

### GENERAL SPECIFICATION

| Item                | Content  |
|---------------------|--|
| Number of Character | 240x128  |
| Module Size         | 144.0(W)x104.0(H)x10.0/14.1(D)mm Max   |
| Viewing Area        | 114.0(W)x64.0(H)mm   |
| Dot Size/Dot Pitch  | 0.43(W)x0.43(H)mm/0.45(W)x0.45(H)mm  |
| Backlight           | Without/EL/LED   |
| Options             | Gray STN/Yellow STN/Black & White/Normal/Extended Temperature/Top/Bottom Viewing |
| Built-in Controller | <b>T6963C</b>  |

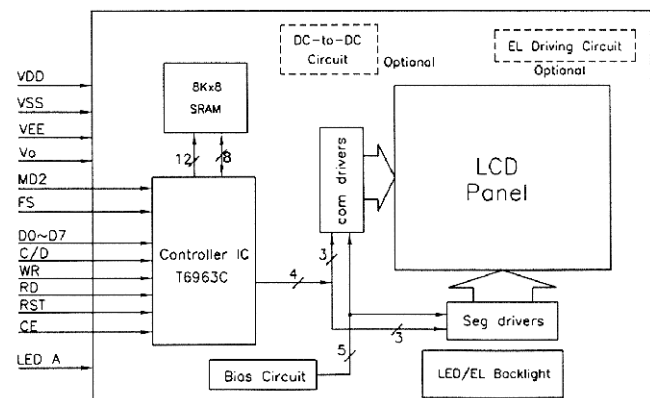
### INTERFACE PIN ASSIGNMENT

| Pin No. | Pin Out             | Function Description   |
|---------|---------------------|--|
| 1       | V <sub>SS</sub>     | GND  |
| 2       | V <sub>DD</sub>     | Logic supply voltage   |
| 3       | V <sub>O</sub>      | Bias voltage for LCD panel   |
| 4       | C/D                 | Command/Data register select   |
| 5       | RD                  | Read data  |
| 6       | WR                  | Write data   |
| 7-14    | DB0-DB7             | 3-state I/O Data Bus   |
| 15      | CE                  | Chip enable  |
| 16      | RES                 | Reset  |
| 17      | V <sub>EE</sub>     | LCD driver supply voltage  |
| 18      | MD2                 | H=32, L=40   |
| 19      | FS                  | Font select. H=6x8 dot matrix, L=8x8 dot matrix  |
| 20      | NC/LED <sub>A</sub> | No connection for reflective type or with EL NC/LED A backlight, anode of LED backlight, see the jumper explanation below. |

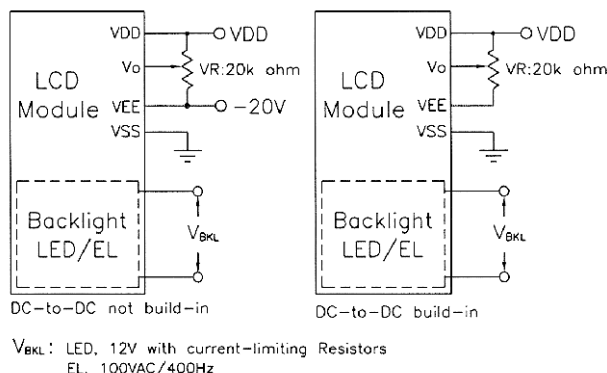
### ELECTRICAL CHARACTERISTICS

| 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>                  | L level   | V <sub>SS</sub>    | 0.2V <sub>DD</sub> | -    |      | -    |
|  | V <sub>IH</sub>                  | H level   | 0.8V <sub>DD</sub> | V <sub>DD</sub>    | -    |      |      |
| LCM Recommend LCD Module Driving Voltage | V <sub>DD</sub> -V <sub>EE</sub> | Ta=0°C  | -                  | -                  | -    | Volt | -    |
|  |                                  | Ta=25°C   | 18.0               | 18.3               | 18.6 |      |      |
|  |                                  | Ta=50°C   | -                  | -                  | -    |      |      |
| Power Supply Current for LCM             | I <sub>DD</sub>                  | V <sub>DD</sub> =5.0V<br>Ta=25°C                    | -                  | 15                 | 18   | mA   | -    |
|  | I <sub>EE</sub>                  | V <sub>DD</sub> -V <sub>EE</sub> =18.3V<br>FLM=64Hz | -                  | 3.0                | 3.5  |      |      |
|  | I <sub>LED</sub>                 | V <sub>LED</sub> =10.5V                             | -                  | 440                | 660  |      |      |

### BLOCK DIAGRAM



### POWER SUPPLY



### MECHANICAL

