SPECIFICATION

YAOYU
TECHNOLOGY

YMSC-G12864XDYLYWD

September 28, 2007
Version 1.01

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RECORDS OF REVISION

DATE	REVISED NO.	REVISED DESCRIPTIONS	PREPARED	CHECKED	APPROVED
2.16.2005	1.00	First Issue	**tfb**		
September 28, 2007	1.01	Amend wrappage and address		Ynn	

CONTENTS

1. GENERAL SPECIFICATIONS：

1-1 SCOPE:

This specification covers the delivery requirements for the liquid crystal display delivered by YAOYU TECHNOLOGY to Customer。

1-2 PRODUCTS:

Liquid Crystal Display Module (LCM)

1-3 MODULE NAME:

YMSC-G12864XDYLYWD

2. FEATURES：

Item	Standard Value
Display Type	128×64dots
LCD Type	STN, YELLOW-GREEN,Transflective,Positive
Drive Pattern	1/64Duty, 1/9Bias
Viewing Direction	6 O'clock
Backlight Type	■YELLOW-GREEN L-LED
Weight	TBD
Interface	6800 Series
Driver IC	KS0107,KS0108

3. MACHANICAL SPECIFICATIONS：

ITEM	STANDARD VALUE	UNIT
DISPLAY FORMAT	128X 64 DOTS	
MODULE DIMENSION	93 (W) X 70(H) X 14.0(MAX)(T)	mm
EFFECTIVE DISPLAY AREA	66.52(W) X33.24(H)	mm
DOT SIZE	0.48(W) X 0.48(H)	mm
DOT PITCH	0.52(W) X 0.52(H)	mm
LCD TYPE	STN	
DUTY AND BIAS	1/64 DUTY; 1/9 BIAS	
VIEWING DIRECTION	6:00	
BACK LIGHT	YELLOW-GREEN L-LED	

4. ABSOLUTE MAXIMUM RATING

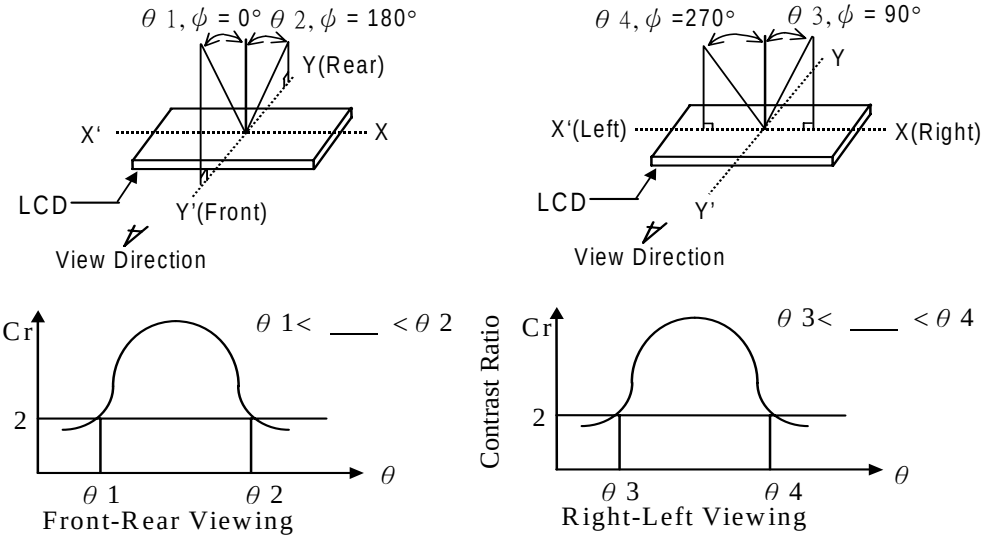
ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
			MIN	TYP	MAX	
POWER SUPPLY FOR LOGIC	VDD	-	-0.3	-	7.0	V
INPUT VOLTAGE	VIN	-	-0.3	—	VDD+0.3	V
Module OPERATION TEMPERATURE	TOPR	---	-10	—	+60	℃
Module STORAGE TEMPERATURE	TSTG	---	-20	—	+70	℃
Storage Humidity	H_D	Ta < 40 °C	-		90	%RH

