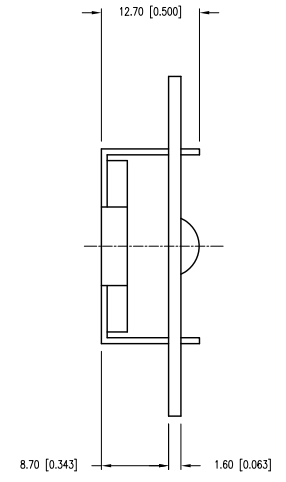
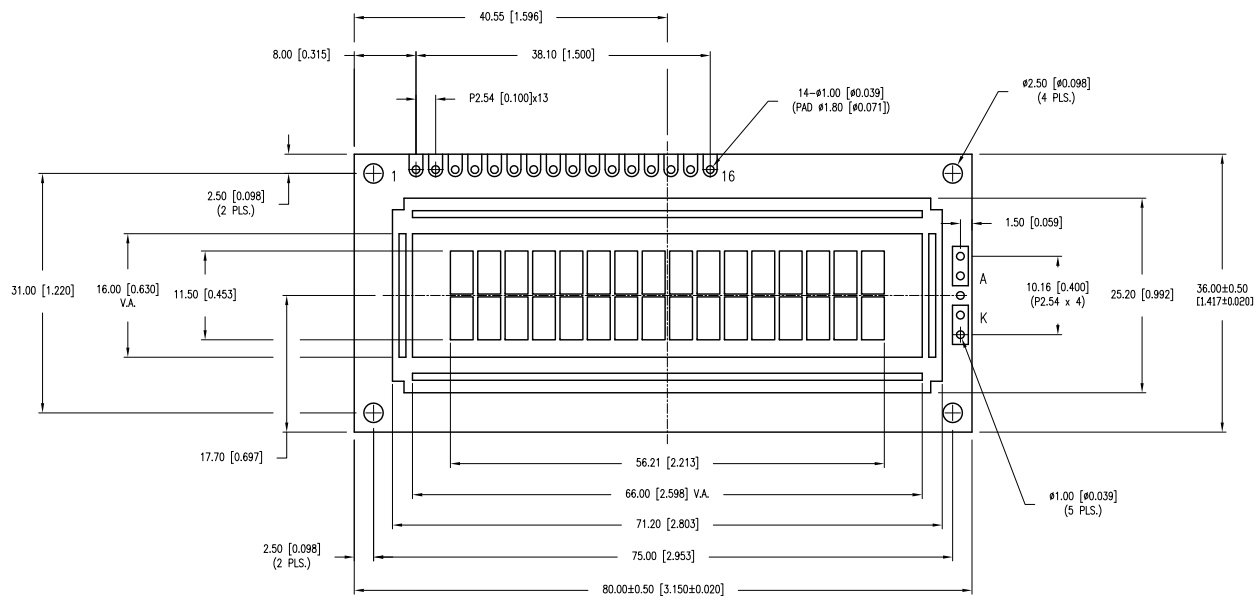
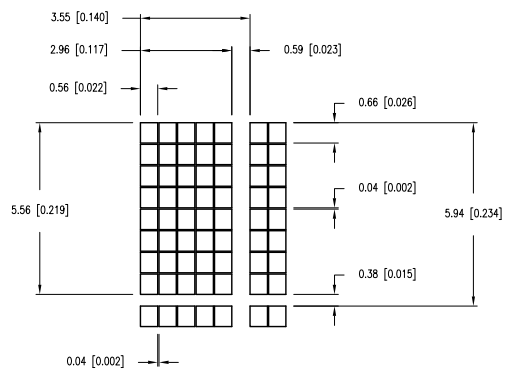


CAUTION: STATIC SENSITIVE DEVICE  
 FOLLOW PROPER E.S.D. HANDLING PROCEDURES  
 WHEN WORKING WITH THIS PART.

CHARACTER DETAIL



\*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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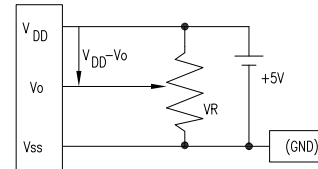
5.56mm CHARACTER HT,5x8 DOT MATRIX,STN,TRANSFLECTIVE W/LED BACKLIGHT,16 x 2 LCD MODULE,BLACK BEZEL.  
 \*\*THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.\*\*  
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|        |           |           |      |
|--------|-----------|-----------|------|
| DATE:  | 06.01.10  | DRAWN BY: | JH   |
| PAGE:  | 1 OF 2    | CHKD BY:  | BC   |
| SCALE: | N/A       | APRVD BY: | SA   |
| UNIT:  | mm [INCH] |           | (Pb) |

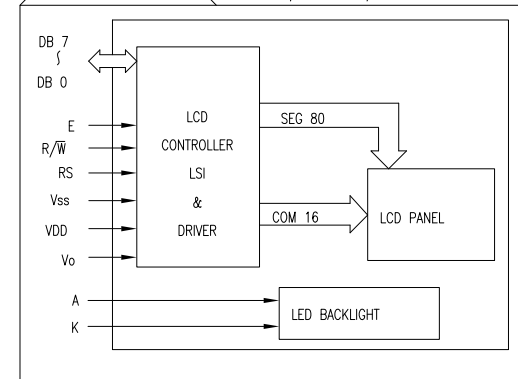
## PIN CONFIGURATION

| PIN NO. | SYMBOL          | LEVEL  | FUNCTION  |
|---------|-----------------|--------|---|
| 1       | V <sub>SS</sub> | -      | POWER SUPPLY<br>GND (0V)  |
| 2       | V <sub>DD</sub> | -      |   |
| 3       | V <sub>O</sub>  | -      |   |
| 4       | RS              | H/L    | REGISTER SELECT SIGNAL<br>H: DATA INPUT<br>L: INSTRUCTION INPUT |
| 5       | R/ $\bar{W}$    | 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.                  |
| 15      | A               | -      | ANODE<br>LED BACKLIGHT  |
| 16      | K               | -      | CATHODE<br>LED BACKLIGHT  |

V<sub>DD</sub>-V<sub>O</sub>: LCD DRIVING VOLTAGE  
VR: 10K $\Omega$ ~20K $\Omega$



## 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                             | V <sub>IH</sub>     | -                     | 2.2  | -    | V <sub>DD</sub> |                   |
|                          | LOW                              | V <sub>IL</sub>     | -                     | 0    | -    | 0.6             |                   |
| OUTPUT VOLTAGE           | HIGH                             | V <sub>OH</sub>     | -                     | 2.4  | -    | V               |                   |
|                          | LOW                              | 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                |

\*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 | 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-H                | -20             | 70              | °C   |
| STORAGE TEMPERATURE          | T <sub>stg</sub>                 | LCM-H                | -30             | 80              | °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 MAX.=+0.00  
-0.00-DECIMAL PRECISION

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