

<b>(</b> <)	) Preliminary	/ Specifications
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( ) Final Specifications

Module	15.6"HD 16:9 Color TFT-LCD with LED Backlight design
Model Name	B156XTN02.2 (H/W:0A)
Note ( 🗭 )	LED Backlight with driving circuit design

Customer	Date	
Checked & Approved by	Date	-
Note: This Specification	is subject to	

Approved by	Date				
Prepared by	Date				
<u>Hsiang YI Chen</u>	<u>12/12/2011</u>				
NBBU Marketing Division AU Optronics corporation					

change without notice.



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# **Record of Revision**

Ver	Version and Date Page		rsion and Date Page Old description		New Description	Remark
0.1	2011/12/12	All	First Edition for Customer			



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### 1. Handling Precautions

- 1) Since front polarizer is easily damaged, pay attention not to scratch it.
- 2) Be sure to turn off power supply when inserting or disconnecting from input connector.
- 3) Wipe off water drop immediately. Long contact with water may cause discoloration or spots.
- 4) When the panel surface is soiled, wipe it with absorbent cotton or other soft cloth.
- 5) Since the panel is made of glass, it may break or crack if dropped or bumped on hard surface.
- 6) Since CMOS LSI is used in this module, take care of static electricity and insure human earth when handling.
- 7) Do not open nor modify the Module Assembly.
- 8) Do not press the reflector sheet at the back of the module to any directions.
- 9) At the insertion or removal of the Signal Interface Connector, be sure not to rotate nor tilt the Interface Connector of the TFT Module.
- 11) After installation of the TFT Module into an enclosure (Notebook PC Bezel, for example), do not twist nor bend the TFT Module even momentary. At designing the enclosure, it should be taken into consideration that no bending/twisting forces are applied to the TFT Module from outside. Otherwise the TFT Module may be damaged.
- 12) Small amount of materials having no flammability grade is used in the LCD module. The LCD module should be supplied by power complied with requirements of Limited Power Source (IEC60950 or UL1950), or be applied exemption.
- 13) Disconnecting power supply before handling LCD modules, it can prevent electric shock, DO NOT TOUCH the electrode parts, cables, connectors and LED circuit part of TFT module that a LED light bar build in as a light source of back light unit. It can prevent electronic breakdown.



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# 2. General Description

B156XTN02.2 is a Color Active Matrix Liquid Crystal Display composed of a TFT LCD panel, a driver circuit, and LED backlight system. The screen format is intended to support the 16:9 HD, 1366(H) x768(V) screen and 262k colors (RGB 6-bits data driver) with LED backlight driving circuit. All input signals are LVDS interface compatible.

B156XTN02.2 is designed for a display unit of notebook style personal computer and industrial machine.

## 2.1 General Specification

Items	Unit	Specifica	Specifications				
Screen Diagonal	[mm]	394.91	394.91				
Active Area	[mm]	344.23 X1	344.23 X193.54				
Pixels H x V		1366x3(R0	GB) x 768				
Pixel Pitch	[mm]	0.252X0.2	52				
Pixel Format		R.G.B. Ve	rtical Stripe				
Display Mode		Normally	White				
White Luminance (ILED=20mA) (Note: ILED is LED current)	[cd/m²]	, , ,	5 points ave (5 points ave	• ,			
Luminance Uniformity		1.25 max.	. (5 points)				
Contrast Ratio		500 typ					
Response Time	[ms]	8 typ/16 /	Max				
Nominal Input Voltage VDD	[Volt]	+3.3 typ.					
Power Consumption	[Watt]	5.5 max.	(Include Log	gic and Blu po	ower)		
Weight	[Grams]	450 max.					
Physical Size			Min.	Тур.	Max.		
Include bracket	[mm]	Length	358.8	359.3	359.8		
	[[[[]]]]	Width	209.0	209.5	210.0		
		Thickness	-	-	5.5		
Electrical Interface		1 channe	el LVD\$				
Glass Thickness	[mm]	0.5					
Surface Treatment		Glare, Hardness 3H, Reflection 4.3%					
Support Color		262K cold	ors ( RGB 6-b	pit )			
Temperature Range Operating Storage (Non-Operating)	[°C]	0 to +50 -20 to +60					
RoHS Compliance		RoHS Cor	mpliance				

