



SPECIFICATION

easy **TOUCH
DISPLAY**

easyTOUCH DISPLAY Advanced (12035406)

18,5" - FHD – eTD185W3302-AUA-A

Version: 1.0
Date: 08.06.2020

Note: This specification is subject to change without prior notice

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ADVANCED LEVEL

18.5 inch (46.9 cm)
Part-No. 12035406
G185HAN01.0 incl. easyTOUCH eTD185W3302-AUA-A

Display

Panel Type	AUO G185HAN01.0
Resolution (pixel) / format	1920 x 1080/ wide
Brightness (typical)	350 cd/m ²
Display Mode	Normally black
Customer Interface Display	LVDS
Contrast ratio (typical)	1000:1
Backlight	LED

Glass and Touch

Cover glass	3mm heat strengthened float glass, no treatment Printing RAL9005 ceramic, light-tight Dimensions according to outline drawing
Touch sensor type	18.5" easyTOUCH 12029823
Active area touch sensor (W x H)	413.6 x 234.2 mm
Optical Specification	according to DATA MODUL Outgoing Specification 12005965
Touch Interface	USB mXT2952T2

Assembling

Glass to touch	Optically bonded
Glass/Touch assembly to display	AirGap-Bonding with 4 stripes industrial double-sided adhesive tape
Touch Controllerboard	mounted on rear side of TFT with metal bracket

Accessories

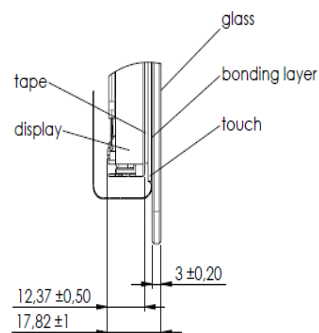
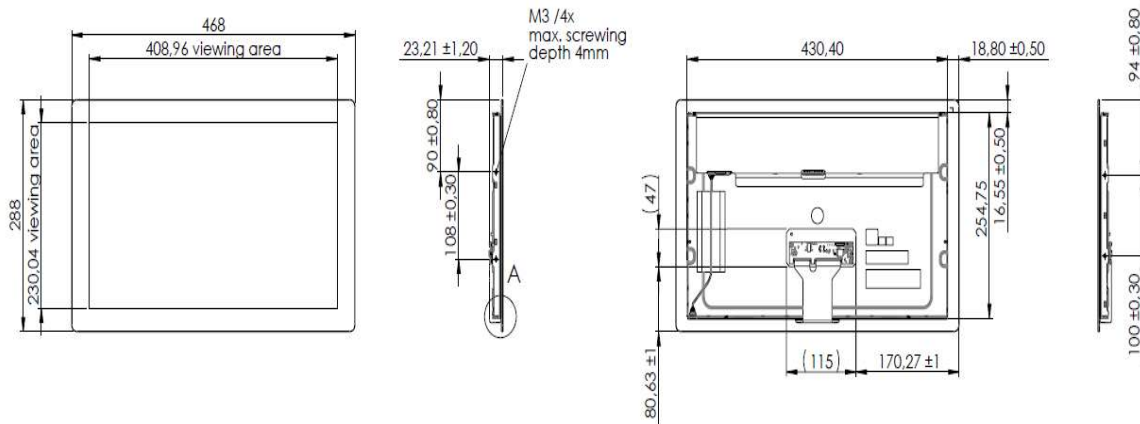
Touch Controller	easyTOUCH mXT2952T2 Driverless USB
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Environmental conditions

Temperature (operating)	-20 - 70 °C
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Mechanical dimensions

Outline dimensions (W x H x T)	468 (±0.3) x 288 (±0.3) x 23.21 (±1.2) mm Detailed dimensions according to outline drawing
Weight	approx. 2.4 (±10%) kg



A (1 : 1)



() Preliminary Specification
(V) Final Specification

Module	18.5" Color TFT-LCD
Model Name	G185HAN01.0

Customer	Date
_____	_____
Approved by	
_____	_____
<p>Note: This Specification is subject to change without notice.</p>	

Approved by	Date
<u>Crystal Hsieh</u>	<u>2016/06/29</u>
Prepared by	
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1.0 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 or modify the Module Assembly.
- 8) Do not press the reflector sheet at the back of the module to any directions.
- 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 LED lightbar edge. Instead, press at the far ends of the LED light bar 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) After installation of the TFT Module into an enclosure, do not twist nor bend the TFT Module even momentarily. While 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 (IEC60950-1 or UL60950-1), or be applied exemption.



2.0 General Description

This specification applies to the 18.5 inch-wide Color AHVA (IPS-like) TFT-LCD Module G185HAN01.0. The display supports the FHD [1920(H) x 1080(V)] screen format and 16.7M colors (True 8 bit). All input signals are LVDS interface compatible.

2.1 Display Characteristics

The following items are characteristics summary on the table under 25°C condition:

ITEMS	Unit	SPECIFICATIONS
Screen Diagonal	[mm]	469.16(18.47")
Active Area	[mm]	408.96 (H) x 230.04 (V)
Pixels H x V		1920x1080
Pixel Pitch	[um]	213 (per one triad) × 213
Pixel Arrangement		R.G.B. Vertical Stripe
Display Mode		AHVA mode, Normally black
White Luminance (Center)	[cd/m ²]	350 cd/m ² (Typ.)
Contrast Ratio		1000 (Typ.)
Optical Response Time	[msec]	20ms
Nominal Input Voltage VDD	[Volt]	5 V (Typ)
Power Consumption (VDD line + LED line)	[Watt]	16.5W
Weight	[Grams]	1200 (Typ)
Physical Size	[mm]	430.4 (W) x 254.6 (H) Typ. x 12.0(D)Typ
Electrical Interface		Dual LVDS
Support Color		16.7M colors, True 8 bit
Surface Treatment		Anti-Glare, 3H
RoHS Compliance		RoHS Compliance
Temperature Range		
Operating	[°C]	-20~ 70
Storage (Shipping)	[°C]	-20~ 70

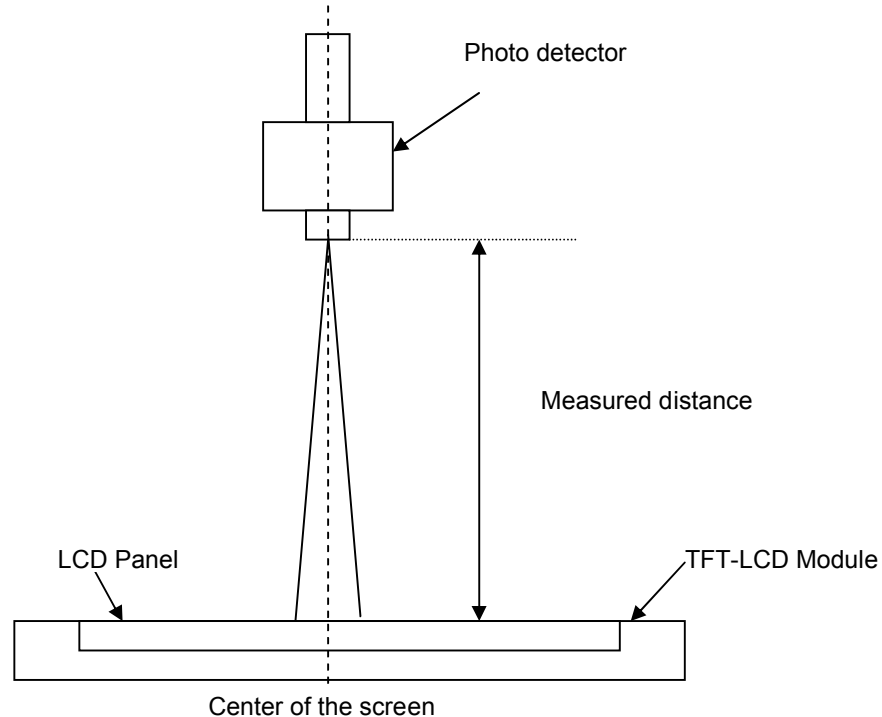
2.2 Optical Characteristics

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

Item	Unit	Conditions	Min.	Typ.	Max.	Note
Viewing Angle	[degree]	Horizontal (Right) CR >10 (Left)		89 89	- -	2
		Vertical (Up) CR > 10 (Down)		89 89	- -	
Contrast ratio		Normal Direction	800	1000	-	3
Response Time	[msec]	Raising Time (T _{RR})		10	20	4
		Falling Time (T _{RF})		10	20	
		Raising + Falling		20	40	
Color / Chromaticity Coordinates (CIE)		Red x	0.596	0.646	0.696	5
		Red y	0.283	0.333	0.383	
		Green x	0.255	0.305	0.355	
		Green y	0.565	0.615	0.665	
		Blue x	0.105	0.155	0.205	
		Blue y	0.010	0.060	0.110	
Color Coordinates (CIE) White		White x	0.249	0.299	0.349	5
		White y	0.265	0.315	0.365	
Central Luminance	[cd/m ²]		280	350		6
Luminance Uniformity	[%]		80	85		7
Color Gamut	%			70		

