

### GENERAL SPECIFICATION

| Item                | Content  |
|---------------------|--|
| Number of Character | 128x64   |
| Module Size         | 110.0(W)x70.0(H)x14.5(D)mm Max                                 |
| Viewing Area        | 73.4(W)x38.8(H)mm  |
| Dot Size/Dot Pitch  | 0.50(W)x0.50(H)mm/0.52(W)x0.52(H)mm                            |
| Backlight           | LED  |
| Options             | Gray STN/Yellow STN/Normal/Extended Temperature/Bottom Viewing |
| Built-in Controller | KS0108 or compatible   |

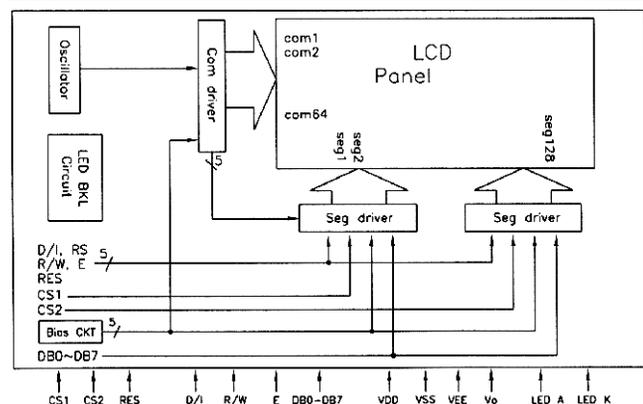
### INTERFACE PIN ASSIGNMENT

| Pin No. | Pin Out          | Function Description   |
|---------|------------------|--|
| 1       | V <sub>SS</sub>  | GND  |
| 2       | V <sub>DD</sub>  | Logic supply voltage   |
| 3       | V <sub>ADJ</sub> | Power supply for LCD panel, tuning from V <sub>DD</sub> -V <sub>EE</sub>   |
| 4       | D/I              | Data/Instruction<br>D/I=high: Indicates that data of DB0-DB7 is display data. D/I=low: Indicates that data of DB0-DB7 is instruction.  |
| 5       | R/W              | Read/Write<br>R/W=high: Data of DB0-DB7 can be read by CPU.<br>R/W=low: Data of DB0-DB7 can be written into LCD driver IC at the falling edge of E when CS1 and CS2 is high  |
| 6       | E                | Enable: When write (R/W=low): Data of DB0-DB7 is latched at the fall of E. When read(R/W=high): Data is read while E is at high level.   |
| 7-14    | DB0-DB7          | Data bus, 3-state I/O common terminal.   |
| 15      | CS1              | Chip-select for the left half of the display. Active high.   |
| 16      | CS2              | Chip-select for the right half of the display. Active high.  |
| 17      | RES              | Setting the RES signal to Low level can initialize the following registers.<br>1. ON/OFF register 0 set (Display off)<br>2. Display start line register 0 set (display starts from line 0). After releasing reset, this condition can be changed only by software. |
| 18      | V <sub>EE</sub>  | Power supply for LCD driving circuit.  |
| 19      | BKL <sub>A</sub> | Power supply for LED backlight. (Voltage of LED <sub>A</sub> -LED <sub>K</sub> =24.0V)   |
| 20      | BKL <sub>K</sub> |  |

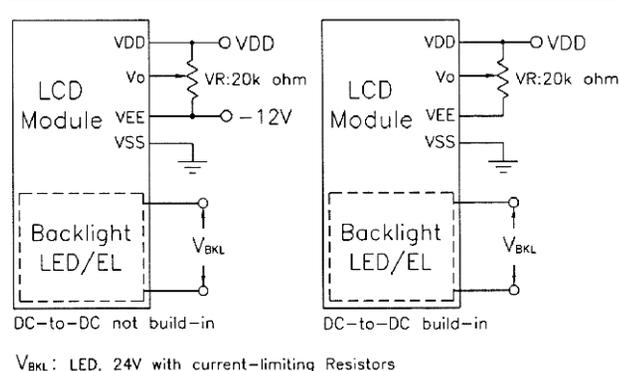
### ELECTRICAL CHARACTERISTICS

| Item                                     | Symbol  | Condition   | Min.                                  | Typ                                   | Max.              | Unit | note |    |   |
|--|---|---|---------------------------------------|---------------------------------------|-------------------|------|------|----|---|
| Power Supply for Logic                   | V <sub>DD</sub> -V <sub>SS</sub>  | -   | 4.5                                   | 5.0                                   | 5.5               | Volt | -    |    |   |
| Input Voltage                            | V <sub>IL</sub><br>V <sub>IH</sub>  | L level<br>H level  | V <sub>SS</sub><br>0.8V <sub>DD</sub> | 0.2V <sub>DD</sub><br>V <sub>DD</sub> | -                 |      |      |    |   |
| LCM Recommend LCD Module Driving Voltage | V <sub>DD</sub> -V <sub>ADJ</sub>   | Ta=0°C<br>Ta=25°C<br>Ta=50°C  | -<br>12.8<br>-                        | -<br>13.2<br>-                        | -<br>13.6<br>-    | Volt | -    |    |   |
| Power Supply Current for LCM             | I <sub>DD</sub> (LED B/L OFF)<br>I <sub>LED</sub> (LED B/L ON)<br>I <sub>EE</sub> | V <sub>DD</sub> =5.0V<br>Ta=25°C<br>V <sub>DD</sub> -V <sub>ADJ</sub> =13.2V<br>V <sub>LEDA</sub> -V <sub>LEDK</sub> =24V | -<br>-<br>-                           | 1.2<br>210<br>-                       | 1.8<br>250<br>2.5 |      |      | mA | - |

### BLOCK DIAGRAM



### POWER SUPPLY



### MECHANICAL

