



FORMIKE ELECTRONIC CO.,LTD

PRODUCT SPECIFICATION

TFT LCD MODULE

MODEL : KWH030GM03-F02 Version: 2.0

- 【 ◆ 】 Preliminary Specification
【 】 Finally Specification

CUSTOMER'S APPROVAL	
SIGNATURE:	DATA:

Designed by	R&D Checked by	Quality Department by	Approved by
DENG			

Prepared By :

FORMIKE ELECTRONIC CO.,LTD

Address :Room 14H, HanKing Building, 23# DengLiang Road, NanShan District, ShenZhen, 518054, China.

TEL:(86) 755 88306921,88306931 FAX:(86) 755 88304615

Http:// www.wandisplay.com

- This specification is subject to change without notice. Please contact FORMIKE or it's representative before designing your product based on this specification.

Table Of Contents

List	Description	Page No.
0	Cover	1
0	Revision Record	2
0	Table Of Contents	3
1	General Description	4
2	External Dimensions	5
3	Interface Description	6
4	Absolute Maximum Ratings	7
5	Electrical Characteristics	7
6	Timing Characteristics	9
7	Backlight Characteristics	11
8	Optical Characteristics	12
9	Reliability Test Conditions And Methods	14
10	Inspection Standard	15
11	Handling Precautions	16
12	Precaution For Use	17

1. General Description

1.1 Description

KWH030GM03-F02 is a Transmissive type color active matrix liquid crystal display (LCD), which uses amorphous thin film transistor (TFT) as switching devices. This product is composed of a TFT LCD panel, driver IC, FPC, TP and backlight unit . The following table described the features of FORMIKE KWH030GM03-F02.