5. ELECTRICAL CHARACTERISTICS

ITEM	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Supply Voltage (logic)	Vdd-Vss	-	4.8	5	5.2	V
Supply Voltage (LCD)	Vlcd	-	-	-	-	V
Input signal voltage	V-ih1	“H” level	2.0	-	VDD	V
	V-il1	“L” level	0	-	0.8	V
Output signal voltage	V-oh	“H” level	2.4	-	-	V
	V-ol	“L” level	-	-	+0.4	V
Supply Current (logic)	Icc	-	-	-	-	mA
Supply Current (LCD)	Io	-	-	3	-	mA
Supply Voltage	V-bl	-	-	4.2	-	V
Supply Current	I-bl	-	-	400	-	mA

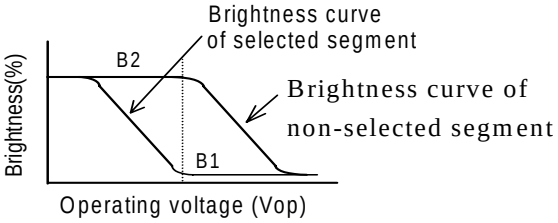
6.OPTICAL CHARACTERISTICS

(1) DEFINITION OF VIEWING ANGLE

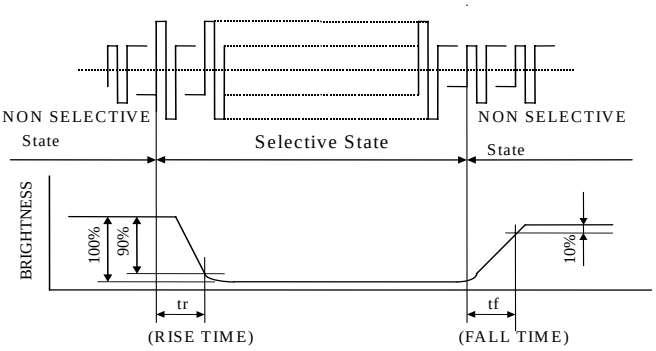


(2) DEFINITION OF CONTRAST

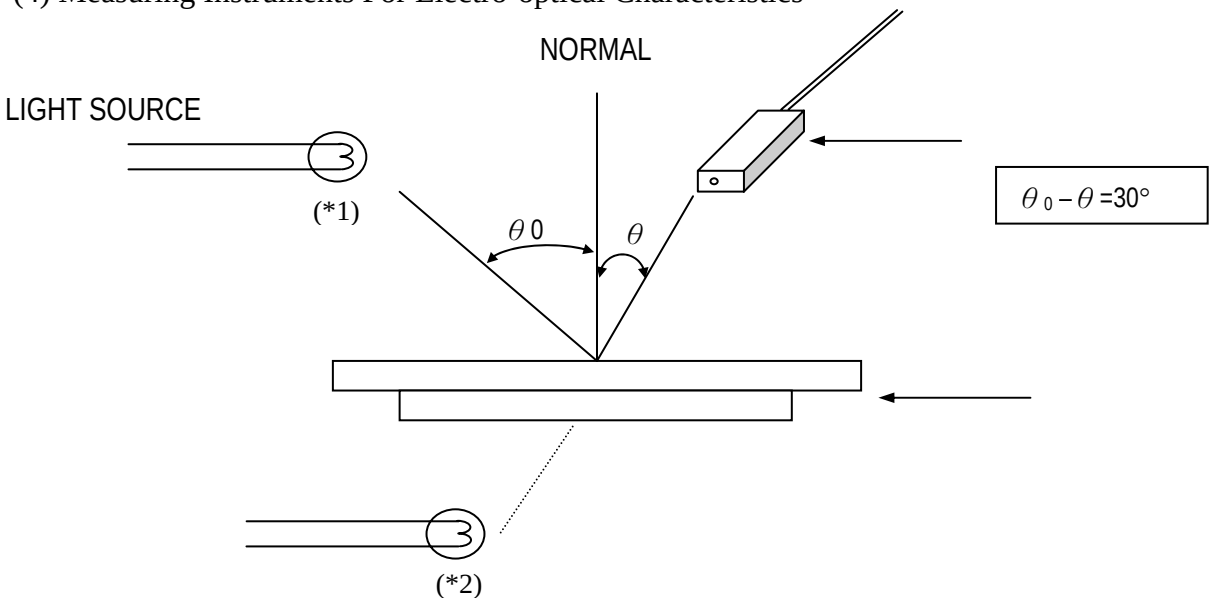
$$C.R = \frac{\text{Brightness of non-selected segment (B2)}}{\text{Brightness of selected segment (B1)}}$$



