HY-LINE COMPUTER COMPONENTS

TFT-Display Datasheet

DATA IMAGE
Model: FG07A0I0DSSWPG01

Brief spec.:

Main Feature	Landscape
	High Brightness

Active Screen Area	152.4 x 91.44 (mm)
Diagonal | Format	7" | 15:9
Resolution	800 X 480
Colors	262K/16.7M (6Bit)
Backlight	LED
Brightness	1000 cd/m²
LED Life Time	30K(h)
Interface	RGB
Viewing Angle	85/85 L/R 85/85
Touchscreen	No
Power Supply	3.3 V
Module Outline	165 x 104 x 8.4 (mm)
Operation Temperature	-30 ... +85 °C
Storage Temperature	-40... +95 °C

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DATA IMAGE CORPORATION

TFT Module Specification

Preliminary

ITEM NO.: FG07A0I0DSSWPG01

Table of Contents

Customer Companies	QA Approved	DQA Check	R&D Approved	R&D Check
Customer Approved by	Version:	Issued Date:	Total Pages:	Prepared
	1	03/AUG/17'	25	

2. RECORD OF REVISION

Rev	Date	Item	Page	Comment	Source
1	03/AUG/17’			Initial Preliminary	ESR0607035

3. GENERAL SPECIFICATIONS

Parameter	Specifications	Unit
Screen Size	7 (diagonal)	inch
Display Format	800(H) x (R,G,B) x 480(V)	dot
Active Area	152.4(H) x 91.44(V)	mm
Pixel Pitch	0.1905 (H) x 0.1905 (V)	mm
Pixel Configuration	R.G.B Vertical Stripe	
Outline Dimension	165(W) x 104(H) x 8.4MAX.(D)	mm
Back-light	LED	
Display mode	Normally Black	
Weight	165 MAX.	g
View Angle direction	All	
Our components and processes are compliant to RoHS standard		

4. ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Max.	Unit	Remark
Power Supply Voltage	Vcc	-0.3	4.5	V	GND=0
	V_{GH}	-0.3	V_{GL}+35.0		
	V_{GL}	-15	0.3		
	AV_{DD}	-0.3	14.5		AGND=0
	V_{COM}	4.0	6.0		
Logic Signal Input Level	V_I	-0.3	4.5		
Operating Temperature	T_{opa}	-30	85	°C	
Storage Temperature	T_{stg}	-40	95		

Note 1： Permanent damage may occur to the LCD module if beyond this specification. Functional operation should be restricted to the conditions described under normal operating conditions.

5. ELECTRICAL CHARACTERISTICS

5.1 Operating Conditions

GND=AGND=0V

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
Supply Voltage	Vcc	3.0	3.3	3.6	V	
	V_{GH}	-	19	-		
	V_{GL}	-	-10	-		
	AV_{DD}	-	12.4	-		
VCOM	V_{COM}	-	5.5	-		
Input signal voltage	ViH	0.7* Vcc	-	Vcc		Note1
	ViL	0	-	0.3* Vcc		
Current of power supply	I_{Vcc}	-	15	-	mA	Vcc=3.3V,white pattern
	I_{AVDD}	-	20	-		AVDD=12.5V, white pattern
	I_{VGH}	-	0.25	-		VGH=19V, white pattern

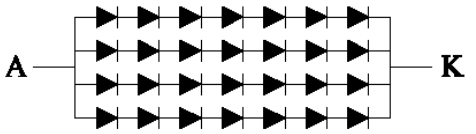
	I_{VGL}	-	0.50	-		VGL=-10V, white pattern

Note 1：HSYNC, VSYNC, DE, Digital Data
Note 2：Be sure to apply the power voltage as the power sequence spec
Note 3：GND=AGND=0V

5.2 Backlight Driving Consumption

Ta=25°C

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
LED voltage	V_L	-	21.3	-	V	
LED current	I_L	-	160	-	mA	
LED dice Life Time		30000			hr	Note1



IF: 160mA(Typ.) ; VF: 21.3V(Typ.)

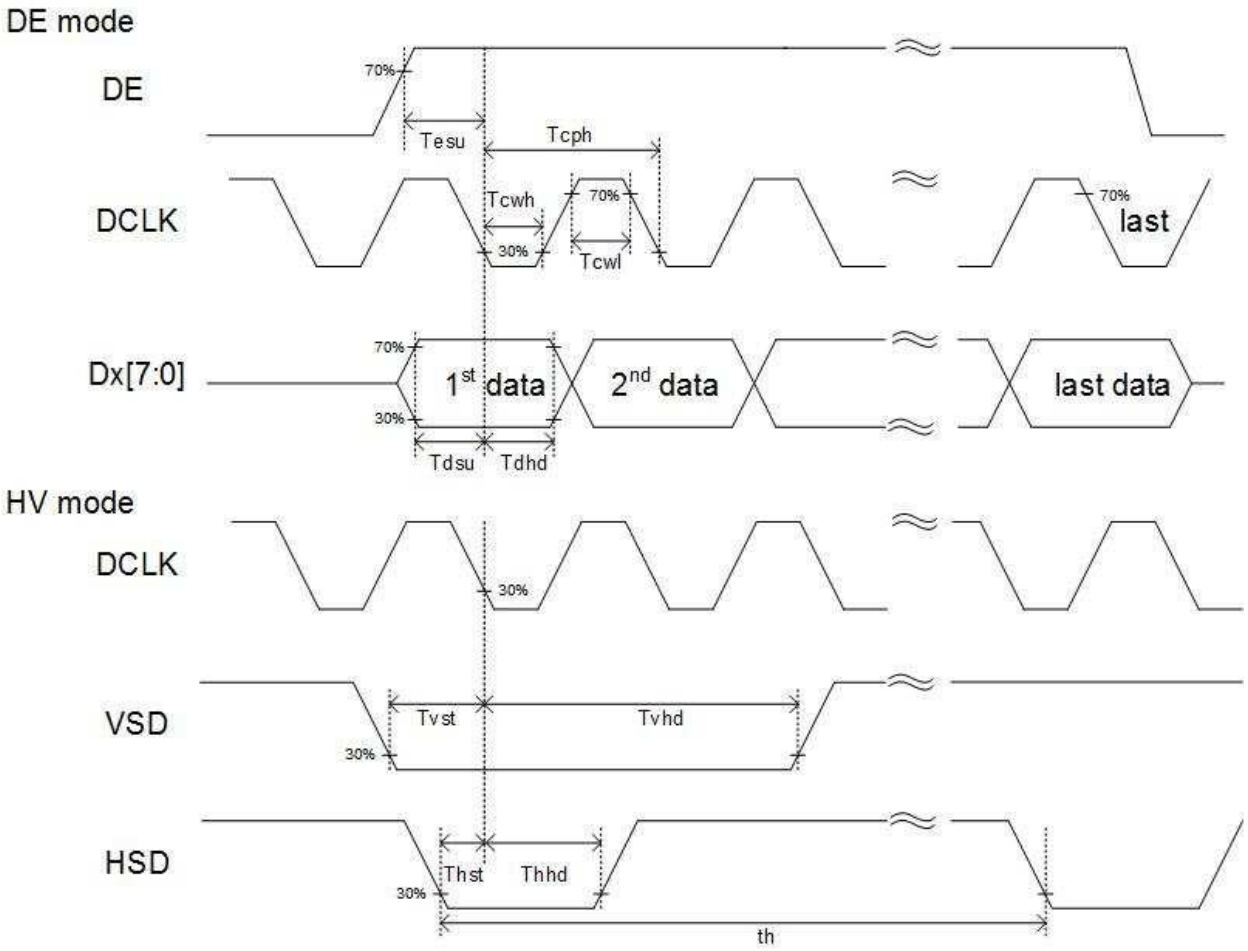
Note 1：The “LED life time” is defined as the module brightness decrease to 50% original brightness at Ta=25℃. and IL=160mA. The LED lifetime could be decreased if operating IL is larger than 160mA. The constant current driving method is suggested.

