SPECIFICATION



Page: 1

OF

LIQUID CRYSTAL DISPLAY MODULE

CUSTOMER:	CUSTOMER: URT-STD						
Model No. :	UMOH-80	61MD-T					
Model version:		0					
Document Revis	ion :	0					
	CUSTOME	R APPROVED	SIGNATURE				
This specificat	ion need to be signe	d by purchaser or cu	stomer as a specification of	of products			
production and	d delivery from URT	C. Without signature	of this specification, any that this specification is at	purchase			
acknowledged	and accepted by pu	rchaser or customer.					
■ U.R	.т. 🚃 т	UNITED RAD	IANT TECHNOL	OGY CORPORATION			
Allen Wang APPROVED	George Tseng CHECKED	Angus Chiu CHECKED	Sharon Tsai PREPARED	Dec-17-2010 Date			
COMPANY: No. 2,Fu-hsi	ing Road, Taichung Econa TEL: 886-4-25314277	mic Processing Zone,Tant	tzu,Taichung,Taiwan,R.O.C. FAX: 886-4-25313067	7			

Revision 0; UMOH-8061MD-T Ver. 0; December-17-2010

U.R.T.



UNITED RADIANT TECHNOLOGY CORP.

Headquarter office: NO.2 FU-SHING ROAD, T.E.P.Z.TANTZU, TAICHUNG, TAIWAN, R.O.C. TEL: +886-4-25314277 FAX: +886-4-25313067 Factory: NO.12 CHIEN KUO ROAD, T.E.P.Z., TANTZU, TAICHUNG, TAIWAN, R.O.C.

To Whom It May Concern:

In continuing to develop and promote the strategic partnership between United Radiant Technology (URT) and Microtips USA (MTUSA), URT is please to announce that we have entered into an agreement with MTUSA to support some key projects only through MTUSA and as such the attached spec with URT Part no. will be manufactured by URT but support and logistic of the sales will be handled by MTUSA.

URT is confident that this arrangement between our two companies will ultimately benefit the end customer.

Thank You.

Raymond Chen

Sales Manager: URT

	Revision record						
Document	Model No.		Description	Revision			
Revision	Version No.			by			
0	UMOH-806 Version I	JIWID-I	 Modify the glass number. Modify the module number from UMNH-8061MD-10T to UMOH-8061MD-T. 	Jeffry Chen Eric Chen 17-Dec-2010			
■ U.R.	T. Rev	vision 0; L	JMOH-8061MD-T Ver. 0 ; December-17-2010	Page: 2			

CONTENTS:

No.	Item	Page
	BASIC SPECIFICATION	
1	1.1 Mechanical Specification	4
	1.2 Display Specification	4
	1.3 Outline Dimension	5
	1.4 Block Diagram	6
	1.5 Interface Pin	7
	ELECTRICAL CHARACTERISTICS	
2	2.1 Absolute Maximum Ratings	8
	2.2 DC Characteristics	9
	2.2.1 Back-light	9
	2.3 Command Sequence	10~14
	2.4 AC Characteristics	15~16
	OPTICAL CHARACTERISTICS	
3	3.1 Condition	17
	3.2 Definition of Optical Characteristics	19~20
4		0.4
4	RELIABILITY	21
5	PRODUCT HANDING AND APPLICATION	22
J	TRODUCT HANDING AND ATTEICATION	22
6	DATECODE	23
7	PACKING & LOTNO	24~25
		24.20
8	INSPECTION STANDARD	26~29
	1	

