

### GENERAL SPECIFICATION

| Item                | Content   |
|---------------------|---|
| Number of Character | 240x64  |
| Module Size         | 180.0(W)x65.0(H)x9.9/16.1(D)mm Max  |
| Viewing Area        | 132.0(W)x39.0(H)mm  |
| Dot Size/Dot Pitch  | 0.51(W)x0.51(H)mm/0.53(W)x0.53(H)mm   |
| Backlight           | Without/EL/LED  |
| Options             | Black & White Positive/Negative/Gray STN/Yellow STN/Wide Temperature/Top/Bottom Viewing |
| Built-in Controller | <b>T6963C</b>   |

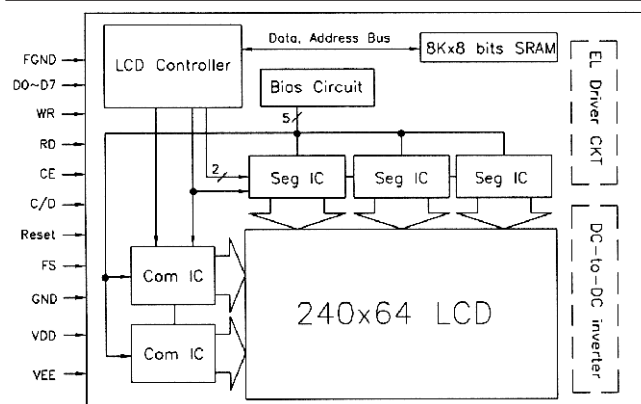
### INTERFACE PIN ASSIGNMENT

| Pin No. | Pin Out         | Function Description                            |
|---------|-----------------|---|
| 1       | FGND            | Frame Ground                                    |
| 2       | V <sub>SS</sub> | GND   |
| 3       | V <sub>DD</sub> | Logic supply voltage                            |
| 4       | V <sub>EE</sub> | LCD driver supply voltage                       |
| 5       | WR              | Write Data                                      |
| 6       | RD              | Read Data                                       |
| 7       | CE              | Chip Enable                                     |
| 8       | C/D             | Common/Data Register select                     |
| 9       | NC              | No connection                                   |
| 10      | RES             | Reset   |
| 11~18   | DB0~DB7         | data bus  |
| 19      | FS              | Font select. H=6x8 dot matrix, L=8x8 dot matrix |
| 20      | NC              | No connection                                   |

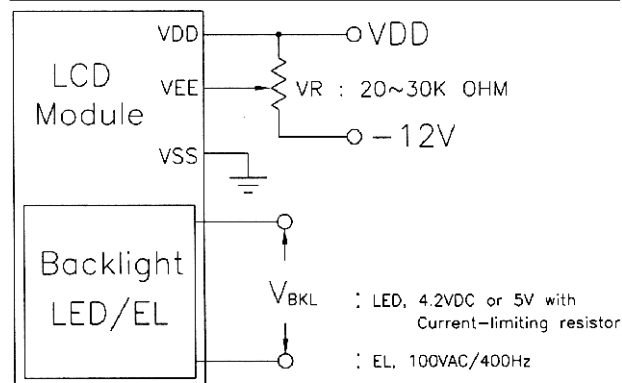
### ELECTRICAL CHARACTERISTICS

| 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  | 12.4               | 12.8               | 13.2 |      |      |
|  |                                  | Ta=50°C  | -                  | -                  | -    |      |      |
| Power Supply Current for LCM             | I <sub>DD</sub> (EL B/L OFF)     | V <sub>DD</sub> =5.0V<br>V <sub>DD</sub> -V <sub>EE</sub> =12.8V<br>FLM=64Hz | -                  | 12                 | 15   | mA   | -    |
|  | I <sub>EE</sub>                  | -  | -                  | 1.5                | 3.0  |      |      |
|  | I <sub>LED</sub>                 | V <sub>LED</sub> =4.2V   | -                  | 660                | 990  |      |      |

### BLOCK DIAGRAM



### POWER SUPPLY



### MECHANICAL

