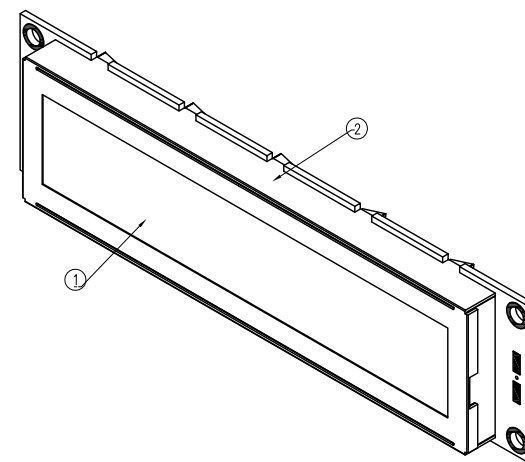


1. NEGATIVE WHITE & BLACK.
2. BLACK FRAME.
3. HIGH TEMPERATURE.
4. GREEN BACKLIGHT.

MAX. = +0.00  
-DECIMAL PRECISION

|               |              |
|---------------|--------------|
| SCALE: NIS    | APRVD BY: DI |
| UNIT: [empty] | ①            |

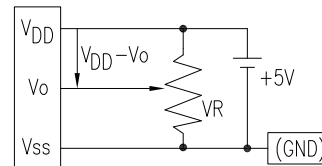
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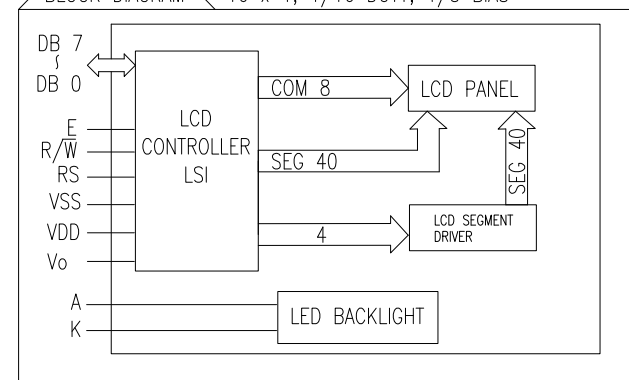
## PIN CONFIGURATION

| PIN NO. | SYMBOL          | LEVEL  | FUNCTION                                                        |                            |
|---------|-----------------|--------|-----------------------------------------------------------------|----------------------------|
| 1       | V <sub>SS</sub> | —      | POWER SUPPLY                                                    | GND (0V)                   |
| 2       | V <sub>DD</sub> | —      |                                                                 | 5V                         |
| 3       | V <sub>O</sub>  | —      |                                                                 | FOR LCD DRIVE/CONTRAST ADJ |
| 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               | 4.2V   | ANODE                                                           | LED BACKLIGHT              |
| 16      | K               | 0V     | CATHODE                                                         | LED BACKLIGHT              |

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



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



## ELECTRICAL CHARACTERISTICS

V<sub>DD</sub>=4.7V to 5.5V, 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 | —                     | 1.5  | 2.0  | mA                  |
| INPUT VOLTAGE            | HIGH                             | V <sub>IH</sub>     | —                     | 2.2  | —    | V <sub>DD</sub> V   |
|                          | LOW                              | V <sub>IL</sub>     | —                     | 0    | —    | 0.6 V               |
| 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> =300mA | —    | 4.1  | 4.6 V               |
|                          | CURRENT                          | I <sub>f</sub>      | —                     | —    | 300  | — mA                |
|                          | POWER CONSUMPTION                | PD                  | —                     | —    | 1230 | 2070 mW             |
|                          | LUMINOUS                         | L                   | I <sub>f</sub> =300mA | 100  | 160  | — cd/m <sup>2</sup> |
|                          | WAVELENGTH (4)                   | —                   | I <sub>f</sub> =300mA | 550  | 555  | 560 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 | 4.5             | 5.5             | 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 (3)    | T <sub>opr</sub>                 | LCM-S                | -20             | 70              | °C   |
| STORAGE TEMPERATURE (3)      | T <sub>stg</sub>                 | LCM-S                | -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.=<sup>+DECIMAL PRECISION</sup><sub>-0.00</sub> MAX.=<sup>+0.00</sup><sub>-DECIMAL PRECISION</sub>

UNCONTROLLED DOCUMENT



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MEMBER OF ITW PHOTONICS GROUP

14.54mm CHAR.HGT,5x8 DOT MATRIX,FSTN TRANSMISSIVE NEGATIVE,16x1 CHAR LCD MODULE,1/16 DUTY,1/5 BIAS.

\*\*THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.\*\*

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|        |           |           |    |
|--------|-----------|-----------|----|
| DATE:  | 05.20.13  | DRAWN BY: | MA |
| PAGE:  | 2 OF 2    | CHKD BY:  | DT |
| SCALE: | NTS       | APRVD BY: | DT |
| UNIT:  | mm [INCH] |           | Ⓟ  |