6. INPUT SIGNAL TIMING

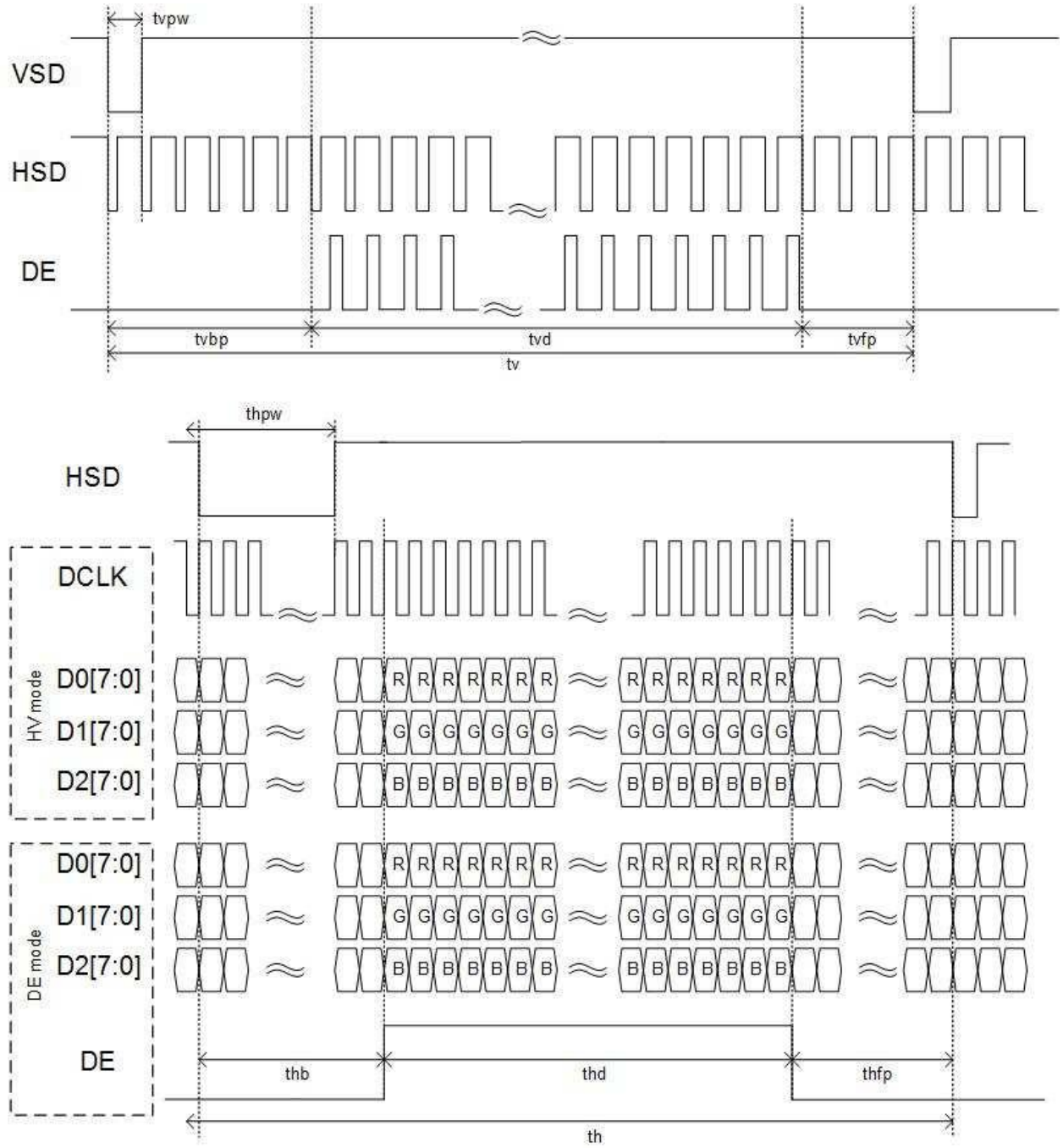
6.1 Timing

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
DCLK cycle time	Tcph	20		220	ns	
DCLK pulse duty	Tcwh	35	50	65	%	
VSD setup time	Tvst	8			ns	
VSD hold time	Tvhd	8				
HSD setup time	Thst	8				
HSD hold time	Thhd	8				
Data setup time	Tdsu	8				
Data hold time	Tdhd	8				
DE setup time	Tesu	8				
DE hold time	Tehd	8				
DCLK frequency	fclk	28	30	32	MHz	
Horizontal display area	thd		1800		Tcph	
HSD period time	th	899	902	915		
HSD pulse width	thpw	5	10	15		
HSD back porch	thb		32			
HSD front porch	thfp	52	60	68		
Vertical display area	tvd		480		th	
VSD period time	tv	546	555	564		
VSD pulse width	tvpw	6	10	14		
VSD back porch	tvb		5			
VSD front porch	tvfp	55	60	65		

