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|----------------------|--------|----------------------|------------|
| MC22005A6W-BNMLWI-V2 | 2 x 20 | 5mm Character Height | LCD Module |
| Specification | | | |
| Version: 1 | | Date: 20/10/2016 | |
| Revision | | | |
| | | | |

| Display Features | | | |
|-----------------------|---------------------------|--------------|------------------|
| Character Count | 2 x 20 | | |
| Appearance | White on Blue | | |
| Logic Voltage | 5V | | |
| Interface | I2C | | |
| Font Set | English / Japanese | | |
| Display Mode | Transmissive | | |
| Character Height | 5.55mm | | |
| LC Type | BSTN | | |
| Module Size | 116.00 x 37.00 x 13.90 mm | | |
| Operating Temperature | -20°C ~ +70°C | | |
| Construction | COB | Box Quantity | Weight / Display |
| LED Backlight | White | --- | --- |



RoHS
compliant

* - For full design functionality, please use this specification in conjunction with the RW1063 specification. (Provided Separately)

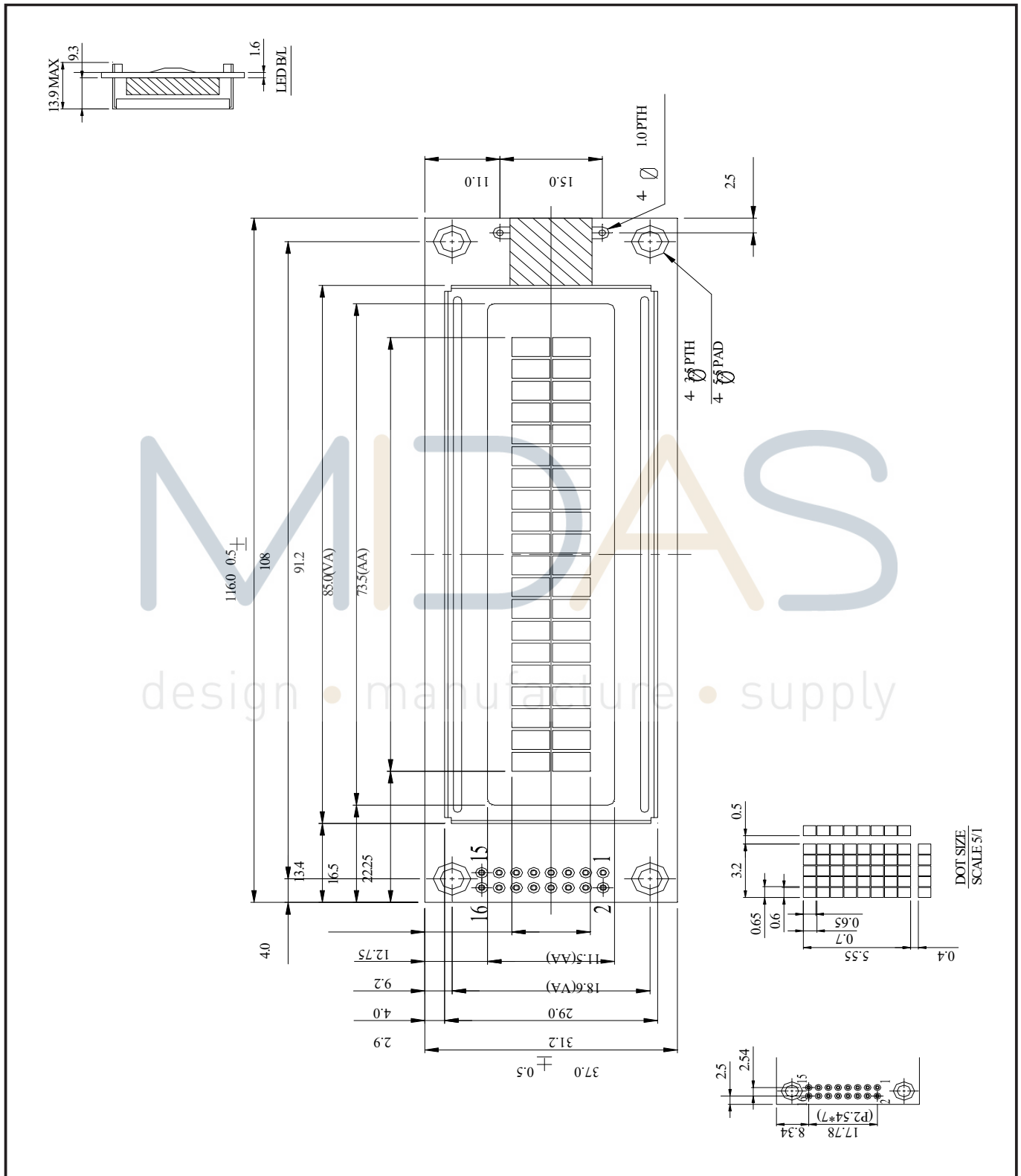
| Display Accessories | |
|--------------------------|--|
| Part Number | Description |
| MCCMDB-16DIL | LCD Interconnect board, can be driven from either a PC or a single Board computer with a USB output. |
| MCCBL1A16DLIP-16DILS-150 | 16 Way, Dual in-line to Dual In-line connector Cable. |
| | |

