

SPECIFICATIONS FOR LCD MODULE

MODEL NO.
BT104BCBAHHS
VER.01

FOR MESSRS:

ON DATE OF:

APPROVED BY:

BOLYMIN, INC.

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History of Version

Version	Contents	Date	Note
01	NEW VERSION	2013/01/15	SPEC.

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BOLYMIN

1. Numbering System

<u>B</u>	<u>T</u>	<u>104</u>	<u>B</u>	<u>C</u>	<u>B</u>	<u>A</u>	<u>H</u>	<u>H</u>	<u>352e\$</u>
0	1	2	3	4	5	6	7	8	9

0	Brand	Bolymin
1	Module Type	T=TFT
2	Format	104= 10.4inches
3	LCD Panel interface	A=analog B=Digital LVDS D=digital TTL
4	LCD Panel Version .	A
5	A/D Board interface	N=No A/D Board
6	A/D Board Version	B
7	Backlight type	H=LED edge C=CCFL
8	View Angle/ Operating Temperature	B=Bottom/Normal Temperature H=Bottom/Wide Temperature T=Top/Normal Temperature W=Top/Wide Temperature
9	Special Code	p=touch panel \$=RoHS xxx=to be assigned on datasheet

2. Precaution in use of LCD Module

- (1) To avoid applying excessive shocks to the module or making any alterations or modifications to it.
- (2) Don't make extra holes on the printed circuit board, modify its shape or change the components of LCD module.
- (3) Don't disassemble the LCM.
- (4) Don't operate it above the absolute maximum rating.
- (5) Don't drop, bend or twist LCM.
- (6) Soldering: only to the I/O terminals.
- (7) Storage: please storage in anti-static electricity container and clean environment.
- (8) Don't touch the external connector, especially insert a backlight panel (EL or CCFL)

3. General Specification

Features

- 10.4 inches diagonal video display module.
- VGA/AV/S-Video signal Input.
- NTSC/PAL signal format auto detection.
- Single operation voltage +12Vdc for display module.

Application

- Portable TV display.
- Door phone/ Video phone display.
- Instrument display.

Temperature Range

	Wide
Operating	-20 ~+70°C
Storage	-30 ~+80°C

➤ TFT-LCD Mechanical Specifications:

Item	Standard Value	Unit
Number of dots	800x3(RGB)x600	dots
Outline dimension	236.0 (W)x 176.9(H)x5.7max(D)	mm
Active area	211.2 (W)x 158.4(H)	mm
Dot pitch	0.264(W)x 0.264 (H)	mm
Surface treatment	Antiglare , Hard-Coating(3H)	
Brightness	230	cd/m ²
Contrast ratio	500	
Backlight unit	LED	
Display color	16.2M/262K	colors

➤ **AD/Video board (PCBA) Specifications:**
Interface Pin Function:

CON1:LED B/L power output

Used : Wafer 2 pin pitch=2.0 connector		
Pin No.	Symbol	Function
1	Power	LED B/L Power output (V+)
2	GND	LED B/L Ground (V-)

CON11:CVBS Channel 2 Input

Used : Wafer 2 pin pitch=2.0 connector		
Pin No.	Symbol	Function
1	CVBS-2	CVBS channel 2 input
2	GND	Ground

CON13:S-Video Input

Used : Wafer 3 pin pitch=2.0 connector		
Pin No.	Symbol	Function
1	S-C	S-Video(C) input
2	GND	Ground
3	S-Y	S-Video(Y) input

CON14:CVBS Channel1 Input

Used : Wafer 2 pin pitch=2.0 connector		
Pin No.	Symbol	Function
1	CVBS-1	CVBS channel 1 input
2	GND	Ground

CON15:DC Power Input

Used : Wafer 2 pin pitch=2.0 connector		
Pin No.	Symbol	Function
1	DCIN	DC 12V input
2	GND	Ground

