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Datasheet

AUO

G270ZAN01.0

UP-02-234

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( ) Preliminary Specifications
(v) Final Specifications

Module	27.0 Inch Color TFT-LCD
Model Name	G270ZAN01.0

Customer	**Date**	**Approved by**	**Date**
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Contents

1. Operating Precautions 4
2. General Description 5
2.1 Display Characteristics 5
2.2 Optical Characteristics 6
3. Functional Block Diagram 9
4. Absolute Maximum Ratings 10
4.1 Absolute Ratings of TFT LCD Module 10
4.2 Absolute Ratings of Environment 10
5. Electrical Characteristics 11
5.1 TFT LCD Module 11
5.2 Backlight Unit 13
6. Signal Characteristic 15
6.1 Pixel Format Image 15
6.2 Scanning Direction 16
6.3 Signal Description 17
6.4 The Input Data Format 20
6.5 Interface Timing 22
6.6 Power ON/OFF Sequence 23
7. Reliability Test Criteria 24
8. Mechanical Characteristics 25
8.1 LCM Outline Dimension 25
9. Label and Packaging 27
9.1 Shipping Label (on the rear side of TFT-LCD display) 27
9.2 Carton Package 28
10 Safety 28
10.1 Sharp Edge Requirements 29
10.2 Materials 29
10.3 Capacitors 29
10.4 National Test Lab Requirement 29

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Record of Revision

Version	Date (yyyy/m/d)	Page	Old description	New Description
1.0	2017/06/12	All	first edition of final spec	
2.0	2017/12/21	p.14 p.28		Upgrade LED lifetime spec Update carton package

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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 light bar 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) 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 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) Severe temperature condition may result in different luminance, response time and lamp ignition voltage.
14) Continuous operating TFT-LCD display under low temperature environment may accelerate lamp exhaustion and reduce luminance dramatically.
15) The data on this specification sheet is applicable when LCD module is placed in landscape position.
16) Continuous displaying fixed pattern may induce image sticking. It's recommended to use screen saver or shuffle content periodically if fixed pattern is displayed on the screen.

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2. General Description

This specification applies to the Color Active Matrix Liquid Crystal Display G270ZAN01.0 composed of a TFT-LCD display, a driver and power supply circuit, and a LED backlight system. The screen format is intended to support the UHD (3840(H) x 2160(V)) screen and 1.07B colors.

LED driving board for backlight unit is included. All input signals are 8 lanes eDP interface compatible.

2.1 Display Characteristics

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

Items	Unit	Specifications
Screen Diagonal	[inch]	26.93" (684mm)
Active Area	[mm]	596.16 (H) x 335.34 (V)
Resolution		3840(x3) x 2160
Pixel Pitch	[mm]	0.15525 (per one triad) x 0.15525
Pixel Arrangement		R.G.B. Vertical Stripe
Display Mode		AHVA mode, Normally Black
Nominal Input Voltage VDD	[Volt]	+12V (Typ)
Power Consumption	[Watt]	Total = 60.0W (Typ) (LCD =10.8W, BLU =49.2W)
Weight	[Grams]	3400 (Typ)
Physical Size	[mm]	630.0 (H) x 368.2 (V) x 22.9 (D) (Typ)
Electrical Interface		8-lanes eDP , 8bits RGB data input
Surface Treatment		Anti-Glare treatment
Support Color		1.07B colors (8bit+Hi FRC)
Temperature Range Operating Storage (Non-Operating)	 [°C] [°C]	 0 to +50 -20 to +60
RoHS Compliance		

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2.2 Optical Characteristics

The optical characteristics are measured under stable conditions at 25°C (Room Temperature):

Item	Unit	Conditions		Min.	Typ.	Max.	Note
White Luminance	cd/m^2	I_{LED}=70mA(center point)		640	800		1
Uniformity	%	9 points		80	85		2,3
Contrast Ratio	--			700	1000		4
Response Time	msec	Rising					5
		Falling					
		Rising + Falling			16	25	
Viewing Angle	degree	Horizontal CR >= 10	(Right)	75	89		6
			(Left)	75	89		
		Vertical CR >= 10	(Upper)	70	89		
			(Lower)	70	89		
Color / Chromaticity Coordinates (CIE 1931)	--	Red x		0.653	0.683	0.713	
		Red y		0.272	0.302	0.332	
		Green x		0.239	0.269	0.299	
		Green y		0.625	0.655	0.685	
		Blue x		0.119	0.149	0.179	
		Blue y		0.012	0.042	0.072	
		White x		0.283	0.313	0.343	
		White y		0.299	0.329	0.359	

