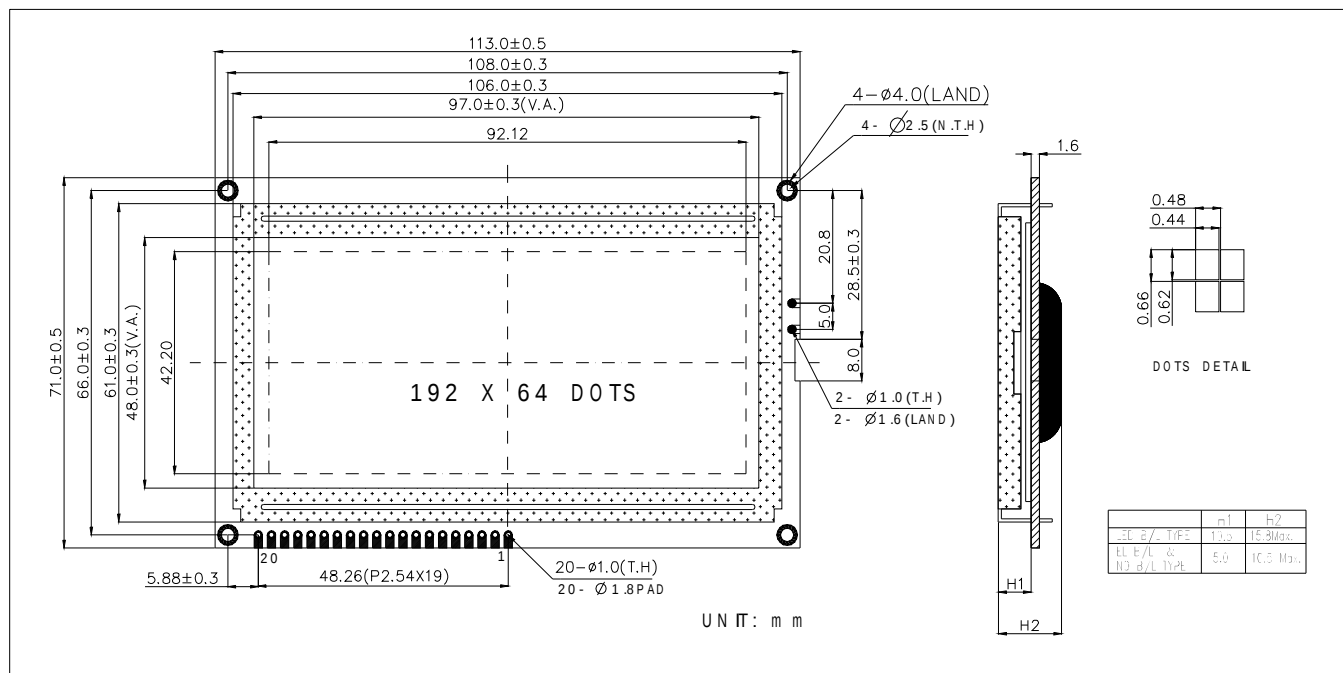
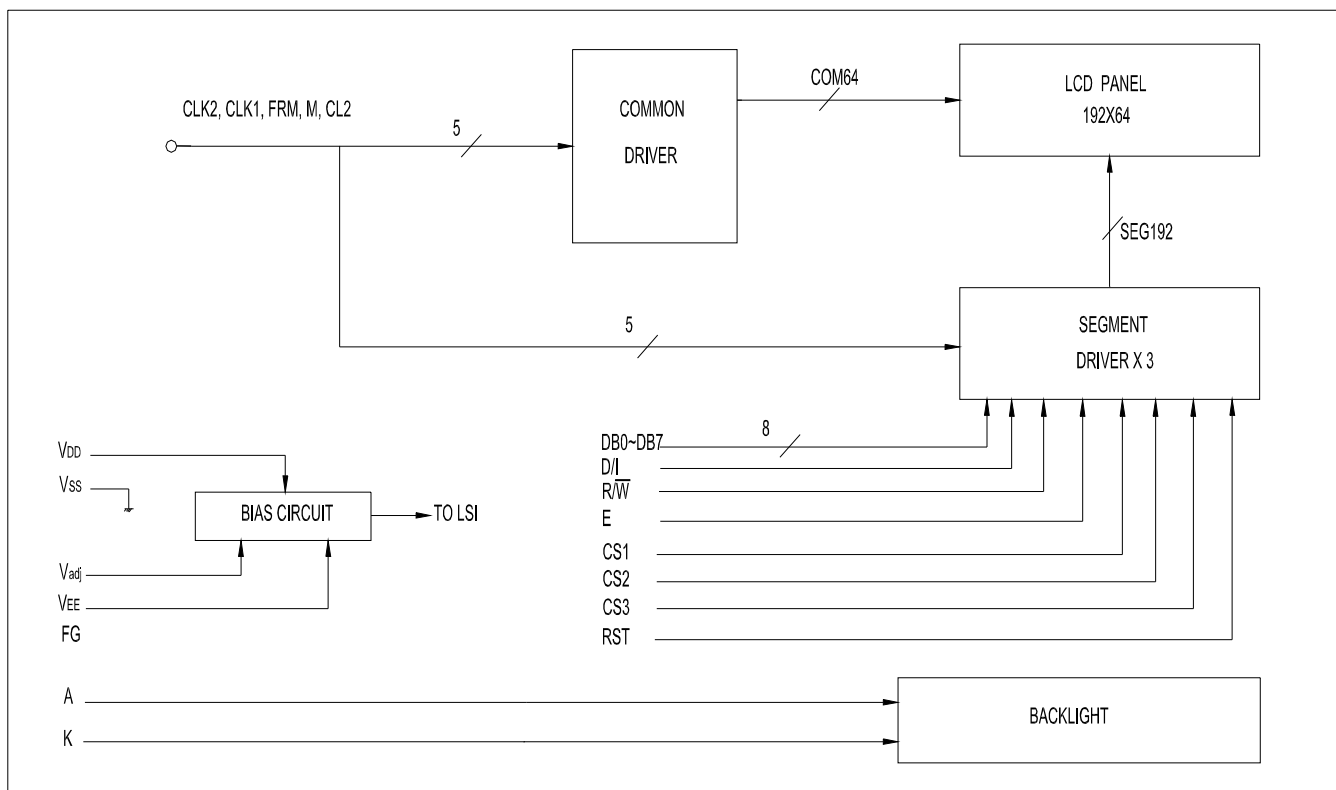