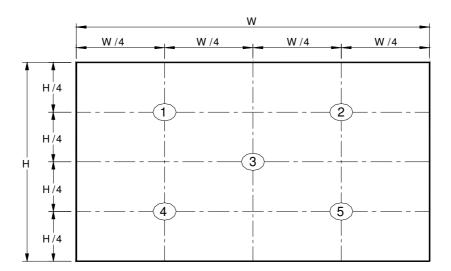


# 2.2 Optical Characteristics

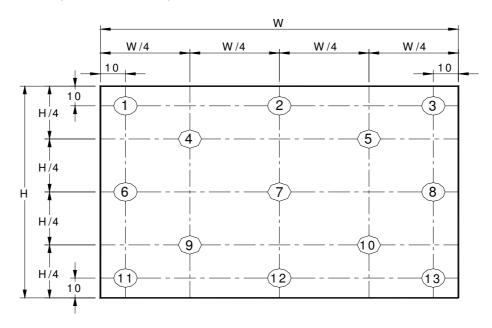
The optical characteristics are measured under stable conditions at  $25^{\circ}\!\!\!$  (Room Temperature) :

ltem		Symbol	Conditions	Min.	Тур.	Max.	Unit	Note
White Luminance ILED=20mA			5 points average	170	200	-	cd/m²	1, 4, 5.
		Θr Θι	Horizontal (Right) CR = 10 (Left)	40 40	45 45	-	degre e	
Viewing Ar	igie	Ψ <sub>Η</sub> Ψι	Vertical (Upper) CR = 10 (Lower)	10 30	15 35	-		4, 9
Luminance Un	iformity	<b>δ</b> 5P	5 Points	-	-	1.25		1, 3, 4
Luminance Un	iformity	<b>δ</b> 13P	13 Points	-	-	1.60		2, 3, 4
Contrast R	Contrast Ratio			400	500	-		4, 6
Cross tal	Cross talk					4		4, 7
Response T	ime	T <sub>RT</sub>	Rising + Falling	-	8	16		
	Red	Rx		TBD	TBD	TBD		
		Ry		TBD	TBD	TBD		
	Green	Gx		TBD	TBD	TBD		
Color / Chromaticity	- Crecii	Gy		TBD	TBD	TBD		
Coodinates	Dive	Bx	CIE 1931	TBD	TBD	TBD		4
	Blue	Ву		TBD	TBD	TBD		
	\A/\c\!	Wx		0.283	0.313	0.343		
	White	Wy		0.299	0.329	0.359		
NTSC		%		-	45	-		

Note 1: 5 points position (Ref: Active area)



Note 2: 13 points position (Ref: Active area)



Note 3: The luminance uniformity of 5 or 13 points is defined by dividing the maximum luminance values by the minimum test point luminance

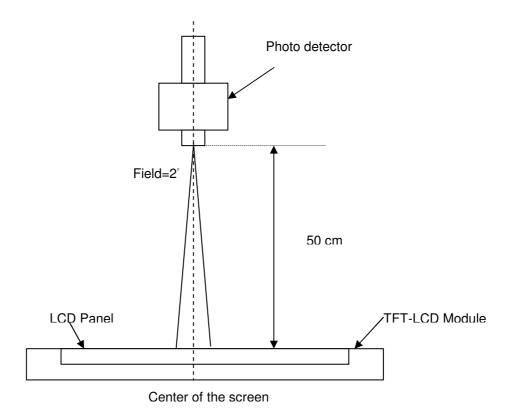
2		Maximum Brightness of five points
δw5 =	= '	Minimum Brightness of five points
9		Maximum Brightness of thirteen points
$\delta_{W13} =$	= `	Minimum Brightness of thirteen points

### Note 4: Measurement method

The LCD module should be stabilized at given temperature for 30 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after



lighting Backlight for 30 minutes in a stable, windless and dark room, and it should be measured in the center of screen.



**Note 5**: Definition of Average Luminance of White (Y<sub>L</sub>):

Measure the luminance of gray level 63 at 5 points  $\cdot$   $Y_L = [L(1) + L(2) + L(3) + L(4) + L(5)] / 5$ L (x) is corresponding to the luminance of the point X at Figure in Note (1).

Note 6: Definition of contrast ratio:

Contrast ratio is calculated with the following formula.

Brightness on the "White" state Contrast ratio (CR)=

Briahtness on the "Black" state

Note 7: Definition of Cross Talk (CT)

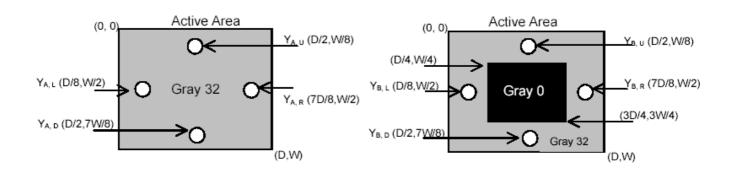
$$CT = | Y_B - Y_A | / Y_A \times 100 (\%)$$

### Where

Y<sub>A</sub> = Luminance of measured location without gray level 0 pattern (cd/m<sub>2</sub>)

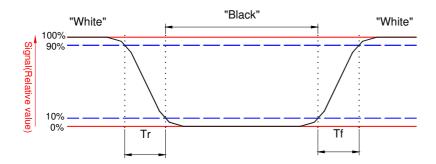
 $Y_B =$  Luminance of measured location with gray level 0 pattern (cd/m<sub>2</sub>)





Note 8: Definition of response time:

The output signals of BM-7 or equivalent are measured when the input signals are changed from "Black" to "White" (falling time) and from "White" to "Black" (rising time), respectively. The response time interval between the 10% and 90% of amplitudes. Refer to figure as below.

