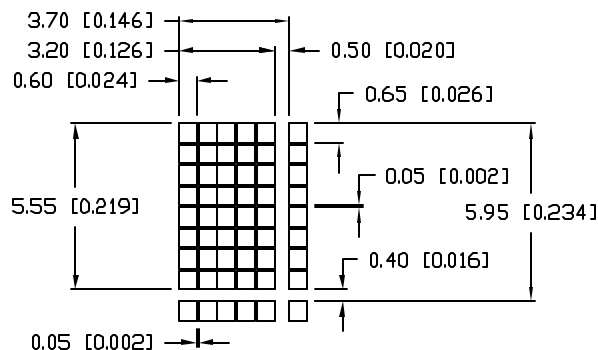
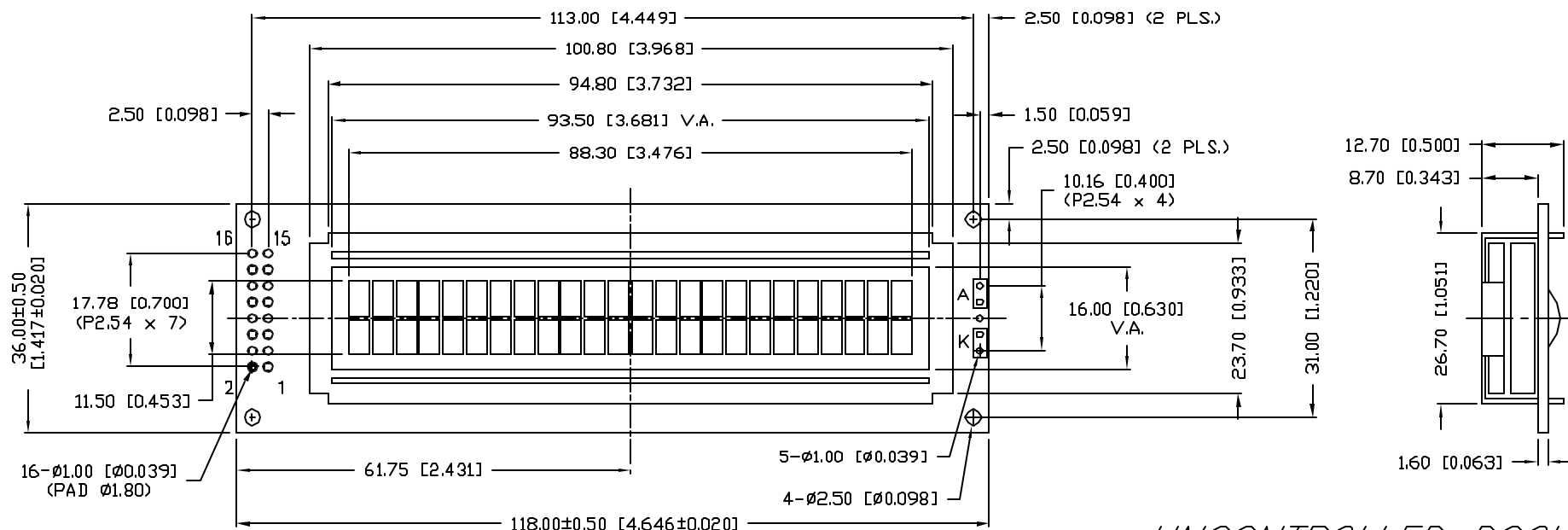


## CHARACTER DETAIL



CAUTION: STATIC SENSITIVE DEVICE  
FOLLOW PROPER E.S.D. HANDLING PROCEDURES  
WHEN WORKING WITH THIS PART.



\*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), XX=±0.5 (±0.020), XXX=±0.25 (±0.010), XXXX=±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

UNCONTROLLED DOCUMENT

REV.

PART NUMBER

LCM-S02402DSF

5.55mm CHARACTER HEIGHT, 24 x 2 CHARACTER LCD,  
5 x 8 DOT MATRIX, STN, TRANSFLECTIVE,  
LED BACKLIGHT, 1/16 DUTY.

