

**ALR122FXX**

Low-Temperature Polysilicon 1.5-inch TFT LCD Module

Overview

This 1.5 inch reflective type low temperature poly-silicon TFT-LCD module consists of reflective type LCD panel and white LED front light. This is suitable for DSC.

Features

- Diagonal 3.8cm (1.5 inch) display size.
- $521 \times 218 = 113,578$ dots.
- RGB delta color arrangement.
- Reflective type low temperature poly-silicon TFT-LCD.
- Operating temperature (panel) is -10 to $+60^{\circ}\text{C}$. Ambient temperature during storage is -20 to $+70^{\circ}\text{C}$.
- Slim design, lightweight and narrow frame.
- Up / down and right / left inverse function.
- Built-in shifter circuit.
- Conform to NTSC / PAL by using recommended IC : LV4135W, LV4137W, (LV4139W : Under development).
- PTME (Partially Tilted Mirror Electrode) is used for Reflector.
Combination of PTME and Diffusion film realizes high-reflection and high-contrast.

Specifications

Item	Specifications	Unit	Remarks
Dot count (H) $\times$ (V)	521×218	dot	
Effective display dimensions (H) $\times$ (V)	30.25×22.67	mm	
Display size (diagonal)	3.8 (1.5inch)	cm	
Dot pitch (H) $\times$ (V)	0.058×0.104	mm	
Color arrangement	RGB Delta	-	
External Dimensions (W) $\times$ (H) $\times$ (D)	TYP $37.0 \times 32.4 \times 2.1$	mm	Note1
Weight	TBD	g	

*Note1: Excluding flexible cable and protrusions.

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Absolute Maximum Ratings at VSS=0V

Item	Symbol	Ratings	Unit
H driver power supply voltage	HVDD	-1.0 to +14	V
V driver power supply voltage	VVDD	-1.0 to +14	V
Common electrode voltage	VCOM	-1.0 to +14	V
Driving direction signal voltage	CSH, CSV	-1.0 to +14	V
H driver input voltage	STH, XSTH, CKH1, CKH2	-1.0 to +14	V
V driver / precharge data input voltage	STV, XSTV, CKV1, CKV2, ENB, XENB, PCG, XPCG	-1.0 to +14	V
Video / precharge data input voltage	VG, VR, VB, VPCD	-1.0 to +13	V
Operating temperature (panel)	Topr	-10 to +60	°C
Storage temperature	Tstg	-20 to +70	°C

Operating Conditions

Power supply voltage HVDD 12.5V±0.5, VVDD 12.5V±0.5, VSS 0V

Item		Symbol	MIN	TYP	MAX	Unit
H driver input voltage	Low	VHIL	-0.3	0.0	0.3	V
	High	VHIH	2.5	3.0	4.0	V
V driver input voltage	Low	VVIL	-0.3	0.0	0.3	V
	High	VVIH	2.5	3.0	4.0	V
CSV, CSH	Low	VSIL	-0.3	0.0	0.3	V
	High	VSIH	11.5	VDD	VDD	V
Video signal center voltage		VVC	T.B.D	T.B.D	T.B.D	V
Video signal input voltage range *1		VG, VR, VB	T.B.D	-	T.B.D	V
Common electrode voltage*2		VCOM	T.B.D	T.B.D	T.B.D	V
Precharge data signal *1		VPCD	-	T.B.D	-	V

*1 Video signal and precharge data signal shall be input symmetrically around VVC.

*2 Set common electrode voltage to the optimum voltage.

