Displays

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| MC22405A6WR-SPTLY-V2 | $2 \times 24$ | 5 mm Character Height | LCD Module |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Specification |  |  |  |  |  |  |
| Version: 1 | Date: 31/10/2016 |  |  |  |  |  |
|  |  |  |  |  |  |  |


| Display Features |  |
| :---: | :---: |
| Operating Temp. Range | $-20^{\circ} \mathrm{C} \sim+70^{\circ} \mathrm{C}$ |
| Viewing Direction | 6 O $^{\prime} \mathrm{Clock}$ |
| STN | Yellow/Green Transflective |
| Backlight | LED Yellow/Green |
| Controller | SPLC780D |
| Characters | $2 \times 24$ |
| Voltage | 5 V |
| Module Size | $116.00 \times 37.00 \times 13.50 \mathrm{~mm}$ |
| Character Height | 5 mm |
| Display Construction | Chip on Board |


| Box Quantity | Weight / Display |
| :---: | :---: |
| 30 pcs | 63.33 grams |

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

| Optional Variants |  |  | Display Accessories |  |
| :---: | :---: | :---: | :---: | :---: |
| Fonts | Physical Aspects | Voltage | Part Number | Description |
| English/Japanese English/Cyrillic | N/A | N/A | MCCMDB-16DIL | LCD interconnect board, can be driven from either a PC or a single board computer with a USB output. |
|  |  |  | MCCBL1A16DILP -16 DILS-150 | 16 Way, Dual in-line to Dual In-line connector Cable. |
|  |  |  |  |  |


| Mechanical Specifications |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Module Size | $116.00 \times 37.00 \times 13.50$ ( With Backlight) |  |  |  | $\mathrm{W} \times \mathrm{H} \times \mathrm{D} \mathrm{mm}$ |
| Viewing Area | $83.00 \times 18.60$ | $\mathrm{~W} \times \mathrm{H} \mathrm{mm}$ | Hole-to-Hole | $108.00 \times 29.00$ | $\mathrm{~W} \times \mathrm{H} \mathrm{mm}$ |
| Character Size | $2.70 \times 5.55$ | $\mathrm{~W} \times \mathrm{H} \mathrm{mm}$ | Character Pitch | $0.50 \times 0.50$ | $\mathrm{~W} \times \mathrm{H} \mathrm{mm}$ |
| Dot Size | $0.50 \times 0.65$ | $\mathrm{~W} \times \mathrm{H} \mathrm{mm}$ | Dot Pitch | $0.05 \times 0.05$ | $\mathrm{~W} \times \mathrm{H} \mathrm{mm}$ |



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| Pin Layout |  |  |  |
| :---: | :---: | :--- | :---: |
| PI | SYMBOL | DESCRIPTION | REMARKS |
| 1 | Vss | GND | 5.0 V |
| 2 | Vdd | Power supply for LCM |  |
| 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 | 5.0 V |
| 12 | DB5 | Data bus line |  |
| 13 | DB6 | Data bus line |  |
| 14 | DB7 | Data bus line |  |
| 15 | LED+ | Power supply for BKL |  |
| 16 | LED- | Power supply for BKL |  |



Font Map

|  | LLLL | LLLH | LLHL | LLHH | LHLL | LHLH | LHHL | LHHH | HLLL | HLLH | HLHL | HLHH | HHLL | HHLH | HHHL | HHHH |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| LLLL | CG RAM （1） |  |  |  |  |  |  |  | 吅煰煰 |  |  |  |  |  |  |  |
| LLLH | （2） |  |  |  |  |  |  |  | 㗊㗊 |  |  |  |  |  |  |  |
| LLHL | （3） |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| LLHH | （4） | 㗊㗊 |  |  |  |  |  |  |  |  |  | 撸踛 |  |  |  |  |
| LHLL | （5） |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| LHLH | （6） |  |  |  |  |  |  |  | 㗊㗊 |  |  |  |  |  |  |  |
| LHHL | （7） |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| LHHH | （8） |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HLLL | （1） |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HLLH | （2） |  |  |  |  |  |  |  |  |  |  |  | ! |  |  |  |
| HLHL | （3） |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HLHH | （4） |  |  |  |  |  |  |  | 㗊煰 |  |  |  |  |  |  |  |
| HHLL | （5） |  |  |  |  |  |  |  | 嘩煰煰 |  |  |  |  |  |  |  |
| HHLH | （6） |  |  |  |  |  |  |  | 嘩煰煰 |  |  |  |  |  |  |  |
| HHHL | （7） |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HHHH | （8） |  |  |  |  |  |  |  |  |  |  |  | $\square$ |  |  |  |


