

PART NUMBER

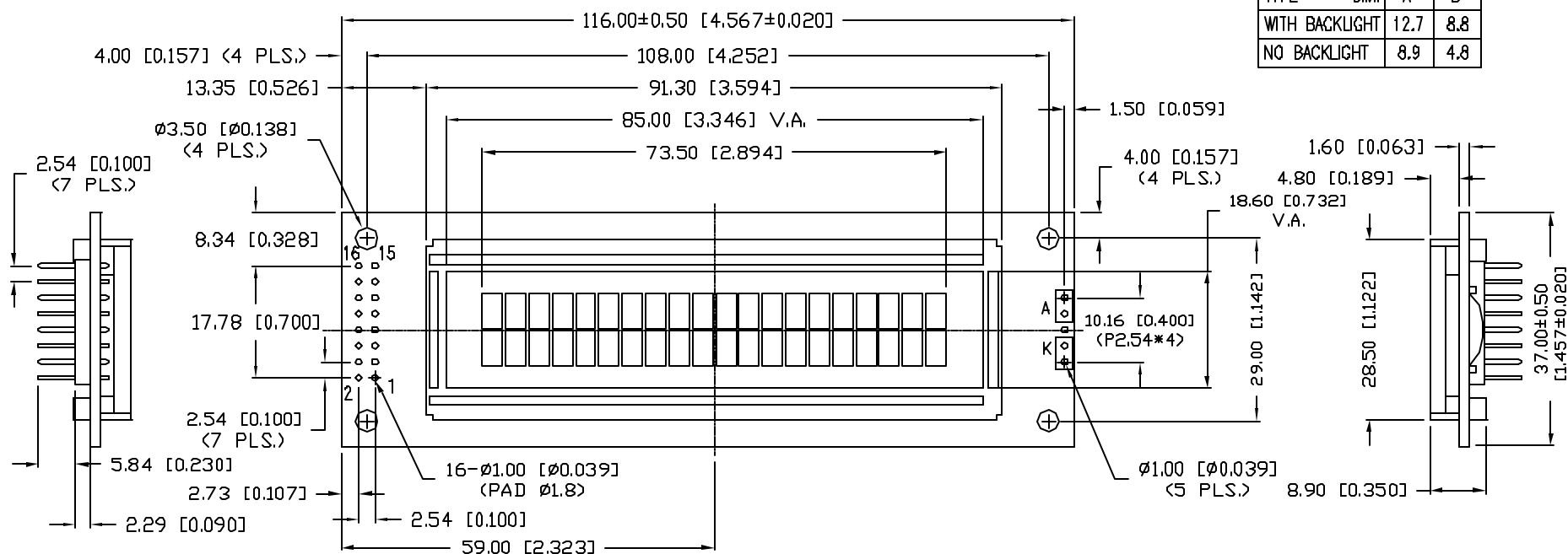
LCM-S02002DSR10332

REV.

CHARACTER DETAIL

The diagram illustrates the dimensions and tolerances for a character cell. The main body is a 5x5 grid of squares. Above the grid, there are three horizontal dimension lines: the top one spans the full width of the grid with a value of 3.70 [0.146]; the middle one spans the width of the four outer columns with a value of 3.20 [0.126]; and the bottom one spans the width of a single column with a value of 0.60 [0.024]. To the left of the grid, there are two vertical dimension lines: the top one spans the height of the four outer rows with a value of 5.55 [0.219]; the bottom one spans the height of a single row with a value of 0.05 [0.002]. To the right of the grid, there are three vertical dimension lines: the top one spans the height of the four outer rows with a value of 5.95 [0.234]; the middle one spans the height of a single row with a value of 0.05 [0.002]; and the bottom one spans the height of the four outer rows with a value of 0.40 [0.016]. There are also two horizontal dimension lines on the right side: the top one spans the width of the four outer columns with a value of 0.50 [0.020]; the bottom one spans the width of a single column with a value of 0.65 [0.026]. The grid itself is composed of 25 squares, with the central square being slightly larger than the others. The entire character is enclosed in a rectangular frame.

| TYPE           | DIM. | A    | B   |
|----------------|------|------|-----|
| WITH BACKLIGHT |      | 12.7 | 8.8 |
| NO BACKLIGHT   |      | 8.9  | 4.8 |



\*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN.=+DECIMAL PRECISION -0.00 MAX.=+0.00 -DECIMAL PRECISION

REV.

PART NUMBER

LCM-S02002DSR10332

5.55mm CHARACTER HEIGHT, 5 x 8 DOT MATRIX,  
20 x 2 LCD MODULE, 1/16 DUTY, 1/5 BIAS, STN, REFLECTIVE,  
WITH AMP HEADER P/N 1Q332B-7 OR EQUIVALENT.