Optical Specifications

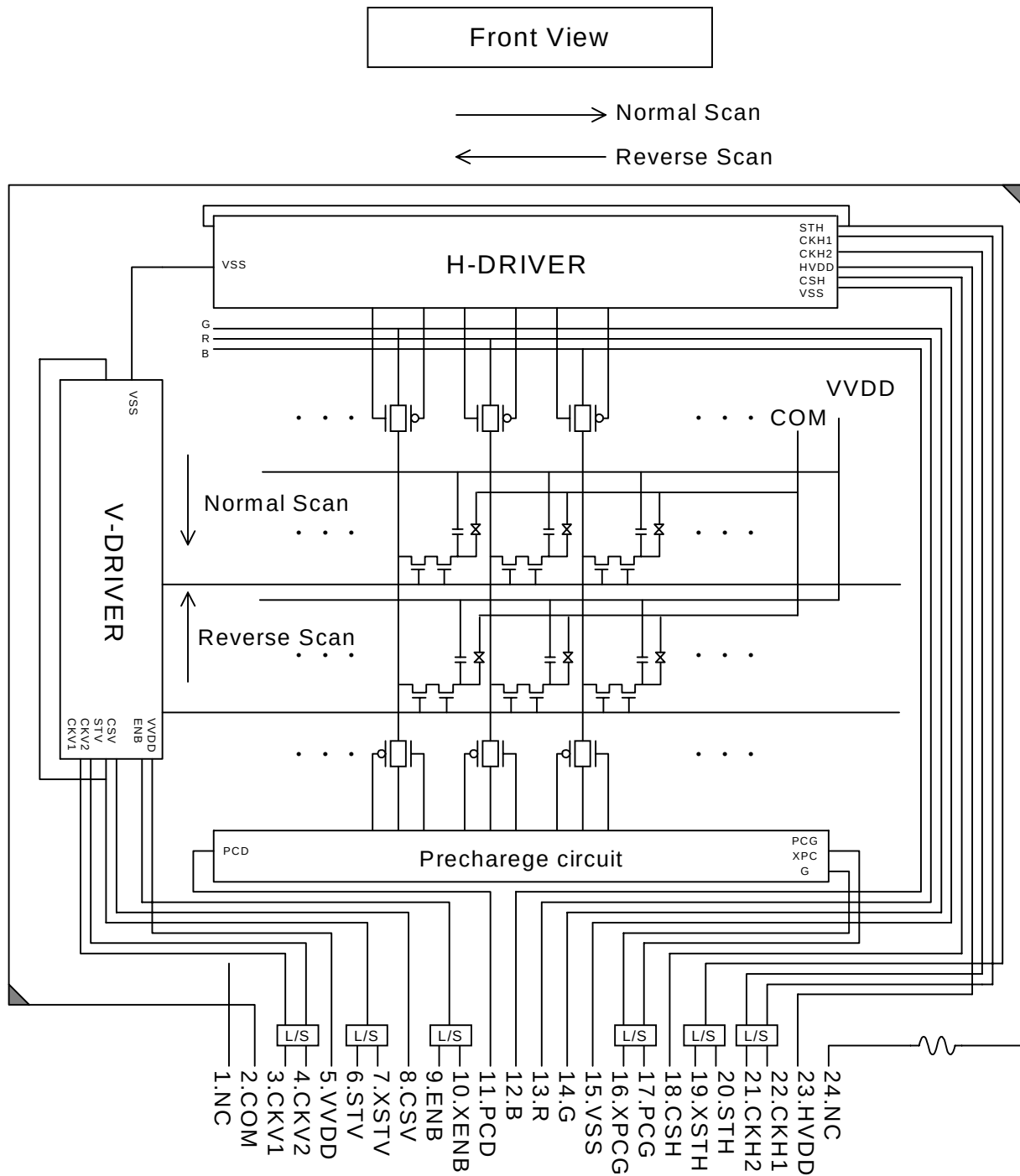
Item	Symbol	Condition	TYP	Unit
Contrast ratio	CR	-30deg input	>=30 (max)	-
			>=10 (0 to 50 deg)	
Reflection ratio	-	-30deg input	>=40 (10 to 50 deg)	%*
			>=100 (20 to 40 deg)	