6.2 Timing Diagram of Interface Signal Input

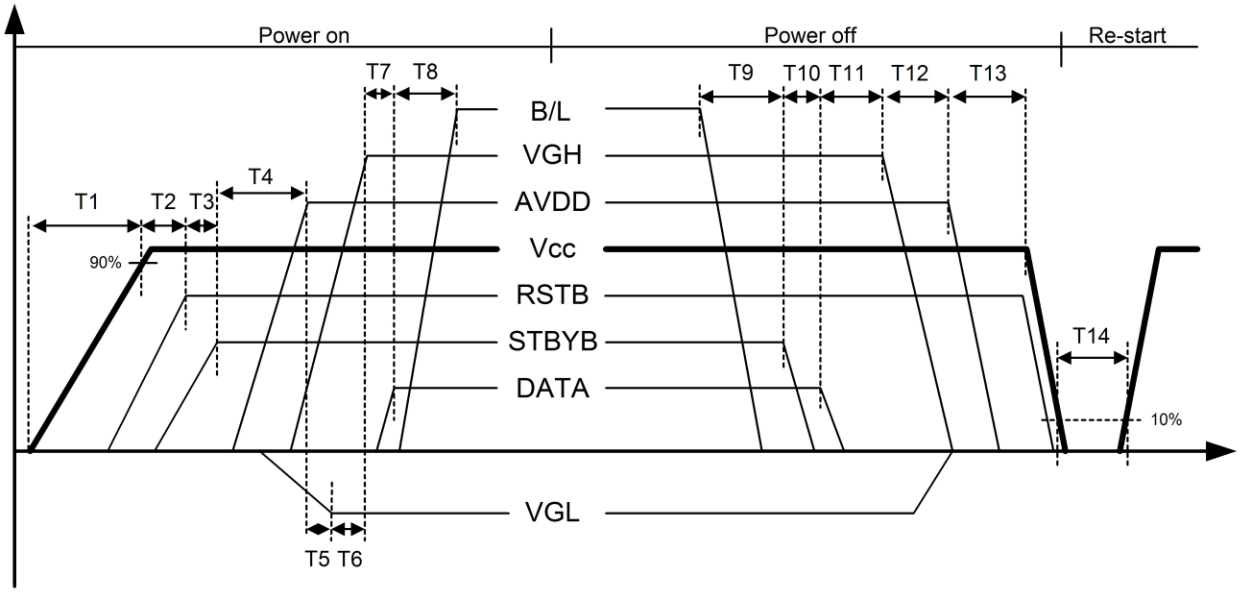


Input clock and data timing diagram



Data Input Format

6.3 Power Sequence



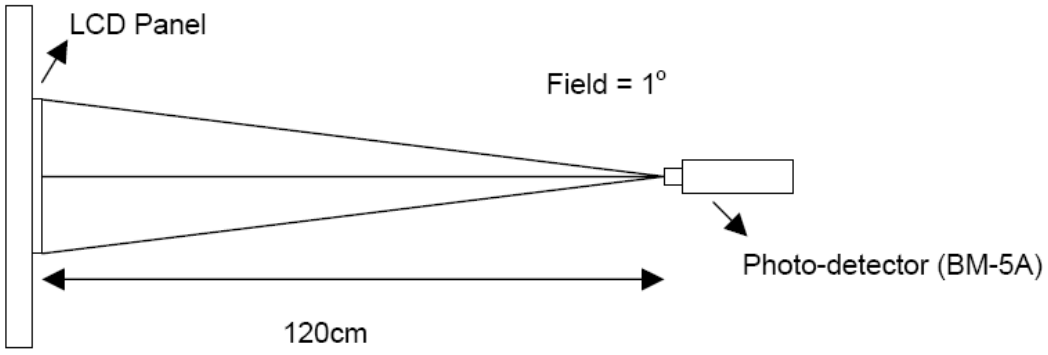
Item	Min.	Typ.	Max.	Unit
T1	-	-	20	ms
T2	1	-	-	
T3	1	-	-	
T4	50	-	-	
T5	32	-	-	
T6	16	-	-	
T7	16	-	-	
T8	32	-	-	
T9	32	-	-	
T10	32	-	-	
T11	50	-	-	
T12	16	-	-	
T13	32	-	-	
T14	1000	-	-	

7. OPTICAL CHARACTERISTIC

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	Remarks
Viewing Angle	Horizontal	θ_x+	Center CR≥10	80	85	--	deg	Note 1,4
		θ_x-		80	85	--		
	Vertical	θ_Y+		80	85	--		
		θ_Y-		80	85	--		
Contrast Ratio		CR	at optimized viewing angle	700	1000	--		Note 1,3
Response time		Tr + Tf	Center θx=θy =0°	--	30	40	ms	Note 1,6
Uniformity		B-uni	θx=θy =0°	70	80	--	%	Note1,5
Brightness		L	θx=θy =0°	750	1000	--	cd/㎡	Note 1,2
Chromaticity		x_W	Center θx=θy =0°	Typ. -0.05	0.313	Typ. +0.05		Note 1,7
		y_W			0.329			
		x_R			TBD			
		y_R			TBD			
		x_G			TBD			
		y_G			TBD			
		x_B			TBD			
		y_B			TBD			

The following optical specifications shall be measured in a darkroom or equivalent state (ambient luminance≤1 lux, and at room temperature).
The operation temperature is 25°C±2°C.
LED current IL=160mA
15min warm-up time.
The measurement method is shown in Note1.

Note1: The method of optical measurement:

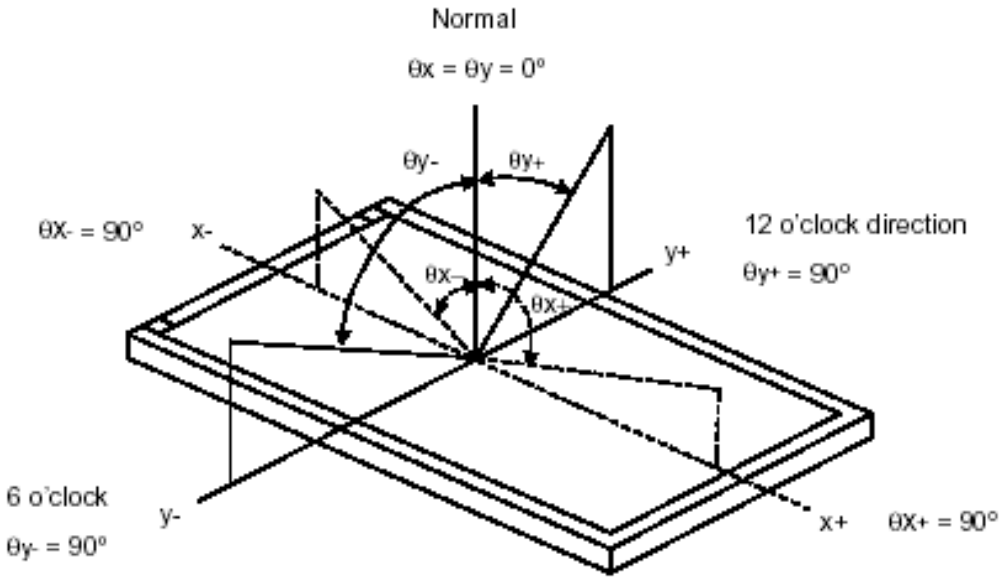


Note2: Measured at the center area of the panel and at the viewing angle of the θx=θy =0°

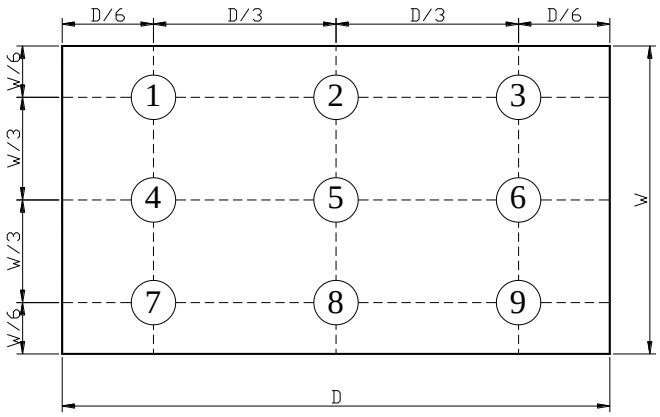
Note3: Definition of Contrast Ratio (CR):

$$CR = \frac{\text{Luminance with all pixels in white state}}{\text{Luminance with all pixels in Black state}}$$

Note4: Definition of Viewing Angle



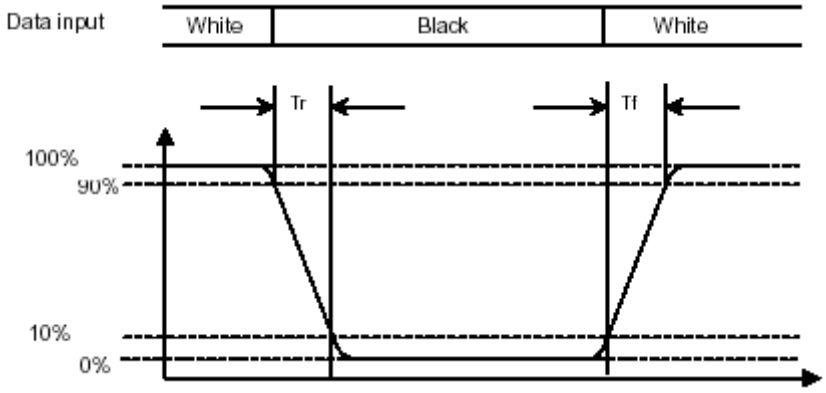
Note 5: Definition of Brightness Uniformity (B-uni):



$$\text{B-uni} = \frac{\text{Minimum luminance of 9 points}}{\text{Maximum luminance of 9points}} \quad \text{(Note 5).}$$

Note6: Definition of Response Time:

The Response Time is set initially by defining the “Rising Time (Tr)” and the “Falling Time (Tf)” respectively. Tr and Tf are defined as following figure.



Note 7: Definition of Chromaticity:

The color coordinates (x_W,y_W),(x_R,y_R),(x_G,y_G),and (x_B,y_B) are obtained with all pixels in the viewing field at white, red, green, and blue states, respectively.

