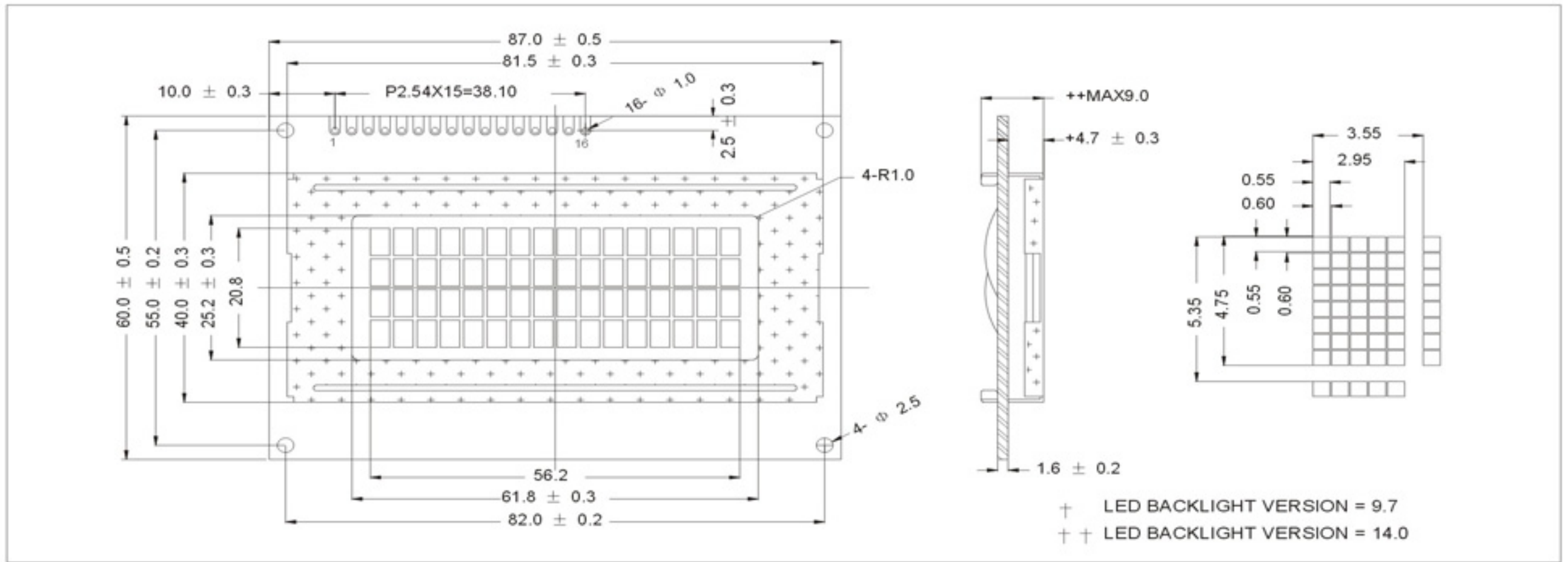


YMS164-01

16CHAR x 4LINE
1/16DUTY, 1/5BIAS

1 EXTERNAL DIMENSION AND DISPLAY PATTERN



2 MECHANICAL DATA

| ITEM | SPECIFICATION | UNIT |
|----------------------|------------------------------|------|
| Module Size(WXHXT) | 87.0 x 60.0 x 9.0 (LED:14.0) | mm |
| Viewing Area(WXH) | 61.8 x 25.2 | mm |
| Character Font(WXH) | 5 x 7 with Cursor | dots |
| Character Size(WXH) | 2.95 x 4.75 | mm |
| Character Pitch(WXH) | 3.55 x 5.35 | mm |
| Dot Size(WXH) | 0.55 x 0.55 | mm |

5 ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | MIN. | MAX. | UNIT |
|-----------------------|-----------------|------|--------------|------|
| Supply Voltage Logic | $V_{DD}-V_{SS}$ | -0.3 | 7.0 | V |
| Supply Voltage Driver | $V_{DD}-V_{EE}$ | -0.3 | 13.5 | V |
| Input Voltage | V_{IH} | -0.3 | $V_{DD}+0.3$ | V |
| Operating Temp. | See page 9 | | | |
| Storage Temp. | | | | |