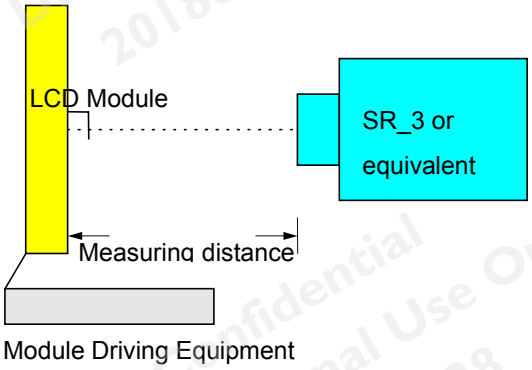
Note 1: Measurement method

Equipment Pattern Generator, Power Supply, Digital Voltmeter, Luminance meter (SR_3 or equivalent)

Aperture 1° with 50cm viewing distance

Test Point Center

Environment *< 1 lux*



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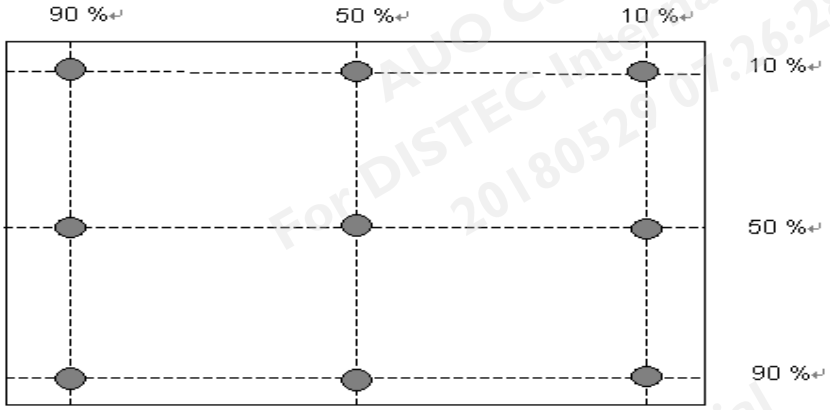
Note 2: Definition of 9 points position



Note 3: The luminance uniformity of 9 points is defined by dividing the minimum luminance values by the maximum test point luminance

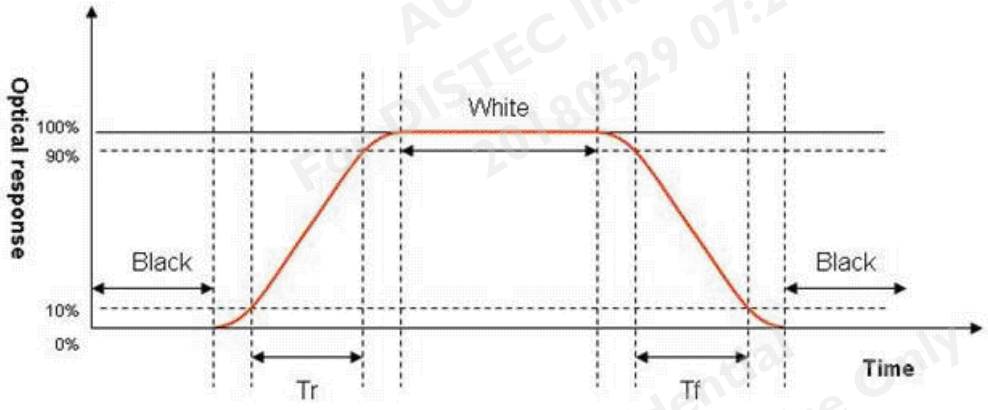
$$\delta_{W9} = \frac{\text{Minimum Brightness of nine points}}{\text{Maximum Brightness of nine points}}$$

Note 4: Definition of contrast ratio (CR):

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

Note 5: Definition of response time:

The output signals of photo detector are measured when the input signals are changed from “White” to “Black” (falling time) and from “Black” to “White” (rising time), respectively. The response time interval is between 10% and 90% of amplitudes. Please refer to the figure as below.



