


|                      |          |                  |            |
|----------------------|----------|------------------|------------|
| MC144032B6WC-SPTLY   | 144 x 32 | Font Set         | LCD Module |
| <b>Specification</b> |          |                  |            |
| Version: 1           |          | Date: 31/10/2016 |            |
| <b>Revision</b>      |          |                  |            |
|                      |          |                  |            |

| Display Features      |                           |  |                  |  |  |
|-----------------------|---------------------------|--|------------------|--|--|
| Resolution            | 144 x 32                  |  |                  |  |  |
| Appearance            | Black on Yellow/Green     |  |                  |  |  |
| Logic Voltage         | 5V                        |  |                  |  |  |
| Interface             | Parallel                  |  |                  |  |  |
| Font Set              | English/European/Japanese |  |                  |  |  |
| Display Mode          | Transflective             |  |                  |  |  |
| LC Type               | STN                       |  |                  |  |  |
| Module Size           | 80.00 x 36.00 x 13.20     |  |                  |  |  |
| Operating Temperature | -20°C ~ +70°C             |  |                  |  |  |
| Construction          | COB                       | Box Quantity   | Weight / Display |  |  |
| LED Backlight         | Yellow/Green              | ---  | ---              |  |  |

\* - For full design functionality, please use this specification in conjunction with the ST7920 specification. (Provided Separately)

| Display Accessories |  |
|---------------------|--|
| Part Number         | Description  |
| MCC1A20UÏLP-FÏ Á    | FÏ Way, Ùã *  ^Án-line to Dual DILS-150 In-line connector Cable. |
| MCC1A20UÏLP-FÏ Á    | FÏ Way, Ùã *  ^Án-line to ÙÏLS-150 In-line connector Cable.      |
| T ÔÔT ÔÖÁÏ ÙÛ       | Display Interface Board, with USB connection.                    |

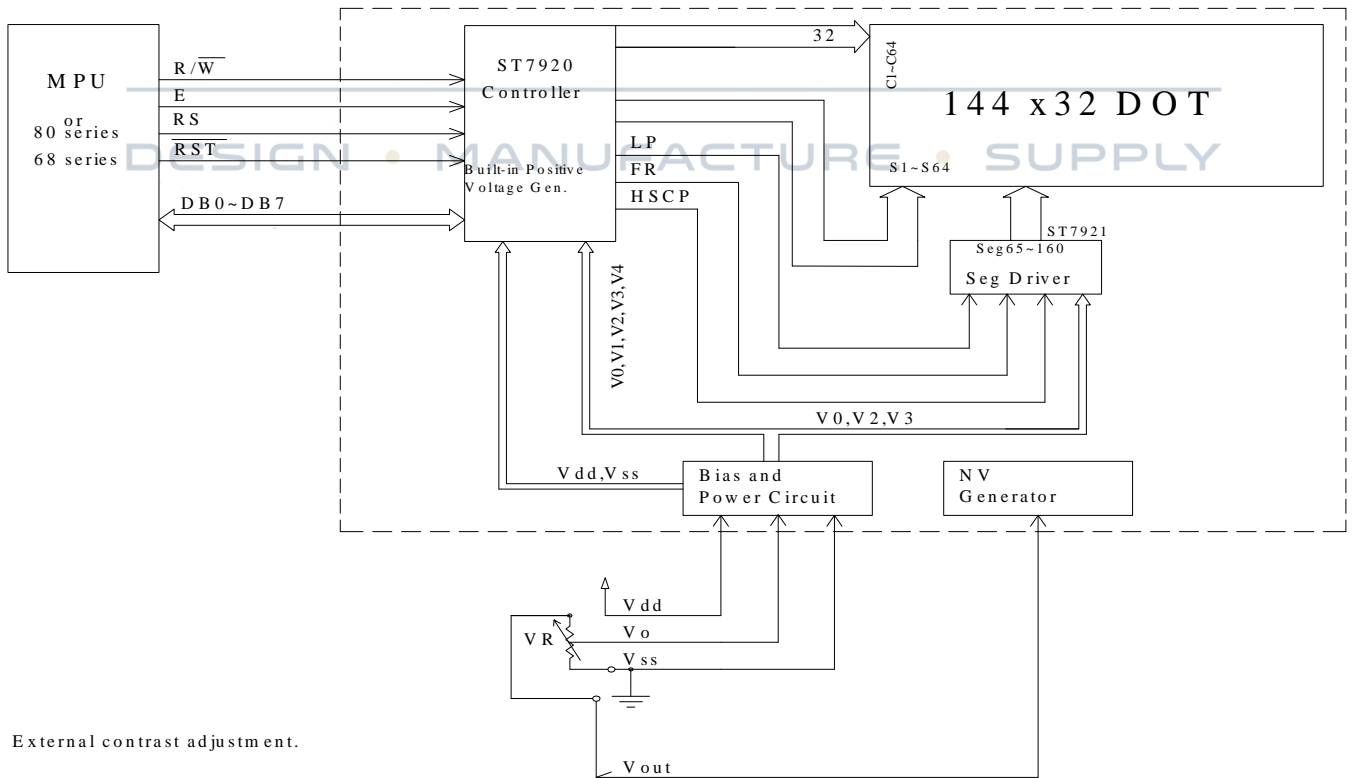
| Optional Variants |         |
|-------------------|---------|
| Appearances       | Voltage |
|                   |         |