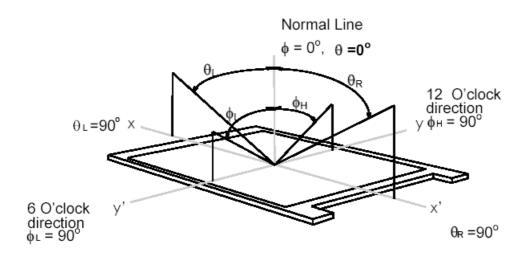




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### Note 9. Definition of viewing angle

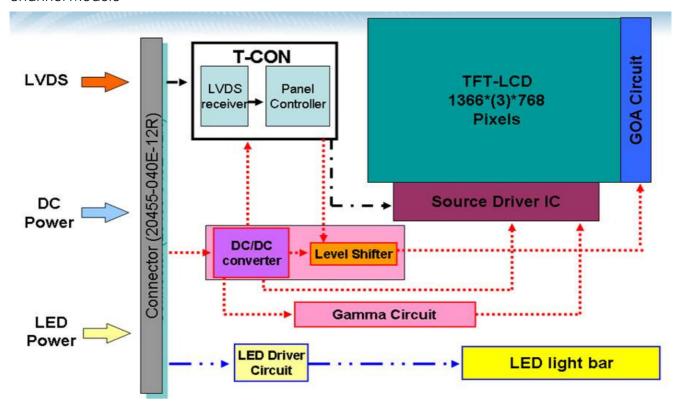
Viewing angle is the measurement of contrast ratio  $\geq$  10, at the screen center, over a 180° horizontal and 180° vertical range (off-normal viewing angles). The 180° viewing angle range is broken down as follows; 90° ( $\theta$ ) horizontal left and right and 90° ( $\Phi$ ) vertical, high (up) and low (down). The measurement direction is typically perpendicular to the display surface with the screen rotated about its center to develop the desired measurement viewing angle.





## 3. Functional Block Diagram

The following diagram shows the functional block of the 15.6 inches wide Color TFT/LCD 40 Pin one channel Module





## 4. Absolute Maximum Ratings

An absolute maximum rating of the module is as following:

## 4.1 Absolute Ratings of TFT LCD Module

Item	Symbol	Min	Max	Unit	Conditions
Logic/LCD Drive	Vin	-0.3	+4.0	[Volt]	Note 1,2

4.2 Absolute Ratings of Environment

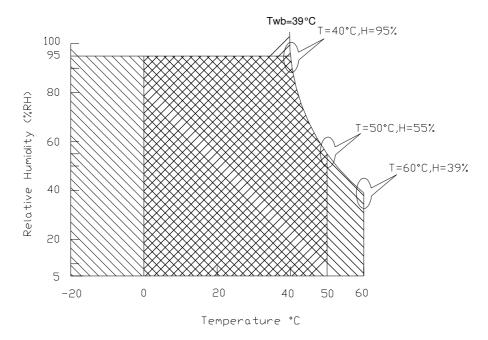
III / NOUTING INGIII	nz / booloic kamigo oi ziiviioiiiiloiii								
Item	Symbol	Min	Max	Unit	Conditions				
Operating	TOP	0	+50	[°C]	Note 4				
Operation Humidity	HOP	5	95	[%RH]	Note 4				
Storage Temperature	TST	-20	+60	[°C]	Note 4				
Storage Humidity	HST	5	95	[%RH]	Note 4				

Note 1: At Ta ( $25^{\circ}$ C)

Note 2: Permanent damage to the device may occur if exceed maximum values

Note 3: LED specification refer to section 5.2

Note 4: For quality performance, please refer to AUO IIS (Incoming Inspection Standard).



Operating Range

Storage Range

+



## 5. Electrical Characteristics

### 5.1 TFT LCD Module

### **5.1.1 Power Specification**

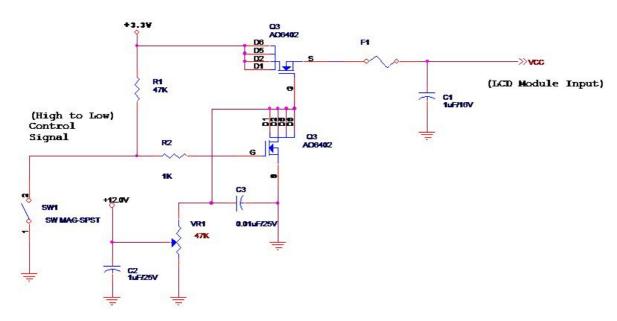
Input power specifications are as follows;

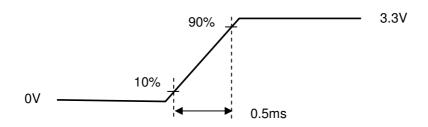
The power specification are measured under 25°C and frame frenquency under 60Hz

