DATASHEET

Fema Part Number

GM640480U-57-TTX2NLW-H	
Description	Full Color TFT
	5.7″ Diagonal Size
	Brightness = 700 nits (typical)
	LED Backlight 50,000 Hours

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1. BASIC SPECIFICATION

1.1 Mechanical specifications

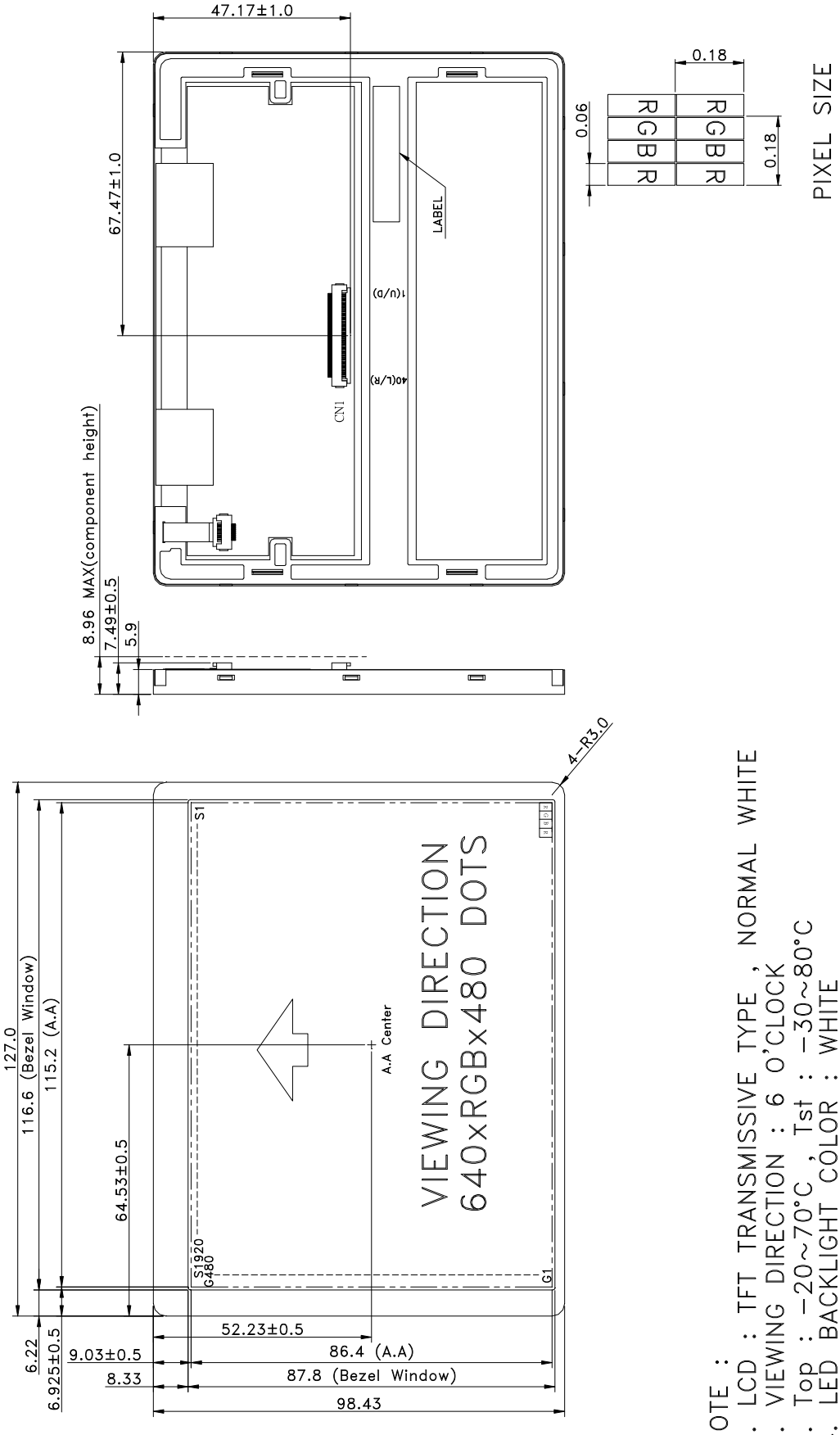
Items	Nominal Dimension	Unit
Active screen size	5.7” diagonal	-
Dot Matrix	640 x RGB x 480	dots
Module Size (W x H x T)	127.0 x 98.43 x 8.96	mm.
Active Area (W x H)	115.2 x 86.4	mm.
Pixel Size (WxH)	0.18 x 0.18	mm.
Color depth	262K	color
Interface	Parallel 18-bit RGB	-
Driving IC Package	COG	-
Module weight	106	g