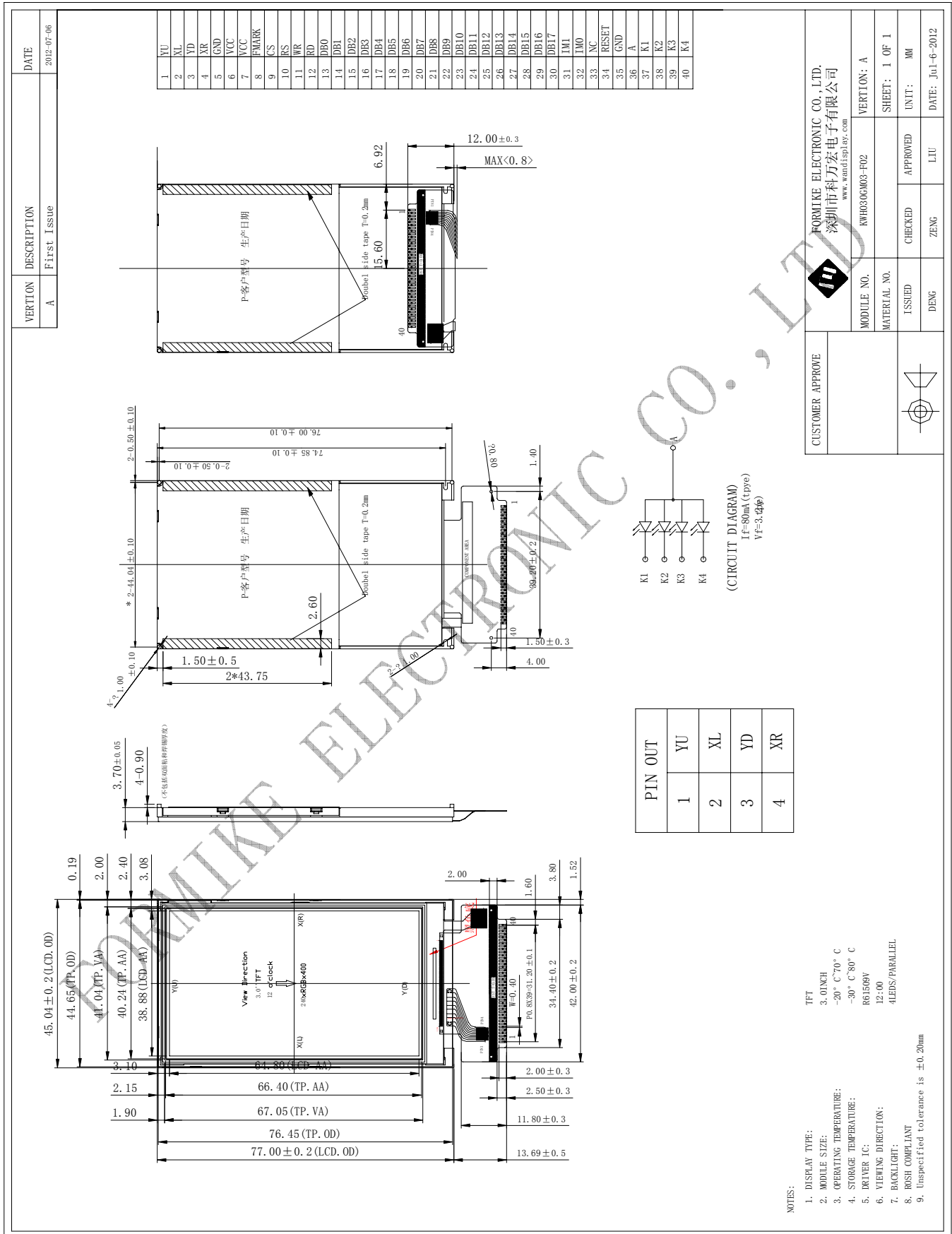
1.2 Application

Mobile phone, Multimedia products
 and other electronic Products
 Etc.

1.3 Features:

Features	Description	UNITS
LCD type	3.0" TFT	--
Dot arrangement	240 (RGB) × 400	dots
Driver IC	R61509V	--
Color Depth	65K/262K	
Interface	CPU 8/9/16/18 bits	
Module size	45.04(W) × 77.00 (H) × 3.7(T)	mm
Active area	38.88(W) × 64.80(H)	mm
Dot pitch	0.162 (W) × 0.162 (H)	mm
Back Light	4 White LED In parallel	--
With/Without TSP	With TSP	
Weight(g)	TBD	

2. External Dimensions



3. Interface Description

PIN NO.	PIN NAME	DESCRIPTION
1	YU	Touch Panel Up Side Wire.
2	XL	Touch Panel Left Side Wire.
3	YD	Touch Panel Down Side Wire.
4	XR	Touch Panel Right Side Wire.
5	GND	Ground.
6-7	VCC	Power supply (+2.5V~+3.3V).
8	FMARK	Frame head pulse. FMARK is used when writing data to the internal.
9	CS	Chip select signal, Active "L".
10	RS	Command / Display data selection 0: command; 1: display data.
11	WR	Write signal input, Active" L ".
12	RD	Read signal input, Active" L ".
13	DB0	80-system-18-Bit Data Bus.
14	DB1	80-system-18-Bit Data Bus.
15	DB2	80-system-18-Bit Data Bus.
16	DB3	80-system-18-Bit Data Bus.
17	DB4	80-system-18-Bit Data Bus.
18	DB5	80-system-18-Bit Data Bus.
19	DB6	80-system-18-Bit Data Bus.
20	DB7	80-system-18-Bit Data Bus.
21	DB8	80-system-18-Bit Data Bus.
22	DB9	80-system-18-Bit Data Bus.
23	DB10	80-system-18-Bit Data Bus.
24	DB11	80-system-18-Bit Data Bus.
25	DB12	80-system-18-Bit Data Bus.
26	DB13	80-system-18-Bit Data Bus.
27	DB14	80-system-18-Bit Data Bus.
28	DB15	80-system-18-Bit Data Bus.
29	DB16	80-system-18-Bit Data Bus.
30	DB17	80-system-18-Bit Data Bus.
31	IM1	8080 System Interface Selection:
32	IM0	IM1=0 IM0=0 8080 18-Bit system Interface. DB[0-17]
		IM1=0 IM0=1 8080 9-Bit system Interface. DB[9-17]
		IM1=1 IM0=0 8080 16-Bit system Interface. DB[1-8] DB[10-17]
		IM1=1 IM0=1 8080 8-Bit system Interface. DB[10-17]
		Unused pins please connect the GND.
33	NC	NC.
34	RESET	Reset input pin, When reset is "L", Initialization is executed.
35	GND	Ground.
36	LEDA	Power supply for LED backlight Anode input.
37-40	LEDK1-K4	Power supply for LED backlight Cathode input.

4. Absolute Maximum Ratings

Items	Symbol	Unit	Value	Note
Power supply voltage 1	VCC, IOVCC	V	-0.3 ~ +4.6	1, 2
Power supply voltage 2	VCI – AGND	V	-0.3 ~ +4.6	1, 3
Power supply voltage 3	DDVDH – AGND	V	-0.3 ~ +6.5	1, 4
Power supply voltage 4	AGND – VCL	V	-0.3 ~ +4.6	1
Power supply voltage 5	DDVDH – VCL	V	-0.3 ~ +9.0	1, 5
Power supply voltage 7	AGND– VGL	V	-0.3 ~ +13.0	1, 6
Power supply voltage 8	VGH – VGL	V	-0.3 ~ +30.0	1
Power supply voltage 9	VCI – VGL	V	-0.3 ~ +6.5	1, 7
Power supply voltage 10	VPP1	V	-0.3 ~ +10.0	1
Power supply voltage 11	VPP3A	V	-0.3 ~ +0.3	1
Input voltage	Vt	V	-0.3 ~ IOVCC + 0.3	1
Operation temperature	Topr	°C	-40 ~ +85	1, 8
Storage temperature	Tstg	°C	-55 ~ +110	1