Symble	Parameter	Min	Тур	Max	Units	Note
VDD	Logic/LCD Drive Voltage	3.0	3.3	3.6	[Volt]	
PDD	VDD Power	_	-	1.3	[Watt]	Note 1
IDD	IDD Current	-	250	400	[mA]	Note 1
IRush	Inrush Current	-	-	1500	[mA]	Note 2
VDDrp	Allowable Logic/LCD Drive Ripple Voltage	-	-	100	[mV] p-p	

Note 1: Maximum Measurement Condition: Black Pattern at 3.3V driving voltage. (Pmax=V3.3 x lblack)

Note 2: Measure Condition





Vin rising time



### **5.1.2 Signal Electrical Characteristics**

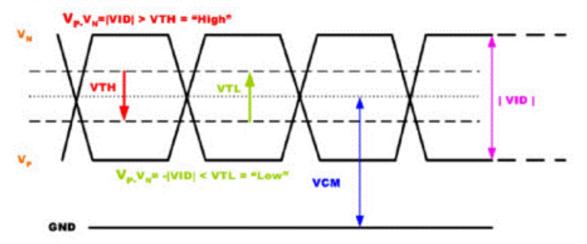
Input signals shall be low or High-impedance state when VDD is off.

Signal electrical characteristics are as follows;

Parameter	Condition	Min	Max	Unit
V <sub>TH</sub>	Differential Input High Threshold (Vcm=+1.2V)		100	[mV]
V <sub>TL</sub>	Differential Input Low Threshold (Vcm=+1.2V)	-100	-	[mV]
V <sub>ID</sub>	Differential Input Voltage	100	600	[mV]
V <sub>CM</sub>	Differential Input Common Mode Voltage	1.125	1.375	[V]

Note: LVDS Signal Waveform

# Single-end Signal





### 5.2.1 LED characteristics

Parameter	Symbol	Min	Тур	Max	Units	Condition
Backlight Power Consumption	PLED	-	3.05	3.70	[Watt]	(Ta=25 $^{\circ}$ C), Note 1 Vin =12V
LED Life-Time	N/A	15,000	-	-	Hour	(Ta=25°C), Note 2 I==20 mA

Note 1: Calculator value for reference PLED = VF (Normal Distribution) \* IF (Normal Distribution) / Efficiency

Note 2: The LED life-time define as the estimated time to 50% degradation of initial luminous.

## 5.2.2 Backlight input signal characteristics

Parameter	Symbol	Min	Тур	Max	Units	Remark
LED Power Supply	VLED	6.0	12.0	21.0	[Volt]	
LED Enable Input High Level		2.5	-	5.5	[Volt]	
LED Enable Input Low Level	VLED_EN	-	-	0.8	[Volt]	
PWM Logic Input High Level		2.5	-	5.5	[Volt]	
PWM Logic Input Low Level	VPWM_EN	-	-	0.8	[Volt]	Define as Connector
PWM Input Frequency	FPWM	200	1K	10K	Hz	Interface (Ta=25°C)
PWM Duty Ratio	Duty	5		100	%	



# 6. Signal Interface Characteristic

## 6.1 Pixel Format Image

Following figure shows the relationship of the input signals and LCD pixel format.

		1									13	36	6
1st Line	R	G	В	R	G	В		R	G	В	R	G	В
		1					1		•			•	
		;							,			,	
		•			•		•		١			٠	
		:					:		:			÷	
		•					•		•			•	
		:					•		:			ì	
		,			•		•		,			,	
		;			:				;			;	
	$\vdash$	П	$\dashv$										
768th Line	R	G	В	R	G	В		R	G	В	R	G	В



## 6.2 The Input Data Format

RxCLKIN		
RxIN0	G0 R5 R4 R3 R2	R1 R0
RxIN1	B1 B0 G5 G4 G3	G2 G1
RxIN2	DE VS HS B5 B4	B3 B2

Signal Name	Description	
R5	Red Data 5 (MSB)	Red-pixel Data
R4	Red Data 4	Each red pixel's brightness data consists of these
R3	Red Data 3	6 bits pixel data.
R2	Red Data 2	
R1	Red Data 1	
R0	Red Data 0 (LSB)	
	De district Destay	
0.5	Red-pixel Data	C I D. I
G5	Green Data 5 (MSB)	Green-pixel Data
G4	Green Data 4	Each green pixel's brightness data consists of
G3 G2	Green Data 3 Green Data 2	these 6 bits pixel data.
G2 G1	Green Data 1	
G0	Green Data 0 (LSB)	
Gu	Green Daid (LSB)	
	Green-pixel Data	
B5	Blue Data 5 (MSB)	Blue-pixel Data
B4	Blue Data 4	Each blue pixel's brightness data consists of
В3	Blue Data 3	these 6 bits pixel data.
B2	Blue Data 2	
B1	Blue Data 1	
ВО	Blue Data 0 (LSB)	
	Blue-pixel Data	
RxCLKIN	Data Clock	The signal is used to strobe the pixel data and
		DE signals. All pixel data shall be valid at the
		falling edge when the DE signal is high.
DE	Display Timing	This signal is strobed at the falling edge of
		RxCLKIN. When the signal is high, the pixel data
		shall be valid to be displayed.
VS	Vertical Sync	The signal is synchronized to RxCLKIN .
HS	Horizontal Sync	The signal is synchronized to RxCLKIN .

