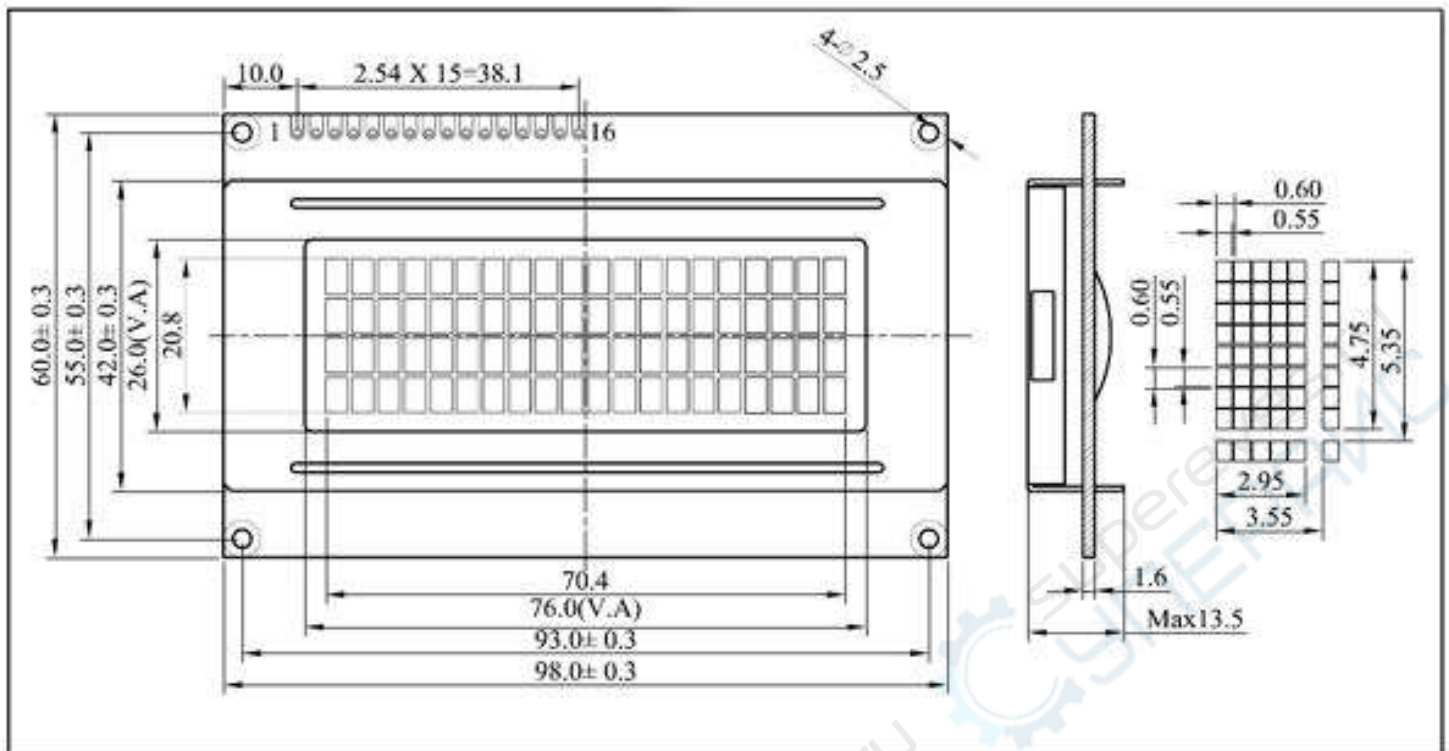


# 2004A

\*20Characters X 4Line 1/16duty 1/5bias



## ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Min.	Max.	Unit
Supply Voltage(L logic)	V <sub>dd</sub> - V <sub>ss</sub>	-0.3	7.0	V
Supply Voltage(LCD)	V <sub>dd</sub> - V <sub>0</sub>	-0.3	13.0	V
Input Voltage	V <sub>i</sub>	-0.3	V <sub>dd</sub> + 0.3	V
Operating Temp.	T <sub>opr</sub>	0	50	°C
Storage Temp.	T <sub>stg</sub>	-10	60	°C

## MECHANICAL DATA

Item	Max.	Unit
Module Size(W X H X T)	98.0 X 60.0 X 13.5	mm
Viewing Area(W X H)	76.0 X 26.0	mm
Character Size(W X H)	2.95 X 4.75	mm
Dot Size(W X H)	0.55 X 0.55	mm
View Angle	6 or 12 O'Clock	

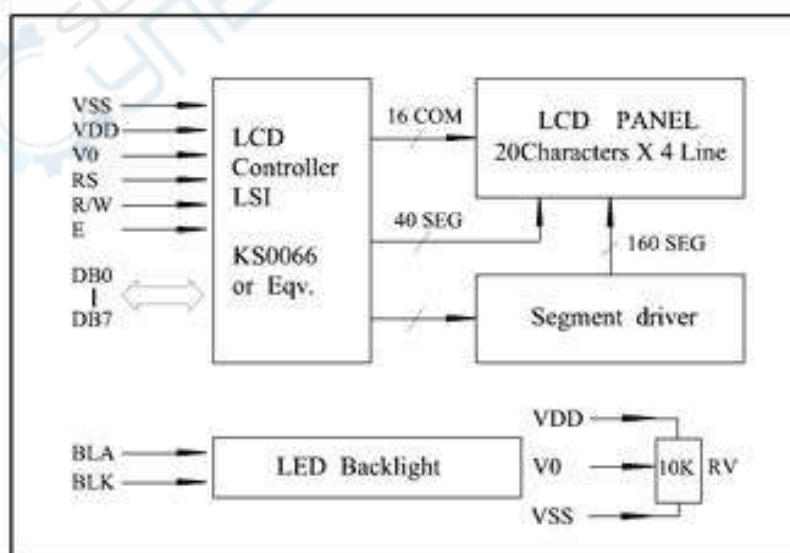
## ELECTRICAL CHARACTERISTICS (V<sub>dd</sub>=5V±0.25V)

Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input High Voltage	V <sub>ih</sub>	--	2.0	--	V <sub>dd</sub>	V
Input Low Voltage	V <sub>il</sub>	--	-0.3	--	0.8	V
Output High Voltage	V <sub>oh</sub>	I <sub>oh</sub> =-0.2mA	2.4	--	V <sub>dd</sub>	V
Output Low Voltage	V <sub>ol</sub>	I <sub>ol</sub> =-1.6mA	0	--	0.4	V
Supply Current	I <sub>dd</sub>	V <sub>dd</sub> =5.0V	--	2.0	3.0	mA
LCD Driving Voltage	V <sub>dd</sub> - V <sub>0</sub>	T <sub>a</sub> =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 L:Instruction code
5	R/W	H/L	H:Read 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 (~250mA)
Blue	LED/White /3.2V (~150mA)