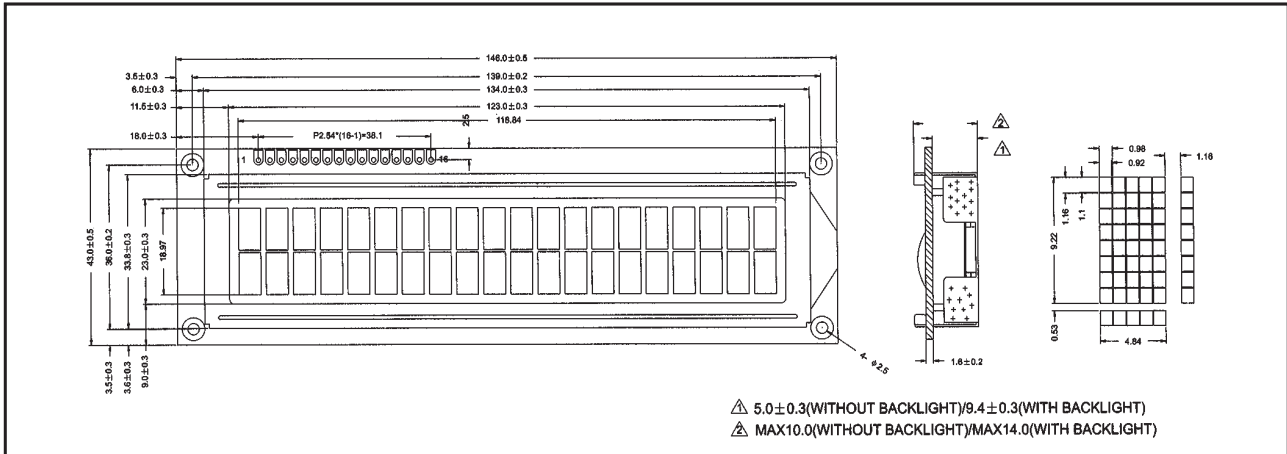


STANDARD CHARACTER MODULES

YMC 202-16

20 CHAR x 2 LINE, 1/16 DUTY, 1/5 BIAS

EXTERNAL DIMENSION AND DISPLAY PATTERN



MECHANICAL DATA

| ITEM | SPECIFICATION | UNIT |
|-------------------------|--------------------------|------|
| Module Size (W x H x T) | 146.0 x 43.0 x 14.0/10.0 | mm |
| Viewing Area (W x H) | 123.0 x 23.0 | mm |
| Character Font (W x H) | 5.0 x 7.0 with cursor | dots |
| Character Size (W x H) | 4.84 x 9.22 | mm |
| Dot Size (W x H) | 0.92 x 1.1 | mm |

ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | MIN. | MAX. | UNIT |
|-----------------------|-------------------|----------------|-----------------|------|
| Supply Voltage Logic | $V_{DD} - V_{SS}$ | -0.3 | 7.0 | V |
| Supply Voltage Drive | $V_{DD} - V_{EE}$ | $V_{DD} + 0.3$ | $V_{DD} - 13.5$ | V |
| Input Voltage | V_{IN} | -0.3 | $V_{DD} + 0.3$ | V |
| Operating Temperature | | See page 8 | | |
| Storage Temperature | | See page 8 | | |

PIN CONFIGURATION

| PIN | SYMBOL | SIGNAL DESCRIPTION |
|---------|------------------------------------|---|
| 1 | V_{SS} | GND (0 V) |
| 2 | V_{DD} | Power Supply (+5.0V) |
| 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 | Enable 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 8 bit Mode |
| 15 | A | Anode of LED Unit |
| 16 | K | Cathode of LED Unit |

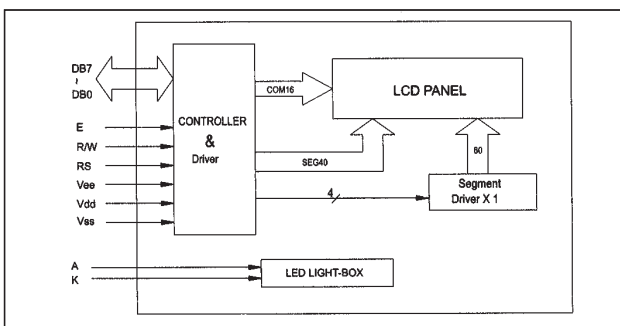
ELECTRICAL CHARACTERISTICS, $T_a = 25^\circ\text{C}$

| ITEM | SYMBOL | CONDITION | SPEC. VALUE | | | UNIT |
|--------------------------|-------------------|--|------------------|------|--------------|------|
| | | | MIN. | TYP. | MAX. | |
| Supply Voltage (Logic) | $V_{DD} - V_{SS}$ | | 4.5 | 5.0 | | V |
| Supply Current (Logic) | I_{DD} | $V_{DD} = 5V$ | | 0.8 | 4.5 | mA |
| Input Voltage | HIGH | V_{IH} | 2.2 | | 0.3 | V |
| | LOW | V_{IL} | -0.3 | | $0.3 V_{DD}$ | V |
| Output Voltage | HIGH | V_{OH} | $I_{OH} = 1.2mA$ | 2.4 | | V |
| | LOW | V_{OL} | $I_{OL} = 1.2mA$ | | 0.4 | V |
| LCD Operating Voltage | $V_{DD} - V_{EE}$ | $V_{DD} = 5V$ $T_a = +25^\circ\text{C}$ | | 4.2 | 4.7 | V |
| Supply Current LCD Drive | I_{EE} | | | 1.0 | 1.5 | mA |

Note (1): Value is high reliability type.

Note (2): Electro-Optical Characteristics: See page 5.

BLOCK DIAGRAM



BACKLIGHTING CHARACTERISTICS, $T_a = 25^\circ\text{C}$, LED

| ITEM | SYMBOL | CONDITION | SPEC. VALUE | | | UNIT |
|-------------------|-----------|-----------|-------------|------|------|------|
| | | | MIN. | TYP. | MAX. | |
| Supply Voltage | V_{LED} | | 3.0 | 3.2 | 3.5 | V |
| Power Consumption | P_{LED} | | | | 140 | mW |