Note: Output signals from any system shall be low or High-impedance state when VDD is off.



## **6.3 Integration Interface Requirement**

### 6.3.1 Connector Description

Physical interface is described as for the connector on module.

These connectors are capable of accommodating the following signals and will be following components.

Connector Name / Designation	For Signal Connector
Manufacturer	IPEX or compatible
Type / Part Number	IPEX 20455-040E-12R or compatible
Mating Housing/Part Number	IPEX 20353-040T-11 or compatible

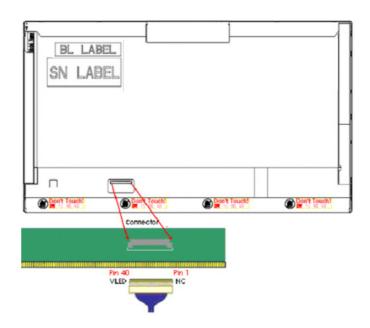
### 6.3.2 Pin Assignment

LVDS is a differential signal technology for LCD interface and high speed data transfer device.

PIN#	Signal Name	Description
1	NC	No Connection (Reserve)
2	VDD	Power Supply +3.3V
3	VDD	Power Supply +3.3V
4	VEDID	EDID +3.3V Power
5	NC	No Connect (Reserve)
6	CLK_EDID	EDID Clock Input
7	DAT_EDID	EDID Data Input
8	RxOIN0-	-LVDS Differential Data INPUT(Odd R0-R5,G0)
9	RxOIN0+	+LVDS Differential Data INPUT(Odd R0-R5,G0)
10	VSS	Ground
11	RxOIN1-	-LVDS Differential Data INPUT(Odd G1-G5,B0-B1)
12	RxOIN1+	+LVDS Differential Data INPUT(Odd G1-G5,B0-B1)
13	VSS	Ground
14	RxOIN2-	-LVDS Differential Data INPUT(Odd B2-B5,HS,VS,DE)
15	RxOIN2+	+LVDS Differential Data INPUT(Odd B2-B5,HS,VS,DE)
16	VSS	Ground
17	RxOCKIN-	-LVDS Odd Differential Clock INPUT
18	RxOCKIN+	+LVDS Odd Differential Clock INPUT
19	NC	No connection (Reserve)
20	NC	No connection
21	NC	No connection



22	GND	Ground-Shield
23	NC	No connection
24	NC	No connection
25	GND	Ground-Shield
26	NC	No connection
27	NC	No connection
28	GND	Ground-Shield
29	NC	No connection
30	NC	No connection
31	VLED_GND	LED Ground
32	VLED_GND	LED Ground
33	VLED_GND	LED Ground
34	NC	No Connection (Reserve)
35	VPWM_EN	PWM logic input level
36	VLED_EN	LED enable input level
37	NC	No connection (Reserve)
38	VLED	LED Power Supply
39	VLED	LED Power Supply
40	VLED	LED Power Supply



Note1: Input signals shall be low or High-impedance state when VDD is off.



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## **6.4 Interface Timing**

## **6.4.1 Timing Characteristics**

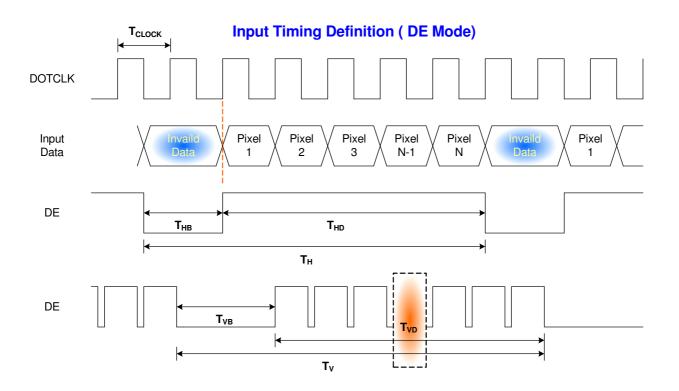
Basically, interface timings should match the 1366x768 /60Hz manufacturing guide line timing.

Parameter		Symbol	Min.	Тур.	Max.	Unit	
Frame Rate		-	ı	60	-	Hz	
Clock frequency		1/ T <sub>Clock</sub>	66.9	73.3	80	MHz	
.,	Period	Tv	788	806	768+A		
Vertical	Active	T <sub>VD</sub>	768			$T_{Line}$	
Section	Blanking	T∨B	20	38	A		
	Period	Тн	1416	1580	1366+B		
Horizontal	Active	T <sub>HD</sub>		1366		$T_{Clock}$	
Section	Blanking	Тнв	50	214	B		

