Ordering number : ENN7660

LCD Module

ALP027XXX

Low-Temperature Polysilicon 0.33-inch TFT LCD Module

This low power consumption 0.33 inch Low-Temperature polysilicon TFT black and white LCD module is suitable for view finder of digital video camera.

Features

- Diagonal 0.835 cm (0.33 inch) display size.
- 300 × 225 = 67,500 dots.
- Transmissive type.
- Black and white delta arrangement.
- Polarizer ; None.
- Low power consumption (panel typ. 7.7 mW) by common inversion drive built-in negative power supply generator and gate level shifter.
- Up/down and right/left inverse function.
- Built-in level shifter circuit.
- Recommended IC ; LV4149W (analog I/F).
- Recommended temperature (panel surface) ; -10 to +60 ºC.
- Storage temperature ; -20 to +70 ºC.

Specifications

Item	Specifications	unit	Remarks
Dot count (H) × (V)	300 × 225	dot	
Active area dimensions (H) × (V)	6.671 × 4.995	mm	
Display size (diagonal)	0.835 (0.33 inch)	cm	
Dot pitch (H) × (V)	0.0222 × 0.0222	mm	
Color arrangement	Delta	-	
Module external dimensions (W) × (H)*1 × (D)	(typ.) 10.6 × 11.3 × 1.4	mm	Note1
FPC length	(typ.) 28.5	mm	
Weight	About 0.5	g	

Note1 : Excluding flexible cable and projections.

*1 : H = Height.

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SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Absolute Maximum Ratings at V_{SS} = 0V

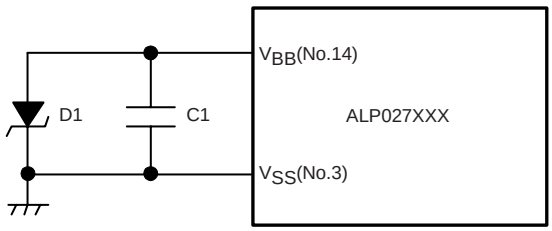
Item	Symbol	Ratings	unit
H/V driver power supply voltage	V_{DD}	-1.0 to +10	V
V driver negative power supply voltage	V_{BB}	-6.0 to -1.0	V
Common electrode voltage	COM	-1.0 to +10	V
Scan direction signal voltage	CSH, CSV	-1.0 to +10	V
H/V driver/Drain storage circuit input signal voltage	STH, XSTH, CKH1, CKH2 DSG, XDSG	-1.0 to +10	V
V driver input voltage	STV, XSTV, CKV1, CKV2, ENB, XENB	-1.0 to +10	V
Video signal/Drain storage data signal input voltage	V1, V2, V3, DSD	-1.0 to +8	V
Operating temperature	Topr	-10 to +60	ºC
Storage temperature	Tstg	-20 to +70	ºC

Operating Conditions at V_{SS} = 0V

Item	Symbol	min	typ	max	unit
Power supply voltage	V_{DD}	8.2	8.5	8.8	V
V_{BB} output voltage	V_{BB}	-4.5	(-4.0)	-3.5	V

Negative Power Supply Generator

To stabilize V_{BB} output voltage, V_{BB} should be tied V_{SS} through a zener diode with smoothing capacitor as the following diagram.



	Capacitance [μF]	Rating voltage	Capacitance tolerance
C1	0.022	16VDC and more	+80% and less, -20% and more

D1	RD5.1S - B2 or RD5.1UM - B2 (NEC makes) or the corresponding products

Input Signal

Item		Symbol	min	typ	max	unit
H driver/Drain storage circuit input signal voltage	Low	VHIL	-0.3	0.0	0.3	V
	High	VHIH	2.5	3.0	4.0	V
V driver input signal voltage	Low	VVIL	-0.3	0.0	0.3	V
	High	VVIH	2.5	3.0	4.0	V
H scan control signal voltage	Low	VHSIL	V_{SS}	-	V_{SS}+0.2	V
	High	VHSIH	V_{DD}-0.2	-	V_{DD}	V
V scan control signal voltage	Low	VVSIL	V_{SS}	-	V_{SS}+0.2	V
	High	VVSIH	V_{DD}-0.2	-	V_{DD}	V
Video signal center level	analog I/F	VVC	3.30	3.50	3.70	V
Video signal voltage	Black(H)	Vblack(H)	5.05	5.25	5.45	V
	Black(L)	Vblack(L)	1.55	1.75	1.95	V
	White-Black	Vsig w-b	-	-	2.70	V
Common electrode signal center level	analog I/F	VCOM c	(VVC-0.3) -0.2	(VVC-0.3)	(VVC-0.3) -0.2	V
Common electrode voltage amplitude	analog I/F	VCOM p-p	-	3.5	3.6	V
Drain storage data signal voltage		VDSD	VVC-0.2	VVC	VVC+0.2	V

