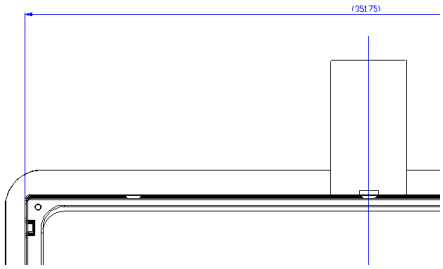
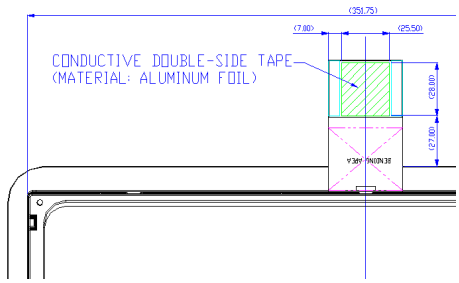
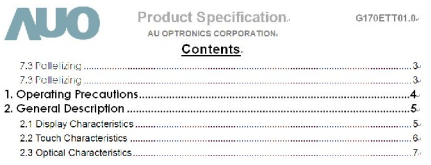
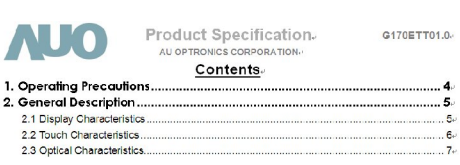
( ) Preliminary Specifications
(✓) Final Specifications

Module	17.0 Inch Color TFT-LCD
Model Name	G170ETT01.0
Note	G/G P-cap touch TTL module

Customer	Date	Approved by	Date
			04/21/2017
Checked & Approved by	Date	Prepared by	Date
			04/21/2017
Customer's sign back page		General Display Business Division / AU Optronics corporation	

Contents

Record of Revision

Version	Date (yyyy/m/d)	Page	Old description	New Description
1.0	Dec 16, 2016	All	First draft specification	
1.1	Apr 20, 2017	5	LCD module:1270g(Typ) (Touch module:830g, Total:2100g (Typ.))	LCD module:1270g(Typ) (Touch module:730g, Total:2000g (Typ.))
		6	Touch module: 830g (LCD module: 1273g, Total: 2100g (Typ.))	Touch module: 730g (Typ.) (LCD module: 1270g, Total: 2000g (Typ.))
		6	339.32 x 271.4mm	339.32 x 271.74mm
		32	7.3 Palletizing TBD	7.3 Palletizing The operation of taking shape and related informatiom of full carton: Max capacity : 8 TFT-LCD module per carton Max weight : 13.3Kg per carton Outside dimension of carton : 523mm(L) x 483mm(W) x 277mm(H) Pallet size : 1150mm x 980mm x 132mm Module by air : (2x2) x 5 layers, one pallet put 20 boxes, total 160pcs. Module by sea : (2x2) x 5 layers + (2x2) x 1 layers, two pallets put 24 boxes, total 192pcs. Module by sea_HQ : (2x2) x 5 layers + (2x2) x 2 layers, two pallets put 24 boxes, total 192pcs.
		33		Add Conductive Double-Side tape. Material : Aluminum Foil. 
1.2	Jun. 16, 2017	2		
1.3	Jul. 11, 2017	6		Add Multi-touch Sensing 10 points
		6		Add Operating System
		32,33		2D drawing change

1. Operating Precautions

1) Since front polarizer is easily damaged, please be cautious and 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 soft cloth.
5) Since the panel is made of glass, it may be broken or cracked if dropped or bumped on hard surface.
6) To avoid ESD (Electro Static Discharde) damage, be sure to ground yourself before handling TFT-LCD Module.
7) Do not open nor modify the module assembly.
8) Do not press the reflector sheet at the back of the module to any direction.
9) In case if a module has to be put back into the packing container slot after it was taken out from the container, do not press the center of the LED Reflector edge. Instead, press at the far ends of the LED Reflector edge softly. Otherwise the TFT Module may be damaged.
10) 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) TFT-LCD Module is not allowed to be twisted & bent even force is added on module in a very short time. Please design your display product well to avoid external force applying to module by end-user directly.
12) Small amount of materials without flammability grade are used in the TFT-LCD module. The TFT-LCD module should be supplied by power complied with requirements of Limited Power Source (IEC60950-1 or UL60950-1), or be applied exemption.
13) Severe temperature condition may result in different luminance, response time.
14) Continuous operating TFT-LCD Module under high temperature environment may accelerate LED light bar exhaustion and reduce luminance dramatically.
15) The data on this specification sheet is applicable when TFT-LCD module is placed in landscape position.
16) Continuous displaying fixed pattern may induce image sticking. It's recommended to use screen saver or moving content periodically if fixed pattern is displayed on the screen.

2. General Description

This specification applies to the 17.0 inch-wide Color a-Si TFT-LCD Module G170ETT01.0.The display supports the SXGA+ (1280(H) x 1024(V)) screen format and 16.7M colors (8bits RGB data input). The input interface is Dual channel LVDS and this module doesn't contain a driver board for backlight.

2.1 Display Characteristics

The following items are characteristics summary on the table under 25 ^{o}C condition:

Items	Unit	Specifications
Screen Diagonal	[inch]	17.0
Active Area	[mm]	337.920 (H) x 270.336 (V)
Resolution	-	1280x3(RGB) x 1024
Pixel Pitch	[mm]	0.264 (per one triad) × 0.264
Pixel Arrangement	-	R.G.B. Vertical Stripe
Display Mode	-	Normally White
White Luminance	[cd/m^2]	250 (Typ.)
Contrast Ratio	-	1000:1(Typ.)
Response Time	[msec]	5 (Typ., on/off)
LCD Power Consumption (LCD Module + Backlight unit)	[Watt]	9.9 (Max) LCD module: PDD=3W @Black Pattern, Fv=60Hz Backlight unit: PBLU=6.9W @Is=60mA
Weight	[Grams]	LCD module:1270g(Typ) (Touch module:730g, Total: 2000g (Typ.))
Outline Dimension (LCD module only)	[mm]	358.5(H) X 296.5(V) X 10.3 (D) (Typ.)
Electrical Interface	-	Dual Channel LVDS (8bits RGB data input)
Support Color	-	16.7M colors
Surface Treatment	-	Anti-glare type, Hardness 3H
Temperature Range (LCD Module only) Operating Storage (Non-Operating)	[^{o}C]	0 to +50 -20 to +60
RoHS Compliance		RoHS Compliance
TCO Compliance		TCO 7.0 Compliance

2.2 Touch Characteristics

The touch is a Projected Capacitive Touch Panel with USB interface to support and compatible with single touch on WinXP O/S, and multi-touch on Win8 O/S system.

Item		Specifications
Type		Projected Capacitive Touch Panel
Structure		Glass / Glass
Panel Size		17 inch
Total Thickness		2.65mm ± 0.15 mm (Cover_1.8mm, sensor_0.7mm & OCR_0.15mm)
Input Mode		Multi Finger
Temperature Range (Touch Module only)	Operating	-20 °C ~ + 70 °C
	Storage	-30 °C ~ + 80 °C
Cover Lens	O.D.	379.32±0.2 * 316.74±0.2mm
	Thickness	1.8 mm
C/L Visual Area		339.32 x 271.74mm
Sensor Glass	O.D.	356.50 x 294.50mm
	Thickness	0.7 mm
TP Active Area		340.29 x 272.70mm
Total Weight		Touch module: 730g(Typ.) (LCD module: 1270g, Total: 2000g (Typ.))
Substrate Material		SDL CS Glass
Chemical Strength		≧ 400 mpa
Surface Hardness		≧7H
Interface		USB 2.0 full speed
Touch Resolution		Same with display resolution
Single / Multi-touch Accuracy		Center: +/-1 5mm Edge: +/-2 mm
Linearity		Center: +/-1.5mm Edge:+/-2mm
Multi-touch Sensing		10 points
The smallest distance between 2 points		15mm
Channel (X * Y)		57 * 45
Report Rate (points /sec)		>100Hz
Power Consumption		400 mW type
Operating System		Support WinXP, Win7, Win8, Win10, Android(2.3 to 7) & Linux distribution versions, including Kernel 2.4.x / 2.6.x / 3.x.x / 4.x.x
Transmittance (%)		85% +/- 3%
AG coating		NA

Note1: Driver is required in WinXP, Win7, Win8, Win10, Android & Linux.

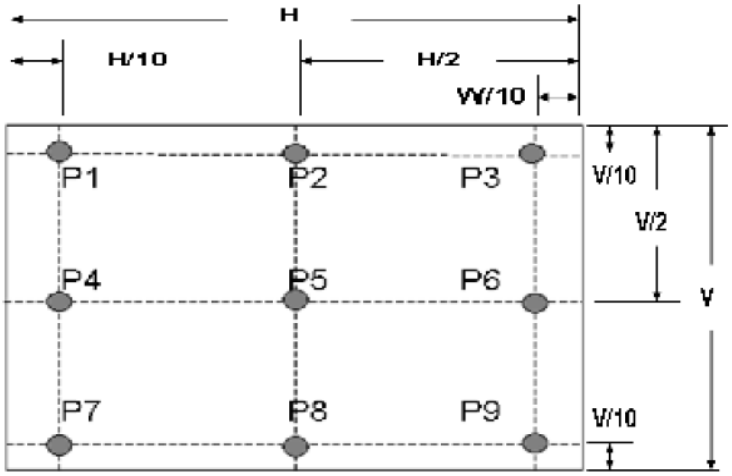
Note2: Optical specification is measured in the dark room and ambient temperature = 25 °C

2.3 Optical Characteristics

The optical characteristics are measured under stable conditions at 25 °C.

