



AND10C273-DHB

10.4" SVGA Color TFT LCD Module

Features

- High luminance (twice standard HB version without an increase in power consumption or size)
- Twin CCFL backlight
- Low reflection
- Clear 256K colors (K=1024)
- Thin and lightweight design
- Fully compatible with AND10C209A-DHB (VGA)
- SVGA (800 x 600 pixels color display)
- Fast response time
- Applications: Display Terminals, Scientific Instruments, Medical Instruments, Test and Measurement Instruments, Process Control/Factory Automation Equipment, Office Automation Equipment

Mechanical Specifications

Item	Specification	Unit
Outline Dimensions	265.0 (H) x 188.8 (V) x 12 max (D)	mm
Number of Pixels	800 (H) x 600 (V)	pixels
Active Area	211.2 (H) x 158.4 (V)	mm
Pixel Pitch	0.264 (H) x 0.264 (V)	mm
Weight (approx.)	600	gram
Backlight	CCFL, Side-light type (twin lamps)	—

Absolute Maximum Ratings

Item	Symbol	Min	Max	Unit
Supply Voltage	V_{DD}	-0.3	7.0	V
	V_{FL}	0	2000	Vrms
FL Driving Frequency	f_{FL}	0	100	kHz
Input Signal Voltage	V_{IN}	-0.3	$V_{DD} + 0.3$	V
Operating Temperature	T_{op}	0	50	°C
Storage Temperature	T_{stg}	-20	60	°C
Humidity (Max. Wet bulb temp = 29°C)	—	10	90	%RH

Electrical Specifications (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit
Supply Voltage ($I_{FL}=6mA$)	V_{DD}	4.75	5.0	5.25	V
	V_{FL}	500	550	600	Vrms
FL Start Voltage ($T_a = 0^{\circ}C$)	—	1500	—	—	Vrms
High Level Input Voltage	V_{IH}	3.5	—	V_{DD}	V
Low Level Input Voltage	V_{IL}	0	—	1.5	V
Current Consumption	I_{DD}	—	155	—	mA
	I_{FL}	3.0	6.0	7.0	mArms
Power Consumption (*1)	P	—	7.4	—	W

*1: Before the efficiency loss of CCFL inverter

Optical Specifications (Ta = 25°C)

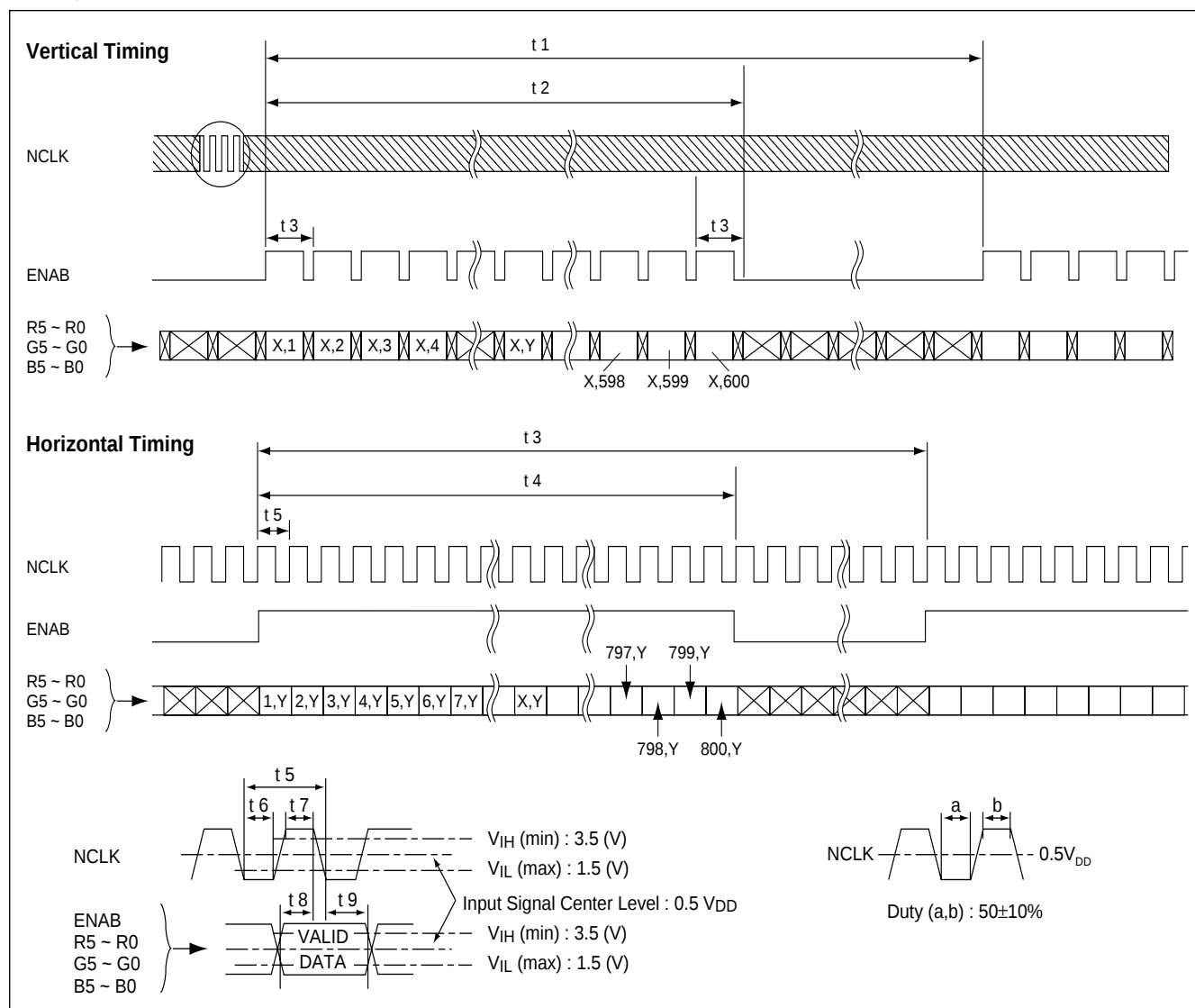
Item	Symbol	Min	Typ	Max	Unit
Contrast	CR	100	—	—	—
Response	t_{on}	—	—	50	ms
	t_{off}	—	—	50	ms
Luminance	L	—	500	—	cd/m ²