CON17:VGA Signal Input

Used : Wafer 9 pin pitch=2.0 connector		
Pin No.	Symbol	Function
1	RED	Red video input signal
2	GREEN	Green video input signal
3	BLUE	Blue video input signal
4	GND	Ground
5	HSYNC	Horizontal SYNC signal
6	VSNC	Vertical SYNC signal
7	VGA_SDA	I2C data
8	VGA_SCL	I2C clock
9	VGA_DET	Hot plug detect

CON18:S-Video,CVBS & Audio Input

Used : 4 pin DIN & 3 RCA connector		
Pin No.	Symbol	Function
DIN	S-Video	S-Video input
RCA1	Yellow	CVBS(channel) input
RCA2	White	Left channel audio-1 input
RCA3	Red	Right channel audio-1 input

DCJACK1:DC Power input

Used : DC power jack connector(2.5mm)

Pin No.	Symbol	Function
Center	DCIN	DC 12V input
Periphery	GND	Ground

OSD Function (option)

Analog VGA input status

Menu Item	Sub Menu	Description
Color	Contrast	Adjust the picture contrast
	Brightness	Adjust the display brightness
	Color adjust	Adjust the picture color
	Color temp	Adjust the color temperature
Image Setting	Clock	Adjust the clock frequency
	Phase	Adjust the picture phase
	Sharpness	Adjust the picture sharpness
Position	H.position	Adjust the picture horizontal position
	V.position	Adjust the picture vertical position
OSD Menu	OSD H.Pos.	Adjust the OSD horizontal position
	OSD V.Pos.	Adjust the OSD vertical position
	OSD Timer	Adjust the OSD timer
Language	English	Select the OSD language
	Frangais	Select the OSD language
	Deutsch	Select the OSD language
	Espanol	Select the OSD language
	繁體中文	Select the OSD language
	簡體中文	Select the OSD language
	Japanese	Select the OSD language
Misc.	Reset	Reset
	Factory Mode	Advanced adjust
Exit		

4. Absolute Maximum Ratings

4.1 TFT LCD Module

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-20	—	+70	°C
Storage Temperature	TST	-30	—	+80	°C
Working Voltage	Vdc	11	12	13	V
Logic/LCD Drive	Vin	-0.3	—	+4.0	V

5. Electrical Characteristics

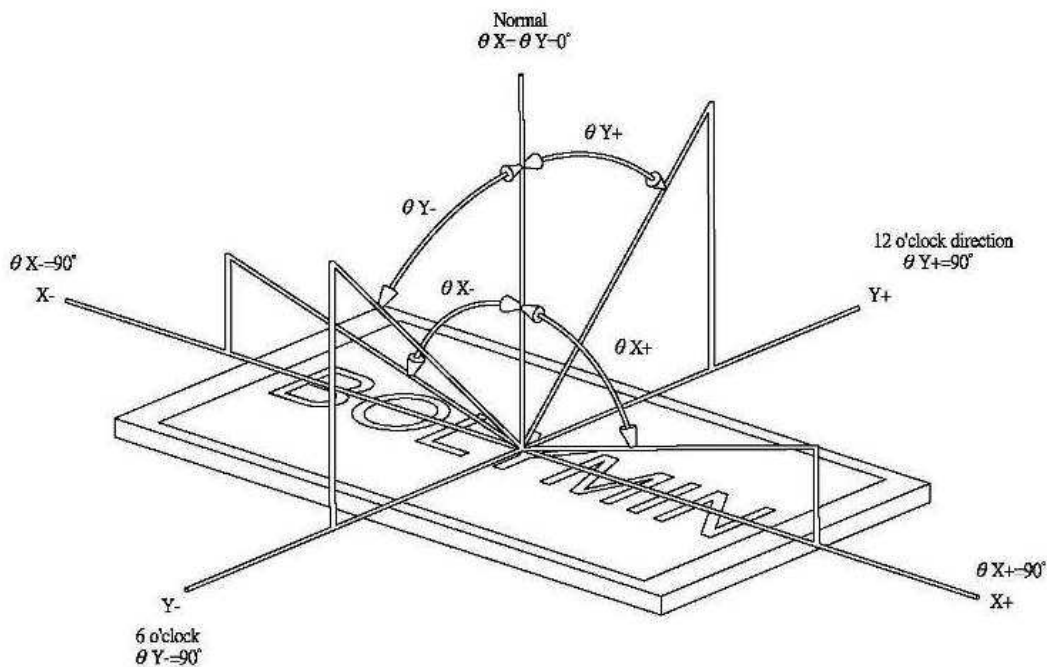
Item	Symbol	Condition	Min.	Typical	Max.	Unit
Working Voltage	$V_{DD}-V_{SS}$	-	-	12	-	V
Analog input signal		-	-	1V _{P-P}	-	V
Supply Current	I_{DD}	-	-	TBD	-	mA

