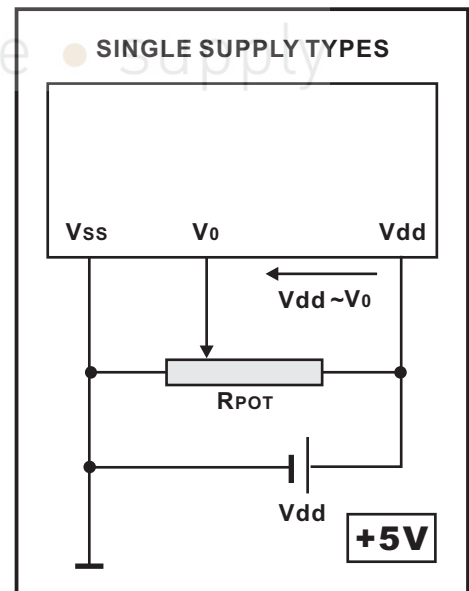
## Pin Layout

| PI | SYMBOL | DESCRIPTION            | REMARKS |
|----|--------|------------------------|---------|
| 1  | Vss    | GND                    |         |
| 2  | Vdd    | Power supply for LCM   | 5.0V    |
| 3  | V0     | Contrast Adjust        |         |
| 4  | RS     | Register Select Signal |         |
| 5  | R/W    | Data Read / Write      |         |
| 6  | E      | Enable Signal          |         |
| 7  | DB0    | Data bus line          |         |
| 8  | DB1    | Data bus line          |         |
| 9  | DB2    | Data bus line          |         |
| 10 | DB3    | Data bus line          |         |
| 11 | DB4    | Data bus line          |         |
| 12 | DB5    | Data bus line          |         |
| 13 | DB6    | Data bus line          |         |
| 14 | DB7    | Data bus line          |         |
| 15 | LED+   | Power supply for BKL   | 5.0V    |
| 16 | LED-   | Power supply for BKL   |         |

**Block Diagram**



**Power Supply Diagram**



|                     |        |                      |            |
|---------------------|--------|----------------------|------------|
| MC41605A6W-FPTLA-V2 | 4 x 16 | 5mm Character Height | LCD Module |
| Specification       |        |                      |            |
| Version: 1          |        | Date: 20/10/2016     |            |
| Revision            |        |                      |            |
|                     |        |                      |            |



## 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)              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

|                     |        |                      |            |
|---------------------|--------|----------------------|------------|
| MC41605A6W-FPTLA-V2 | 4 x 16 | 5mm Character Height | LCD Module |
| Specification       |        |                      |            |
| Version: 1          |        | Date: 20/10/2016     |            |
| Revision            |        |                      |            |
|                     |        |                      |            |



| Absolute Maximum Ratings |        |           |           |     |          |      |
|--------------------------|--------|-----------|-----------|-----|----------|------|
| Item                     | Symbol | Condition | Min       | Typ | Max      | Unit |
| Power Supply ( LOGIC)    | Vdd    | 25°C      | -0.3      | --- | 7.0      | V    |
| Power Supply (LCD)       | V0     | 25°C      | Vdd -13.5 | --- | Vdd +0.3 | V    |
| Input Voltage            | Vin    | 25°C      | -0.3      | --- | Vdd +0.3 | V    |
| Operating Temperature    | Vopr   | ---       | -20       | --- | 70       | C    |
| Storage Temperature      | Vstg   | ---       | -30       | --- | 80       | C    |

| Electronic Characteristics    |                   |           |      |      |      |      |
|-------------------------------|-------------------|-----------|------|------|------|------|
| Item                          | Symbol            | Condition | Min  | Typ  | Max  | Unit |
| Input Voltage                 | Vlcm = Vdd        | ---       | ---  | 5.0  | ---  | V    |
| Supply Current                | Idd               | Vdd=5V    | ---  | 1.5  | ---  | mA   |
| Driving Voltage for LCD Panel | Vlcd = (Vdd - V0) | -20°C     | 4.30 | ---  | 4.75 | V    |
|                               |                   | 0°C       | 4.20 | ---  | 4.65 |      |
|                               |                   | 25°C      | 4.10 | 4.50 | 4.55 |      |
|                               |                   | 50°C      | 3.95 | ---  | 4.45 |      |
|                               |                   | 70°C      | 3.80 | ---  | 4.40 |      |

| LCD Characteristics          |                   |           |     |     |     |      |
|------------------------------|-------------------|-----------|-----|-----|-----|------|
| For STN/FSTN LCD Panel Types |                   |           |     |     |     |      |
| Item                         | Symbol            | Condition | Min | Typ | Max | Unit |
| Viewing Angle                | $\Phi 2 - \Phi 1$ | K = 4     | 40° | --- | --- | Deg  |
|                              | $\Theta$          |           | 60° |     |     |      |
| Contrast Ratio               | K                 | ---       | --- | 10  | --- | ---  |
| Response Time (Rise)         | TR                | ---       | --- | 150 | 250 | ms   |
| Response Time (Fall)         | TF                | ---       | --- | 150 | 250 | ms   |

| LED Characteristics          |             |              |     |     |     |                   |
|------------------------------|-------------|--------------|-----|-----|-----|-------------------|
| Item                         | Symbol      | Condition    | Min | Typ | Max | Unit              |
| LED Forward Voltage          | Vf          | 25°C If=15mA | 1.7 | --- | 2.1 | V                 |
| LED Forward Current*         | If          | 25°C         | --- | 15  | --- | mA                |
| LED Reverse Current          | Ir          | 25°C Vr=5.0V | --- | --- | 10  | μA                |
| LED Peak Wave Length         | $\lambda p$ | 25°C If=15mA | 584 | --- | 594 | nm                |
| LED Brightness (Without LCD) | Lv          | 25°C If=15mA | --- | 63  | --- | cd/m <sup>2</sup> |
| LED Brightness Uniformity    | Lvmin/Lvmax | 25°C If=15mA | 70  | --- | --- | Ratio             |
| LED Life Time                |             | 25°C If=15mA | 9K  | --- | --- | Hours             |

**Attention:** It is constant current, not constant voltage, which should be applied when driving the LED backlight, please ensure you adhere to this rule.

|                     |        |                      |            |
|---------------------|--------|----------------------|------------|
| MC41605A6W-FPTLA-V2 | 4 x 16 | 5mm Character Height | LCD Module |
| Specification       |        |                      |            |
| Version: 1          |        | Date: 20/10/2016     |            |
| Revision            |        |                      |            |
|                     |        |                      |            |