| Optional Variants | | |
|---|---|---------|
| Fonts | Appearances | Voltage |
| English / Russian English / European | Black on White Black on Red Black on Amber Black on Yellow/Green | |



Mechanical Specifications

| | | | | | |
|----------------|--|----------|-----------------|-------------|--------------|
| Module Size | 116.00 x 37.00 x 13.90 (With Backlight) | | | | W x H x D mm |
| Viewing Area | 85.00 x 18.60 | W x H mm | Hole-to-Hole | 108 x 31.2 | W x H mm |
| Character Size | 3.20 x 5.55 | W x H mm | Character Pitch | 3.70 x 5.95 | W x H mm |
| Dot Size | 0.60 x 0.65 | W x H mm | Dot Pitch | 0.65 x 0.70 | W x H mm |

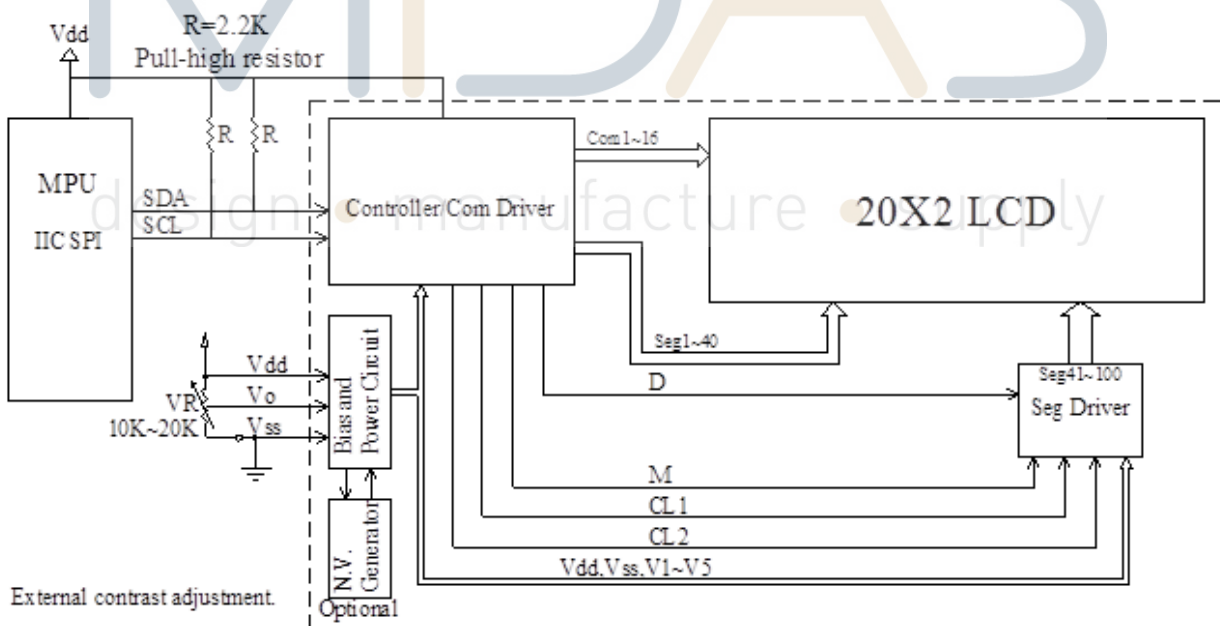


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Pin Layout

| PI | SYMBOL | DESCRIPTION | REMARKS |
|----|--------|----------------------------------|---------|
| 1 | Vss | GND | |
| 2 | Vdd | Power supply for LCM | 5.0V |
| 3 | V0 | Operating Voltage for LCD | |
| 4 | NC | No Connection | |
| 5 | NC | No Connection | |
| 6 | NC | No Connection | |
| 7 | SA0 | I2C interface, SA1 and SA0 slave | |
| 8 | SA1 | addresses, connect to VDD/VSS | |
| 9 | NC | No Connection | |
| 10 | NC | No Connection | |
| 11 | NC | No Connection | |
| 12 | CSB | Chip Select. Low=True High=False | |
| 13 | SDA | Serial Input Data | |
| 14 | SCL | Serial Clock Input | |
| 15 | A | Power Supply for BKL | |
| 16 | K | Power Supply for BKL | |



| | | | | | | | | | | | | | | | | | | | | |
|-------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Character located | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| DDRAM address | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F | 10 | 11 | 12 | 13 |
| DDRAM address | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 4A | 4B | 4C | 4D | 4E | 4F | 50 | 51 | 52 | 53 |