Item	Unit	Conditions		Min.	Typ.	Max.	Note
Central Luminance	cd/m2	I_{LED}=60mA		200	250	---	1, 3, 4
Uniformity	%	9 Points		75	80	---	1, 2, 3
Contrast Ratio				600	1000	---	3, 5
Response Time	msec	Rising + Falling		---	5	8	3, 7
Viewing Angle	degree	Horizontal CR >= 10	(Right) (Left)	75 75	85 85	--- ---	3, 8
		Vertical CR >= 10	(Upper) (Lower)	70 70	80 80	--- ---	
Cross talk	%			---	---	1.5	3, 6
Color / Chromaticity Coodinates (CIE 1931)	--	Red x		0.617	0.647	0.677	3 By SR-3
		Red y		0.305	0.335	0.365	
		Green x		0.290	0.320	0.350	
		Green y		0.591	0.621	0.651	
		Blue x		0.124	0.154	0.184	
		Blue y		0.031	0.061	0.091	
		White x		0.283	0.313	0.343	
		White y		0.299	0.329	0.359	
Color Gamut	%			-	72	-	

Note 1: 9 points position (Ref: Active area)

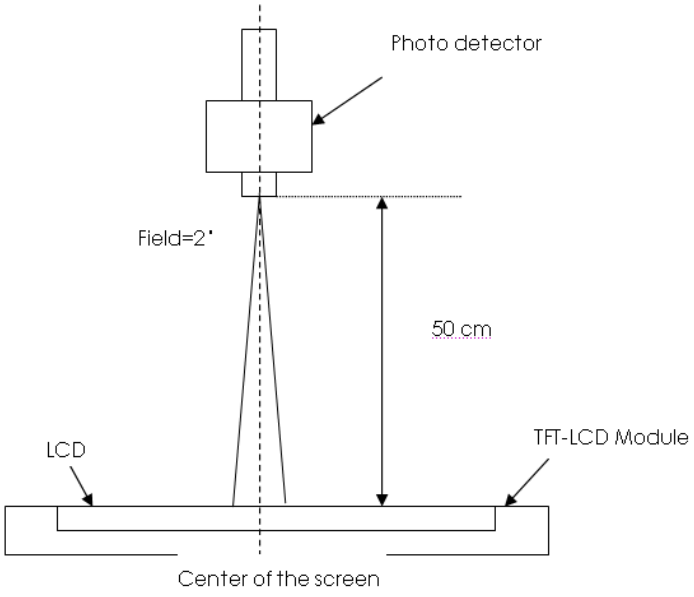


Note 2: The luminance uniformity of 9 points is defined by dividing the maximum luminance values by the minimum test point luminance

$$\delta_{W5} = \frac{\text{Maximum Brightness of nine points}}{\text{Minimum Brightness of nine points}}$$

Note 3: 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 4: Definition of Average Luminance of White (Y_L):

Measure the luminance of gray level 63 at 5 points , 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 5: Definition of contrast ratio:

Contrast ratio is calculated with the following formula.

$$\text{Contrast ratio (CR)} = \frac{\text{Brightness on the "White" state}}{\text{Brightness on the "Black" state}}$$

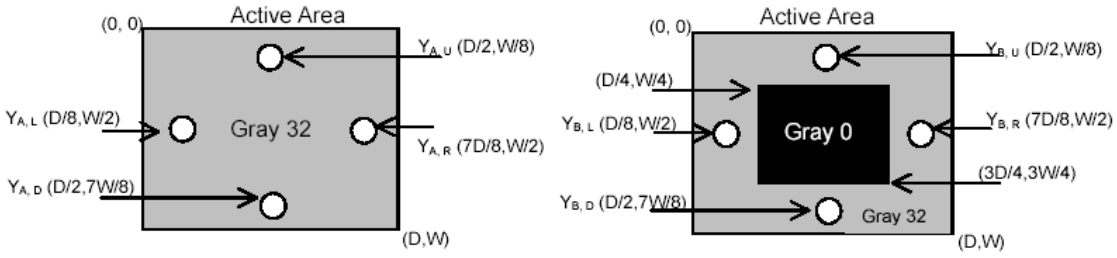
Note 6: Definition of Cross Talk (CT)

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

Where

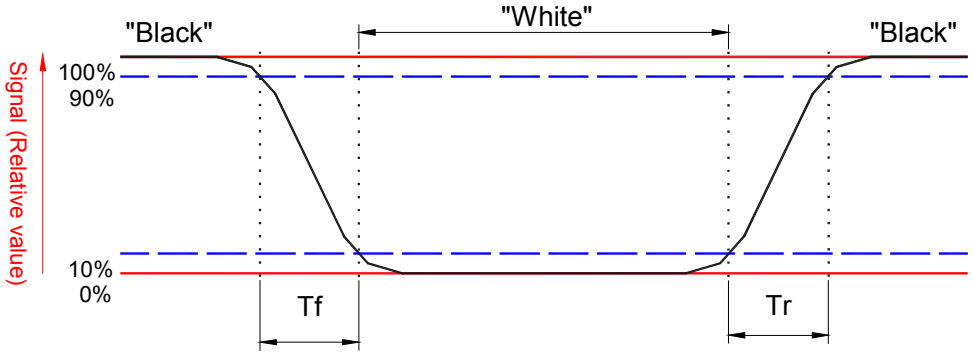
Y_A = Luminance of measured location without gray level 0 pattern (cd/m2)

Y_B = Luminance of measured location with gray level 0 pattern (cd/m2)



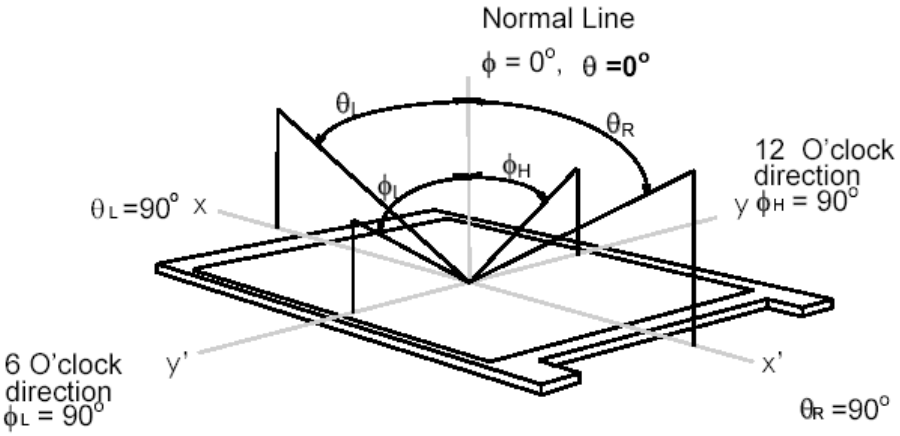
Note 7: Definition of response time:

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.



Note 8: Definition of viewing angle

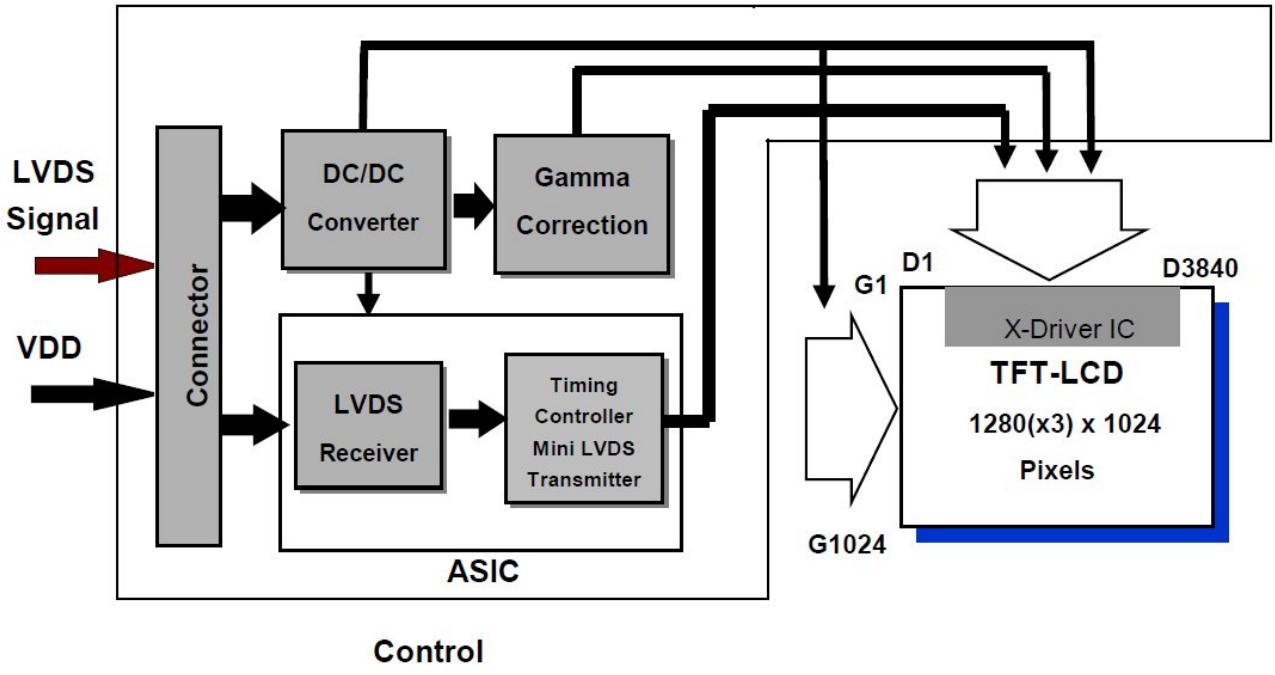
Viewing angle is the measurement of contrast ratio >10, at the screen center, over a 180° horizontal and 180° vertical range (off-normal viewing angles). The 180° viewing angle range is broken down as follows; 90° (θ) horizontal left and right and 90° (Φ) vertical, high (up) and low (down). The measurement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