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## RELIABILITY NOTE

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DATE: 10.16.03

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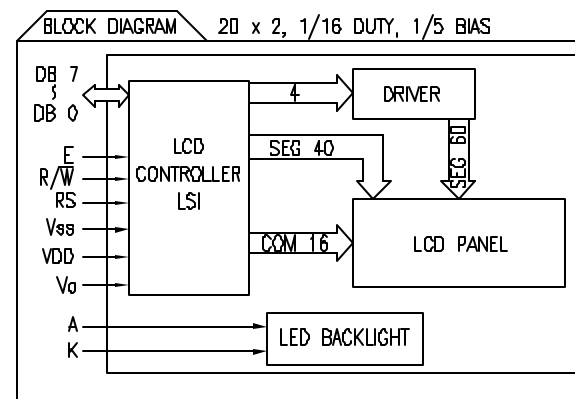
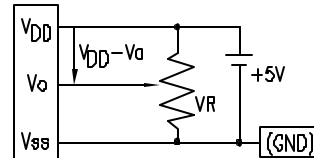
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SCALE: N/A

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| PIN CONFIGURATION |                 |        |                                                                 |               |
|-------------------|-----------------|--------|-----------------------------------------------------------------|---------------|
| PIN NO.           | SYMBOL          | LEVEL  | FUNCTION                                                        |               |
| 1                 | V <sub>SS</sub> | —      | POWER SUPPLY                                                    | GND (0V)      |
| 2                 | V <sub>DD</sub> | —      |                                                                 | 5V            |
| 3                 | V <sub>a</sub>  | —      |                                                                 | FOR LCD DRIVE |
| 4                 | RS              | H/L    | REGISTER SELECT SIGNAL<br>H: DATA INPUT<br>L: INSTRUCTION INPUT |               |
| 5                 | R/W             | H/L    | H: DATA READ (MODULE-->MPU)<br>L: DATA WRITE (MODULE<--MPU)     |               |
| 6                 | E               | H,H->L | ENABLE                                                          |               |
| 7~14              | DB0~DB7         | H/L    | DATA BUS—SOFTWARE SELECTABLE 4 OR 8 BIT MODE.                   |               |
| 15                | A               | —      | ANODE                                                           | LED BACKLIGHT |
| 16                | K               | —      | CATHODE                                                         | LED BACKLIGHT |

V<sub>DD</sub>-V<sub>a</sub>: LCD DRIVING VOLTAGE  
V<sub>R</sub>: 10KΩ-20KΩ



| ELECTRICAL CHARACTERISTICS |                                  | V <sub>DD</sub> =4.7V to 5.3V, T <sub>A</sub> =25°C |                       |      |      |                   |
|----------------------------|----------------------------------|-----------------------------------------------------|-----------------------|------|------|-------------------|
| ITEM                       | SYMBOL                           | CONDITION                                           | STANDARD VALUE        |      |      | UNIT              |
| SUPPLY VOLTAGE FOR LOGIC   | V <sub>DD</sub> -V <sub>SS</sub> | —                                                   | MIN.                  | TYP. | MAX. | V                 |
| SUPPLY CURRENT FOR LOGIC   | I <sub>DD</sub>                  | V <sub>DD</sub> =5V                                 | —                     | 2.0  | 3.0  | mA                |
| INPUT VOLTAGE              | HIGH                             | V <sub>IH</sub>                                     | —                     | 2.2  | —    | V <sub>DD</sub> V |
|                            | LOW                              | V <sub>IL</sub>                                     | —                     | 0    | —    | 0.5 V             |
| OUTPUT VOLTAGE             | HIGH                             | V <sub>OH</sub>                                     | —                     | 2.4  | —    | V                 |
|                            | LOW                              | V <sub>OL</sub>                                     | —                     | —    | 0.4  | V                 |
| *LED BACKLIGHT             | VOLTAGE                          | V <sub>f</sub>                                      | I <sub>f</sub> =210mA | —    | 4.2  | 4.5 V             |
|                            | CURRENT                          | I <sub>f</sub>                                      | —                     | —    | 210  | mA                |
|                            | POWER CONSUMPTION                | P <sub>D</sub>                                      | —                     | —    | 882  | mW                |
|                            | LUMINOUS                         | L                                                   | I <sub>f</sub> =210mA | 70   | —    | cd/m <sup>2</sup> |
|                            | COLOR                            | —                                                   | —                     | —    | —    | nm                |

\*ONLY APPLIES TO MODULES WITH BACKLIGHT

| ABSOLUTE MAXIMUM RATINGS     |                                  |                      |                 |                 |      |
|------------------------------|----------------------------------|----------------------|-----------------|-----------------|------|
| ITEM                         | SYMBOL                           | TEST CONDITION       | STANDARD VALUE  |                 | UNIT |
| SUPPLY VOLTAGE FOR LOGIC     | V <sub>DD</sub> -V <sub>SS</sub> | T <sub>a</sub> =25°C | 4.7             | 5.3             | V    |
| SUPPLY VOLTAGE FOR LCD DRIVE | V <sub>DD</sub> -V <sub>a</sub>  | —                    | 4.2@50°C        | 4.8@0°C         | V    |
| INPUT VOLTAGE                | V <sub>I</sub>                   | T <sub>a</sub> =25°C | V <sub>SS</sub> | V <sub>DD</sub> | V    |
| OPERATING TEMPERATURE        | T <sub>opr</sub>                 | LCM-S                | 0               | 50              | °C   |
|                              |                                  | LCM-H                | -20             | 70              | °C   |
| STORAGE TEMPERATURE          | T <sub>stg</sub>                 | LCM-S                | -20             | 70              | °C   |
|                              |                                  | LCM-H                | -30             | 85              | °C   |

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