

深圳市金逸晨电子有限公司

LCD MODULE

MODULE NO. :

GM12864-01A (ziku)

Customer:

Approved By(核准) :

深圳市金逸晨电子有限公司

Approved By(核准) :

Checked By(审核) :

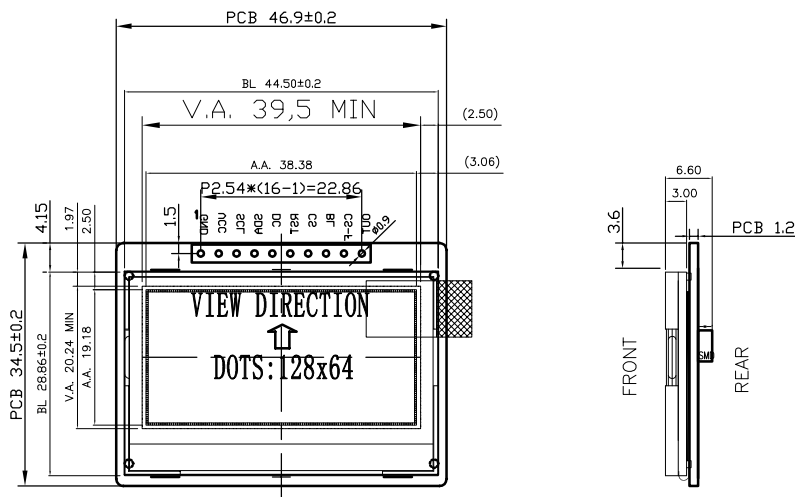
Prepared By(编写) :

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VER.	REVISED RECORD	DATA
V1.0	第一次发行	2022-10-26

1. 外形图



2. 功能&特性

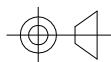
- 2-1. 点阵: 128X64 Dots
- 2-2. LCD模式: FSTN, 负性, 半透
- 2-3. 视角方向: 6 o' clock
- 2-4. 驱动方式: 1/65 Duty, 1/9 Bias
- 2-5. 工作电压 (2# VCC): 3.3V~5V
- 2-6. LCD操作电压: VDD=3.0V, VOP=8.8v
- 2-7. 工作温度: -20℃~70℃
- 2-8. 储存温度: -30℃~80℃
- 2-9. 连接方式/驱动IC: COG/ST7567A
接口: SPI
- 2-10. 背光(BL): 4个白色LED (并联)
(15mA/LED), If<=60mA (Type), Vf=3.0V (Type)

3. 机械规格

- 3-1. 模块尺寸: 46.9mm(L)*34.5mm(W)*6.6mm(T)
3-2. 可视区域: 39.50mm(L)*20.24mm(W)
3-3. 有效区域: 38.38mm(L)*19.18mm(W)
3-4. 点距离: 0.3mm(L)*0.3mm(W)
3-5. 点尺寸: 0.28mm(L)*0.28mm(W)

引脚说明:

PIN	DESCRIPTION
1	GND 电源地
2	VCC 电源正
3	SCL 时钟
4	SDA 数据
5	DC 指令/数据
6	RST 复位
7	CS 片选
8	BL 背光(仅有效)
9	CS-F 字库选择
10	OUT 字库输出



SHEET: 1 of 1

APPROVALS

DWN

ZJP

DATE _____

2022-10-26

CHK

APP

金逸晨电子有限公司

MODEL NUMBER : 不带壳
GM12864-01A带字库LCM

SCALE:

