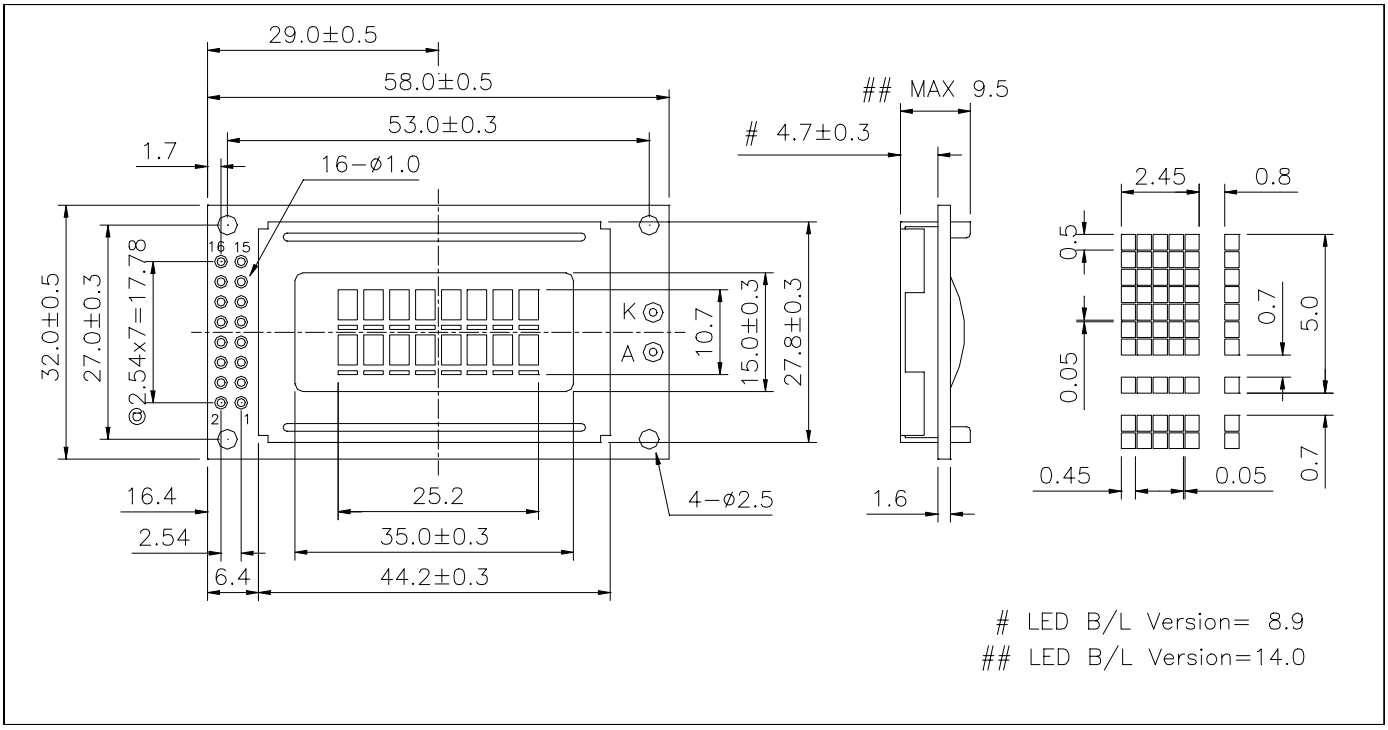
# LC0821 8 characters x 2 lines




## ABSOLUTE MAXIMUM RATINGS

| Item | Symbol | Min. | Max. | Unit |
|---|---|---|---|---|
| Supply Voltage(Logic) | $V_{DD}$ - $V_{SS}$ | -0.3 | 7.0 | V |
| Supply Voltage(LCD) | $V_{DD}$ - $V_O$ | -0.3 | 13.0 | 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 ) | 58.0 x 32.0 x 9.5/14.0 | mm |
| Viewing Area ( W x H ) | 35.0 x 15.0 | mm |
| Character Size ( W x H ) | 2.45 x 5.0 | mm |
| Dot Size ( W x H ) | 0.45 x 0.5 | mm |
| Weight (Reflective/LED) | Approx. 20 / 26 | g |

