

HEXING OPTOELECTRONIC

ROUND TFT LCD MODULE

1.28 inch 240RGB*240DOTS

MODULE NUMBER: H X T-128-02

REVISION: **A**

Customer:
Approved by

Revised History

Part Number	Revision	Revision Content	Revised on
HXT128-02	A	New	2022-02-26



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Revision History

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1. General Description

1.1 Description

HXT-128- 0 2 is a 240RGBX240 dot-matrix TFT LCD module. This module is composed of a TFT LCD Panel, driver ICs, FPC and a Backlight unit.

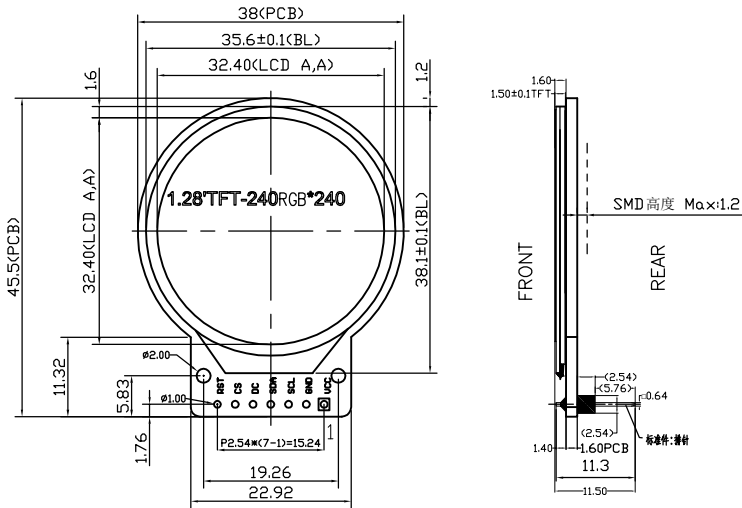
1.2 Features

NO.	Item	Contents	Unit
1	LCD Size	1.28	inch
2	Display Mode	Normally black	-
3	Resolution	240(H)RGB x 240(V)	pixels
4	Dot pitch	0.135(H) x 0.135(V)	mm
5	Active area	Ø32.4	mm
6	Module size	38.00(H) x 45.50(V) x 11.50(D)	mm
7	Color arrangement	RGB Vvertical stripe	-
8	Interface	4 Line SPI	-
9	Drive IC	GC9A01	-
10	Luminance(cd/m2)	400 (TYP)	Cd/m2
11	Viewing Direction	All View	O'Clock
12	Backlight	2 White LED Parallel	-
13	Operating Temp.	-20℃~ + 70℃	℃
14	Storage Temp.	-30℃~+ 80℃	℃
15	Weight	TBD	g

2. Mechanical Drawing

VER.	REVISED RECORD	DATA
V1.0	第一次发行	2022-02-26

1. 外形图



1. Display size: 1.28 inch
2. Resolution: 240x240
3. Viewing dir.: ALL
4. Luminance: 400nits
5. Top: -20~70 C
6. Tst: -30~80 C
7. Driver IC: GC9A01
8. Interface: 4 wires-SPI
9. LED backlight: 2 chip-White LED
If=40mA, Vf=2.9~3.1V

PIN	DESCRIPTION
1	VCC
2	GND
3	SCL
4	SDA
5	DC
6	CS
7	RST

SHEET: 1 of 1	
APPROVALS	DATE
DWN ZJP	2022-02-26
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HXT-128-02	SCALE: UNSPECIFIED TOL:± 0.2 DO NOT SCALE THIS DRAWING.
	UNITS: MM