1. BASIC SPECIFICATION

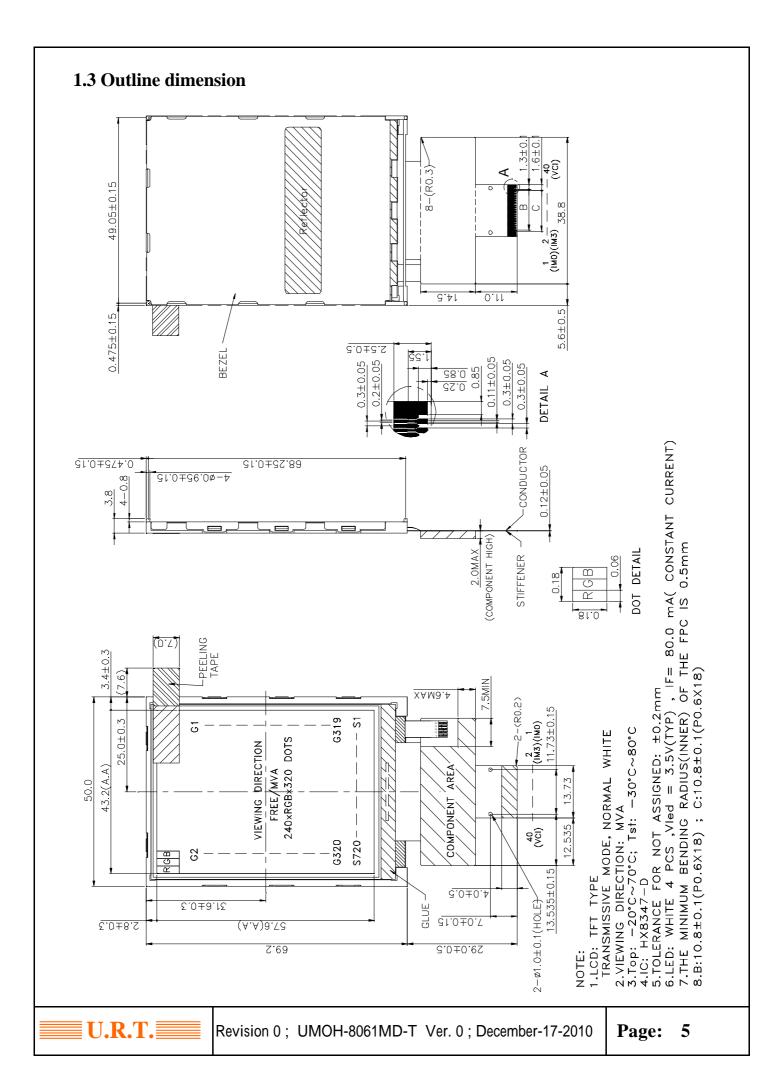
1.1 Mechanical specifications

remainear specifications		
Items	Nominal Dimension	Unit
Active screen size	2.8" diagonal	-
Dot Matrix	240 x RGB x 320	Pixel
Module Size (W x H x T)	50 x 69.2 x 3.8	mm.
Active Area (W x H)	43.2 x 57.6	mm.
Pixel Size (W×H)	0.18×0.18	mm.
Color depth	262K	color
Interface	8/9/16/18-bit MPU parallel	-
Driving IC Package	COG	-
Module Weight	19	g

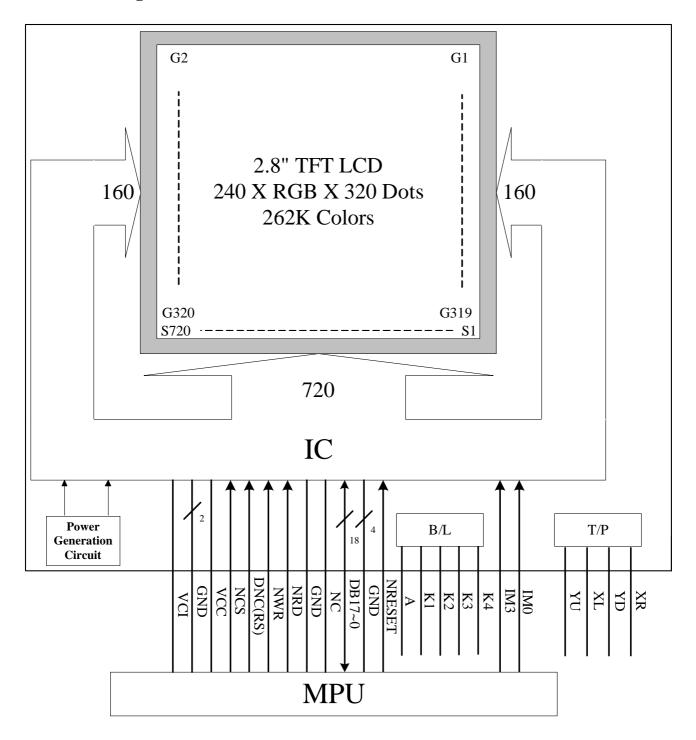
1.2 Display specification

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)	Free	-

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



1.4 Block diagram:



1.5 Interface pin:

Pin No.	Pin Symbol	I/O	Description						
			Select	the M	IPU system interface mode				
1	${f IM0}$		IM3	IM0	MPU-Interface Mode	DB Pin in use			
		I	0	0	i80-system 16-bit interface	DB[17:10], DB[8:1]			
		1	0	1	i80-system 8-bit interface	DB[17:10]			
2	IM3		1	0	i80-system 18-bit interface	DB[17:0]			
			1	1	i80-system 9-bit interface	DB[17:9]			
3	K4	P	Catho	de4 in	put for LED backlight.				
4	K3	P	Catho	de3 in	put for LED backlight.				
5	K2	P	Catho	de2 in	put for LED backlight.				
6	K1	P	Catho	de1 in	put for LED backlight.				
7	A	P	Anode	Anode input for LED backlight.					
8	NRESET	I	Reset pin. Setting either pin low initializes the LSI. Must be reset after power is supplied						
9~12	GND	P	Power	Power Supply for Ground(0V).					
13~30	DB17~DB0	I/O		18-bit bi-directional data bus.					
				The unused pins let to open.					
31	NC	-	No co	No connection.					
32	GND	P	Power Supply for Ground(0V).						
33	NRD	I	Read	Read enable pin I80 parallel bus system interface.					
34	NWR	I	Write enable pin I80 parallel bus system interface.						
35	DNC(RS)	I	Command / parameter or display data selection pin.						
			Chip select signal.						
36	NCS	I	Low: chip can be accessed;						
			High: chip cannot be accessed.						
37	VCC	P	Digital IO Pad power supply. (+2.8V)						
38~39	GND	P	Power	Power Supply for Ground(0V).					
40	VCI	P	Analog power supply. (+2.8V)						

Touch Panel:

Pin No.	Pin Symbol	ΙO	Description					
1	XR	-	Touch panel control pin					
2	YD	-	Touch panel control pin					
3	XL	-	ouch panel control pin					
4	YU	-	Touch panel control pin					

2. ELECTRICAL CHARACTERISTICS

2.1 Absolute Maximum Ratings

Items	Symbol	Min.	Max.	Unit
Supply voltage for logics	VCC	-0.3	+4.6	V
Supply voltage for analog	VCI	-0.3	+4.6	V
Input voltage	Vi	-0.3	VCC+0.3	V
Operating temperature range	T_{OP}	-20	+70	°C
Storage temperature range	$T_{ m ST}$	-30	+80	°C

2.2 DC Characteristics

Items	Symbol	Min.	Тур.	Max.	Unit	Condition
Supply voltage (Logic)	VCC	1.65	2.8	3.3	V	NOTE
Supply voltage (analog)	VCI	2.3	2.8	3.3	V	NOTE
Input high level voltage	V_{IH}	0.8VCC	-	VCC	V	•
Input low level voltage	VIL	-0.3	-	0.2VCC	V	-
Power supply current	$Iv_{CC}+Iv_{CI}$	-	-	8.4	mA	NOTE

NOTE:

Measuring Condition:

Standard Value MAX.

