

PRODUCT SPECIFICATION
FOR LCD MODULE

MODEL NO.	VX50431-TY036LA
TYPE	LCD display MODULE 段码屏
Revision	A

- ☐ Approved Product Specification only
- ☒ Approved Product Specification and Samples

			CUSTOMER
PREPARED	CHECKED	APPROVED	APPROVED
HGZ	/	ZNH	

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RECORDS OF REVISION

DATE	REVISED NO.	REVISED DESCRIPTIONS	PREPARED	CHECKED	APPROVED
2025-03-14	A	New release	HGZ	/	ZNH

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1. GENERAL SPECIFICATIONS

1-1.DESCRPTION:

The VX50431-TY036LA is a dot matrix mono Liquid Crystal Display Module(LCM).
This specification covers the delivery requirements for the liquid crystal display delivered by
Victronix Tecenstar INT'L CO., LTD to Customer.

1-2. FEATURES

- (1) Display Type: VA, Negative, transmissive, 12 O'clock
- (2) Driving Method: 1/4D,1/3B
- (3) Built-in controller:TBD
- (4) With Backlight:WHITE(VF=3.0V,IF=60mA)

1-3.GENERAL SPECIFICATION

ITEM	SPECIFICATIONS	UNIT
DISP.CONSTRUCTION	段码屏	--
OUTLINE DIMEMSIONS	106.4(W) x 43.0(H) x 11.2(T)(Not Included FPC)	mm
VIEWING AREA	94.54(W)*35.5(H)	mm
ACTIVE AREA	87.7(W) x 29.5(H)	mm
DOT SIZE	TBD	mm
DOT PITCH	TBD	mm
ASSY.TYPE	PIN	--
INTERFACE	TBD	--
BACKLIGHT	WHITE(VF=3.0V,IF=60mA)	--

[illegible]

4.0	COM 调到右边	SYM	2025-02-21	Victorinox Tecenstar INT'L Co., LTD			
3.0	改背光	SYM	2025-02-15				
2.0	改V/A模式和温度	SYM	2025-02-14				
1.0	新版发行	SYM	2025-02-11	设计	设计	设计	设计
备注	更改规格	设计	日期	标准	设计	设计	设计

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3. ABSOLUTE MAXIMUM RATING

ITEM	SYMBOL	STANDARD VALUE			UNIT
		MIN	TYP	MAX	
SUPPLY VOLTAGE FOR LOGIC	VDD	--	--	--	V
INPUT VOLTAGE	VIN	--	--	--	V
OPERATING TEMPERATURE	T _{OP}	-20	--	70	°C
STORAGE TEMPERATURE	T _{STG}	-30	--	80	°C

4.ELECTRICAL CHARACTERISTICS

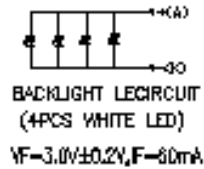
ITEM	SYMBOL	CONDITIONS	STANDARD VALUE			UNIT
			MIN	TYP	MAX	
SUPPLY VOLTAGE FOR LOGIC	VDD	Ta= 25°C	--	--	--	V
SUPPLY VOLTAGE FOR LCD	V0-XV0		--	5.0	--	V
INPUT VOLTAGE “H” LEVEL	VIH		0.8VDD	--	VDD	V
INPUT VOLTAGE “L” LEVEL	VIL		VSS	--	0.2VDD	V
OUTPUT VOLTAGE “H” LEVEL	VOH		0.8VDD	--	VDD	V
OUTPUT VOLTAGE “L” LEVEL	VOL		VSS	--	0.2VDD	V
CURRENT CONSUMPTION (CHECKER)	IDD		--	--	--	mA

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5. LED BACKLIGHT

5-1 LED CIRCUIT:



5-2.ABSOLUTE MAXIMUN RATING

PARAMETER	SYMBOL	SPECIFICATIONS	UNIT
POWER DISSIPATION	PD	--	mW
FORWARD CURRENT	Ifm	60	mA
REVERSE VOLTAGE	Vr	5.0	V
OPERATION TEMPERATURE	TOPR	-20~70	°C
STORAGE TEMPERATURE	TSTG	-30~80	°C

5-3. ELECTRICAL CHARACTERISTICS (Ta=25°C)

PARAMETER	SYMBOL	LIGHT SOURCE	CONDITIONS	STANDARD VALUE			UNIT
				MIN	TYP	MAX	
FORWARD VOLTAGE	VF	WHITE	IF=60mA	-	3.0	-	V
REVERSE CURRENT	IR		Vr= 5.0V/LED	-	-	10	uA
BL BRIGHTNESS	Lv		IF=60mA	-	-	-	cd/m ²
CIE Color Coordinate(without LCD)	X		IF=60mA	-	-	-	--
	Y		IF=60mA	-	-	-	
LUMINOUS UNIFORMITY	Δ		IF=60mA	-	-	-	--

Note: Uniformity $\Delta = (\text{minum LV} / \text{maximum LV}) * 100\%$.