Note: 1. DE mode only

2. The maximum clock frequency = (1366+B)\*(768+A)\*60 < 80MHz

### 6.4.2 Timing diagram

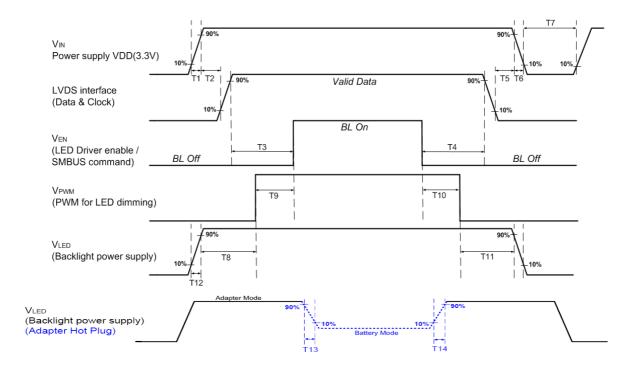




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### 6.5 Power ON/OFF Sequence

Power on/off sequence is as follows. Interface signals and LED on/off sequence are also shown in the chart. Signals from any system shall be Hi-Z state or low level when VDD is off



Parameter	Va	lue
raidinelei	Min.(ms)	Max.(ms)
<b>T1</b>	0.5	10
T2	0	50
T3	200	-
T4	200	-
T5	0	50
T6	0	10
T7	500	-
Т8	10	-
Т9	10	-
T10	10	-
T11	10	-
T12	0.5	10
T13	1	-
T14	1	-

Note:If T3,T5,T6 couldn't match above specifications, must request <u>T3+T5+T6 > 200ms</u> at least



## 7. Panel Reliability Test

### 7.1 Vibration Test

**Test Spec:** 

Test method: Non-Operation

Acceleration: 1.5 G

Frequency: 10 - 500Hz Random

30 Minutes each Axis (X, Y, Z) Sweep:

### 7.2 Shock Test

**Test Spec:** 

Test method: Non-Operation

Acceleration: 220 G, Half sine wave

Active time: 2 ms

X,Y,Z .one time for each side Pulse:

## 7.3 Reliability Test

Items	Required Condition	Note
Temperature Humidity Bias	Ta= 40℃, 90%RH, 300h	
High Temperature Operation	Ta= 50℃, Dry, 300h	
Low Temperature Operation	Ta= 0℃, 300h	
High Temperature Storage	Ta= 60℃, 35%RH, 300h	
Low Temperature Storage	Ta= -20℃, 50%RH, 250h	
Thermal Shock Test	Ta=-20℃to 60℃, Duration at 30 min, 100 cycles	
ESD	Contact : ±8 KV	Note 1
ESD	Air: ±15 KV	

Note1: According to EN 61000-4-2, ESD class B: Some performance degradation allowed. Self-recoverable.

No data lost, No hardware failures.

Remark: MTBF (Excluding the LED): 30,000 hours with a confidence level 90%



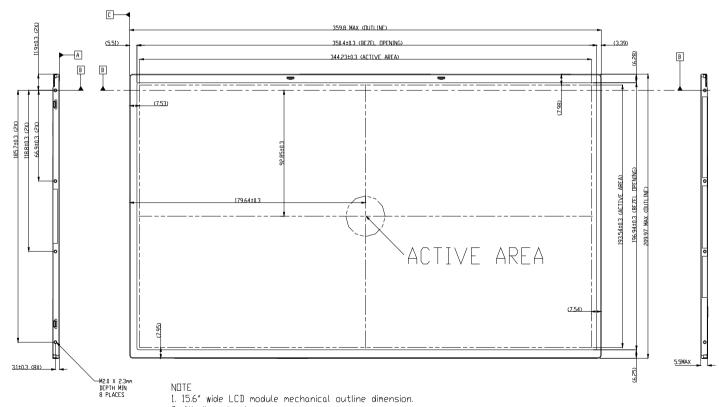
## 8. Mechanical Characteristics

### 8.1 LCM Outline Dimension

### 8.1.1 Standard Front View

The drawing following 2D standard drawing and remark.



