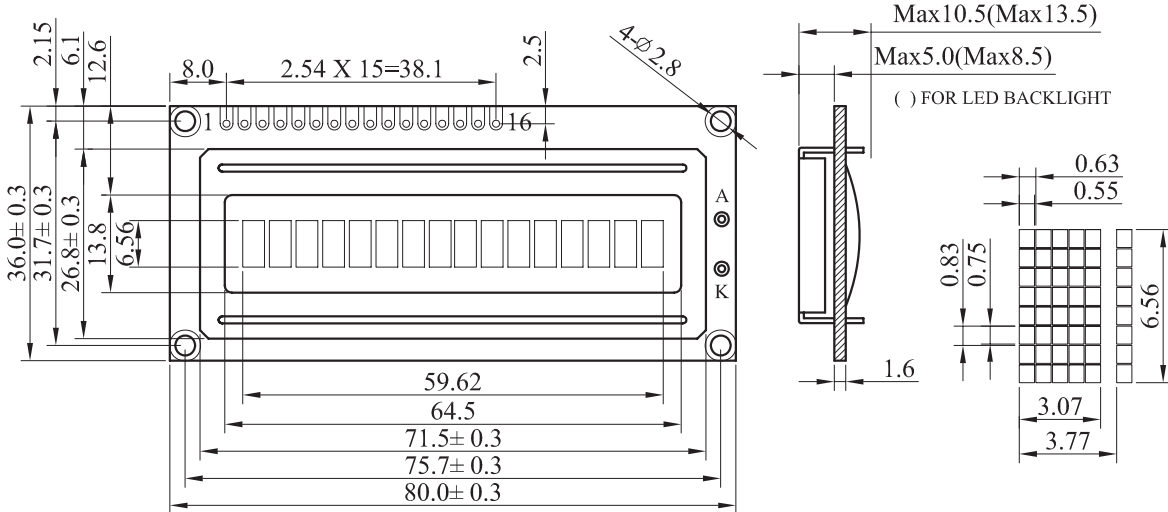


**Character Type LCD Module**

KLS9-1601D 16 Characters x 1 Line 1/16 duty 1/5 bias  
Yellow-Green or Blue mode STN Transflective



**ABSOLUTE MAXIMUM RATINGS**

| Item                  | Symbol    | Min. | Max.      | Unit |
|-----------------------|-----------|------|-----------|------|
| Supply Voltage(Logic) | Vdd - Vss | -0.3 | 7.0       | V    |
| Supply Voltage(LCD)   | Vdd - V0  | -0.3 | 5.0       | V    |
| Input Voltage         | Vi        | -0.3 | Vdd + 0.3 | V    |
| Operating Temp.       | Topr      | 0    | 50        | °C   |
| Storage Temp.         | Tstg      | -10  | 60        | °C   |

**MECHANICAL DATA**

| Item                    | Max.                    | Unit |
|-------------------------|-------------------------|------|
| Module Size (W X H X T) | 80.0 X 36.0 X 10.5/13.5 | mm   |
| Viewing Area(W X H)     | 64.5 X 13.8             | mm   |
| Character Size(W X H)   | 3.07 X 6.56             | mm   |
| Dot Size(W X H)         | 0.55 X 0.75             | mm   |
| View Angle              | 6 or 12 O'Clock         |      |

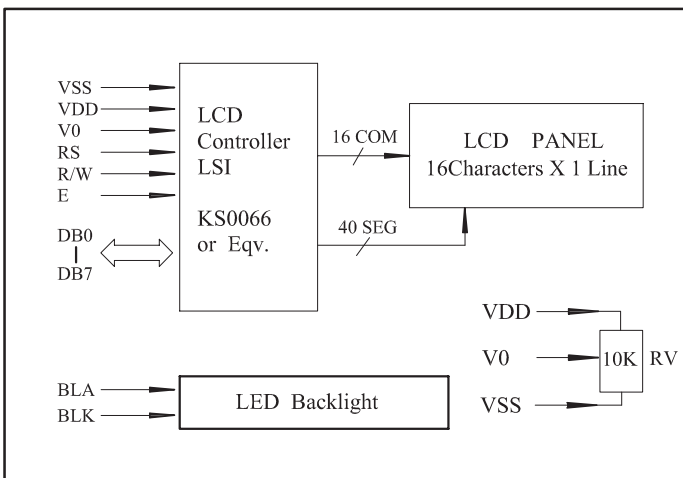
**ELECTRICAL CHARACTERISTICS (Vdd=5V± 0.25V)**

| Item                | Symbol   | Test Condition | Min. | Typ. | Max. | Unit |
|---------------------|----------|----------------|------|------|------|------|
| Input High Voltage  | Vih      | --             | 2.0  | --   | Vdd  | V    |
| Input Low Voltage   | Vil      | --             | -0.3 | --   | 0.8  | V    |
| Output High Voltage | Voh      | Ioh=-0.2mA     | 2.4  | --   | Vdd  | V    |
| Output Low Voltage  | Vol      | Iol=-1.6mA     | 0    | --   | 0.4  | V    |
| Supply Current      | Idd      | Vdd=5.0V       | --   | 1.5  | 3.0  | mA   |
| LCD Driving Voltage | Vdd - V0 | Ta=25 °C       | --   | 4.7  | --   | V    |

**PIN CONNECTIONS**

| Pin | Symbol | Level | Function                       |
|-----|--------|-------|--------------------------------|
| 1   | VSS    | 0V    | Power GND                      |
| 2   | VDD    | +5V   | Power supply for logic         |
| 3   | V0     | --    | Operation 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/L   | Enable signal                  |
| 7   | DB0    | H/L   | Data bus line                  |
| 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  | BLA    | +5V   | Power supply for LED backlight |
| 16  | BLK    | 0V    |                                |

**BLOCK DIAGRAM**



**LCD Type**

| LCD Color    | Backlight                      |
|--------------|--------------------------------|
| Yellow Green | LED/Yellow Green/4.2V (<200mA) |
| Blue         | LED/White /3.2V (<100mA)       |