

### ABSOLUTE MAXIMUM RATINGS

| Item                  | Symbol                            | Min. | Max.                  | Unit |
|-----------------------|-----------------------------------|------|-----------------------|------|
| Supply Voltage(Logic) | V <sub>DD</sub> - V <sub>SS</sub> | -0.3 | 7.0                   | V    |
| Supply Voltage(LCD)   | V <sub>DD</sub> - V <sub>EE</sub> | -0.3 | 28.0                  | V    |
| Input Voltage         | V <sub>I</sub>                    | -0.3 | V <sub>DD</sub> + 0.3 | V    |
| Operating Temp.       | T <sub>opr</sub>                  | -20  | 70                    | °C   |
| Storage Temp.         | T <sub>stg</sub>                  | -30  | 80                    | °C   |

### MECHANICAL DATA

| Item                      | Nominal Dimensions | Unit |
|---------------------------|--------------------|------|
| Module Size ( W x H x T ) | 129.0 x102.0 x13.0 | mm   |
| Viewing Area ( W x H )    | 101.0 x82.0        | mm   |
| Dot Pitch ( W x H )       | 0.58 x 0.58        | mm   |
| Dot Size( W x H )         | 0.54 x 0.54        | mm   |
| Weight                    | Approx. 190        | g    |

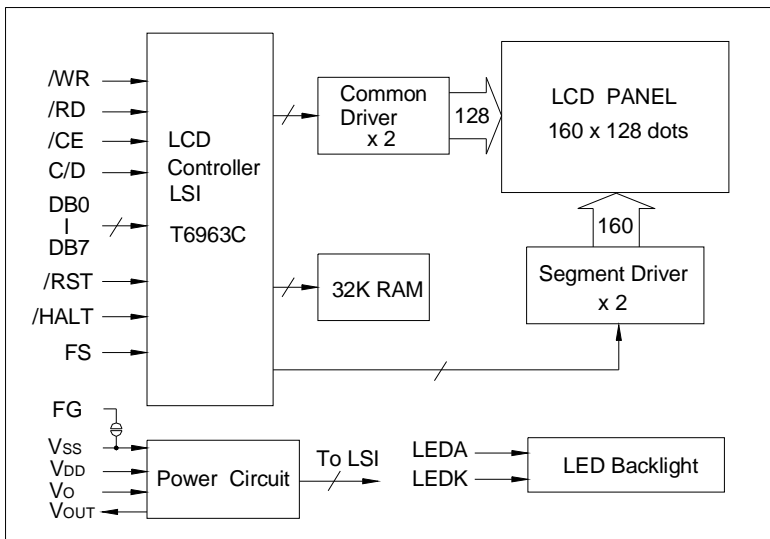
### ELECTRICAL CHARACTERISTICS ( V<sub>DD</sub>=5V±0.25V )

| Item                | Symbol                           | Test Condition         | Min.                 | Typ. | Max.            | Unit |
|---------------------|----------------------------------|------------------------|----------------------|------|-----------------|------|
| Input High Voltage  | V <sub>IH</sub>                  | --                     | V <sub>DD</sub> -2.2 | --   | V <sub>DD</sub> | V    |
| Input Low Voltage   | V <sub>IL</sub>                  | --                     | - 0.3                | --   | 0.8             | V    |
| Output High Voltage | V <sub>OH</sub>                  | --                     | V <sub>DD</sub> -0.3 | --   | V <sub>DD</sub> | V    |
| Output Low Voltage  | V <sub>OL</sub>                  | --                     | 0                    | --   | 0.3             | V    |
| Supply Current      | I <sub>DD</sub>                  | V <sub>DD</sub> = 5.0V | --                   | 16.0 | 22.0            | mA   |
| LCD Driving Voltage | V <sub>DD</sub> - V <sub>O</sub> | T <sub>a</sub> =25°C   | --                   | 18.6 | --              | V    |

### PIN CONNECTIONS

| Pin | Symbol           | Level | Function                        |
|-----|------------------|-------|---------------------------------|
| 1   | FG               | --    | Frame ground                    |
| 2   | Vss              | 0V    | GND                             |
| 3   | VDD              | +5V   | Power supply for logic          |
| 4   | V <sub>O</sub>   | --    | Operating Voltage for LCD       |
| 5   | V <sub>OUT</sub> | -15V  | Output voltage for LCD driving  |
| 6   | /WR              | L     | Write signal, active "L"        |
| 7   | /RD              | L     | Read signal, active "L"         |
| 8   | /CE              | L     | Chip enable signal, active "L"  |
| 9   | C/D              | H/L   | L : Data H : Instruction Code   |
| 10  | /HALT            | H/L   | H : Normal L : Stops osc. clock |
| 11  | /RST             | L     | Reset signal, active "L"        |
| 12  | DB0              | H/L   | Data bus line                   |
| 13  | DB1              | H/L   |                                 |
| 14  | DB2              | H/L   |                                 |
| 15  | DB3              | H/L   |                                 |
| 16  | DB4              | H/L   |                                 |
| 17  | DB5              | H/L   |                                 |
| 18  | DB6              | H/L   |                                 |
| 19  | DB7              | H/L   |                                 |
| 20  | FS               | H/L   | Font selection L: 8x8, H: 6x8   |

### BLOCK DIAGRAM



### LED BACKLIGHT SPECIFICATIONS (T<sub>a</sub>=25°C)

| Item            | Symbol         | Typ.  | Max. | Unit |
|-----------------|----------------|-------|------|------|
| Forward Voltage | V <sub>f</sub> | 3.1   | 3.3  | V    |
| Forward Current | I <sub>f</sub> | 120   | --   | mA   |
| LED Color       |                | White |      |      |