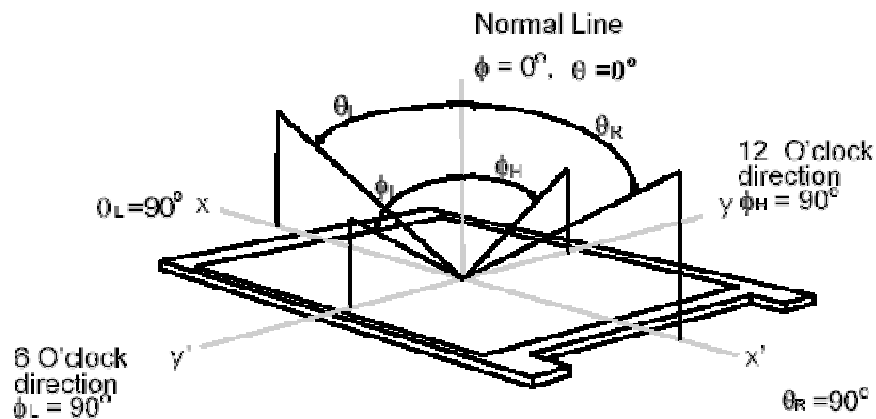
Note 1: Measurement method

The LCD module should be stabilized at given temperature for 30 minutes to avoid abrupt temperature change during measuring (at surface 35°C). In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 30 minutes in a stable, windless and dark room.



Note 2: Definition of viewing angle measured by ELDIM (EZContrast 88)

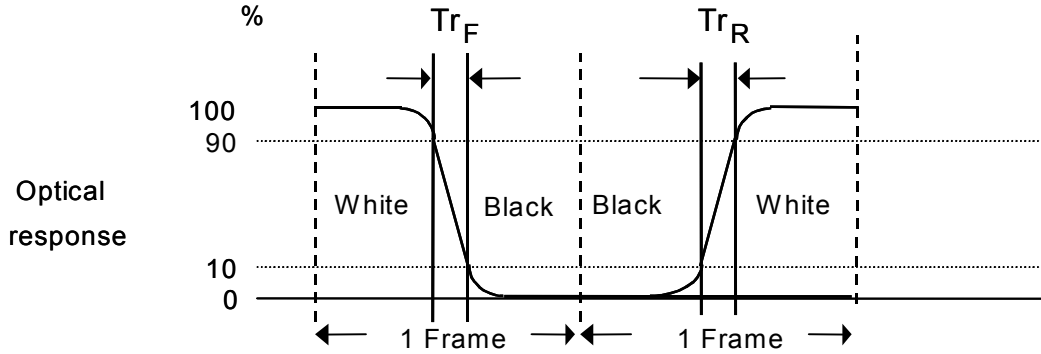
Viewing angle is the measurement of contrast ratio ≥ 10 , at the screen center, over a 180° horizontal and 180° vertical range (off-normal viewing angles). The 180° viewing angle range is broken down as follows; 90° (θ) horizontal left and right and 90° (ϕ) vertical, high (up) and low (down). The measurement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



Note 3: Contrast ratio is measured by TOPCON SR-3

Note 4: Definition of Response time measured by Westar TRD-100A

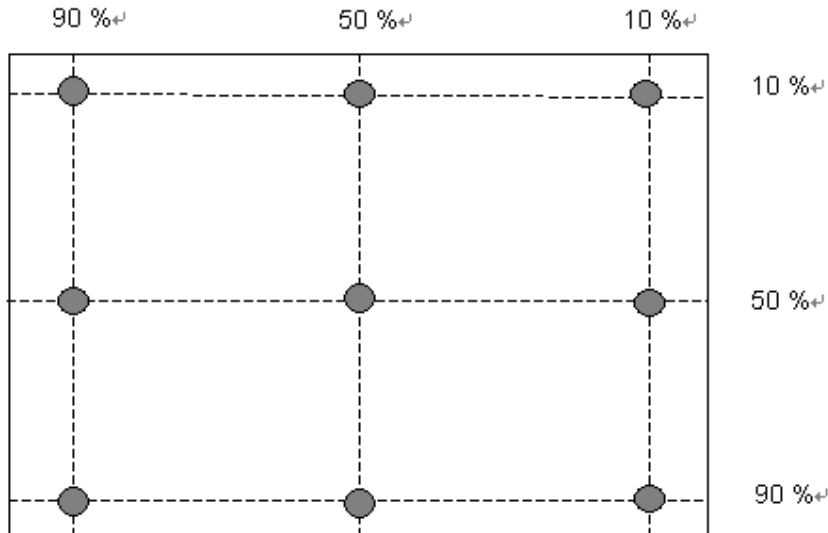
The output signals of photo detector are measured when the input signals are changed from “Full Black” to “Full White” (rising time, Tr_R), and from “Full White” to “Full Black” (falling time, Tr_F), respectively. The response time is interval between the 10% and 90% (1 frame at 60 Hz) of amplitudes. $Tr_R + Tr_F = 5$ msec (typ.).



Note 5: Color chromaticity and coordinates (CIE) is measured by TOPCON SR-3

Note 6: Central luminance is measured by TOPCON SR-3

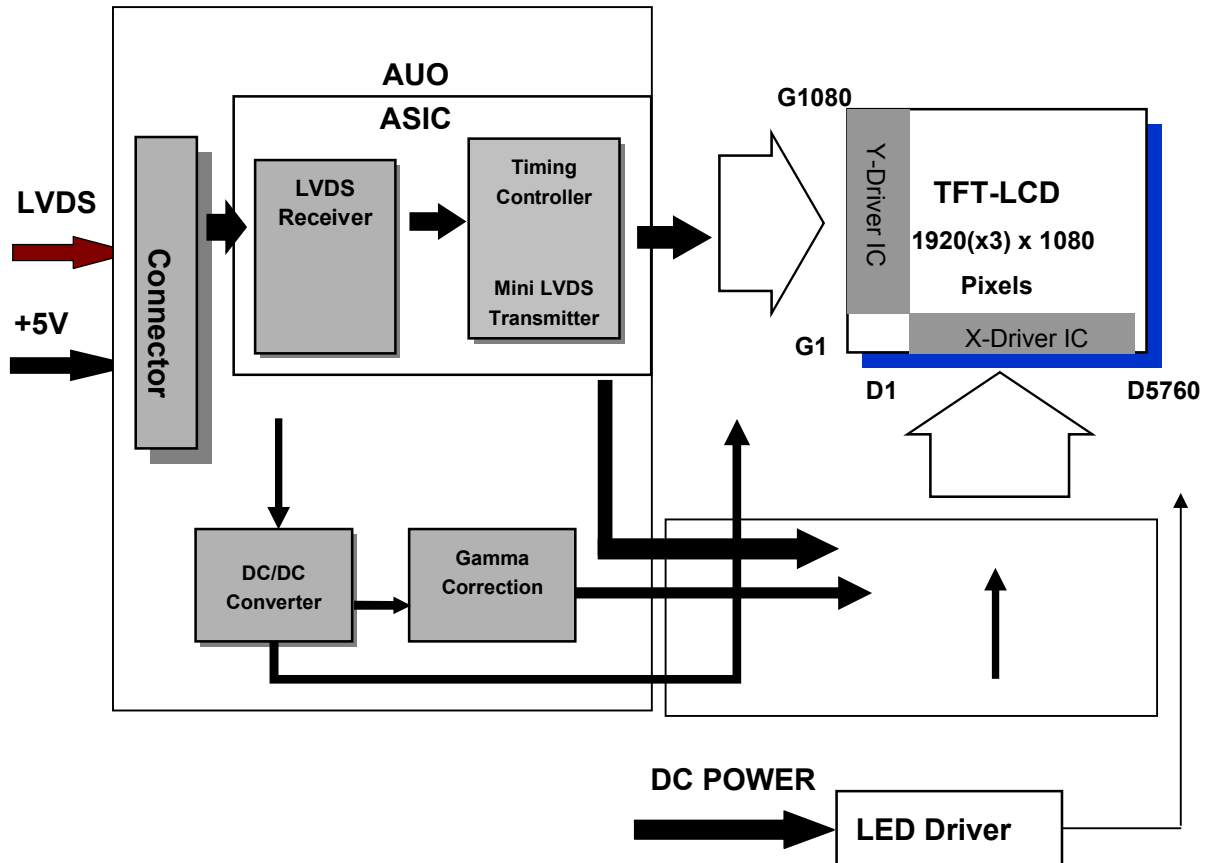
Note 7: Luminance uniformity of these 9 points is defined as below and measured by TOPCON SR-3