8. PIN CONNECTIONS

8.1 LCM FPC Pin Function

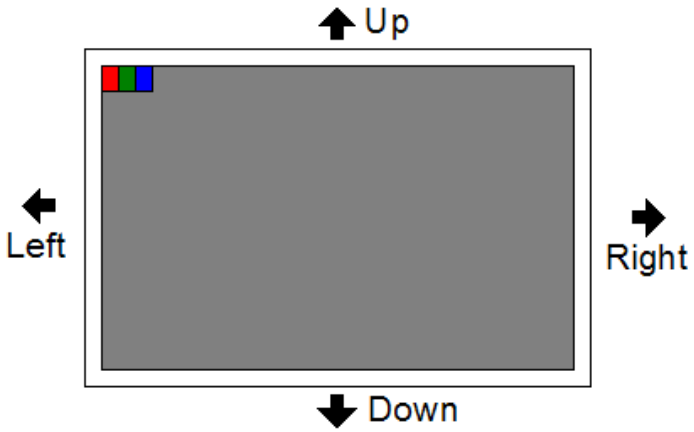
FPC matching connector：Hirose FH52-60S-0.5SH

Pin No	Symbol	Function	Remark
1	AGND	Analog Ground	
2	AVDD	Analog Power	
3	VCC	Digital Power	
4	R0	Data Input(LSB)	
5	R1	Data Input	
6	R2	Data Input	
7	R3	Data Input	
8	R4	Data Input	
9	R5	Data Input	
10	R6	Data Input	
11	R7	Data Input(MSB)	
12	G0	Data Input(LSB)	
13	G1	Data Input	
14	G2	Data Input	
15	G3	Data Input	
16	G4	Data Input	
17	G5	Data Input	
18	G6	Data Input	
19	G7	Data Input(MSB)	
20	B0	Data Input(LSB)	
21	B1	Data Input	
22	B2	Data Input	
23	B3	Data Input	
24	B4	Data Input	
25	B5	Data Input	
26	B6	Data Input	
27	B7	Data Input(MSB)	
28	DCLK	Clock Input	
29	DE	Data enable signal	
30	HSD	Horizontal sync input, Negative polarity	
31	VSD	Vertical sync input Negative polarity	
32	MODE	DE/SYNC mode select, normally pull low H：HV mode L：DE mode	
33	RSTB	Global reset pin, Normally pull high H：normal operation L：the controller is in reset state Suggest to connecting with an RC(10KΩ, 0.1μF) reset circuit for stability	
34	STBYB	Standby mode. Normally pull low. H: normal operation. L: the controller and source driver will turn off. Suggest to connecting with an RC (10KΩ, 0.47μF) reset circuit for stability	
35	SHLR	Left or Right Display Control. Note1	
36	VCC	Digital Power	

37	UPDN	Up / Down Display Control. Note1	
38	GND	Digital Ground	
39	AGND	Analog Ground	
40	AVDD	Analog Power	
41	VCOM	For external VCOM DC input	
42	N/C	Not connect	
43	BIST	Aging mode on/off control. Please float this pin.	
44	N/C	Not connect	
45	N/C		
46	N/C		
47	N/C		
48	CSB	Serial communication chip selection. Please float this pin	
49	SCL	Serial communication clock pin. Please float this pin	
50	SDO	Serial communication data out pin. Please float this pin	
51	SDI	Serial communication data pin. Please float this pin	
52	N/C	Not connect	
53	VPP_T	Power supply for trim function. Please float this pin	
54	N/C	Not connect	
55	N/C		
56	VGH	Positive Power for TFT	
57	VCC	Digital Power	
58	VGL	Negative Power for TFT	
59	GND	Digital Ground	
60	N/C	Not connect	

Note1：SHLR and UPDN control function

SHLR	UPDN	Data shifting
H	H	Left→Right, Up→Down
L	H	Right→Left, Up→Down
L	L	Right→Left, Down→Up
H	L	Left→Right, Down→Up