Ta = 25°C

VCC-VSS = +2.8V

VCI-VSS = +2.8V

Fosc = 2.62 MHz

Display Patten



0 gray black pattern

2.2.1 Back-light Characteristics

PARAMETER	SYMBOL	MIN	TYP	MAX	Unit	Test Condition	NOTE				
Carpolity Carpont	If		80		-m A	Ta=25°℃					
Supply Current	11	- 80	11 -	80 -	-	- 80	- 80	- mA	IIIA	If=80mA	-
Complex Valtage	VE		2.5		17	Ta=25°℃					
Supply Voltage	VF	_	3.5	_	V	If=80mA	-				
Half Life Time	1.6		10000		bas	Ta=25°℃	1				
Half-Life Time	Lf	-	10000	-	hrs	If=80mA	1				

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

2.3 Command Sequence (Recommend by U.R.T.)

LCD_Initial_ HX8347-D:

Start Initial Sequence:

COMMAND	CODE	DESCRIPTION
	LCD_RESET=1	
	delay 5ms	
-	LCD_RESET=0	
	delay 10ms	
	00EAH	DTD 4[15.0]
	0000Н	PTBA[15:8]
	00EBH	DTD 4[7:0]
	0020Н	PTBA[7:0]
	00ECH	CTD A[15.0]
	000CH	STBA[15:8]
	00EDH	CTD 4[7:0]
	00C4H	STBA[7:0]
	00E8H	ODON[7:0]
	0040H	OPON[7:0]
	00E9H	ODON1[7:0]
	0038Н	OPON1[7:0]
	00F1H	OTENS1 D
	0001H	OTPS1B
	00F2H	GEN
	0010H	GEN
	0027H	
-	00 A3H	-

Gamma 2.2 Setting:

COMMAND	CODE	DESCRIPTION
Gamma Control 1 Register	0040H	
Gainnia Control 1 Register	0001H	
Gamma Control 2 Register	0041H	
Gammia Control 2 Register	0007H	
Gamma Control 3 Register	0042H	
	0006H	
Gamma Control 4 Register	0043H	
Gammia Control 4 Register	000AH	
Commo Control 5 Dogiston	0044H	
Gamma Control 5 Register	000CH	
Camma Cantual 6 Degister	0045H	
Gamma Control 6 Register	003DH	
Camma Cantual 7 Degister	0046H	
Gamma Control 7 Register	0002H	
Gamma Control 8 Register	0047H	
	0043H	
Gamma Control 9 Register	0048H	
Galiulia Coliti of 9 Register	0007H	
Gamma Control 10 Register	0049H	
Gammia Control to Register	0014H	
Gamma Control 11 Register	004AH	
Gamma Control 11 Register	0019H	
Commo Control 12 Degister	004BH	
Gamma Control 12 Register	001AH	
Commo Control 12 Degister	004CH	
Gamma Control 13 Register	001EH	
Commo Control 14 Degister	0050H	
Gamma Control 14 Register	0002H	
Commo Control 15 Degister	0051H	
Gamma Control 15 Register	0033H	
Commo Control 16 Degister	0052H	
Gamma Control 16 Register	0035H	

Gamma Control 17 Register	0053H	
Gammia Control 17 Register	0039H	
Camma Cantual 19 Degister	0054H	
Gamma Control 18 Register	0038H	
Camma Cantual 10 Degister	0055H	
Gamma Control 19 Register	003EH	
Commo Control 20 Degister	0056H	
Gamma Control 20 Register	003CH	
Commo Control 21 Degister	0057H	
Gamma Control 21 Register	007DH	
Commo Contuel 22 Degister	0058H	
Gamma Control 22 Register	0001H	
Commo Control 22 Degister	0059H	
Gamma Control 23 Register	0005H	
Commo Control 24 Degister	005AH	
Gamma Control 24 Register	0006H	
Commo Control 25 Degister	005BH	
Gamma Control 25 Register	000BH	
Commo Control 26 Desister	005CH	
Gamma Control 26 Register	0018H	
Commo Contuel 27 Desister	005DH	
Gamma Control 27 Register	00FFH	

Power Voltage Setting:

COMMAND	CODE	DESCRIPTION
Power Control 2	001BH	VDII_4 65V
Register	001BH	VRH=4.65 V
Power Control 1	001 AH	PT (VCH 15V VCI 10V PDVDH 5V)
Register	0001H	BT (VGH~15V,VGL~-10V,DDVDH~5V)
Vcom Control 2	0024H	VMII/VCOM High rightees
Register	0045H	VMH(VCOM High voltage)
Vcom Control 3	0025H	VMI (VCOM Low voltage)
Register	001FH	VML(VCOM Low voltage)
Vcom Control 1	0023Н	for Eliabor adjust //ago ralead from OTD
Register	008AH	for Flicker adjust //can reload from OTP

Power on Setting:

COMMAND	CODE	DESCRIPTION
OSC Control 1	0018H	I/P_RADJ,N/P_RADJ, Normal mode
Register	0036H	60Hz
OSC Control 2	0019H	OSC EXI-11 start Osc
Register	0001H	OSC_EN='1', start Osc
Display Mode Control	0001H	DD CITTO INI and down down
Register	0000H	DP_STB='0', out deep sleep
Power Control 6 Register	001FH 0088H delay 5ms	GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=0
Power Control 6 Register	001FH 0080H delay 5ms	GAS=1, VOMG=00, PON=0, DK=0, XDK=0, DVDH_TRI=0, STB=0
Power Control 6 Register	001FH 0090H delay 5ms	GAS=1, VOMG=00, PON=1, DK=0, XDK=0, DVDH_TRI=0, STB=0
Power Control 6 Register	001FH 00D0H delay 5ms	GAS=1, VOMG=10, PON=1, DK=0, XDK=0, DDVDH_TRI=0, STB=0

262k/65k color selection:

COMMAND	CODE	DESCRIPTION
COLMOD Control	0017H	default 0x06 262k color // 0x05 65k color
Register	0006H	default 0x00 202k coloi // 0x03 03k coloi

Display ON Setting:

COMMAND	CODE	DESCRIPTION	
Panel Characteristic	0036H	/ec p cc p pey p pcp p	
Control Register	0002H	/SS_P, GS_P,REV_P,BGR_P	
Dignlar Control 2	0028H		
Display Control 3	0038H	GON=1, DTE=1, D=1000	
Register	delay 40ms		
Display Control 3	0028H	GON=1, DTE=1, D=1100	
Register	003CH	GON-1, D1E-1, D-1100	

Set Window Area:

COMMAND	CODE	DESCRIPTION
Column Address Start	0002Н	
Register Upper Byte	нооон	
Column Address Start	0003H	Column Start
Register Low Byte	нооон	Column Start
Column Address End	0004H	
Register Upper Byte	H0000	
Column Address End	0005H	Column End
Register Low Byte	00EFH	Column End
Row Address Start	0006H	
Register Upper Byte	H0000	
Row Address Start	0007H	Row Start
Register Low Byte	нооон	Row Start
Row Address End	Н8000	
Register Upper Byte	0001H	
Row Address End	0009Н	Row End
Register Low Byte	003FH	ROW Ellu

Power Off Setting:

COMMAND	CODE	DESCRIPTION		
Display Control 1 Register	0028H 0038H delay 40ms	GON='1' DTE='1' D[1:0]='10'		
Power Control 6 Register	001FH 0089H delay 40ms	GAS=1, VOMG=00, PON=0, DK=1, XDK=0, DVDH_TRI=0, STB=1		
Display Control 1 Register	0028H 0004H delay 40ms	GON='1' DTE='0' D[1:0]='01'		
OSC Control 2 Register	0019H 0000H delay 5ms	OSC_EN='0'		

2.4 AC Characteristics

2.4.1 Parallel Interface Characteristics (8080-series MPU)

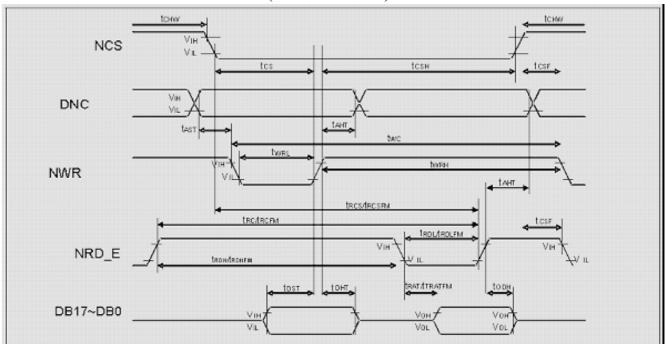
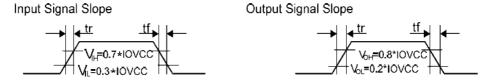


Figure 2.5.1 Parallel Interface Characteristics (8080-Series MPU) (VSSA=0V, IOVCC=1.65V to 3.3V, VCI=2.5V to 3.3V, Ta = -30 to 70° C)

Signal	Symbol	Parameter	Min.	Max.	Unit	Description	
DNC SCI	t ast	Address setup time	0	-			
DNC_SCL	t aht	Address hold time (Write/Read)	10	-	ns	-	
	tchw	Chip select "H" pulse width	0	-			
	tcs	Chip select setup time (Write)	15	-			
NCS	trcs	Chip select setup time (Read ID)	45	-	ns		
NCS	t RCSFM	Chip select setup time (Read FM)	355	-	115	_	
	tcsf	Chip select wait time (Write/Read)	10	-			
	t csH	Chip select hold time	10	-			
	twc	Write cycle	66	-			
NWR_SCL	twr	Control pulse "H" duration	15	-	ns	-	
	twrL	Control pulse "L" duration		-			
	t RC	Read cycle (ID)	160	-			
NRD(ID)	t RDH	Control pulse "H" duration (ID)	90	-	ns	When read ID data	
	t RDL	Control pulse "L" duration (ID)	45	-			
	trcfm	Read cycle (FM)	450	-		When read from frame	
NRD(FM)	t RDHFM	Control pulse "H" duration (FM)	90	-	ns		
	t RDLFM	Control pulse "L" duration (FM)	355	-		memory	
	t DST	Data setup time	10	-			
	t DHT	Data hold time		-		For manifesting 0: =30mF	
DB17 to DB0	t rat	Read access time (ID)	-	40	ns	For maximum C _L =30pF For minimum C _L =8pF	
	t ratem	Read access time (FM)	-	340			
	t odh	Output disable time	20	80			

Note: The input signal rise time and fall time (tr, tf) is specified at 15 ns or less.

Logic high and low levels are specified as 30% and 70% of IOVCC for Input signals.