$$\text{Uniformity} = \frac{\text{Minimum Luminance in 9 points (1 - 9)}}{\text{Maximum Luminance in 9 Points (1 - 9)}}$$

3.0 Functional Block Diagram

The following diagram shows the functional block of the 18.5 inch Color TFT-LCD Module:



I/F PCB Interface:

FI-XB30SSRLA-HF-16-R3500 (JAE)

Mating Type:

FI-X30HL or FI-X30C2L-NPB

4.0 Absolute Maximum Ratings

Absolute maximum ratings of the module are as following:

4.1 TFT LCD Module

Item	Symbol	Min	Max	Unit	Conditions
Logic/LCD Drive Voltage	VDD	-0.3	+5.5	[Volt]	Note 1,2

4.2 Absolute Ratings of Environment

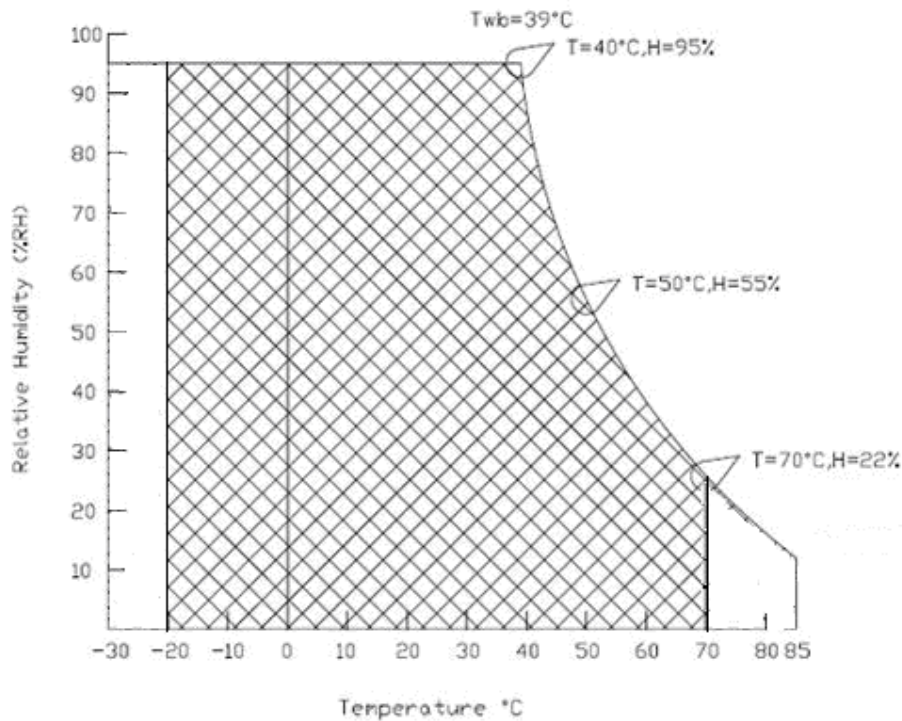
Item	Symbol	Min.	Max.	Unit	Conditions
Operating Temperature	TOP	-20	70	[°C]	Note 3 & 4
Operation Humidity	HOP	5	95	[%RH]	
Storage Temperature	TST	-20	70	[°C]	
Storage Humidity	HST	5	95	[%RH]	

Note 1: With in Ta (25°C)

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

Note 3: For quality performance, please refer to AUO IIS(Incoming Inspection Standard).

Note 4: Operation Temperature +70°C is defined as panel surface temperature.



5.0 Electrical characteristics

5.1 TFT LCD Module

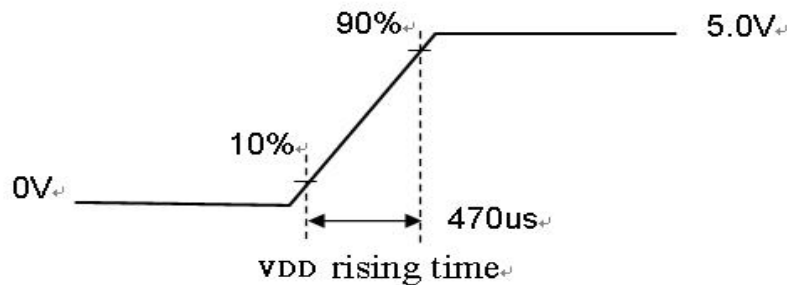
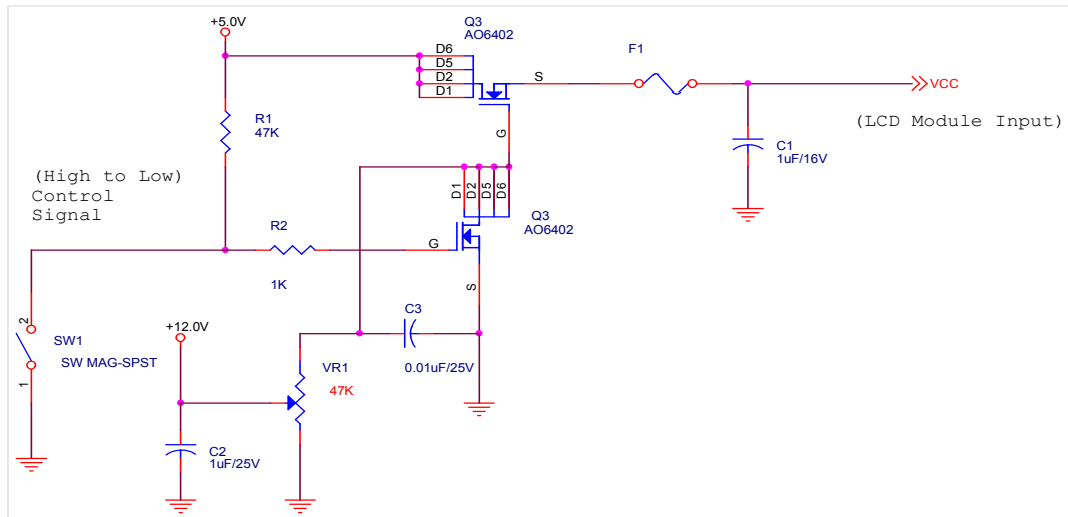
5.1.1 Power Specification

Input power specifications are as follows:

Symbol	Parameter	Min	Typ	Max	Unit	Conditions
VDD	Logic/LCD Drive Voltage	4.5	5.0	5.5	[Volt]	+/-10%
IDD	Input Current	-	0.8	1	[A]	VDD= 5.0V, All White Pattern At 60Hz,
PDD	VDD Power	-	4	5.5	[Watt]	VDD= 5.0V, All White Pattern At 60Hz
IRush	Inrush Current	-	2.7	3.4	[A]	Note 1
VDDrp	Allowable Logic/LCD Drive Ripple Voltage	-	-	300	[mV] p-p	VDD= 5.0V, All White Pattern At 60Hz

Note 1: Measurement conditions:

The duration of rising time of power input is 470us.



