样品确认书

型号.: JR128-05A

客户名称:________________________________

客户型号:________________________________

客户确认:________________________________

日期　　:________________________________

制定	审核	核准
SUNNY		

DOCUMENT REVISION HISTORY

VERSION	DATE	DESCRIPTION	CHANGED BY
V1.0	**2023.9.23**	First issue	SUNNY

CONTENTS

1. GENERAL SPECIFICATIONS

1-1 SCOPE:

This specification covers the delivery requirements for the liquid crystal display delivered to Customer。

1-2 PRODUCTS:

Liquid Crystal Display Module (LCM)

2. FEATURES

2-1 MAIN LCD (LARGE)

(1) Display Type: TFT Transmissive, ALL,H

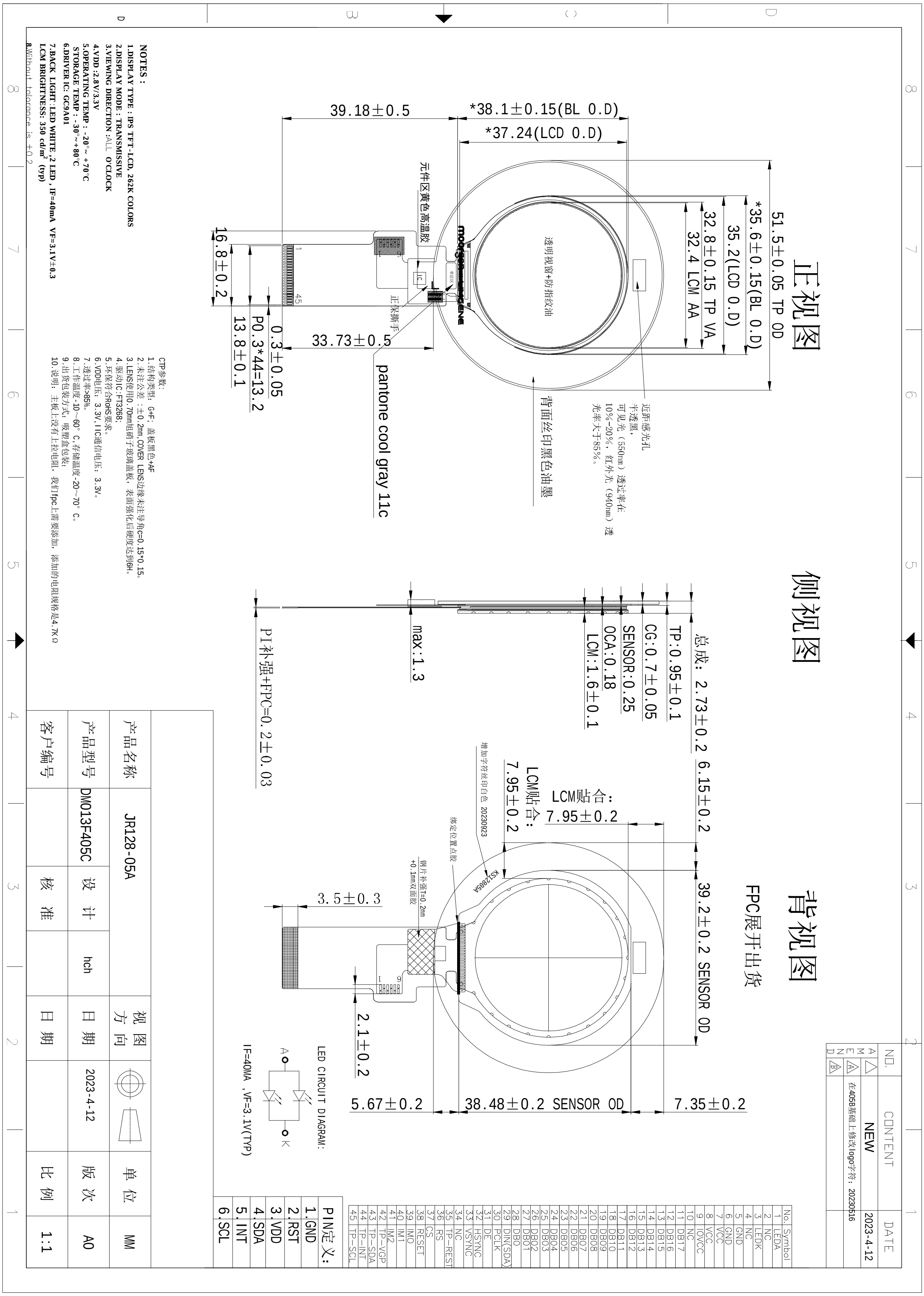
(2) With WHITE LED Backlight

(3) DISP COLOR : 65K

3. MECHANICAL SPECIFICATIONS

ITEM	SPECIFICATIONS	UNIT
OUTLINE DIMEMSIONS	**51.5 (W) x51.5(H) x2.73 (T)**	mm
ACTIVE AREA	**32.4(W) x 32.4(H)**	mm
PIXEL ARRANGEMENT	RGB VERTICAL STRIPE	—
NUMBER OF DOTS	240 x RGB x240	Dots
DOT PITCH	----	mm
VIEWING DIRECTION	ALL,H	—
DRIVER IC	GC9A01	—