- Notes: 1. If used beyond the absolute maximum ratings, the LSI may be permanently damaged. It is strongly recommended to use the LSI under the condition within the electrical characteristics in normal operation. If exposed to the condition not within the electrical characteristics, it may affect the reliability of the device.
2. Make sure $VCC \geq GND$, and $IOVCC \geq GND$.
 3. Make sure $VCI \geq AGND$.
 4. Make sure $DDVDH \geq AGND$.
 5. Make sure $DDVDH \geq VCL$.
 6. Make sure $AGND \geq VGL$.
 7. Make sure $VCI \geq VGL$.
 8. The DC/AC characteristics of the die and wafer products are guaranteed at 85°C.

5. Electrical Characteristics

Item	Sym bol	Unit	Test Condition	Min.	Typ.	Max.	Note
Input "High" level voltage 1 Interface pin (Except for RESX)	V_{IH1}	V	$IOVCC=1.65V \sim 1.95V$	$0.80 \times IOVCC$	—	IOVCC	1, 2
Input "Low" level voltage 1 Interface pin (Except for RESX)	V_{L1}	V	$IOVCC=1.65V \sim 1.95V$	0	—	$0.20 \times IOVCC$	1, 2
Input "High" level voltage 2 RESX pin	V_{IH2}	V	$IOVCC=1.65V \sim 1.95V$	$0.90 \times IOVCC$	—	IOVCC	1, 2
Input "Low" level voltage 2 RESX pin	V_{L2}	V	$IOVCC=1.65V \sim 1.95V$	0	—	$0.10 \times IOVCC$	1, 2
Output "High" level voltage 1 (DB[17:0], TE, LEDPWM)	V_{OH1}	V	$IOVCC=1.65V \sim 1.95V$, $IOH=0.1mA$	$0.8 \times IOVCC$	—	—	1
Output "Low" level voltage 1 (DB[17:0], TE, LEDPWM)	V_{OL1}	V	$IOVCC=1.65V \sim 1.95V$, $IOL=0.1mA$	—	—	$0.20 \times IOVCC$	1
Bus interface pin input/output Leakage current	I_L	μA	$V_{in}=0 \sim IOVCC$	-1	—	1	4

Current consumption ($I_{IOVCC-GND}$) +	Normal mode (260k color display operation)	I_{OP1}	mA	320 line drive, IOVCC=1.80V, VCI=2.80V, fFLM=60Hz, Ta=25C, frame memory data: 18'h00000, BLCN=0	-	1.0	TBD	5, 6
	Idle mode (64 line partial display)	I_{OP2}	μ A	64 line partial display, IOVCC=1.80V, VCI=2.80V, fFLM=40Hz, Ta=25C, BC2=0, frame memory data: 18'h00000, BLCN=0	-	400	TBD	5, 6
	Normal mode (260k-color display operation) BLC ON	I_{OP3}	mA	320 line drive, IOVCC=1.80V, VCI=2.80V, fFLM=60Hz, Ta=25C, frame memory data: 18'h00000, BLCN=1	-	1.2	TBD	5, 6
	Sleep mode	I_{BT}	μ A	IOVCC= 1.80V, Ta=25°C	-	50	250	5, 6
	Frame memory access mode	I_{RAM}	mA	IOVCC=1.80V, VCI=2.80V, tCYCW=70ns, Ta=25C, consecutive frame memory access during display operation. 8bits x 2 transfer Write data: 18'h00000	-	2.8	TBD	5, 6