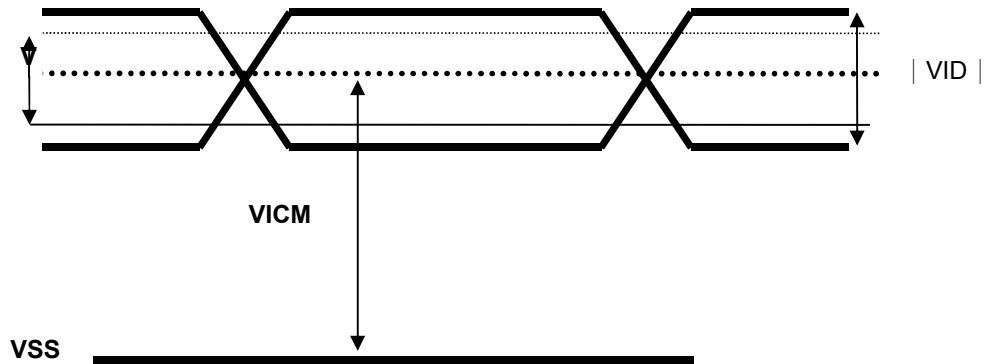
5.1.2 Signal Electrical Characteristics

Input signals shall be low or Hi-Z state when VDD is off. Please refer to specifications of SN75LVDS82DGG (Texas Instruments) in detail.

Characteristics of each signal are as follows:

Symbol	Parameter	Min	Typ	Max	Units	Condition
VTH	Differential Input High Threshold	-		100	[mV]	VICM = 1.2V Note 1
VTL	Differential Input Low Threshold	-100		-	[mV]	VICM = 1.2V Note 1
VID	Input Differential Voltage	100	400	600	[mV]	Note 1
VICM	Differential Input Common Mode Voltage	1.125	-	1.375	[V]	VTH-VTL = 200mV (max) Note 1

Note 1: LVDS Signal Waveform



5.2 Backlight Unit

Following characteristics are measured under a stable condition at 25 °C (Room Temperature):

Symbol	Parameter	Min.	Typ.	Max.	Unit	Remark
VCC	Input Voltage	10.8	12	13.2	[Volt]	
I_{VCC}	Input Current		1.04		[A]	100% PWM Duty
P_{VCC}	Power Consumption		12.5	13.6	[Watt]	100% PWM Duty
I_{rush LED}	Inrush Current	-		3	[A]	at rising time=470us
V _{LED on/off}	On Control Voltage	3	5	5.5	Volt	
	Off Control Voltage			0.8	Volt	
F_{PWM}	Dimming Frequency	200	-	20k	[Hz]	
	Swing Voltage	3	3.3	5	V	
	High Voltage	3	3.3	5	Volt	
	Low Voltage			0.8	Volt	
	Dimming Duty Cycle	5	-	100	%	
I_F	LED Forward Current		55		mA	Ta = 25 °C
V_F	LED Forward Voltage	-	3.2	3.6	Volt	I _F 55mA, Ta = 25°C
P_{LED}	LED Power Consumption	-		12.5	Watt	I _F 55mA, Ta = 25°C
Operation Lifetime		50,000			Hrs	I _F 55mA, Ta= 25°C

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

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

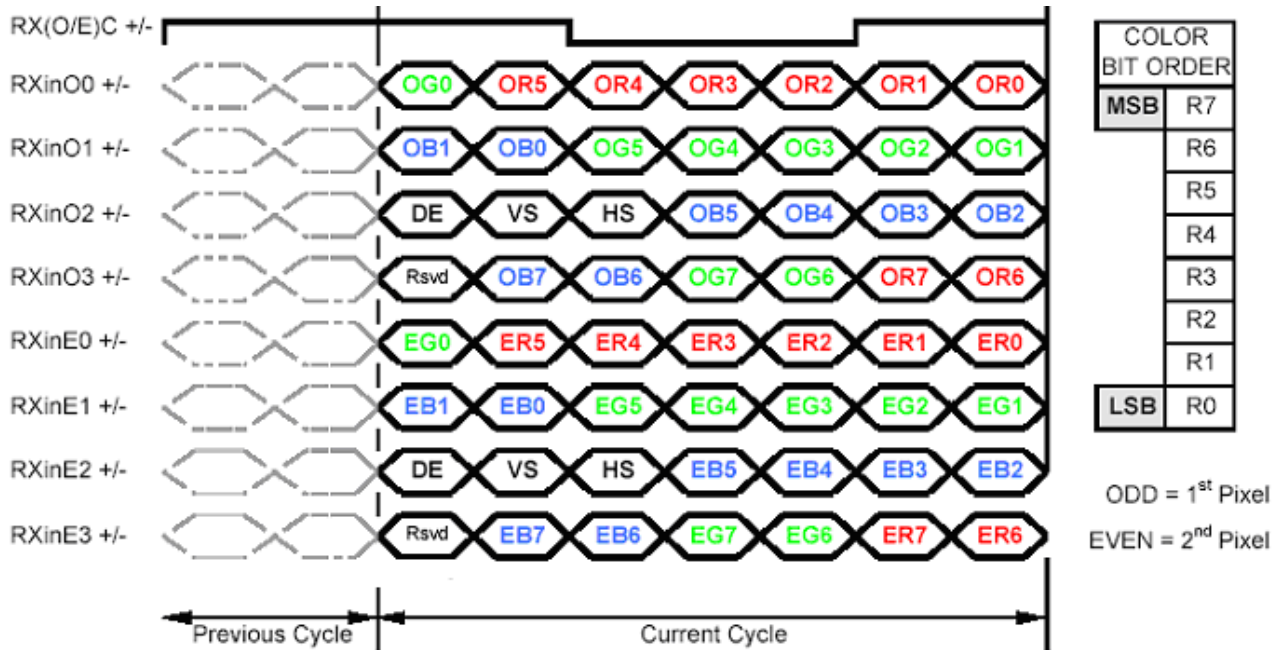
Note 3: I_F, V_F, P_{LED} are defined for single LED.

Note 4: If G185HAN01.0 module is driven by high current or at high ambient temperature & humidity condition. The operating life will be reduced.

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

Note 6: Each LED light bar consists of 63 pcs LED package (7 strings x 9 pcs / string)

6.2 The input data format



Note1: Normally DE mode only. VS and HS on EVEN channel are not used.

Note2: Please follow VESA.

Note3: 8-bits signal input.

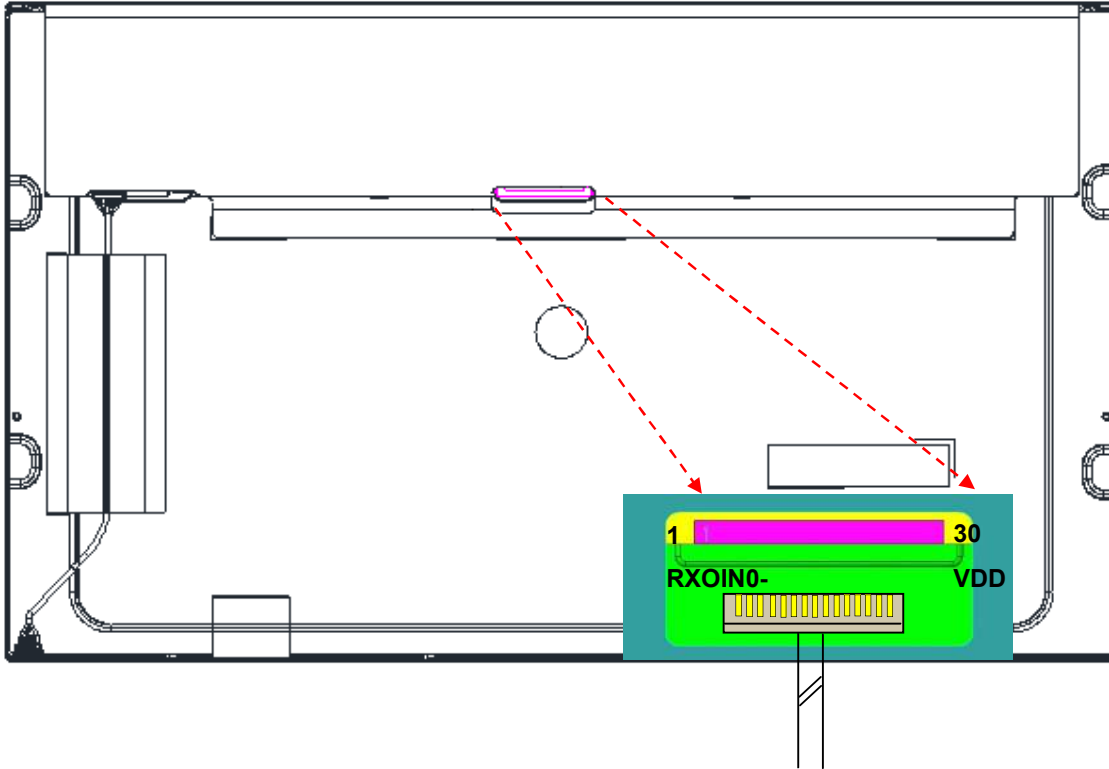


6.3 Signal Description

The module using a pair of LVDS receiver **SN75LVDS82 / SN75LVDS83** (Texas Instruments) or compatible. LVDS is a differential signal technology for LCD interface and high speed data transfer device. Transmitter shall be SN75LVDS83(negative edge sampling) or compatible. The first LVDS port(RxOxxx) transmits odd pixels while the second LVDS port(RxExxx) transmits even pixels.

