

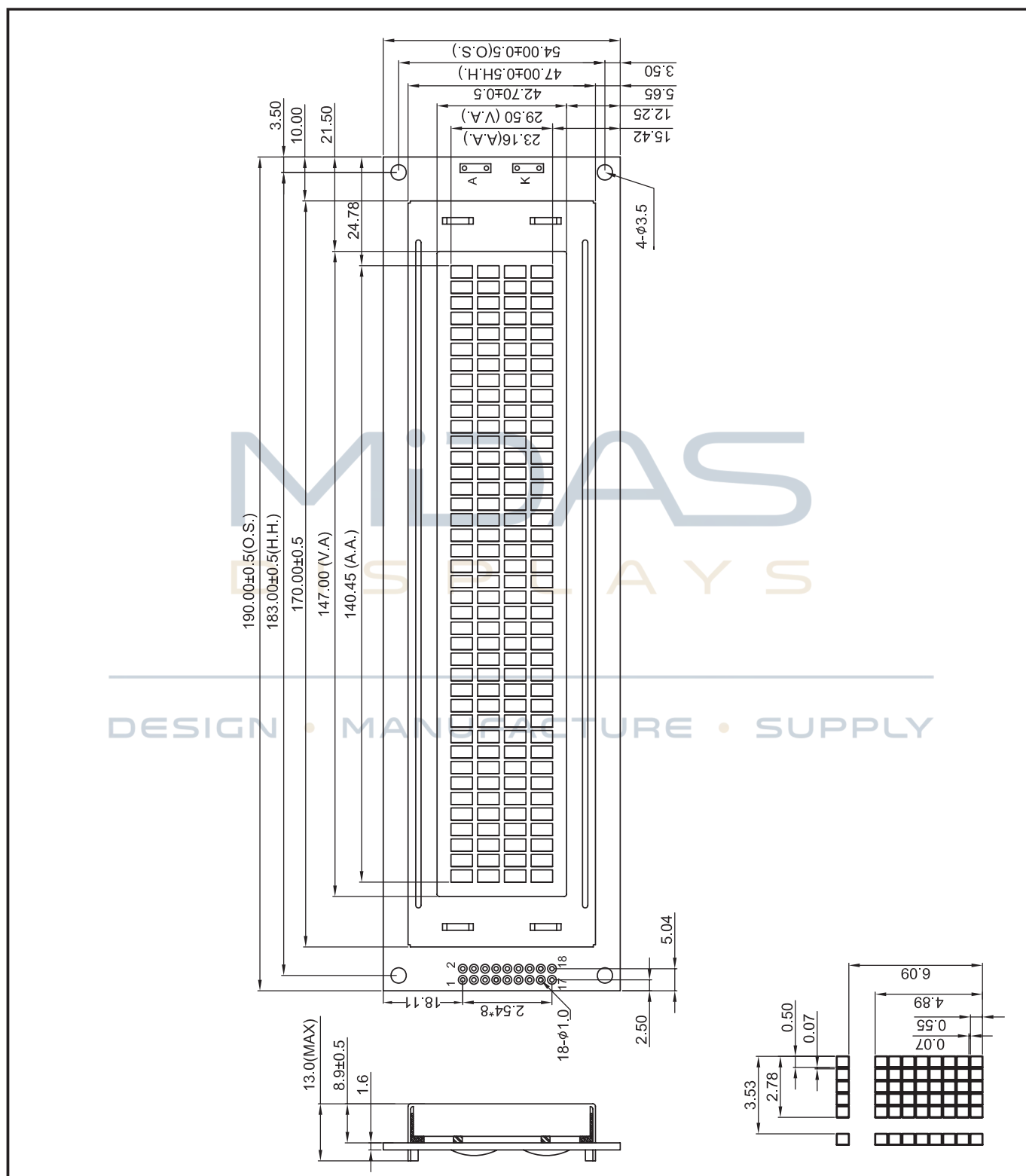
|                        |        |                      |            |
|------------------------|--------|----------------------|------------|
| MC44005A6W-FPTLW3.3-V2 | 4 x 40 | 5mm Character Height | LCD Module |
| Specification          |        |                      |            |
| Version: 1             |        | Date: 16/11/2017     |            |
| Revision               |        |                      |            |
|                        |        |                      |            |