Normal Line
ϕ = 0°, θ =0°
θL
θR
ϕH
ϕL
θL =90° x
12 O'clock direction
y ϕH = 90°
6 O'clock direction
ϕL = 90°
y'
x'
θR =90°

3. Functional Block Diagram

3.1 Block Diagram

The following diagram shows the functional block of the 17 inch color TFT/LCD module:



3.2 TFT- LCD Interface Connection

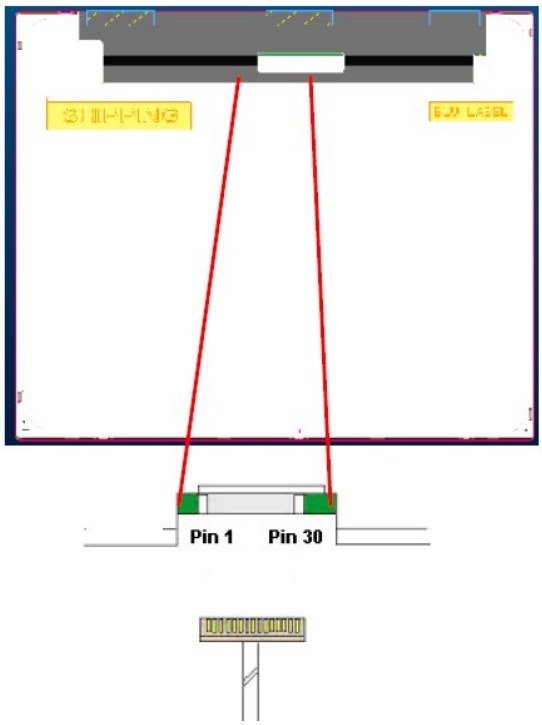
3.2.1 TFT- LCD Connector Type

TFT-LCD Connector	Manufacturer	P-TWO	STM
	Part Number	AL230F-A0G1D-P	MSCKT2407P30HB
Mating Connector	Manufacturer	JAE	
	Part Number	FI-X30HL (Locked Type)	

3.2.2 TFT-LCD Connector Pin Assignment

Pin	Signal	Description	Remark
1	RxO0-	Negative LVDS differential data input (Odd data)	
2	RxO0+	Positive LVDS differential data input (Odd data)	
3	RxO1-	Negative LVDS differential data input (Odd data)	
4	RxO1+	Positive LVDS differential data input (Odd data)	
5	RxO2-	Negative LVDS differential data input (Odd data, DSPTMG)	
6	RxO2+	Positive LVDS differential data input (Odd data, DSPTMG)	
7	GND	Power Ground	
8	RxOCLK-	Negative LVDS differential clock input (Odd clock)	
9	RxOCLK+	Positive LVDS differential clock input (Odd clock)	
10	RxO3-	Negative LVDS differential data input (Odd data)	
11	RxO3+	Positive LVDS differential data input (Odd data)	
12	RxE0-	Negative LVDS differential data input (Even data)	
13	RxE0+	Positive LVDS differential data input (Even data)	
14	GND	Power Ground	
15	RxE1-	Positive LVDS differential data input (Even data)	
16	RxE1+	Negative LVDS differential data input (Even data)	
17	GND	Power Ground	
18	RxE2-	Negative LVDS differential data input (Even data)	
19	RxE2+	Positive LVDS differential data input (Even data)	
20	RxECLK-	Negative LVDS differential clock input (Even clock)	
21	RxECLK+	Positive LVDS differential clock input (Even clock)	
22	RxE3-	Negative LVDS differential data input (Even data)	
23	RxE3+	Positive LVDS differential data input (Even data)	
24	GND	Power Ground	
25	NC	No connection (for AUO test only. Do not connect)	
26	NC	No connection (for AUO test only. Do not connect)	
27	NC	No connection (for AUO test only. Do not connect)	
28	VDD	Power Supply Input Voltage	
29	VDD	Power Supply Input Voltage	

30	VDD	Power Supply Input Voltage	



3.3 TFT- LCD Electrical Characteristics

3.3.1 Absolute Maximum Ratings

Permanent damage may occur if exceeding the following maximum rating.

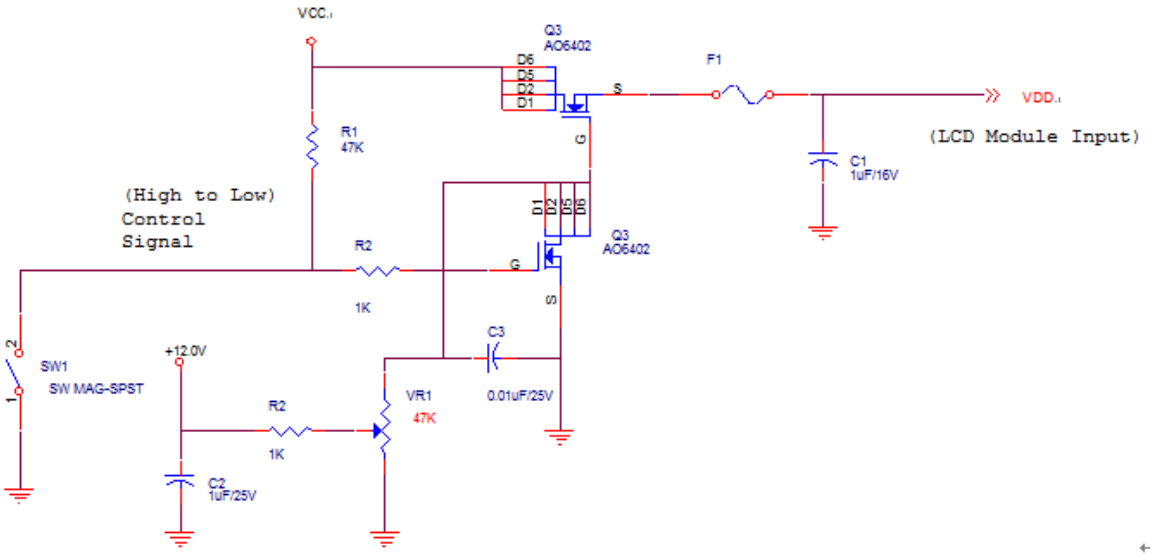
Symbol	Description	Min.	Max.	Unit	Remark
VDD	Power Supply Input Voltage	GND-0.3	6.0	[Volt]	Ta=25℃

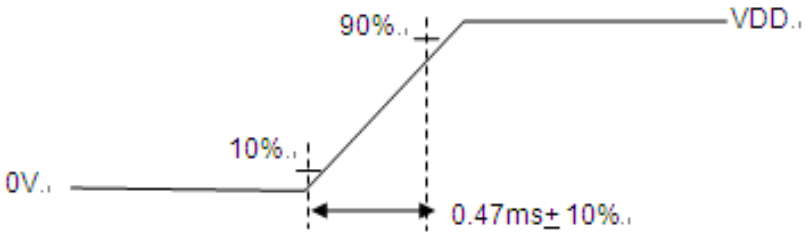
3.3.2 Recommended Operating Condition

Symbol	Description	Min.	Typ.	Max.	Unit	Remark
VDD	Power Supply Input Voltage	4.5	5.0	5.5	[Volt]	
IDD	Power Supply Input Current (RMS)	-	0.6	0.72	[A]	VDD=5.0V, Black Pattern, Fv=60Hz
		-	0.72	0.87	[A]	
PDD	VDD Power Consumption	-	3	3.6	[Watt]	
		-	3.6	4.32	[Watt]	
IRush	Inrush Current	-	-	3.0	[A]	Note
VDDrp	Allowable VDD Ripple Voltage	-	-	500	[mA]	VDD=5.0V, Black Pattern, Fv=75Hz

Note: Inrush Current measurement:

Test circuit:



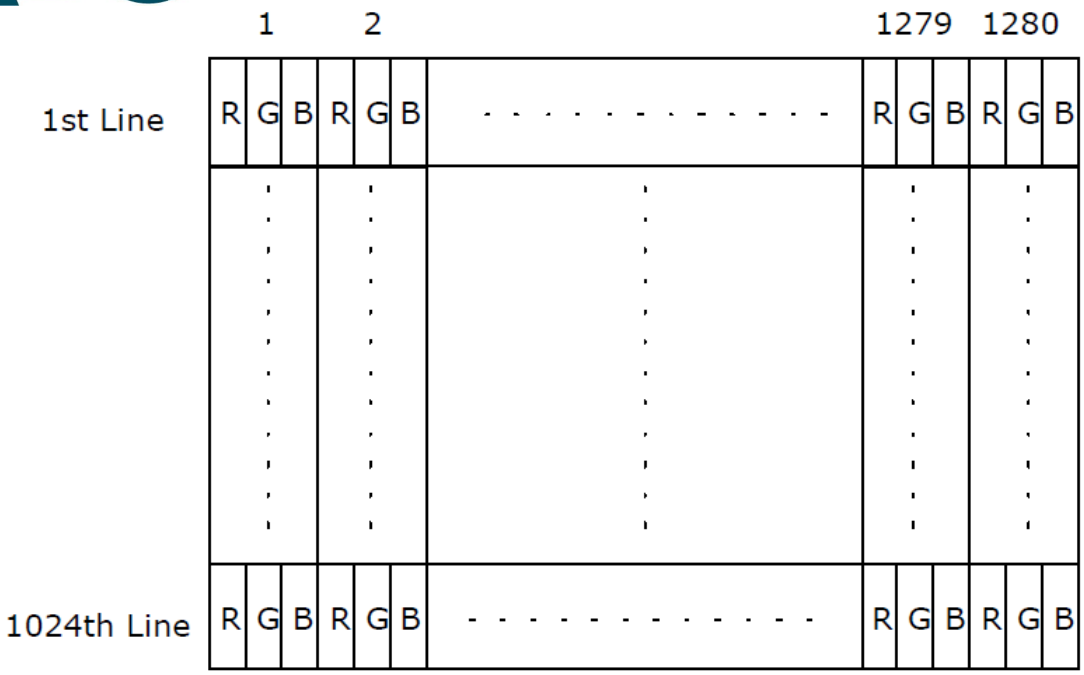


VDD rising time

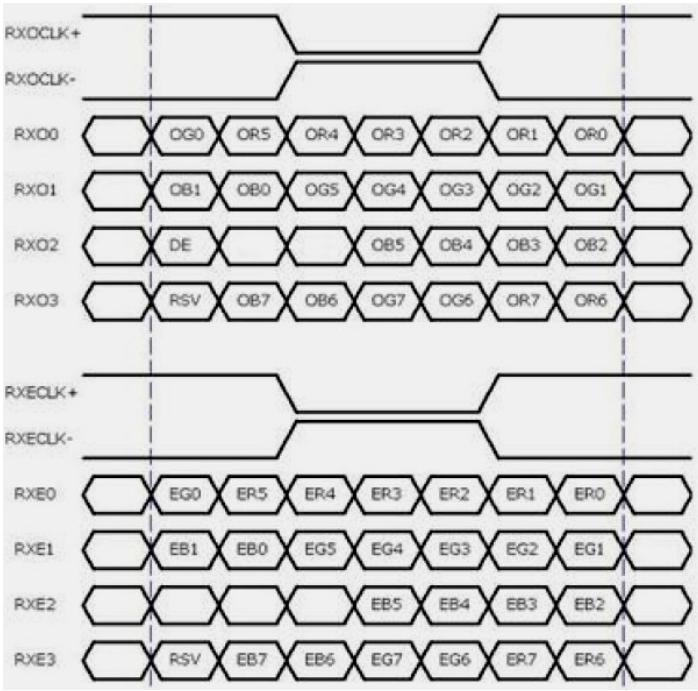
The Duration of VDD rising time: 470us

3.4 TFT- LCD Signal Characteristics

3.4.1 LCD Pixel Format



3.4.2 LVDS Data Format



8 Bit Color Bit Order			
MSB	R7	G7	B7
	R6	G6	B6
	R5	G5	B5
	R4	G4	B4
	R3	G3	B3
	R2	G2	B2
	R1	G1	B1
LSB	R0	G0	B0

Note:
O = “Odd Pixel Data” E=”Even Pixel Data”

Refer to 3.4.1 LCD Pixel format, the 1st data is 1 (Odd Pixel Data), the 2nd data is 2 (Even Pixel Data) and the last data is 1280 (even Pixel Data).

3.4.3 Color Versus Input Data

The following table is for color versus input data (8bit). The higher gray level, the brighter the color.

Color	Gray Level	Color Input Data																								Remark
		RED data (MSB:R7, LSB:R0)								GREEN data (MSB:G7, LSB:G0)								BLUE data (MSB:B7, LSB:B0)								
		R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0	
Black	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
White	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gray 127	-	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	
Red	L0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Black
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
	L255	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Green	L0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Black
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
	L255	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	
Blue	L0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Black
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
	L255	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	

3.4.4 LVDS Specification

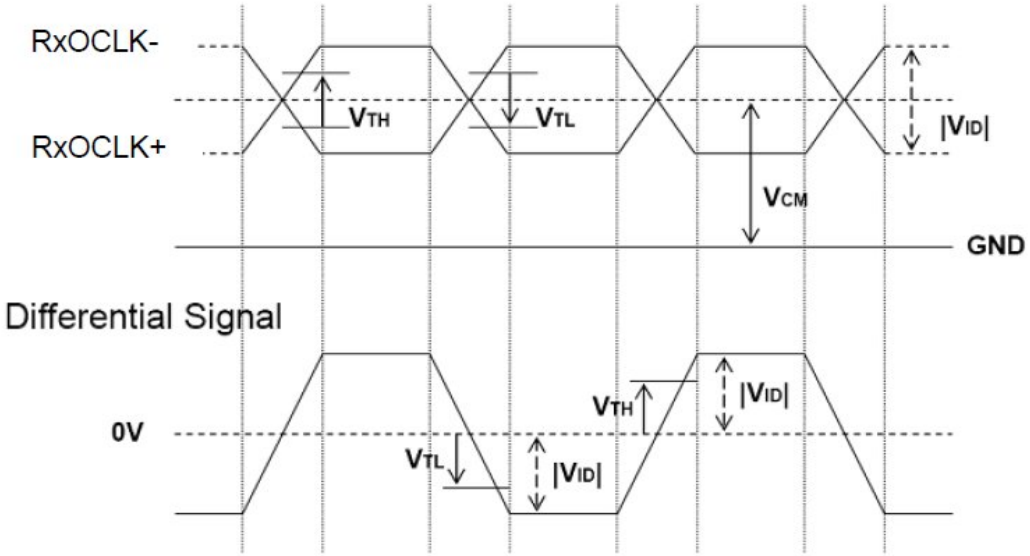
a. DC Characteristics:

Symbol	Description	Min.	Typ.	Max.	Unit	Condition
V_{TH}	Differential Input High Threshold	-	-	+100	[mV]	V_{CM} = 1.2V
V_{TL}	Differential Input Low Threshold	-100	-	-	[mV]	V_{CM} = 1.2V
$\lvert V_{ID} \rvert$	Differential Input Voltage	100	-	600	[mV]	
V_{CM}	Differential Input Common Mode Voltage	+1.0	+1.2	+1.5	[V]	V_{TH}-V_{TL} = 200mV (max)

Note: LVDS Signal Waveform

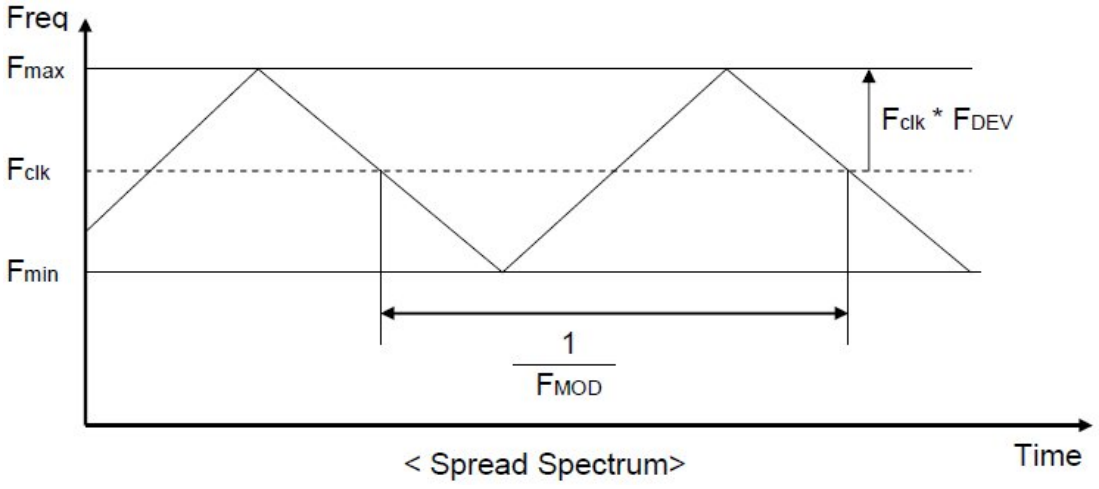
Use RxOCLK- & RxOCLK+ as example.

