

## ABSOLUTE MAXIMUM RATINGS

| Item                  | Symbol            | Min. | Max.           | Unit |
|-----------------------|-------------------|------|----------------|------|
| Supply Voltage(Logic) | $V_{DD} - V_{SS}$ | -0.3 | 6.0            | V    |
| Supply Voltage(LCD)   | $V_{DD} - V_O$    | -0.3 | 30.0           | V    |
| Input Voltage         | $V_i$             | -0.3 | $V_{DD} + 0.3$ | V    |
| Operating Temp.       | $T_{opr}$         | -20  | 70             | °C   |
| Storage Temp.         | $T_{stg}$         | -30  | 80             | °C   |

## MECHANICAL DATA

| Item                      | Nominal Dimensions   | Unit |
|---------------------------|----------------------|------|
| Module Size ( W x H x T ) | 139.0 x 106.0 x 13.0 | mm   |
| Viewing Area ( W x H )    | 103.0 x 79.0         | mm   |
| Dot Pitch ( W x H )       | 0.30 x 0.30          | mm   |
| Dot Size ( W x H )        | 0.27 x 0.27          | mm   |
| Weight                    | Approx. 175          | g    |

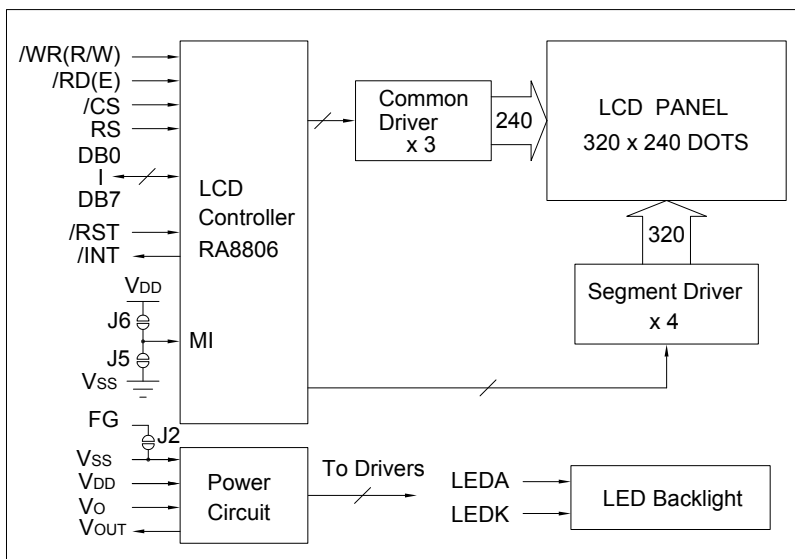
## ELECTRICAL CHARACTERISTICS ( $V_{DD}=3.3V$ to $5.0V$ )

| Item                | Symbol         | Test Condition   | Min.        | Typ. | Max.        | Unit |
|---------------------|----------------|------------------|-------------|------|-------------|------|
| Input High Voltage  | $V_{IH}$       | --               | $0.8V_{DD}$ | --   | $V_{DD}$    | V    |
| Input Low Voltage   | $V_{IL}$       | --               | 0           | --   | $0.2V_{DD}$ | V    |
| Supply Current      | $I_{DD}$       | $V_{DD} = 5.0V$  | --          | 30.0 | 60.0        | mA   |
|                     |                | $V_{DD} = 3.3V$  | --          | 40.0 | 70.0        | mA   |
| LCD Driving Voltage | $V_{DD} - V_O$ | $T_a=25^\circ C$ | --          | 22.7 | --          | V    |

## PIN CONNECTIONS (CN1/CN2)

| Pin | Symbol    | Level   | Function                        |
|-----|-----------|---------|---------------------------------|
| 1   | $V_{SS}$  | 0V      | GND                             |
| 2   | $V_{DD}$  | 3.3V-5V | Power supply for logic          |
| 3   | $V_O$     | --      | Operating voltage for LCD       |
| 4   | RS        | H/L     | L : Data H : Instruction code   |
| 5   | /WR(R/W)  | H/L     | /WR for 80 MPU, R/W for 68 MPU  |
| 6   | /RD(E)    | H/L     | /RD for 80 MPU, E for 68 MPU    |
| 7   | DB0       | H/L     | Data bus                        |
| 8   | DB1       | H/L     |                                 |
| 9   | DB2       | H/L     |                                 |
| 10  | DB3       | H/L     |                                 |
| 11  | DB4       | H/L     |                                 |
| 12  | DB5       | H/L     |                                 |
| 13  | DB6       | H/L     |                                 |
| 14  | DB7       | H/L     |                                 |
| 15  | /CS       | L       | Chip enable signal. Active "L". |
| 16  | /RST      | L       | Reset signal. Active "L".       |
| 17  | $V_{OUT}$ | -22V    | Output voltage for LCD driving  |
| 18  | INT       | H/L     | Interrupt signal output         |
| 19  | LEDA      | 5V      | Power supply for LED backlight  |
| 20  | LEDK      | 0V      |                                 |

## BLOCK DIAGRAM



## LED BACKLIGHT SPECIFICATIONS ( $T_a=25^\circ C$ )

| Item            | Symbol | Typ.  | Max. | Unit |
|-----------------|--------|-------|------|------|
| Forward Voltage | $V_f$  | 3.1   | 3.3  | V    |
| Forward Current | $I_f$  | 105   | --   | mA   |
| LED Color       |        | White |      |      |