| Display Features      |                           |  |                  |
|-----------------------|---------------------------|--------------------------------------------------------------------------------------|------------------|
| Character Count       | 4 x 40                    |                                                                                      |                  |
| Appearance            | Black on White            |                                                                                      |                  |
| Logic Voltage         | 3.3V                      |                                                                                      |                  |
| Interface             | Parallel                  |                                                                                      |                  |
| Font Set              | English / Japanese        |                                                                                      |                  |
| Display Mode          | Transflective             |                                                                                      |                  |
| Character Height      | 4.89mm                    |                                                                                      |                  |
| LC Type               | FSTN                      |                                                                                      |                  |
| Module Size           | 190.00 x 54.00 x 13.00 mm |                                                                                      |                  |
| Operating Temperature | -20°C ~ +70°C             |                                                                                      |                  |
| Construction          | COB                       |                                                                                      |                  |
| LED Backlight         | White                     | Box Quantity                                                                         | Weight / Display |
|                       |                           | 15 pcs                                                                               | 140 grams        |

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



| Mechanical Specifications |                                          |          |                 |                |              |
|---------------------------|------------------------------------------|----------|-----------------|----------------|--------------|
| Module Size               | 190.00 x 54.00 x 13.00 ( With Backlight) |          |                 |                | W x H x D mm |
| Viewing Area              | 147.00 x 29.50                           | W x H mm | Hole-to-Hole    | 183.00 x 47.00 | W x H mm     |
| Character Size            | 2.78 x 4.89                              | W x H mm | Character Pitch | 0.75 x 1.20    | W x H mm     |
| Dot Size                  | 0.50 x 0.55                              | W x H mm | Dot Pitch       | 0.07 x 0.07    | W x H mm     |



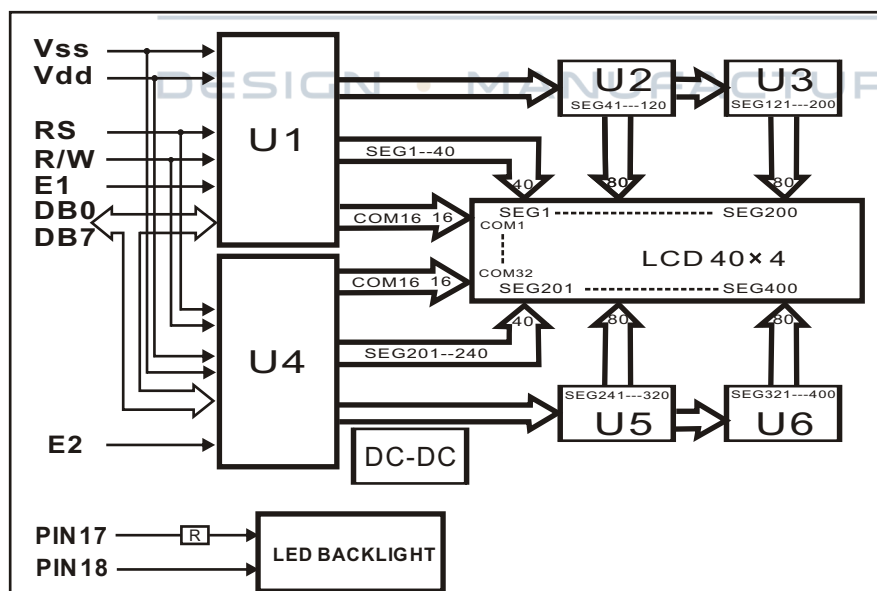
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# Pin Layout