PIN #	SIGNAL NAME	DESCRIPTION
1	RXOIN0-	Negative LVDS differential data input (Odd data)
2	RXOIN0+	Positive LVDS differential data input (Odd data)
3	RXOIN1-	Negative LVDS differential data input (Odd data)
4	RXOIN1+	Positive LVDS differential data input (Odd data)
5	RXOIN2-	Negative LVDS differential data input (Odd data, H-Sync,V-Sync,DSPTMG)
6	RXOIN2+	Positive LVDS differential data input (Odd data, H-Sync,V-Sync,DSPTMG)
7	GND	Power Ground
8	RXOCLKIN-	Negative LVDS differential clock input (Odd clock)
9	RXOCLKIN+	Positive LVDS differential clock input (Odd clock)
10	RXOIN3-	Negative LVDS differential data input (Odd data)
11	RXOIN3+	Positive LVDS differential data input (Odd data)
12	RXEIN0-	Negative LVDS differential data input (Even data)
13	RXEIN0+	Positive LVDS differential data input (Even data)
14	GND	Power Ground
15	RXEIN1-	Negative LVDS differential data input (Even data)
16	RXEIN1+	Positive LVDS differential data input (Even data)
17	GND	Power Ground
18	RXEIN2-	Negative LVDS differential data input (Even data)
19	RXEIN2+	Positive LVDS differential data input (Even data)
20	RXECLKIN-	Negative LVDS differential clock input (Even clock)
21	RXECLKIN+	Positive LVDS differential clock input (Even clock)
22	RXEIN3-	Negative LVDS differential data input (Even data)
23	RXEIN3+	Positive LVDS differential data input (Even data)
24	GND	Power GND
25	NC	NC
26	NC	NC
27	NC	NC
28	VDD	+5.0V Power Supply
29	VDD	+5.0V Power Supply
30	VDD	+5.0V Power Supply

Note1: Start from left side



Note2: Input signals of clock shall be the same timing.

Note3: Please follow TV VESA Pin Assignment.

6.4 Timing Characteristics

Signal	Item	Symbol	Min	Typ	Max	Unit
V-section	Period	T_v	1090	1100	1160	Th
	Active	$T_{disp(v)}$	1080	1080	1080	Th
	Blanking	$T_{bp(v)}+T_{fp(v)}+PW_{vs}$	10	20	80	Th
H-section	Period	T_h	1000	1088	1120	Tclk
	Active	$T_{disp(h)}$	960	960	960	Tclk
	Blanking	$T_{bp(h)}+T_{fp(h)}+PW_{hs}$	40	128	160	Tclk
Clock	Period	T_{clk}	11.76	13.89	15.38	ns
	Frequency	Freq.	60	72	87.5	MHz
Frame Rate	Frame Rate	$1/T_v$	50	60	75	Hz

Note 1: Only DE mode operation.

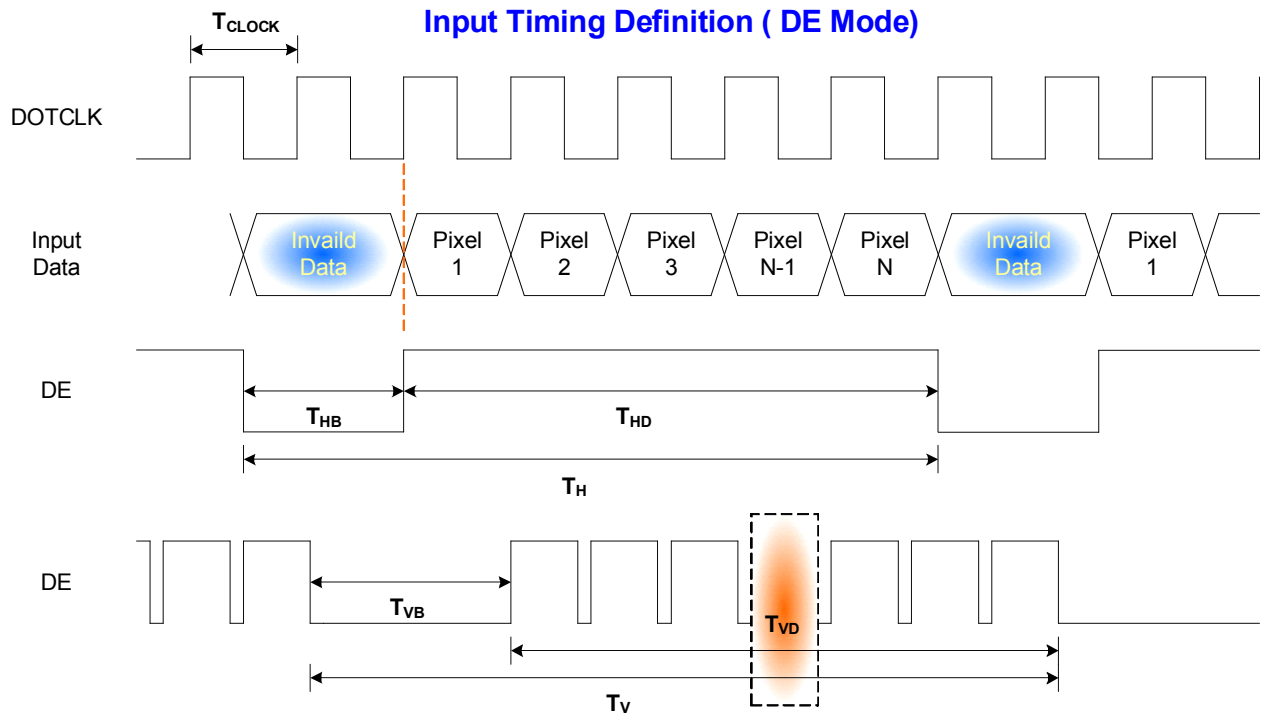
The input of Hsync & Vsync signal does not have an effect upon the LCD normal operation.

Note 2: The performance of the electro-optical characteristics may be influenced by variance of the vertical

refresh rates.

