Winstar Display Co., LTD
華凌光電股份有限公司

SPECIFICATION

CUSTOMER : _____

MODULE NO.: WG320240B-TFH-TZ#010

APPROVED BY: **(FOR CUSTOMER USE ONLY)**	**PCB VERSION:** **DATA:**

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
first FC components			
ISSUED DATE:			

first FC components

Precautions in Use of LCD Module

(1)Avoid applying excessive shocks to the module or making any alterations or modifications to it.

(2)Don’t make extra holes on the printed circuit board, modify its shape or change the components of LCD Module.

(3)Don’t disassemble the LCM.

(4)Don’t operate it above the absolute maximum rating.

(5)Don’t drop, bend or twist LCM.

(6)Soldering: only to the I/O terminals.

(7)Storage: please storage in anti-static electricity container and clean environment.

General Specification

ITEM	STANDARD VALUE	UNIT
Number of dots	320x240	dots
Outline dimension	160.0(W)x 109.0(H)x 11.0max(T)	mm
View area	122.0(W)x 92.0(H)	mm
Active area	115.18(W)x 86.38(H)	mm
Dot size	0.34(W)x 0.34(H)	mm
Dot pitch	0.36(W)x 0.36(H)	mm
LCD type	FSTN, Positive ,Transflective	
View direction	6 o’clock	
Backlight	LED, 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_I	0	—	V_{DD}	V
Supply Voltage For Logic	V_{DD}	0	—	6.5	V
Supply Voltage For LCD	V_{DD}-V_{EE}	0	—	32	V

Electrical Characteristics

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Logic Voltage	V_{DD}-V_{SS}	—	4.5	5.0	5.5	V
Supply Voltage For LCD	V_{DD}-V_O	Ta=-20℃	—	—	26.5	V
		Ta=25℃	—	24.0	—	V
		Ta=+70℃	22.1	—	—	V
Input High Volt.	V_{IH}	—	0.5V_{DD}	—	V_{DD}	V
Input Low Volt.	V_{IL}	—	V_{SS}	—	0.2V_{DD}	V
Output High Volt.	V_{OH}	—	2.4	—	—	V
Output Low Volt.	V_{OL}	—	—	—	0.4	V
Supply Current	I_{DD}	—	95.0	100.0	110.0	mA

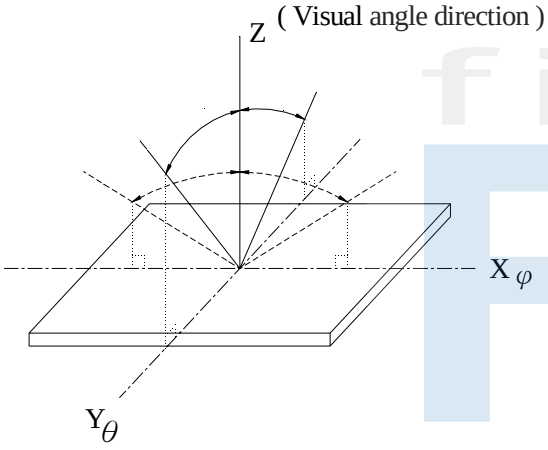
First components

Optical Characteristics

ITEM	SYMBAL	CONDITION	MIN	TYP	MAX	UNIT
View Angle	(V) θ	CR≧2	30	—	60	deg.
	(H) φ	CR≧2	-45	—	45	deg.
Contrast Ratio	CR	—	—	5	—	—
Response Time	T rise	—	—	200	300	ms
	T fall	—	—	150	200	ms

