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|----------------------|--------|----------------------|------------|
| MC21605B6WK-BNMLW-V2 | 2 x 16 | 5mm Character Height | LCD Module |
| Specification | | | |
| Version: 1 | | Date: 19/10/2016 | |
| Revision | | | |
| | | | |

| Display Features | |
|-------------------------|-------------------------|
| Operating Temp. Range | -20°C - +70°C |
| Viewing Direction | 6 O'Clock |
| STN | Blue Transmissive |
| Backlight | LED White |
| Controller | ST7066U |
| Characters | 2 x 16 |
| Voltage | 5V |
| Module Size | 85.00 x 36.00 x 13.5 mm |
| Character Height | 5mm |
| Display Construction | Chip on Board |



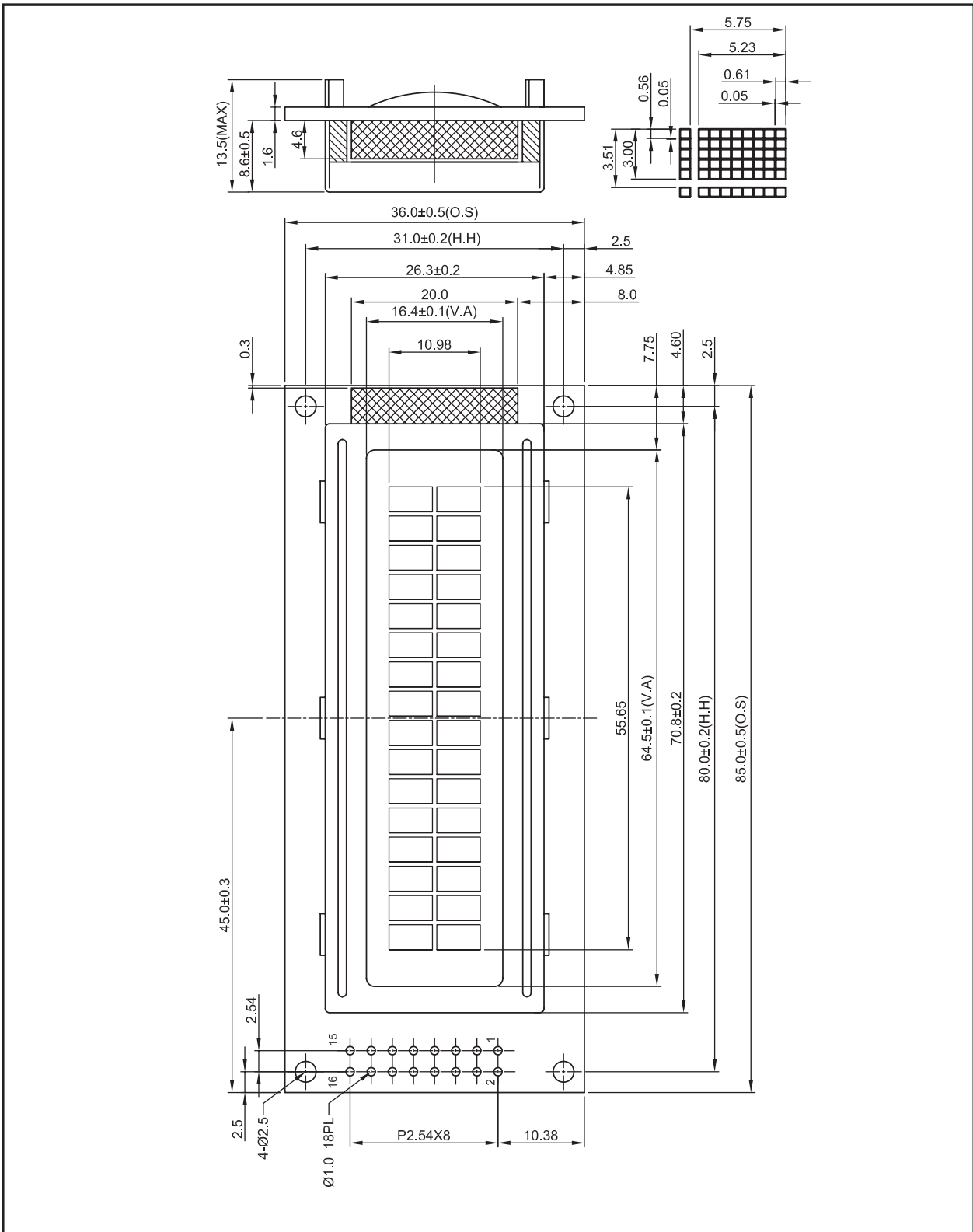
| Box Quantity | Weight / Display |
|--------------|------------------|
| 45 pcs | 28.88 grams |