Step-up Circuit Characteristics

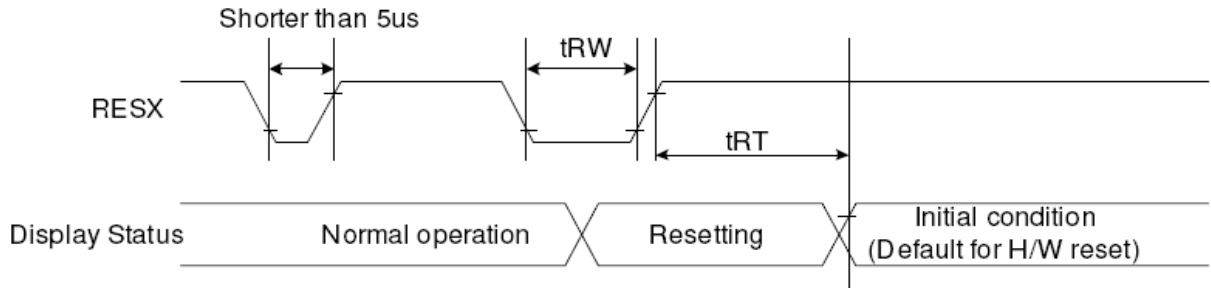
Item	Unit	Test condition	Min.	Typ.	Max.	Note	
Step-up Output Voltage	DDVDH	V	IOVCC=1.80V, VCI =2.8V, Ta=25C, DIV*=2h1, RTN*=5h11, VC=3h1, BT=3h2, AP*=2h3, DC0*=3h4, DC1*=3h3, C11=C12=C31=C21=C22=1[uF]/B characteristics, DDVDH=VGH=VGL=VCL=1[uF]/B characteristics, no load on the panel, Iload1=-3 [mA]	4.80	5.10	-	Step-up Output Voltage
	VGH	V	IOVCC=1.80V, VCI =2.8V, Ta=25C, DIV*=2h1, RTN*=5h11, VC=3h1, BT=3h2, AP*=2h3, DC0*=3h4, DC1*=3h3, C11=C12=C31=C21=C22=1[uF]/B characteristics, DDVDH=VGH=VGL=VCL=1[uF]/B characteristics, Iload2=-100[uA], no load on the panel	14.40	15.10	-	
	VGL	V	IOVCC=1.80V, VCI =2.8V, Ta=25C, DIV*=2h1, RTN*=5h11, VC=3h1, BT=3h2, AP*=2h3, DC0*=3h4, DC1*=3h3, C11=C12=C31=C21=C22=1[uF]/B characteristics, DDVDH=VGH=VGL=VCL=1[uF]/B characteristics, Iload3=+100[uA], no load on the panel	-	-10.00	-9.60	
	VCL	V	IOVCC=1.80V, VCI =2.8V, Ta=25C, DIV*=2h1, RTN*=5h11, VC=3h1, BT=3h2, AP*=2h3, DC0*=3h4, DC1*=3h3, C11=C12=C31=C21=C22=1[uF]/B characteristics, DDVDH=VGH=VGL=VCL=1[uF]/B characteristics, Iload4=+200[uA], no load on the panel	-	-2.55	-2.40	

Power Supply Voltage Range (Ta= -40C ~ +85C, GND=AGND=0V)

Item	Symbol	Unit	Min.	Typ.	Max.	Condition
Power supply voltage	IOVCC	V	1.65	1.80	1.950	-
Power supply voltage	VCI	V	2.50	2.80	3.30	-

6. Timing Characteristics.

6.1 Reset Timing Characteristics.



Signal	Symbol	Parameter	Min	Max	Unit
RESX	tRW	Reset pulse duration	10		uS
	tRT	Reset cancel		5 (note 1,5)	mS
				120 (note 1,6,7)	mS

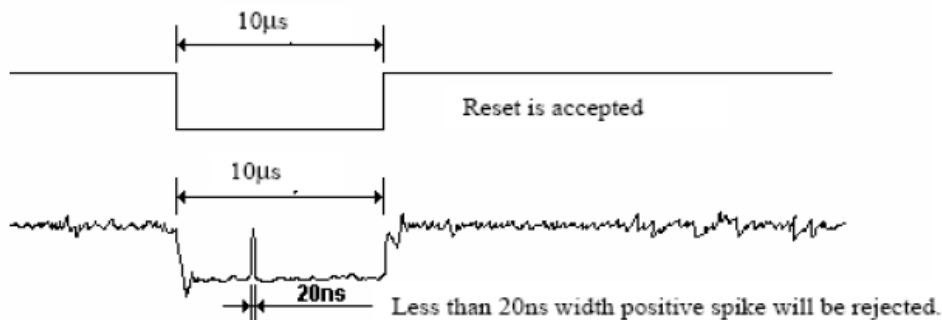
Note 1: The reset cancel includes also required time for loading ID bytes, VCOM setting and other settings from NV memory to registers. This loading is done every time when there is HW reset cancel time (tRT) within 5 ms after a rising edge of RESX.

Note 2: Spike due to an electrostatic discharge on RESX line does not cause irregular system reset according to the table below: -

RESX Pulse	Action
Shorter than 5us	Reset Rejected
Longer than 10us	Reset
Between 5us and 10us	Reset starts

Note 3: During the Resetting period, the display will be blanked (The display is entering blanking sequence, which maximum time is 120 ms, when Reset Starts in Sleep Out –mode. The display remains the blank state in Sleep In -mode.) And then return to Default condition for Hardware Reset.