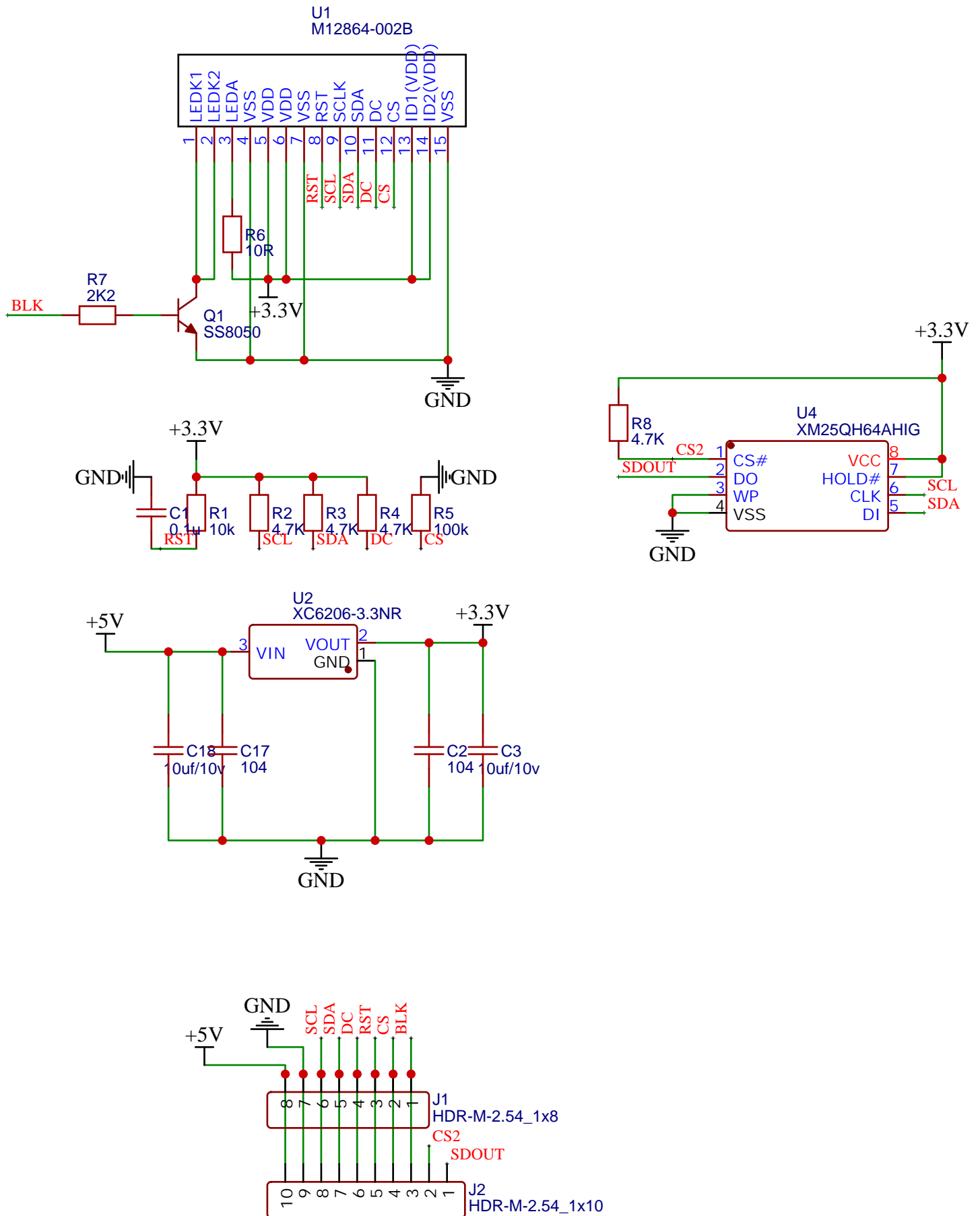
Unspecified TOL:±0.2

DO NOT SCALE THIS DRAWING.

UNITS.

MM

4. 原理图:



注意：电路及元件值仅作参考

6. 电气特性

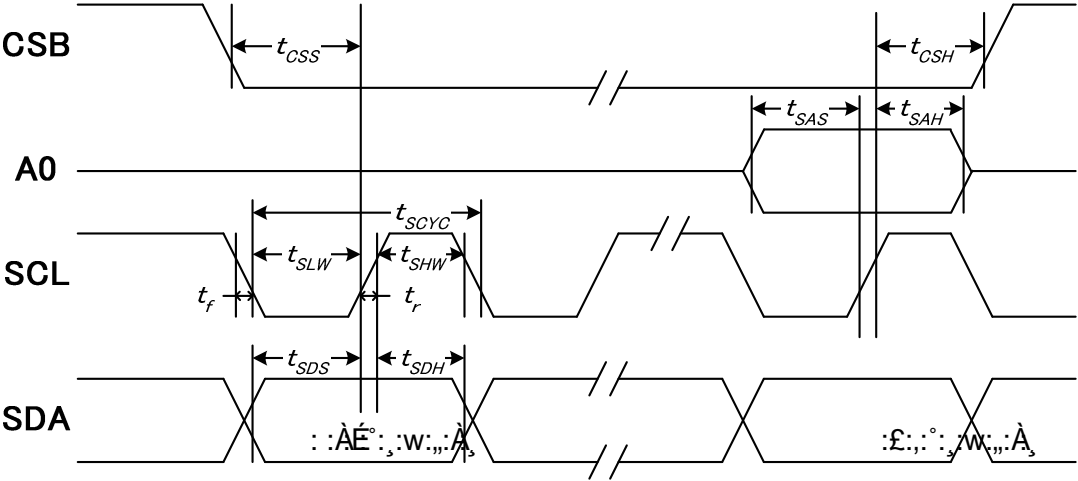
6-1 DC CHARACTERISTICS

VSS=0V; Tamb = -30°C to +85°C; unless otherwise specified.

