SHENZHEN GENYU OPTICAL CO.,LTD

产品规格书

SPECIFICATION FOR APPROVAL

客户名称

CUSTOMER:

客户型号

CLIENT TYPE:

产品编号

PRODUCTION NO.:

出品日期

SHIPMENT DATE:

确认此规格书及样品，客户确认签章：

Confirm this specification and sample and confirm the signature of the customer

	签名 SIGNATURE	日期 DATE
拟制 PREPARED	冯楚君	2017.09.01
审核 CHECKED	袁道平	2017.09.01
批准 APPROVED	袁道平	2017.09.01

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RECORDS OF REVISON

DATE	REVISED NO.	REVISED DESCRIPTIONS	PREPARED	CHECKED	APPROVED
2017.09.01	01	First issue			

3. GENERAL SPECIFICATIONS:

3-1 SCOPE:

This specification covers the delivery requirements for the liquid crystal display delivered by quality to customer.

3-2 PRODUCTS:

Liquid Crystal Display Module(LCM).

4. FEATURES:

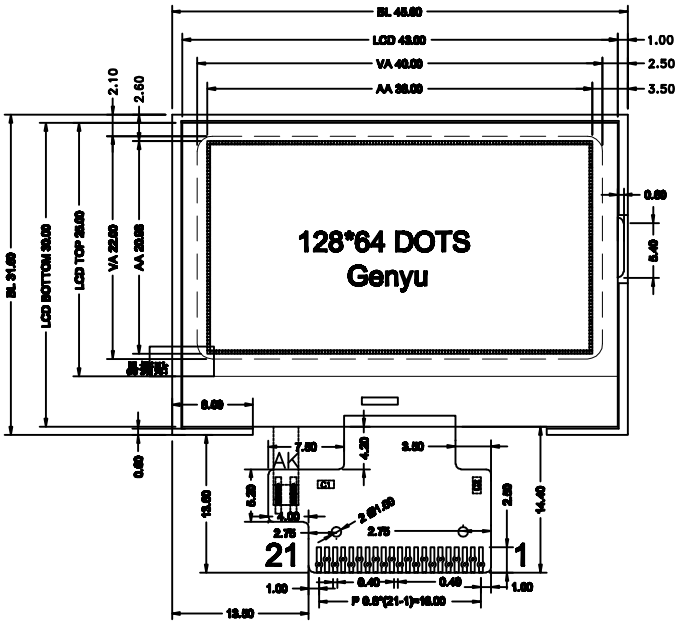
Display Type	**FSTN, Transflective, Positive**
View Direction	**12 O'CLOCK**
Driving Method	**1/65DUTY,1/9BIAS**
Drive IC	**ST7567A**
Interface	**8080,6800**
Power supply	**1.8V**
LED backlight	**Orange**

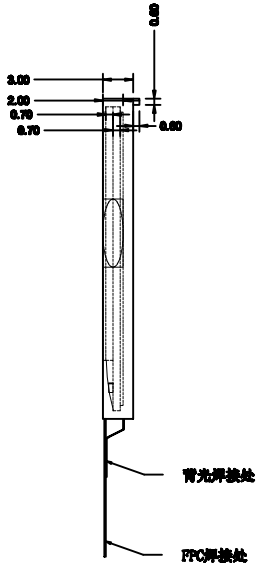
5. MACHANICAL SPECIFICATIONS:

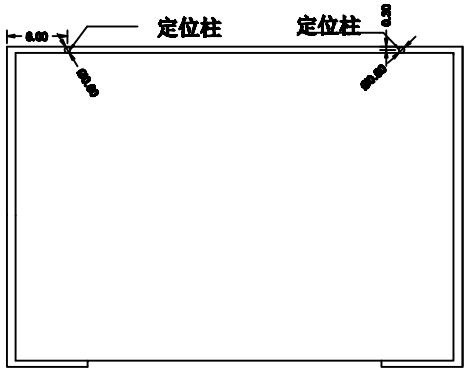
ITEM	SPECIFICATIONS	UNIT
MODULE SIZE	45.00*31.60*3.0	MM
VIEWING AREA	40.00*22.00	MM
ACITVE AREA	38.00*20.98	MM
DOT SIZE	0.282*0.313	MM
DOT PITCH	0.432*0.463	MM
BACKLIGHT	2pcs orange LEDs	
ASSY.TYPE	COG	
WEIGHT	TBD	

All Pages Of This Edition Approved			
Signature:		Date:	

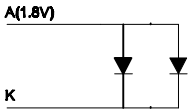
REV.	DESCRIPTION	REVISER	DATE
A0	First issue	Francis	2017.04.24