Note 4: Spike Rejection also applies during a valid reset pulse as shown below:



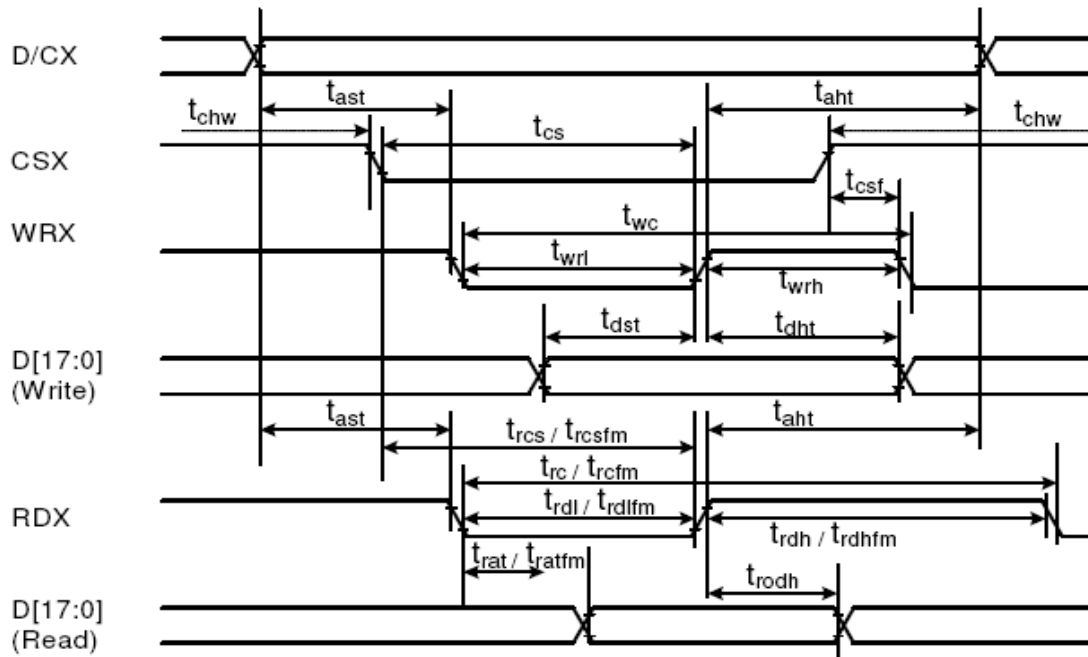
Note 5: When Reset applied during Sleep In Mode.

Note 6: When Reset applied during Sleep Out Mode.

Note 7: It is necessary to wait 5msec after releasing RESX before sending commands. Also Sleep Out command cannot be sent for 120msec.

6.2. i80-System Interface Timing Characteristics.

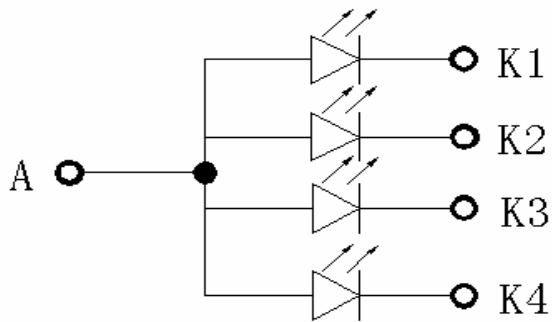
Display Parallel 18/16/9/8-bit Interface Timing Characteristics (8080- I system)



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	
WRX	tcsf	Chip Select Wait time (Write/Read)	10	-	ns	
	twc	Write cycle	66	-	ns	
	twrh	Write Control pulse H duration	15	-	ns	
RDX (FM)	t_wrl	Write Control pulse L duration	15	-	ns	
	trcfm	Read Cycle (FM)	450	-	ns	
	trdhfm	Read Control H duration (FM)	90	-	ns	
RDX (ID)	trdlfm	Read Control L duration (FM)	355	-	ns	
	trc	Read cycle (ID)	160	-	ns	
	trdh	Read Control pulse H duration	90	-	ns	
D[17:0], D[15:0], D[8:0], D[7:0]	trdl	Read Control pulse L duration	45	-	ns	
	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: $T_a = -30$ to 70 °C, $V_{DDI}=1.65V$ to $3.3V$, $V_{CI}=2.5V$ to $3.3V$, $V_{SS}=0V$

7. Backlight Characteristics.



Item	Symbol	MIN	TYP	MAX	UNIT	Test Condition	Note
Supply Voltage	Vf	3.0	3.2	3.4	V	If=80 mA	-
Supply Current	If	-	80	-	mA	-	-
Reverse Voltage	Vr	-	-	5	V	10uA	
Power dissipation	Pd	-	256	-	mW	-	
Luminous Intensity for LCM		-	320	-	Cd/m²	If=80 mA	
Uniformity for LCM	-	80	-	-	%	If=80 mA	
Life Time	-	50000	-	-	Hr	If=80 mA	-
Backlight Color	White						