U.R.T. Revision 0; UMOH-8061MD-T Ver. 0; December-17-2010 Page: 15

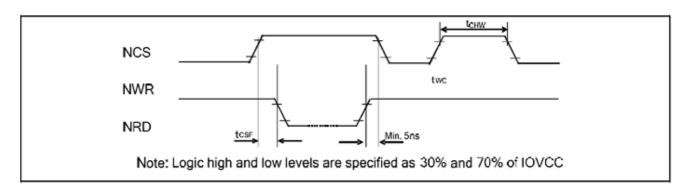


Figure 2.5.2 Chip Select Timing

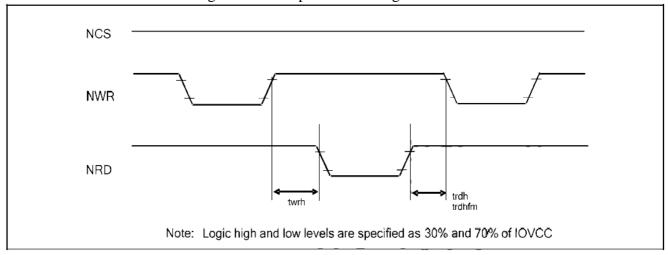


Figure 2.5.3 Write to Read and Read to Write Timing

Page:

16

2.4.2 Reset Timing Characteristics

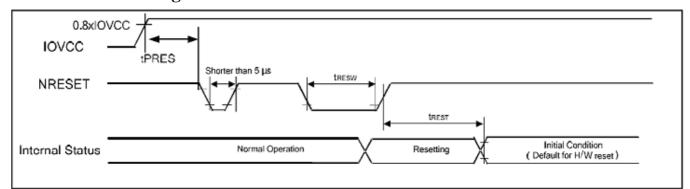


Figure 2.5.4 Reset Input Timing

Symbol	Parameter	Related	Spec.			Note	Unit
Syllibol	raiailletei	Pins	Min.	Тур.	Max.	Note	Onit
tRESW	Reset low pulse width ⁽¹⁾	NRESET	10	-	-	-	μs
tREST	Reset complete time ⁽²⁾	-	-	ı	5	When reset applied during STB mode	ms
INEST	Reset complete time	-		-	120	When reset applied during STB mode	ms
tPRES	Reset goes high level after Power on time	NRESET & IOVCC	1	-	-	Reset goes high level after Power on	ms

Note: (1) Spike due to an electrostatic discharge on NRESET line does not cause irregular system reset according to the table below.

NRESET Pulse	Action
Shorter than 5 µ	Reset Rejected
Longer than 10 µs	Reset
Between 5 μs and 10 μs	Reset Start

- (2) 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 STB Out –mode. The display remains the blank state in STB –mode) and then return to Default condition for H/W reset.
- (3) During Reset Complete Time, VMF value in OTP will be latched to internal register during this period. This loading is done every time when there is H/W reset complete time (tREST) within 5ms after a rising edge of NRESET.

3. OPTICAL CHARACTERISTICS

3.1 Characteristics

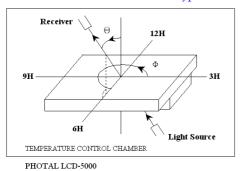
Electrical and Optical Characteristics

No.	Item	-		symbol	/ temp.	Min.	Тур.	Max.	Unit	Note
1	Response	Time	;	Tr+Tf	25 ℃	-	30	-	ms	2
		Hor.		Θ_{2+}	0°	-	80	-		
	Viewing	пог.	C=> 10	θ ₂₋	180°	-	80	-	daamaa	3
2	Angle	Von	Cr>10	Θ_{1+}	270°	-	80	-	degree	3
		Ver.		θ ₁₋	90°	-	80	-		
3	Contrast 1	Ratio		Cr	25 ℃	600	800	-	-	4
	Red x-cod	de		Rx		0.59	0.64	0.69		
	Red y-coo	le		Ry		0.28	0.33	0.38		
	Green x-c	code		Gx		0.29	0.34	0.39		
	Green y-c	code		Gy		0.56	0.61	0.66		5
4	Blue x-co	de		Bx	25 ℃	0.09	0.14	0.19	_	
	Blue y-co	de		Ву		0.02	0.07	0.12		
	White x-code White y-code			Wx		0.25	0.30	0.35		
				Wy		0.28	0.33	0.38		
	Brightnes	SS		Y		150	200	-	cd/m ²	
5	Brightnes Uniform				25 ℃	80	-	-	%	6

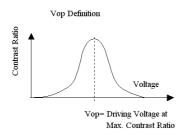
3.2 Definition of optical characteristics

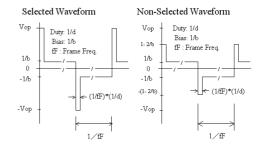
Measurement condition:

Transmissive and Transflective type



[Note 1] Definition of LCD Driving Vop and Waveform :





[Note 2] Definition of Response Time

for Positive type:

Selected State Non-Selected State Selected State

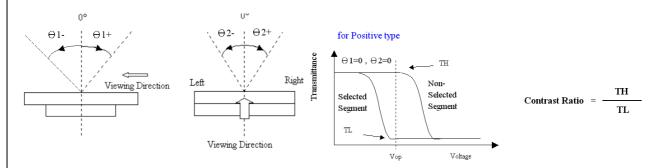
10%

10%

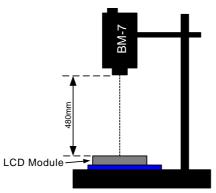
Tr time

[Note 3] Definition of Viewing Angle:

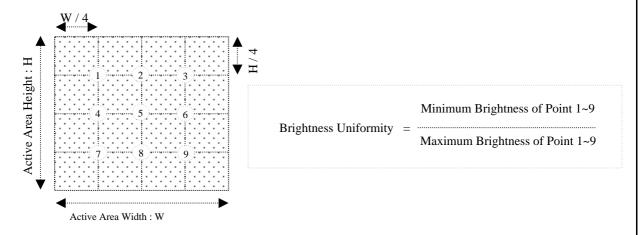
[Note 4] Definition of Contrast Ratio:



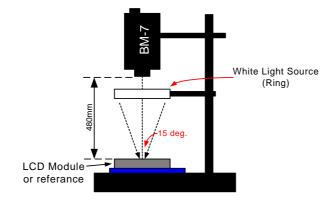
[Note 5] Definition of measurement of Color Chromaticity and Brightness



[Note 6] Definition of Brightness Uniformity



[Note 7] Definition of Measurement of Reflectance



Revision 0; UMOH-8061MD-T Ver. 0; December-17-2010

Page:

20

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

Revision 0; UMOH-8061MD-T Ver. 0; December-17-2010

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 LCM

Do not contact or scratch the front surface and the contact pads of a LCM 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 LCM panels away from direct sunlight, also avoid them in high-temperature & high humidity environment for a long period.

Do not drive LCM by DC voltage.

Do not expose LCM to organic solvent.

Liquid in LCM 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 products or systems, an authorization from URT is required. URT will not responsible for any damage or loss which caused by the products without any authorization given by URT.

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.

The application and delivery of this product must comply with Startegic High-Tech Commodities (SHTC) export control and the sales to the embargoed and/or sanctioned countries or regions are strictly prohibited.

U.R.T.

Revision 0; UMOH-8061MD-T Ver. 0; December-17-2010

6. DATE CODE OF PRODUCTS

Date code will be shown on each product :

 $YY \longrightarrow MM \longrightarrow DD - XXXX$ Year Month Day - Production lots

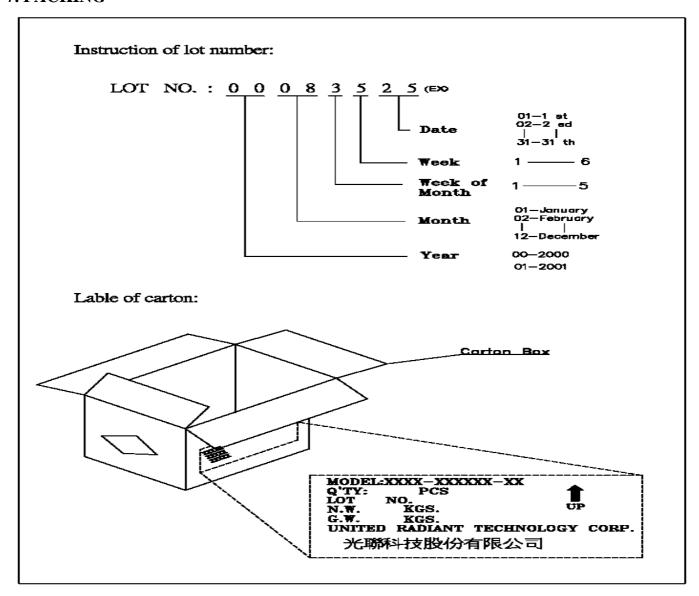
Example: 090508 - 0003 ==> Year 2009, May., 08rd, Batch no.03

Revision 0; UMOH-8061MD-T Ver. 0; December-17-2010

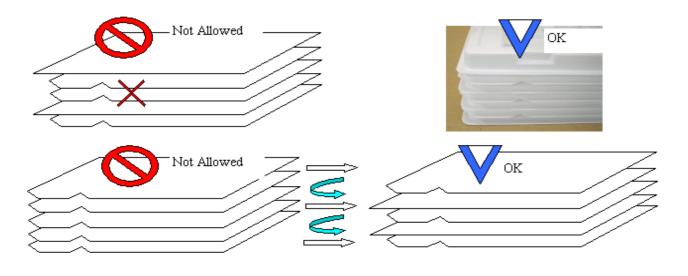
Page:

23

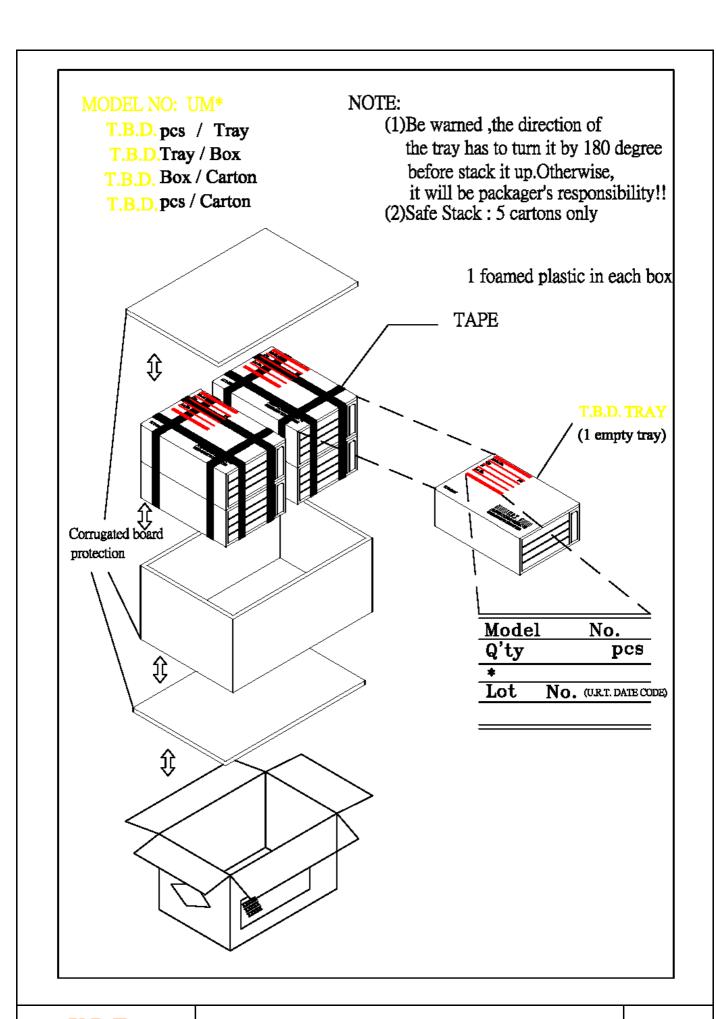
7. PACKING



Packing tray must be stacked with alternated direction to each others. To tacks packing trays in same direction will cause product damaged.



Revision 0; UMOH-8061MD-T Ver. 0; December-17-2010



8. INSPECTION STANDARD

8.1. QUALITY:

THE QUALITY OF GOODS SUPPLIED TO PURCHASER SHALL COME UP TO THE FOLLOWING STANDARD.

8.1.1. THE METHOD OF PRESERVING GOODS

AFTER DELIVERY OF GOODS FROM U.R.T. TO PURCHASER. PURCHASER SHALL CONTROL THE LCM
AT -10 40 ,AND IT MIGHT BE DESIRABLE TO KEEP AT THE NORMAL ROOM TEMPERATURE
AND HUMIDITY UNTIL INCOMING INSPECTION OR THROWING INTO PROCESS LINE.

8.1.2. INCOMING INSPECTION

(A) THE METHOD OF INSPECTION

IF PURCHASER MAKE AN INCOMING INSPECTION, A SAMPLING PLAN SHALL BE APPLIED ON THE CONDITION THAT QUALITY OF ONE DELIVERY SHALL BE REGARDED AS ONE LOT.

(B) THE STANDARD OF QUALITY

ISO-2859-1 (or MIL-STD-105E), LEVEL SINGLE PLAN.

CLASS	AQL(%)
CRITICAL	0.4 %
MAJOR	0.65 %
MINOR	1.5 %
TOTAL	1.5 %

EVERY ITEM SHALL BE INSPECTED ACCORDING TO THE CLASS.

(C) MEASURE

IF AS THE RESULT OF ABOVE RECEIVING INSPECTION, A LOT OUT IS DISCOVERED. PURCHASER SHALL BE INFORM SELLER OF IT WITHIN SEVEN DAYS. BUT FIRST SHIPMENT WITHIN FOURTEEN DAYS.

8.1.3. WARRANTY POLICY

U.R.T. WILL PROVIDE ONE-YEAR WARRANTY FOR THE PRODUCTS ONLY IF UNDER SPECIFICATION OPERATING CONDITIONS. U.R.T. WILL REPLACE NEW PRODUCTS FOR THESE DEFECT PRODUCTS WHICH UNDER WARRANTY PERIOD AND BELONG TO THE RESPONSIBILITY OF U.R.T.

8.2. CHECKING CONDITION

- **8.2.1.** CHECKING DIRECTION SHALL BE IN THE 45 DEGREE AREA TO FACE THE SAMPLE.
- **8.2.2.** CHECKER SHALL SEE OVER 30 cm. WITH BARE EYES FAR FROM SAMPLE AND USING 2 PCS. OF 20W FLUORESCENT LAMP.

Revision 0; UMOH-8061MD-T Ver. 0; December-17-2010

8.3. INSPECTION PLAN:

CLASS	ITEM	JUDGEMENT	CLASS	
	1. OUTSIDE AND INSIDE PACKAGE	"MODEL NO." , "LOT NO." AND "QUANTITY"	Minor	
ACKING & SHOULD		SHOULD INDICATE ON THE PACKAGE.		
INDICATE	2. MODEL MIXED AND QUANTITY	OTHER MODEL MIXEDREJECTED	Critical	
		QUANTITY SHORT OR OVERREJECTED		
	3. PRODUCT INDICATION	"MODEL NO." SHOULD INDICATE ON	Major	
		THE PRODUCT	Major	
	4. DIMENSION,	ACCORDING TO SPECIFICATION OR		
ASSEMBLY	LCD GLASS SCRATCH	DRAWING.	Major	
	AND SCRIBE DEFECT.			
	5. VIEWING AREA	POLARIZER EDGE OR LCD'S SEALING LINE	Minor	
		IS VISABLE IN THE VIEWING AREA		
		REJECTED		
	6. BLEMISH、BLACK SPOT、	ACCORDING TO STANDARD OF VISUAL	Minor	
	WHITE SPOT IN THE LCD	INSPECTION (INSIDE VIEWING AREA)		
	AND LCD GLASS CRACKS	,		
	7. BLEMISH、BLACK SPOT	ACCORDING TO STANDARD OF VISUAL	Minor	
APPEARANCE	WHITE SPOT AND SCRATCH	INSPECTION (INSIDE VIEWING AREA)		
THI I ETHATINEE	ON THE POLARIZER			
	8. BUBBLE IN POLARIZER	ACCORDING TO STANDARD OF VISUAL	Minor	
		INSPECTION (INSIDE VIEWING AREA)		
	9. LCD'S RAINBOW COLOR	STRONG DEVIATION COLOR (OR NEWTON		
		RING) OF LCDREJECTED.	Minor	
		OR ACCORDING TO LIMITED SAMPLE	1,11101	
		(IF NEEDED, AND INSIDE VIEWING AREA)		
	10. ELECTRICAL AND OPTICAL	ACCORDING TO SPECIFICATION OR	Critical	
	CHARACTERISTICS	DRAWING . (INSIDE VIEWING AREA)		
	(CONTRAST, VOP,			
	CHROMATICITY ETC)			
ELECTRICAL	11.MISSING LINE	MISSING DOT, LINE, CHARACTER	Critical	
		REJECTED	Critical	
	12.SHORT CIRCUIT,	NON DISPLAY、WRONG PATTERN	Critical	
	WRONG PATTERN DISPLAY	DISPLAY, CURRENT CONSUMPTION	Ciricui	
		OUT OF SPECIFICATION REJECTED		
	13. PIN HOLE、PATTERN DEFORMITY	ACCORDING TO STANDARD OF VISUAL	Minor	
	THE TODAY THE PLANTING THE PROPERTY OF THE PRO	INSPECTION	1,111101	

