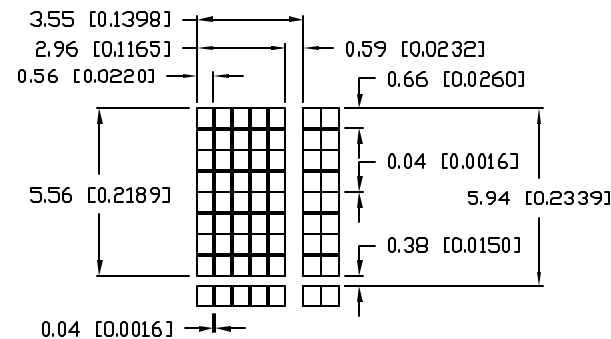
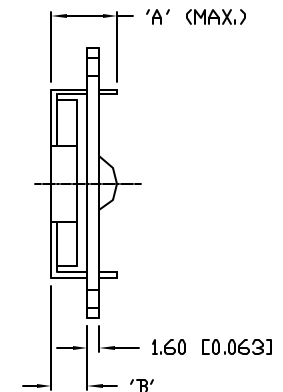
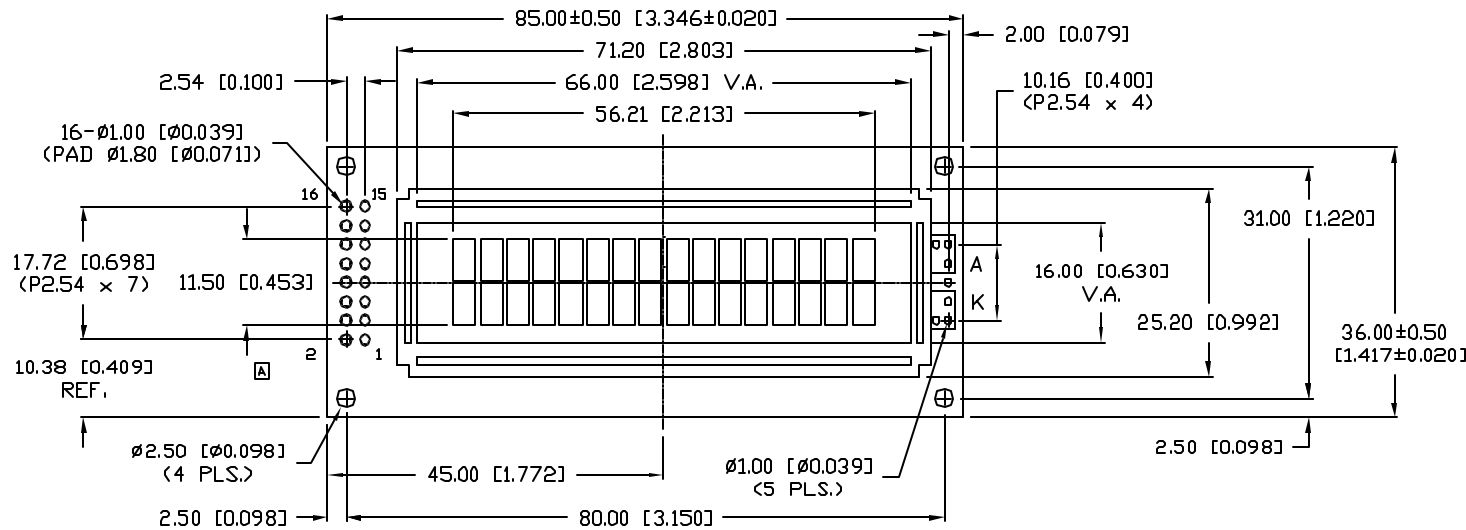


CAUTION: STATIC SENSITIVE DEVICE  
FOLLOW PROPER E.S.D. HANDLING PROCEDURES  
WHEN WORKING WITH THIS PART.

## CHARACTER DETAIL



| TYPE           | DIM. | A   | B |
|----------------|------|-----|---|
| WITH BACKLIGHT | 12.7 | 9.0 |   |
| NO BACKLIGHT   | 8.8  | 4.8 |   |



UNCONTROLLED DOCUMENT

\*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

REV.