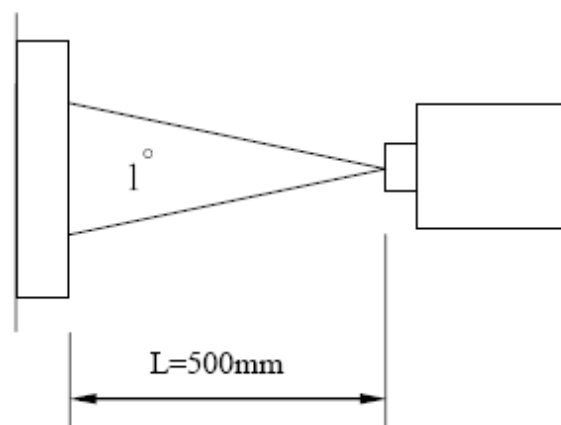
8.Optical Characteristics

(Using CPT LC+ EWV Polarizer+Corresponding Backlight, reference only)

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	REMARK
Transmittance	T		5.2	5.5		%	
Contrast Ratio	CR	*1)		250	-	--	Note 3
Response Time	Tr+ Tf	*3)	-	30		ms	Note 4
Viewing Angle	Vertical	θ *2)	CR \geq 10	100	110	-	Note 5
	Horizontal	ϕ *2)		120	130	-	
Color Filter Chromacicity	White	x y Y	$\theta = \phi = 0^\circ$	0.288	0.308	0.328	Note 6
				0.322	0.342	0.362	
				27.8	30.8	33.8	
	Red	x y Y	$\theta = \phi = 0^\circ$	0.633	0.653	0.673	
				0.311	0.331	0.351	
				15.4	18.4	21.4	
	Green	x y Y	$\theta = \phi = 0^\circ$	0.291	0.311	0.331	
				0.554	0.574	0.594	
				55.0	59.0	63	
	Blue	x y Y	$\theta = \phi = 0^\circ$	0.114	0.134	0.154	
				0.114	0.134	0.154	
				12.3	15.3	18.3	
NTSC			-	61%	-		

Note 1.Ambient condition : 25°C \pm 2°C , 60 \pm 10%RH , under 10 Lux in the darkroom ◦

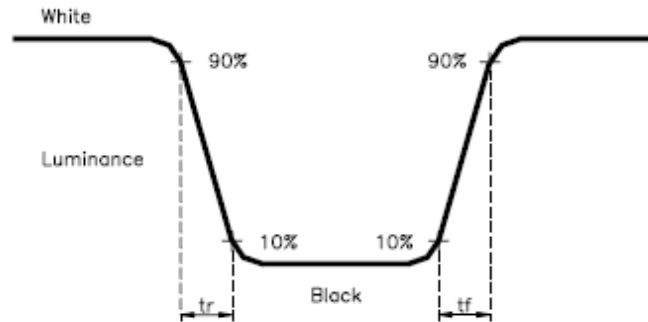
Note 2.Measure device : BM-5A (TOPCON) , viewing cone= 1° , I_L=20mA ◦



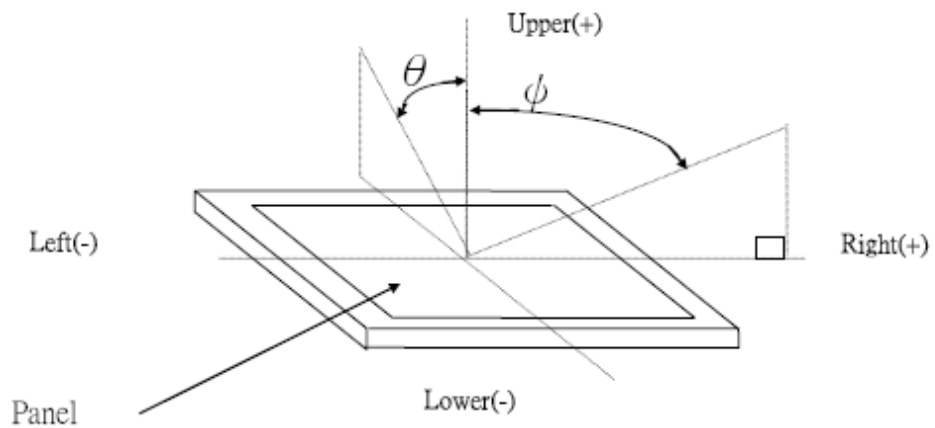
Note 3. Definition of Contrast Ratio :

$$CR = \text{White Luminance (ON)} / \text{Black Luminance (OFF)}$$

Note 4. Definition of response time : The response time is defined as the time interval between the 10% and 90% amplitudes.