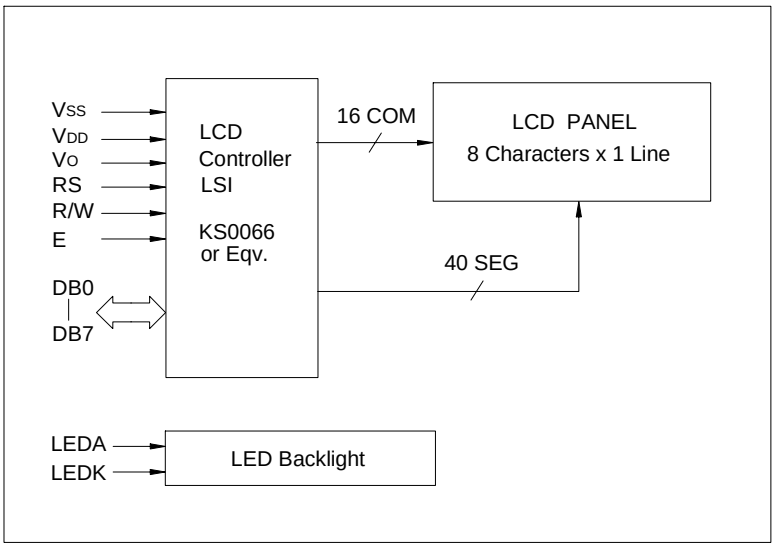
## ELECTRICAL CHARACTERISTICS ( $V_{DD}$=5V±0.25V )

| Item | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Input High Voltage | $V_{IH}$ | -- | 2.2 | -- | $V_{DD}$ | V |
| Input Low Voltage | $V_{IL}$ | -- | - 0.3 | -- | 0.6 | V |
| Output High Voltage | $V_{OH}$ | $I_{OH}$ = - 0.2mA | 2.4 | -- | $V_{DD}$ | V |
| Output Low Voltage | $V_{OL}$ | $I_{OL}$ = 1.2mA | 0 | -- | 0.4 | V |
| Supply Current | $I_{DD}$ | $V_{DD}$ = 5.0V | -- | 1.2 | 3.0 | mA |
| LCD Driving Voltage | $V_{DD}$ - $V_O$ | Ta=25˚C | -- | 5.0 | -- | V |

## PIN CONNECTIONS

| Pin | Symbol | Level | Function |
|---|---|---|---|
| 1 | $V_{SS}$ | 0V | GND |
| 2 | $V_{DD}$ | +5V | Power supply for logic |
| 3 | $V_O$ | -- | Operating voltage for LCD |
| 4 | RS | H/L | H : Data<br>L : Instruction code |
| 5 | R/W | H/L | H : Read<br>L : Write |
| 6 | E | H,H➔L | Enable signal |
| 7 | DB0 | H/L | In 8-bit bus mode, used as low order bidirectional data bus.<br>In 4-bit bus mode, open these pins. |
| 8 | DB1 | H/L | |
| 9 | DB2 | H/L | |
| 10 | DB3 | H/L | |
| 11 | DB4 | H/L | In 8-bit bus mode, used as high order bidirectional data bus.<br>In 4-bit bus mode, used as both high and low order data bus. |
| 12 | DB5 | H/L | |
| 13 | DB6 | H/L | |
| 14 | DB7 | H/L | |
| 15 | LEDA | +5V | Power supply for LED backlight |
| 16 | LEDK | 0V | |

## BLOCK DIAGRAM




## LED BACKLIGHT SPECIFICATIONS (Ta=25˚C)

| Item | Symbol | Typ. | Max. | Unit |
|---|---|---|---|---|
| Forward Voltage | $V_f$ | 4.1 | 4.3 | V |
| Forward Current | $I_f$ | 60 | -- | mA |
| Emission Wave Length | $\lambda_p$ | 568 | -- | nm |