Item	Symbol	Condition	Rating			Unit	Applicable Pin
			Min.	Typ.	Max.		
Operating Voltage (1)	VDD1		1.7		3.465	V	VDD1
Operating Voltage (2)	VDD2		2.4		3.465	V	VDD2
Operating Voltage (3)	VDD3		2.4		3.465	V	VDD3
Input High-level Voltage	V _{IHC}		0.7 x VDD1		VDD1	V	MPU Interface
Input Low-level Voltage	V _{ILC}		VSS1		0.3 x VDD1	V	MPU Interface
Output High-level Voltage	V _{OHC}	I _{OUT} =1mA, VDD1=1.8V	0.8 x VDD1		VDD1	V	D[7:0]
Output Low-level Voltage	V _{OLC}	I _{OUT} =-1mA, VDD1=1.8V	VSS1		0.2 x VDD1	V	D[7:0]
Input Leakage Current	I _{LI}		-1.0		1.0	μA	MPU Interface
Output Leakage Current	I _{LO}		-3.0		3.0	μA	MPU Interface
Liquid Crystal Driver ON Resistance	R _{ON}	Ta=25°C	Vop=8.5V, ΔV=0.85V	0.6	0.8	KΩ	COMx
			VG=1.9V, ΔV=0.19V	1.3	1.5	KΩ	SEGx
Frame Frequency	FR	Duty=1/65, Vop=8.5V Ta = 25°C	70	75	80	Hz	

6-2 AC 电气特性

System Bus Timing for 4-Line Serial Interface



(VDD1 = 3.3V , Ta =25°C)

Item	Signal	Symbol	Condition	Min.	Max.	Unit
Serial clock period	SCLK	tSCYC		50	—	ns
SCLK "H" pulse width		tSHW		25	—	
SCLK "L" pulse width		tSLW		25	—	
Address setup time	A0	tSAS		20	—	
Address hold time		tSAH		10	—	
Data setup time	SDA	tSDS		20	—	
Data hold time		tSDH		10	—	
CSB-SCLK time	CSB	tCSS		20	—	
CSB-SCLK time		tCSH		40	—	

(VDD1 = 2.8V , Ta =25°C)

Item	Signal	Symbol	Condition	Min.	Max.	Unit
Serial clock period	SCLK	tSCYC		100	—	ns
SCLK "H" pulse width		tSHW		50	—	
SCLK "L" pulse width		tSLW		50	—	
Address setup time	A0	tSAS		30	—	
Address hold time		tSAH		20	—	
Data setup time	SDA	tSDS		30	—	
Data hold time		tSDH		20	—	
CSB-SCLK time	CSB	tCSS		30	—	
CSB-SCLK time		tCSH		60	—	

7. 指令表

INSTRUCTION TABLE

INSTRUCTION	A0	R/W (RWR)	COMMAND BYTE								DESCRIPTION
			D7	D6	D5	D4	D3	D2	D1	D0	
(1) Display ON/OFF	0	0	1	0	1	0	1	1	1	D	D=1, display ON D=0, display OFF
(2) Set Start Line	0	0	0	1	S5	S4	S3	S2	S1	S0	Set display start line
(3) Set Page Address	0	0	1	0	1	1	Y3	Y2	Y1	Y0	Set page address
(4) Set Column Address	0	0	0	0	0	1	X7	X6	X5	X4	Set column address (MSB)
	0	0	0	0	0	0	X3	X2	X1	X0	Set column address (LSB)
(5) Read Status	0	1	0	MX	D	RST	0	0	0	0	Read IC Status
(6) Write Data	1	0	D7	D6	D5	D4	D3	D2	D1	D0	Write display data to RAM
(7) Read Data	1	1	D7	D6	D5	D4	D3	D2	D1	D0	Read display data from RAM
(8) SEG Direction	0	0	1	0	1	0	0	0	0	MX	Set scan direction of SEG MX=1, reverse direction MX=0, normal direction
(9) Inverse Display	0	0	1	0	1	0	0	1	1	INV	INV =1, inverse display INV =0, normal display
(10) All Pixel ON	0	0	1	0	1	0	0	1	0	AP	AP=1, set all pixel ON AP=0, normal display
(11) Bias Select	0	0	1	0	1	0	0	0	1	BS	Select bias setting 0=1/9; 1=1/7 (at 1/65 duty)
(12) Read-modify-Write	0	0	1	1	1	0	0	0	0	0	Column address increment: Read:+0 , Write:+1
(13) END	0	0	1	1	1	0	1	1	1	0	Exit Read-modify-Write mode
(14) RESET	0	0	1	1	1	0	0	0	1	0	Software reset
(15) COM Direction	0	0	1	1	0	0	MY	-	-	-	Set output direction of COM MY=1, reverse direction MY=0, normal direction
(16) Power Control	0	0	0	0	1	0	1	VB	VR	VF	Control built-in power circuit ON/OFF
(17) Regulation Ratio	0	0	0	0	1	0	0	RR2	RR1	RR0	Select regulation resistor ratio
(18) Set EV	0	0	1	0	0	0	0	0	0	1	Double command!! Set electronic volume (EV) level
	0	0	0	0	EV5	EV4	EV3	EV2	EV1	EV0	
(19) Set Booster	0	0	1	1	1	1	1	0	0	0	Double command!! Set booster level: BL=0: 4X BL=1: 5X
	0	0	0	0	0	0	0	0	0	BL	
(20) Power Save	0	0	Compound Command								Display OFF + All Pixel ON
(21) NOP	0	0	1	1	1	0	0	0	1	1	No operation
(22) Test	0	0	1	1	1	1	1	1	1	-	Do NOT use. Reserved for testing.

Note: Symbol "-" means this bit can be "H" or "L".