



深圳市汉昇实业有限公司

SHENZHEN HANSHENG INDUSTRIAL CO.LTD.,

HS28QI084RX

规格书

DATASHEET

汉昇 HS	制作	审核	批准

版本：VER 1.0	2.8 寸 TFT 屏 37pin 焊接款
版本：VER 1.1	

深圳市汉昇实业有限公司

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Specification of LCD Module Type

Model No: <G& E\$, ("

1. General Description

MAIN:

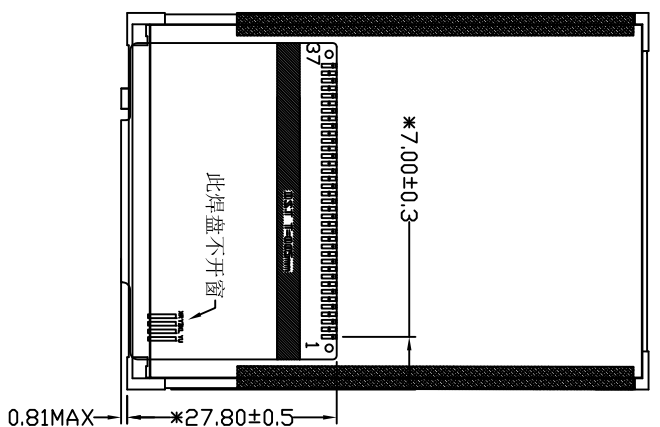
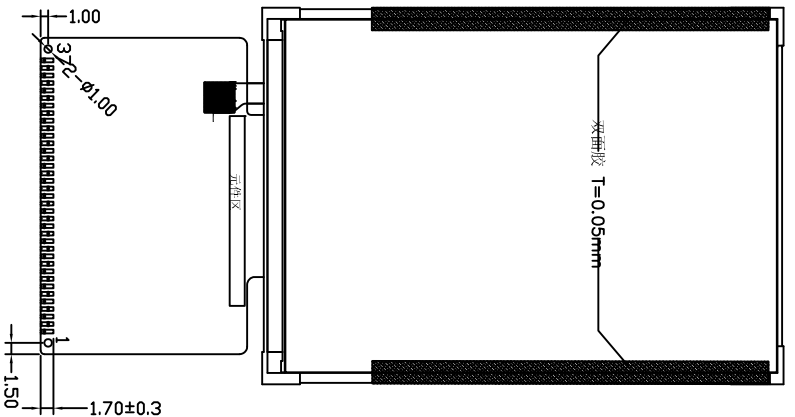
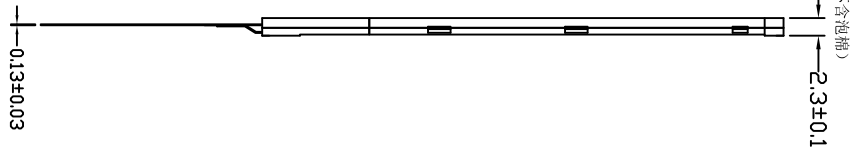
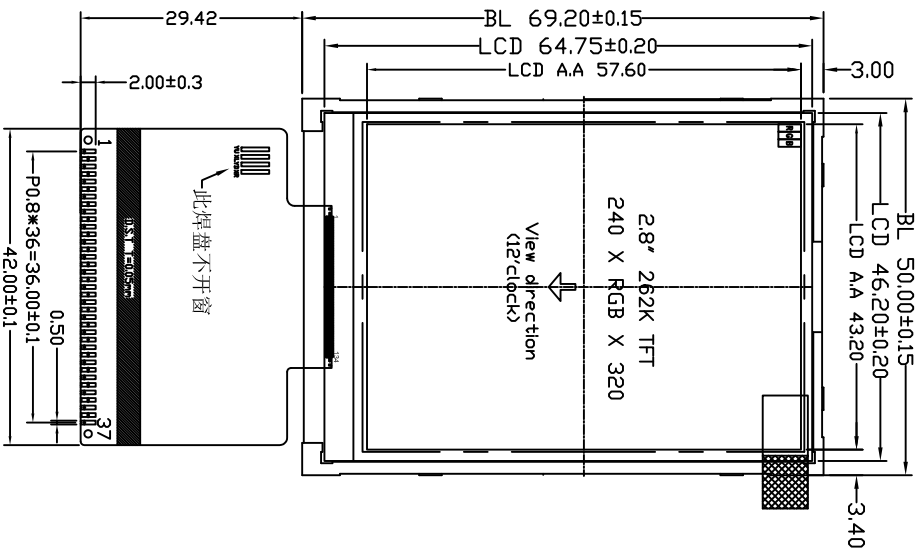
Display type (Color):	[240(R.G. B)×320 Dots Matrix TFT LCD Module]
Polarizer Mode:	[transmissive]
View Direction:	[12 O'clock]
IC:	[COG S6D04H0]
Backlight:	[4 LED B/L White]
INTERFACE:	[parallel 8/16/bits 8080 system]

