Winstar Display Co., LTD
華凌光電股份有限公司
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SPECIFICATION

CUSTOMER : _____

MODULE NO.: WH1602B1-SLL-JWV#

General Specification

Item	Dimension	Unit
Number of Characters	16 characters x 2Lines	—
Module dimension	80.0 x 36.0 x 13.2 (MAX)	mm
View area	66.0 x 16.0	mm
Active area	56.20 x 11.5	mm
Dot size	0.55 x 0.65	mm
Dot pitch	0.60 x 0.70	mm
Character size	2.95 x 5.55	mm
Character pitch	3.55 x 5.95	mm
LCD type	VA Negative Transmissive (In LCD production, It will occur slightly color difference. We can only guarantee the same color in the same batch.)	
Duty	1/16	
View direction	12 o'clock	
Backlight Type	LED, High light White	

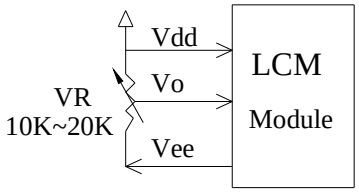
Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{OP}	-20	—	+70	℃
Storage Temperature	T_{ST}	-30	—	+80	℃
Input Voltage	V_{IN}	-0.3	—	V_{DD}+0.3	V
Supply Voltage For Logic	V_{DD}-V_{SS}	-0.3	—	5.5	V
Supply Voltage For LCD	V_{DD}-V_0	V_{SS} -0.3	—	V_{SS} +7.0	V

Electrical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	V_{DD}-V_{SS}	—	4.5	5.0	5.5	V
Supply Voltage For LCD *Note	V_{DD}-V_0	Ta=-20℃	—	—	—	V
		Ta=25℃	6.2	6.5	6.8	V
		Ta=70℃	—	—	—	V
Input High Volt.	V_{IH}	—	2.5	—	V_{DD}	V
Input Low Volt.	V_{IL}	—	-0.3	—	0.6	V
Output High Volt.	V_{OH}	—	3.9	—	—	V
Output Low Volt.	V_{OL}	—	—	—	0.4	V
Supply Current	I_{DD}	V_{DD}=5.0V	1.0	1.2	1.5	mA

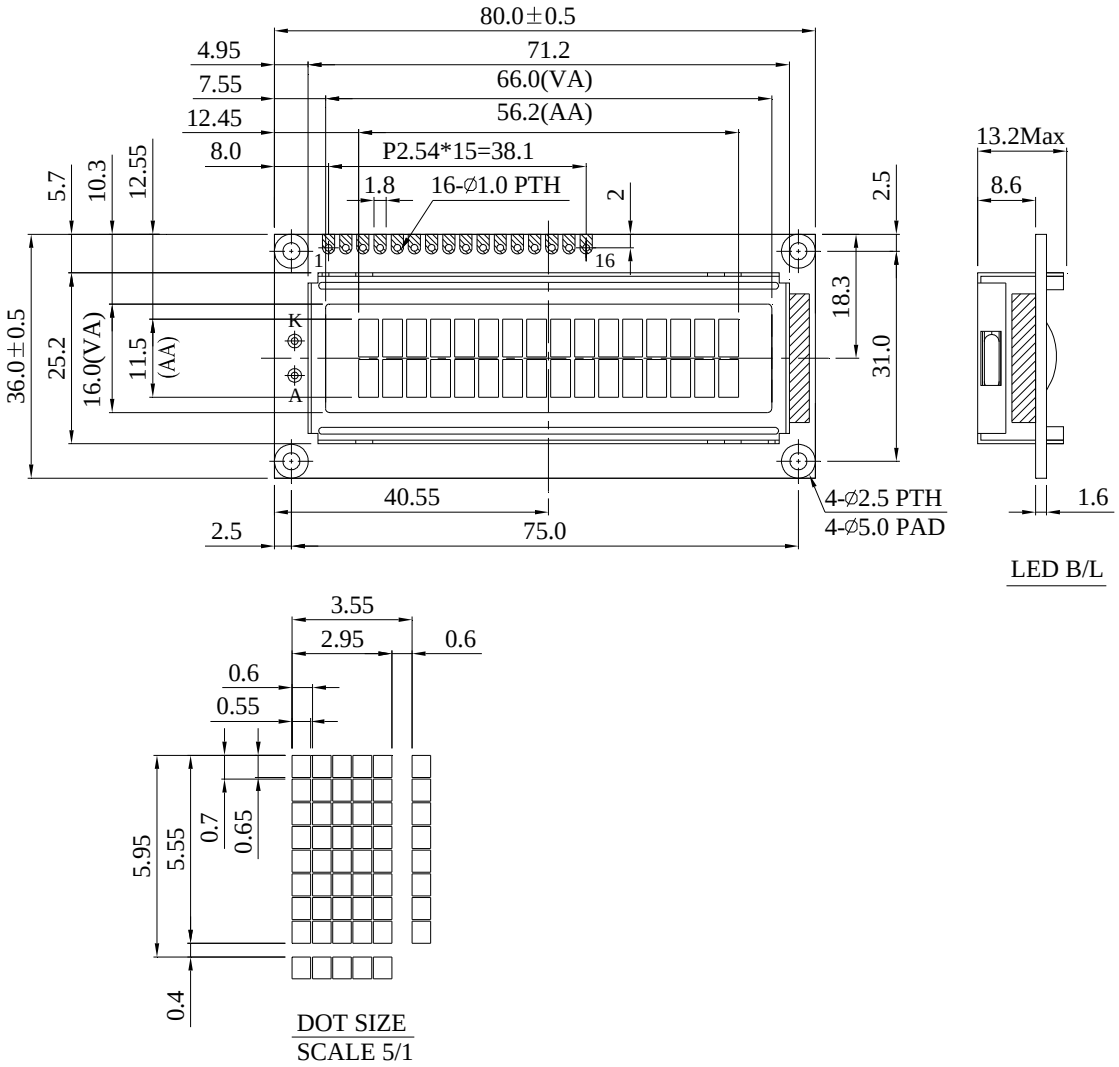
* Note: Please design the VOP adjustment circuit on customer's main board



Interface Pin Function

Pin No.	Symbol	Level	Description
1	V_{SS}	0V	Ground
2	V_{DD}	5.0V	Supply Voltage for logic
3	VO	(Variable)	Operating voltage for LCD
4	RS	—	In bus mode, used as register selection input. When RS = “High”, Date register is selected. When RS = “Low”, Instruction register is selected.
5	NC	—	No connection
6	NC	—	No connection
7	NC	—	No connection
8	NC	—	No connection
9	NC	—	No connection
10	NC	—	No connection
11	NC	—	No connection
12	CSB	H/L	In 4-SPI serial mode, used as chip selection input. When CSB = “Low”, selected When CSB = “High”, not selected. (Low access enable)
13	SCLK	H/L	Serial clock input
14	SID	H/L	Serial data input
15	Vee		Negative Voltage Output
16	K		Power supply for B/L -

Contour Drawing &Block Diagram



PIN NO.	SYMBOL
1	Vss
2	Vdd
3	Vo
4	RS
5	NC
6	NC
7	NC
8	NC
9	NC
10	NC
11	NC
12	CSB
13	SCLK
14	SID
15	Vee
16	K