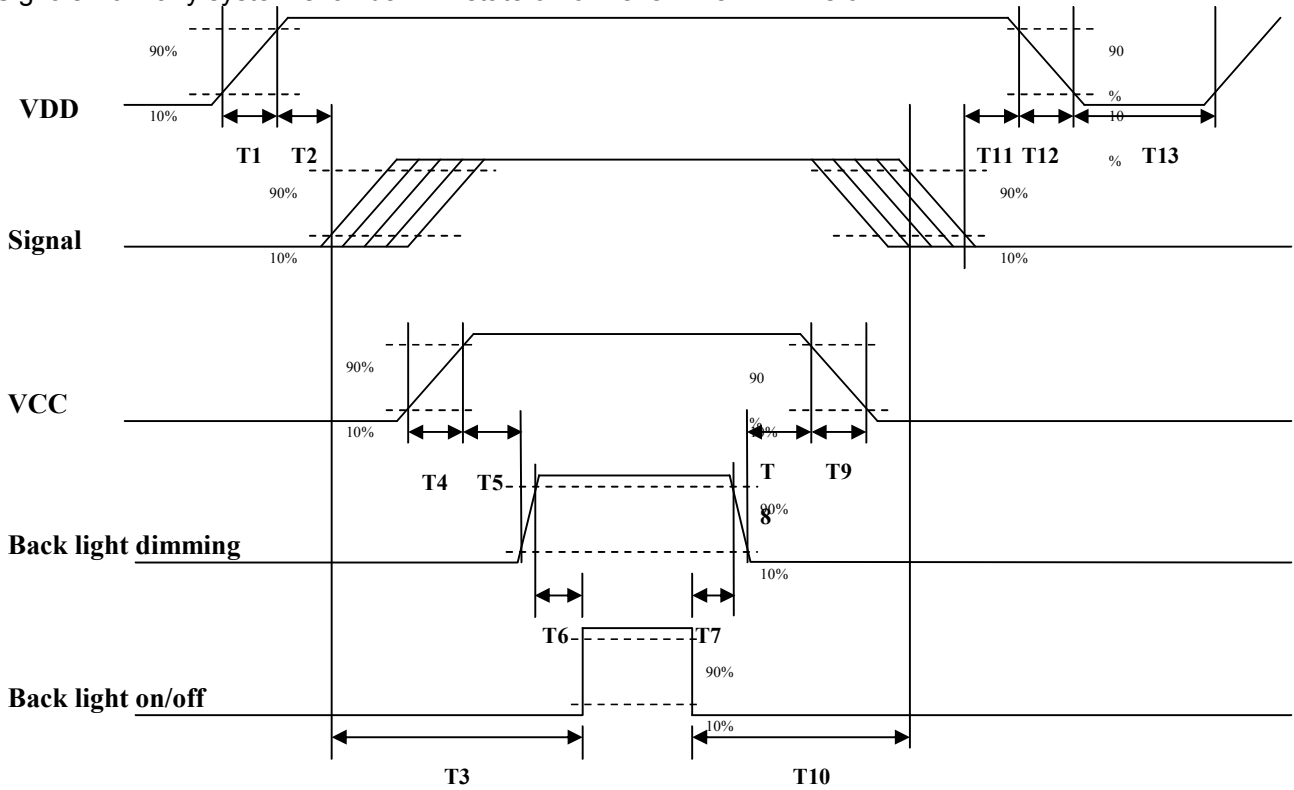
Note 3: Horizontal period should be even.

6.5 Timing diagram



6.6 Power ON/OFF Sequence

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



Power ON/OFF sequence timing

Parameter	Value			Units
	Min.	Typ.	Max.	
T1	0.5	-	10	[ms]
T2	0	40	50	[ms]
T3	200	-	-	[ms]
T4	0.5	-	10	[ms]
T5	10	-	-	[ms]
T6	10	-	-	[ms]
T7	0	-	-	[ms]
T8	10	-	-	[ms]
T9	-	-	10	[ms]
T10	110	-	-	[ms]
T11	0.5	16	50	[ms]
T12	-	-	100	[ms]
T13	1000	-	-	[ms]

7.0 Connector & Pin Assignment

Physical interface is described as for the connector on module. These connectors are capable of accommodating the following signals and will be following components.

7.1 TFT LCD Module

Connector Name / Designation	Interface Connector / Interface card
Manufacturer	JAE
Type Part Number	FI-XB30SSRLA-HF-16-R3500 (JAE)
Mating Housing Part Number	Mating Type: FI-X30HL or FI-X30C2L-NPB

7.1.1 Pin Assignment

Pin#	Signal Name	Pin#	Signal Name
1	RxOIN0-	2	RxOIN0+
3	RxOIN1-	4	RxOIN1+
5	RxOIN2-	6	RxOIN2+
7	VSS	8	RxOCLKIN-
9	RxOCLKIN+	10	RxOIN3-
11	RxOIN3+	12	RxEIN0-
13	RxEIN0+	14	VSS
15	RxEIN1-	16	RxEIN1+
17	VSS	18	RxEIN2-
19	RxEIN2+	20	RxECLKIN-
21	RxECLKIN+	22	RxEIN3-
23	RxEIN3+	24	VSS
25	NC	26	NC
27	NC	28	VCC
29	VCC	30	VCC

7.2 LED Backlight Unit: LED Driver Connector

Connector Name / Designation	LED Connector
Manufacturer	E&T or compatible
Connector Model Number	3808K-F05N-12R or compatible
Mating Connector Model Number	H208K-P05N-02B or compatible



7.3 LED Driver Connector Pin Assignment

Pin#	Symbol	Signal Name
1	VCC	12V
2	GND	GND
3	Enable	5V-On / 0V-Off
4	Dimming	PWM Dimming
5	NC	NC

8.0 Reliability Test

Environment test conditions are listed as following table.

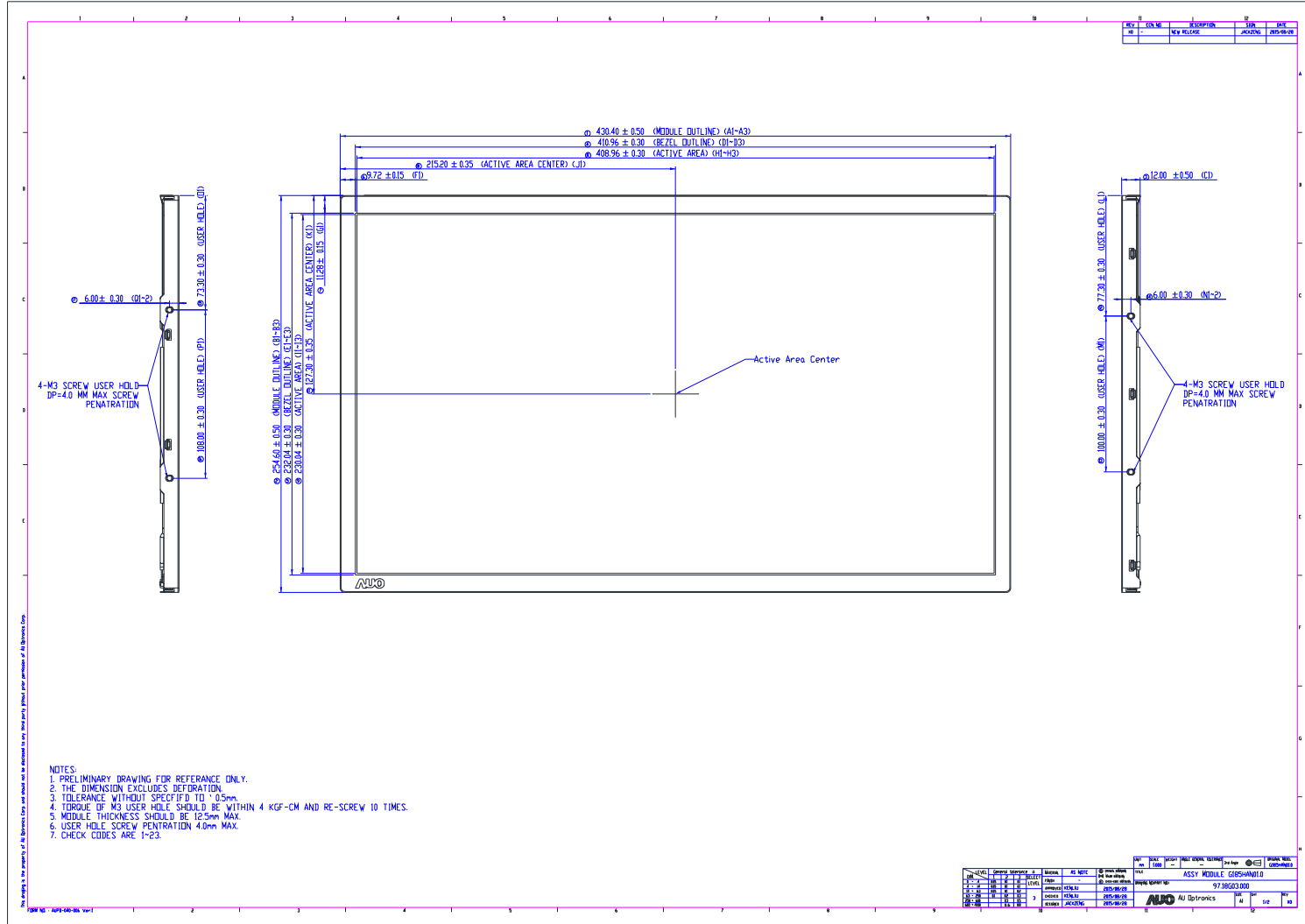
Items	Required Condition	Note
Temperature Humidity Bias (THB)	Ta= 50°C, 80%RH, 300hours	
High Temperature Operation (HTO)	Ta= 70°C, 300hours	
Low Temperature Operation (LTO)	Ta= -20°C, 300hours	
High Temperature Storage (HTS)	Ta= 70°C, 300hours	
Low Temperature Storage (LTS)	Ta= -20°C, 300hours	
Vibration Test (Non-operation)	Acceleration: 1.5 G Wave: Random Frequency: 10 - 200 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: 60 cm, package test	
Thermal Shock Test (TST)	-20°C /30min, 60°C /30min, 100 cycles	1
On/Off Test	On/10sec, Off/10sec, 30,000 cycles	
ESD (Electro Static Discharge)	Contact Discharge: ± 8KV, 150pF(330Ω) 1sec, 8 points, 25 times/ point.	2
	Air Discharge: ± 15KV, 150pF(330Ω) 1sec 8 points, 25 times/ point.	
Altitude Test	Operation:10,000 ft Non-Operation:30,000 ft	

