



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

## SPECIFICATION

**MODULE NO.: WG320240BP3**

### General Specification

Item	Dimension	Unit
Number of dots	320x240	—
Module dimension	160.0 x 109.0 x 12.5(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	FSTN Positive Transflective (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	

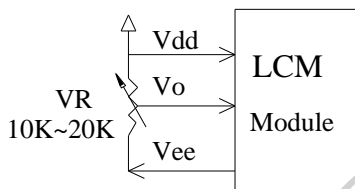
# Absolute Maximum Ratings

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	$V_{DD}-V_0$	$T_a=-20^{\circ}\text{C}$	—	—	26.1	V
* Note		$T_a=25^{\circ}\text{C}$	23.0	23.6	24.2	V
		$T_a=70^{\circ}\text{C}$	22.2	—	—	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	$I_{DD}$	$V_{DD}=5.0\text{V}$	65.0	75.0	85.0	mA

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

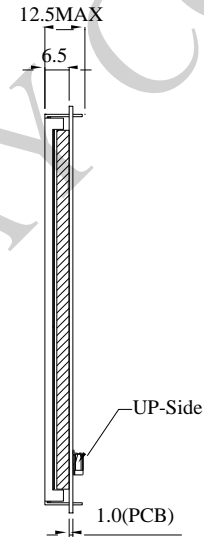
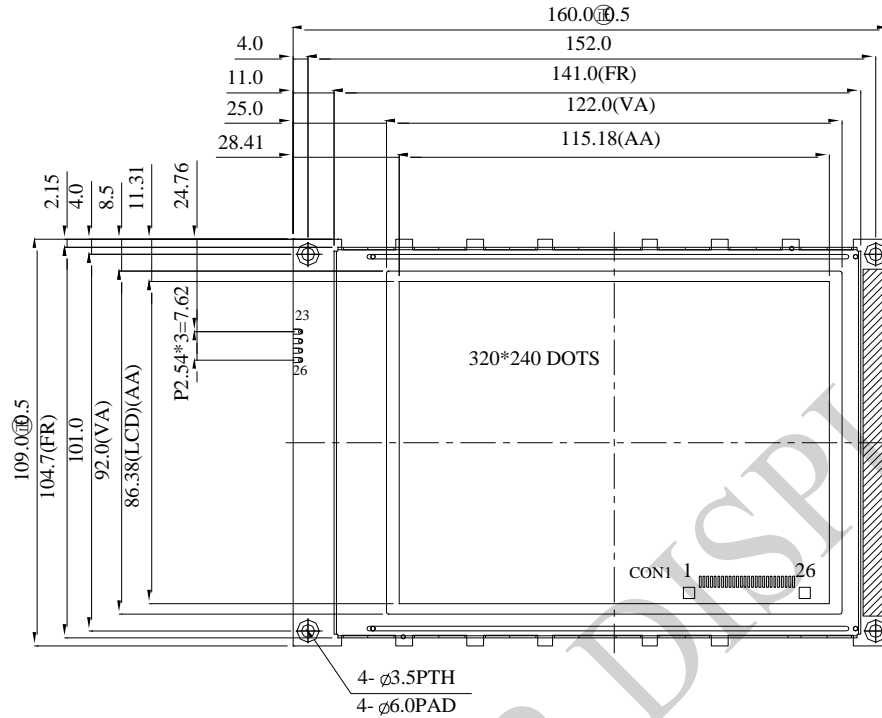


# Interface Pin Function

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	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
5	$\overline{\text{WR}}$	H/L	8080 family: Write signal, 6800 family: R/W signal
6	$\overline{\text{RD}}$	H/L	8080 family: Read signal, 6800 family: Enable clock
7~14	DB0~DB7	H/L	Data bus line
15	$\overline{\text{CS}}$	H/L	Chip select ,Active L
16	$\overline{\text{RES}}$	H/L	Controller reset signal, Active L
17	V <sub>ee</sub>		Negative Voltage Output
18	SEL1		8080 or 6800 interface select
19	DCLK		External Clock Input. This clock runs the SAR conversion process and synchronizes serial data I/O.
20	$\overline{\text{CS}}$		Chip Select Input. Controls conversion timing and enables the serial input/output register. CS high = power-down mode (ADC only).
21	DIN		Serial Data Input. If CS is low, data is latched on rising edge of DCLK.
22	DOUT		Serial Data Output. Data is shifted on the falling edge of DCLK. This output is high impedance when CS is high.
23	PEN		Pen Interrupt. Open anode output (requires 10kΩ to 100kΩ pull-up resistor externally).
24	PEN1		Pen Interrupt. Open anode output (requires 10kΩ to 100kΩ pull-up resistor externally).
25	NC		No connection
26	AUX		Auxiliary Input to AD

# Contour Drawing & Block Diagram



PIN NO.	SYMBOL	PIN NO.	SYMBOL
1	VSS	14	DB7
2	VDD	15	/CS
3	V0	16	/RES
4	A0	17	VEE
5	/WR	18	SEL1
6	/RD	19	DCLK
7	DB0	20	/CS
8	DB1	21	DIN
9	DB2	22	DOUT
10	DB3	23	PEN
11	DB4	24	PEN1
12	DB5	25	NC
13	DB6	26	AUX

LED B/L

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

