ROUND TFT LCD MODULE

1.28 inch 240RGB*240DOTS

MODULE NUMBER: GMT128-02

REVISION: **A**

Customer:
Approved by

Revised History

Part Number	Revision	Revision Content	Revised on
GMT128-02	A	New	2022-02-26

Contents

Revision History
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1. General Description

1.1 Description

LH128R-IG01 is a 240RGBX240 dot-matrix TFT LCD module. This module is composed of a TFT LCD Panel, driver ICs, FPC and a Backlight unit.

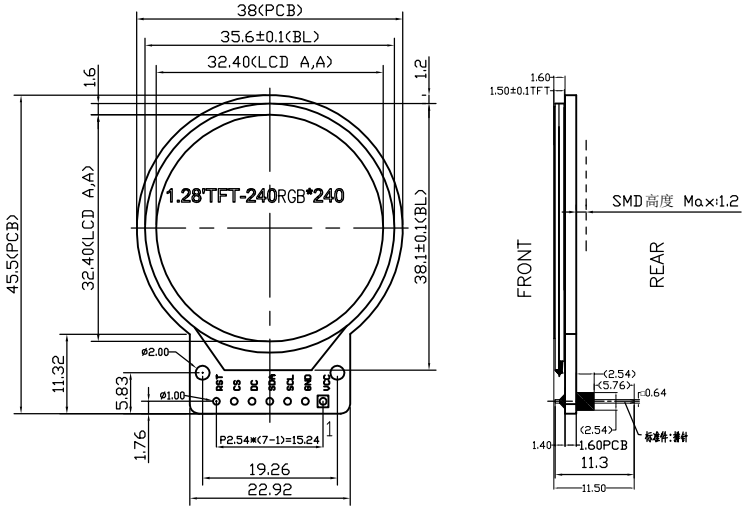
1.2 Features

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	45.5(H) x 48 (V) x11.5 (D)	mm
7	Color arrangement	RGB Vtertical 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



2.功能&特性

2-1. 点阵: 240RGBX240 Dots

2-2. 显示类型: 1.28" TFT

2-3. 视角方向: ALL

2-4. POLARIZER MODE: TRANSMISSIVE/NORMALLY BLACK

2-5. LCM Luminance:400 CD/M2(TYP)

2-6. BACK LIGHT(背光): 2 CHIP-WHITE LED
If=40mA Vf=2.9~3.1V

2-7. 工作温度: -20℃~70℃

2-8. 储存温度: -30℃~80℃

2-9. 连接方式/驱动IC:COG/GC9A01

2-10.接口方式: 4-SPI

2-11.建议机壳开窗可视区比 LCD A.A区单边大 0.3mm

3.机械规格

3-1. 模块尺寸: 45.5mm(L)*48mm(W)*11.5Maxmm(T)

3-2. 有效区域(A/A): ø32.4mm

3-3. 点距离: 0.21mm(L)*0.21mm(W)

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
CHK		
APP		

Unvision

MODEL NUMBER : GMT128-02_LCM

SCALE: Unspecified TOL:± 0.2

UNITS: MM

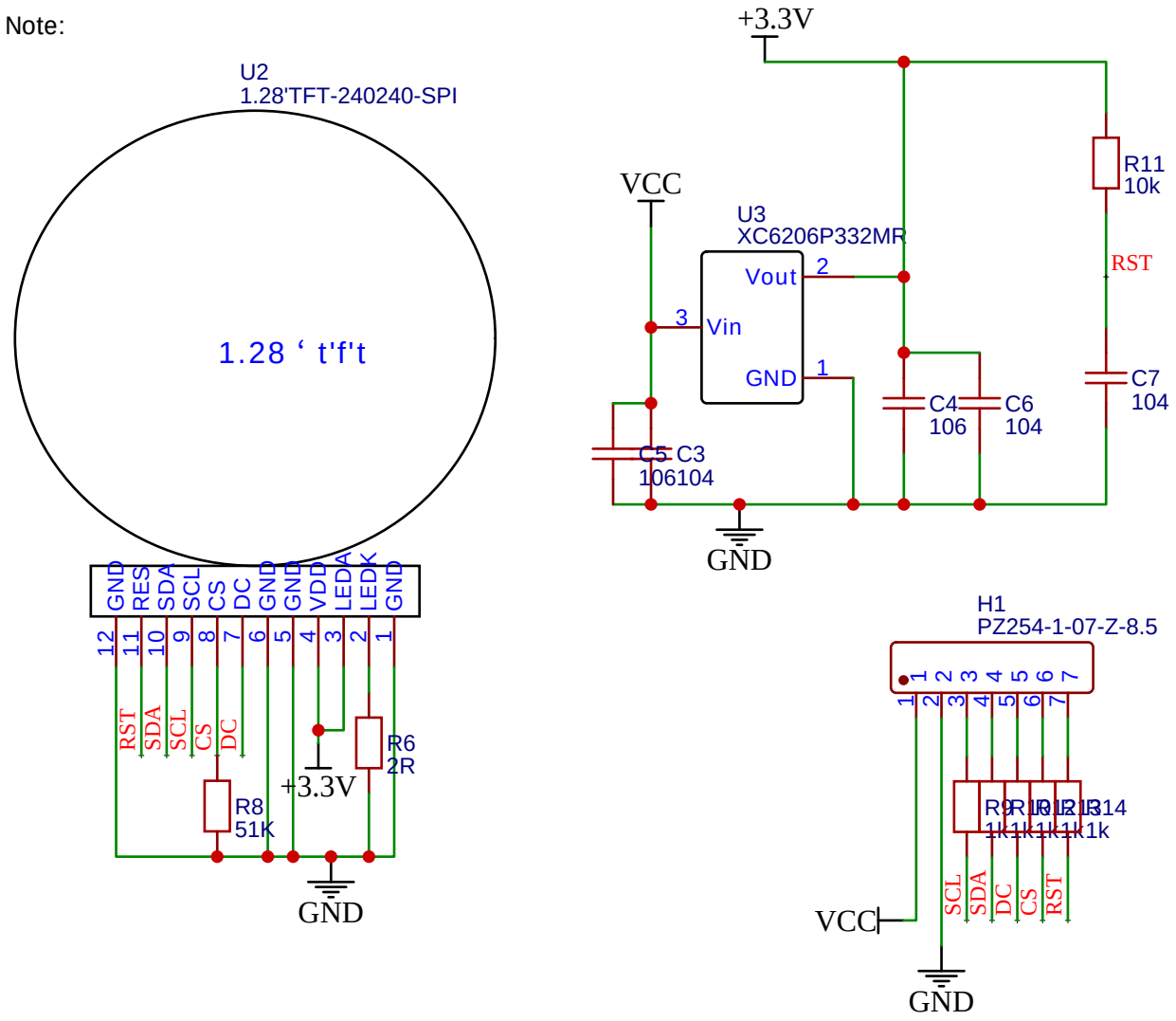
DO NOT SCALE THIS DRAWING.