(3) DEFINITION OF RESPONSE



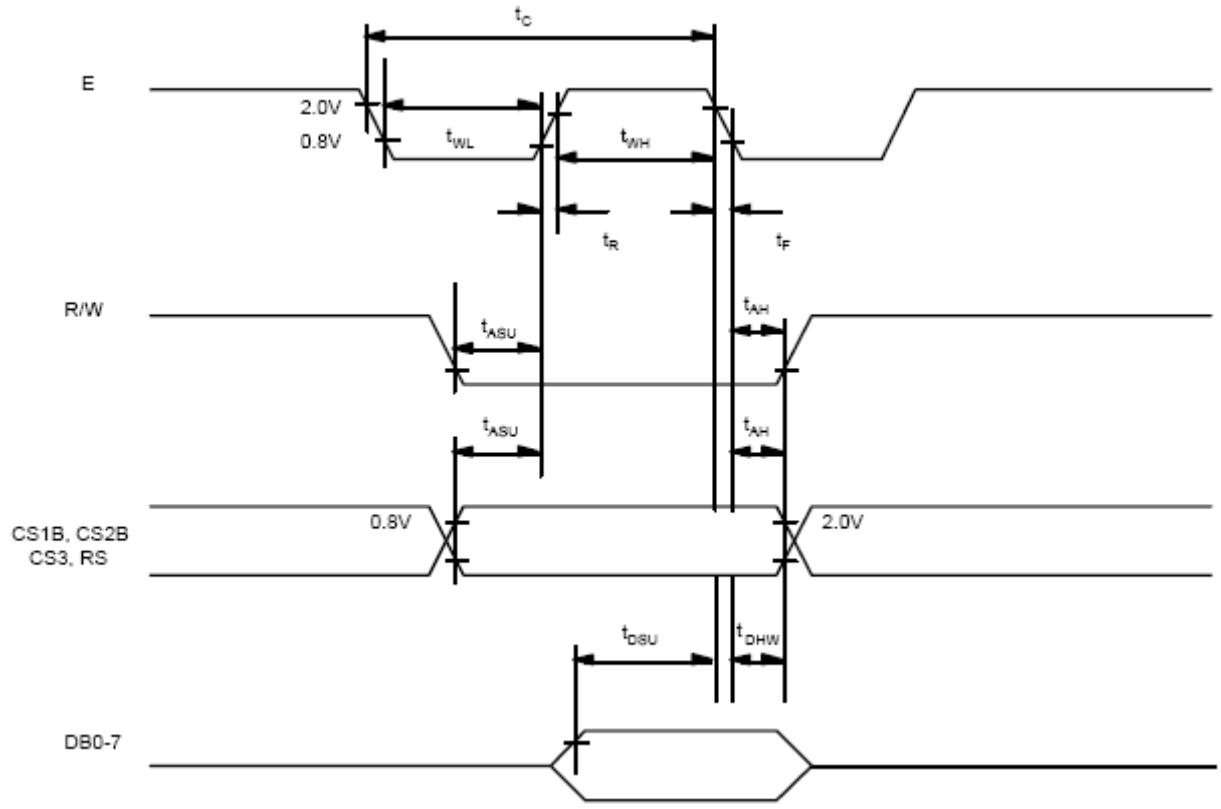
(4) Measuring Instruments For Electro-optical Characteristics



