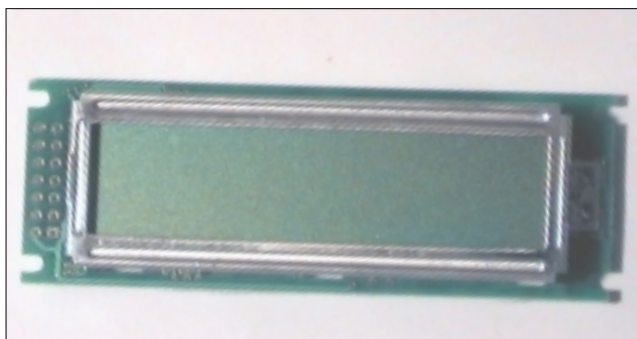
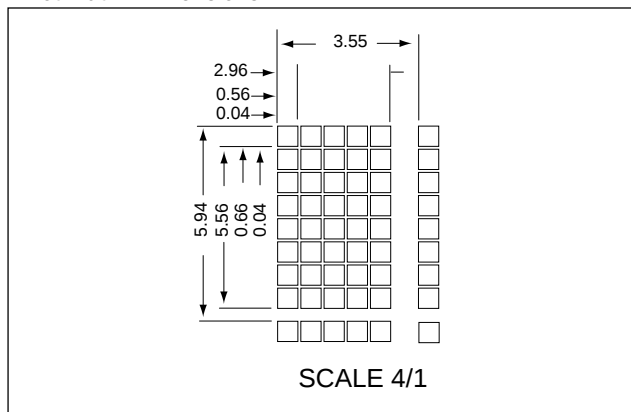




Features

- 5 x 7 Dots with cursor
- Built-in controller (HD44780U or equivalent)
- 5V Power supply
- 1/16 Duty cycle
- 4.2V LED Forward voltage

- Dot Matrix Dimensions



Mechanical Characteristics

Item	Specification	Unit
Outline Dimensions	85.0 (H) x 30.0 (V) x 8.8 (D) (12.7 LED)	mm
Character Size	2.96 (H) x 5.56 (V)	mm
Character Pitch	3.55 (H) x 5.94 (V)	mm
Viewing Area	65.0 (H) x 16.0 (V)	mm
Dot Size	0.56 (H) x 0.66 (V)	mm
Dot Pitch	0.60 (H) x 0.70 (V)	mm

Absolute Maximum Ratings

Item	Symbol	Rating	Unit
Supply Voltage	V_{DD}	7.0	V
Input Voltage	V_{IN}	$0 \leq V_{IN} \leq V_{DD}$	V

AND481GST/GST-LED

2 Lines x 16 Characters Intelligent Character Display

The AND481GST/GST-LED devices are compact, LCD modules that have an on-board LCD controller and driver circuit. These devices can display 160 characters (numerals, letters, symbols and Kana letters), as well as eight custom characters.

Absolute Maximum Ratings (Continued)

Item	Symbol	Rating	Unit
LED Forward Current	I_F	200	mA
LED Reverse Voltage	V_R	8	V
LED Power Dissipation	P_D	920	mW
Operating Temperature	T_{op}	0 to +50	°C
Storage Temperature	T_{stg}	-20 to +60	°C

Electrical Characteristics (TA = 25°C)

Item	Symbol	Cond.	Min.	Typ.	Max.	Unit
LCD Operating Voltage	$V_{DD}-V_O$	T=0 °C	-	4.8	-	V
		T=25 °C	-	4.5	-	
		T=50 °C	-	4.2	-	
Supply Voltage	$V_{DD}-V_{SS}$	-	4.7	5	5.3	V
Supply Current	I_{DD}	-	-	3.2	6	mA
Input Voltage	"High" Level	V_{IH}	-	2.2	-	V
	"Low" Level	V_{IL}	-	0	-	
Output Voltage	"High" Level	V_{OH}	-	2.4	-	V
	"Low" Level	V_{OL}	-	-	0.4	

Optical Characteristics (TA = 25°C, f = 0°, q = 0°)

Item	Symbol	Min.	Typ.	Max.	Unit
Viewing Angle	f	-	50	-	degree
Contrast	K	-	6.0	-	-
Turn On	T_{on}	-	200	400	ms
Turn Off	T_{off}	-	250	400	ms



Power Supply

The LCD panel is driven by the voltage $V_{DD}-V_O$, so you need an adjustable V_O for contrast control and temperature compensation.

Temperature	V _{DD} -V _O
0°C	5.00
+25°C	4.75
+50°C	4.50

$V_{DD} - V_O = \text{LCD Drive Voltage}$
 $VR10 \text{ to } 20 \text{ k}\Omega$

```

graph LR
    DB7-DB0 --> LCD_CONTROLLER["LCD CONTROLLER LSI HD44780U or Equivalent"]
    E --> LCD_CONTROLLER
    RW["R/W"] --> LCD_CONTROLLER
    RS --> LCD_CONTROLLER
    VO["V_O"] --> LCD_CONTROLLER
    VDD["V_DD"] --> LCD_CONTROLLER
    VSS["V_SS"] --> LCD_CONTROLLER
    LCD_CONTROLLER -- "COM 16" --> LCD_PANEL["LCD PANEL"]
    LCD_CONTROLLER -- "SEG 40" --> LCD_PANEL
    LCD_CONTROLLER -- "CONTROL SIGNAL 4" --> LCD_DRIVER["LCD SEGMENT DRIVER X 1"]
    LCD_DRIVER -- "SEG 40" --> LCD_PANEL
  
```

The technical drawing includes three views of the LED module:

- Top View:** Shows overall dimensions such as 85.0±0.5 mm length, 25.2 mm width, and mounting hole positions like 4-ø2.5 and 3-ø1.0.
- Side View:** Shows the profile of the module with a height of 1.6 mm and a reference to (LED=12.7).
- Detail View:** Provides a magnified view of the LED array area at SCALE 4/1, showing individual LED pitch (P) and dimensions like 2.96, 0.56, and 0.04 mm.