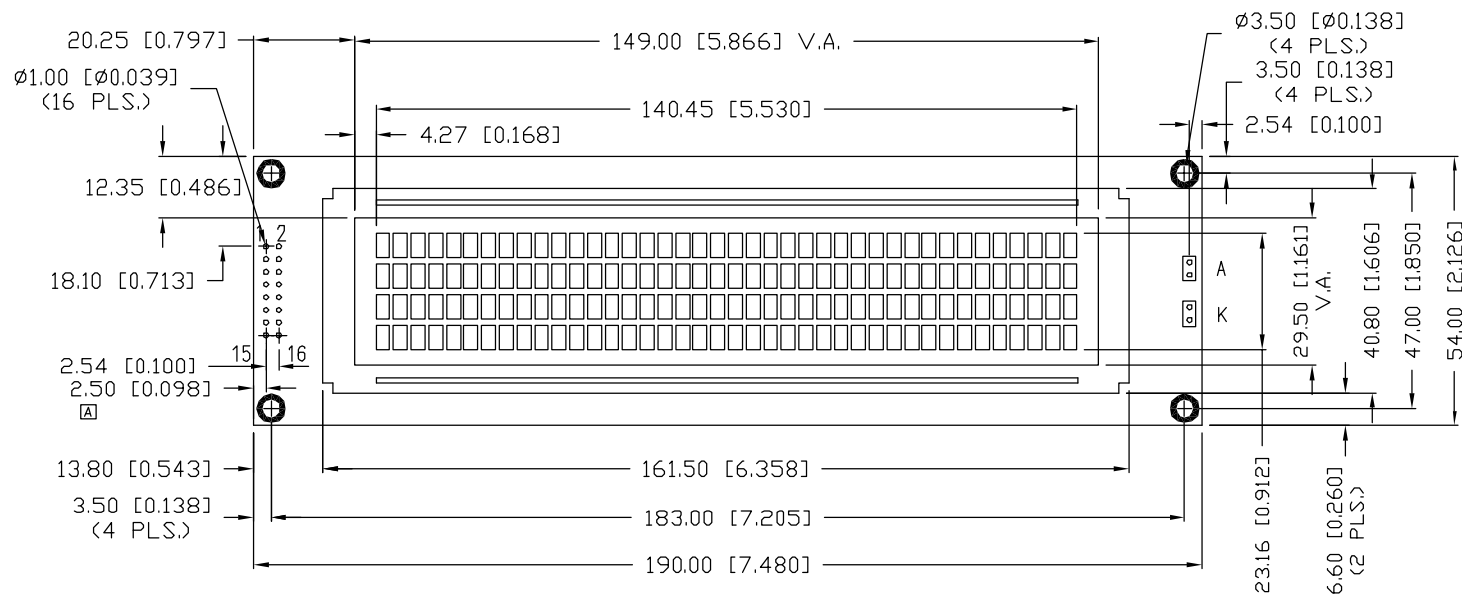
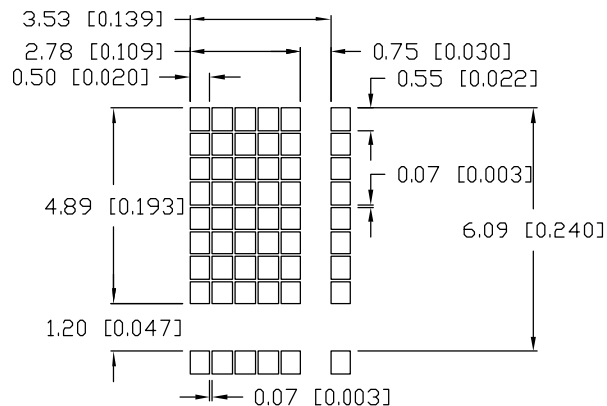


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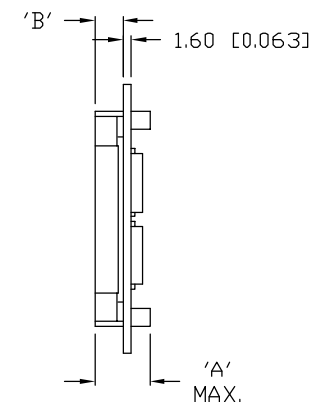
| P/N PREFIX/SUFFIX TABLE | | | |
|-------------------------|---|-----|----------------------------------|
| LCM-X | | DXX | DESCRIPTION |
| STANDARD | S | SR | STN, REFLECTIVE |
| | | SF | STN, TRANSFLECTIVE(W/ BACKLIGHT) |
| HIGH TEMP. | H | TR | TN, REFLECTIVE |
| | | TF | TN, TRANSFLECTIVE(W/ BACKLIGHT) |

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

CHARACTER DETAIL



| TYPE | DIM. | A | B |
|----------------|------|------|-----|
| WITH BACKLIGHT | | 14.5 | 9.3 |
| NO BACKLIGHT | | 10 | 4.9 |