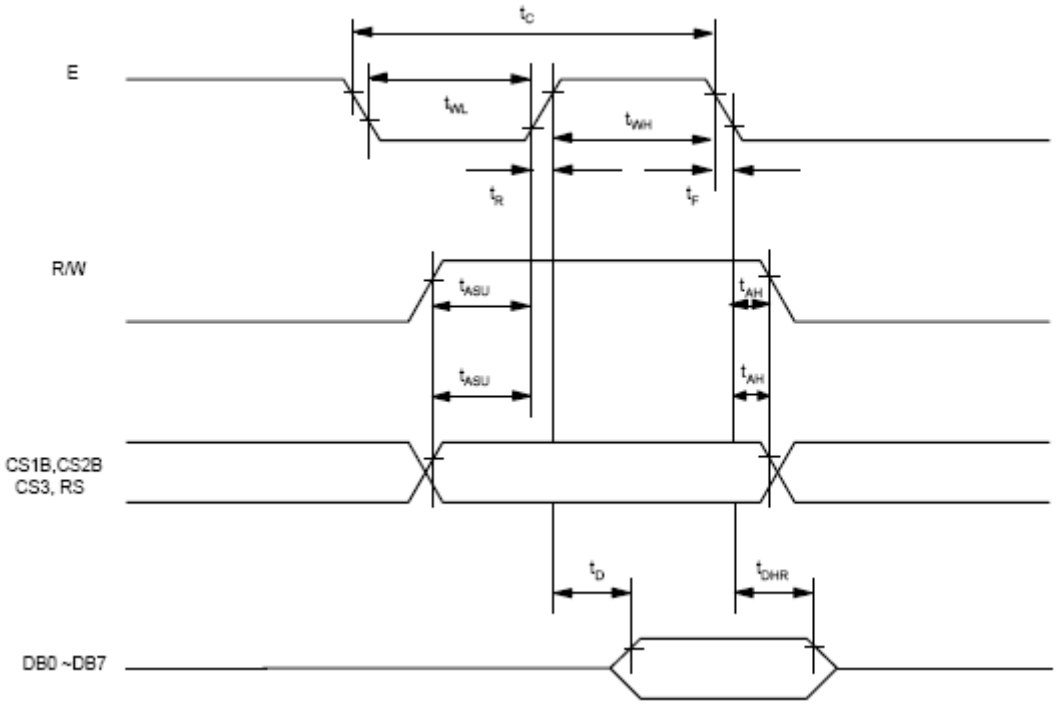
7.0 .TIMING CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
E Cycle	t_C	1000	-	-	ns
E High Level Width	t_{WH}	450	-	-	ns
E Low Level Width	t_{WL}	450	-	-	ns
E Rise Time	t_R	-	-	25	ns
E Fall Time	t_F	-	-	25	ns
Address Set-Up Time	t_{ASU}	140	-	-	ns
Address Hold Time	t_{AH}	10	-	-	ns
Data Set-Up Time	t_{DSU}	200	-	-	ns
Data Delay Time	t_D	-	-	320	ns
Data Hold Time (Write)	t_{DHW}	10	-	-	ns
Data Hold Time (Read)	t_{DHR}	20	-	-	ns