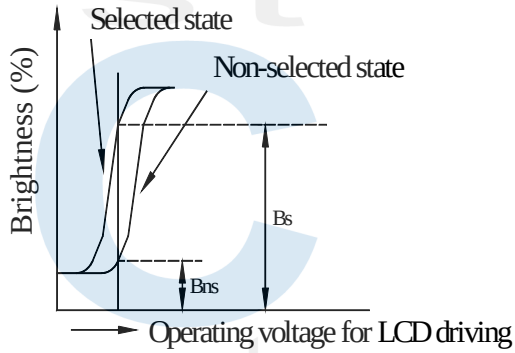
Definitions

■View Angles

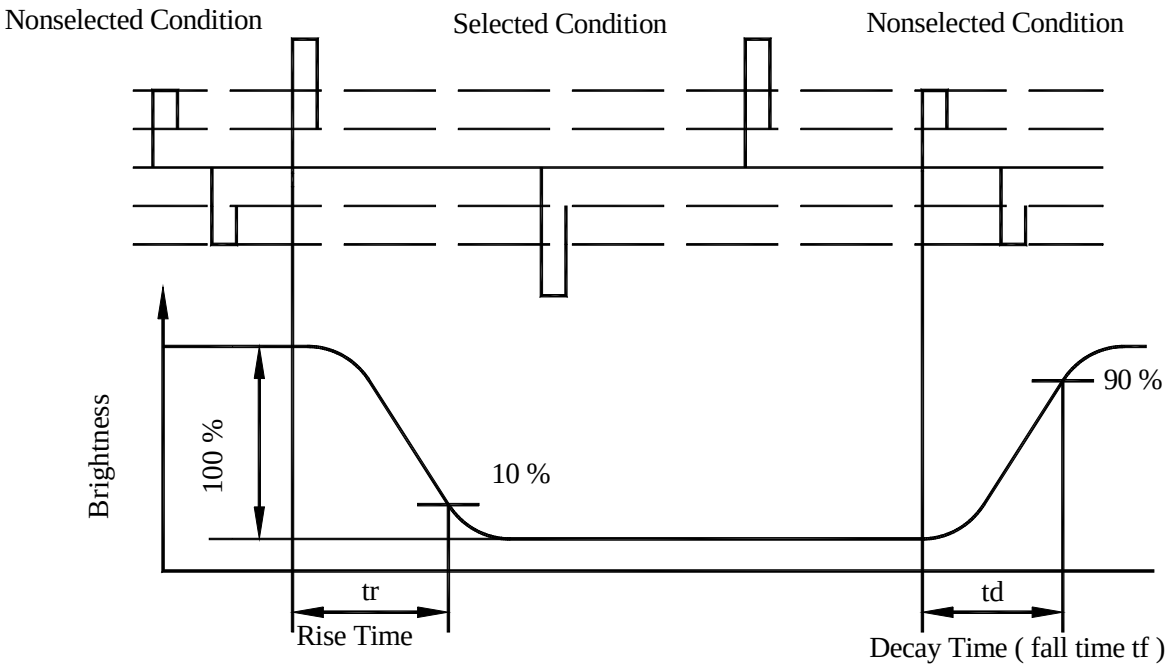


■Contrast Ratio

$$CR = \frac{\text{Brightness at selected state (BS)}}{\text{Brightness at non-selected state (Bns)}}$$



■Response time



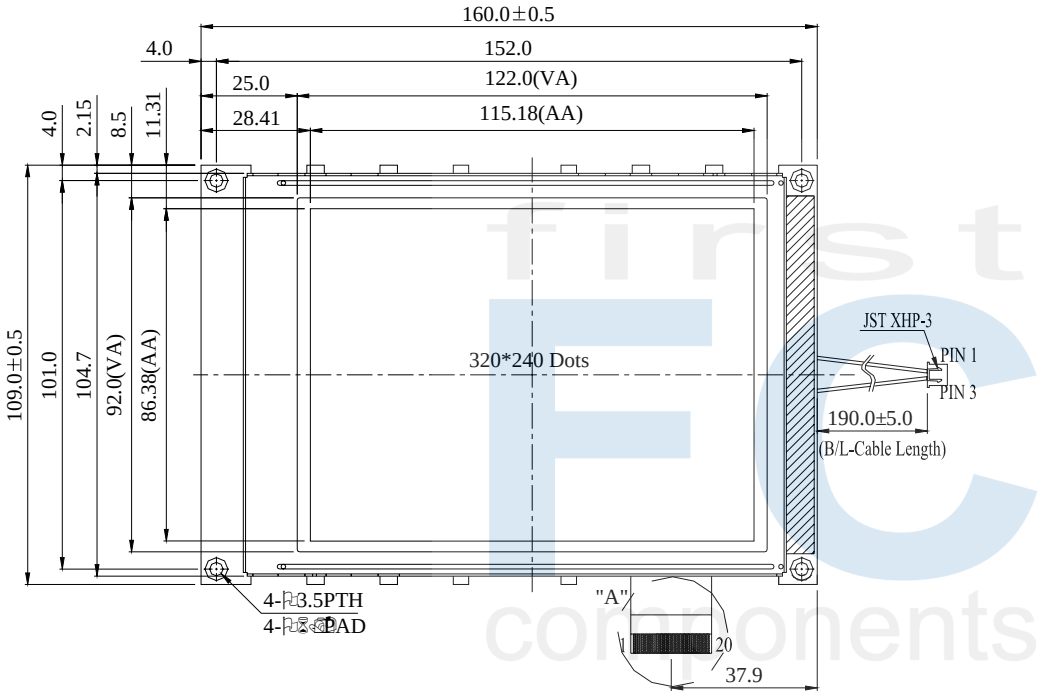
first components

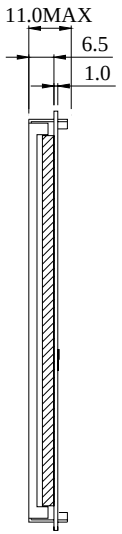
Interface Description

Pin No.	Symbol	Level	Description
1	V_{SS}	0V	Ground
2	V_{DD}	5.0V	Power supply for Logic
3	V_O	(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	$\overline{WR}$	H/L	8080 family: Write signal, 6800 family: R/W signal
6	$\overline{RD}$	H/L	8080 family: Read signal, 6800 family: Enable clock
7~14	DB0~DB7	H/L	Data bus
15	$\overline{CS}$	H/L	Chip select ,Active L
16	$\overline{RES}$	H/L	Controller reset signal, Active L
17	V_{EE}		Negative voltage output (Optional)
18	SEL1		H:6800 ,L:8080
19	FGND		Frame Ground
20	NC		No connection

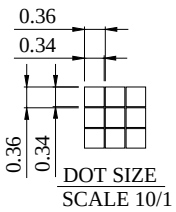
first components

Contour Drawing & Block diagram





PIN NO.	SYMBOL
1	Vss
2	Vdd
3	Vo
4	A0
5	$\overline{WR}$
6	$\overline{RD}$
7	DB0
8	DB1
9	DB2
10	DB3
11	DB4
12	DB5
13	DB6
14	DB7
15	$\overline{CS}$
16	$\overline{RES}$
17	Vee
18	NC
19	NC
20	NC



The non-specified tolerance of dimension is ±0.3mm.

SCALE: 2/3	UNIT: mm	華凌光電股份有限公司 WINSTAR DISPLAY CO.	
REV: 0	PAGE: 1/1	MODEL: WG320240B-TFH-TZ#010	
APPROVE		TITLE: LCM DRAWING	
CHECK		DWG NO.	
DRAW	Nina 06/07/05'		

first components