# Pin Layout

| PI | SYMBOL | DESCRIPTION             | REMARKS |
|----|--------|-------------------------|---------|
| 1  | Vss    | GND                     |         |
| 2  | Vdd    | Power supply for LCM    | 5.0V    |
| 3  | V0     | Contrast Adjust         |         |
| 4  | RS     | Data Instruction        |         |
| 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 | Vout   | Positive Voltage Output |         |
| 16 | NC     | No Connection           |         |



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# Font Map

## ROM Code 0101

| LSB<br>MSB | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 5          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 6          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 7          |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

DESIGN • MANUFACTURE • SUPPLY

|                      |          |                  |            |
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### Absolute Maximum Ratings

| Item                  | Symbol | Condition | Min  | Typ | Max      | Unit |
|-----------------------|--------|-----------|------|-----|----------|------|
| Power Supply ( LOGIC) | Vdd    | 25°C      | -0.3 | --- | 5.5      | V    |
| Power Supply (LCD)    | Vlcd   | 25°C      | 0    | --- | 7.0      | 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             | Minimum | Typical | Maximum         | Unit |
|----------------------|-----------------------------------|-----------------------|---------|---------|-----------------|------|
| Input Voltage High   | V <sub>IH</sub>                   | ---                   | 0.70    | ---     | V <sub>DD</sub> | V    |
| Input Voltage Low    | V <sub>IL</sub>                   | ---                   | -0.30   | ---     | 0.60            | V    |
| Output Voltage High  | V <sub>OH</sub>                   | ---                   | 0.80    | ---     | Vdd             | V    |
| Output Voltage Low   | V <sub>OL</sub>                   | ---                   | 0       | ---     | 0.40            | V    |
| Supply Voltage Logic | V <sub>DD</sub> - V <sub>SS</sub> | ---                   | 4.50    | 5.00    | 5.50            | V    |
| Supply Voltage LCD   | V <sub>DD</sub> - V <sub>0</sub>  | Ta=25°C               | 4.10    | 4.30    | 4.50            | V    |
| Supply Current       | I <sub>DD</sub>                   | V <sub>DD</sub> =5.0V | 2.00    | 2.50    | 3.50            | mA   |

### LCD Characteristics

| For STN/FSTN LCD Panel Types |         |           |      |     |     |      |
|------------------------------|---------|-----------|------|-----|-----|------|
| Item                         | Symbol  | Condition | Min  | Typ | Max | Unit |
| Viewing Angle                | Φ2 – Φ1 | CR ≥ 2    | 20°  |     | 40  | Deg  |
|                              | Θ       |           | -30° |     | 30  |      |
| Contrast Ratio               | K       | ---       | ---  | 3   | --- | ---  |
| Response Time (Rise)         | TR      | ---       | ---  | 200 | 300 | ms   |
| Response Time (Fall)         | TF      | ---       | ---  | 200 | 300 | ms   |

### LED Characteristics

| Item                    | Symbol           | Condition               | Minimum | Typical | Maximum | Unit              |
|-------------------------|------------------|-------------------------|---------|---------|---------|-------------------|
| Supply Current          | I <sub>LED</sub> | V=4.2V                  | 90      | 100     | 120     | mA                |
| Supply Voltage          | V                | ---                     | 4.00    | 4.20    | 4.40    | V                 |
| Reverse Voltage         | VR               | ---                     | ---     | ---     | 8       | V                 |
| Luminance (Without LCD) | IV               | I <sub>LED</sub> =100mA | 128     | 154     | ---     | Cd/m <sup>2</sup> |
| Wave Length             | λ <sub>P</sub>   | I <sub>LED</sub> =100mA | 528     | 572     | 575     | nm                |
| LED Life Time           | ---              | I <sub>LED</sub> =100mA | ---     | 100K    | ---     | Hour              |

**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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