1.2 Display specification

Display	Descriptions	Note
LCD Type	a-Si TFT	
LCD Mode	TN / Normal white	
Polarizer Mode	Transmissive	
Polarizer Surface	Normal	
Pixel arrangement	RGB-stripe	
Backlight Type	LED	
Viewing Direction(Gray inversion)	6 O'clock Direction	

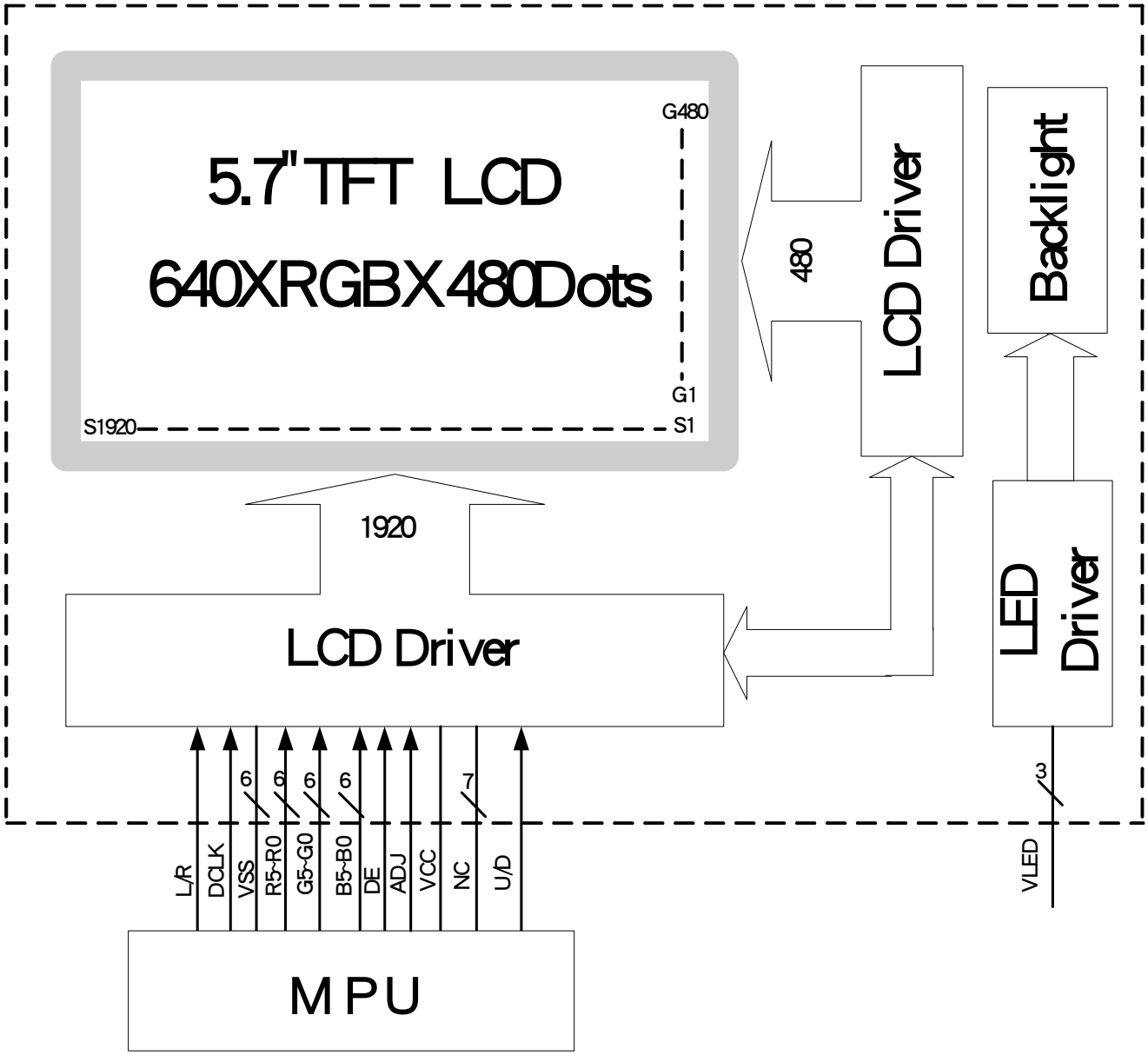
＊Color tone is slightly changed by temperature and driving voltage.