6. Optical Characteristics

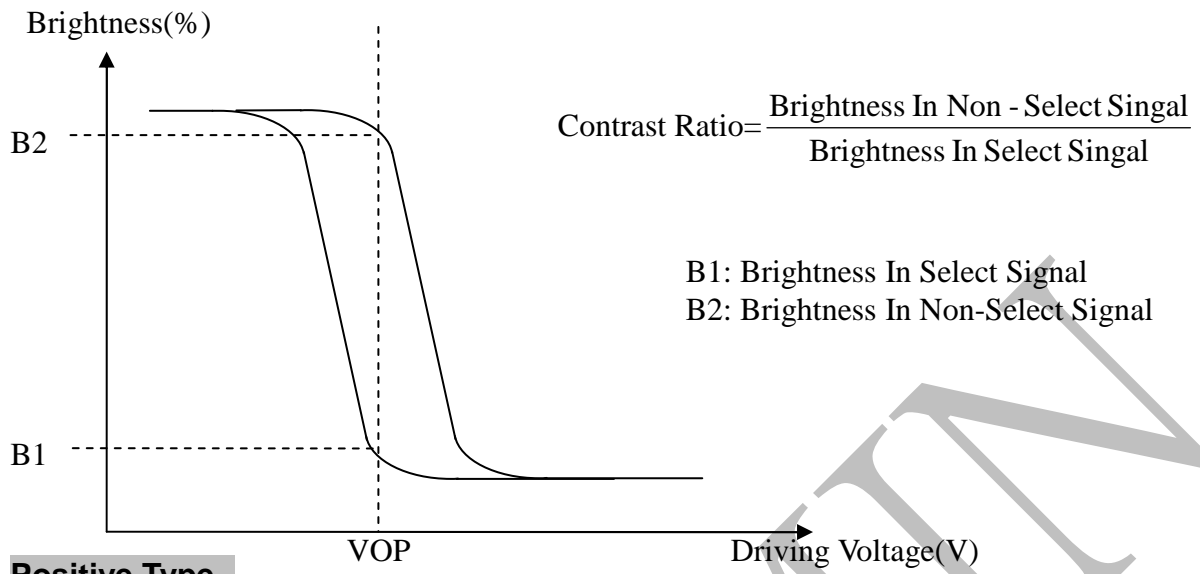
Item	Symbol	Condition	Min.	Typ.	Max.	Unit
View Angle	Θ_{y+}	$CR \geq 10$	50	60	—	deg
	Θ_{y-}	$CR \geq 10$	60	70	—	deg
	Θ_{x+}	$CR \geq 10$	70	80	—	deg
	Θ_{x-}	$CR \geq 10$	70	80	—	deg
Contrast Ratio	CR	—	400	500	—	—
Response Time 25°C	Tr+Tf	$\Theta = 0^\circ$	—	35	50	ms
Brightness	Lc	—	—	230	—	cd/m ²