ASSY.TYPE	COG+FPC+TP	—
BACKLIGHT	WHITE LED	—
WEIGHT	TBD	g

4. OUTLINE DIMENSIONS



5. INTERFACE ASSIGNMENT

引脚序号	引脚符号	功能描述
1	**LEDA**	背光正极
2	**NC**	无连接
3	**LEDK**	背光负极
4	**NC**	无连接
5-6	**GND**	系统接地
7-8	**VCC(2.8V)**	电源2.8V
9	**IOVCC(1.8V)**	电源1.8V/2.8V
10	**NC**	无连接
11-28	**DB17-DB00**	并口数据总线 I/O
29	**SDA**	串口数据总线 I/O
30	**PCLK**	RGB 时钟信号
31	**DE**	RGB 使能信号
32	**HSYNC**	RGB line数据同步
33	**VSYNC**	RGB frame数据同步
34	**NC**	无连接
35	**TPRESET**	**电容触摸复位信号**
36	**RS**	寄存器 选择
37	**CS**	片选信号线
38	**RESET**	显示屏复位信号

引脚序号	引脚符号	功能描述
39	**IM0**	接口类型选择
40	**IM1**	接口类型选择
41	**IM2**	接口类型选择
42	**TPVDD**	电容触摸电源
43	**TPSDA**	电容触摸数据输入信号
44	**TPINT**	电容触摸触发信号
45	**TPSCL**	电容触摸时钟信号

6. ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Spec. Min.	Spec. Typ.	Spec. Max.	Unit
VDD	Supply Voltage	-0.3	-	2.7	V
VDDIO		-0.3	-	4.0	V
VCI	Input Voltage	VSS-0.3	-	5.0	V
I	Current Drain Per Pin Excluding VDD and VSS	-	25	-	mA
TA	Operating Temperature	-30	-	85	℃
Tstg	Storage Temperature	-65	-	150	℃