1.3 Outline dimension



NOTE :
1. LCD : TFT TRANSMISSIVE TYPE , NORMAL WHITE
2. VIEWING DIRECTION : 6 O'CLOCK
3. Top : −20~70°C , Tst : −30~80°C
4. LED BACKLIGHT COLOR : WHITE
5. CONSTANT VOLTAGE FOR LED DRIVER : VLED=5.0 V, ILED=380.0mA(TYP.)
6. TOLERANCE FOR NOT ASSIGNED : ±0.3mm
7. RoHS−COMPLIANT
8. CN1 : 6705−E40N−00R(E&T)

1.4 Block diagram:



1.5 Interface pin :

Pin No.	Pin Symbol	I/O	Description
1	U/D	I	Up or Down Display Control
2~3	NC	-	Customer non-connect.
4~6	VLED	P	Power supply for digital circuit LED.(+5.0V)
7	VCC	P	Power supply for digital circuit LCD. (+3.3V)
8	NC	-	Customer non-connect.
9	DE	I	Data enable
10	NC	-	Customer non-connect.
11	NC	-	Customer non-connect.
12	ADJ	I	Adjust for LED brightness.(PWM),High active
13	B5	I	Blue data input (MSB)
14、15	B4、B3	I	Blue data input
16	VSS	P	Power ground
17、18	B2、B1	I	Blue data input
19	B0	I	Blue data input (LSB)
20	VSS	P	Power ground
21	G5	I	Green data input (MSB)
22、23	G4、G3	I	Green data input
24	VSS	P	Power ground
25、26	G2、G1	I	Green data input
27	G0	I	Green data input (LSB)
28	VSS	P	Power ground

Pin No.	Pin Symbol	I/O	Description
29	R5	I	Red data input (MSB)
30、31	R4、R3	I	Red data input
32	VSS	P	Power ground
33、34	R2、R1	I	Red data input
35	R0	I	Red data input (LSB)
36	NC	-	Customer non-connect.
37	NC	-	Customer non-connect.
38	DCLK	I	Clock signals.
39	VSS	P	Power ground
40	L/R	I	Left or Right Display Control

2. ELECTRICAL CHARACTERISTICS

2.1 Absolute Maximum Ratings

Items	Symbol	Min.	Max.	Unit
Power supply voltage	VCC	-0.3	7.0	V
Input voltage	Vin	-0.3	VCC+0.3	V
Operate temperature range	TOP	-20	70	℃
Storage temperature range	TST	-30	80	℃

2.2 DC Characteristics

T_a= 25℃

Items	Symbol	Min.	Typ.	Max.	Unit	Condition
Supply voltage	V_{CC}	-	3.3	-	V	-
Input Voltage	V_{IL}	0	-	$0.3V_{CC}$	V	L level
	V_{IH}	$0.7V_{CC}$	-	V_{CC}	V	H level
Current consumption	I_{CC}	-	70	135	mA	Note 1

*Note1 :

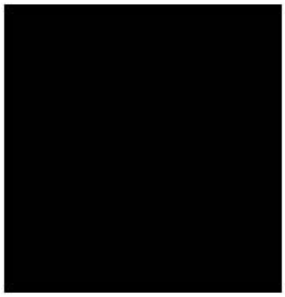
Measuring Condition:

Standard Value MAX.