6.1 Definitions

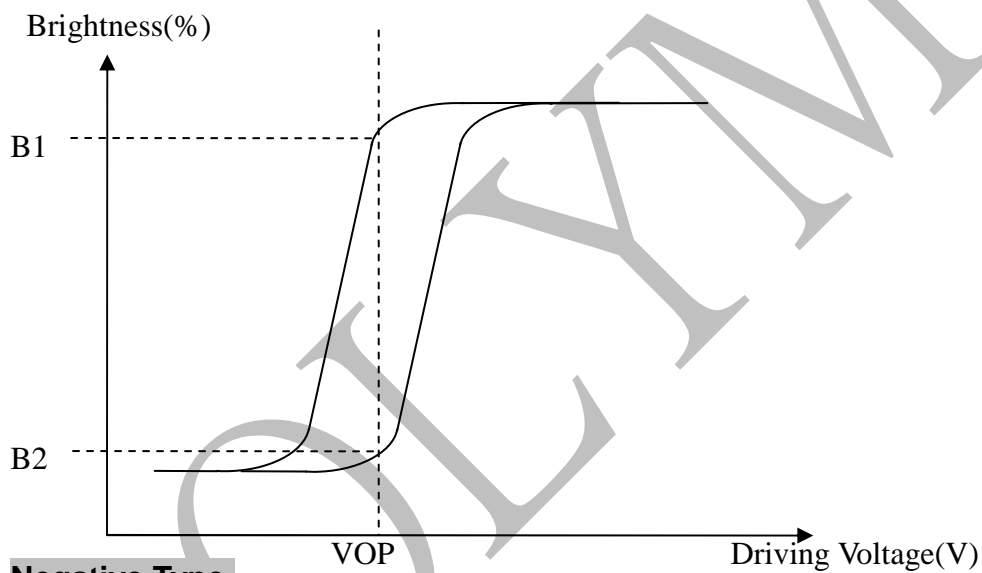
■ View Angles



■ Contrast Ratio

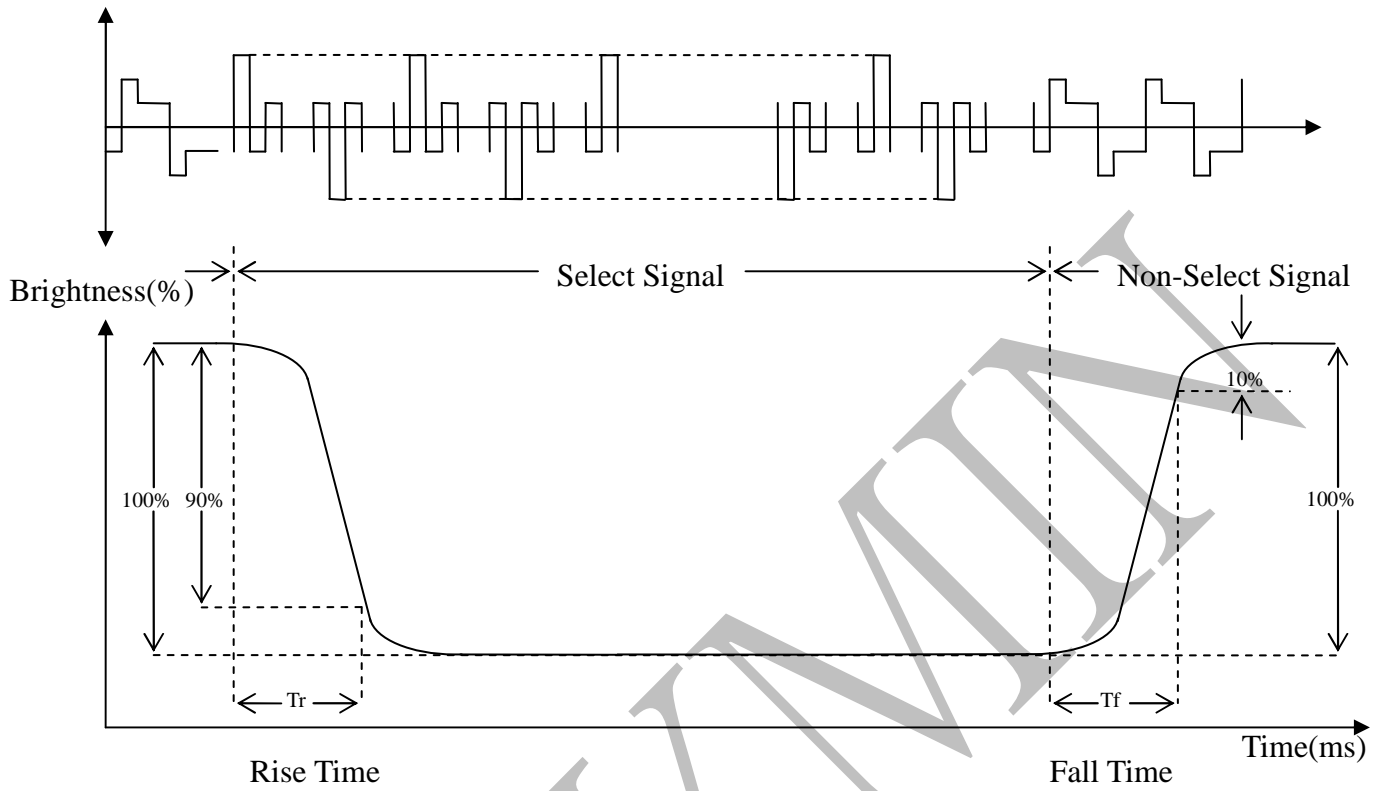


Positive Type



Negative Type

■ Response time



7. Backlight Information

Symbol	Parameter	Min.	Typ.	Max.	Unit	Remark
VCC	Input Voltage	10.8	12	12.6	Volt	
I _{VCC}	Input Current	-	0.2	-	A	100% Brightness
P _{VCC}	Power Consumption	-	2.44	-	Watt	100% Brightness
F _{PWM}	Dimming Frequency	200	-	10K	Hz	PWM Dimming
Dimming	Swing Voltage	3	3.3	5.5	Volt	
	Dimming duty cycle	5	-	100	%	
Dimming	Dimming Voltage	0.6	-	3	Volt	Analog Dimming
	Dimming Range	30	-	100	%	
I _F	LED Forward Current	-	25	-	Ma	Ta=25°C
V _F	LED Forward Voltage	-	26	29.2	Volt	I _F =25mA, Ta=25°C
P _{LED}	LED Power Consumption	-	1.95	-	Watt	I _F =25mA, Ta=25°C LED total Power
Operation Life		25000	30000		Hrs	Ta=60°C RH<60% I _F =25Ma Tj<70°C

Note 1: Ta means ambient temperature of TFT-LCD module.