7. DC CHARACTERISTICS

Item	Symbol	Unit	Condition	Min.	Typ.	Max.	Note
Power and Operation Voltage							
Analog Operating Voltage	VCI	V	Operating voltage	2.5	2.8	3.3	Note2
Logic Operating Voltage	VDDI	V	I/O supply voltage	1.65	2.8	3.3	Note2
Digital Operating voltage	VCORE	V	Digital supply voltage	-	1.5	-	Note2
Gate Driver High Voltage	VGH	V	-	10.0	-	16.0	Note3
Gate Driver Low Voltage	VGL	V	-	-10.0	-	-5.0	Note3
Driver Supply Voltage	-	V	|VGH-VGL|	15	-	28	Note3
Current consumption during standby mode	I_{ST}	μA	VCI=2.8V , Ta=25 ℃	-	-	100	-
Input and Output							
Logic High Level Input Voltage	VIH	V	-	0.7*VDDI	-	VDDI	Note1,2,3
Logic Low Level Input Voltage	VIL	V	-	VSS	-	0.3*VDDI	Note1,2,3
Logic High Level Output Voltage	VOH	V	IOL=-1.0mA	0.8*VDDI	-	VDDI	Note1,2,3
Logic Low Level Output Voltage	VOL	V	IOL=1.0mA	VSS	-	0.2*VDDI	Note1,2,3
Logic High Level Input Current	IIH	uA	-	-	-	1	Note1,2,3
Logic Low Level input Current	IIL	uA	-	-1	-	-	Note1,2,3
Logic Input Leakage Current	ILEA	uA	VIN=VDDI or VSS	-0.1	-	+0.1	Note1,2,3
VCOM Operation							
VCOM High Voltage	VCOMH	V	Ccom=12nF	2.5	-	5.0	Note3
VCOM Low Voltage	VCOML	V	Ccom=12nF	-2.5	-	0.0	Note3
VCOM Amplitude Voltage	VCOMA	V	|VCOMH-VCOML|	4.0	-	5.5	Note3
Source Driver							
Source Output Range	Vsout	V	-	0.1	-	DDVDH-0.1	Note4
Gamma Reference Voltage	GVDD	V	-	3.0	-	5.0	Note3
Output Deviation Voltage (Source Output channel)	Vdev	mV	Sout>=4.2V Sout<=0.8V	-	-	20	Note4
			4.2V>Sout>0.8V	-	-	15	-
Output Offset Voltage	VOFSET	mV	-	-	-	35	Note7
Booster Operation							
1st Booster (VCIx2) Voltage	DDVDH	V	-	4.95 (Note 5)	-	5.8 (Note 6)	Note3
1st Booster (VCIx2 Drop Voltage	VCIx2 drop	%	loading=1mA	-	-	5	Note3
Liner Range	Vliner	V	-	0.2	-	DDVDH-0.2	

8. AC CHARACTERISTICS

i80-System Interface Timing Characteristics

Signal	Symbol	Parameter	min	max	Unit	Description
DCX	tast	Address setup time	0	-	ns	
	taht	Address hold time (Write/Read)	0	-	ns	
CSX	tchw	CSX "H" pulse width	0	-	ns	
	tcs	Chip Select setup time (Write)	15	-	ns	
	trcs	Chip Select setup time (Read ID)	45	-	ns	
	trcsfm	Chip Select setup time (Read FM)	355	-	ns	
	tcsf	Chip Select Wait time (Write/Read)	10	-	ns	
WRX	twc	Write cycle	66	-	ns	
	twrh	Write Control pulse H duration	15	-	ns	
	twrl	Write Control pulse L duration	15	-	ns	
RDX (FM)	trcfm	Read Cycle (FM)	450	-	ns	
	trdhfm	Read Control H duration (FM)	90	-	ns	
	trdlfm	Read Control L duration (FM)	355	-	ns	
RDX (ID)	trc	Read cycle (ID)	160	-	ns	
	trdh	Read Control pulse H duration	90	-	ns	
	trdl	Read Control pulse L duration	45	-	ns	
D[17:0], D[15:0], D[8:0], D[7:0]	tdst	Write data setup time	10	-	ns	For maximum CL=30pF For minimum CL=8pF
	tdht	Write data hold time	10	-	ns	
	trat	Read access time	-	40	ns	
	tratfm	Read access time	-	340	ns	
	trod	Read output disable time	20	80	ns	