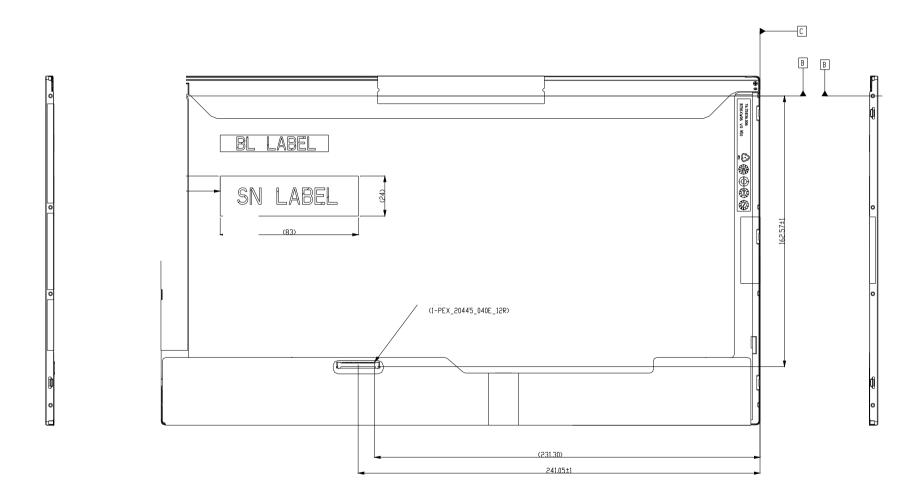


2. All dimension in mm. As viewed form front of LCD modules.



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8.1.2 Standard Rear View



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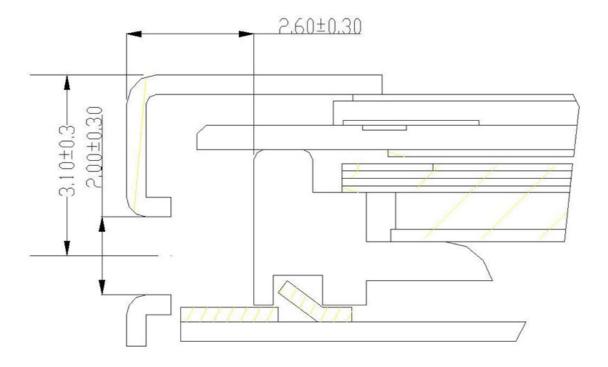


## 8.2 Screw Hole Depth and Center Position

Maximum Screw penetration from side surface is 2.9 mm

The center of screw hole center location is  $3.1 \pm 0.3$ mm from front surface

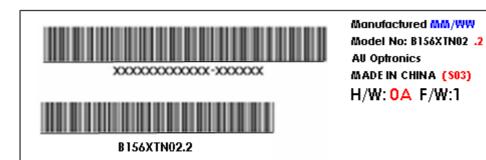
Screw Torque: Maximum 2.5 kgf-cm





# 9. Shipping and Package

# 9.1 Shipping Label Format

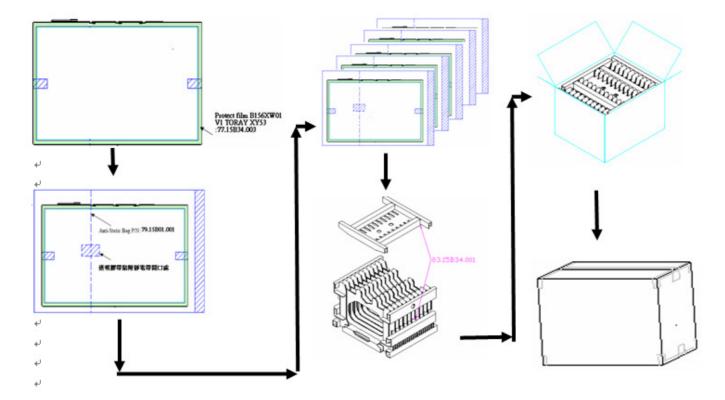


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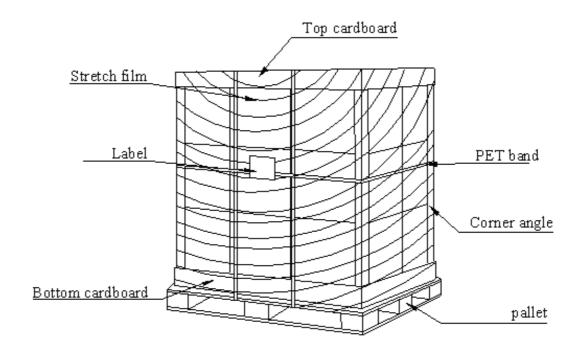
## 9.2 Carton Package

The outside dimension of carton is 437 (L)mm x 369 (W)mm x 313 (H)mm





# 9.3 Shipping Package of Palletizing Sequence





# 10. Appendix: EDID Description

Address	FUNCTION	Value	Value	Value	Note
HEX		HEX	BIN	DEC	
00	Header	00	00000000	0	
01		FF	111111111	255	
02		FF	111111111	255	
03		FF	11111111	255	
04		FF	111111111	255	
05		FF	111111111	255	
96		FF	111111111	255	
07		00	00000000	0	
08	EISA Manuf. Code LSB	06	00000110	6	
09	Compressed ASCII	AF	10101111	175	
0A	Product Code	EC	11101100	236	
OB	hex, LSB first	22	00100010	34	
0C	32-bit ser #	00	00000000	0	
0D		00	00000000	0	
0E		00	00000000	0	
OF		00	00000000	0	
10	Week of manufacture	00	00000000	0	
11	Year of manufacture	15	00010101	21	
12	EDID Structure Ver.	01	00000001	1	
13	EDID revision #	04	00000100	4	
	Video input def. (digital I/P,	01	00000100		
14	non-TMDS, CRGB)	90	10010000	144	
15	Max H image size (rounded to cm)	22	00100010	34	
16	Max V image size (rounded to cm)	13	00010011	19	
17	Display Gamma				
	(=(gamma*100)-100)	78	01111000	120	
18	<b>Feature support</b> (no DPMS, Active OFF, RGB, tmg Blk#1)	02	00000010	2	
19	Red/green low bits (Lower 2:2:2:2 bits)	BB	10111011	187	
1A	Blue/white low bits (Lower 2:2:2:2 bits)	F5	11110101	245	
1B	Red x (Upper 8 bits)	94	10010100	148	
1C	Red y/ highER 8 bits	55	01010100	85	
1D	Green x	55 	01010101	84	
1E	Green y	90	10010000	144	
1F	Blue x	27	00100111	39	
20	Blue y	23	00100111	35	
21	White x	50	010100011	80	
22	White y	54	01010000	84	
23	·	00	00000000	0	
	Established timing 1				
24	Established timing 2	00	00000000	0	
25	Established timing 3	00	00000000	0	
26	Standard timing #1	01	00000001	1	
27	01 1 11 12	01	00000001	1	
28	Standard timing #2	01	00000001	l	