Power Consumption

Item	Symbol	Condition	min	typ	max	unit
Panel power consumption	I		-	0.9	-	mA
Panel power consumption (NTSC)	PWR		-	7.7	-	mW

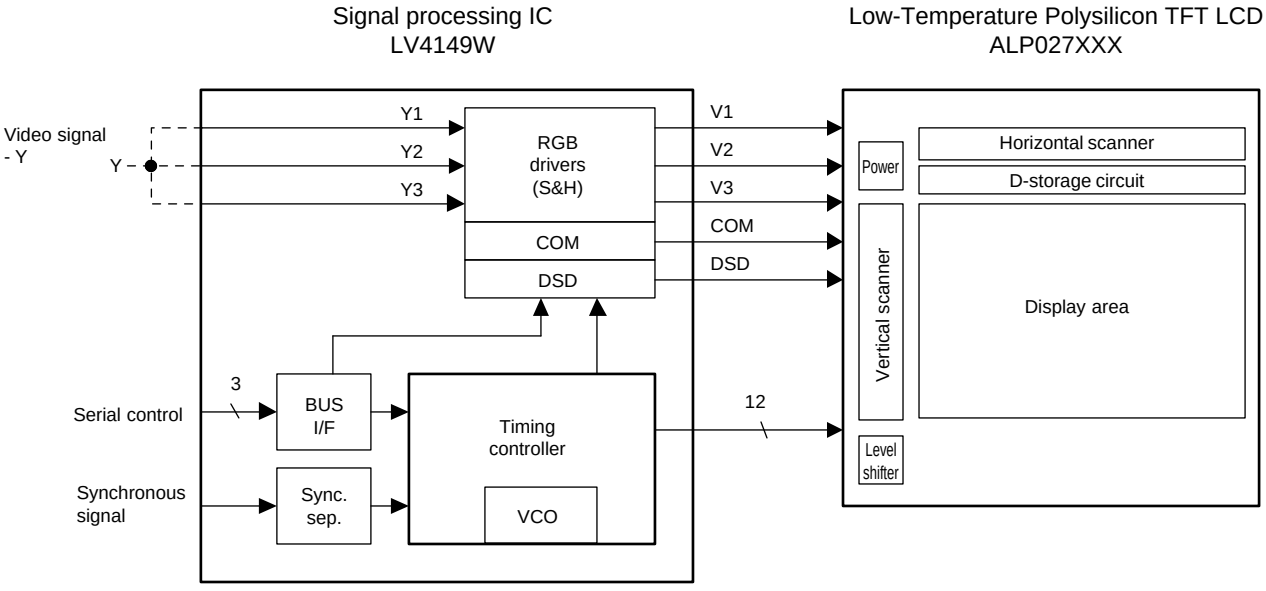
Optical Specifications at Ta = 25ºC, θ = 0º, SANYO standard measurement system

Item		Symbol	min	typ	max	unit
Contrast ratio		CR	-	100	-	-
V-T characteristic	V90	VT90	-	1.5	-	V
	V10	VT10	-	2.4	-	
Transmittance		T	-	6.8	-	%