Note 6: 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 below: 90° (θ) horizontal left and right, and 90° (Φ) vertical high (up) and low (down). The measurement direction is typically

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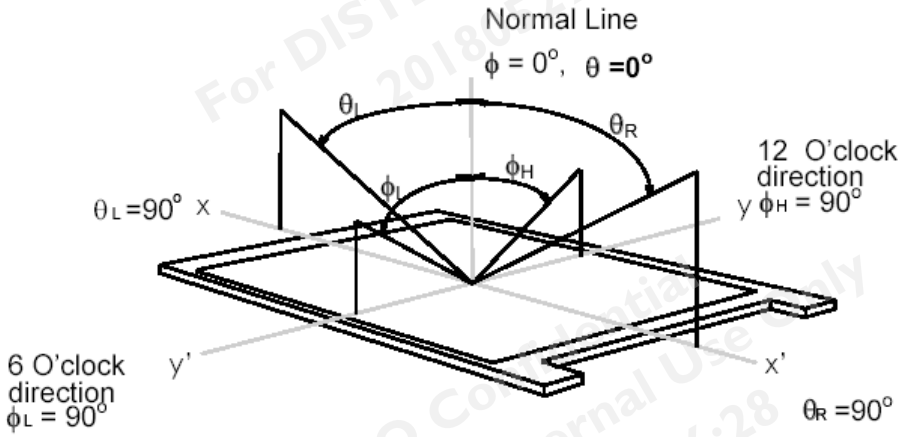
perpendicular to the display surface with the screen rotated to its center to develop the desired measurement viewing angle.



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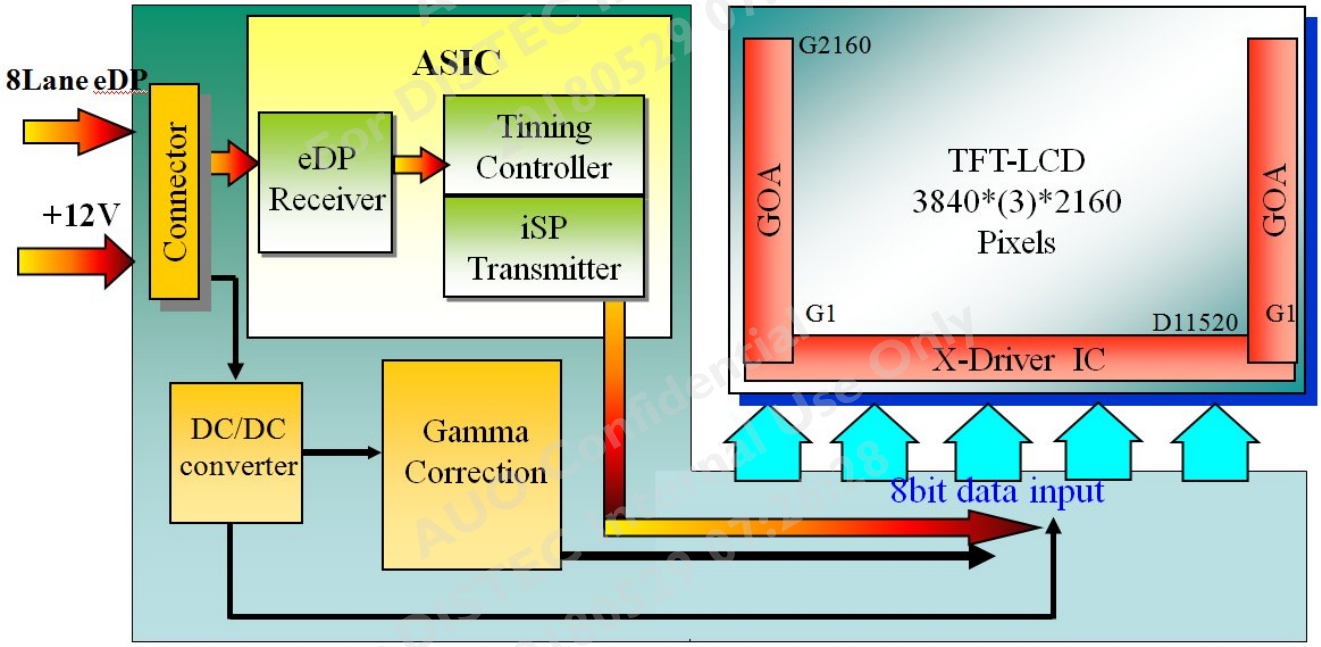
3. Functional Block Diagram