Ta = 25℃

VCC -GND = 3.3V

Display Pattern = Check pattern



0 gray black pattern

2.2.1 Back-light Specification

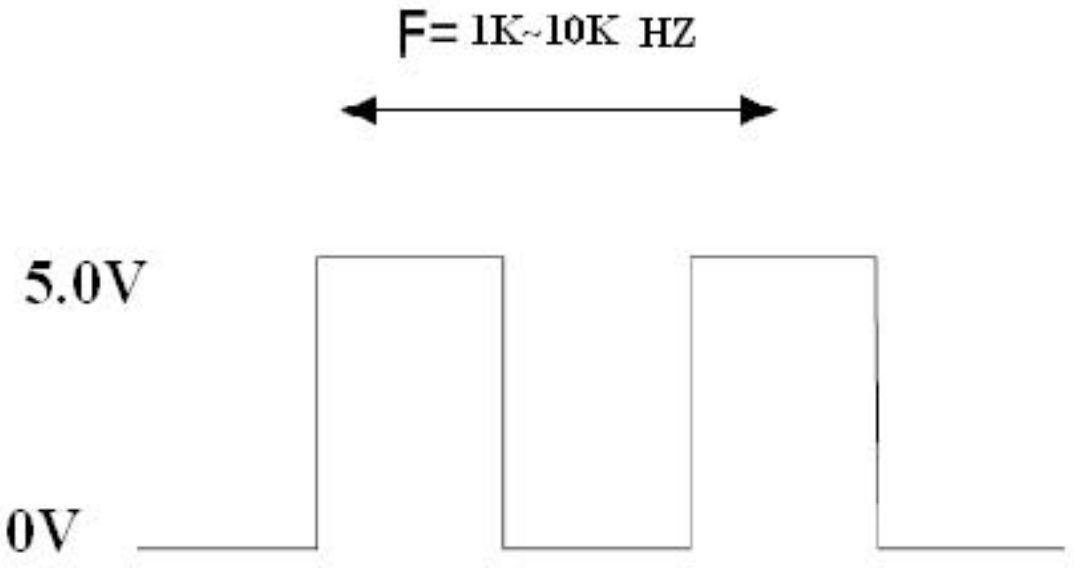
PARAMETER	SYMBOL	MIN	TYP	MAX	Unit	Test Condition	NOTE
Supply Current	I_{LED}	-	380	760	mA	Ta=25℃	-
Supply Voltage	V_{LED}	-	5	-	V	Ta=25℃	-
Half-Life Time	Lf	-	50000	-	hrs	Ta=25℃ 60 RH%	1

Note 1 : The " Half-Life Time "is defined as the module brightness decrease to 50% original brightness.