2. Mechanical Specifications

The mechanical detail is shown in Fig 1 and summarized in Table 1 below.

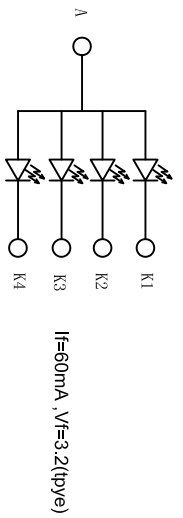
Table 1

ITEM	STANDARD VALUES	UNITS
LCD type	TFT	-
Dot arrangement	240(R.G.B)×320	dots
Module size	50.0(W) ×69.2(H)×3.6(T)	mm
Active area	43.2(W) ×57.6(H)	mm
Dot pitch	0.18 (W) ×0.18 (H)	mm
Viewing direction	12 O'clock	



Pin	DESC.	Conn.
1	DB0	x
2	DB1	x
3	DB2	x
4	DB3	x
5	GND	x
6	IOVCC	x
7	/CS	PO.0
8	/RS	PO.1
9	/WR	PO.2
10	/RD	PO.3
11	/MO	x
12	X+	x
13	X-	x
14	X+	x
15	X-	x
16	LEDA	x
17	EDK1	x
18	EDK2	x
19	EDK3	x
20	EDK4	x
21	NC	x
22	DB4	x
23	DB8	P1.0
24	DB9	P1.1
25	DB10	P1.2
26	DB11	P1.3
27	DB12	P1.4
28	DB13	P1.5
29	DB14	P1.6
30	DB15	P1.7
31	/RESET	PO.4
32	VCC	x
33	IOVCC	x
34	GND	x
35	DB5	x
36	DB6	x
37	DB7	x

FPC弯折示意图
(展开出货)



- NOTES:
- VIEWING DIRECTION : 12 O'CLOCK
 - POLARIZER MODE : TRANSMISSIVE
 - DRIVER IC : LI19341V
 - CONNECTOR :
 - GENERAL TOLERANCE : ±0.2
 - CRITICAL DIMENSION : *
 - REFERENCE DIMENSION : ()
 - OPERATING TEMP : -20° C~+70° C
 - STORAGE TEMP : -30° C~+80° C
 - 图中LCD VA/TP VA为推荐机壳视窗开窗位置, 建议机壳开窗位置不要超过LCD VA及比TP VA单边小0.3以上

REV	DESCRIPTION	DATE	NAME
6			
5			
4			
3			
2			
1			

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SCALE: 1/1	UNIT: mm	PAGE: 1/1	Approve	Check	Drawn
Part No:	HS28Q1084				
Customer No:					

3. Absolute Maximum Ratings (Ta=25°C)

Table 2

ITEM	SYMBOL	MIN	MAX	UNITS	
Power Supply Voltage (1)	VDD	-0.3	+4.0	V	NOTE
Power Supply Voltage (2)	VGH	+9.0	+16.5	V	
Power Supply Voltage (3)	VGL	-16.5	-4.0	V	
Input Voltage	VI	-0.3	VDD+0.3	V	
Operating Temperature	Topr	-20	70	°C	
Storage Temperature	Tstg	-30	80		

Notes:

1. If the LSI is used above these absolute maximum ratings, it may become permanently damaged. Using the LSI within the following electrical characteristics limit is strongly recommended for normal operation. If these electrical characteristic conditions are also exceeded, the LSI will malfunction and cause poor reliability.
2. VDD, GND must be maintained
3. DC characteristics and AC characteristics of shipping chips and shipping wafer are guaranteed at 85°C.