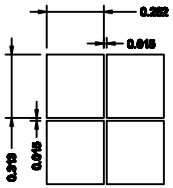




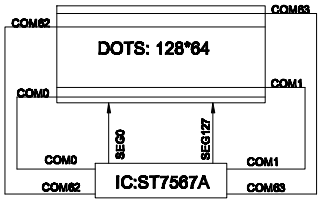
PIN	定义
1	PSB
2	NC
3	C86
4	CSB
5	RST
6	D6
7	RWR
8	ERD
9	D7
10	D5
11	D4
12	D3
13	D2
14	D1
15	D0
16	A0
17	VSS
18	VDD
19	VLEDA
20	VLEDK
21	NC



BACKLIGHT CIRCUIT
2PCS ORANGE LEDS



DOTS SIDE
SCALE 20:1



LCD LAYOUT

Specifications:

1. Display Mode: FSTN/Transflective/Positive.
2. Viewing Angle: 12 0'clock.
3. Drive Method: 1/65 Duty 1/9 Bias, Vop= 6.9V, Vdd= 1.8V.
4. Top: -20°C~+70°C, Tst: -30°C~+80°C.
5. Connector: COG+FPC.
6. Drive IC: ST7567A
7. BackLight: 2PCS Orange LEDS, IF=30mA & VF=1.8±0.10V
8. With" * " Mark Dimensions Are Important Dimensions.

深圳市晶耀光电有限公司

Unspecified Tolerance:	±0.20	UNITS: mm	DATE:	MODEL NUMBER :		SHEET: 1 OF 1
DESIGN BY:		Francis	2017.04.24	GY12864-468-A0		
CHECKED BY:				DO NOT SCALE THIS DRAWING.	PROJECTION	DATE: 2017.04.24

7. ABSOLUTE MAXIMUM RATING:

CHARACTERISTIC	SYMBOL	STANDARE VALUE			UNIT
		MIN	TYP	MAX	
Power Supply Voltage(1)	VDD	-0.3	1.8	+3.6	V
Power Supply Voltage(2)	VLCD	6.3	6.9	7.5	V
Operating Temperature	TOPR	-20	——	+70	° C
Storage Temperature	TSTG	-30	——	+80	° C
Input Voltage	VIN	-0.3	——	VDD+0.3	V

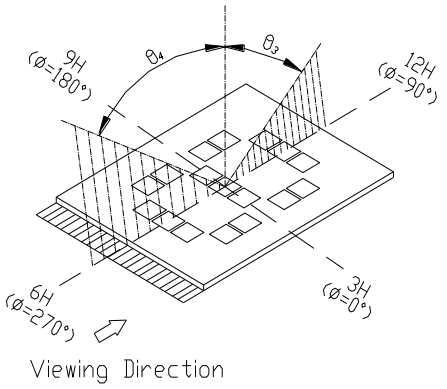
8. ELECTRICAL CHARACTERISTICS:

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

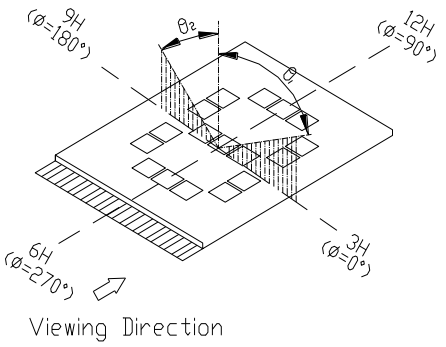
Item	Symbol	Condition		Rating			Unit	Applicable Pin
				Min.	Typ.	Max.		
Operating Voltage (1)	VDD1			1.7	—	3.3	V	VDD1
Operating Voltage (2)	VDD2			2.4	—	3.3	V	VDD2
Operating Voltage (3)	VDD3			2.4	—	3.3	V	VDD3
Input High-level Voltage	V_{IHC}			0.7 x VDD1	—	VDD1	V	MPU Interface
Input Low-level Voltage	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℃		70	75	80	Hz	

