

UNCONTROLLED DOCUMENT

PART NUMBER

LCM-S01602DSF/C

REV.

A

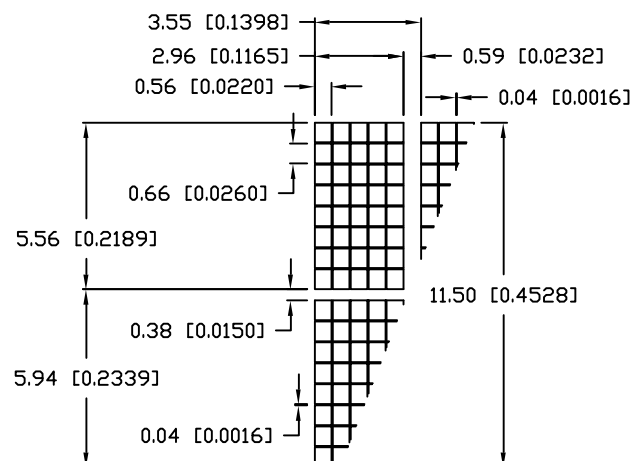
REV. E.C.N. NUMBER AND REVISION COMMENTS

DATE

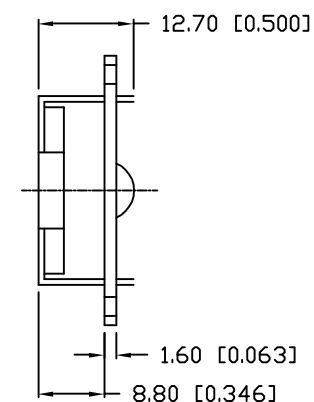
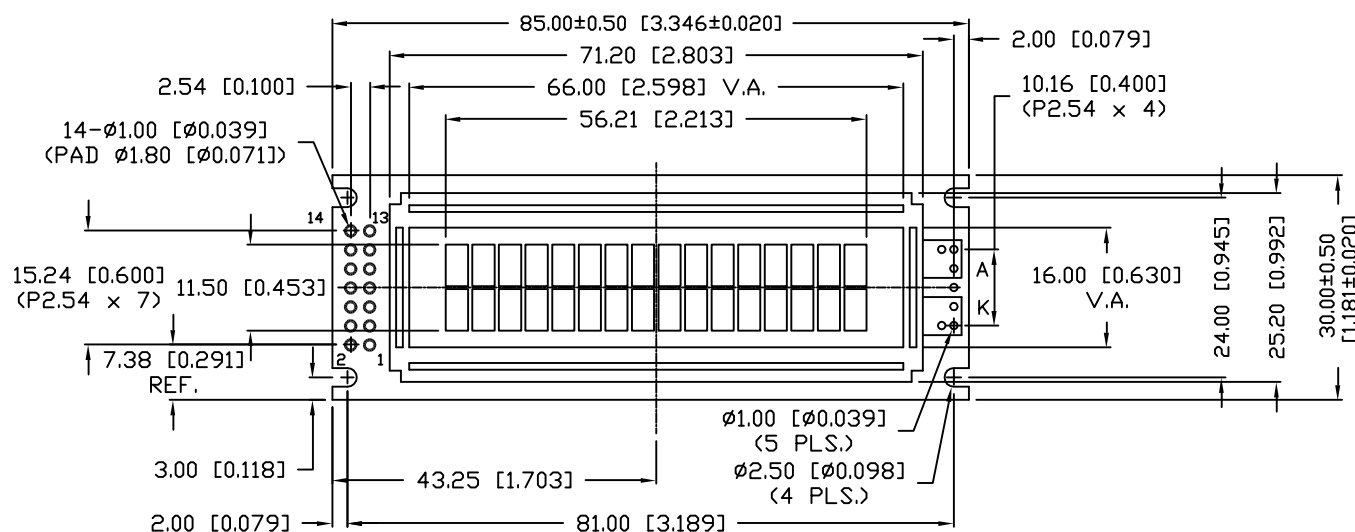
A E.C.N. #11148.

10.10.07

## 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), 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

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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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16 x 2 LCD, 5 x 8 DOT MATRIX, STN, TRANSFLECTIVE,  
BACKLIGHT, 1/16 DUTY, 1/5 BIAS.

DRAWN BY:

CT

CHECKED BY:

APPROVED BY:

DATE: 10.30.01

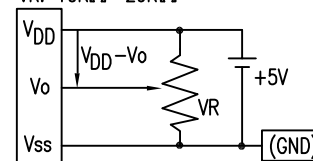
PAGE: 1 OF 2

SCALE: N/A

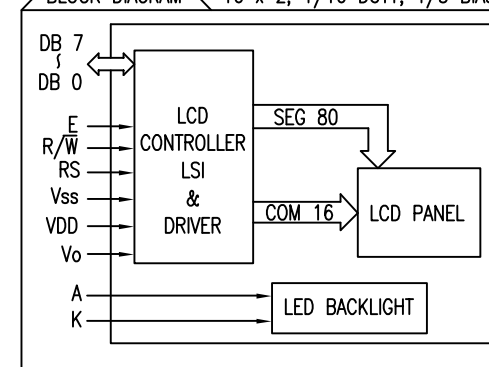
## PIN CONFIGURATION

| PIN NO. | SYMBOL          | LEVEL  | FUNCTION                                                        |
|---------|-----------------|--------|-----------------------------------------------------------------|
| 1       | V <sub>DD</sub> | —      | POWER SUPPLY<br>5V<br>GND (0V)<br>FOR LCD DRIVE                 |
| 2       | V <sub>SS</sub> | —      |                                                                 |
| 3       | V <sub>O</sub>  | —      |                                                                 |
| 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.                   |

V<sub>DD</sub>-V<sub>O</sub>: LCD DRIVING VOLTAGE  
VR: 10KΩ-20KΩ



## BLOCK DIAGRAM 16 x 2, 1/16 DUTY, 1/5 BIAS



## 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<br>LOW                      | V <sub>IH</sub>     | —                     | 2.2  | —    | V <sub>DD</sub>   |
|                          |                                  | V <sub>IL</sub>     | —                     | 0    | —    | 0.6 V             |
| OUTPUT VOLTAGE           | HIGH<br>LOW                      | V <sub>OH</sub>     | —                     | 2.4  | —    | V                 |
|                          |                                  | V <sub>OL</sub>     | —                     | —    | 0.4  | V                 |
| LED 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                | PD                  | —                     | —    | 656  | mW                |
|                          | LUMINOUS                         | L                   | I <sub>f</sub> =160mA | 70   | —    | cd/m <sup>2</sup> |
|                          | COLOR                            | —                   | —                     | —    | —    | nm                |

## 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 | 4.7             | 5.3             | 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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5.56mm CHARACTER HEIGHT, 5 x 8 DOT MATRIX, 16 x 2 LCD  
MODULE, 1/16 DUTY, 1/5 BIAS.

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