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## RELIABILITY NOTE

OUR MANY YEARS OF EXPERIENCE DATA ACCUMULATION INDICATE THAT SOLDER HEAT IS A MAJOR CAUSE OF EARLY AND FUTURE FAILURE. PLEASE PAY ATTENTION TO YOUR SOLDERING PROCESS.



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DATE: 8.17.01

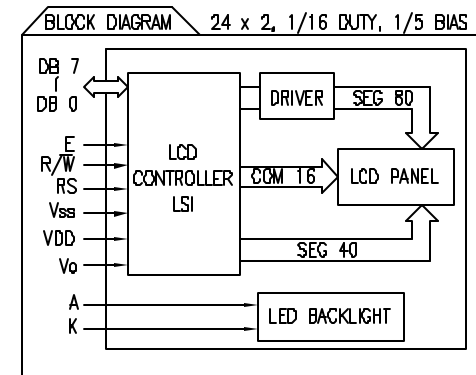
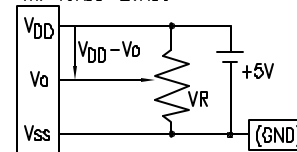
PAGE: 1 OF 2

SCALE: N/A

SA/CT

| PIN CONFIGURATION |                 |        |                                                                 |               |
|-------------------|-----------------|--------|-----------------------------------------------------------------|---------------|
| PIN NO.           | SYMBOL          | LEVEL  | FUNCTION                                                        |               |
| 1                 | V <sub>SS</sub> | -      | POWER SUPPLY                                                    | GND (OV)      |
| 2                 | V <sub>DD</sub> | -      |                                                                 | 5V            |
| 3                 | V <sub>O</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>O</sub>: LCD DRIVING VOLTAGE  
VR: 10K $\Omega$  - 20K $\Omega$



| ELECTRICAL CHARACTERISTICS |                   |                                  | V <sub>DD</sub> =4.7V to 5.3V, T <sub>A</sub> =25°C |                       |      |      |      |                   |
|----------------------------|-------------------|----------------------------------|-----------------------------------------------------|-----------------------|------|------|------|-------------------|
| ITEM                       |                   | SYMBOL                           | CONDITION                                           | STANDARD VALUE        |      |      | UNIT |                   |
|                            |                   |                                  |                                                     | MIN.                  | TYP. | MAX. |      |                   |
| SUPPLY VOLTAGE FOR LOGIC   |                   | V <sub>DD</sub> -V <sub>SS</sub> | —                                                   | —                     | 5.0  | —    | 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                   | —    | 4.7  | V    |                   |
|                            | LOW               | V <sub>IL</sub>                  | —                                                   | 0                     | —    | 0.6  | V    |                   |
| OUTPUT VOLTAGE             | HIGH              | V <sub>OH</sub>                  | —                                                   | 2.4                   | —    | —    | V    |                   |
|                            | LOW               | V <sub>OL</sub>                  | —                                                   | —                     | —    | 0.4  | V    |                   |
| *LED<br>BACKLIGHT          | VOLTAGE           |                                  | V <sub>f</sub>                                      | I <sub>f</sub> =160mA | —    | 4.2  | 4.5  | V                 |
|                            | CURRENT           |                                  | I <sub>f</sub>                                      | —                     | —    | 160  | 400  | mA                |
|                            | POWER CONSUMPTION |                                  | P <sub>D</sub>                                      | —                     | —    | 660  | —    | mW                |
|                            | LUMINOUS          |                                  | L                                                   | I <sub>f</sub> =160mA | 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 | MIN             | MAX             | V    |
| SUPPLY VOLTAGE FOR LCD DRIVE | V <sub>DD</sub> -V <sub>O</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   |
| STORAGE TEMPERATURE          | T <sub>stg</sub>                 | LCM-S                | -20             | 70              | °C   |

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