



## 16 X2 ALPHANUMERIC LCM

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*Other references: Controller datasheet - HD44780 or its equivalent (LSI SPLC780A or KS0066)*

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## **A. OVERVIEW**

A liquid crystal display (LCD) is an increasingly popular type of display used in a variety of digital display applications. LCD's utilize two sheets of polarizing material with a liquid crystal solution between them. An electric current passed through the liquid causes the crystals to align so that light cannot pass through them. Each crystal, therefore, is like a shutter, either allowing light to pass through or blocking the light.

LCD's have the advantage of *low power consumption, sharpness and brightness of images, perfectly flat screens and zero geometric distortion.*

## **B. FEATURES**

### **I. FUNCTIONS & FEATURES**

- Display Format : 16 characters x 2 line
- Display Type : STN / Transmissive, Yellow Green
- Input Data : 8-Bits interface available
- Display Font : 5 x 8 dots
- Display Mode : Positive
- Viewing direction : 12 o' clock
- Driving Mode : 1/16 Duty Cycle, 1/5 Bias
- Operating Voltage : 5 V (+/-0.25V)
- Operation temp : -20°C ~ 70°C\*
- Storage temp : -30°C ~ +80°C
- Backlight : LED, yellow-green

### **II. MECHANICAL SPECIFICATIONS**

- Module size : 80.0mm (L) \* 36.0mm (W) \* 10 mm (H) max
- Viewing area : 64.50mm (L) \* 14.0mm (W)
- Character pitch : 3.65mm (L) \* 5.35mm (W)
- Character size : 2.95mm (L) \* 4.35mm (W)
- Dot pitch : 0.60mm (L) \* 0.70mm (W)
- Dot size : 0.56mm (L) \* 0.66mm (W)
- Weight : Approx.26 gms

@NOTE: Extended use at extreme temperatures will affect the life & performance of your LCD

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### III. DIMENSIONAL OUTLINE