* Compare to standard diffusion

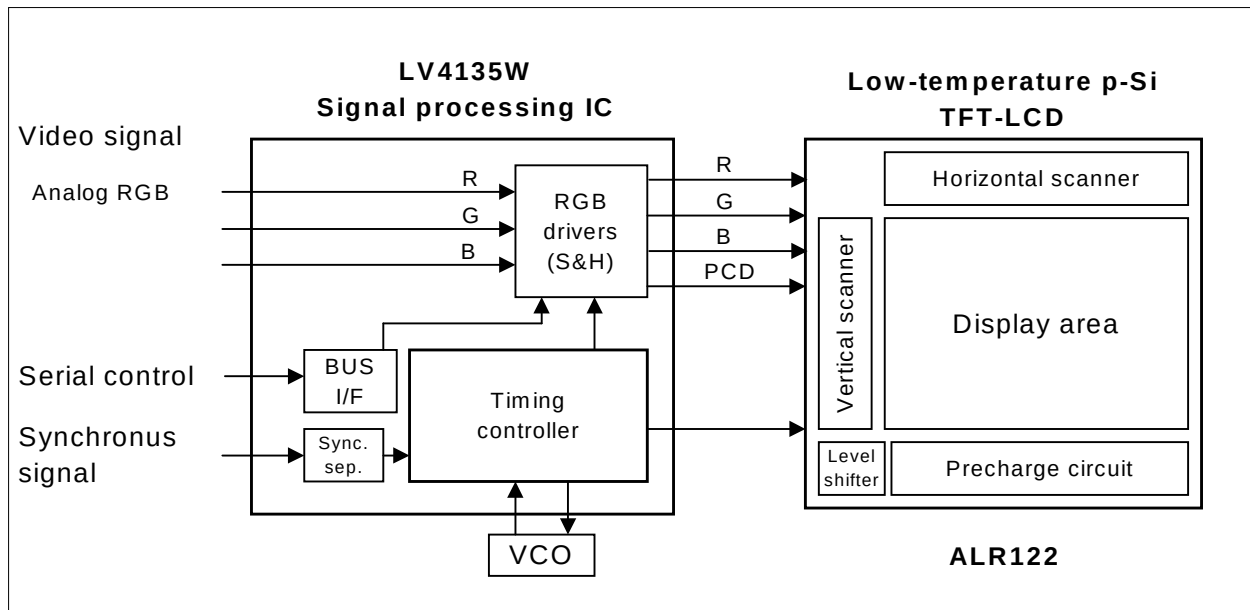
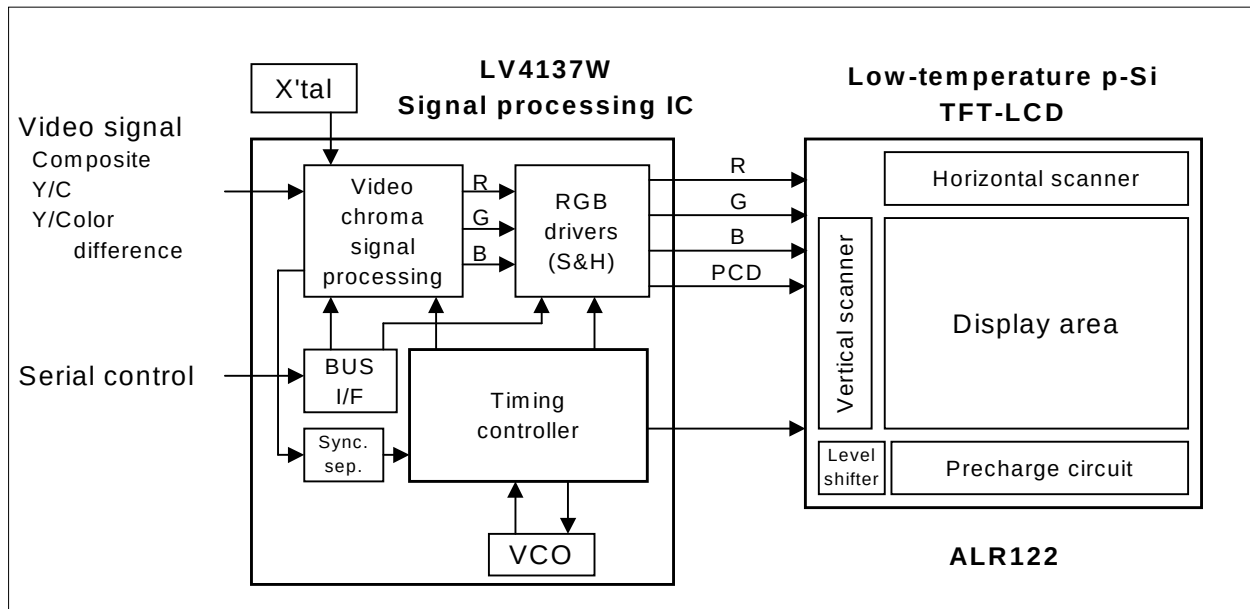
Pin Function