9. OPTICAL CHARACTERISTICS

Note 1. Definition of angle θ 1&θ 2

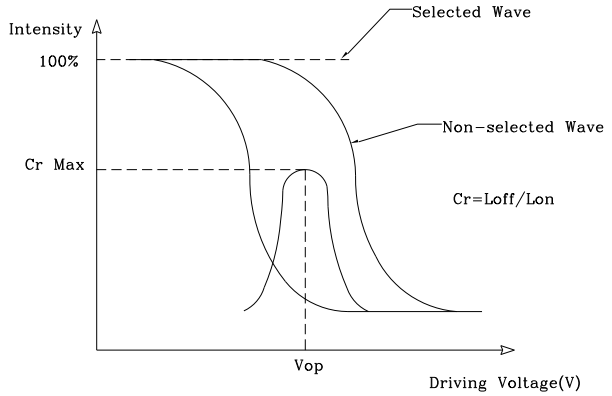


Note 2. Definition of angle θ 3&θ 4

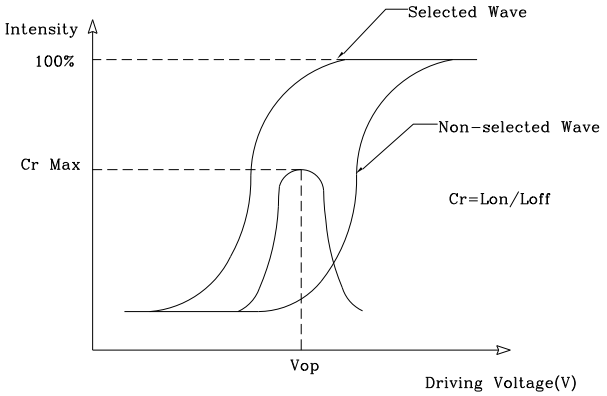


LCD Panel

Note 3. Definition of contrast ratio



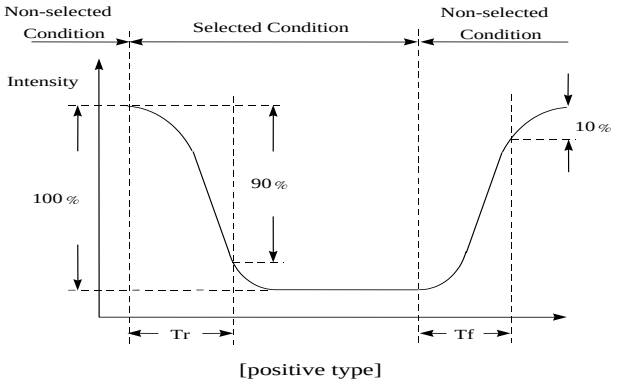
[Positive type]



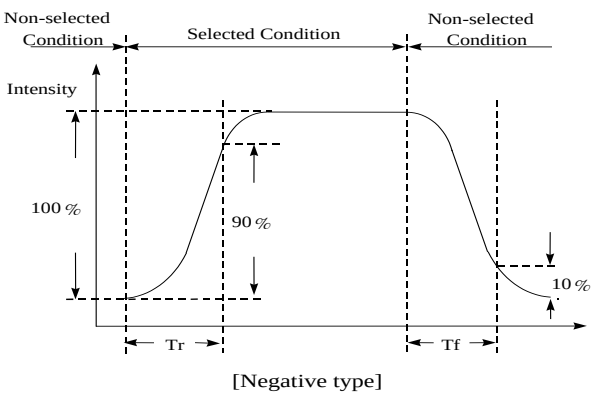
[Negative type]

(Cr2)

Note 4. Definition of response time:



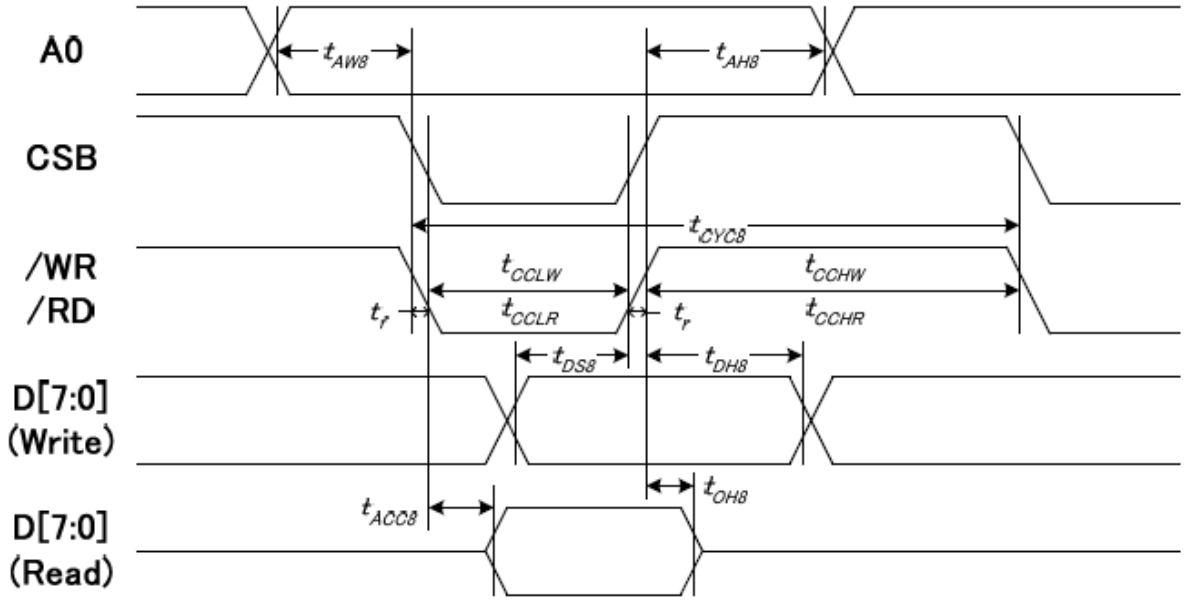
[positive type]