Note 1: The TFT-LCD module will not sustain damage after being subjected to 100 cycles of rapid temperature change. A cycle of rapid temperature change consists of varying the temperature from -20°C to 60°C, and back again. Power is not applied during the test. After temperature cycling, the unit is placed in normal room ambient for at least 4 hours before power on.

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



10.0 Mechanical Characteristics



11 Safety

11.1 Sharp Edge Requirements

There will be no sharp edges or comers on the display assembly that could cause injury.

11.2 Materials

11.2.1 Toxicity

There will be no carcinogenic materials used anywhere in the display module. If toxic materials are used, they will be reviewed and approved by the responsible AUO toxicologist.

11.2.2 Flammability

All components including electrical components that do not meet the flammability grade UL94-V1 in the module will complete the flammability rating exception approval process.

The printed circuit board will be made from material rated 94-V1 or better. The actual UL flammability rating will be printed on the printed circuit board.

11.3 Capacitors

If any polarized capacitors are used in the display assembly, provisions will be made to keep them from being inserted backwards.

11.4 National Test Lab Requirement

The display module will satisfy all requirements for compliance to:

UL 60950-1, Second Edition

U.S.A. Information Technology Equipment



**18.5" PCAP Solution
12029823**

Date: 12/20/2018

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1 Scope

DATA MODUL's PCAP solution 12029823 consists of a 18.5" capacitive touch screen. Please note that this is only a sub-assembly of the final product. The specification of the final end product might differ from this specification.

2 Touch Sensor and Cover Glass

2.1 Technical Parameters

Screen size	18.5 inch /47.0 cm
Format	Wide
Composite	SITO with Tail
Outline dimensions	428.3 x 250.0 x 1.1 mm (WxHxT)
Active area	413.6 x 234.2 mm (WxH)
Carrier glass	n.a. mm
Bending radius of tail	R = 2 mm recommended
Transmissivity	90% (min.)
Haze	3% (max.)
Operating temperature and humidity	-30 to +85°C, < 90% RH
Storage temperature and humidity	-40 to +95°C, < 80 % RH
Tail connector	Hirose FH28H-80S-0.5SH, Hirose FH28H-50S-0.5SH

2.2 Reliability Tests

Low Temperature Storage Test	-40°C for 480h
High Temperature Storage Test	95°C for 480h
High Temperature / High Humidity Test	85°C, 85% RH for 480h
Cycle test	-40°C(30min), 85°C(30min), 500cycles

3 Recommended Touch Controller

The recommendation for this PCAP solution is a controller based on mXT2952T2. Please ask your local DATA MODUL sales representative for further details.

4 Optical Inspection Criteria and Handling Recommendations

4.1 Optical Inspection Criteria

For details on the optical inspection criteria, please refer to DATA MODULs Outgoing Spec or ask your local DATA MODUL sales representative.

4.2 Handling Recommendations

Precautions for operation

- Do not put a heavy, hard or sharp object on the product
- Do not bend the product in order to assure the reliability
- Do not put one product on the other. Otherwise, it may cause the product to be scratched
- Don't use any organic solvent acid or alkali solution.