Note: Ta = -30 to 70 ℃, VDDI=1.65V to 3.3V, VCI=2.5V to 3.3V, VSS=0V

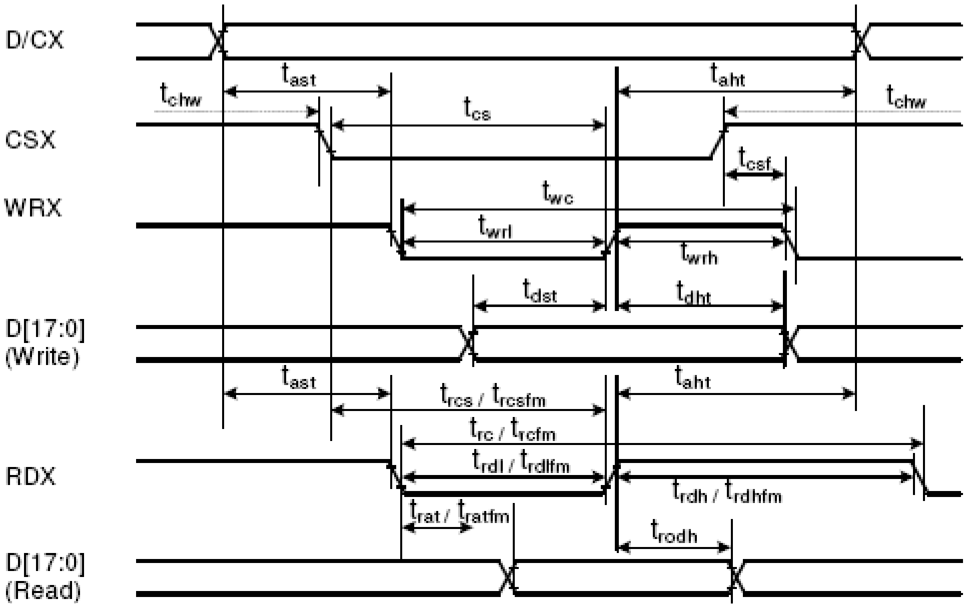


Figure1 i80 System Bus Timing

9. LED BACKLIGHT

9-1 ABSOLUTE MAXIMUN RATING

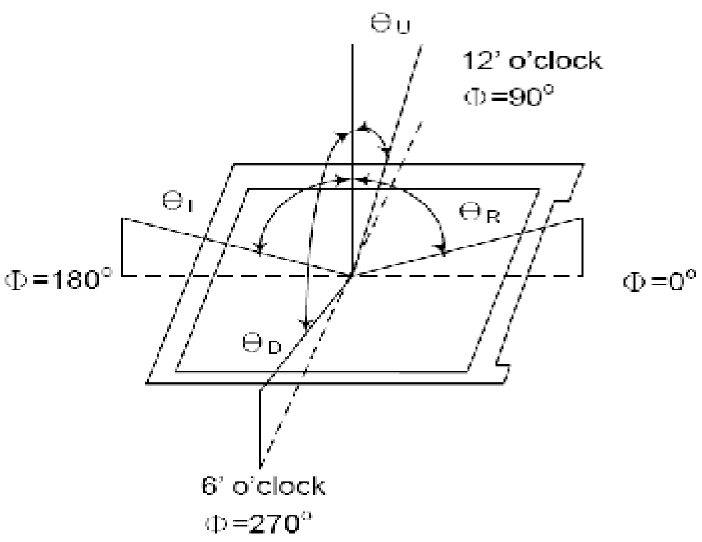
PARAMETER	SYMBOL	SPECIFICATIONS	UNIT
POWER DISSIPATION	PD	--	mW
OPERATION TEMPERATURE	TOPR	-20℃ ～+70℃	℃
STORAGE TEMPERATURE	TSTG	-30℃ ～+80℃	℃

9-2 ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	REMARK	STANDARD VALUE			UNIT
			MIN	TYP	MAX	
FORWARD VOLTAGE	VF	If =40mA	3.0	3.2	-	V
LUMINOUS INTENSITY(Without LCD)	Iv	If =40mA	--	--	—	cd/m2
LUMINOUS TOLERANCE	Iv-m	(min/max)/100	--	85	—	%

10. OPTICAL CHARACTERISTICS

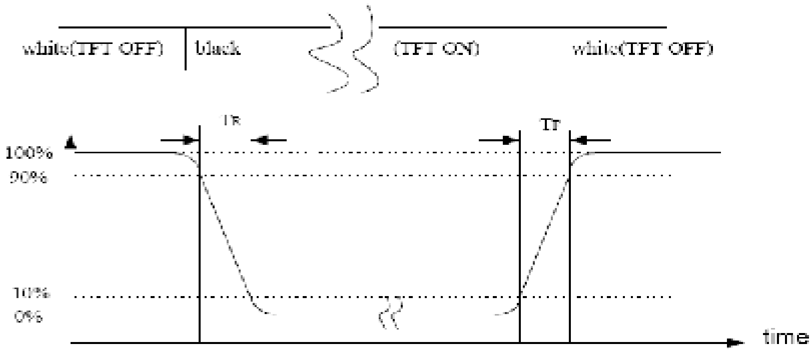
Note (1) Definition of Viewing Angle :