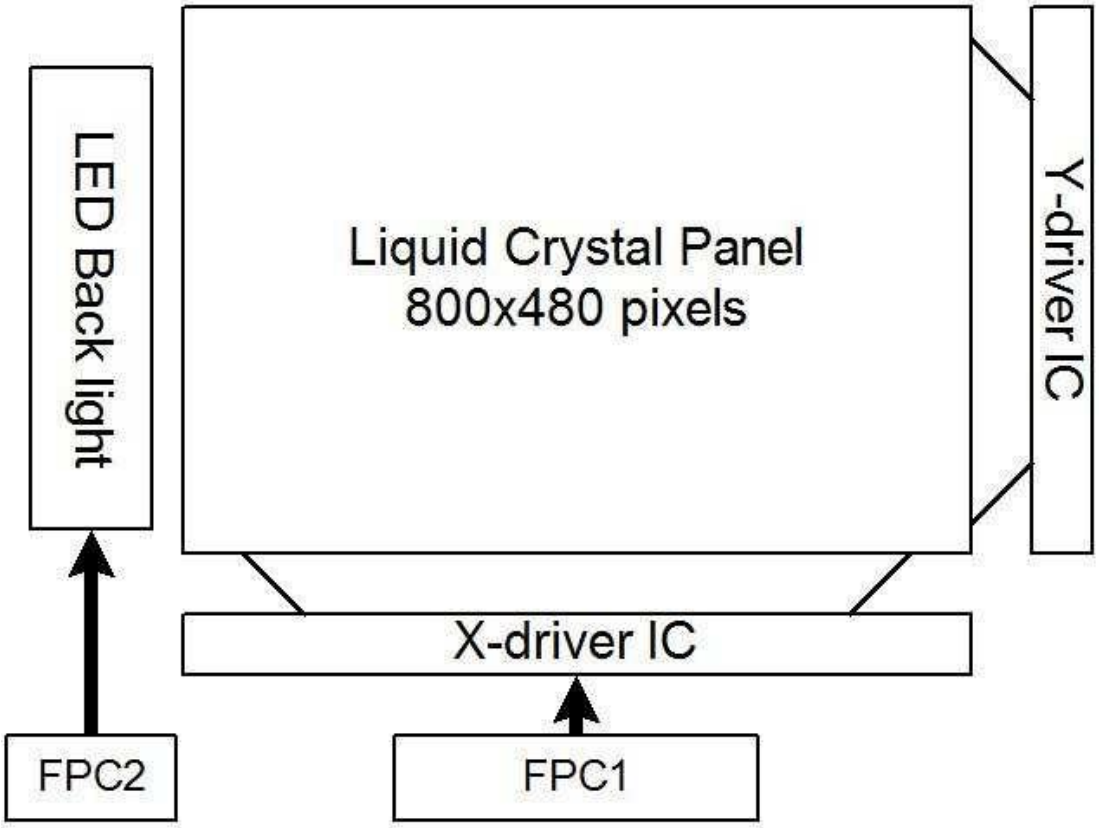


8.2 B/L Pin Define

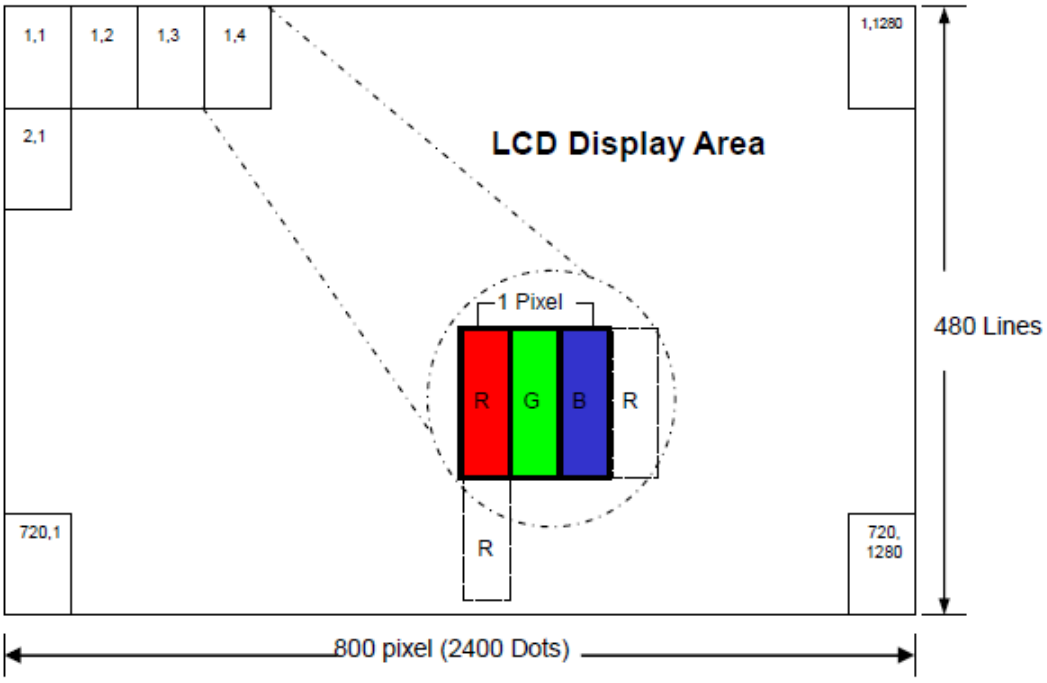
FPC matching connector：FH19SC-10S-0.5SH

Pin No	Symbol	Function	Remark
1	A	Anode	
2	A		
3	A		
4	NC	No Connect	
5	K1	Cathode 1	
6	K2	Cathode 2	
7	K3	Cathode 3	
8	K4	Cathode 4	
9	NC	No Connect	
10	NC		

9. BLOCK DIAGRAM



Pixel Format



Relationship Between Displayed Color and Input

		MSB							LSB	MSB							LSB	MSB							LSB	Gray scale
	Display	R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0	Level
Basic color	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	-
	Blue	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	-
	Green	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	L	L	L	L	L	L	L	L	-
	Light Blue	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	-
	Red	H	H	H	H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	-
	Purple	H	H	H	H	H	H	H	H	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	-
	Yellow	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	L	L	L	L	L	L	L	-
	White	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	-
Gray scale of Red	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L0
	Dark	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L1
		L	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L2
	↑	:								:								:								L3…L251
	↓	H	H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L252
	Light	H	H	H	H	H	H	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L253
		H	H	H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L254
	Red	H	H	H	H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	Red L255
Gray scale of Green	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L0
	Dark	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L1
		L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L2
	↑	:								:								:								L3…L251
	↓	L	L	L	L	L	L	L	L	H	H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L252
	Light	L	L	L	L	L	L	L	L	H	H	H	H	H	H	L	H	L	L	L	L	L	L	L	L	L253
		L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	L	L	L	L	L	L	L	L	L	L254
	Green	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	L	L	L	L	L	L	L	L	Green L255
Gray scale of Blue	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L0
	Dark	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L1
		L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L	L2
	↑	:								:								:								L3…L251
	↓	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	L	L	L252
	Light	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	L	H	L253
		L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	L	L254
	Blue	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	Blue L255
Gray scale of White & Black	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L0
	Dark	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	H	L1
		L	L	L	L	L	L	H	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	H	L	L2
	↑	:								:								:								L3…L251
	↓	H	H	H	H	H	H	L	L	H	H	H	H	H	H	L	L	H	H	H	H	H	H	L	L	L252
	Light	H	H	H	H	H	H	L	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H	L	H	L253
		H	H	H	H	H	H	H	L	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H	L	L254
	White	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	White L255

10. QUALITY ASSURANCE

10.1 Test Condition

10.1.1 Temperature and Humidity (Ambient Temperature)

Temperature: 25 ± 5°C
Humidity : 65 ± 5%

10.1.2 Operation

Unless specified otherwise, test will be conducted under function state.

10.1.3 Container

Unless specified otherwise, vibration test will be conducted to the product itself without putting it in a container.

10.1.4 Test Frequency

In case of related to deterioration such as shock test. It will be conducted only once.

10.1.5 Test Method

No.	Reliability Test Item & Level	Test Level	Remark
1	High Temperature Storage Test	T=95°C,1000hrs	IEC68-2-2
2	Low Temperature Storage Test	T=-40°C,1000hrs	IEC68-2-1
3	High Temperature Operation Test	T=85°C,1000hrs	IEC68-2-2
4	Low Temperature Operation Test	T=-30°C,1000hrs	IEC68-2-1
5	High Temperature and High Humidity Operation Test	T=60°C,90% RH,1000hrs	IEC68-2-3
6	Thermal Cycling Test	-40°C → +85°C,1000hrs 30 min	IEC68-2-14
7	Vibration Test	1.Random: 1.04G, 5~500Hz, XYZ, 30min/each direction 2.Sine: Freq. Range: 8~33.3Hz, Stoke: 1.3mm Sweep: 2.9G, 33.3~400Hz X/Z: 2hrs, Y:4hrs	IEC68-2-6
8	Shock test	Half-Sine, 100G, 6ms, ±XYZ, 1time	IEC68-2-27
9	Drop test(with carton)	Drop height condition, basis on the product weight and Follow QB100-0027 1 corner, 3 edges, 6 surfaces	IEC68-2-32
10	Vibration (with carton)	Random: 0.015G^2/Hz, 5~200Hz -6dB/Octave, 200~400Hz XYZ each direction 2hrs	IEC68-2-32
11	ESD test	±200V,200pF(0_) 1 time/each termina	IEC61000-4-2

10.2 Inspection condition

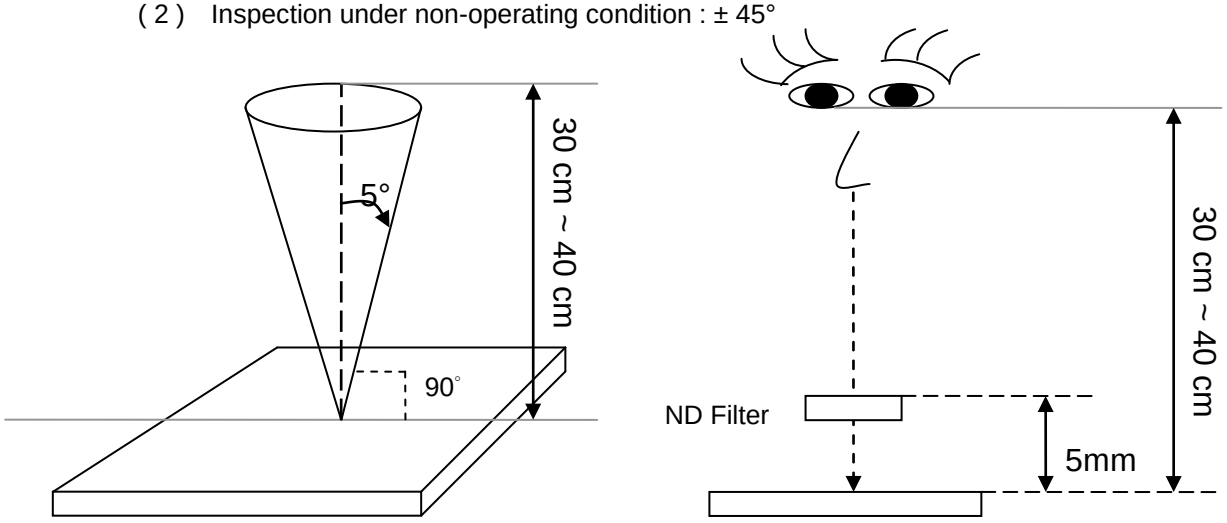
10.2.1 Inspection conditions

10.2.1.1 Inspection Distance: 35 ± 5 cm

10.2.1.2 View Angle:

(1) Inspection under operating condition : ±5°

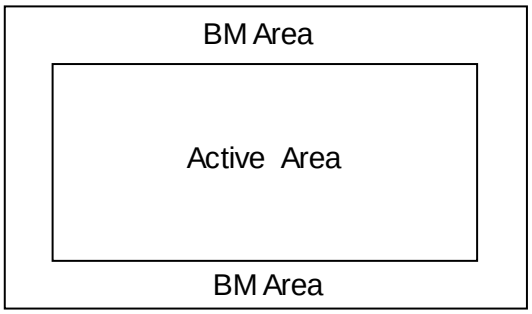
(2) Inspection under non-operating condition : ± 45°