		l	1		
29		01	00000001	1	
2A	Standard timing #3	01	00000001	1	
2B		01	00000001	1	
2C	Standard timing #4	01	00000001	1	
2D		01	00000001	1	
2E	Standard timing #5	01	0000001	1	
2F		01	00000001	1	
30	Standard timing #6	01	00000001	1	
31		01	00000001	1	
32	Standard timing #7	01	00000001	1	
33		01	00000001	1	
34	Standard timing #8	01	00000001	1	
35		01	00000001	1	
36	Pixel Clock/10000 LSB	A2	10100010	162	
37	Pixel Clock/10000 USB	1C	00011100	28	
38	Horz active Lower 8bits	56	01010110	86	
39	Horz blanking Lower 8bits	В8	10111000	184	
3A	HorzAct:HorzBlnk Upper 4:4 bits	50	01010000	80	
3B	Vertical Active Lower 8bits	00	00000000	0	
3C	Vertical Blanking Lower 8bits	14	00010100	20	
	Vert Act : Vertical Blanking				
3D	(upper 4:4 bit)	30	00110000	48	
3E	HorzSync. Offset	10	00010000	16	
3F	HorzSync.Width	10	00010000	16	
40	VertSync.Offset: VertSync.Width	3E	00111110	62	
41	Horz‖ Sync Offset/Width Upper	00	0000000	0	
41	2bits Horizontal Image Size Lower 8bits		00000000	0	
43	Vertical Image Size Lower 8bits	58 C1	01011000	88 193	
43	Horizontal & Vertical Image Size	CI	11000001	193	
44	(upper 4:4 bits)	10	00010000	16	
	Horizontal Border (zero for internal				
45	LCD)	00	00000000	0	
46	Vertical Border (zero for internal LCD)	00	00000000	0	
70	Signal (non-intr, norm, no stero, sep	- 55	0000000	0	
47	sync, neg pol)	18	00011000	24	
48	Detailed timing/monitor	00	00000000	0	
49	descriptor #2	00	00000000	0	
4A		00	00000000	0	
4B		OF	00001111	15	
4C		00	00000000	0	
4D		00	00000000	0	
4E		00	00000000	0	
4F		00	00000000	0	
50		00	00000000	0	
51		00	00000000	0	
52		00	00000000	0	
53		00	00000000	0	
	1			~	1



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54		00	00000000	0	
55		00	00000000	0	
56		00	00000000	0	
57		00	00000000	0	
58		00	00000000	0	
59		20	00100000	32	
5A	Detailed timing/monitor	00	00000000	0	
5B	descriptor #3	00	00000000	0	
5C		00	00000000	0	
5D		FE	11111110	254	
5E		00	00000000	0	
5F	Manufacture	41	01000001	65	Α
60	Manufacture	55	01010101	85	U
61	Manufacture	4F	01001111	79	0
62		0A	00001010	10	
63		20	00100000	32	
64		20	00100000	32	
65		20	00100000	32	
66		20	00100000	32	
67		20	00100000	32	
68		20	00100000	32	
69		20	00100000	32	
6A		20	00100000	32	
6B		20	00100000	32	
6C	Detailed timing/monitor	00	00000000	0	
6D	descriptor #4	00	00000000	0	
6E		00	00000000	0	
6F		FE	11111110	254	
70		00	00000000	0	
71	Manufacture P/N	42	01000010	66	В
72	Manufacture P/N	31	00110001	49	1
73	Manufacture P/N	35	00110101	53	5
74	Manufacture P/N	36	00110110	54	6
75	Manufacture P/N	58	01011000	88	X
76	Manufacture P/N	54	01010100	84	T
77	Manufacture P/N	4E	01001110	78	N
78	Manufacture P/N	30	00110000	48	0
79	Manufacture P/N	32	00110010	50	2
7A	Manufacture P/N	2E	00101110	46	
7B	Manufacture P/N	32	00110010	50	2
7C		20	00100000	32	
7D		0A	00001010	10	
7E	Extension Flag	00	00000000	0	
7F	Checksum	72	01110010	114	