3 PIN CONFIGURATION

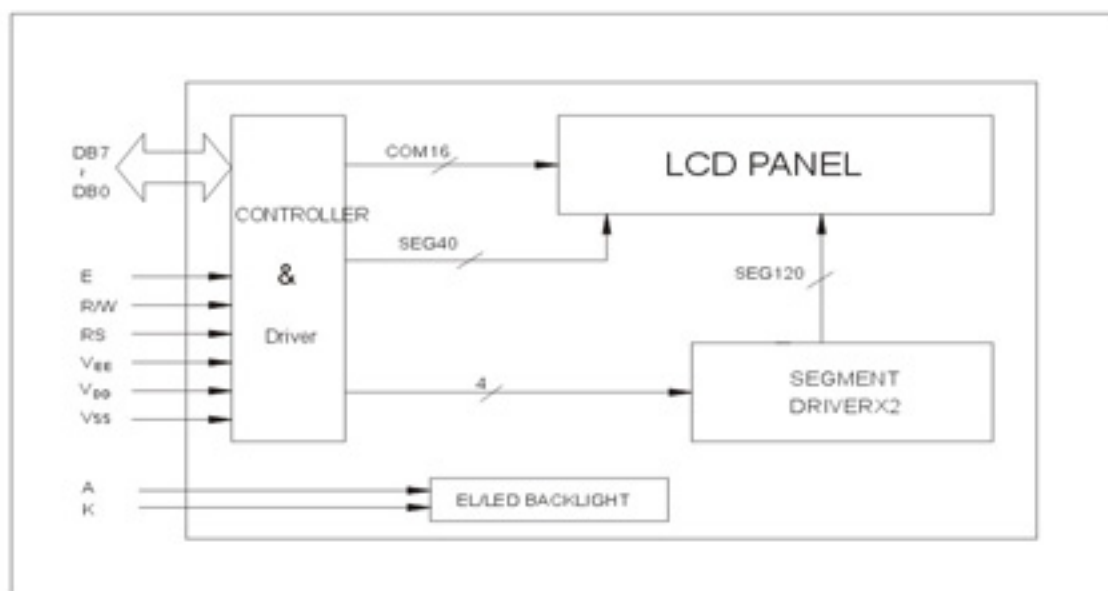
| PIN | SYMBOL | SIGNAL DESCRIPTION |
|---------|------------------------------------|--------------------------------------------------------------------------------------------|
| 1 | V_{SS} | GND(0V) |
| 2 | V_{DD} | Power Supply(5V) |
| 3 | V_{EE} | Supply Voltage LCD Driver |
| 4 | RS | Register Select-LOW=Instruction,HIGH=Data |
| 5 | R/W | Read/Write LOW=MPU to LCM,HIGH=LCM to MPU |
| 6 | E | Eable R/W=LOW:Data are talking over at falling edge R/W=HIGH:Data can be read at E=1 |
| 7 to 14 | DB ₀ to DB ₇ | Data Bus-Software Selectable 4 or 8bit Mode |
| 15 | A | Anode of LED Unit |
| 16 | K | Cathode of LED Unit |

6 ELECTRICAL CHARACTERISTICS(Ta=25 °C)

| ITEM | SYMBOL | CONDITION | SPEC. VALUE | | | UNIT |
|--------------------------|-----------------|-----------------------------------------------|----------------|------|----------|------|
| | | | MIN. | TYP. | MAX. | |
| Supply Voltage (Logic) | $V_{DD}-V_{SS}$ | | 4.5 | 5.0 | 5.5 | V |
| Supply Current (Logic) | I_{DD} | $V_{DD}=5V$ | - | 0.8 | 2.0 | mA |
| Input Voltage | "HIGH" | V_{IH} | - | - | V_{DD} | V |
| | "LOW" | V_{IL} | - | -0.3 | 0.6 | V |
| Output Voltage | "HIGH" | V_{OH} | $I_{OH}=0.2mA$ | 2.4 | - | V |
| | "LOW" | V_{OL} | $I_{OL}=1.2mA$ | - | 0.4 | V |
| LCD Operating Voltage | $V_{DD}-V_{EE}$ | $V_{DD}=5V$ $T_a=25\text{ }^\circ\text{C}$ | 4.5 | 4.7 | 5.0 | V |
| Supply Voltage LCD Drive | I_{EE} | | - | 1.0 | 1.5 | mA |

Note(1): ()Value is high Reliability type
Note(2): Electro-Optical Characteristics:See page 9.

4 BLOCK DIAGRAM



7 BACKLIGHTING CHARACTERISTICS(Ta=25 °C)

| ITEM | SYMBOL | CONDITION | MIN. | TYP. | MAX. | UNIT |
|-------------------|-----------|---------------------|------|------|------|-------------------|
| Supply Voltage | V_{LED} | - | - | 4.2 | 4.6 | V |
| Power Consumption | P_{LED} | $I_F=200\text{ mA}$ | - | 840 | - | mW |
| Luminous | I_V | $I_F=200\text{ mA}$ | - | 80 | - | cd/m ² |