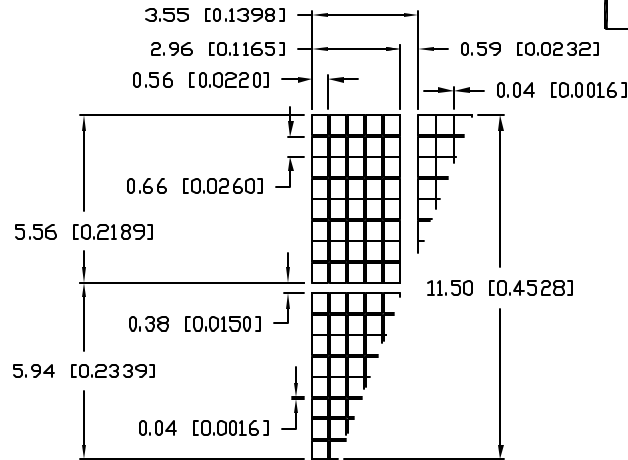


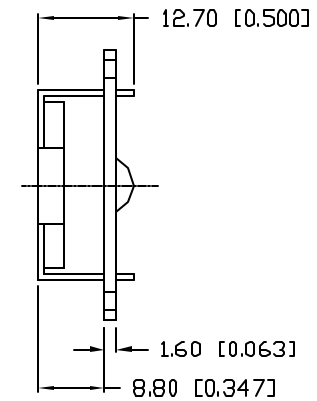
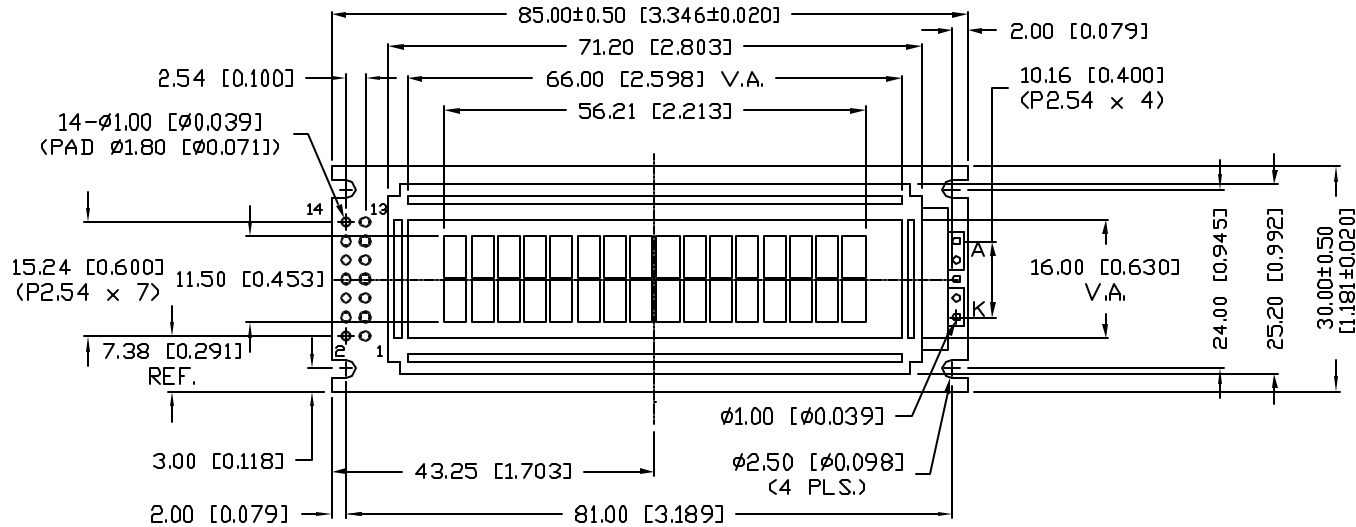
UNCONTROLLED DOCUMENT

| | | |
|-------------------|-------------------------------------|---------|
| PART NUMBER | | REV. |
| LCM-H01602DWF/C-B | | A |
| REV. | E.C.N. NUMBER AND REVISION COMMENTS | DATE |
| A | E.C.N. #11148. | 4.18.07 |

CHARACTER DETAIL



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



UNCONTROLLED DOCUMENT

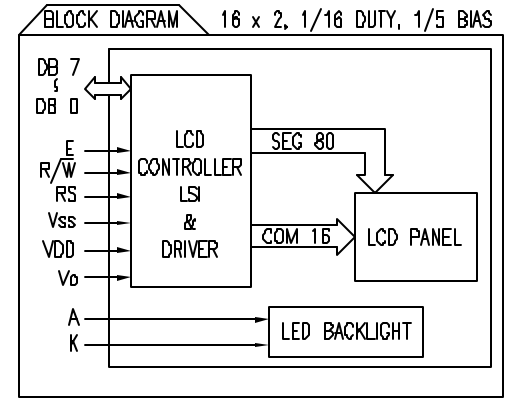
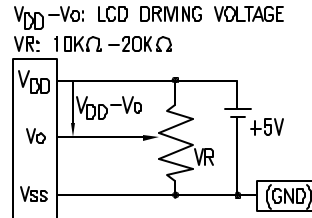
*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), XX=±0.5 (±0.020), XXX=±0.25 (±0.010), XXXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN.= +DECIMAL PRECISION -0.00 MAX.= +0.00 -DECIMAL PRECISION