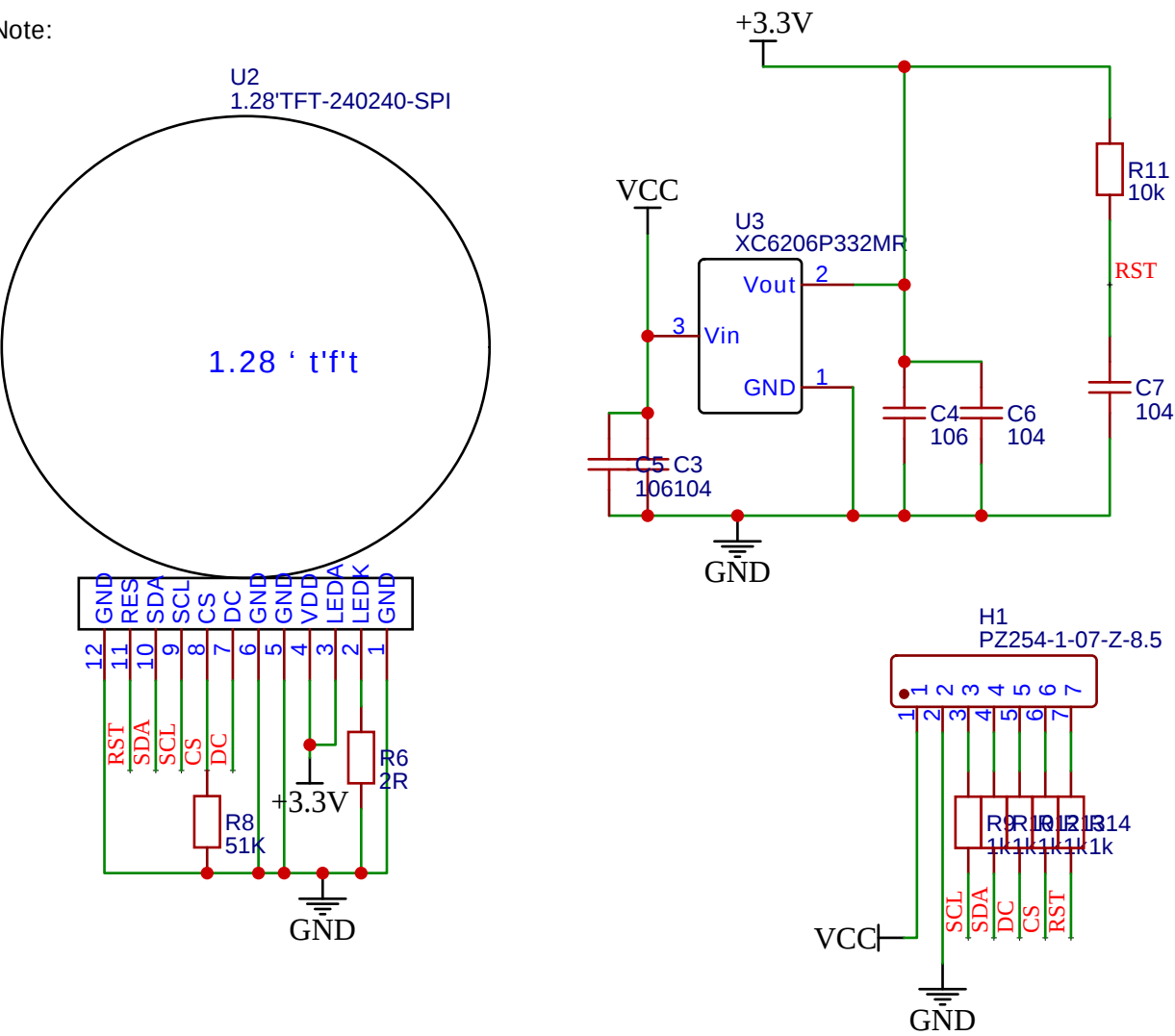
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3. Pin Definition

FPC Connector is used for the module electronics interface.

NO.	Symbol	Description
1	VCC	Power
2	GND	Power Ground
3	SCL	This pin is used to be serial interface clock
4	SDA	SPI interface input/output pin. the data is latched on the rising edge of the SCL signal.
5	DC	Display data/command selection pin in 4-line serial interface.
6	CS	Chip selection pin;Low enable,high disable.
7	RST	This signal will reset the device and it must be applied to properly initialize the chip.Signal is active low.

Note:



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4. Electrical Characteristics

4.1 Absolute Maximum Ratings

Parameter	Symbol	Min	MAX	Unit	Notes
Supply Voltage (I/O)	VDD	-0.3	4.6	V	
Analog Supply Voltage	VDDIO	-0.3	4.6	V	
Logic Input Voltage	VIN	-0.3	VDDIO+0.3	V	
Operation Temperature	Top	-20	70	°C	
Storage Temperature	Tst	-30	80	°C	

4.2 Operating Conditions

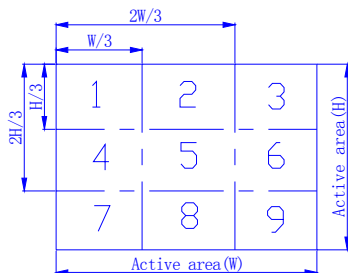
Parameter	Symbol	Min	TYP	MAX	Unit	Notes
System Voltage	VDD	2.5	2.8	3.3	V	
Interface Operation Voltage	VDDIO	1.65	1.8	3.3	V	
Gate Driver High Voltage	VGH	12	-	13	V	
Gate Driver Low Voltage	VGL	-11	-	-8	V	
Operating Current for V _{DD}	I _{DD}	-	8.5	10.5	mA	
Sleep_In Mode VDD	I _{dd}	-	15	30	uA	
Sleep_In Mode VDDIO	I _{ddio}	-	5	10	uA	