PART NUMBER

LCM-S01602DTR/F-3

5.56mm CHARACTER HEIGHT, 5 X 8 DOT MATRIX, TN, 3.3V,  
REFLECTIVE, 16 X 2 LCD MODULE, 1/16 DUTY, 1/5 BIAS.

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## RELIABILITY NOTE

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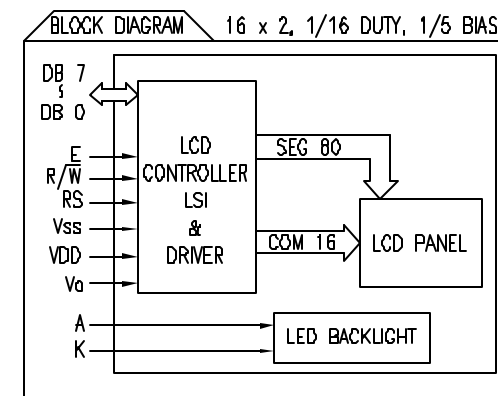
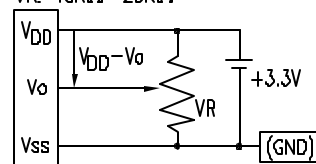
DATE: 10.15.02

PAGE: 1 OF 1

SCALE: N/A

| PIN CONFIGURATION |                 |                     |                                                                 |               |
|-------------------|-----------------|---------------------|-----------------------------------------------------------------|---------------|
| PIN NO.           | SYMBOL          | LEVEL               | FUNCTION                                                        |               |
| 1                 | V <sub>SS</sub> | —                   | POWER SUPPLY                                                    | GND (0V)      |
| 2                 | V <sub>DD</sub> | —                   |                                                                 | 3.3V          |
| 3                 | V <sub>0</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 <sub>L</sub> 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>0</sub>: LCD DRIVING VOLTAGE  
V<sub>R</sub>: 10KΩ-20KΩ



| ELECTRICAL CHARACTERISTICS |                   |                 | V <sub>DD</sub> =2.7V to 4.5V, 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>                    | —                     | —              | 3.3                | —    | V                 |
| SUPPLY CURRENT FOR LOGIC   |                   |                 | I <sub>DD</sub>                                     | V <sub>DD</sub> =3.3V | —              | 2.0                | 3.0  | mA                |
| INPUT VOLTAGE              | HIGH              | V <sub>IH</sub> | —                                                   | 0.7V <sub>DD</sub>    | —              | V <sub>DD</sub>    | V    |                   |
|                            | LOW               | V <sub>IL</sub> | —                                                   | -0.3                  | —              | 0.55               | V    |                   |
| OUTPUT VOLTAGE             | HIGH              | V <sub>OH</sub> | —                                                   | .75V <sub>DD</sub>    | —              | —                  | V    |                   |
|                            | LOW               | V <sub>OL</sub> | —                                                   | —                     | —              | 0.2V <sub>DD</sub> | V    |                   |
| *LED<br>BACKLIGHT          | VOLTAGE           |                 | V <sub>f</sub>                                      | I <sub>f</sub> =160mA | —              | 4.2                | 4.6  | V                 |
|                            | CURRENT           |                 | I <sub>f</sub>                                      | —                     | —              | 160                | —    | mA                |
|                            | POWER CONSUMPTION |                 | P <sub>D</sub>                                      | —                     | —              | 656                | —    | 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 |
|------------------------------|--|----------------------------------|----------------------|-----------------|-----------------|------|
|                              |  |                                  |                      | MIN             | MAX             |      |
| SUPPLY VOLTAGE FOR LOGIC     |  | V <sub>DD</sub> -V <sub>SS</sub> | T <sub>a</sub> =25°C | 2.7             | 4.5             | V    |
| SUPPLY VOLTAGE FOR LCD DRIVE |  | V <sub>DD</sub> -V <sub>0</sub>  | —                    | 2.2@50°C        | 4.3@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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