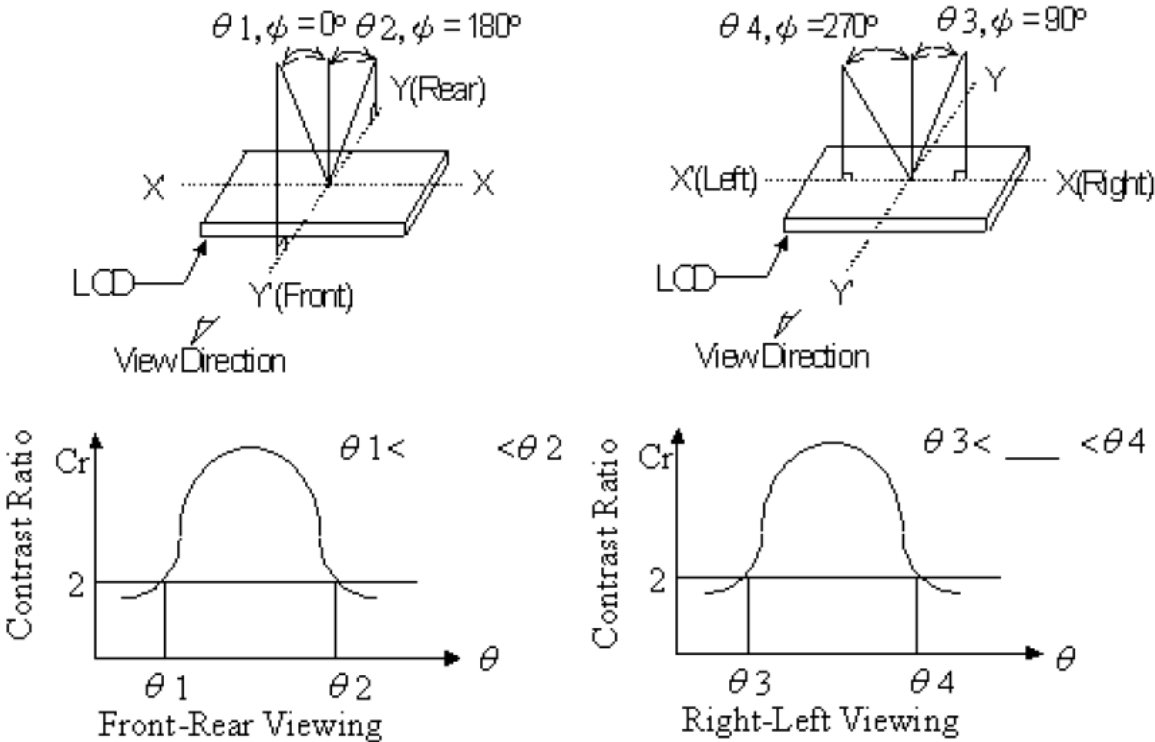
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6.OPTICAL CHARACTERISTICS

Item	Symbol	Condition	Min	Typ	Max	Unit	Remark	Note
Viewing angle range	θ (Cr ≥ 2)	$\Phi = 90^{\circ}$	---	25	---	deg	FIG 5.	6
		$\Phi = 270^{\circ}$	---	45	---	deg	FIG 5.	6
		$\Phi = 0^{\circ}$	---	45	---	deg	FIG 5.	6
		$\Phi = 180^{\circ}$	---	45	---	deg	FIG 5.	6
Response time	Tr	$\theta=0^{\circ}$ $\Phi=0^{\circ}$ Ta=25℃	---	80	---	ms	FIG.3	4
	Tf		---	30	---	ms	FIG.3	4
Contrast ratio	Cr		---	10	---	---	FIG 4.	1
Luminance uniformity	δ --		70	80	---	%	FIG 4.	3
Surface Luminance	Lv		--	--	---	cd/m ²	FIG 4.	2
CIE(x,y) chromaticity	--	x	0.232	0.292	0.352	---	FIG 4.	5
		y	0.273	0.333	0.393	---		

(1) DEFINITION OF VIEWING ANGLE



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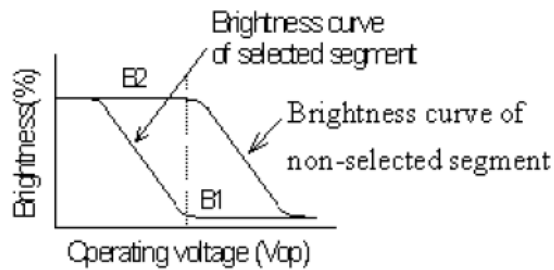
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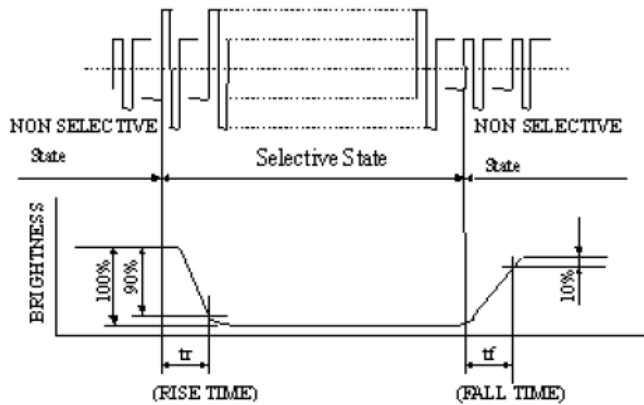
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(2) DEFINITION OF CONTRAST

