AND12C268

12.1" SVGA Color TFT LCD Module

Features

- Ultra compact and thin design (Height: 195mm TYP, Thickness-7.5mm Max.)
- High quality and clear 256k-colors (k-1024)/64 gray-scale display)
- New CCFL backlight system (CCFL position is right side)
- SVGA (800 x 600 pixels)
- Fast response and lightweight design
- Applications: A4 Just Size Notebook PC and Compact Workstation, OA Equipment, Display Terminals, Measuring Instruments, New Media Equipment

Mechanical Specifications

Item	Specification	Unit
Outline Dimensions	275.0 (H) x 195.0 (V) x 7.5 max (D)	mm
Number of Pixels	800 (H) x 600 (V)	pixels
Active Area	246.0 (H) x 184.5 (V)	mm
Pixel Pitch	0.3075 (H) x 0.3075 (V)	mm
Weight (approx.)	490	gram
Backlight	Single CCFL (right side)	–

Absolute Maximum Ratings

Item	Symbol	Min	Max	Unit
Supply Voltage	V_{DD}	-0.3	4.5	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

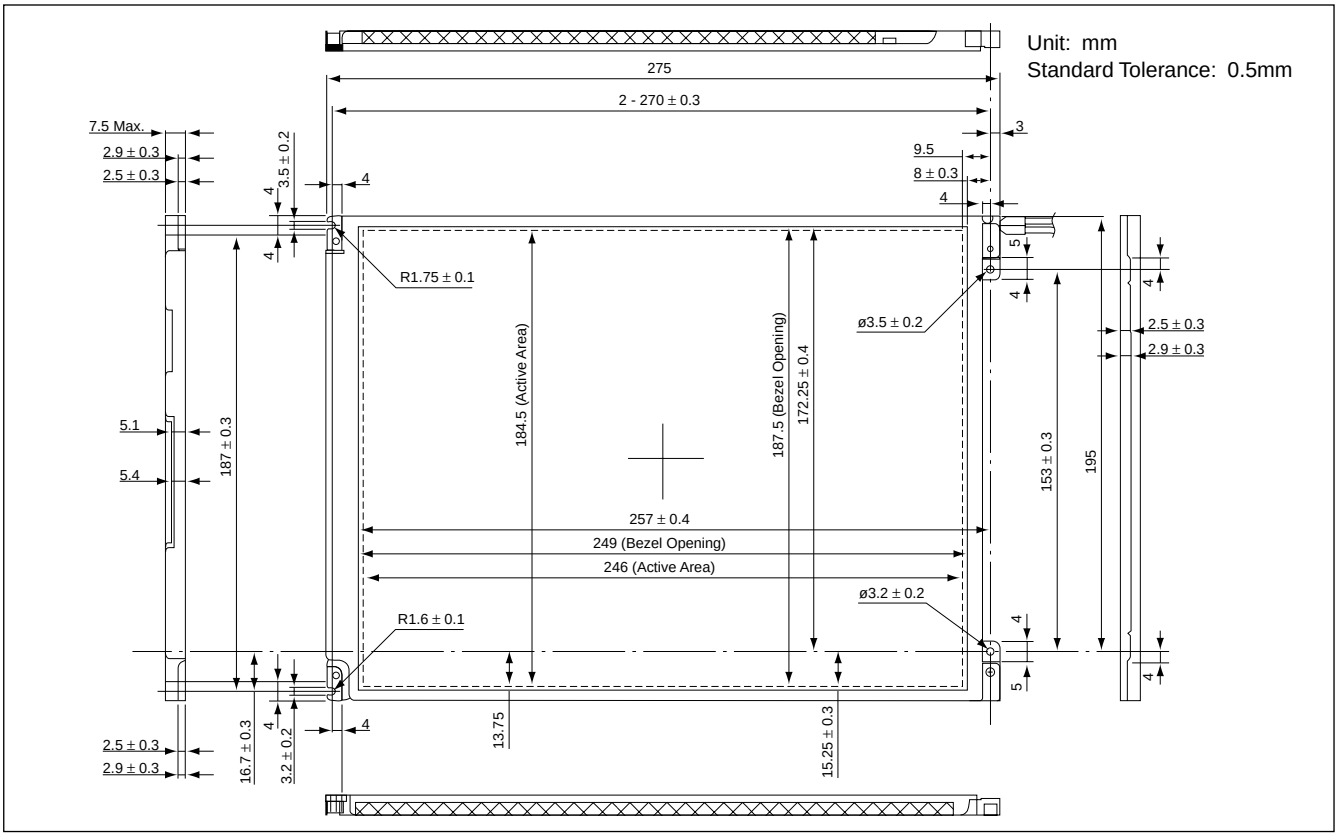
Electrical Specifications (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit
Supply Voltage (I_{FL}=6mA)	V_{DD}	3.0	3.3	3.6	V
	V_{FL}	–	TBD	–	Vrms
FL Start Voltage (Ta = 0°C)	–	TBD	–	(2000)	Vrms
High Level Input Voltage	V_{IH}	0.8	–	V_{DD}	V
Low Level Input Voltage	V_{IL}	0	–	0.2V_{DD}	V
Current Consumption	I_{DD} (*1)	–	TBD	–	mA
	I_{FL}	–	TBD	–	mArms
Power Consumption (*1), (*2)	P	–	(2.5)	–	W