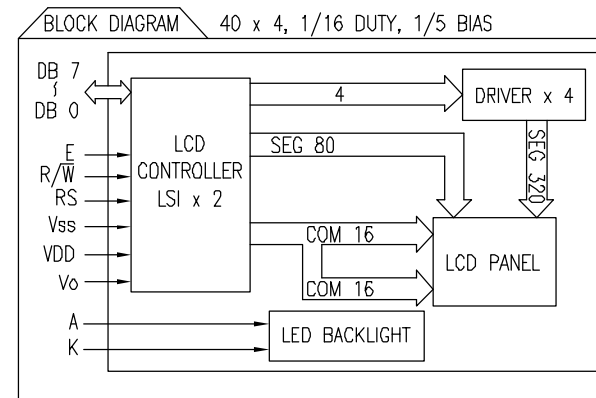
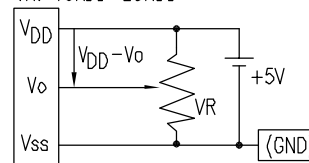
UNCONTROLLED DOCUMENT

*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-X04004DXX | <p>CONFIDENTIAL INFORMATION</p> <p>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.</p> <p>RELIABILITY NOTE</p> <p>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.</p> | <p>290 E. HELEN ROAD PALATINE, IL 60067-6976 PHONE: +1.847.359.2790 US WEB: www.lumex.com TW WEB: www.lumex.com.tw</p> |
| 4.89mm CHARACTER HEIGHT, 5 x 8 DOT MATRIX, 40 x 4 LCD CHARACTER MODULE, 1/16 DUTY, 1/5 BIAS. | | <p>DRAWN BY: CT</p> | <p>CHECKED BY:</p> <p>APPROVED BY:</p> <p>DATE: 9.10.98 PAGE: 1 OF 2 SCALE: N/A</p> |

| PIN CONFIGURATION | | | |
|-------------------|---------|-------|---|
| PIN NO. | SYMBOL | LEVEL | FUNCTION |
| 1~8 | DB7~DB0 | H/L | DATA BUS—SOFTWARE SELECTABLE 4 OR 8 BIT MODE. |
| 9 | E1 | H,H→L | ENABLE 1 |
| 10 | R/W | H/L | H: DATA READ (MODULE→MPU) L: DATA WRITE (MODULE←MPU) |
| 11 | RS | H/L | REGISTER SELECT SIGNAL H: DATA INPUT L: INSTRUCTION INPUT |
| 12 | Vo | — | POWER SUPPLY |
| 13 | Vss | — | |
| 14 | VDD | — | |
| 15 | E2 | H,H→L | ENABLE 2 |
| 16 | — | — | NO CONNECTION |
| | A | — | ANODE FOR BACKLIGHT |
| | K | — | CATHODE FOR BACKLIGHT |

$V_{DD}-V_o$: LCD DRIVING VOLTAGE
VR: 10K Ω - 20K Ω



| ELECTRICAL CHARACTERISTICS | | $V_{DD}=4.7V$ to $5.3V$, $T_A=25^\circ C$ | | | | |
|----------------------------|-------------------|--|----------------|-----|------|---------------------|
| ITEM | SYMBOL | CONDITION | STANDARD VALUE | | | UNIT |
| SUPPLY VOLTAGE FOR LOGIC | $V_{DD}-V_{ss}$ | — | — | 5.0 | — | V |
| SUPPLY CURRENT FOR LOGIC | I_{DD} | $V_{DD}=5V$ | — | 4.0 | 10.0 | mA |
| INPUT VOLTAGE | HIGH | V_{IH} | — | 2.2 | — | V_{DD} 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 | — | — | 4.2 | 4.6 V |
| | CURRENT | If | — | — | 500 | — mA |
| | POWER CONSUMPTION | PD | — | — | 2100 | — mW |
| | LUMINOUS | L | If=500mA | 70 | — | — cd/m ² |
| | COLOR | — | — | — | — | — nm |

*ONLY APPLIES TO MODULES WITH BACKLIGHT

| ABSOLUTE MAXIMUM RATINGS | | | | | |
|------------------------------|-----------------|------------------|-------------------|------------------|------------|
| ITEM | SYMBOL | TEST CONDITION | STANDARD VALUE | | UNIT |
| 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-S | 0 | 50 | $^\circ C$ |
| | | LCM-H | -20 | 70 | $^\circ C$ |
| STORAGE TEMPERATURE | T_{stg} | LCM-S | -20 | 70 | $^\circ C$ |
| | | LCM-H | -30 | 85 | $^\circ C$ |

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REV.

A

PART NUMBER

LCM-X04004DXX

4.89mm CHARACTER HEIGHT, 5 x 8 DOT MATRIX,
40 x 4 LCD CHARACTER MODULE, 1/16 DUTY, 1/5 BIAS.

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