| | | | | | |
|--|-------------------|--|--|--------------------------|--|
| REV. | PART NUMBER | CONFIDENTIAL INFORMATION | | 290 E. HELEN ROAD | |
| A | LCM-H01602DWF/C-B | 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. | | PALATINE, IL 60067-6976 | |
| 16 x 2 CHARACTERS LCD MODULE, FSTN, TRANFLECTIVE, ONE CHIP BLUE LED BACKLIGHT, 1/16 DUTY, 1/5 BIAS, WIDE OPERATING TEMP. | | 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. | | PHONE: +1.847.359.2790 | |
| | | DRAWN BY: jc | | US WEB: www.lumex.com | |
| | | CHECKED BY: | | TW WEB: www.lumex.com.tw | |
| | | APPROVED BY: | | DATE: 3.5.04 | |
| | | | | PAGE: 1 OF 2 | |
| | | | | SCALE: N/A | |

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|-------------------|-------------------------------------|------|
| PART NUMBER | | REV. |
| LCM-H01602DWF/C-B | | A |
| REV. | E.C.N. NUMBER AND REVISION COMMENTS | DATE |
| A | SEE PAGE #1 | |

PIN CONFIGURATION

| PIN NO. | SYMBOL | LEVEL | FUNCTION |
|---------|----------|--------|---|
| 1 | V_{DD} | - | POWER SUPPLY 5V GND (0V) FOR LCD DRIVE |
| 2 | V_{SS} | - | |
| 3 | V_o | - | |
| 4 | RS | H/L | REGISTER SELECT SIGNAL H: DATA INPUT L: INSTRUCTION INPUT |
| 5 | R/W | H/L | H: DATA READ (MODULE-->MPU) 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. |
| | A | - | ANODE LED BACKLIGHT |
| | K | - | CATHODE LED BACKLIGHT |



ELECTRICAL CHARACTERISTICS

$V_{DD}=4.7V$ to $5.3V$, $T_A=25^\circ C$

| ITEM | SYMBOL | CONDITION | STANDARD VALUE | | | UNIT | |
|--------------------------|-------------------|-------------|----------------|------|------|------|----|
| | | | MIN. | TYP. | MAX. | | |
| SUPPLY VOLTAGE FOR LOGIC | $V_{DD}-V_{SS}$ | - | - | 5.0 | - | V | |
| SUPPLY CURRENT FOR LOGIC | I_{DD} | $V_{DD}=5V$ | - | 2.0 | 3.0 | mA | |
| INPUT VOLTAGE | HIGH | V_{IH} | - | 2.2 | - | 4.7 | V |
| | LOW | V_{IL} | - | 0 | - | 0.6 | V |
| OUTPUT VOLTAGE | HIGH | V_{OH} | - | 2.4 | - | - | V |
| | LOW | V_{OL} | - | - | - | 0.4 | V |
| *LED BACKLIGHT | VOLTAGE | V_f | $I_f=20mA$ | 3.3 | 3.4 | 3.5 | V |
| | CURRENT | I_f | - | 10 | 20 | 25 | mA |
| | POWER CONSUMPTION | PD | $I_f=20mA$ | - | 53 | - | mW |
| | COLOR | - | BLUE | - | - | - | nm |

*ONLY APPLIES TO MODULES WITH BACKLIGHT

ABSOLUTE MAXIMUM RATINGS

| ITEM | SYMBOL | TEST CONDITION | STANDARD VALUE | | UNIT |
|------------------------------|-----------------|------------------|-------------------|------------------|------------|
| | | | MIN | MAX | |
| SUPPLY VOLTAGE FOR LOGIC | $V_{DD}-V_{SS}$ | $T_a=25^\circ C$ | 4.7 | 5.3 | V |
| SUPPLY VOLTAGE FOR LCD DRIVE | $V_{DD}-V_o$ | - | 4.2@50 $^\circ C$ | 4.8@0 $^\circ C$ | V |
| INPUT VOLTAGE | V_I | $T_a=25^\circ C$ | V_{SS} | V_{DD} | V |
| OPERATING TEMPERATURE | T_{opr} | LCM-H | -20 | 70 | $^\circ C$ |
| STORAGE TEMPERATURE | T_{stg} | LCM-H | -30 | 80 | $^\circ C$ |

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| | | | | | |
|---|-------------------|--|-------------|---|--------------|
| REV. | PART NUMBER | CONFIDENTIAL INFORMATION | | 290 E. HELEN ROAD PALATINE, IL 60067-6976 PHONE: +1.847.359.2790 US WEB: www.lumex.com TW WEB: www.lumex.com.tw | |
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| | | JC | | | PAGE: 2 OF 2 |
| | | | | | SCALE: N/A |