The following diagram shows the functional block of the 27.0 inch color TFT/LCD module:



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4. Absolute Maximum Ratings

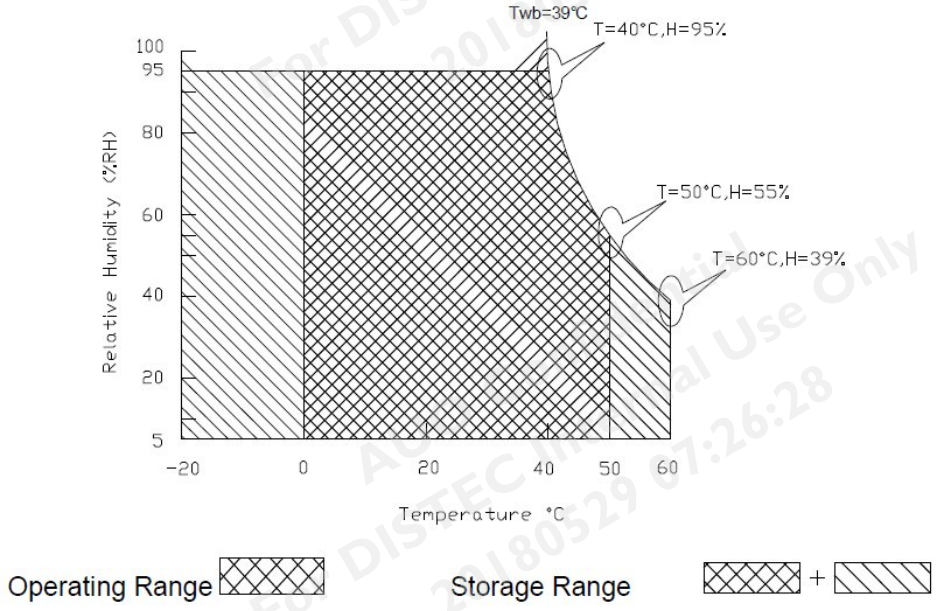
4.1 Absolute Ratings of TFT LCD Module

Item	Symbol	Min	Max	Unit
Logic/LCD drive Voltage	Vin	GND-0.3	14	[Volt]

4.2 Absolute Ratings of Environment

Item	Symbol	Min	Max	Unit
Operating Temperature	TOP	0	+50	[°C]
Operation Humidity	HOP	5	90	[%RH]
Storage Temperature	TST	-20	+60	[°C]
Storage Humidity	HST	5	90	[%RH]

Note: Maximum Wet-Bulb should be 39 °C and no condensation.



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5. Electrical Characteristics