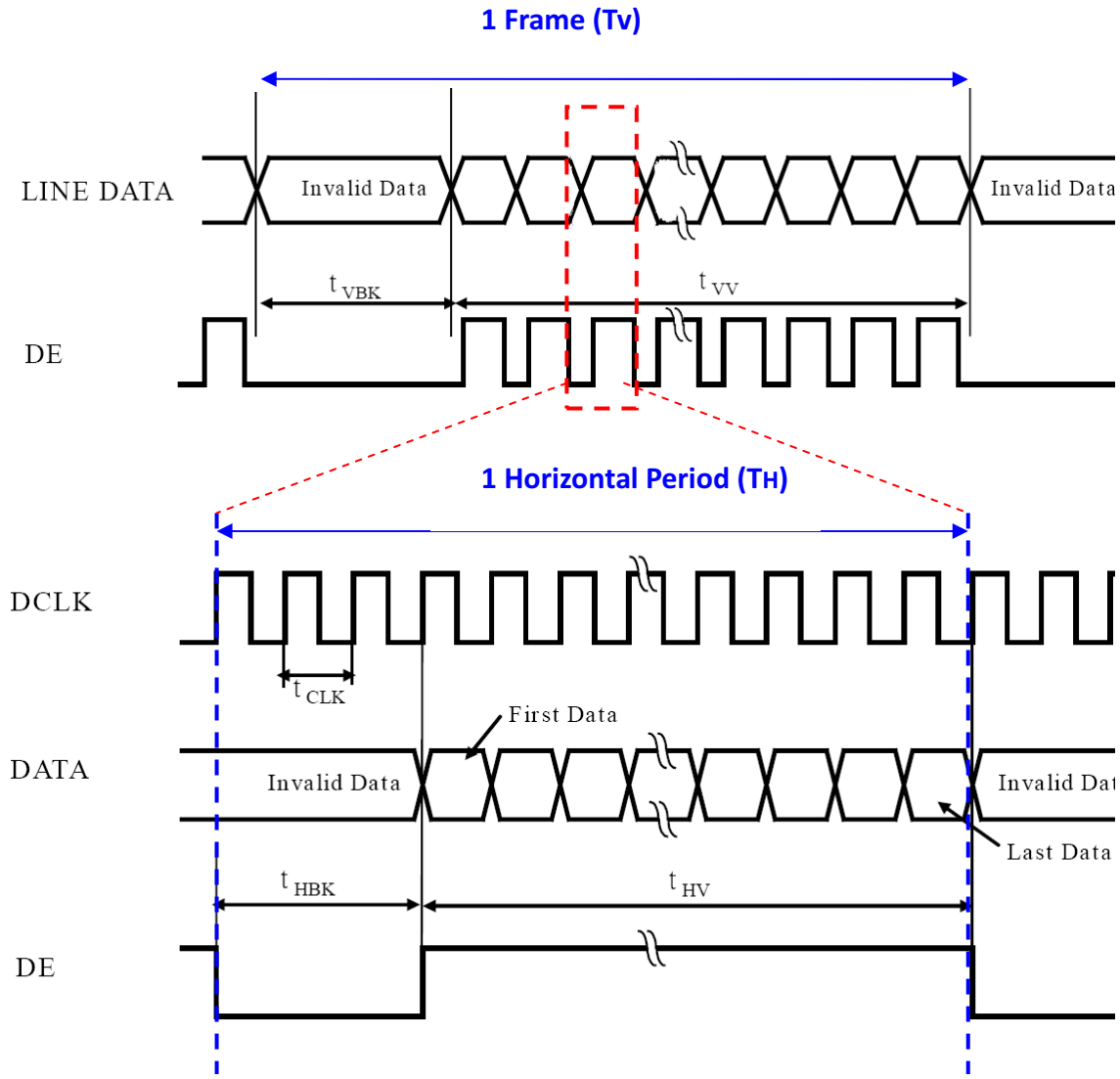
For interface pin12 (ADJ)

Items	Symbol	Min.	Typ.	Max.	Unit	Condition
Supply voltage	V_H	4.5	5.0	5.5	V	-
Input Voltage	V_{IL}	0	-	$0.3V_{DD}$	V	L level
	V_{IH}	$0.7V_{DD}$	-	V_{DD}	V	H level

ADJ signal=0~5V,operating frequency=1k~10k HZ



DE Mode Timing Setting for GM640480U-57-TTX2NLW-H



Signal	Parameter	Symbol	Value			Unit
			Min	Typ.	Max	
DCLK	Frequency	DCLK	-	-	25.175	MHZ
Horizontal	Period	TH	-	800	-	DCLK
	Valid	t_{HV}	-	640	-	DCLK
	Blank	t_{HBK}	-	160	-	DCLK
Vertical	Period	TV	-	525	-	TH
	Vaild	t_{VV}	-	480	-	TH
	Blank	t_{HBK}	-	45	-	TH