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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 | --- | 5.5 | V |
| Power Supply (LCD) | V0 | 25°C | Vss -0.3 | --- | Vss +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 _{IH} | --- | 2.50 | --- | V _{DD} | V |
| Input Voltage Low | V _{IL} | --- | -0.30 | --- | 0.55 | V |
| Output Voltage High | V _{OH} | --- | 3.90 | --- | --- | V |
| Output Voltage Low | V _{OL} | --- | --- | --- | 0.40 | V |
| Supply Voltage Logic | V _{DD} - V _{SS} | --- | 4.50 | 5.00 | 5.50 | V |
| Supply Voltage LCD | V _{DD} - V ₀ | Ta=25°C | 4.20 | 4.35 | 4.50 | V |
| Supply Current | I _{DD} | V _{DD} =5.0V | 1.00 | 1.20 | 1.50 | mA |

LCD Characteristics

| For STN/FSTN LCD Panel Types | | | | | | |
|------------------------------|---------|-----------|-----|-----|-----|--------|
| Item | Symbol | Condition | Min | Typ | Max | Unit |
| Viewing Angle | Φ2 – Φ1 | CR ≥ 2 | 40° | --- | 20 | ψ=180° |
| | Θ | | 60° | | | |
| Contrast Ratio | K | --- | --- | 3 | --- | --- |
| Response Time (Rise) | TR | --- | --- | 150 | 200 | ms |
| Response Time (Fall) | TF | --- | --- | 150 | 200 | ms |

design • manufacture • supply

LED Characteristics

| Item | Symbol | Condition | Minimum | Typical | Maximum | Unit |
|----------------------------|------------------|------------------------|---------|---------|---------|-------------------|
| Supply Current | I _{LED} | V=3.5V | --- | 32 | 40 | mA |
| Supply Voltage | V | --- | 3.40 | 3.50 | 3.60 | V |
| Reverse Voltage | VR | --- | --- | --- | 5 | V |
| Luminance (Without LCD) | IV | I _{LED} =32mA | 360 | 450 | --- | Cd/m ² |
| --- | --- | --- | --- | --- | --- | nm |
| LED Life Time | --- | I _{LED} =32mA | --- | 50K | --- | 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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