10.2.1.3Environment conditions:

Ambient Temperature :		25±5℃
Ambient Humidity :		65±5%
Ambient Illumination	Cosmetic Inspection	More than 600lux
	Functional Inspection	300 ~ 800lux

10.2.2 Definition of applicable Zones



10.3 Inspection Parameters

<table>
<tr><th>No.</th><th>Parameter</th><th>Criteria</th></tr>
<tr><td rowspan="2">1</td><td rowspan="2">Operating</td><td>Display function: No Display malfunction (Major)</td></tr>
<tr><td>Contrast ratio (Black, White):
Does not meet specified range in the spec. (Major) (Note:3)</td></tr>
<tr><td rowspan="5">2</td><td rowspan="5">External Inspection
(non-operating)</td><td>Dimension: Outline (Major)</td></tr>
<tr><td>Bezel appearance: uneven (Minor)</td></tr>
<tr><td>Polarizer flaw or leak out resin：Defect is defined as active area.</td></tr>
</table>

Line Defect: No obvious Vertical and Horizontal line defect in bright, dark and colored. (Major) (Note:1)

Point Defect (Red, green, blue, dark): Active area ≤2dots (Minor)(Note:1)

Item	Acceptable number	Total	Class Of Defects	AQL Level
Bright		2	Minor	1.5
Dark				
Adjacent Bright	0	0		
Adjacent Dark	1	1		
distance≥50mm				

Non-uniformity:
Visible through 6%ND filter white, R, G, B and gray 50%pattern. (Minor)

Foreign material in Black or White spots shape (W>1/4L) (Note: 5)

Dimension	Acceptable number	Class Of Defects	AQL Level
D ≤ 0.1		Minor	1.5
0.1< D ≤0.3	2		
D> 0.3			

D = (Long + Short) / 2　＊: Disregard

Foreign Material in Line or spiral shape (W≤1/4L) (Note: 4)

Dimension	Acceptable number	Class Of Defects	AQL Level
W>0.1mm,L>2mm		Minor	1.5
L≦2mm,0.05mm<W≦0.1mm	1		
L≦2mm,W<0.05mm			

L : Length　W : Width　＊: Disregard

Scratch on the polarize (Note:2)

Dimension	Acceptable number	Class Of Defects	AQL Level
W>0.05mm,L>3mm		Minor	1.5
L≦3mm,0.02mm<W≦0.05mm	1		
L≦3mm,W<0.02mm			

L : Length　W : Width　＊: Disregard

Dent and spots shape on the polarize (Note:2): (Note: 5)

Dimension	Acceptable number	Class Of Defects	AQL Level
D ≤ 0.1		Minor	1.5
0.1 < D ≤0.3	2		
D> 0.3			

D = (Long + Short) / 2　＊: Disregard

			Definition
Class of defects	**Major**	AQL 0.65	It is a defect that is likely to result in failure or to reduce materially the usability of the product for the intended function.
	Minor	AQL 1.5	It is a defect that will not result in functioning problem with deviation classified.

Note:1.(a)Bright point defect is defined as point defect of R,G,B with area >1/2 dot respectively

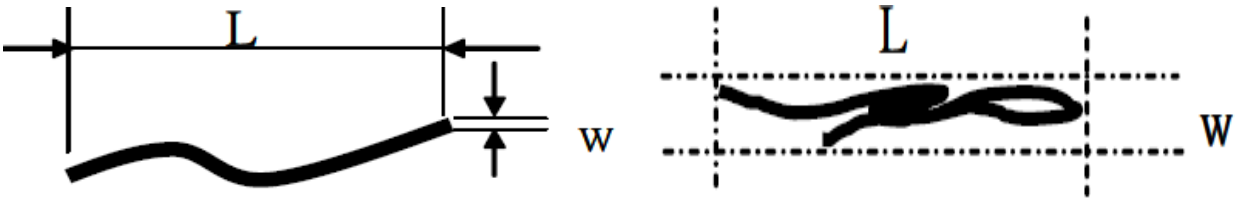
(b)Dark point defect is defined as visible in full white pattern.

(c)The point defect must under 2% ND Filter visible .

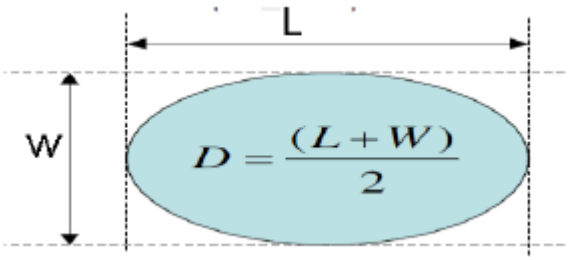
Note:2 The external inspection should be conducted at the distance 35± 5cm between the eyes of inspector and the panel .

Note:3 Luminance measurement for contrast ratio is at the distance 50± 5cm between the detective head and the panel with ambient luminance less than 1 lux. Contrast ratio is obtained at optimum view angle.

Note:4 W-Width in mm , L-length of Max.(L1,L2) in mm.



Note:5 Spot Foreign Material (W≧L/4)