3. OPTICAL CHARACTERISTICS

3.1 Characteristics

Electrical and Optical Characteristics

No.	Item		symbol	/ temp.	Min.	Typ.	Max.	Unit	Note
1	Response Time		Tr	25℃	-	15	-	ms	2
			Tf	25℃	-	35	-		
2	Viewing Angle	Hor.	Θ_{2+}	Center CR>=10	60	75	-	degree	3
			Θ_{2-}		60	75	-		
		Ver.	Θ_{1+}		45	60	-		
			Θ_{1-}		60	75	-		
3	Contrast Ratio		Cr	25℃	400	600	-	-	4
4	Red x-code		Rx	25℃	0.57	0.62	0.67	-	5
	Red y-code		Ry		0.31	0.36	0.41		
	Green x-code		Gx		0.30	0.35	0.40		
	Green y-code		Gy		0.51	0.56	0.61		
	Blue x-code		Bx		0.09	0.14	0.19		
	Blue y-code		By		0.08	0.13	0.18		
	White x-code		Wx		0.29	0.34	0.39		
	White y-code		Wy		0.31	0.36	0.41		
	Brightness		Y		500	700	-	cd/m^2	
5	Brightness Uniformity			25℃	80	-	-	%	6

4. RELIABILITY :

Item No	Items	Condition
1	High temperature operating	70 ℃ , 200 hours
2	Low temperature operating	-20 ℃ , 200 hours
3	High temperature storage	80 ℃ , 200 hours
4	Low temperature storage	-30 ℃ , 200 hours
5	High temperature & humidity storage	60℃, 90%RH, 100 hours
6	Thermal Shock storage	-30℃, 30min.<=> 80℃, 30min. 10 Cycles
7	Vibration test	10 => 55 =>10 => 55 => 10 Hz , within 1 minute Amplitude : 1.5mm. 15 minutes for each Direction (X,Y,Z)
8	Drop test	Packed, 100CM free fall, 6 sides, 1 corner, 3edges
9	Life time	50,000 hours 25℃ , 60%RH , specification condition driving

* One single product test for only one item.

* Judgment after test : keep in room temperature for more than 2 hours.

- Current consumption < 2 times of initial value
- Contrast > 1/2 initial value
- Function : work normally

5. PRODUCT HANDLING AND APPLICATION

☐ PRECAUTION FOR HANDLING LCM

- The LCD module contains a C-MOS LSI. People who operate the LCM should wear ESD protection eguipement to prevent ESD hurt on products.
- Do not input any signal before power is turned on.
- Do not take LCM from its packaging bag until it is assembled.
- Peel off the LCM protective film slowly since static electricity may be generated.
- Pay attention to the humidity of the work shop, 50~60%RH is satisfactory.
- Use a non-leak iron for soldering LCM.
- Do not touch the display surface or connection terminals area with bare hands.Smudges on the display surface reduce the insulation between terminals.
- Cautions for soldering to LCM:

  Condition for soldering I/O terminals:
  Temperature at iron tip :350℃±15℃.
  Soldering time : 3~4sec./ terminals.
  Type of solder : Eutectic solder(rosin flux filled).

☐ PRECAUTION IN USE OF LCD

- Do not contact or scratch the front surface and the contact pads of a LCD panel with hard materials such as metal or glass or with one' s nail.
- To clean the surface , wipe it gently with soft cloth dampened by alcohol.
- Do not attempt to wiped off the contact pads.
- Keep LCD panels away from direct sunlight , also avoid them in high-temperature & high humidity environment for a long period.
- Do not drive LCD panels by DC voltage.
- Do not expose LCD panels to organic solvent.
- Liquid in LCD is hazardous substance. In case a contact with liquid crystal material is occured, be sure to immediately wash such material away by soap and water.
- The polarizer is easily damaged and should be handle with special care. Don' t press or rub it with hard objects.

☐ PRECAUTION FOR STORING AND USE OF LCM

- To avoid degradation of the device , do not store the module under the conditions of direct sunlight , high temperature or high humidity . Keep the module in bags designed to prevent static electricity charging under low temperature / normal humidity conditions(avoid high temperature / high humidity and low temperature below 0℃)
- Never use the LCD , LCM under 45 Hz , the liquid crystal will decomposition and cause permently damage on display !!

☐ USING ON MEDICAL CARE , SAFETY OR HAZARDOUS APPLICATION OR SYSTEM

- For the application in medical care, safety and hazardous prodcuts or systems, an authorization from FEMA is required. FEMA will not responsible for any damage or loss which caused by the products without any authorization given by FEMA.
- This product is not allowed to be designed and used for military application and/or purpose.
- The delivery of this product to the countries and/or regions where the embargoes are imposed by U.N. is prohibited.
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