Timing Specifications

Item	Symbol	Min	Typ	Max	Unit
Frame Period	t1	604 x t3 —	625 x t3 17.78	628 x t3 17.86	— ms
Vertical Display Term	t2	600 x t3	600 x t3	600 x t3	t2 = N • t3
One Line Scanning Time	t3	844 x t5 (26.4)	1024 x t5 28.44	1056 x t5	— μs
Horizontal Display Period	t4	800 x t5	800 x t5	800 x t5	—
Clock Period	t5	25.0	27.78	—	ns
Clock "L" Time	t6	9.0	—	—	ns
Clock "H" Time	t7	9.0	—	—	ns
Set Up Time	t8	4.0	—	—	ns
Hold Time	t9	5.0	—	—	ns

Timing Chart





The block diagram illustrates the internal architecture of the LCD module. It features a central 'Liquid Crystal Panel 800 X 600 pixels'. This panel is driven by an 'X - driver IC' and a 'Y - driver IC'. The 'Controller' manages the operation, sending signals to both driver ICs and receiving data from the 'Connector' (CN1). The 'X - driver IC' is also connected to a 'Voltage Generation Circuit', which in turn is powered by a 'DC/DC Converter'. The 'Connector' (CN1) also provides power to the 'DC/DC Converter'. Two 'FL Backlight' units are shown at the bottom, connected to the main power lines and labeled as CN2 and CNF3.

CN1 Input Signal (1)
(DF9-31P-1V/Hirose Electric Co., Ltd.)

CN2 CCFL Power Source
(BHR-03VS-1/Japan Solderless Terminal Mfg Co., Ltd.)

Terminal No.	Symbol	Function
1	VL	CCFL Power Supply (High Voltage)
2	NC ⁽¹⁾	
3	GL	CCFL Power Supply (GND Side)

Note (1): NC terminal is open. (Don't use.)



Note (2): 256 colors are displayed by the combinations of 18 data bits.

	Display	R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0	Gray Scale Level	
Basic Color	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	—	
	Blue	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	—	
	Green	L	L	L	L	L	L	H	H	H	H	H	H	L	L	L	L	L	L	—	
	Lt. Blue	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	—	
	Red	H	H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	—	
	Purple	H	H	H	H	H	H	L	L	L	L	L	L	H	H	H	H	H	H	—	
	Yellow	H	H	H	H	H	H	H	H	H	H	H	H	L	L	L	L	L	L	—	
	White	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	—	
Gray Scale of Red	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L0	
	↕	Dark	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L1
		L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L2
		:						:						:						L3~L60	
		:						:						:							
		H	H	H	H	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L61
		Light	H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L
	Red	H	H	H	H	H	H	L	L	L	L	L	L	L	L	L	L	L	L	L	Green L63
Gray Scale of Green	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L0	
	↕	Dark	L	L	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L1
		L	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L2
		:						:						:						L3~L60	
		:						:						:							
		L	L	L	L	L	L	H	H	H	H	L	H	L	L	L	L	L	L	L	L61
		Light	L	L	L	L	L	L	H	H	H	H	H	L	L	L	L	L	L	L	L
	Green	L	L	L	L	L	L	H	H	H	H	H	H	L	L	L	L	L	L	L	Green L63
Gray Scale of Blue	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L0	
	↕	Dark	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L1
		L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L	L	L2
		:						:						:						L3~L60	
		:						:						:							
		L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	L	H	L61
		Light	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	L	L
	Blue	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	Blue L63
Gray Scale of White & Black	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L0	
	↕	Dark	L	L	L	L	L	H	L	L	L	L	L	H	L	L	L	L	L	H	L1
		L	L	L	L	H	L	L	L	L	L	H	L	L	L	L	L	H	L	L	L2
		:						:						:						L3~L60	
		:						:						:							
		H	H	H	H	L	H	H	H	H	H	L	H	H	H	H	H	L	H	H	L61
		Light	H	H	H	H	H	L	H	H	H	H	H	L	H	H	H	H	H	L	L
	White	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	White L63