

|                      |          |                  |            |
|----------------------|----------|------------------|------------|
| MC122032B6W-BNMLW-V2 | 122 x 32 |                  | LCD Module |
| <b>Specification</b> |          |                  |            |
| Version: 1           |          | Date: 31/10/2016 |            |
| <b>Revision</b>      |          |                  |            |
|                      |          |                  |            |

| <b>Display Features</b> |                          |
|-------------------------|--------------------------|
| Operating Temp. Range   | -20°C ~ +70°C            |
| Viewing Direction       | 6 O'Clock                |
| STN                     | Blue Transmissive        |
| Backlight               | LED White                |
| Controller              | SBN1661G_M02             |
| Characters              | 122 x 32                 |
| Voltage                 | 5V                       |
| Module Size             | 84.00 x 44.00 x 15.00 mm |
| Display Construction    | Chip on Board            |



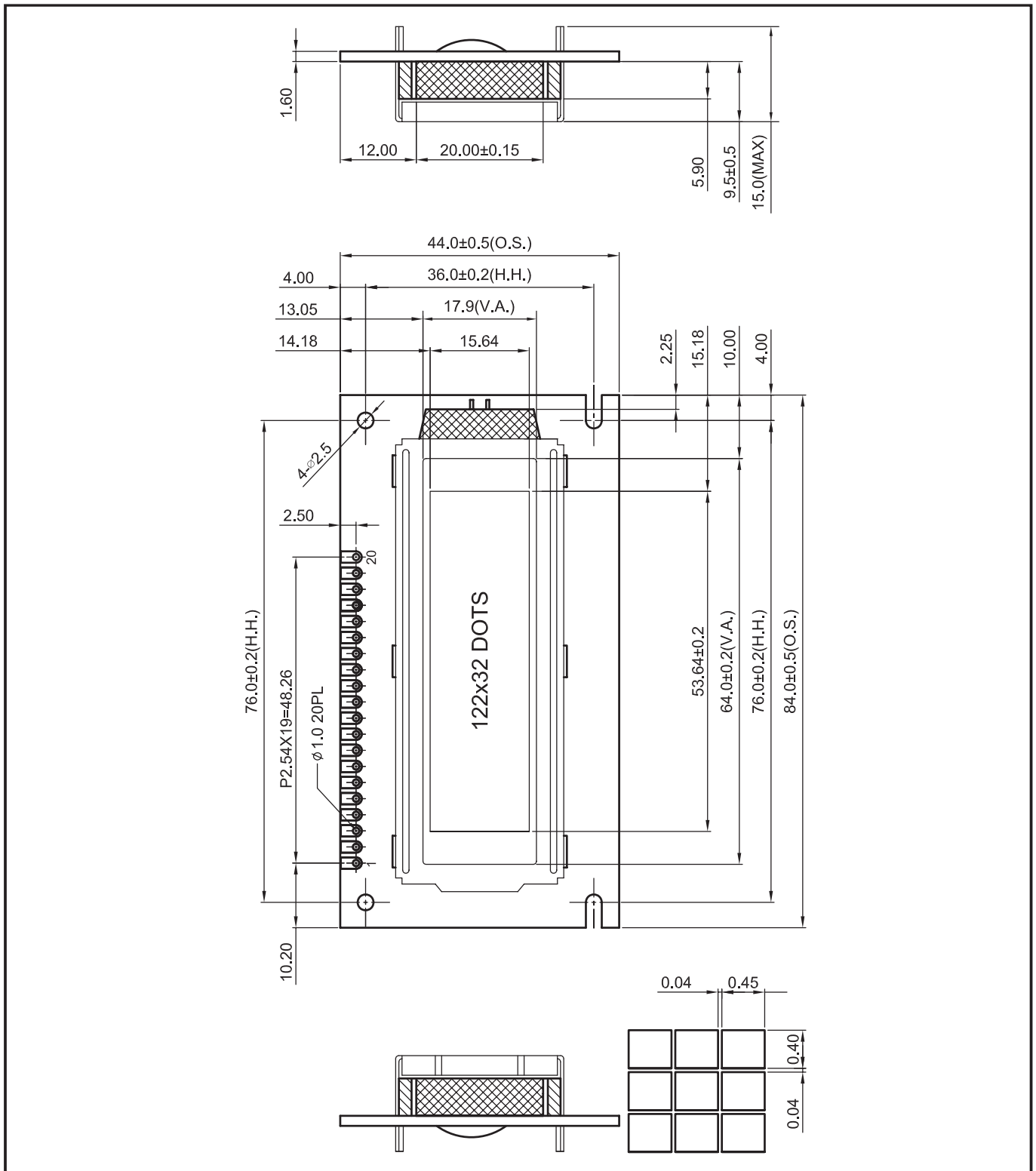
| Box Quantity | Weight / Display |
|--------------|------------------|
| 45 pcs       | 28.88 grams      |

\* - For full design functionality, please use this specification in conjunction with the SBN1661G\_M02 specification.(Provided Separately)

| <b>Optional Variants</b> |                  |         | <b>Display Accessories</b> |  |
|--------------------------|------------------|---------|----------------------------|--|
| Fonts                    | Physical Aspects | Voltage | Part Number                | Description  |
| N/A                      | N/A              | N/A     | MCCMDB-16SIL               | LCD interconnect board, can be driven from either a PC or a single board computer with a USB output. |
|                          |                  |         |                            |  |
|                          |                  |         |                            |  |

## Mechanical Specifications

|              |   |          |              |               |              |
|--------------|---|----------|--------------|---------------|--------------|
| Module Size  | 84.00 x 44.00 x 15.00 ( With Backlight) |          |              |               | W x H x D mm |
| Viewing Area | 64.00 x 17.90                           | W x H mm | Hole-to-Hole | 76.00 x 36.00 | W x H mm     |
| Dot Size     | 0.40 x 0.45                             | W x H mm | Dot Pitch    | 0.04 x 0.04   | W x H mm     |