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:



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	℃	
Storage Temperature	Tst	-30	80	℃	

4.2 Operating Conditions

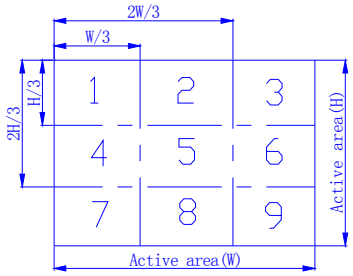
Parameter	Symbol	Min	TYP	MAX	Unit	Notes
System Voltage	VDD	2.5	2.8	3.3	V	
Interface Operation Voltage	VDDIO	1.65	1.8	3.3	V	
Gate Driver High Voltage	VGH	12	-	13	V	
Gate *Driver Low* Voltage	VGL	-11	-	-8	V	
Operating Current for V_{DD}	I_{DD}	-	8.5	10.5	mA	
Sleep_In Mode VDD	I_{dd}	-	15	30	uA	
Sleep_In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

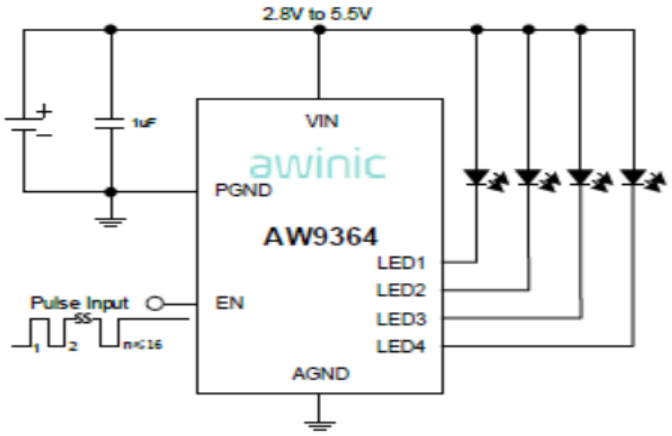
1. Where ILED =40mA , VLED=3.0V , Pbl= ILED x VLED
2. Uniform measure condition:
   a:Measure 9 point,Measure location is show below:
   b:Uniform=(Min brightness/Max.brightness)x100%
   c:Best Contrast.



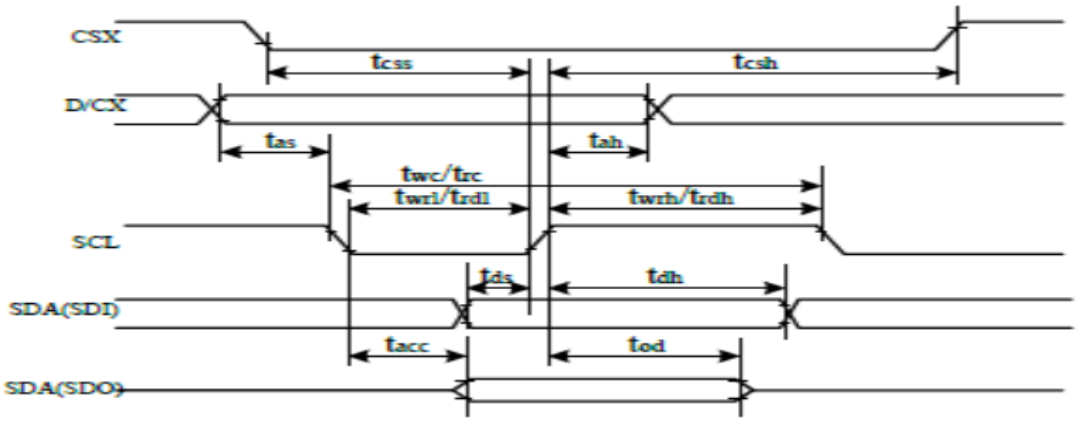
3. The environmental conducted under ambient air flow ,at Ta=25±2°C,60%RH±5%

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	tcss	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	