4. Electrical Specifications

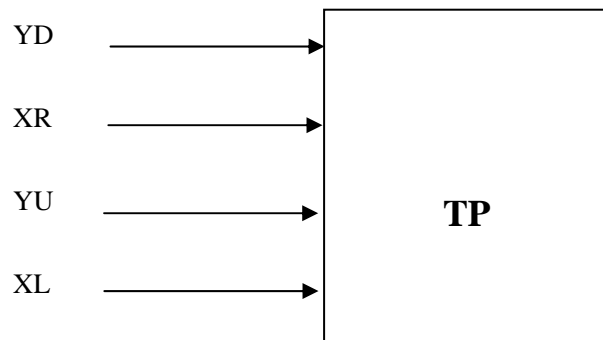
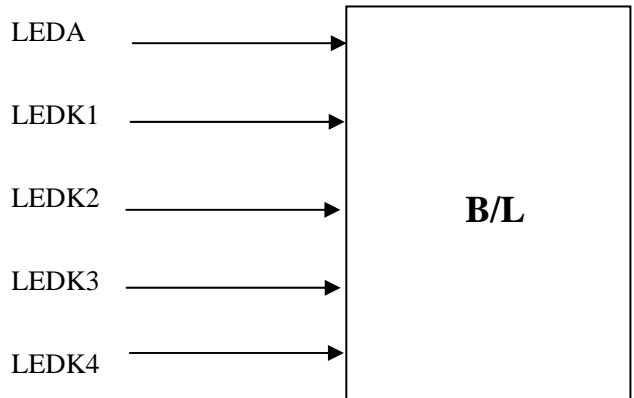
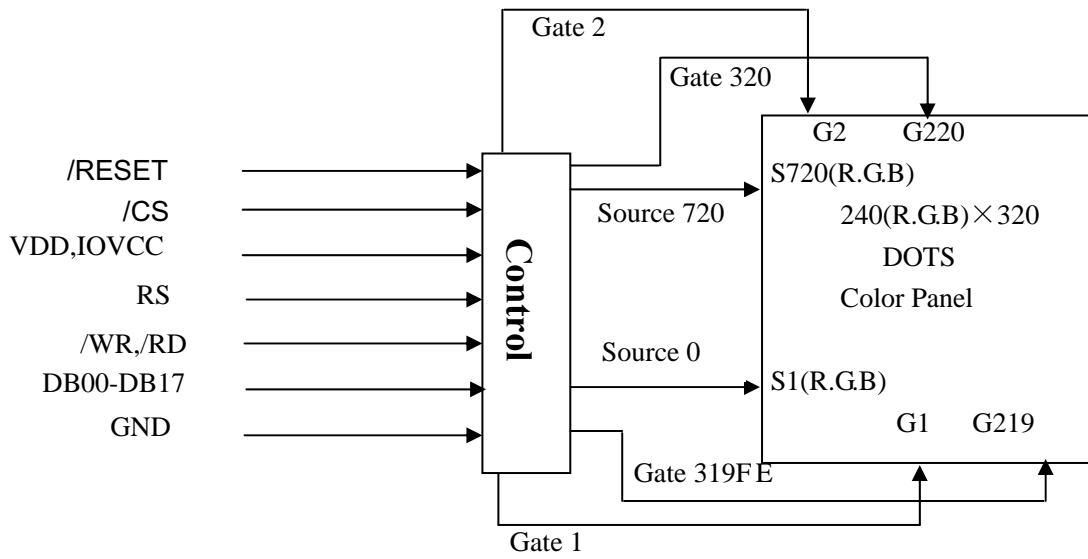
4.1 Interface signals