Note 5. Definition of view angle(θ , ψ) :



Note 6. Light source: C light.

9. Reliability Test Conditions And Methods

NO.	TEST ITEMS	TEST CONDITION	INSPECTION AFTER TEST
①	High Temperature Storage	80°C ± 2°C × 200Hours	Inspection after 2~4hours storage at room temperature, the samples should be free from defects: 1,Air bubble in the LCD. 2,Sealleak. 3,Non-display. 4,Missing segments. 5,Glass crack. 6,Current IDD is twice higher than initial value. 7, The surface shall be free from damage. 8, The electric Characteristics requirements shall be satisfied.
②	Low Temperature Storage	- 30°C ± 2°C × 200Hours	
③	High Temperature Operating	70°C ± 2°C × 120Hours	
④	Low Temperature Operating	- 20°C ± 2°C /120Hours	
⑤	Temperature Cycle(Storage)	- 30°C ± 2°C ↔ 25°C 80°C ± 2°C (30min) (5min) (30min) ←————→ 1cycle Total 10cycle	
⑥	Damp Proof Test	50°C ± 5°C × 90%RH × 120Hours	
⑦	Vibration Test	Frequency:10Hz~55Hz~10Hz Amplitude:1.5M X,Y,Z direction for total 3hours (Packing Condition)	
⑧	Drooping Test	Drop to the ground from 1M height one time every side of carton. (Packing Condition)	
⑨	ESD Test	Voltage: ± 8KV, R:330 Ω, C:150PF, Air Mode, 10times	

REMARK:

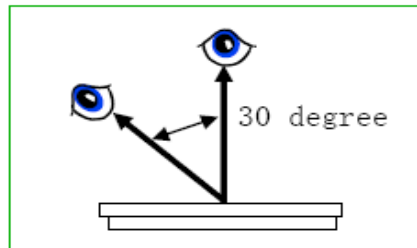
- 1,The Test samples should be applied to only one test item.
- 2,Sample side for each test item is 5~10pcs.
- 3,For Damp Proof Test,Pure water(Resistance>10MΩ) should be used.
- 4,In case of malfunction defect caused by ESD damage, if it would be recovered to normal state after resetting, it would be judge as a good part.
- 5,EL evaluation should be excepted from reliability test with humidity and temperature: Some defects such as black spot/blemish can happen by natural chemical reaction with humidity and Fluorescence EL has.
- 6, Failure Judgment Criterion: Basic Specification Electrical Characteristic, Mechanical Characteristic, Optical Characteristic.

10. Inspection Standard

This standard apply to TFT module specification.

1. Inspection condition:

Under daylight lamp 20~40W, product distance inspector'eye 30cm,incline degree 30° .



2. Inspection standard

NO.	Item	Inspection standard	Rate												
2.1	Dot	Case of Dot defect is below ① Bright Dot (whit spot) : "0" ② Dark Dot (black spot) : "0" (In case of Dark Dot on Main TFT LCD) - NG if there's full Dot defect. - Damaged less than the size of sub-pixel is not counted as defect - Dots darker than the size of sub-pixel are not defined as bright dot defect	minor												
		<table border="1"> <thead> <tr> <th>area size (mm)</th> <th>Acceptable number</th> </tr> </thead> <tbody> <tr> <td>$\Phi \leq 0.10$</td> <td>ignore</td> </tr> <tr> <td>$0.10 < \Phi \leq 0.15$</td> <td>3</td> </tr> <tr> <td>$0.15 < \Phi \leq 0.20$</td> <td>2</td> </tr> <tr> <td>$0.25 < \Phi \leq 0.25$</td> <td>1</td> </tr> <tr> <td>$0.25 < \Phi$</td> <td>0</td> </tr> </tbody> </table>		area size (mm)	Acceptable number	$\Phi \leq 0.10$	ignore	$0.10 < \Phi \leq 0.15$	3	$0.15 < \Phi \leq 0.20$	2	$0.25 < \Phi \leq 0.25$	1	$0.25 < \Phi$	0
		area size (mm)		Acceptable number											
		$\Phi \leq 0.10$		ignore											
		$0.10 < \Phi \leq 0.15$		3											
		$0.15 < \Phi \leq 0.20$		2											
$0.25 < \Phi \leq 0.25$	1														
$0.25 < \Phi$	0														
<table border="1"> <thead> <tr> <th colspan="2">Size (mm)</th> <th>Acceptable number</th> </tr> </thead> <tbody> <tr> <td>ignore</td> <td>$W \leq 0.03$</td> <td>ignore</td> </tr> <tr> <td>$L \leq 4.0$</td> <td>$0.03 < W \leq 0.04$</td> <td>2</td> </tr> <tr> <td>$L \leq 4.0$</td> <td>$0.04 < W \leq 0.05$</td> <td>1</td> </tr> <tr> <td></td> <td>$0.05 < W$</td> <td>Treat with dot non-conformance</td> </tr> </tbody> </table>	Size (mm)		Acceptable number	ignore	$W \leq 0.03$	ignore	$L \leq 4.0$	$0.03 < W \leq 0.04$	2	$L \leq 4.0$	$0.04 < W \leq 0.05$	1		$0.05 < W$	Treat with dot non-conformance
Size (mm)		Acceptable number													
ignore	$W \leq 0.03$	ignore													
$L \leq 4.0$	$0.03 < W \leq 0.04$	2													
$L \leq 4.0$	$0.04 < W \leq 0.05$	1													
	$0.05 < W$	Treat with dot non-conformance													
2.2	line														

