



**WINSTAR Display Co.,Ltd.**  
**華凌光電股份有限公司**

## SPECIFICATION

**MODULE NO.: WG320240BP2**

### General Specification

Item	Dimension	Unit
Number of dots	320x240	—
Module dimension	160.0 x 109.0 x 13.0 (MAX)	mm
View area	122.0 x 92.0	mm
Active area	115.18 x 86.38	mm
Dot size	0.33 x 0.33	mm
Dot pitch	0.36 x 0.36	mm
LCD type	STN Negative, Blue Transmissive (In LCD production, It will occur slightly color difference. We can only guarantee the same color in the same batch.)	
Duty	1/240	
View direction	6 o'clock	
Backlight Type	LED White	
IC	S1D13700	

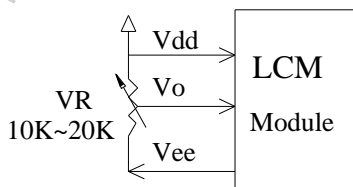
# Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	$T_{OP}$	-20	—	+70	°C
Storage Temperature	$T_{ST}$	-30	—	+80	°C
Input Voltage	$V_{IN}$	-0.3	—	$V_{DD}+0.5$	V
Output Voltage	$V_{OUT}$	-0.3	—	$V_{DD}+0.5$	V
Supply Voltage For Logic	$V_{DD}-V_{SS}$	0	—	6.5	V
Supply Voltage For LCD	$V_{DD}-V_0$	0	—	32	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	$V_{DD}-V_0$	$T_a=-20^{\circ}C$	—	—	26.1	V
		$T_a=25^{\circ}C$	23.0	23.6	24.2	V
		$T_a=70^{\circ}C$	21.8	—	—	V
Input High Volt.	$V_{IH}$	—	3.5	—	—	V
Input Low Volt.	$V_{IL}$	—	—	—	1.0	V
Output High Volt.	$V_{OH}$	—	$V_{DD}-0.4$	—	—	V
Output Low Volt.	$V_{OL}$	—	—	—	0.4	V
Supply Current	$I_{DD}$	$V_{DD}=5.0V$	90	100	110	mA

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

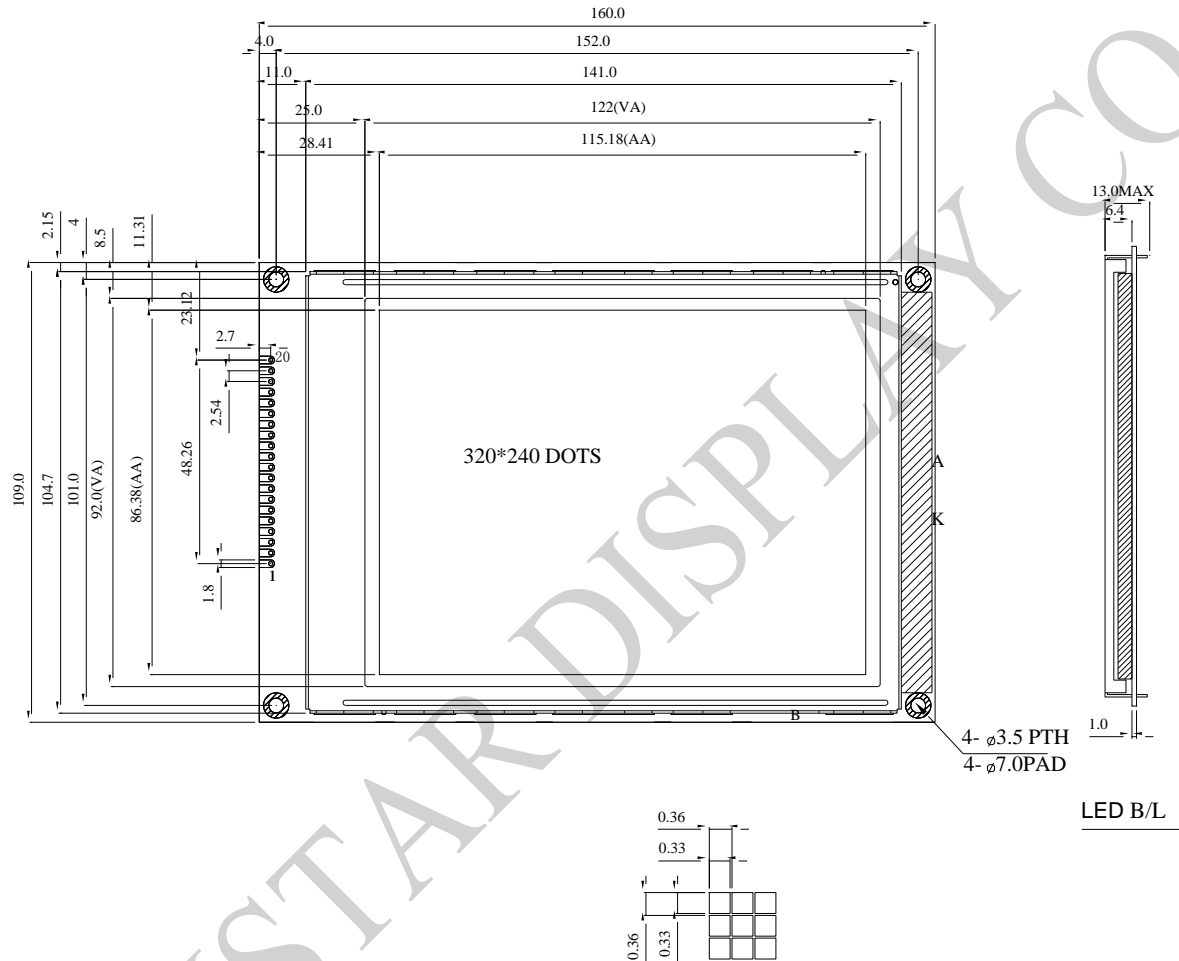


# Interface Pin Function

For 80 family

Pin No.	Symbol	Level	Description
1	V <sub>SS</sub>	0V	Ground
2	V <sub>DD</sub>	5.0V	Power supply for Logic
3	V <sub>O</sub>	(Variable)	Driving voltage for LCD
4	$\overline{\text{WR}}$	H/L	8080 family: Write signal, 6800 family: R/W signal
5	$\overline{\text{RD}}$	H/L	8080 family: Read signal, 6800 family: Enable clock
6	CS	H/L	Chip select ,Active L
7	A0	H/L	RD=L WR=H ,A0=L :Data Read AO=H :Status read RD=H WR=L ,A0=L :Data Write AO=H :Command write
8	RES	H/L	Controller reset signal, Active L
9~16	DB0~DB7	H/L	Data bus
17	VEE		Negative voltage output
18	SEL		8088,6800 interface selection (1:68 ,0:80)
19	WAIT		Check busy
20	A		Power supply for B/L +

# Contour Drawing & Block Diagram



PIN NO.	SYMBOL
1	VSS
2	VDD
3	VO
4	WR
5	RD
6	CS
7	AO
8	RES
9	DB0
10	DB1
11	DB2
12	DB3
13	DB4
14	DB5
15	DB6
16	DB7
17	VEE
18	SEL
19	WAIT
20	A

DOT SIZE  
SCALE 10/1

The non-specified tolerance of dimension is  $\pm 0.3\text{mm}$ .