Revision 0; UMOH-8061MD-T Ver. 0; December-17-2010

8.4. STANDARD OF VISUAL INSPECTION

	CLASS	ITEM	JUDGEMENT										
			(A) ROUND TYPE: unit : mm.					nm.					
				DIAME	ETER	(mr	n.)	ΑC	CCEP	ΓABLE	Q'TY		
		. BLEMISH、BLACK SPOT、					0.1		I	DISREC	GARD		
8.4.1	MINOR	WHITE SPOT IN THE LCD.		0.1 <			0.2	2		2			
				0.2 <			0.2	25		1			
				0.25 <						0			
		. BLEMISH、BLACK SPOT、		NOTE:	=(LI	ENGT	H+WID	OTH)/2	2				
		WHITE SPOT AND SCRATCH	(B) LI	NER TY	PE:					ī		unit : mı	m.
		ON THE POLARIZER		LENGTI	I		WIDT	H				E Q'TY	
							W		0.03		DISRE	GARD	
				L 5.0	_		W		0.05		3		
				L 5.0	_		W		0.07		1		
					0.0	07 <	W			FOLLOV	V ROUN	D TYPE	
											unit : n	nm.	
				DIAME	TER				ACC	ЕРТАВ	LE Q'I		
8.4.2	MINOR	BUBBLE IN POLARIZER					0.	15		DISREC	_		
				0.15 < 0.5).5		2				
				0.5 <						0			
								-					
					Ite	ems			AC	C. QT	Y		
8.4.3	MINOR	Dot Defect		Bright d	ot				N 4				
				Dark do					N 4				
			Pixel	Define	;								_
				R	G	В	R	G	В	R	G	В	
													 - -
					G G	В	R R	G G	B B	R R	G G	ВВ	
				R									
			Not 1	R	G G	В	R R	G G	В	R R	G G	ВВ	OVe
			Not 1	R R	G G lefin	B B ition	R R of do	G G t: Th	B B e size	R R e of a c	G G	B B	OVe
				R R l: The c 1/2 of 2: Bright	G G lefin who	B ition le do t: Do	R R of do t is re	G t: Th gardo pear l	B B ae size ed as oright	R R e of a cone detand u	G G defective fective nechange	B B ve dot of e dot. ged in s	size
			Not 2	R R 1/2 of 2: Bright in which	G G lefin who int doo ch Le	B ition le do t: Do CD p	R R of do t is re ots app	G t: The garder list distribution of the control of	B B B B B B B B B B B B B	R R one det and ung unc	G Gefective fective nehangeler black	B B ve dot of the dot. ged in seck patter	size ern
			Not 2	R R 1: The of 1/2 of 2: Bright in which is 2: Dark	G defin who the document document document dot:	B ition le do t: Do CD p	R of do t is represents approanel is	G t: Th gardo ear l is dis	B Be sized as oright playing ark ar	R R e of a cone detand ung uncond uncl	G defective fective nehangder black hanged	B We dot of the dot. ged in size the patter I in size	size ern
			Not 2	R R 1/2 of 2: Bright in which which	G lefin who int do ch Le dot: LCE	B ition le do t: Do CD p Dots pan	R of do t is represents approanel is	G t: Th gardo ear l is dis	B Be sized as oright playing ark ar	R R e of a cone detand ung uncond uncl	G defective fective nehangder black hanged	B We dot of the dot. ged in size the patter I in size	siz ern e ir
			Not 2	R R 1: The of 1/2 of 2: Bright in which is 1/2 oark	G lefin who int do ch Le dot: LCE	B ition le do t: Do CD p Dots pan	R of do t is represents approanel is	G t: Th gardo ear l is dis	B Be sized as oright playing ark ar	R R e of a cone detand ung uncond uncl	G defective fective nehangder black hanged	B We dot of the dot. ged in size the patter I in size	siz ern e ir

NO.	CLASS	ITEM	JUDGEMENT	
8.4.4	MINOR	CHIPPING	S	Y > S REJ.
8.4.5	MINOR	CHIPPING	ST	X or Y > S REJ.
8.4.6	MAJOR	GLASS CRACK	T	Y > (1/2) T REJ.
8.4.7	MAJOR	SCRIBE DEFECT	$A_{\uparrow}^{\downarrow} = A_{\uparrow}$	 a> L/3 , A>1.5mm. REJ. B: ACCORDING TO DIMENSION
8.4.8	MINOR	CHIPPING (ON THE TERMINAL AREA)	T	= (x+y)/2 > 2.5 mm REJ.
8.4.9	MINOR	CHIPPING (ON THE TERMINAL SURFACE)	T Y	Y > (1/3) T REJ.
8.4.10	MINOR	CHIPPING	T Z	Y > T REJ.