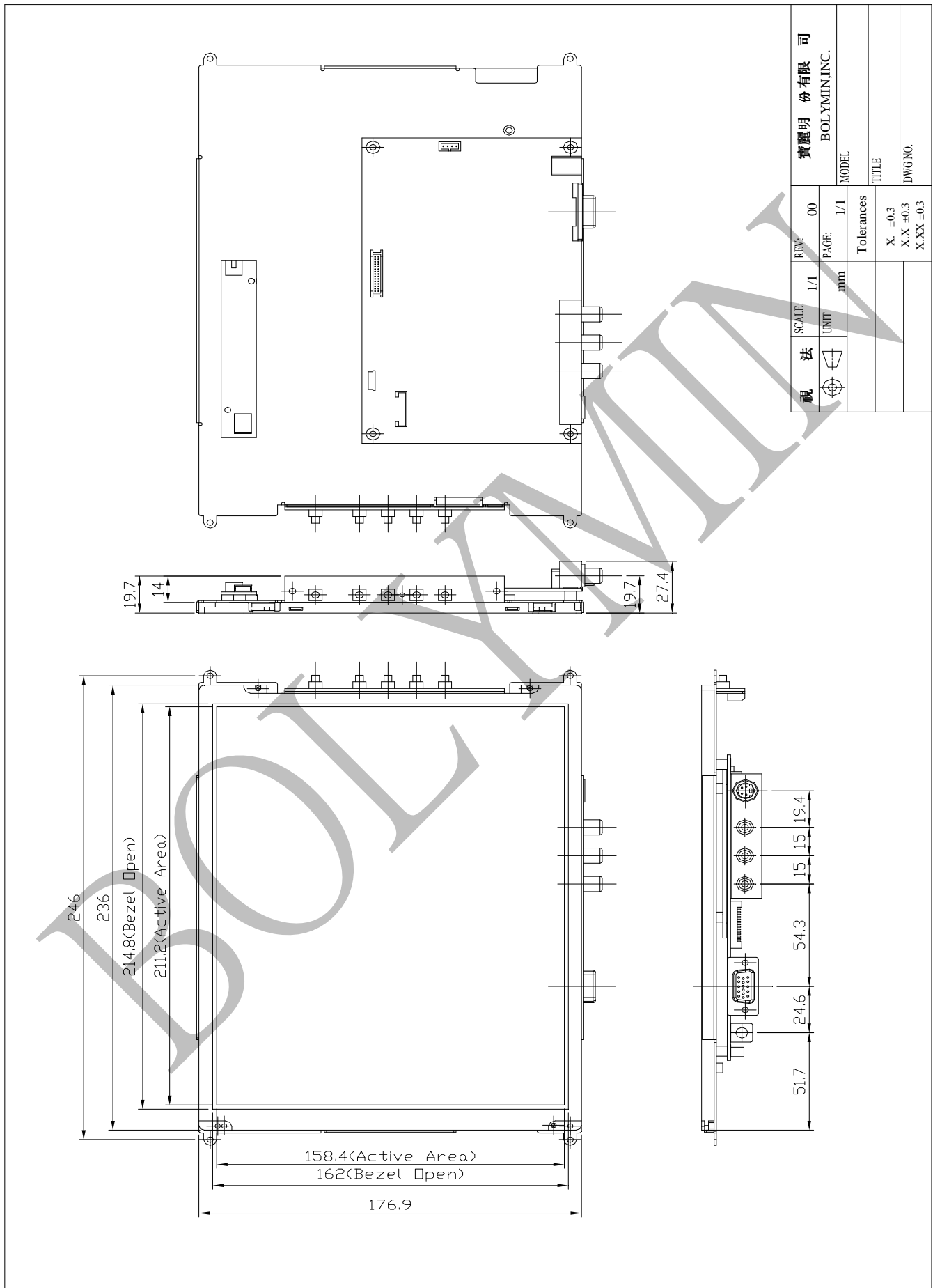
Note 2: VCC, I_{VCC}, I_{rush LED}, P_{VCC} are defined for LED backlight.(100% duty of PWM dimming)

Note 3: I_F, V_F are defined for one channel LED. There are three LED channel in back light unit.