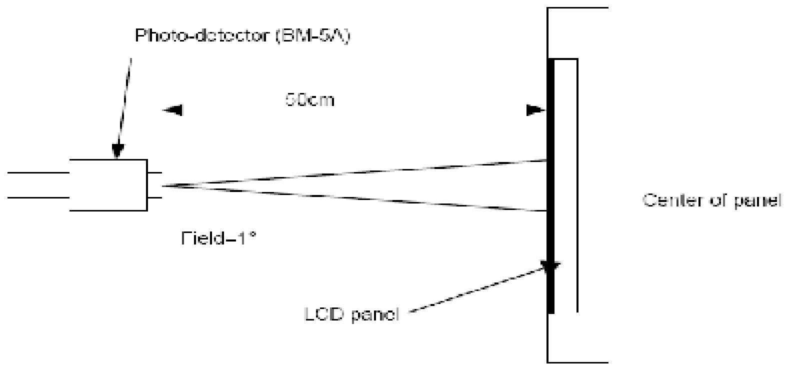
Note (2) Definition of Contrast Ratio(CR) :
measured at the center point of panel

$$CR = \frac{\text{Luminance with all pixels white}}{\text{Luminance with all pixels black}}$$

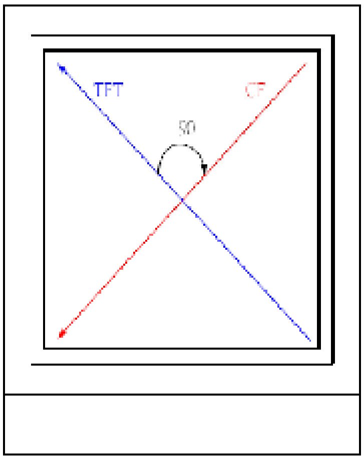
Note (3) Definition of Response Time : Sum of T_R and T_F



Note (4) Definition of optical measurement setup



Note (5) Rubbing Direction (The different Rubbing Direction will cause the different optima view direction.



TFT Face up

11. ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	CONDITIONS	CRITERION
OPERATING AMBIENT TEMPERATURE	TOPR	-20˚C～+70˚C	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION
OPERATING AMBIENT HUMIDITY	HOP	10~90%RH	WITHOUT CONDENSATION
STORAGE TEMPERATURE	TSTG	-30˚C～+80˚C	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION
STORAGE HUMIDITY	HSTG	10~90%RH	WITHOUT CONDENSATION

12. RELIABILITY

12-1 RELIABILITY TEST

ITEM	CONDITIONS	CRITERION
OPERATING TEMPERATURE	HIGH TEMPERTURE +70˚C 24HRS	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION
	LOW TEMPERTURE - 20˚C 12HRS	
STORAGE TEMPERATURE	HIGH TEMPERTURE +80˚C 96HRS	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION
	LOW TEMPERTURE - 30˚C 16HRS	
HUMIDITY	40˚C 90%RH 96HRS	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION
VIBRATION	• Operating Time: thirty minutes exposure for each direction (X,Y,Z) • Sweep Frequency: 10～55Hz (1 min) • Amplitude: 1.5mm	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION
THERMAL SHOCK	-20˚C(30mins) ß à +65˚C(30mins) 10 cycles	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION

*NOTE: TEST CONDITION

(1)TEMPERATURE AND HUMIDITY: IF NO SPECIFICATION, TEMP. SET AT 25±2˚C , HUMIDITY SET AT 60±5%RH

(2) OPERATING STATE: SAMPLES SUBJECT TO THE TESTS SHALL BE IN " OPERATING" CONDITION

eyelet, conductors and terminals.