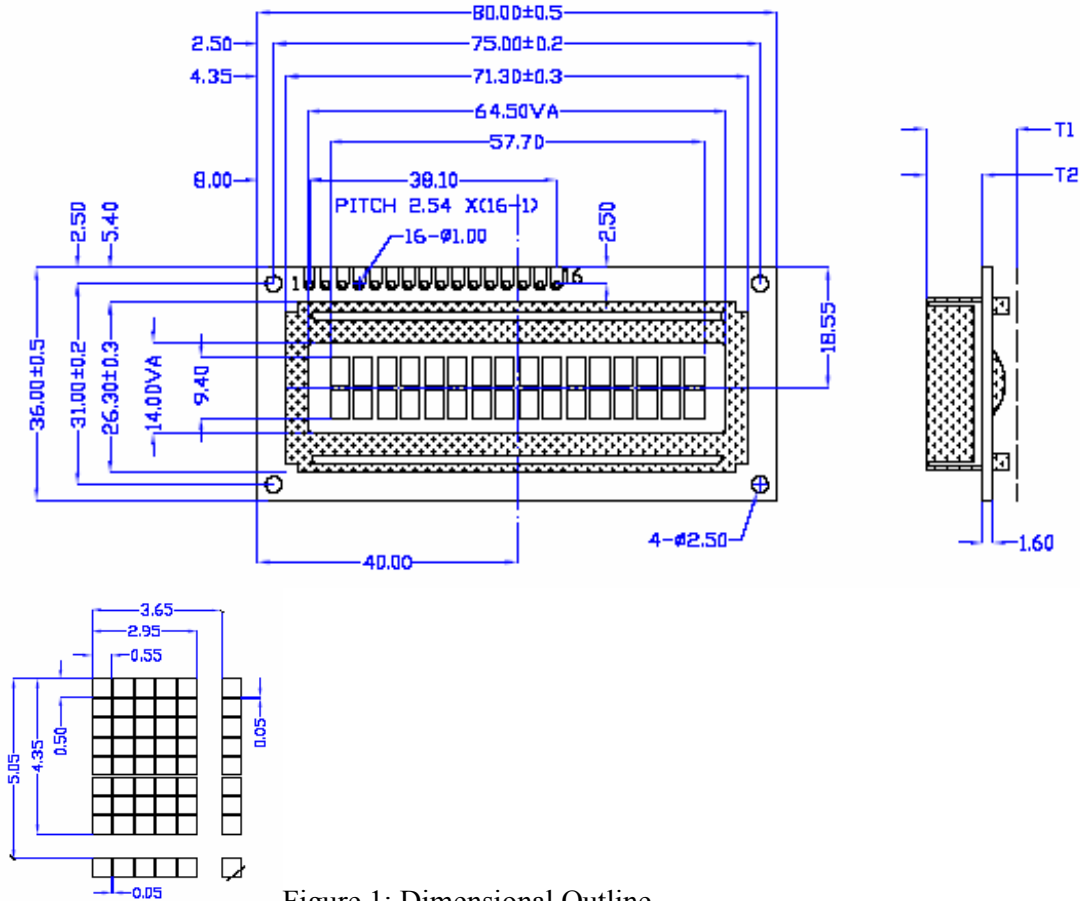


Figure 1: Dimensional Outline

### IV. BLOCK DIAGRAM

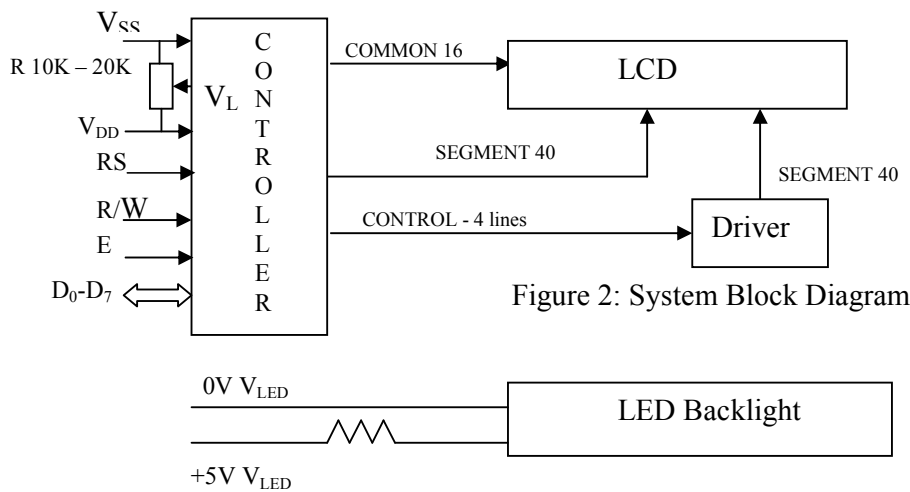


Figure 2: System Block Diagram

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## V. PIN DESCRIPTION

NO.	Symbol	Level	Function
1	V <sub>SS</sub>	--	Ground (0V)
2	V <sub>DD</sub>	--	Power supply for logic (+5V)
3	V <sub>L</sub>	--	Power supply for LCD 3.9V (Reference for best contrast)
4	RS	H/L	Register H: Data register Select L: Instruction register
5	R/W	H/L	H - Read ; L - Write
6	E	H,H-L	Start enable signal to read or write the data
7 - 10	D <sub>0</sub> - D <sub>3</sub>	H/L	Data bus used in 8 bit transfer
11 - 14	D <sub>4</sub> - D <sub>7</sub>	H/L	Data bus for both 4 and 8 bit transfer
15	+V <sub>LED</sub>	--	LED backlight (+)
16	-V <sub>LED</sub>	--	LED backlight (-)

## VI. LED BACKLIGHT CHARACTERISTICS

Item	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	VF	IF=100mA	3.8	4.2	4.4	V
Reverse Current	IR	VR=8V	---	---	1	mA
Luminous Intensity (With LCD dots off)	IV	IF=100mA	---	30	---	Cd/m <sup>2</sup>
Wave length	λ <sub>p</sub>	IF=100mA	---	568	---	nm
Color	Yellow-green					

## C. APPLICATIONS

### Portable display devices

-hand held terminals, data loggers, attendance recorder, weigh bridge displays, energy meters & other handheld devices.

### Digital signage

-PCO display, temperature indicator, schedules displayed outside conference rooms, flight boards at airports etc.

### Medical equipment, digital displays, PLCs etc

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\*For electrical characteristics & technical specifications please refer to controller datasheet. Controller used is LSI SPLC780A or KS0066\*

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