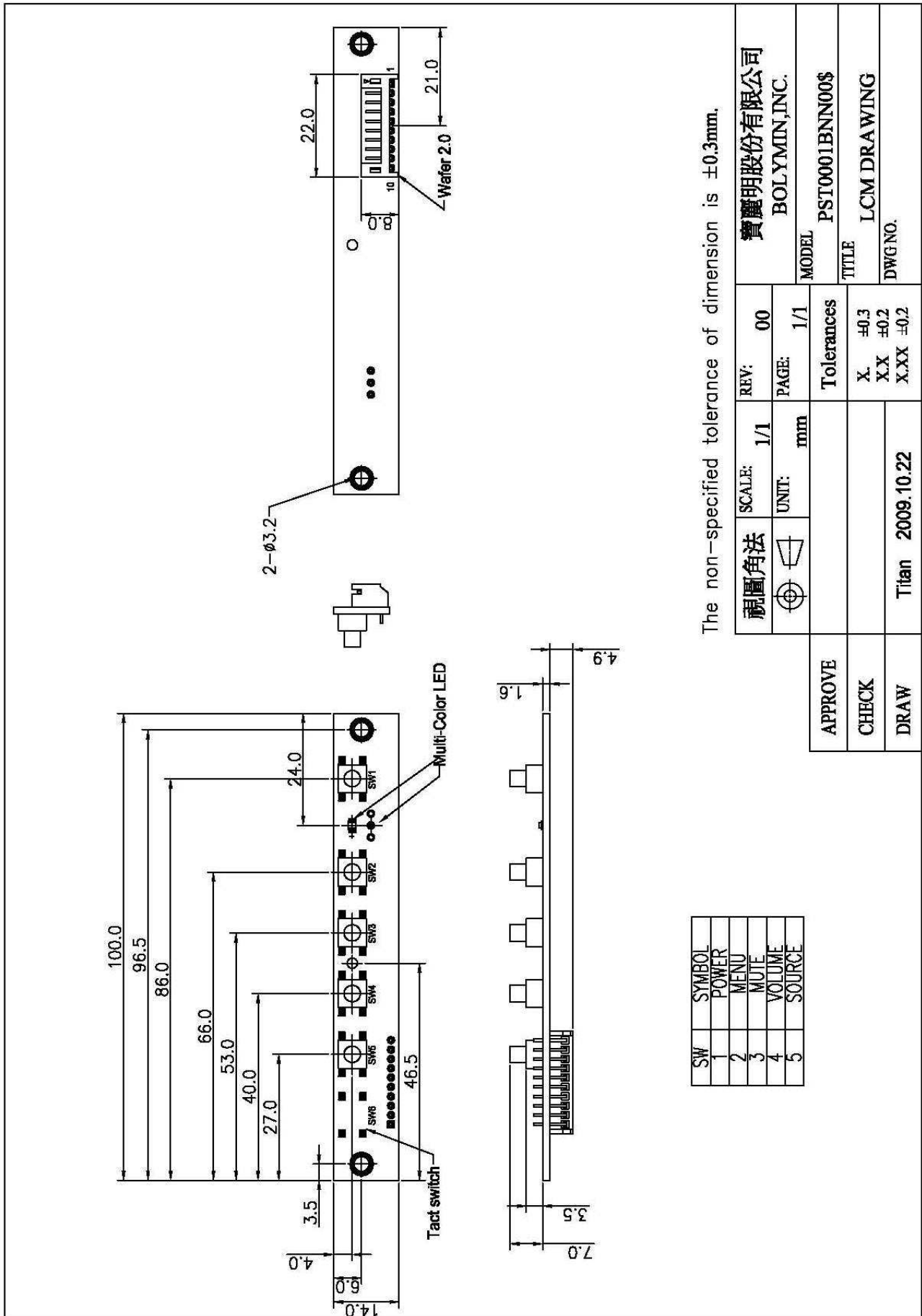
Note 4: If module is driven by high current or at high ambient temperature & humidity condition. The operating life will be reduced.

Note 5: Operating life means brightness goes down to 50% initial brightness. Minimum operating life time is estimated data.

8. Appendix (Drawing)




OSD Board Drawing



The non-specified tolerance of dimension is $\pm 0.3\text{mm}$.

SW	SYMBOL
1	POWER
2	MENU
3	MUTE
4	VOLUME
5	SOURCE

視圖角法	SCALE: 1/1	REV: 00	寶麗明股份有限公司 BOLYMIN, INC.
	UNIT: mm	PAGE: 1/1	MODEL PST0001BNN00\$
APPROVE	Tolerances		
CHECK	X. ±0.3		
DRAW	XX ±0.2		
	XXX ±0.2		
	Titan 2009.10.22		
	TITLE LCM DRAWING		
	DWG NO.		