MPU WRITE TIMING



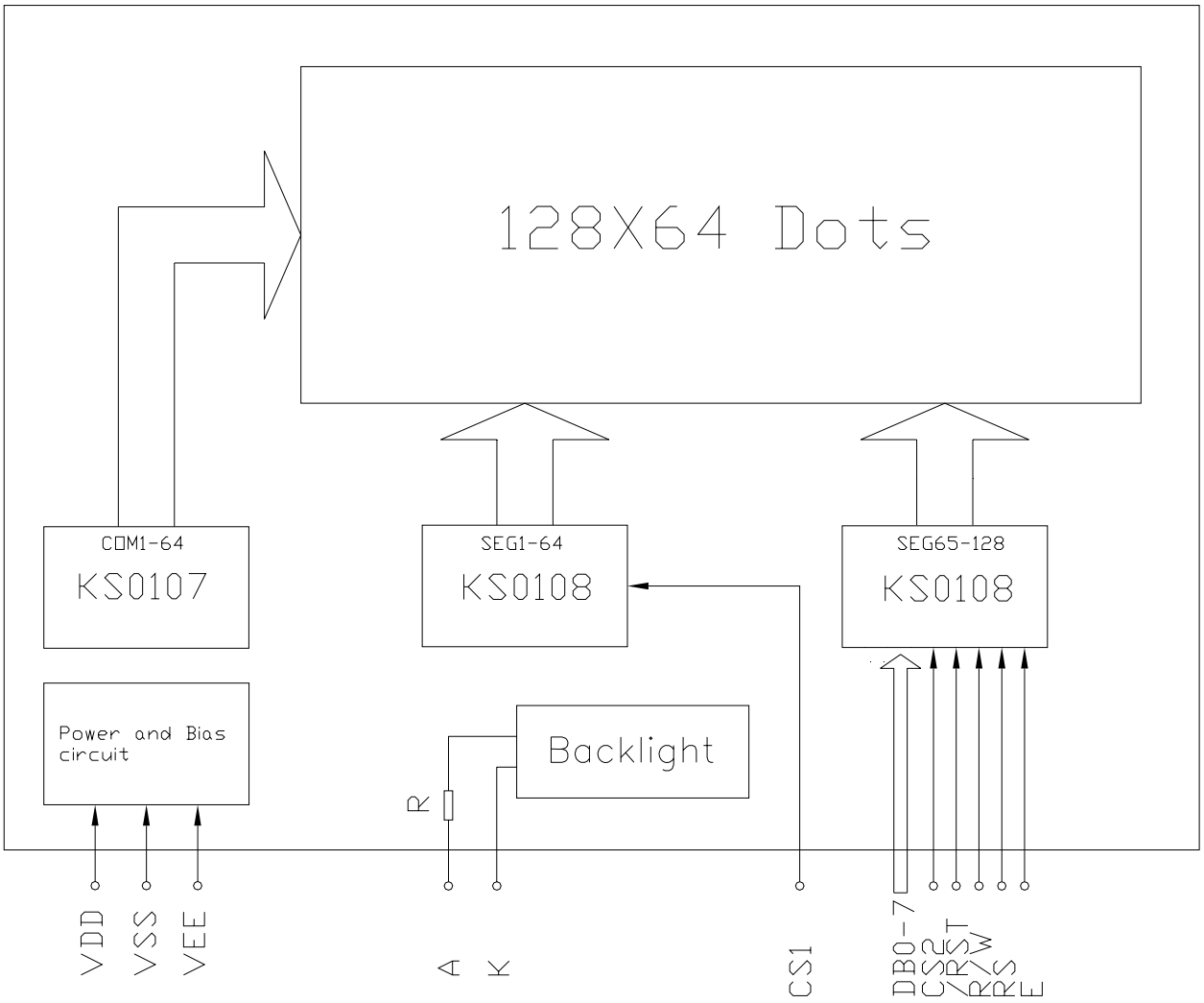
MPU READ TIMING

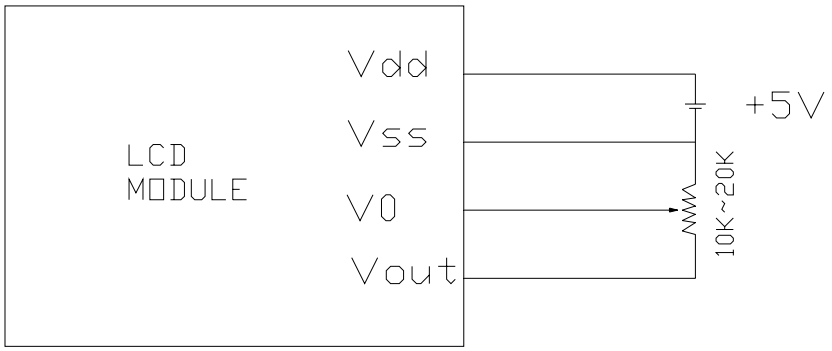


8. PIN ASSIGNMENT

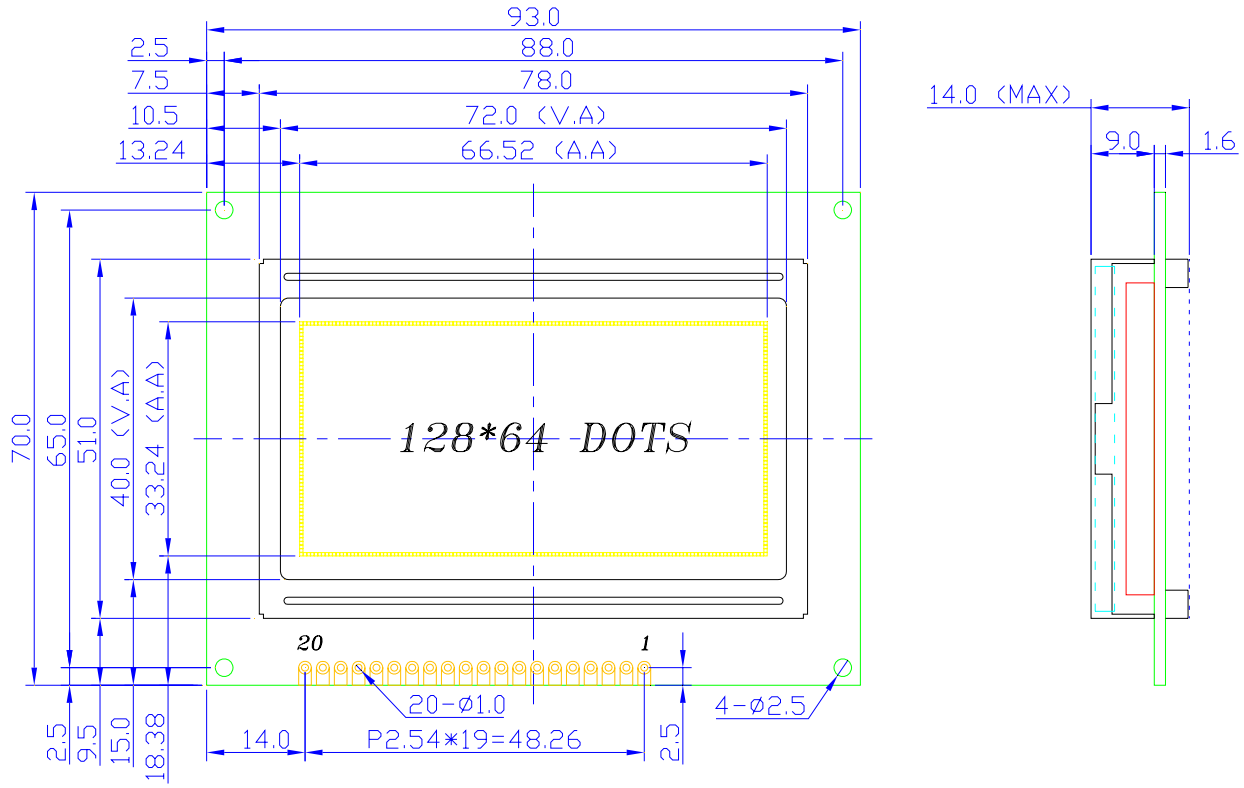
PIN	SYMBOL	FUNCTION
1	VSS	GND
2	VDD	Power supply
3	V0	Operation voltage for LCD
4	RS	Data or Instruction select: High level: data Low level: instruction
5	R/W	Read/Write select: Low level: write High level: read
6	E	Enable signal: Write mode(r/w=L):data of DB<0:7>is latched at falling edge of E Read mode(r/w=H): DB<0:7> appears the reading data while E is at the high.
7	DB0	Data bus
8	DB1	Data bus
9	DB2	Data bus
10	DB3	Data bus
11	DB4	Data bus
12	DB5	Data bus
13	DB6	Data bus
14	DB7	Data bus
15	CS1	Chip select: Low level: Chip Disable High level: Chip Enable
16	CS2	Chip select: Low level: Chip Disable High level: Chip Enable
17	/RST	Reset signal
18	VOUT	Power supply for LCD driver
19	A	Backlight power(+)(+5v)
20	K	Backlight power(-)