Single-End



b. AC Characteristics:

Symbol	Description	Min.	Max.	Unit	Remark
F_{DEV}	Maximum deviation of input clock frequency during Spread Spectrum	-	+/- 3	%	
F_{MOD}	Maximum modulation frequency of input clock during Spread Spectrum		200	KHz	



Fclk: LVDS Clock Frequency

3.4.5 Input Timing Specification

It only supply DE mode, and the input timing are shown as the following table.

Symbol	Description		Min.	Typ.	Max.	Unit	Remark
Tv	Vertical Section	Period	1036	1066	1873	Th	
Tdisp (V)		Active	1024	1024	1024	Th	
Tblk (V)		Blanking	12	42	849	Th	
Fv		Frequency	50	60	76	Hz	
Th	Horizontal Section	Period	730	844	1320	Tclk	
Tdisp (h)		Active	640	640	640	Tclk	
Tblk (h)		Blanking	90	204	680	Tclk	
Fh		Frequency	51.8	64	68.4	KHz	Note1
Tclk	LVDS Clock	Period	14.6	18.5	26	ns	1/Fclk
Fclk		Frequency	37.8	54	68.4	MHz	Note2

Note1: The equation is listed as following. Please don't exceed the above recommended value.

Fh(min.) = Fclk(min.)/Th(min.)

Fh(Typ.) = Fclk(Typ.)/Th(Typ.)

Fh(max.) = Fclk(max.)/Th(max.)

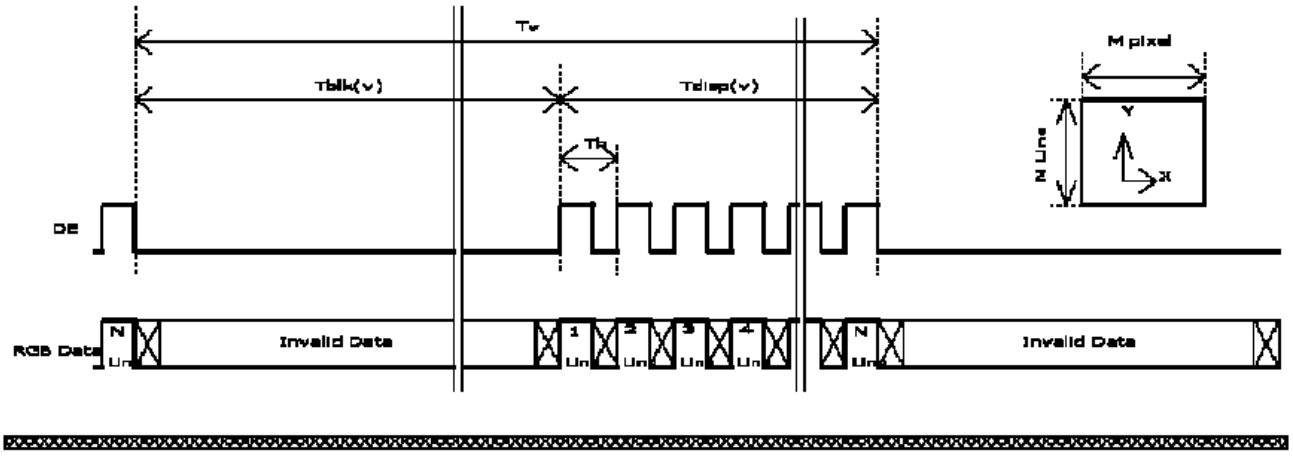
Note2: The equation is listed as following. Please don't exceed the above recommended value.

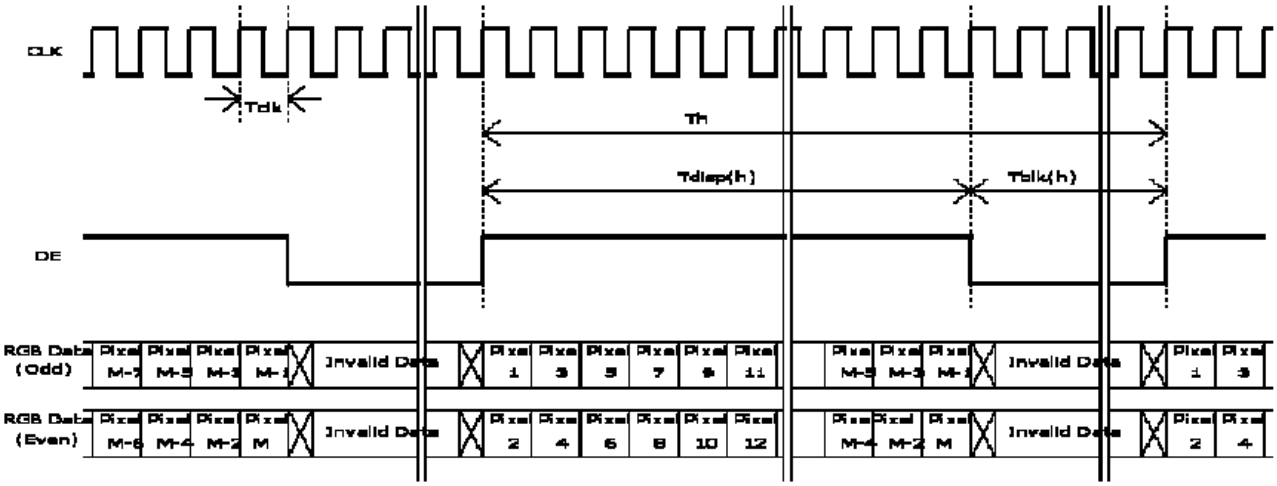
Fclk(min.) = Fv(min.)xTh(min.)xTv(min.)

Fclk(Typ.) = Fv(Typ.)xTh(Typ.)xTv(Typ.)

Fclk(min.) = Fv(max.)xTh(max.)xTv(max.)

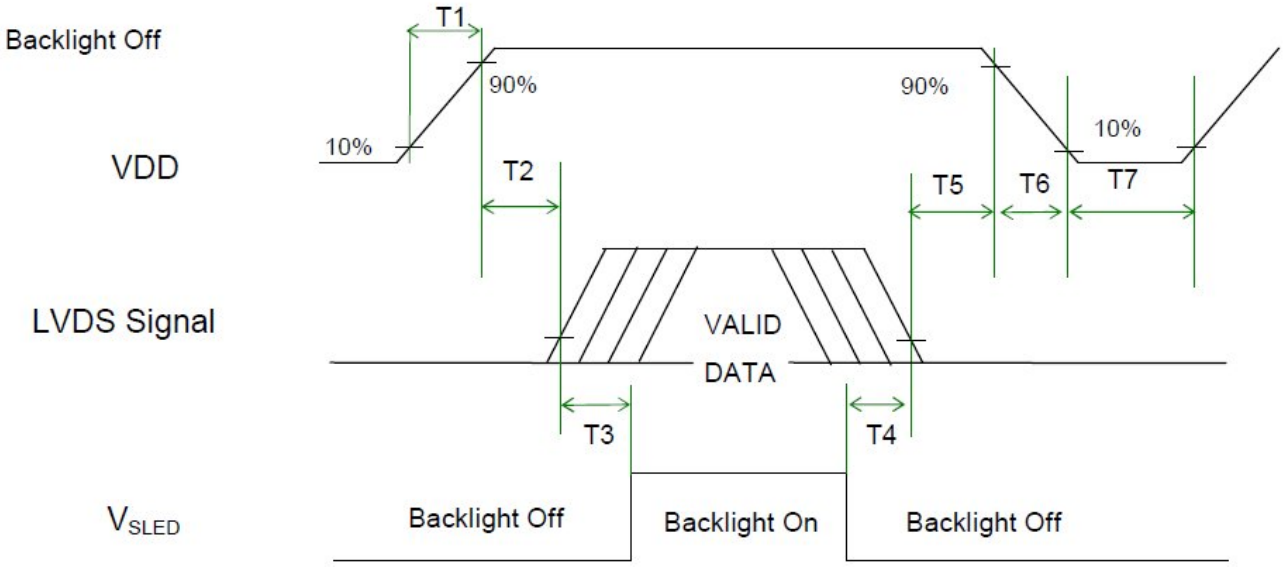
3.4.6 Input Timing Diagram




CLK
Tclk
TH
Tdisp(h)
Tblk(h)
DE
RGB Data (Odd)
RGB Data (Even)
Invalid Data
Invalid Data
Invalid Data
Invalid Data

3.5 TFT- LCD Power On/Off Sequence

VDD Power, LVDS signal and backlight on/off sequence are as following. LVDS signals from any system shall be Hi-Z state when VDD is off.