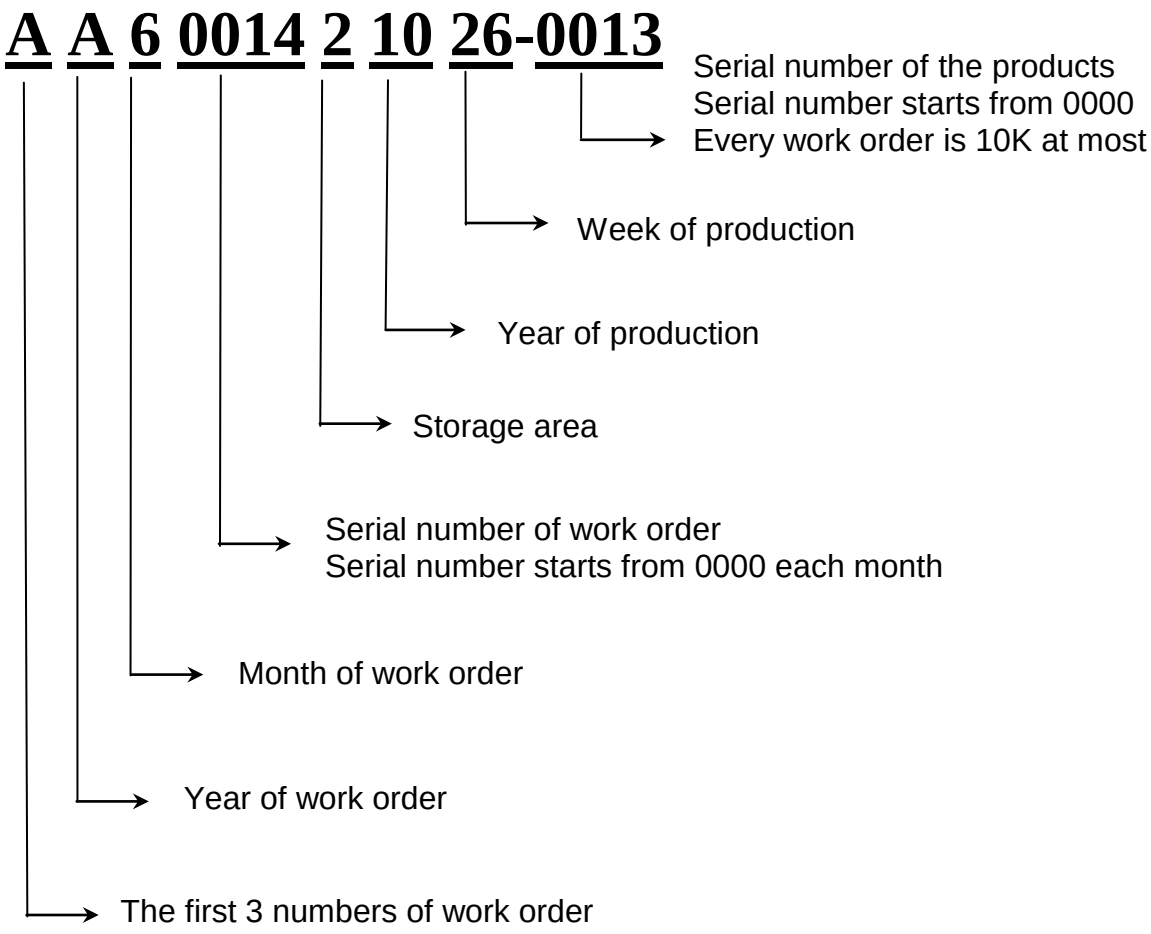
10.4 Sampling Condition

Unless otherwise agree in written, the sampling inspection shall be applied to the incoming inspection of customer.
Lot size: Quantity of shipment lot per model.
Sampling type: normal inspection, single sampling
Sampling table: ISO2859
Inspection level: Level II

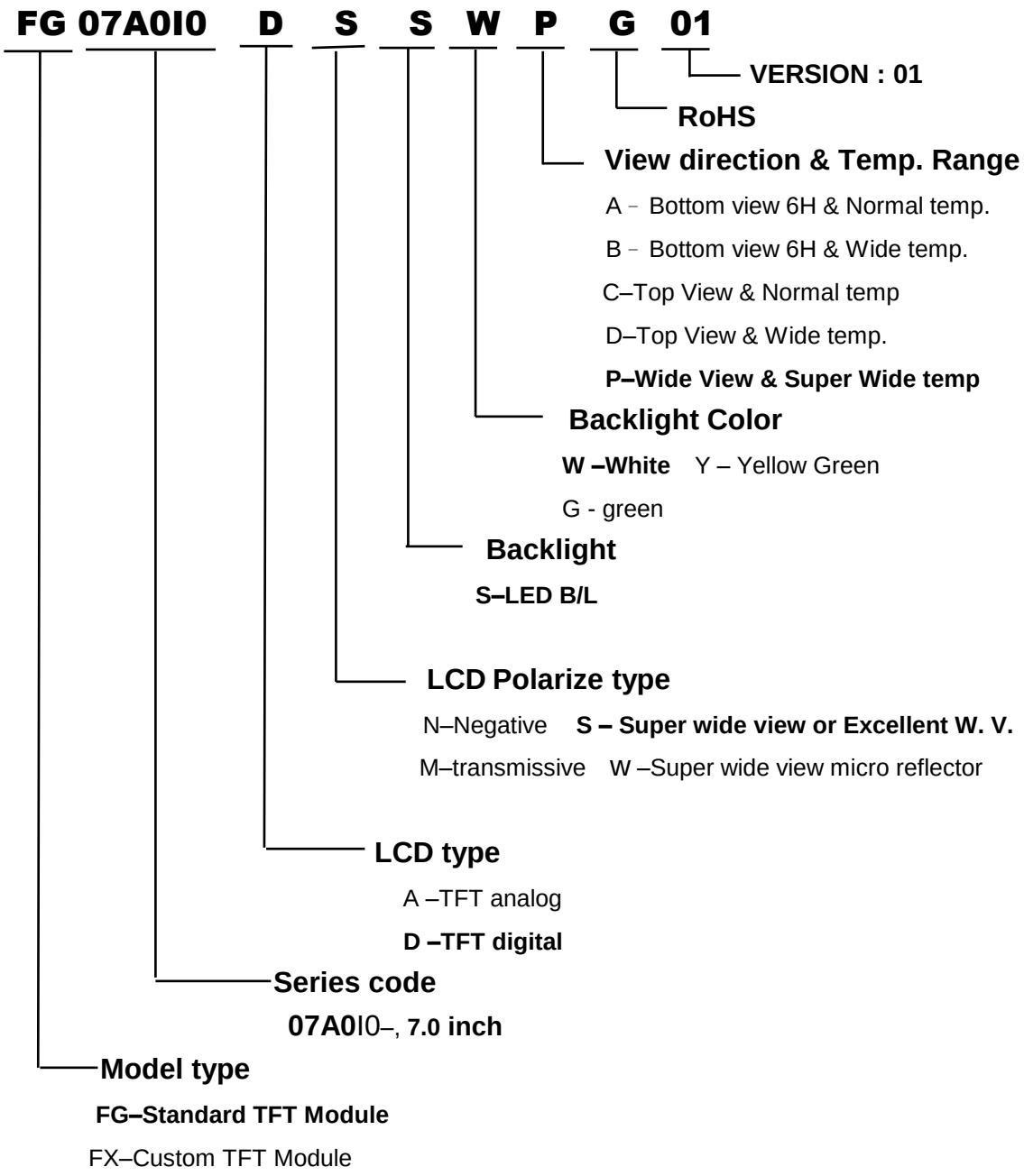
11. LCM PRODUCT LABEL DEFINE

Product Label style:

BarCode Define:



Product Name Define:



12. PRECAUTION FOR USING LCM

1. ASSEMBLY PRECAUTIONS
   (1) You must mount a module using holes arranged in four corners or four sides.
   (2) You should consider the mounting structure so that uneven force (ex. Twisted stress) is not applied to the module. And the case on which a module is mounted should have sufficient strength so that external force is not transmitted directly to the module.
   (3) Do not touch, push or rub the exposed polarizers with glass, tweezers or anything harder than HB pencil lead. And please do not rub with dust clothes with chemical treatment.
   (4) Wipe off saliva or water drops as soon as possible. Their long time contact with polarizer causes deformations and color fading.
   (5) Do not open the case because inside circuits do not have sufficient strength.
   (6) Please do not take a LCD module to pieces and reconstruct it. Resolving and reconstructing modules may cause them not to work well.
   (7) Please do not touch metal frames with bare hands and soiled gloves. A color change of the metal frames can happen during a long preservation of soiled LCD modules.
   (8) Please pay attention to handling lead wire of backlight so that it is not tugged in connecting with inverter.

2. OPERATING PRECAUTIONS
   (1) Please be sure to turn off the power supply before connecting and disconnecting signal input cable.
   (2) Please do not change variable resistance settings in LCD module. They are adjusted to the most suitable value. If they are changed, it might happen LCD does not satisfy the characteristics specification
   (3) Be careful for condensation at sudden temperature change. Condensation makes damage to polarizer or electrical contacted parts. And after fading condensation, smear or spot will occur.
   (4) When fixed patterns are displayed for a long time, remnant image is likely to occur.
   (5) Module has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding methods may be important to minimize the interference.

   (6) Please consider that LCD backlight takes longer time to become stable of radiation characteristics in low temperature than in room temperature.

3. ELECTROSTATIC DISCHARGE CONTROL
   The operator should be grounded whenever he/she comes into contact with the module. Never touch any of the conductive parts such the copper leads on the PCB and the interface terminals with any parts of the human body.
   (2) The modules should be kept in antistatic bags or other containers resistant to static for storage.
   (3) Only properly grounded soldering irons should be used.
   (4) If an electric screwdriver is used, it should be well grounded and shielded from commutator sparks.
   (5) The normal static prevention measures should be observed for work clothes and working benches; for the latter conductive (rubber) mat is recommended
   (6) Since dry air is inductive to statics, a relative humidity of 50-60% is recommended.