11. Handling Precautions

11.1 Mounting method

The LCD panel of FORMIKE ELECTRONIC CO.,LTD. module consists of two thin glass plates with polarizes which easily be damaged. And since the module in so constructed as to be fixed by utilizing fitting holes in the printed circuit board.

Extreme care should be needed when handling the LCD modules.

11.2 Caution of LCD handling and cleaning

When cleaning the display surface, Use soft cloth with solvent

[recommended below] and wipe lightly

- Isopropyl alcohol
- Ethyl alcohol

Do not wipe the display surface with dry or hard materials that will damage the polarizer surface.

Do not use the following solvent:

- Water
- Aromatics

Do not wipe ITO pad area with the dry or hard materials that will damage the ITO patterns

Do not use the following solvent on the pad or prevent it from being contaminated:

- Soldering flux
- Chlorine (Cl) , Sulfur (S)

If goods were sent without being silicon coated on the pad, ITO patterns could be damaged due to the corrosion as time goes on.

If ITO corrosion happen by miss-handling or using some materials such as Chlorine (Cl), Sulfur (S) from customer, Responsibility is on customer.

11.3 Caution against static charge

The LCD module use C-MOS LSI drivers, so we recommended that you:

Connect any unused input terminal to V_{dd} or V_{ss} , do not input any signals before power is turned on, and ground your body, work/assembly areas, assembly equipment to protect against static electricity.

11.4 packing

- Module employ LCD elements and must be treated as such.
- Avoid intense shock and falls from a height.
- To prevent modules from degradation, do not operate or store them exposed direct to sunshine or high temperature/humidity

11.5 Caution for operation

- It is an indispensable condition to drive LCD's within the specified voltage limit since the higher voltage then the limit cause the shorter LCD life.
- An electrochemical reaction due to direct current causes LCD's undesirable deterioration, so that the use of direct current drive should be avoided.
- Response time will be extremely delayed at lower temperature then the operating temperature range and on the other hand at higher temperature LCD's how dark color in them. However those phenomena do not mean malfunction or out of order with LCD's, which will come back in the specified operation temperature.
- If the display area is pushed hard during operation, some font will be abnormally displayed but it resumes normal condition after turning off once.
- A slight dew depositing on terminals is a cause for electro-chemical reaction resulting in terminal open circuit. Usage under the maximum operating temperature, 50%Rh or less is required.

11.6 storage

In the case of storing for a long period of time for instance, for years for the purpose or replacement use, the following ways are recommended.

- Storage in a polyethylene bag with the opening sealed so as not to enter fresh air outside in it . And with no desiccant.
- Placing in a dark place where neither exposure to direct sunlight nor light's keeping the storage temperature range.
- Storing with no touch on polarizer surface by the anything else.
It is recommended to store them as they have been contained in the inner container at the time of delivery from us

11.7 Safety

- It is recommendable to crash damaged or unnecessary LCD's into pieces and wash off liquid crystal by either of solvents such as acetone and ethanol, which should be burned up later.
- When any liquid leaked out of a damaged glass cell comes in contact with your hands, please wash it off well with soap and water

12. Precaution For Use

12.1

A limit sample should be provided by the both parties on an occasion when the both parties agreed its necessity. Judgment by a limit sample shall take effect after the limit sample has been established and confirmed by the both parties.

12.2

On the following occasions, the handing of problem should be decided through discussion and agreement between responsible of the both parties.

- When a question is arisen in this specification
- When a new problem is arisen which is not specified in this specifications
- When an inspection specifications change or operating condition change in customer is reported to FORMIKE ELECTRONIC CO.,LTD,and some problem is arisen in this specification due to the change
- When a new problem is arisen at the customer's operating set for sample evaluation in the customer site.