Power Sequence Timing

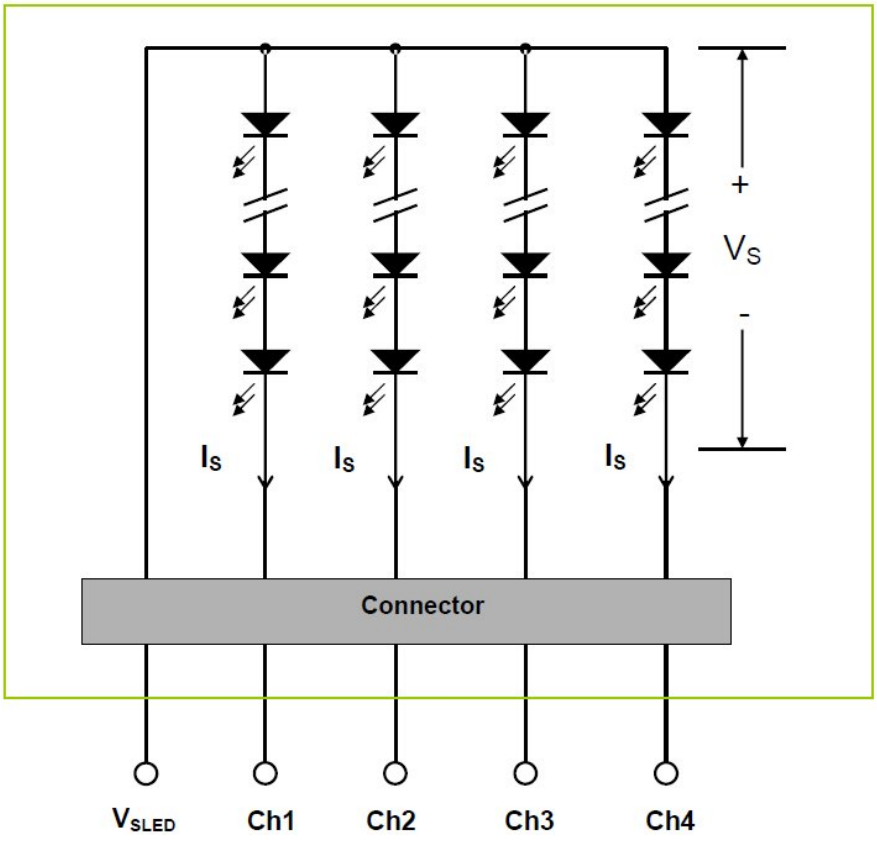
Parameter	Value			Units
	Min.	Typ.	Max.	
T1	0.5	-	10	[ms]
T2	0	-	50	[ms]
T3	500	-	-	[ms]
T4	100	-	-	[ms]
T5	0	-	50	[ms]
T6	0	-	150	[ms]
T7	1000	-	-	[ms]

Note: Recommend setting T5= 0ms to avoid electronic noise when VDD is off. During T5 & T6 period, please keep the level of input LVDS signals with Hi-Z state

4. Backlight Unit

4.1 Block Diagram

The following shows the block diagram of the 17 inch Backlight Unit. And it includes 36pcs LED in the LED light bar. (4 strings and 9pcs LED of one string)



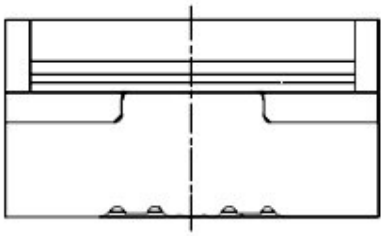
4.2 Interface Connection

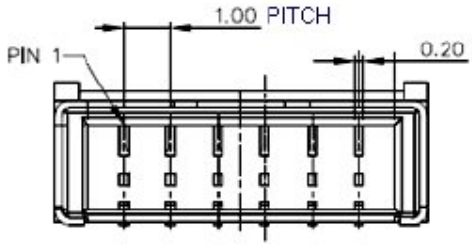
4.2.1 Backlight Connector Type

Backlight Connector	Manufacturer	ENTERY
	Part Number	3707K-S06N-21R
Mating Connector	Manufacturer	ENTERY
	Part Number	H112K-P06N-13B (Locking type)

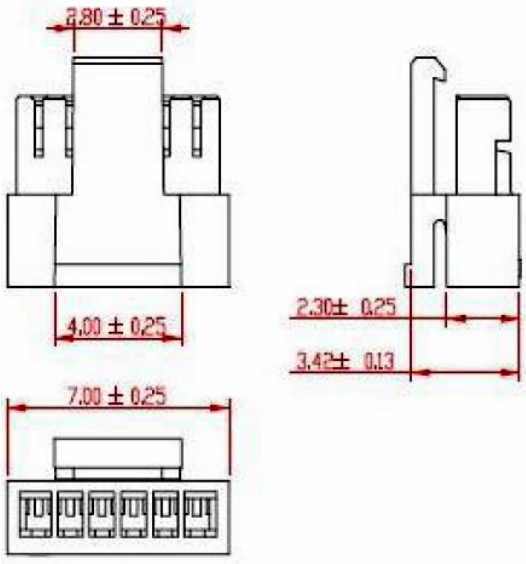
Backlight Connector dimension:

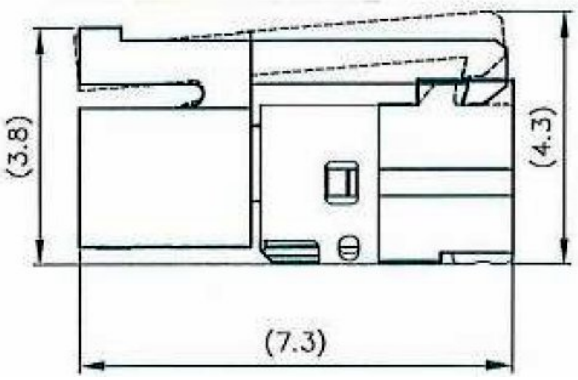
$$H \times V \times D = 13.9 \times 3.00 \times 4.25, Pitch = 1.0(unit = mm)$$





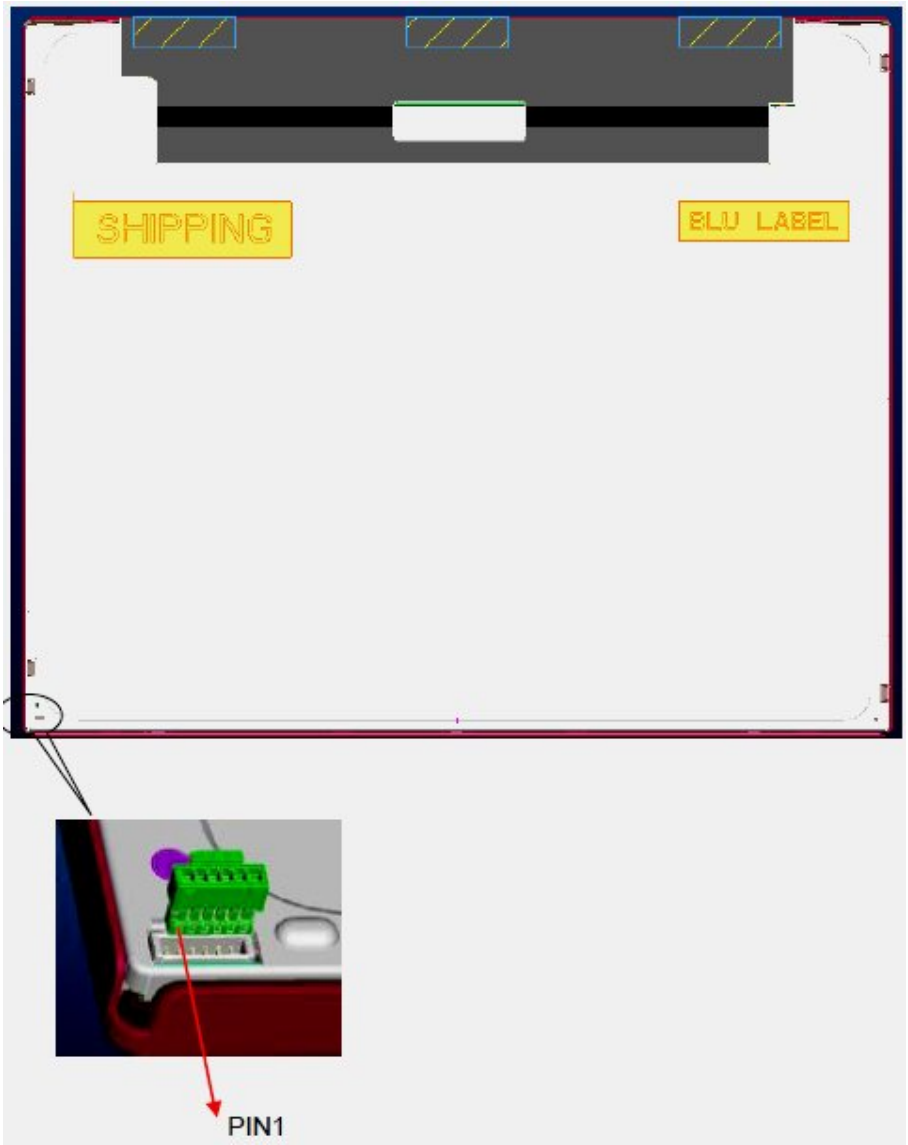
Mating Connector dimension:





4.2.2 Connector Pin Assignment

Pin	Signal	Description	Remark
1	Ch1	LED Current Feedback Terminal (Channel 1)	
2	Ch2	LED Current Feedback Terminal (Channel 2)	
3	V_{SLED}	LED Power Supply Voltage Input Terminal	
4	V_{SLED}	LED Power Supply Voltage Input Terminal	
5	Ch3	LED Current Feedback Terminal (Channel 3)	
6	Ch4	LED Current Feedback Terminal (Channel 4)	



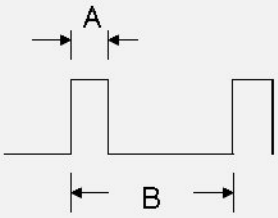
4.3 Electrical Characteristics

4.3.1 Absolute Maximum Rating

Permanent damage may occur if exceeding the following maximum rating.

