


|                      |        |                      |            |
|----------------------|--------|----------------------|------------|
| MC42005A6W-SPTLY-V2  | 4 x 20 | 5mm Character Height | LCD Module |
| <b>Specification</b> |        |                      |            |
| Version: 1           |        | Date: 31/10/2016     |            |
| <b>Revision</b>      |        |                      |            |
|                      |        |                      |            |

| Display Features      |                          |  |  |              |                  |
|-----------------------|--------------------------|--|--|--------------|------------------|
| Character Count       | 4 x 20                   |  |  |              |                  |
| Appearance            | Black on Yellow/Green    |  |  |              |                  |
| Logic Voltage         | 5V                       |  |  |              |                  |
| Interface             | Parallel                 |  |  |              |                  |
| Font Set              | English / Japanese       |  |  |              |                  |
| Display Mode          | Transflective            |  |  |              |                  |
| Character Height      | 4.75mm                   |  |  |              |                  |
| LC Type               | STN                      |  |  |              |                  |
| Module Size           | 98.00 x 60.00 x 14.00 mm |  |  |              |                  |
| Operating Temperature | -20°C ~ +70°C            |  |  |              |                  |
| Construction          | COB                      |  |  | Box Quantity | Weight / Display |
| LED Backlight         | Yellow/Green             |  |  | 45 pcs       | 28.88 grams      |

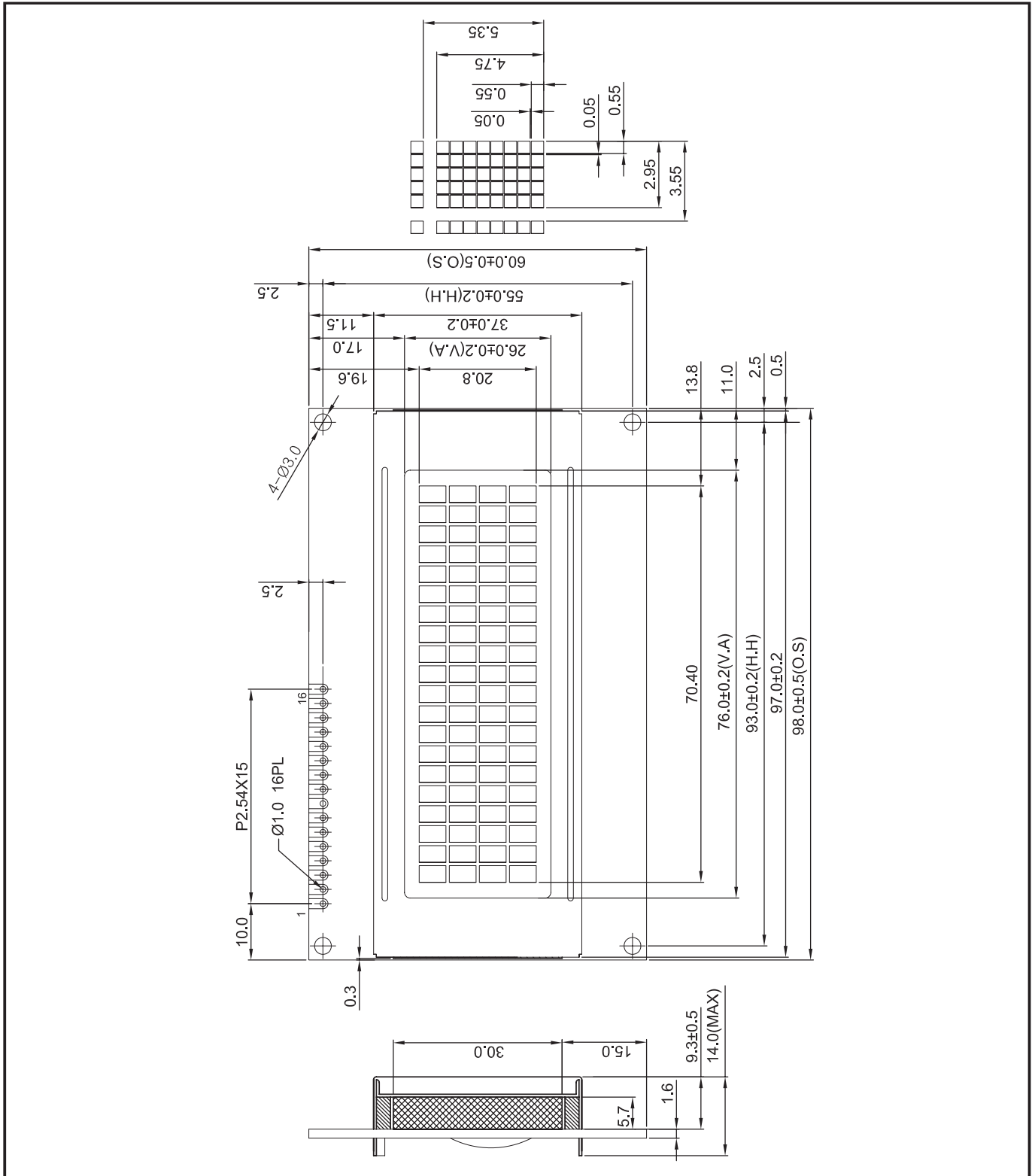
\* - For full design functionality, please use this specification in conjunction with the SPLC780D specification. (Provided Separately)

| 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<br>-16DILS-150 | 16 Way, Single in-line to Dual In-line connector Cable.  |
| MCCBL1A16SLIP<br>-16SILS-150 | 16 Way, Single in-line to Single In-line connector Cable.  |

| Optional Variants |                                 |         |
|-------------------|---------------------------------|---------|
| Fonts             | Appearances                     | Voltage |
|                   | Black on White<br>White on Blue | 3V      |