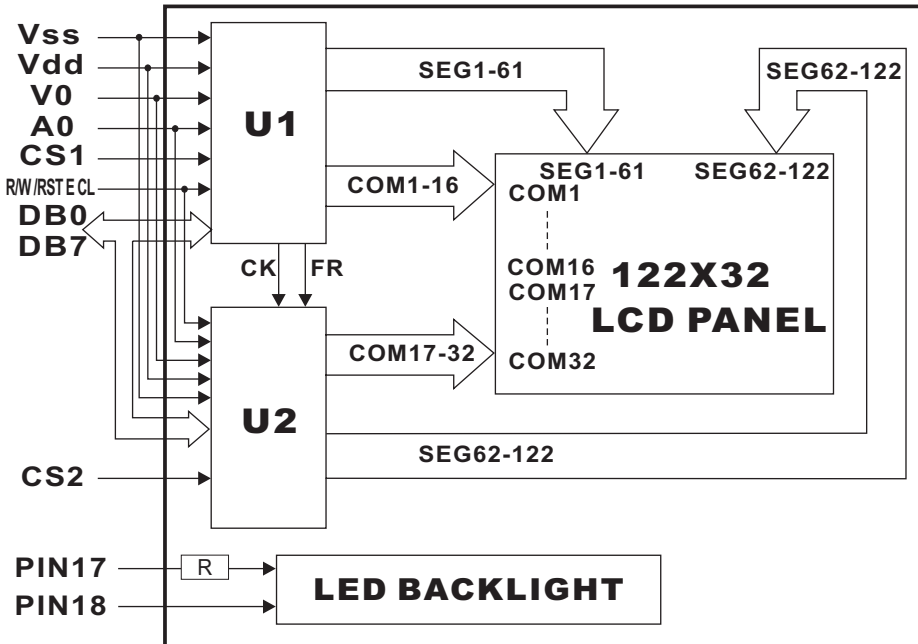


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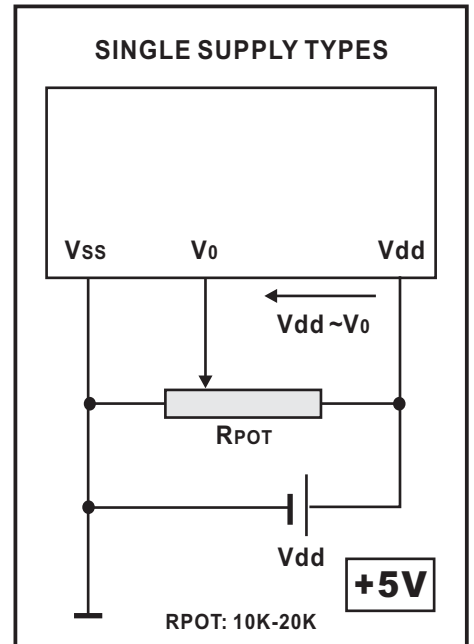
# Pin Layout

| Dj <b>b</b> | G <b>ra</b> Vc` | 8 YgW]dHjcb                      | FYa Uf_g |
|-------------|-----------------|----------------------------------|----------|
| 1           | Vss             | GND                              |          |
| 2           | Vdd             | Power Supply for LCM             | 5.0V     |
| 3           | V0              | Contrast Adjust                  |          |
| 4           | A0              | H/L H: Data; L: Instruction Code |          |
| 5           | CS1             | Chip 1 Enable Signal             |          |
| 6           | CS2             | Chip 2 Enable Signal             |          |
| 7           | CL              | Clock Input (2 KHz)              |          |
| 8           | E               | Enable Signal                    |          |
| 9           | R/W             | Data Read / Write                |          |
| 10          | DB0             | Data bus Line                    |          |
| 11          | DB1             | Data bus Line                    |          |
| 12          | DB2             | Data bus Line                    |          |
| 13          | DB3             | Data bus Line                    |          |
| 14          | DB4             | Data bus Line                    |          |
| 15          | DB5             | Data bus Line                    |          |
| 16          | DB6             | Data bus Line                    |          |
| 17          | DB7             | Data bus Line                    |          |
| 18          | RST             | Reset Signal                     |          |
| 19          | LED+            | Power Supply for BKL             | 5.0V     |
| 20          | LED-            | Power Supply for BKL             |          |

## Block Diagram



## Power Supply Diagram



|                      |                  |            |
|----------------------|------------------|------------|
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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 -19.00 | --- | 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    | ---  | 1.50 | ---  | mA   |
| Driving Voltage for LCD Panel | Vlcd = (Vdd - V0) | -20°C     | 4.25 | ---  | 4.70 | V    |
|                               |                   | 0°C       | 4.20 | ---  | 4.55 |      |
|                               |                   | 25°C      | 4.20 | ---  | 4.50 |      |
|                               |                   | 50°C      | 4.10 | ---  | 4.45 |      |
|                               |                   | 70°C      | 3.90 | ---  | 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 | 2.8  | --- | 3.1  | V                 |
| LED Forward Current*         | If           | 25°C         | ---  | 15  | ---  | mA                |
| LED Reverse Current          | Ir           | 25°C Vr=5.0V | ---  | --- | 10   | A                 |
| LED Colour Range             | X Coordinate | 25°C If=15mA | 0.26 | --- | 0.30 | ---               |
|                              | Y Coordinate |              | 0.27 | --- | 0.31 | ---               |
| LED Brightness (Without LCD) | Lv           | 25°C If=15mA | ---  | 240 | ---  | 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.

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