(Ta=25℃)

Symbol	Description	Min	Max	Unit	Remark
Is	LED String Current	0	90	[mA]	100% duty ratio
			150	[mA]	*Duty ratio≦ 10%* *Pulse time=10 ms*



Duty ratio= (A / B) X 100% ; (A: Pulse time, B: Period)

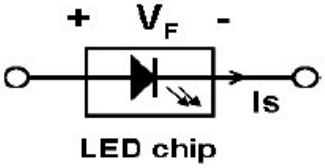
4.3.2 Recommended Operating Condition

Symbol	Description	Min.	Typ.	Max.	Unit	Remark
Is	LED String Current	-	60	66	[mA]	100% duty ratio of LED chip
Vs	LED String Voltage	25.2	28.8	32.4	[Volt]	Is= 60mA @ 100% duty ratio Note1, Note5
△Vs	Maximum Vs Voltage Deviation of light bar	-	-	1.8	[Volt]	Is=60mA @ 100%duty ratio Note2
P_{BLU}	LED Light Bar Power Consumption	-	6.9	7.77	[Watt]	Note3
LT_{LED}	LED Life Time	30,000	-	-	[Watt]	Note4

Note 1: Vs (Typ.) = V_F (Typ.) X LED No. (one string);

a. V_F: LED chip forward voltage, V_F (Min.)=2.8V, V_F(Typ.)=3.2V, V_F(Max.)=3.6V

b. The same euqation to calculate Vs(Min.) & Vs (Max.) for respective V_F (Min.) & V_F(Max.);



Note 2: ΔVs (Max.) = ΔV_F X LED No. (one string);

a. ΔV_F: LED chip forward voltage deviation; (0.2 V , each Bin of LED V_F)

Note 3: P_{BLU} (Typ.) = Vs (Typ.) X Is (Typ.) X 4 ; (4 is total String No. of LED Light bar)

P_{BLU} (Max.) = Vs (Max.) X Is (Typ.) X 4 ;

Note 4: Definition of life time:

a. Brightness of LED becomes to 50% of its original value

b. Test condition: Is = 60mA and 25℃ (Room Temperature)

Note 5: Recommendation for LED driver power design:

Due to there are electrical property deviation in LED & monitor set system component after long time operation. AUO strongly recommend the design value of LED driver board OVP (over voltage protection) should be 10% higher than max. value of LED string voltage (Vs) at least.

5. Touch Unit

5.1 Electrical Characteristics

Item		Min.	Typ.	Max.	Unit	Remark
Power Supply		4.5	5	5.5	Voltage	Ripple <100mV
Power Supply Current	Normal Operation Mode	75	80	85	mA	
	Idle Mode	40	50	60	mA	

5.2 Touch Driver Connector

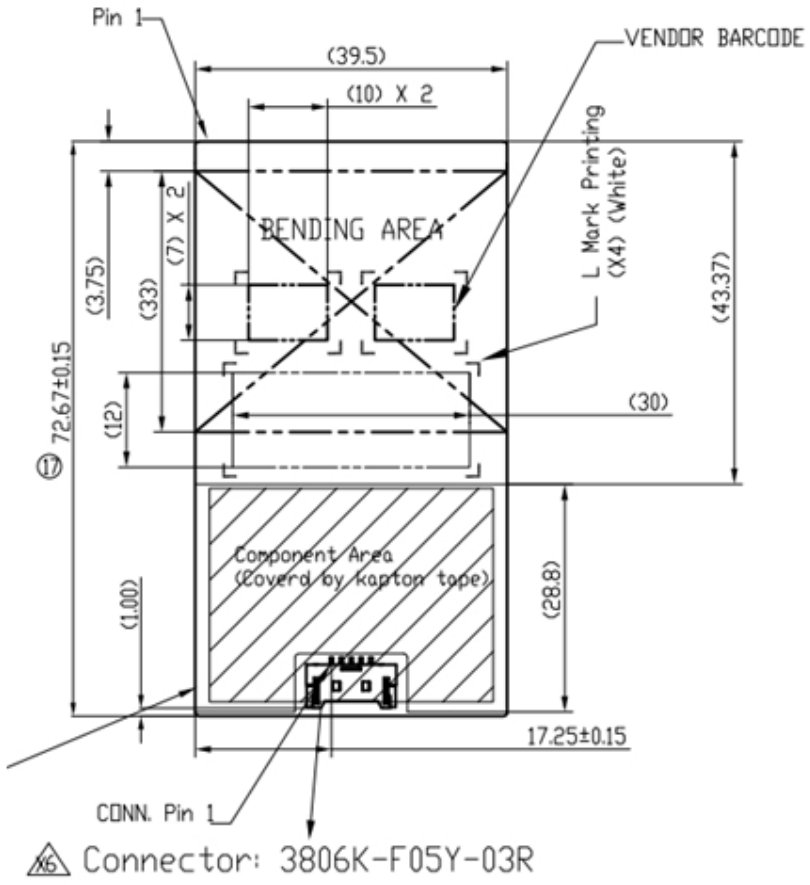
Connector Name / Designation	TP Connector
Manufacturer	E&T
Type / Part Number	WIRE TO BOARD / 3806K-F05Y-03R

Note: Compatible with Molex: 53780-0570

5.3 Pin Assignment

pin No.	function
1	VDD (5V)
2	D-
3	D+
4	GND
5	GND

5.4 Connector Illustration



1	2	3	4	5
VDD	D-	D+	GND	GND

6. Reliability Test

Environment test conditions are listed as following table.

Items	Condition	Note
Temperature Humidity Bias (THB)	Ta= 50℃, 80%RH, 300hours	
High Temperature Operation (HTO)	Ta= 50℃, 50%RH, 300hours	2
Low Temperature Operation (LTO)	Ta= 0℃, 300hours	2
High Temperature Storage (HTS)	Ta= 60℃, 300hours	2
Low Temperature Storage (LTS)	Ta= -20℃, 300hours	2
Vibration Test (Non-operation)	Acceleration: 1.5 G Wave: Random Frequency: 10 - 200 - 10 Hz Sweep: 30 Minutes each Axis (X, Y, Z)	
Shock Test (Non-operation)	Acceleration: 50 G Wave: Half-sine Active Time: 20 ms Direction: ±X, ±Y, ±Z (one time for each Axis)	
Drop Test	Height: 61 cm, package test	
Thermal Shock Test (TST)	-20℃/30min, 60℃/30min, 100 cycles	
On/Off Test	On/10sec, Off/10sec, 30,000 cycles	
ESD	Contact Discharge: ± 8KV, 150pF(330Ω) 1sec, 8 points, 25 times/ point.	1
	Air Discharge: ± 15KV, 150pF(330Ω) 1sec 8 points, 25 times/ point.	
Altitude Test	Operation: 18,000 ft Non-Operation: 40,000 ft	

Note1: According to EN61000-4-2, ESD class B: Some performance degradation allowed. No data lost Self-recoverable. No hardware failures.

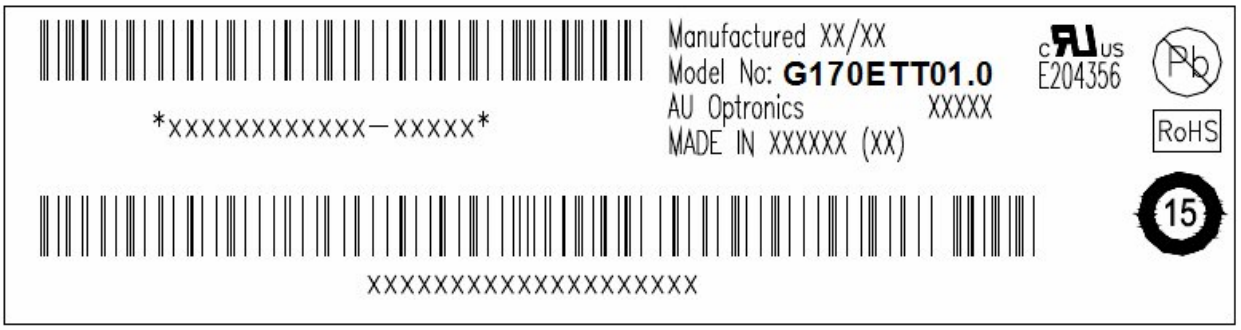
Note2:

1. Water condensation is not allowed for each test items.
2. Each test is done by new TFT-LCD module. Don't use the same TFT-LCD module repeatedly for reliability test.
3. The reliability test is performed only to examine the TFT-LCD module capability.
4. To inspect TFT-LCD module after reliability test, please store it at room temperature and room humidity for 24 hours at least in advance.
5. No function failure occurs. Mura shall be ignored after high temperature reliability test.