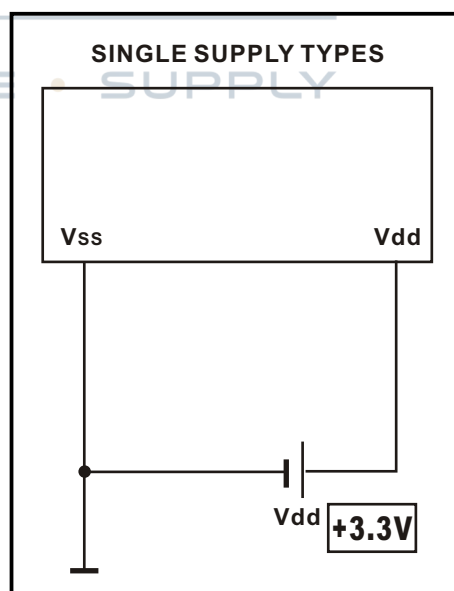
| PI | SYMBOL | DESCRIPTION            | REMARKS |
|----|--------|------------------------|---------|
| 1  | DB7    | Data bus line          |         |
| 2  | DB6    | Data bus line          |         |
| 3  | DB5    | Data bus line          |         |
| 4  | DB4    | Data bus line          |         |
| 5  | DB3    | Data bus line          |         |
| 6  | DB2    | Data bus line          |         |
| 7  | DB1    | Data bus line          |         |
| 8  | DB0    | Data bus line          |         |
| 9  | E1     | Enable Signal          |         |
| 10 | R/W    | Data Read /Write       |         |
| 11 | RS     | Register Select Signal |         |
| 12 | NC     | No Connection          |         |
| 13 | Vss    | GND                    | 0V      |
| 14 | Vdd    | Power supply for LCM   | 3.3V    |
| 15 | E2     | Enable Signal          |         |
| 16 | NC     | No Connection          |         |
| 17 | LED+   | Power supply for BKL   | 3.3V    |
| 18 | LED-   | Power supply for BKL   |         |

MIDAS  
DISPLAYS

## Block Diagram



## Power Supply Diagram



|                        |        |                      |            |
|------------------------|--------|----------------------|------------|
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|                        |        |                      |            |



## Font Map

| Upper<br>4bit<br>Lower<br>4bit | LLLL             | LLHH | LLHL | LLHH | LHLL | LHLH | LHHL | LHHH | HLLL | HLLH | HLHL | HLHH | HHLL | HHLH | HHHL | HHHH |
|--------------------------------|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| LLLL                           | CG<br>RAM<br>(1) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| LLHH                           | (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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|                        |        | Page 4 of 5          |            |

| 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        | ---       | --- | 3.3 | --- | V    |
| Supply Current                | Idd               | Vdd=3.3V  | --- | 1.5 | --- | mA   |
| Driving Voltage for LCD Panel | Vlcd = (Vdd - V0) | -20°C     | --- | --- | --- | V    |
|                               |                   | 0°C       | --- | --- | --- |      |
|                               |                   | 25°C      | --- | --- | --- |      |
|                               |                   | 50°C      | --- | --- | --- |      |
|                               |                   | 70°C      | --- | --- | --- |      |

| 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                 | ---       | 6   | 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         | 2.6  | --- | 3.0  | V                 |
| LED Forward Current*         | If           | 25°C         | ---  | 50  | ---  | mA                |
| LED Reverse Current          | Ir           | 25°C Vr=5.0V | ---  | --- | 100  | μA                |
| LED Colour Range             | X Coordinate | 25°C If=50mA | 0.26 | --- | 0.30 | ---               |
|                              | Y Coordinate |              | 0.27 | --- | 0.31 | ---               |
| LED Brightness (Without LCD) | Lv           | 25°C If=50mA | ---  | 420 | ---  | cd/m <sup>2</sup> |
| LED Brightness Uniformity    | Lvmin/Lvmax  | 25°C If=50mA | 70   | --- | ---  | Ratio             |
| LED Life Time                | ---          | 25°C If=50mA | 20K  | 50K | ---  | 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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|                        |        | Page 5 of 5          |            |