[Negative type]

10. TIMING CHARACTERISTICS

System Bus Timing for 8080 Series MPU



(VDD1 = 1.8V , Ta =25 C)

Item	Signal	Symbol	Condition	Min.	Max.	Unit
Address setup time	A0	tAW8		0	—	ns
Address hold time		tAH8		0	—	
System cycle time	/WR	tCYC8		640	—	
/WR L pulse width (WRITE)		tCCLW		360	—	
/WR H pulse width (WRITE)		tCCHW		280	—	
/RD L pulse width (READ)	RD	tCCLR		360	—	
/RD H pulse width (READ)		tCCHR		280		
WRITE Data setup time	D[7:0]	tDS8		80	—	
WRITE Data hold time		tDH8		20	—	
READ access time		tACC8	CL = 16 pF	—	240	
READ Output disable time		tOH8	CL = 16 pF	10	200	

11. COMMANDS INSTRUCTIONS

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".

12. ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	CONDITIONS	CRITERION
OPERATING TEMPERATURE	TOPR	-20~+70℃	NO DEFECT IN DISPLAY AND OPERATION FUNCTION
STORAGE TEMPERATURE	TSTG	-30~+80℃	NO DEFECT IN DISPLAY AND OPERATION FUNCTION
黑点检验标准	Point Like flaw	黑点直接≤0.25 2 点间距离＞5MM	接收

13. RELIABILITY

ITEM	CONDITIONS	CRITERION
OPERATING TEMPERATURE	HIGH TEMPERATURE +70℃ 96HRS	NO DEFECT IN DISPLAY AND OPERATION FUNCTION
	LOW TEMPERATURE-20℃ 96HRS	
STORAGE TEMPERATURE	HIGH TEMPERATURE +80℃ 96HRS	NO DEFECT IN DISPLAY AND OPERATION FUNCTION
	LOW TEMPERATURE -30℃ 96HRS	
HUMIDITY	40℃ 90%RH 96HRS	NO DEFECT IN DISPLAY AND OPERATION FUNCTION
VIBRATION	OPERATING TIME:THIRTY MINUTES EXPOSURE FOR EACH DIRECTION(X,Y,Z) SWEEP FREQUENCY:10~55HZ(1MIN) AMPLITUDE:1.5MM	NO DEFECT IN DISPLAY AND OPERATION FUNCTION
THERMAL SHOCK	-20℃(30MINS) ~70℃(30MINS) 10CYCLES	NO DEFECT IN DISPLAY AND OPERATION FUNCTION

NOTE:TEST CONDITON

(1)TEMPERATURE AND HUMIDITY:IF NOSPECIFICATION,TEMP.SET AT 25+-2℃，HUMIDITY SET AT 60+-5%RH

(2)OPERATING STATE:SAMPLES SUBJECT TO THE TEST SHALL BEIN“OPERATING”CONDITON

14. Precaution For Use

The following precautions should be followed ,since this module contains precise parts.

(1)Do not stor module for an extended periods of time under the conditions of high temperature and high humidity.

(2)Avoid using or storing the module in areas that expose it to direct sunlight or ultraviolet rays..

(3)Use protective finger covers when handling the module to avoid scratching or staining the module.

(4)Care should be taken not to expose the module tostatic electricity,because the module contains C-MOS LSI'S.

(5)The LSI is sensitive to light.the user's product should be designed so that LSI is not exposed to any light during operation.

(6)During installation,cover the display area with acrylic protection plates to protect the polarizer plate and LCD cells.

(7)Do not apply any excessive shocks to the module because the module contains sensitive LCD cells.Do not use a module ,which has experienced strong mechanical shock .

(8)Care should be taken when the power supply turns on as follwing.

(a)Do not apply any input signals before the supplying voltage is applied.

(b)Do not turn off the power supply while any input signals are applied.

CAUTION

1， Dangerous.Do not shock glass because glass can break.

2， If module breaks,do not touch it directly(Glass could stick or cut skin)

3， Do not swallow Liquid Crystal(In case of broken LCD panel,do not swlallow liquid crystal even if there is no proof that liquid crystal is poisonous)

4， If liquid crystal is exposed to skin,wash the area thoroughly with alcohol or soap.

5， When disposing of the product,please observe industrial waste disposal laws in each country and district.

6， In case of injury,give immediate treatment and consult with a doctor.

7， This product is constructed precisely.Don't disassemble or modify