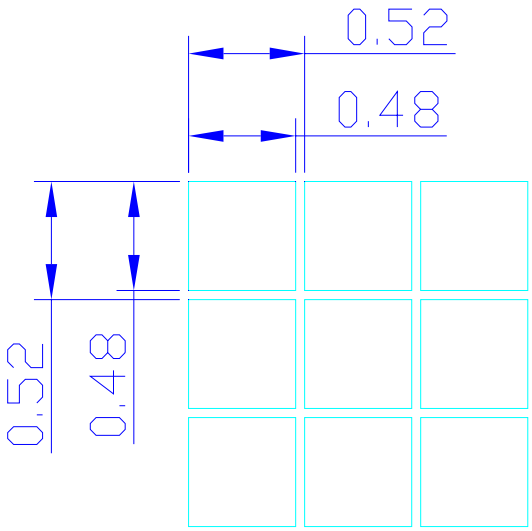
9. BLOCK DIAGRAM





10.OUTLINE DIMENSIONS





11. ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	CONDITIONS	CRITERION
OPERATING TEMPERATURE	TOPR	-10℃～+60℃	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION
STORAGE TEMPERATURE	TSTG	-20℃～+70℃	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION
HUMIDITY	—	See Note	WITHOUT CONDENSATION

12.RELIABITY

12-1 RELIABILITY TEST

ITEM	CONDITIONS	CRITERION
OPERATING TEMPERATURE	HIGH TEMPERTURE +70℃ 240HRS	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION
	LOW TEMPERTURE -20℃ 240HRS	
STORAGE	HIGH TEMPERTURE +80℃ 240HRS	NO DEFECT IN DISPLAYING AND

TEMPERATURE	LOW TEMPERTURE - 30℃ 240HRS	OPERATIONAL FUNCTION
HUMIDITY	40℃ 90%RH 240HRS	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION
VIBRATION	• Operating Time: thirty minutes exposure for each direction (X,Y,Z) • Sweep Frequency: 10～55Hz (1 min) • Amplitude: 1.5mm	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION
THERMAL SHOCK	-20℃(30mins) ←→+70℃(30mins) 10 cycles	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION

*NOTE: TEST CONDITION

(1)TEMPERATURE AND HUMIDITY: IF NO SPECIFICATION, TEMP. SET AT 25±2℃, HUMIDITY SET AT 60±5%RH

(2) OPERATING STATE: SAMPLES SUBJECT TO THE TESTS SHALL BE IN " OPERATING" CONDITION

13. Precaution for Use

The following precautions should be followed, since this module contains precise parts.

(1) Do not store module for an extended periods of time under the conditions of high temperature and high humidity.

(2) Avoid using or storing the module in areas that expose it to direct sunlight or ultraviolet rays.

(3) Use protective finger covers when handling the module to avoid scratching or staining the module.

(4) Care should be taken not to expose the module to static electricity, because the module contains C-MOS LSI's.

(5) The LSI is sensitive to light.
The user's product should be designed so that LSI is not exposed to any light during operation.

(6) During installation, cover the display area with acrylic protection plates to protect the polarizer plate and LCD cells.

(7) Do not apply any excessive shocks to the module because the module contains sensitive LCD cells.
Do not use a module, which has experienced strong mechanical shock.

(8) Care should be taken when the power supply turns on as following.
(a) Do not apply any input signals before the supplying voltage is applied.
(b)Do not turn off the power supply while any input signals are applied.

Caution

(1) Dangerous. Do not shock glass because glass can break.
(2) If module breaks, do not touch it directly.
(Glass could stick or cut skin.)
(3) Do not swallow Liquid Crystal.
(In case of broken LCD panel, do not swallow liquid crystal even if there is no proof that liquid crystal is poisonous.)
(4) If liquid crystal is exposed to skin, wash the area thoroughly with alcohol or soap.
(5) When disposing of the product, please observe industrial waste disposal laws in each country and district.
(6) In case of injury, give immediate treatment and consult with a doctor.
(7) This product is constructed precisely. Don't disassemble or modify.

※ Neglecting this mark can cause injury to humans and damage to materials