7. Label and Packaging

7.1 Shipping Label

The shipping label format is shown as below. (on the rear side of TFT-LCD display)



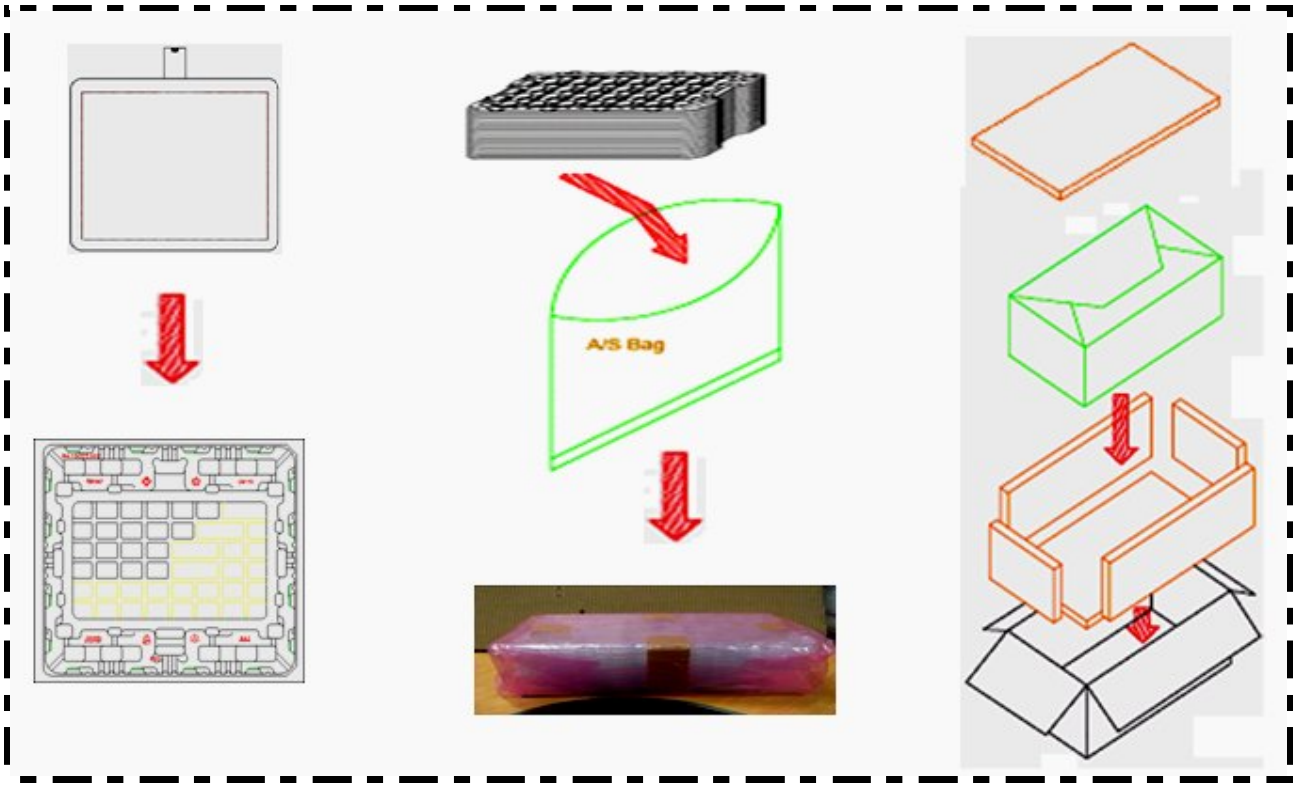
Note1: For Pb Free products, AUO will add Pb for identification.

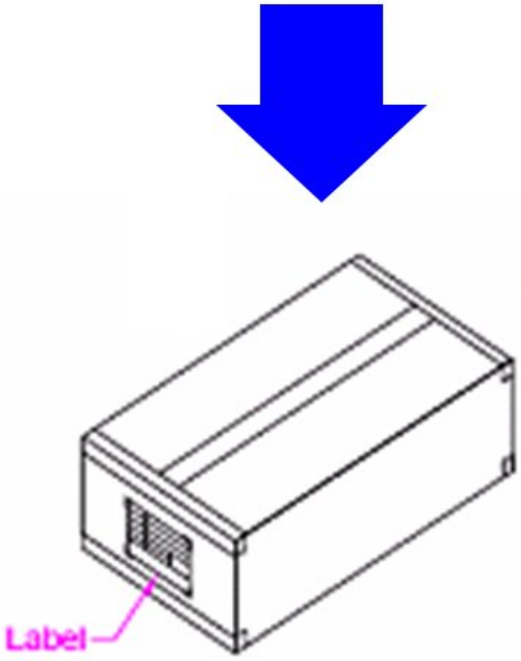
Note2: For RoHS compatible products, AUO will add RoHS for identification.

Note3: For China RoHS compatible products, AUO will add 15 for identification.

Note4: The Green Mark will be presented only when the green documents have been ready by AUO Internal Green Team.

7.2 Carton Package





7.3 Palletizing

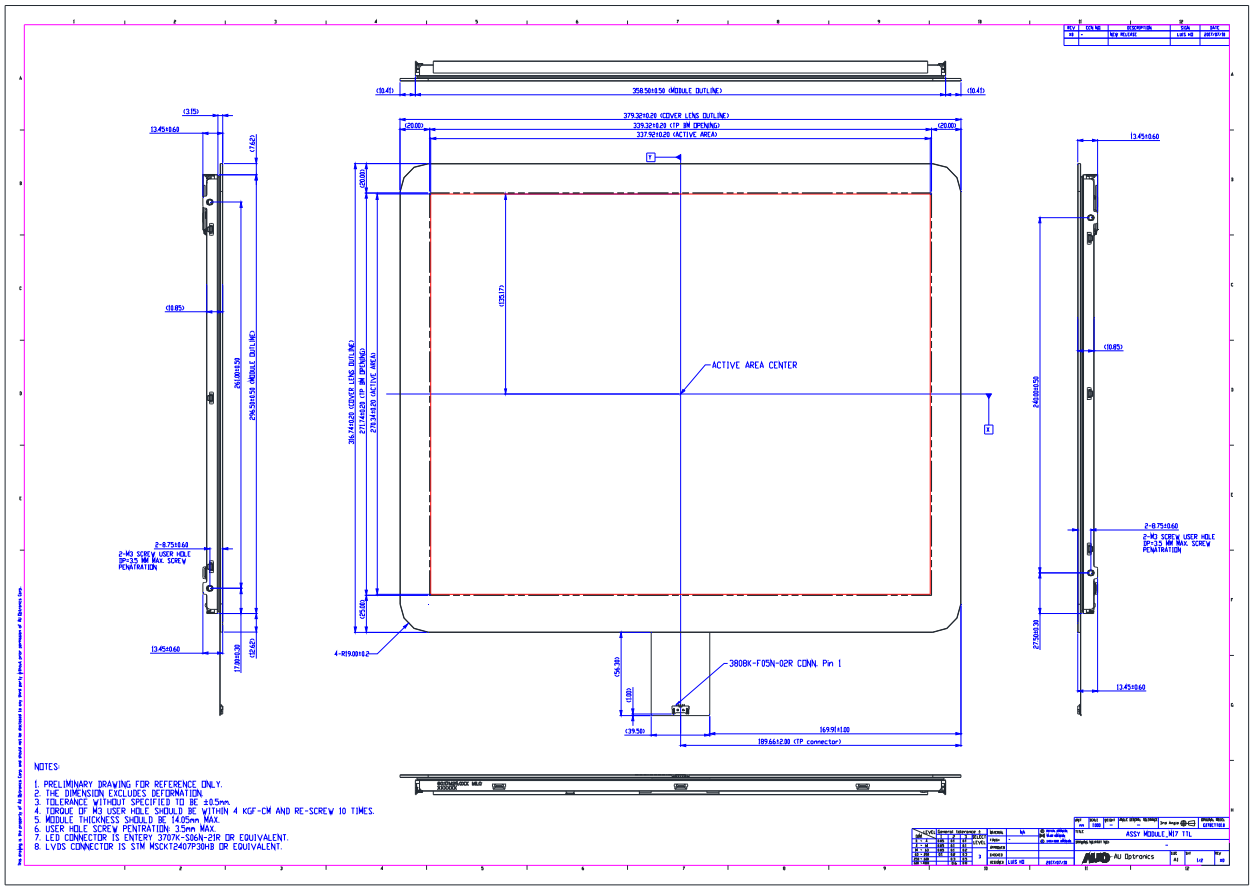
The operation of taking shape and related informatiom of full carton:

Max capacity : 8 TFT-LCD module per carton
Max weight : 13.3Kg per carton
Outside dimension of carton : 523mm(L) x 483mm(W) x 277mm(H)
Pallet size : 1150mm x 980mm x 132mm

Module by air : (2x2) x 5 layers, one pallet put 20 boxes, total 160pcs.
Module by sea : (2x2) x 5 layers + (2x2) x 1 layers, two pallets put 24 boxes, total 192pcs.
Module by sea_HQ : (2x2) x 5 layers + (2x2) x 2 layers, two pallets put 24 boxes, total 192pcs.

8. Mechanical Characteristics

8.1 Total solution Outline Dimension (Front View)



8.2 Total solution Outline Dimension (Rear View)