Pin No	Symbol	Function
1	NC	Leave this pin open
2	COM	Common electrode voltage
3	CKV1	V clock 1
4	CKV2	V clock 2
5	VVDD	VDD for V drive
6	STV	V start signal
7	XSTV	Inverted signal of STV
8	CSV	Up / down inverse control signal (H : Normal scan, L : Reverse scan)
9	ENB	Enable signal
10	XENB	Inverted signal of ENB
11	PCD	Precharge data signal
12	B	Video signal (B)
13	R	Video signal (R)
14	G	Video signal (G)
15	VSS	VSS for V and H drive
16	XPCG	Inverted signal of PCG
17	PCG	Precharge gate signal
18	CSH	Right / left inverse control signal (H : Normal scan, L : Reverse scan)
19	XSTH	Inverted signal of STH
20	STH	H start signal
21	CKH2	H clock 2
22	CKH1	H clock 1
23	HVDD	VDD for H drive
24	NC	Leave this pin open

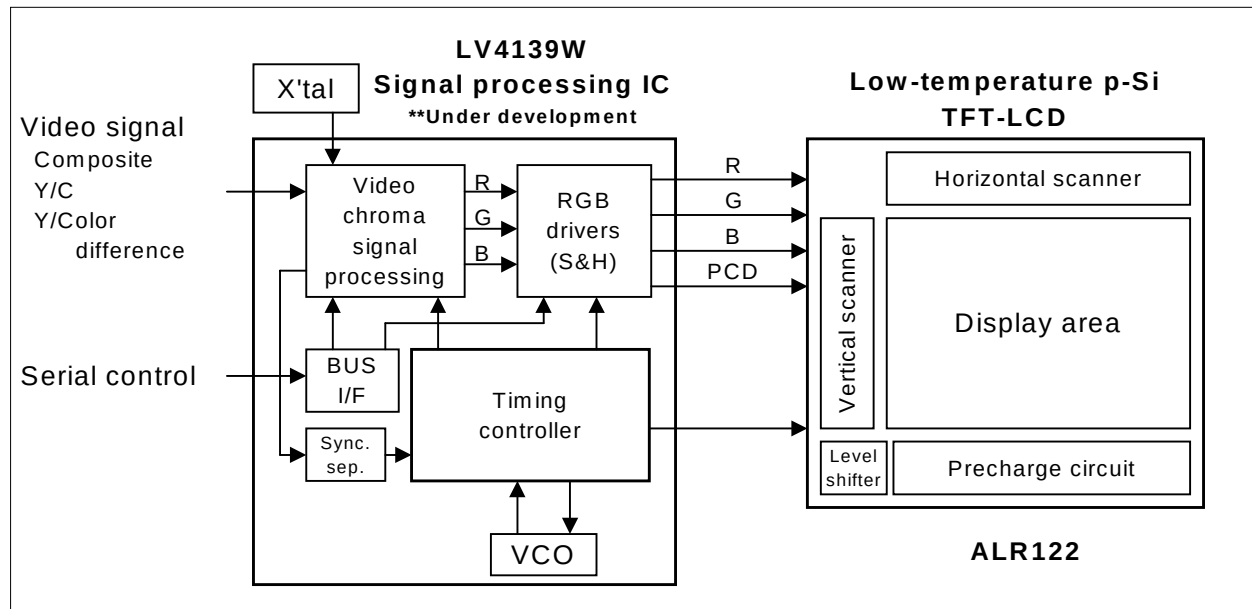
Block Diagram



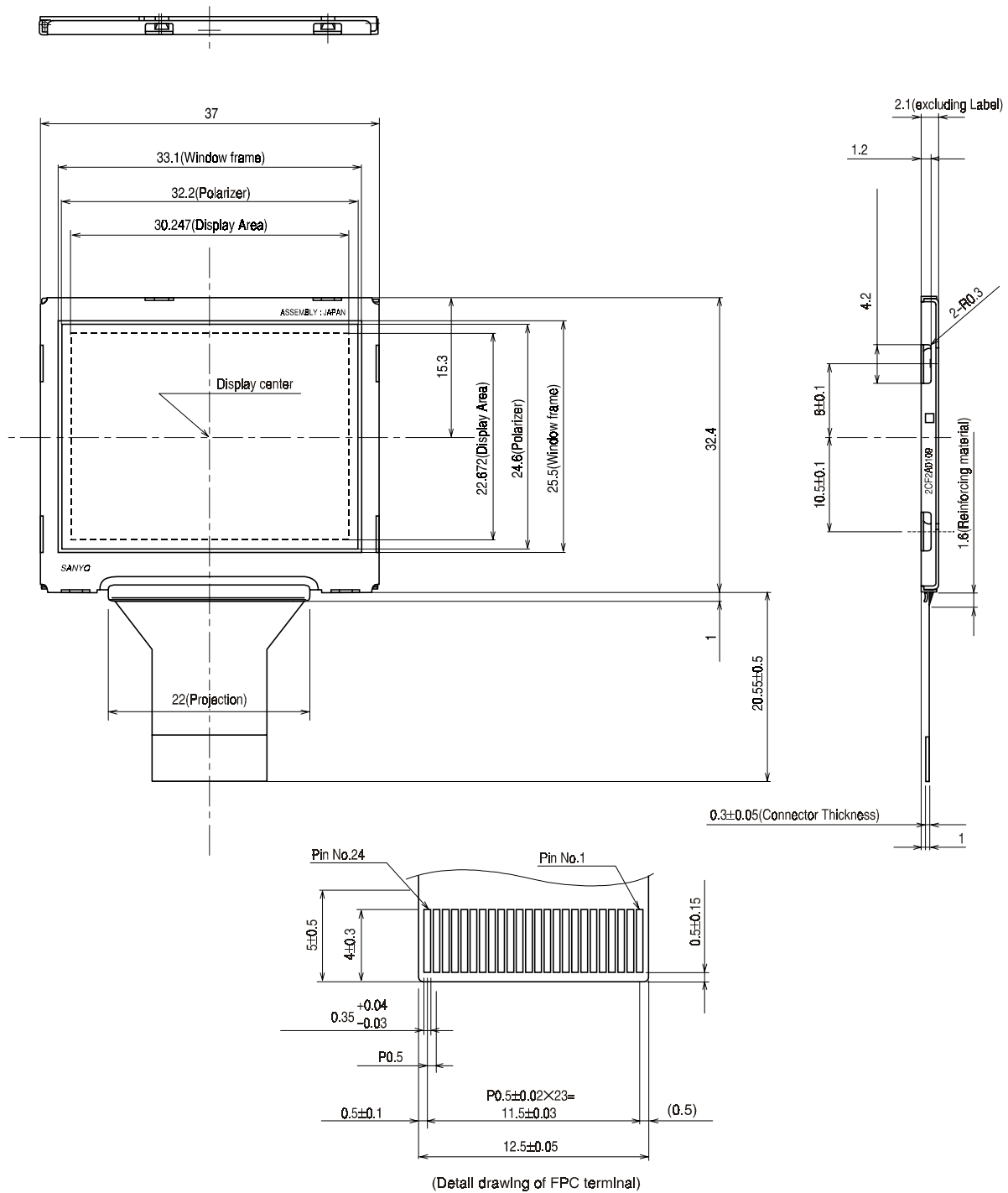
System Configuration



System Configuration



Package Dimension



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