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| :---: | :---: | :---: | :--- |
| Sersion： 1 |  |  |  |


| Absolute Maximum Ratings |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Item | Symbol | Condition | Min | Typ | Max | Unit |  |
| Power Supply (LOGIC) | Vdd | $25^{\circ} \mathrm{C}$ | -0.3 | --- | 7.0 | V |  |
| Power Supply (LCD) | V 0 | $25^{\circ} \mathrm{C}$ | $\mathrm{Vdd}-13.5$ | --- | $\mathrm{Vdd}+0.3$ | V |  |
| Input Voltage | Vin | $25^{\circ} \mathrm{C}$ | -0.3 | --- | $\mathrm{Vdd}+0.3$ | V |  |
| Operating Temperature | Vopr | --- | -20 | --- | 70 | C |  |
| Storage Temperature | Vstg | --- | -30 | --- | 80 | C |  |


| Electronic Characteristics |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Item | Symbol | Condition | Min | Typ | Max | Unit |
| Input Voltage | $\mathrm{Vlcm}=\mathrm{Vdd}$ | --- | --- | 5.0 | --- | v |
| Supply Current | Idd | $\mathrm{Vdd}=3 \mathrm{~V}$ | --- | 1.5 | --- | mA |
| Driving Voltage for LCD Panel | Vlcd $=(\mathrm{Vdd}$ - V0) | $-20^{\circ} \mathrm{C}$ | 4.50 | --- | 4.90 | v |
|  |  | $0^{\circ} \mathrm{C}$ | 4.35 | --- | 4.87 |  |
|  |  | $25^{\circ} \mathrm{C}$ | 4.20 | 4.50 | 4.85 |  |
|  |  | $50^{\circ} \mathrm{C}$ | 4.15 | --- | 4.82 |  |
|  |  | $70^{\circ} \mathrm{C}$ | 4.10 | --- | 4.80 |  |


| LCD Characteristics |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| For STN/FSTN LCD Panel Types |  |  |  |  |  |  |
| Item | Symbol | Condition | Min | Typ | Max | Unit |
| Viewing Angle | Ф2-Ф1 | $\mathrm{K}=4$ | $40^{\circ}$ | -- | --- | Deg |
|  | $\Theta$ |  | $60^{\circ}$ |  |  |  |
| 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 | $25^{\circ} \mathrm{C}$ If $=10 \mathrm{~mA}$ | 2.6 | --- | 3.0 | v |
| LED Forward Current* | If | $25^{\circ} \mathrm{C}$ | --- | 10 | --- | mA |
| LED Reverse Current | Ir | $25^{\circ}$ \& 9 | --- | --- | 20 | A |
| LED Peak Wave Length | $\lambda p$ | $25^{\circ} \mathrm{C}$ If $=10 \mathrm{~mA}$ | Q0] | --- | ロ0] | nm |
| LED Brightness (Without LCD) | Lv | $25^{\circ} \mathrm{C} \mathrm{If}=10 \mathrm{~mA}$ | --- | 188 | --- | cd/ $/ \mathrm{m}^{2}$ |
| LED Brightness Uniformity | Lvmin/Lvmax | $25^{\circ} \mathrm{C}$ If $=10 \mathrm{~mA}$ | 70 | --- | --- | Ratio |
| LED Life Time |  | $25^{\circ} \mathrm{C}$ If $=10 \mathrm{~mA}$ | - K | --- | --- | 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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|  | Revision |  |  |
|  |  |  |  |

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