## 1.0 DIMENSIONAL DRAWING



## 2.0 BLOCK DIAGRAM



## 3.0 ELECTRICAL CHARACTERISTICS Ta=25 °C V<sub>DD</sub>=5.0V±0.25V

| Item                          | Symbol          | Test Condition | Standard Value |      |      |      |
|-------------------------------|-----------------|----------------|----------------|------|------|------|
|                               |                 |                | Min.           | Typ. | Max. | Unit |
| Power Supply Voltage          | $V_{DD}-V_{SS}$ | 25°C           | 4.5            | 5.0  | 5.5  | V    |
| LCD Operation Voltage         | $V_{OP}$        |                | -              | 9.0  | -    | V    |
| LCM Current Consumption       | $I_{DD}$        |                | -              | 5.0  | 7.5  | mA   |
| Backlight Forward Voltage(EL) | $V_F$           |                | -              | -    | -    | ACV  |

#### 4.0 ABSOLUTE MAXIMUM RATINGS

| Item                   | Symbol          | Test Condition | Standard Value |              |      |
|------------------------|-----------------|----------------|----------------|--------------|------|
|                        |                 |                | Min.           | Max.         | Unit |
| Supply Voltage (Logic) | $V_{DD}-V_{SS}$ | 25°C           | -0.3           | 7.0          | V    |
| Supply Voltage (LCD)   | $V_{DD}-V_O$    |                | 0              | 14           | V    |
| Input Voltage          | $V_{IN}$        |                | -0.3           | $V_{DD}+0.3$ | V    |
| Operating Temp.        | $T_{OPR}$       | -              | 0              | 50           | °C   |
| Storage Temp.          | $T_{STG}$       | -              | -20            | 70           | °C   |

#### 5.0 PIN ASSIGNMENT

| PIN No. | Symbol          | Description                              |
|---------|-----------------|------------------------------------------|
| 1       | Vss             | Ground                                   |
| 2       | V <sub>DD</sub> | supply voltage for logic and LCD         |
| 3       | Vo              | Operating voltage for LCD                |
| 4       | D/I             | H: Data Input, L: Instruction Code Input |
| 5       | R/W             | Read/Write selection ,H: Read, L: Write  |
| 6       | E               | Enable signal                            |
| 7~14    | DB0-DB7         | Data bus                                 |
| 15      | CS1             | Chip Selection for IC1                   |
| 16      | CS2             | Chip Selection for IC2                   |
| 17      | CS3             | Chip Selection for IC3                   |
| 18      | RST             | Reset signal                             |
| 19      | Vout            | Output Voltage for LCD driving           |
| 20      | NC              | No connection                            |

#### Remark

1. LCD option: STN, FSTN .
2. Standard module.
3. Backlight option: EL backlight feature, other specs not available on catalog is under request.