Table 3: Pin description of FPC interface

PIN NO.	PIN NAME	DESCRIPTION
1-4	DB0-DB3	LCD data bus
5	GND	Ground pin
6	IOVCC	Power supply for system 2.8V/1.8V
7	CS	Chip selection input pin: Active "L"
8	RS	LCD register selector
9	WR	LCM write signal: Active "L"
10	RD	LCM read signal: Active "L"
11	IM0	LCD register selector
12	X+	Touch panel interface
13	Y+	Touch panel interface
14	X-	Touch panel interface
15	Y-	Touch panel interface
16	LEDA	Backlight positive input pin
17	LEDK1	Backlight positive input pin
18	LEDK2	Backlight positive input pin
19	LEDK3	Backlight positive input pin
20	LEDK4	Backlight positive input pin
21	IM3	NC(16bit)
22	DB4	LCD data bus
23-30	DB8-DB15	LCD data bus
31	RESET	Reset signal: Active "L"
32	VDD	Power supply for system 2.8V
33	IOVCC	Power supply for system 2.8V/1.8V
34	GND	Ground pin
35-37	DB5-DB7	LCD data bus

4.2 BLOCK DIAGRAM

Fig 2



4.3 Typical Electrical Characteristics

Table 4:

ITEM	SYMBOL		CONDITIONS	MIN	TYP	MAX	UNITS
Power-supply voltage For LCD	TFT LCD	VGH	At 25°C	9.0	--	16.5	V
		VGL		-16.5	--	-4	
	VDD-GND			-	2.8	3.3	
Input voltage for LCD	V _{IH}		“High” level	0.8VDD	—	VDD	
	V _{IL}		“Low” level	GND	—	0.2VDD	
Supply current for LCD	VDD		VDD=2.8V	—		10	mA

Note 1: The supply voltage for VLCD has to be adjusted by software.

4.4 B/L Characteristics

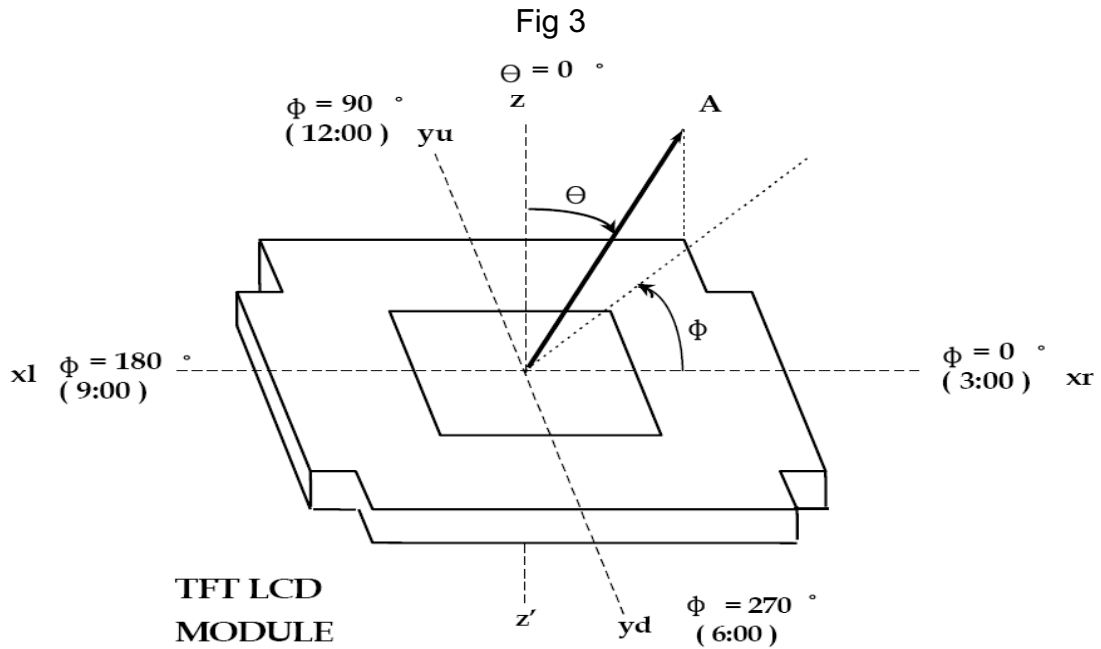
Table 5:

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	CONDITION
Lamp Voltage	V _L	--	3.2	3.5	V	Each ILED=80mA
Back Light	--	--	3200	--	Cd/m ²	

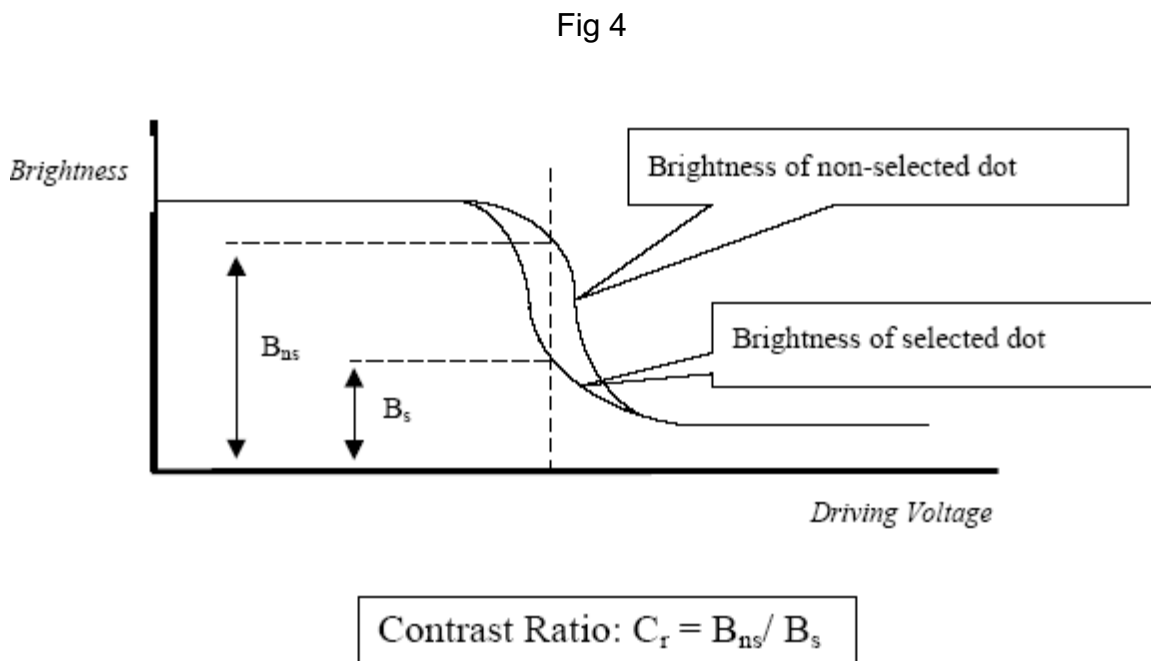
※ LEDs in 4- parallel of B/L module

5. Optical Characteristics Definition

a.) Viewing Angle θ and ϕ

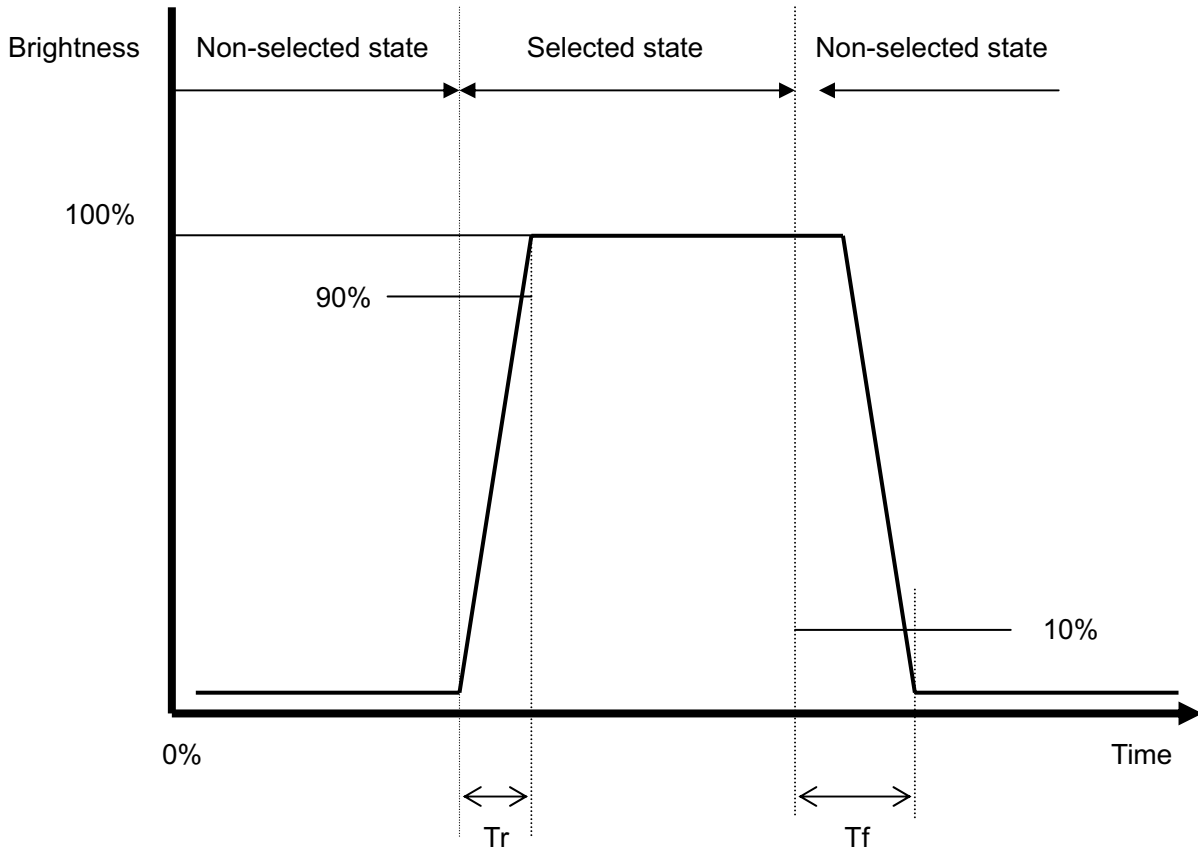


b.) Contrast Ratio



c.) Response Time

Fig 5
Negative TYPE



NOTE:

- 1、 T_r is the time it takes to change from non-selected state with relative luminance 0% to selected state with relative luminance 90%.
- 2、 T_f is the time it takes to change from selected state with relative luminance 100% to non-selected state with relative luminance 10%.

5.1 LCD Panel

Table 6:

Parameter	Symbol	Values			Unit
		Min	Typ	Max	
*1) Threshold Voltage	Vsat	1.90	2.15	2.40	V
	Vth	0.90	1.10	1.30	V
*2) Transmittance	T(%)	-	16.5	-	%
*1) Contrast Ratio	C/R	300	350	-	
*1) Response Time	Tr+Tf	-	25	40	msec
*3) CIE Color Coordinate	Rx		0.651		-
	Ry		0.332		-
	Gx		0.301		-
	Gy		0.585		-
	Bx		0.133		-
	By		0.136		-
	Wx		0.309		-
	Wy		0.344		-
*1) Viewing Angle	$\ominus l$	-	45	-	Degree
	$\ominus r$	-	45	-	
	$\ominus u$	-	35	-	
	$\ominus d$	-	15	-	

6 RELIABILITY CONDITIONS

Table 7:

ITEM	CONDITIONS	CRITERIA
High temperature operation	70°C,120Hr	1. No defect in cosmetic and operational functions except for polarizer. 2. Total current consumption below double of initial value 3. Optical characteristics value must be in initial spec. range.
Low temperature operation	-20°C,120Hr	
High humidity storage	60°C,95%RH,120Hr	
High temperature storage	80°C,120Hr	
Low temperature storage	-30°C,120Hr	
Temperature cycle	25°C → -20°C → 25°C → 70°C 5(min) 30(min) 5(min) 30(min) 15 cycles,55~60%RH	

NOTE:

- 1、 Operation test should be mounted with the driver IC, we hereby provide the operation test conditions with the square ac waveform.
- 2、 The test LCD cell shall be inspected 2hrs latter storage at room temperature & humidity after it was removed from the chambers.
- 3、 No dew condensations would be observed.