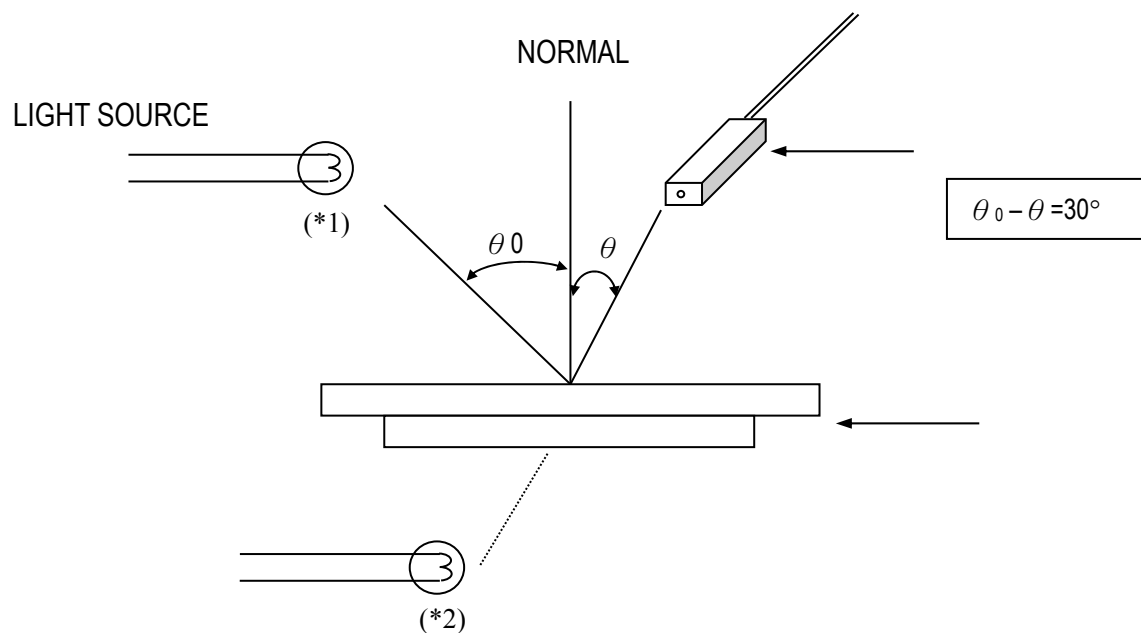
$$C.R = \frac{\text{Brightness of non-selected segment (B2)}}{\text{Brightness of selected segment (B1)}}$$



(3) DEFINITION OF RESPONSE



(4) MEASURING INSTRUMENTS FOR ELECTRO-OPTICAL CHARACTERISTICS



*1.Light source position for measuring the reflective type of LCD panel

*2.Light source position for measuring the transfective / transmissive types of LCD panel

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7. ENVIRONMENTAL ABSOLUTE MAXIMUM RATINGS

ITEM	SYMBOL	CONDITIONS	CRITERION
OPERATING TEMPERATURE	TOPR	-20℃ ~ +70℃	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION
STORAGE TEMPERATURE	TSTG	-30℃ ~ +80℃	NO DEFECT IN DISPLAYING AND OPERATIONAL FUNCTION
HUMIDITY	—	See Note	WITHOUT CONDENSATION

Note: Test condition:

1) Temperature and humidity: if no specification, temperature set at 25+/-2℃, and humidity set at 60+/-5% RH.

2) Operating state: all the tests to which the samples subject should be in operating condition.

8. RELIABILITY TEST

ITEM	CONDITIONS	CRITERION
Operating Temperature	HIGH TEMPERATURE 70℃ 96HRS	No defect in displaying and operational function
	LOW TEMPERATURE -20℃ 96HRS	
Storage Temperature	HIGH TEMPERATURE +80℃ 96HRS	No defect in displaying and operational function
	LOW TEMPERATURE -30℃ 96HRS	
High Humidity & high Temp	60℃ * 90%RH 96HRS	No defect in displaying and operational function
Vibration	- Operating Time: 30 minutes exposure for each direction (X,Y,Z) - Sweep Frequency: 10~55Hz (1 min) - Amplitude: 1.5mm	No defect in displaying and operational function
Thermal Shock	-40℃(30mins) ↔ +85℃(30mins) 10 cycles	No defect in displaying and operational function

NOTE: 1. The samples must be free from defect before test, must be restore at room condition at least for 2 hours after reliability test before any inspection.

2. In case of malfunction defect caused by ESD damage, if it would be recovered to normal state after resetting, it would be judge as a good part.