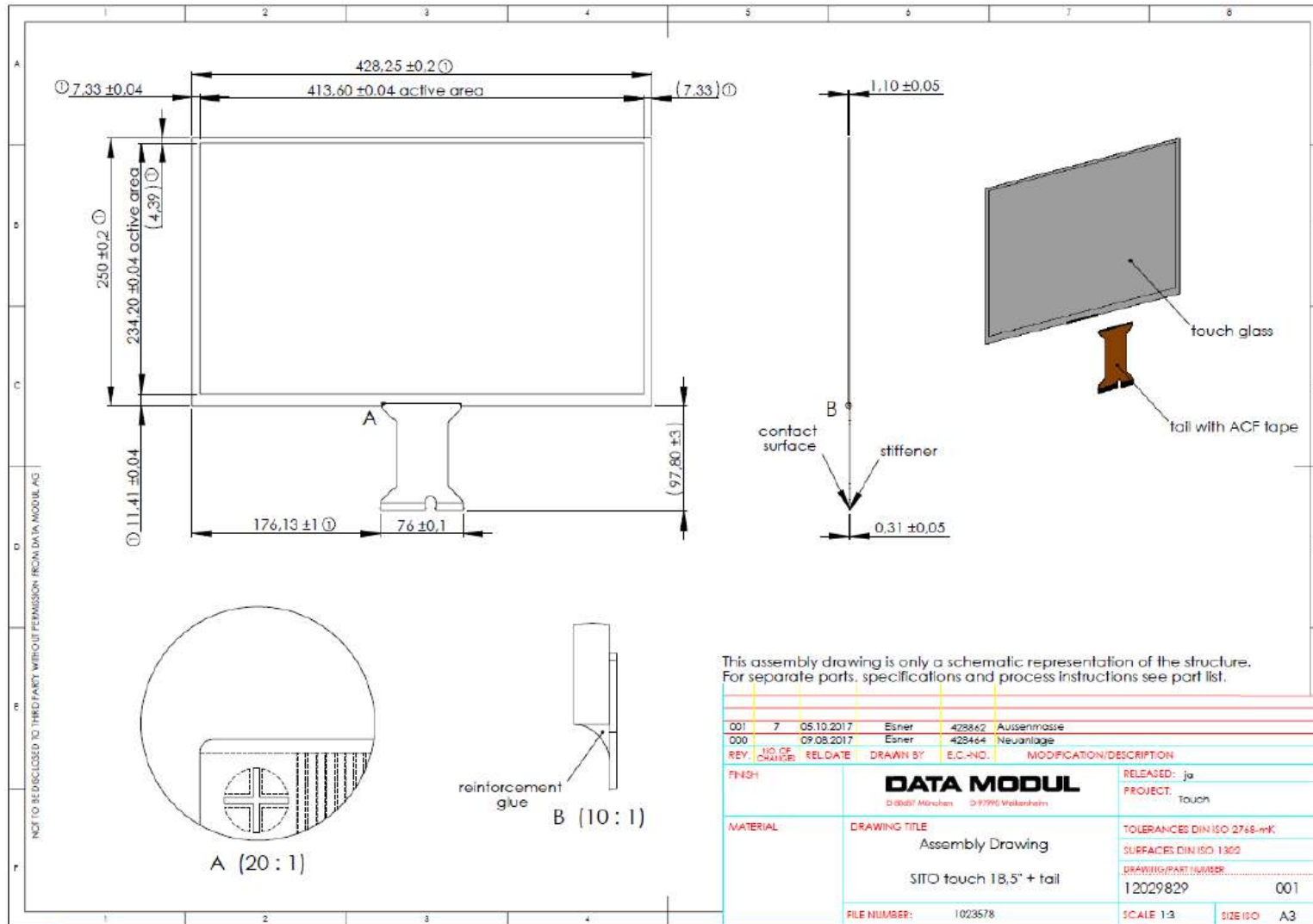
Precautions for mounting

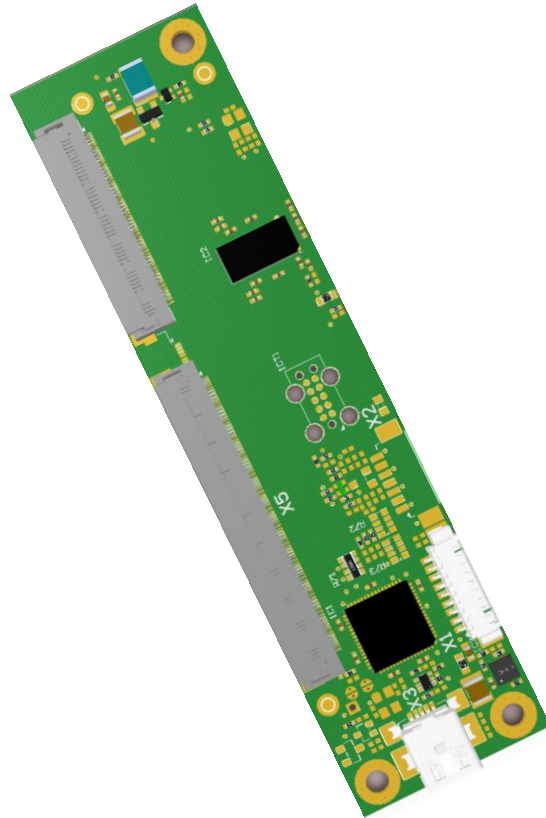
- The panel should be mounted using a configuration that either holds the panel by all four corners or by all four sides
- The bezel edge must be positioned outside the active area. The bezel may cause false activation if the edge overlaps the active area
- Any mounting configuration should ensure that there is no twisting force applied to the panel
- 1mm distance between TFT screen and touch panel is recommended

Precautions for tail

- The flex tail in general can be bent with a min. radius of about 1mm
- In order to avoid damaging and malfunction of the sensor, please don't bend the FPC area next to the panel
- Excess or repeated bending of the FPC connector should also be avoided

5 Appendix A: Technical Drawing





easyTOUCH mXT2952T2 2-tail PCAP USB controller

Revision: 003

Date: 2016-03-29

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1 Introduction

The easyTouch mXT2952T2 Controller is designed as a part of the capacitive touch systems developed by Data Modul. It offers the possibility to connect a projective capacitive touch sensor to standard computers or embedded systems using USB.

The controller is based on the Atmel maXTouch 2952T2 which offers a very good touch performance and high noise resistance. To get the best touch performance with water and glove usage the mXT2952T2 has integrated self-capacitance technology. In combination with the mutual-capacitance entity the controller is applicable for single- and multi-touch. Together with outstanding filter technology the maXTouch ICs are suitable for industrial, medical and other applications.

For the communication with the OS the controller uses Data Modul's Driverless firmware. The firmware connects as a Human Interface Device (HID) without an additional driver to the most popular operating systems like Windows XP, Windows 7 / 8, Windows CE5/6/7, OSX and Linux. For more information about the Data Modul Driverless firmware please refer to the *Driverless Controller User Guide*.

2 Controller specification

2.1 Mechanical features

Size	105x27x6 mm
Operating temperature	-40 to +85 °C
Storage temperature	-40 to +85 °C
Temperature slew rate	10 °C /minute (max.)
Relative humidity	95 % at 60 °C no condensation
RoHS compliant	Yes

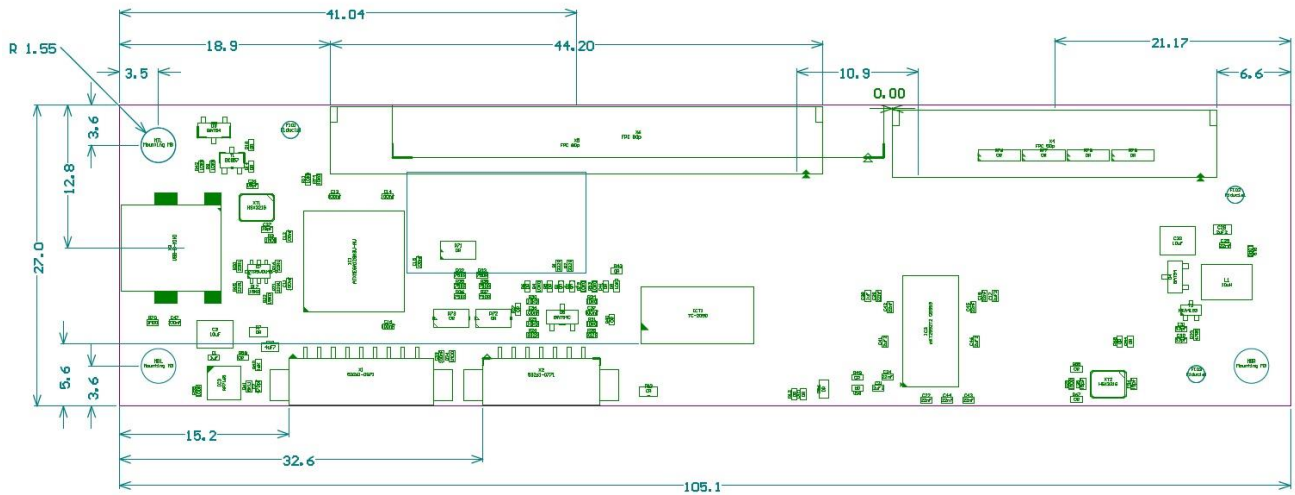
2.2 Connection features

Protocol	HID mouse, HID digitizer
Multi touch	16 fingers (max.)
Single touch	HID mouse with right mouse button emulation
Resolution	4096 x 4096 (x/y)
Report rate	>100 Hz for 15 touches, subject to configuration
USB connector	Mini USB or Molex 53261-0971

2.3 Electrical features

Power supply	5 V± 5%
Vin ripple	±50 mV peak-peak (max.)
On board voltage	3.3 V and 8.5 V
Power consumption	500 mW (max. subject to configuration)

3 Mechanical drawing



Height: 6 mm (including components)

4 Connectors and signals

4.1 Connectors

Connector	Type	Connection
X1	1.25 mm Pitch 9 pin header Molex 53261-0971 compatible	USB
X3	Mini USB connector	USB
X4	0.5 mm pitch 50 pin header	Flextail to touch sensor
X5	0.5 mm pitch 80 pin header	Flextail to touch sensor

4.2 X1 pin assignment

X1	Signal	Description
1	VDD_5V	USB power supply
2	USB DM	USB signal -
3	USB DP	USB signal +
4		Do not use
5		Do not use
6		Do not use
7		Do not use
8		Do not use
9	GND	Ground

Matching USB cable (length 2m): Article number **TP72241**

5 UL information

Part	Type	UL number
X1	1.25 mm pitch 9 pin header MOLEX 53261-0971 compatible	Molex 53261-xx71: E29179 or YeonHo 12505WR-xx: E108706
X3	Mini USB connector	FCI 10033526-N3212LF or W+P 8233-2-05-60-FTR/SW: Thermoplastic UL94V-0
X4	0.5 mm pitch 50 pin header	Hirose FH28D-xxS-0.5SH(05): LCP resin (UL94V-0)/gray LCP resin (UL94V-0)/black
X5	0.5 mm pitch 80 pin header	Hirose FH28H-xxS-0.5SH(05): LCP resin (UL94V-0)/gray LCP resin (UL94V-0)/black
PCB		Fastprint: E204460

7 Appendix: Frequently asked questions

Touch coordinates are not stable and the cursor is “jumping around”?

In mains-operated systems this can happen if the touch controller is missing the systems ground reference. Another reason can be an extreme amount of noise present that exceeds the touch threshold set in the controller.

Please connect the system ground reference to one of the mounting holes. For best touch performance the touch controller needs a low impedance AC connection to the person that operates the system to achieve a good current loop back to the controller.

If the instability is caused by a noise source like a display, a switching regulator or a RF antenna your system may have an integration issue. With proper settings the controller can most likely suppress the noise. However, eliminating the noise source should be the first thing to check. If you have any difficulties to find the correct settings, please contact Data Modul.



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