4.3 Backlight Unit

Parameter	Symbol	Min	TYP	MAX	Unit	Notes
Voltage for LED backlight	VLED	2.9	3.0	3.1	V	
Current for LED backlight	ILED	-	40	60	mA	2 LED Parallel
Power Consumption	Pbl	-	120	186	mW	1
Brightness	L _{br}	350	400	-	cd/m ²	2
LED Life time	-	20000	-	-	hr	3

Note:

1. Where ILED =40mA , VLED=3.0V , Pbl= ILED x VLED
2. Uniform measure condition:
a:Measure 9 point,Measure location is show below:
b:Uniform=(Min brightness/Max.brightness)x100%
c:Best Contrast.

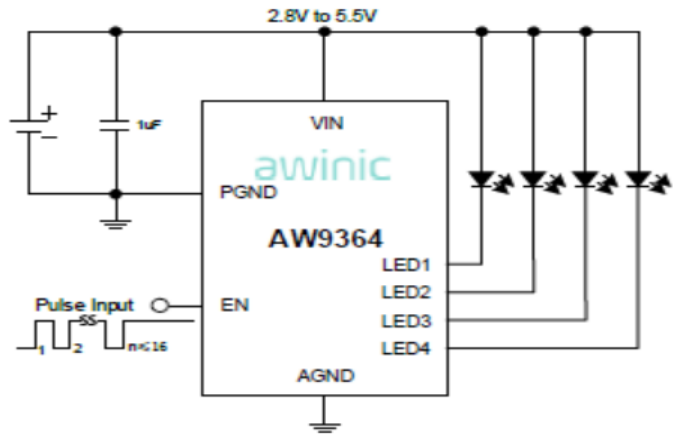


3. The environmental conducted under ambient air flow ,at Ta=25±2°C,60%RH±5%

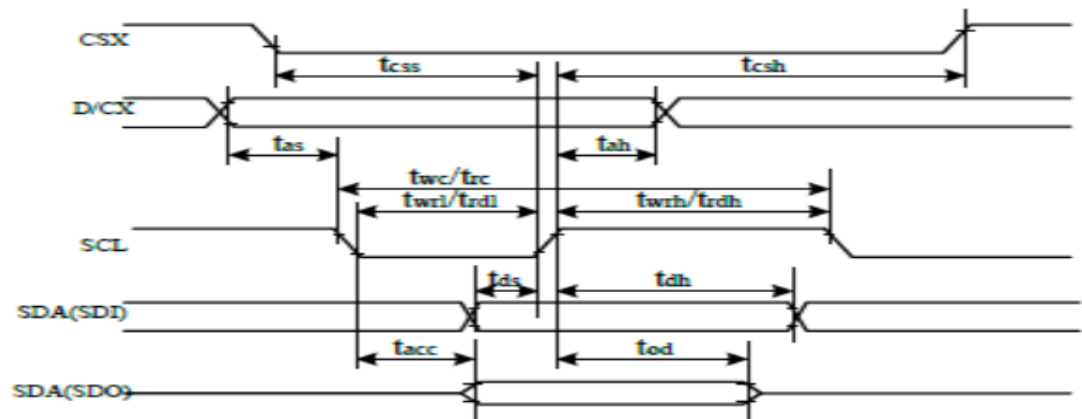
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4.4 Backlight Recommended Circuit

Motherboard driver backlight is need constant current circuit , if threated voltage screen after light brightness difference . Current and power consumption of the machine are inconsistent , so recommend a backlight driving circuit is best rated current . It is recommended to use IC (AW9364) . The reference circuit is as follows:



4.5 AC Timing Characteristic of The LCD



Signal	Symbol	Parameter	min	max	Unit	Description
CSX	tcsh	Chip select time (Write)	20	-	ns	
	tcsh	Chip select hold time (Read)	40	-	ns	
SCL	twc	Serial Clock Cycle (Write)	10	-	ns	
	twrh	SCL "H" Pulse Width (Write)	5	-	ns	
	twrl	SCL "L" Pulse Width (Write)	5	-	ns	
	trc	Serial Clock Cycle (Read)	150	-	ns	
	trdh	SCL "H" Pulse Width (Read)	60	-	ns	
	trdl	SCL "L" Pulse Width (Read)	60	-	ns	
D/CX	tas	D/CX setup time	10	-	ns	
	tah	D/CX hold time (Write/Read)	10	-	ns	
SDA/SDI (Input)	tds	Data setup time (Write)	5	-	ns	
	tdh	Data hold time (Write)	5	-	ns	
SDA/SD0 (Output)	tacc	Access time (Read)	10	-	ns	