Input Pin Assignmene

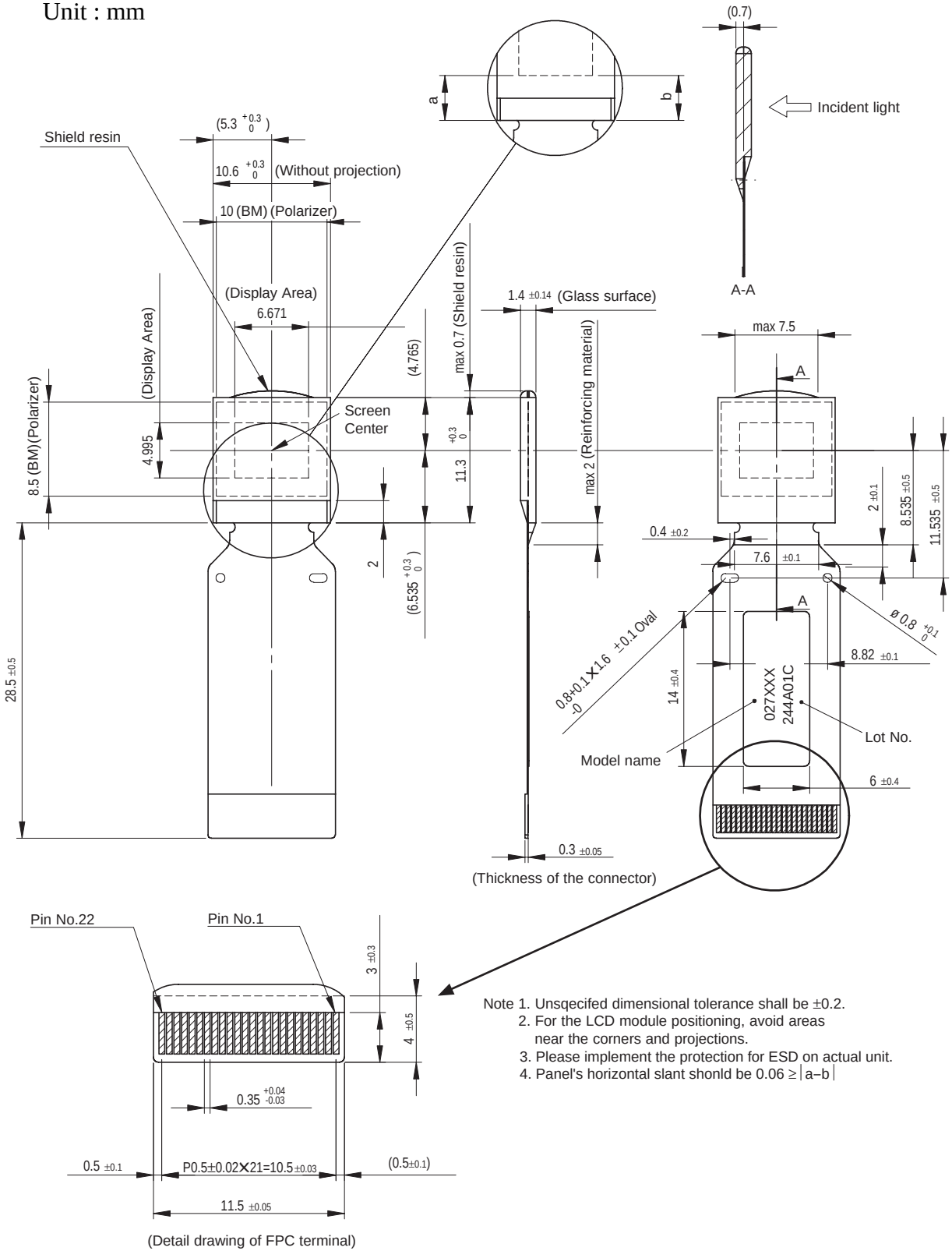
No.	Symbol	Function
1	XSTH	Inverted signal of STH
2	STH	H driver start signal
3	V_{SS}	V_{SS} for V and H driver
4	CKH1	H driver clock1
5	CKH2	H driver clock2
6	V_{DD}	VDD for H · V driver
7	CSH	Right/left scan control signal (H : Normal scan, L : Reverse scan)
8	V1	Video signal (V1)
9	V2	Video signal (V2)
10	V3	Video signal (V3)
11	DSG	Drain storage gate signal
12	XDSG	Inverted signal of DSG
13	DSD	Drain storage data signal
14	V_{BB}	Negative power supply for V driver
15	CSV	Up/down scan control signal (H : Normal scan, L : Reverse scan)
16	ENB	Enable signal
17	XENB	Inverted signal of ENB
18	XSTV	Inverted signal of STV
19	STV	V driver start signal
20	CKV2	V driver clock2
21	CKV1	V driver clock1
22	COM	Common electrode voltage

System Configuration



Package Dimensions

Unit : mm



Note 1. Unsqecifed dimensional tolerance shall be ±0.2.
2. For the LCD module positioning, avoid areas near the corners and projections.
3. Please implement the protection for ESD on actual unit.
4. Panel's horizontal slant shonld be $0.06 \geq |a-b|$

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Contact Information

SANYO Electric Co., Ltd Display Company

1-19-10 Ueno, Taito-Ku, Tokyo 110-0005

TEL(81)03-3837-6355 e-mail : poli7901000181@sanyo.co.jp