## Mechanical Specifications

|                |   |          |                 |               |              |
|----------------|---|----------|-----------------|---------------|--------------|
| Module Size    | 98.00 x 60.00 x 14.00 ( With Backlight) |          |                 |               | W x H x D mm |
| Viewing Area   | 76.00 x 26.00                           | W x H mm | Hole-to-Hole    | 93.00 x 55.00 | W x H mm     |
| Character Size | 2.95 x 4.75                             | W x H mm | Character Pitch | 0.60 x 0.60   | W x H mm     |
| Dot Size       | 0.55 x 0.55                             | W x H mm | Dot Pitch       | 0.05 x 0.05   | W x H mm     |

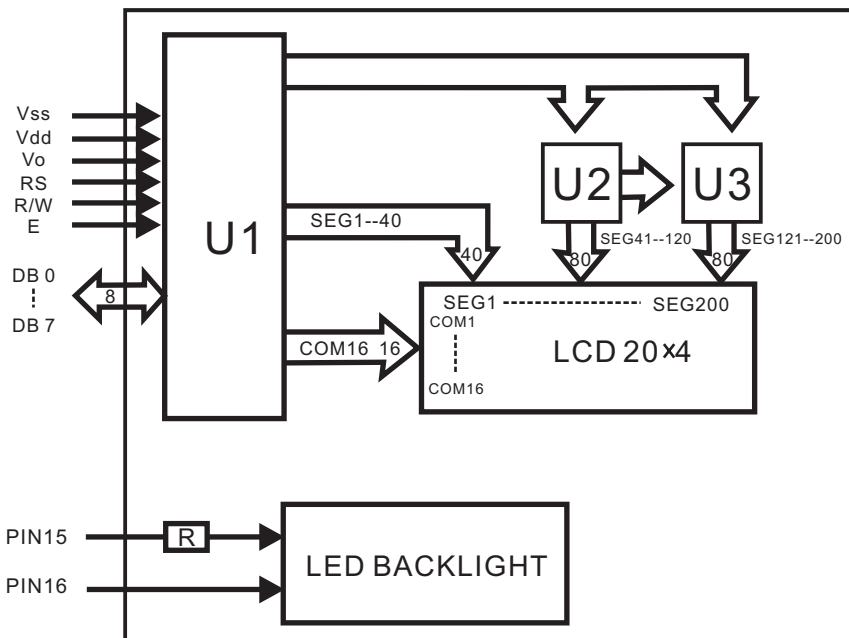


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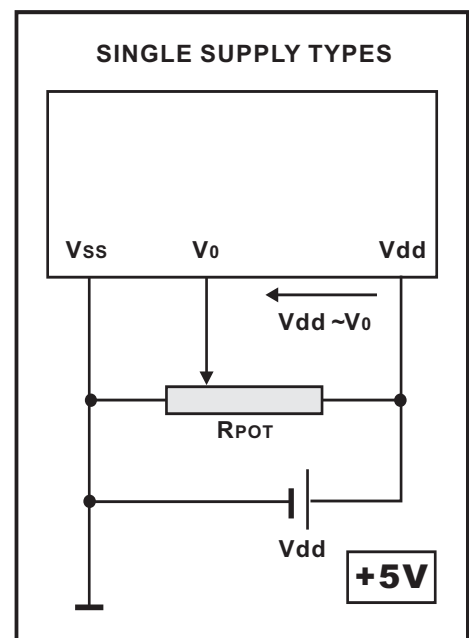
# Pin Layout

| 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



|                      |        |                      |            |
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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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| 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=3V    | ---  | 1.5  | ---  | mA   |
| Driving Voltage for LCD Panel | Vlcd = (Vdd - V0) | -20°C     | 4.40 | ---  | 5.00 | V    |
|                               |                   | 0°C       | 4.30 | ---  | 4.90 |      |
|                               |                   | 25°C      | 4.20 | 4.50 | 4.80 |      |
|                               |                   | 50°C      | 4.10 | ---  | 4.70 |      |
|                               |                   | 70°C      | 4.00 | ---  | 4.60 |      |

| 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=5mA | --- | 3.0 | --- | V                 |
| LED Forward Current*         | If          | 25°C        | --- | --- | --- | mA                |
| LED Reverse Current          | Ir          | 25°C        | --- | --- | 20  | μA                |
| LED Peak Wave Length         | $\lambda p$ | 25°C If=5mA | --- | --- | --- | nm                |
| LED Brightness (Without LCD) | Lv          | 25°C If=5mA | --- | 200 | --- | cd/m <sup>2</sup> |
| LED Brightness Uniformity    | Lvmin/Lvmax | 25°C If=5mA | 70  | --- | --- | Ratio             |
| LED Life Time                |             | 25°C If=5mA | --- | 50k | --- | 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.

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