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

| Optional Variants | | | Display Accessories | |
|--------------------------------------|------------------|---------|----------------------------|--|
| Fonts | Physical Aspects | Voltage | Part Number | Description |
| English/Japanese English/European | 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-16DILS-150 | 16 Way, Dual in-line to Dual In-line connector Cable. |
| | | | | |

Mechanical Specifications

| | | | | | |
|----------------|--|----------|-----------------|---------------|--------------|
| Module Size | 85.00 x 36.00 x 13.5 (With Backlight) | | | | W x H x D mm |
| Viewing Area | 64.50 x 16.40 | W x H mm | Hole-to-Hole | 80.00 x 31.00 | W x H mm |
| Character Size | 3.00 x 5.23 | W x H mm | Character Pitch | 0.51 x 0.52 | W x H mm |
| Dot Size | 0.56 x 0.61 | W x H mm | Dot Pitch | 0.05 x 0.05 | W x H mm |

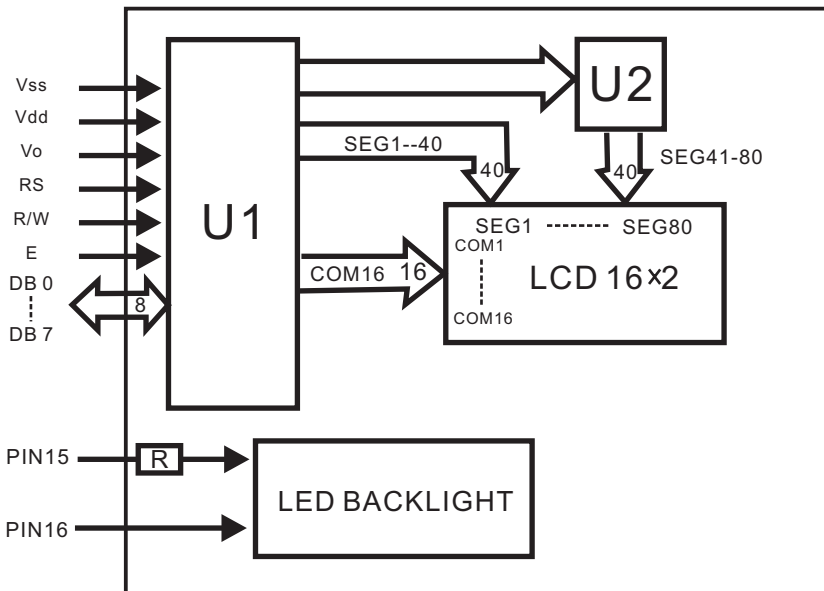


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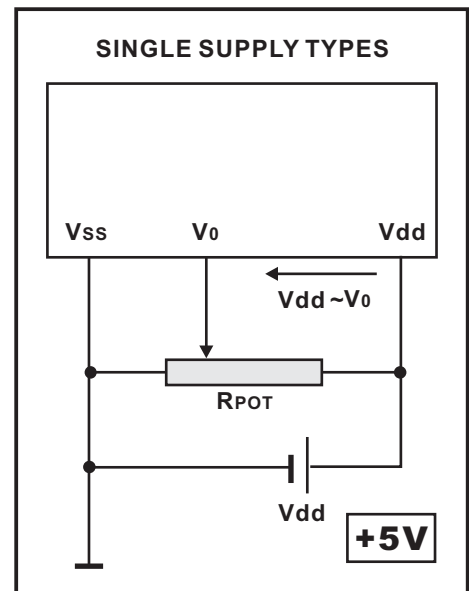
Pin Layout

| 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 4bit Lower 4bit | LLLL | LLLH | LLHL | LLHH | LHLL | LHLH | LHHL | LHHH | HLLL | HLLH | HLHL | HLHH | HHLL | HHLH | HHHL | HHHH | |
|--------------------------------|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| LLLL | CG RAM (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=5V | --- | 1.5 | --- | mA |
| Driving Voltage for LCD Panel | Vlcd = (Vdd - V0) | -20 °C | 4.50 | --- | 4.75 | V |
| | | 0 °C | 4.40 | --- | 4.75 | |
| | | 25 °C | 4.30 | 4.50 | 4.80 | |
| | | 50 °C | 4.20 | --- | 4.70 | |
| | | 70 °C | 4.10 | --- | 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 |
| | Θ | | 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 | --- | 5.0 | --- | 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 | --- | 325 | --- | cd/m ² |
| 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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