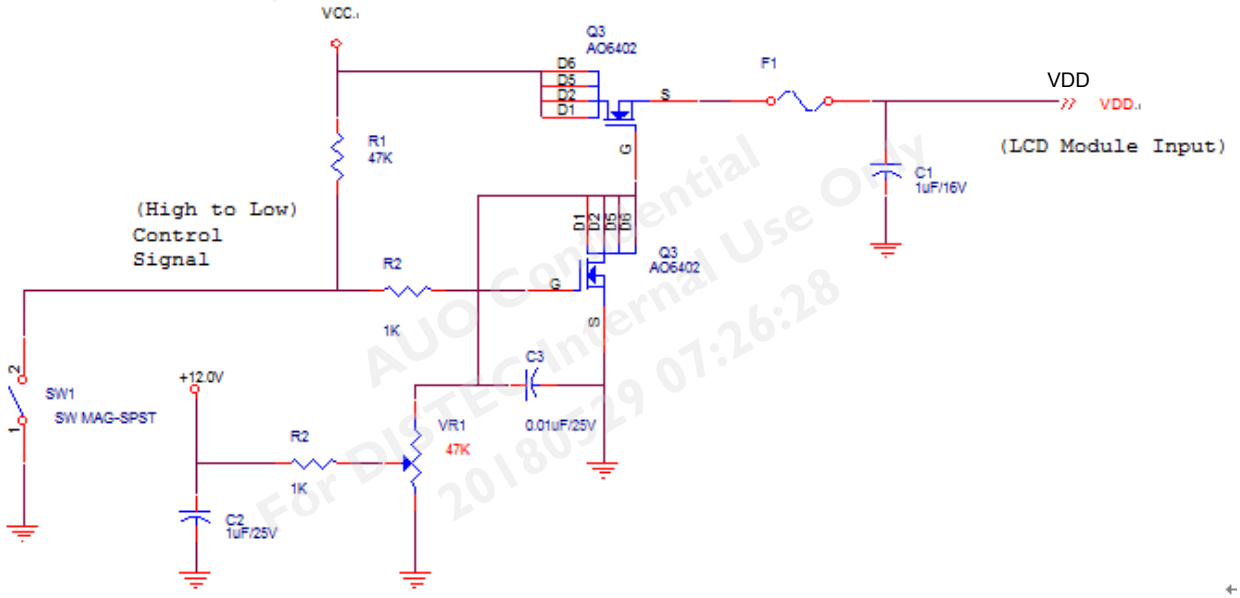
5.1 TFT LCD Module

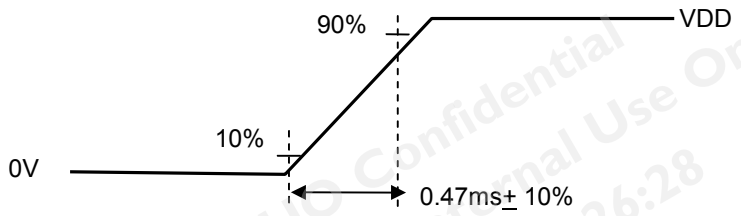
5.1.1 Power Specification

Input power specifications are shown as follows;

Symbol	Parameter	Min	Typ	Max	Units	Remark
VDD	Power supply Input voltage	10.8	12.0	13.2	[Volt]	
IDD	Power supply Input Current (RMS)	-	0.90	1.08	[A]	VDD= 12.0V, White pattern, Fv=60Hz
IRush	Inrush Current	-	-	3.0	[A]	***Note 1***
PDD	VDD Power Consumption	-	10.8	11.88	[Watt]	VDD= 12.0V , White pattern, Fv=60Hz
VDDrp	Allowable VDD Ripple Voltage	-	-	VDD* 5%	[mV]	VDD= 12.0V, White pattern, Fv=60Hz

Note 1: Measurement condition:





VDD rising time

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5.1.2 eDP Electrical Characteristics

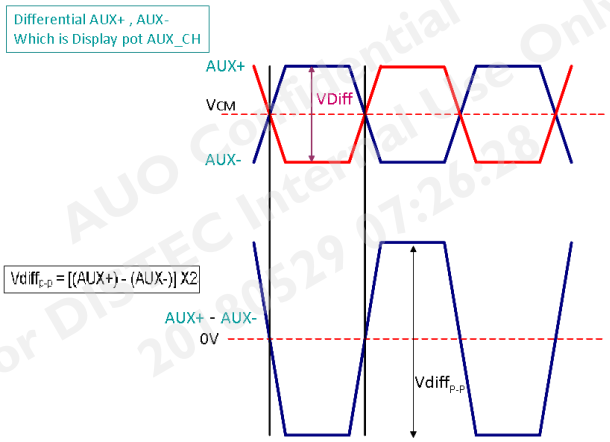
Follow as VESA DisplayPort Standard Version 1.2

a. DisplayPort main link signal:

DisplayPort main link					
		Min	Typ	Max	unit
VCM	RX input DC Common Mode Voltage	0	-	2.0	V
$VDiff_{P-P}$	Peak-to-peak Voltage at a receiving Device	150	-	-	mV

b. DisplayPort AUX_CH signal:

DisplayPort AUX_CH					
		Min	Typ	Max	unit
VCM	AUX DC Common Mode Voltage	0	-	2.0	V
$VDiff_{P-P}$	AUX Peak-to-peak voltage at a receiving device	0.27	-	1.36	V



c. DisplayPort VHPD signal:

DisplayPort VHPD					
		Min	Typ	Max	unit
VHPD	HPD Voltage	2.25	-	3.6	V

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