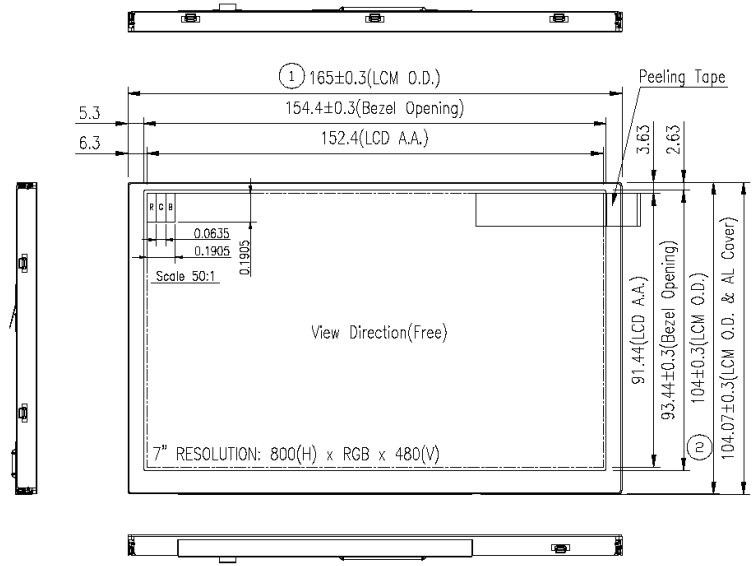
4. STORAGE PRECAUTIONS
   (1) When you store LCDs for a long time, it is recommended to keep the temperature between 0°C-40°C without the exposure of sunlight and to keep the humidity less than 90%RH.
   (2) Please do not leave the LCDs in the environment of high humidity and high temperature such as 60°C 90%RH
   (3) Please do not leave the LCDs in the environment of low temperature; below -20°C.

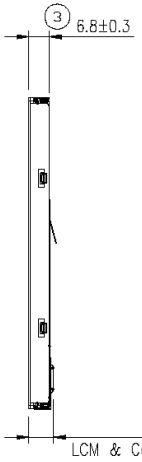
5. OTHERS
   (1) A strong incident light into LCD panel might cause display characteristics' changing inferior because of polarizer film, color filter, and other materials becoming inferior. Please do not expose LCD module direct sunlight Land strong UV rays
   (2) Please pay attention to a panel side of LCD module not to contact with other materials in preserving it alone.
   (3) For the packaging box, please pay attention to the followings:
      a. Please do not pile them up more than 5 boxes. (They are not designed so.) And please do not turn over.
      b. Please handle packaging box with care not to give them sudden shock and vibrations. And also please do not throw them up.
      c. Packing box and inner case for LCDs are made of cardboard. So please pay attention not to get them wet. (Such like keeping them in high humidity or wet place can occur getting them wet.)
   (4) Waste
      Liquid crystal module products shall not be arbitrarily discarded; the water and soil have a negative impact on the environment, the need to be handled by a qualified unit.

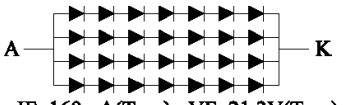
6. LIMITED WARRANTY
   Unless otherwise agreed between DATA IMAGE and customer, DATA IMAGE will replace or repair any of its LCD and LCM which is found to be defective electrically and visually when inspected in accordance with DATA IMAGE acceptance standards, for a period on one year from date of shipment. Confirmation of such date shall be based on freight documents. The warranty liability of DATA IMAGE is limited to repair and/or replacement on the terms set forth above. DATA IMAGE will not responsible for any subsequent or consequential events.

13. OUTLINE DRAWING

PRELIMINARY

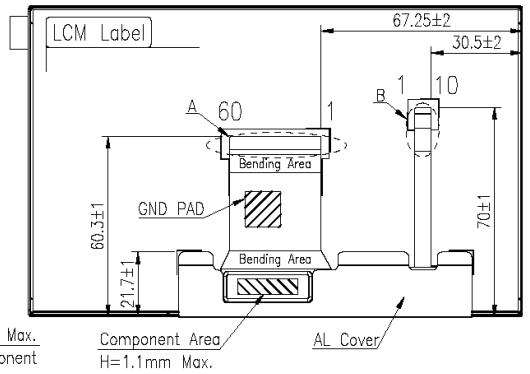




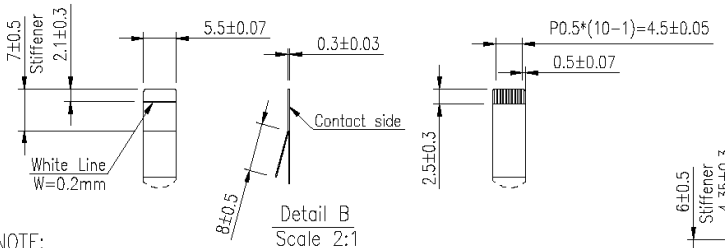


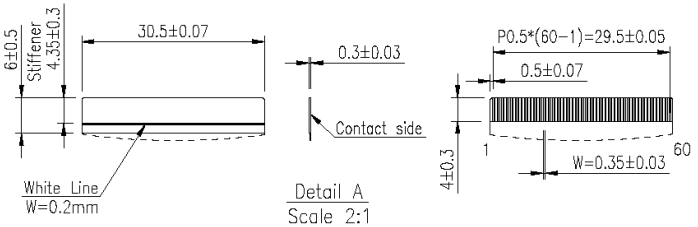
IF: 160mA(Typ.) ; VF: 21.3V(Typ.)

LED circuit



B/L PIN DEFINE			
1	A	6	K2
2	A	7	K3
3	A	8	K4
4	NC	9	NC
5	K1	10	NC





NOTE:
1. For RoHS & REACH.
2. Tolerance is ±0.3 unless otherwise noted.
3. Important distances: (1) ~ (7) .
4. Center brightness: 1000 cd/m² (Typ.) , 750 cd/m² (Min.)
5. Uniformity: 70%(Min.)
6. LCM FPC matching connector: Hirose FH52-60S-0.5SH.
7. B/L FPC matching connector: Hirose FH19SC-10S-0.5SH.
8. Storage temperature:-40°C~95°C,Operating temperature:-30°C~85°C.

LCM FPC PIN FUNCTION

1	AGND	21	B1	41	VCOM
2	AVDD	22	B2	42	N/C
3	VCC	23	B3	43	BIST
4	R0	24	B4	44	N/C
5	R1	25	B5	45	N/C
6	R2	26	B6	46	N/C
7	R3	27	B7	47	N/C
8	R4	28	DCLK	48	CSB
9	R5	29	DE	49	SCL
10	R6	30	HSD	50	SDO
11	R7	31	VSD	51	SDI
12	G0	32	MODE	52	N/C
13	G1	33	RSTB	53	VPP_T
14	G2	34	STBYB	54	N/C
15	G3	35	SHLR	55	N/C
16	G4	36	VCC	56	VGH
17	G5	37	UPDN	57	VCC
18	G6	38	GND	58	VGL
19	G7	39	AGND	59	GND
20	B0	40	AVDD	60	N/C

	<ESR0607035>		
AUTH	DESCRIPTION	DATE	APPROVED
REVISIONS			

DATE:	2017/07/31
DRAWN:	
CHECK:	
APPROVE:	

TITLE: 7" TFT Outline Dimension

DWG. NO.	FG07A0IOSG01		
UNITS MM		REV.	1
SCALE 1 / 1	SHEET 1 OF 1		

DATA IMAGE

14. PACKAGE INFORMATION

TBD