

UNCONTROLLED DOCUMENT

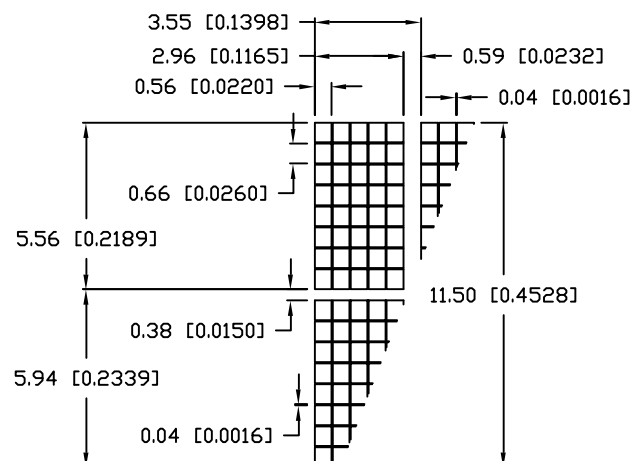
PART NUMBER  
LCM-S01602DSF/C

REV.

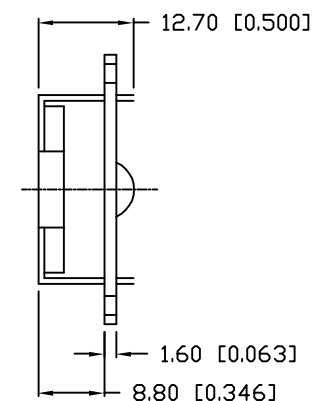
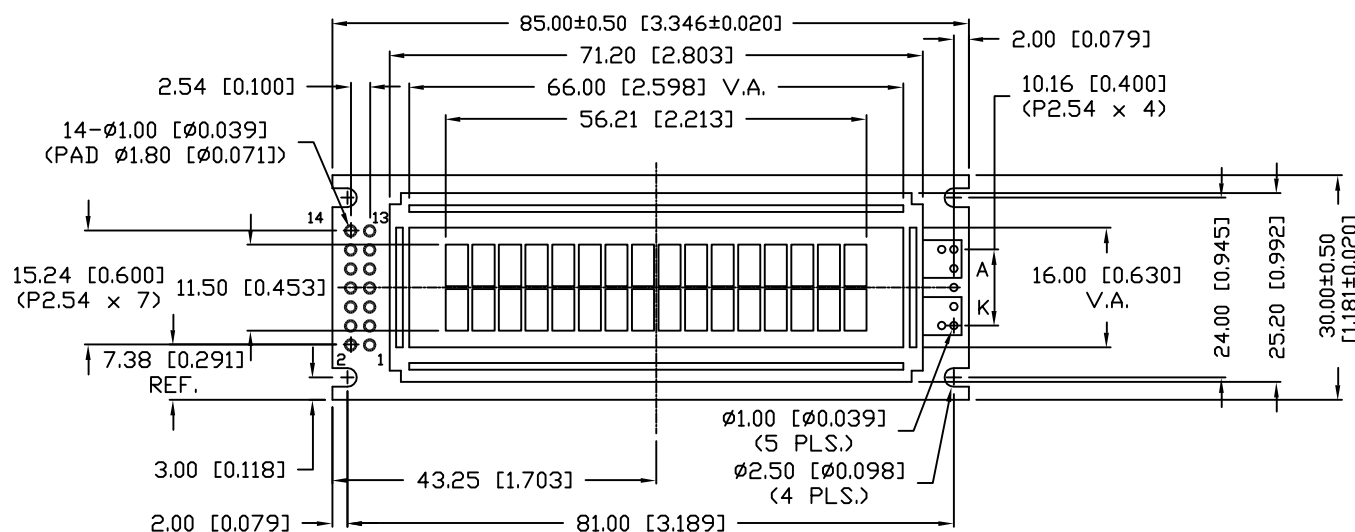
A

| 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.



Ⓟ  
A

UNCONTROLLED DOCUMENT

\*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.

A

PART NUMBER

LCM-S01602DSF/C

## CONFIDENTIAL INFORMATION

THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF LUMEX INC. EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING BY LUMEX INC., THE HOLDER OF THIS DOCUMENT SHALL KEEP ALL INFORMATION CONTAINED HEREIN CONFIDENTIAL AND SHALL PROTECT SAME IN WHOLE OR IN PART FROM DISCLOSURE AND DISSEMINATION TO ALL THIRD PARTIES.

## 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.



290 E. HELEN ROAD  
PALATINE, IL 60067-6976  
PHONE: +1.847.359.2790  
US WEB: www.lumex.com  
TW WEB: www.lumex.com.tw

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

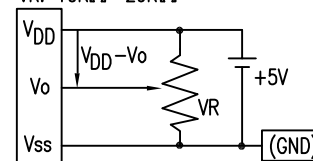
PAGE: 1 OF 2

SCALE: N/A

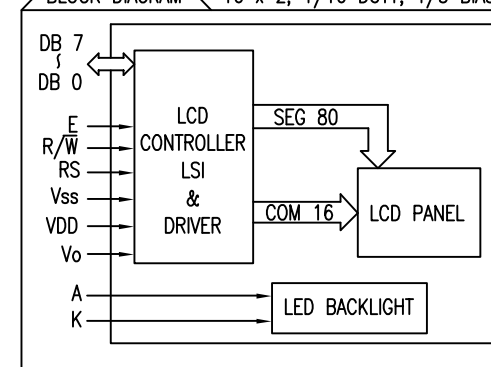
## PIN CONFIGURATION

| 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   |

\*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.

A

PART NUMBER

LCM-S01602DSF/C

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

## CONFIDENTIAL INFORMATION

THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF LUMEX INC. EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING BY LUMEX INC., THE HOLDER OF THIS DOCUMENT SHALL KEEP ALL INFORMATION CONTAINED HEREIN CONFIDENTIAL AND SHALL PROTECT SAME IN WHOLE OR IN PART FROM DISCLOSURE AND DISSEMINATION TO ALL THIRD PARTIES.

## 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.



290 E. HELEN ROAD  
PALATINE, IL 60067-6976  
PHONE: +1.847.359.2790  
US WEB: www.lumex.com  
TW WEB: www.lumex.com.tw

DRAWN BY:

CT

CHECKED BY:

APPROVED BY:

DATE: 10.30.01

PAGE: 1 OF 2

SCALE: N/A

Ⓐ  
Pb