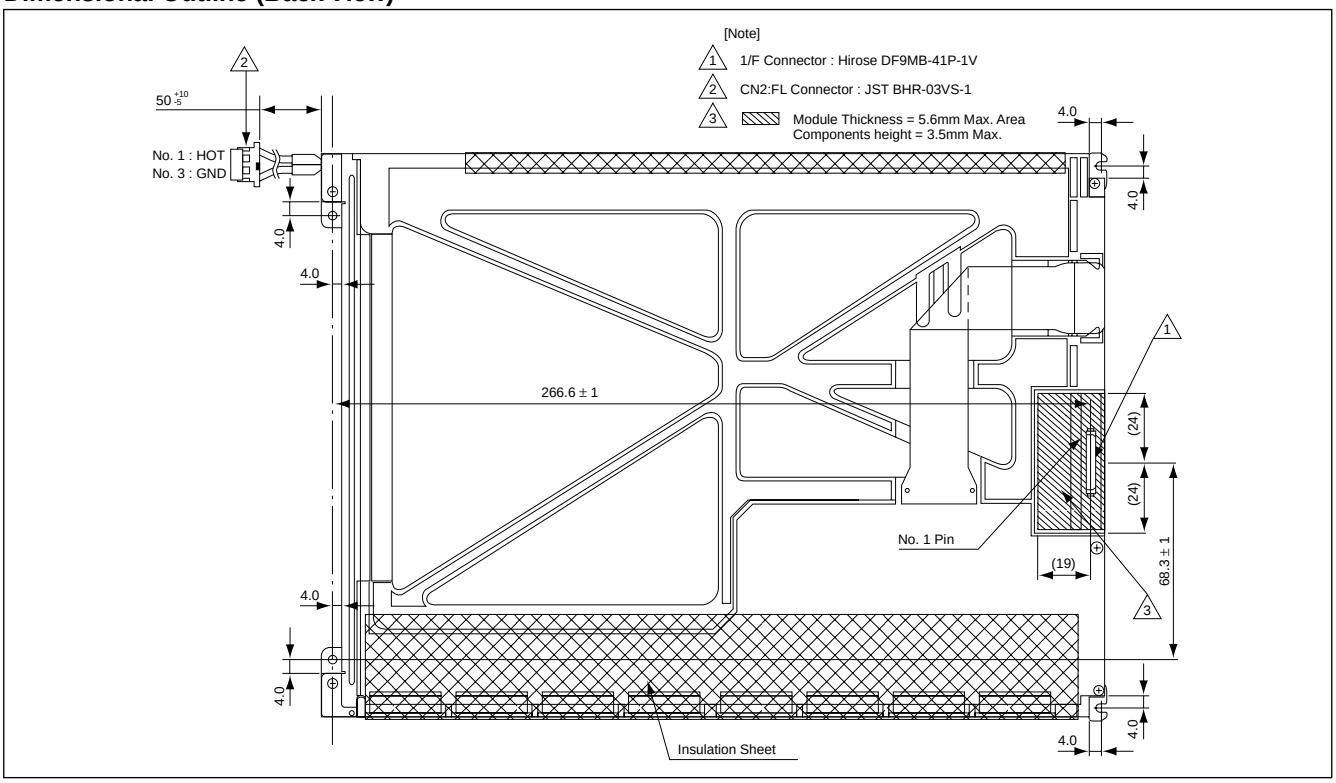
Optical Specifications (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit
Contrast	CR	100	–	–	–
Response	t_{on}	–	–	50	ms
	t_{off}	–	–	50	ms
Luminance	L	–	(70)	–	cd/m^2

Dimensional Outline (Front View)



Dimensional Outline (Back View)



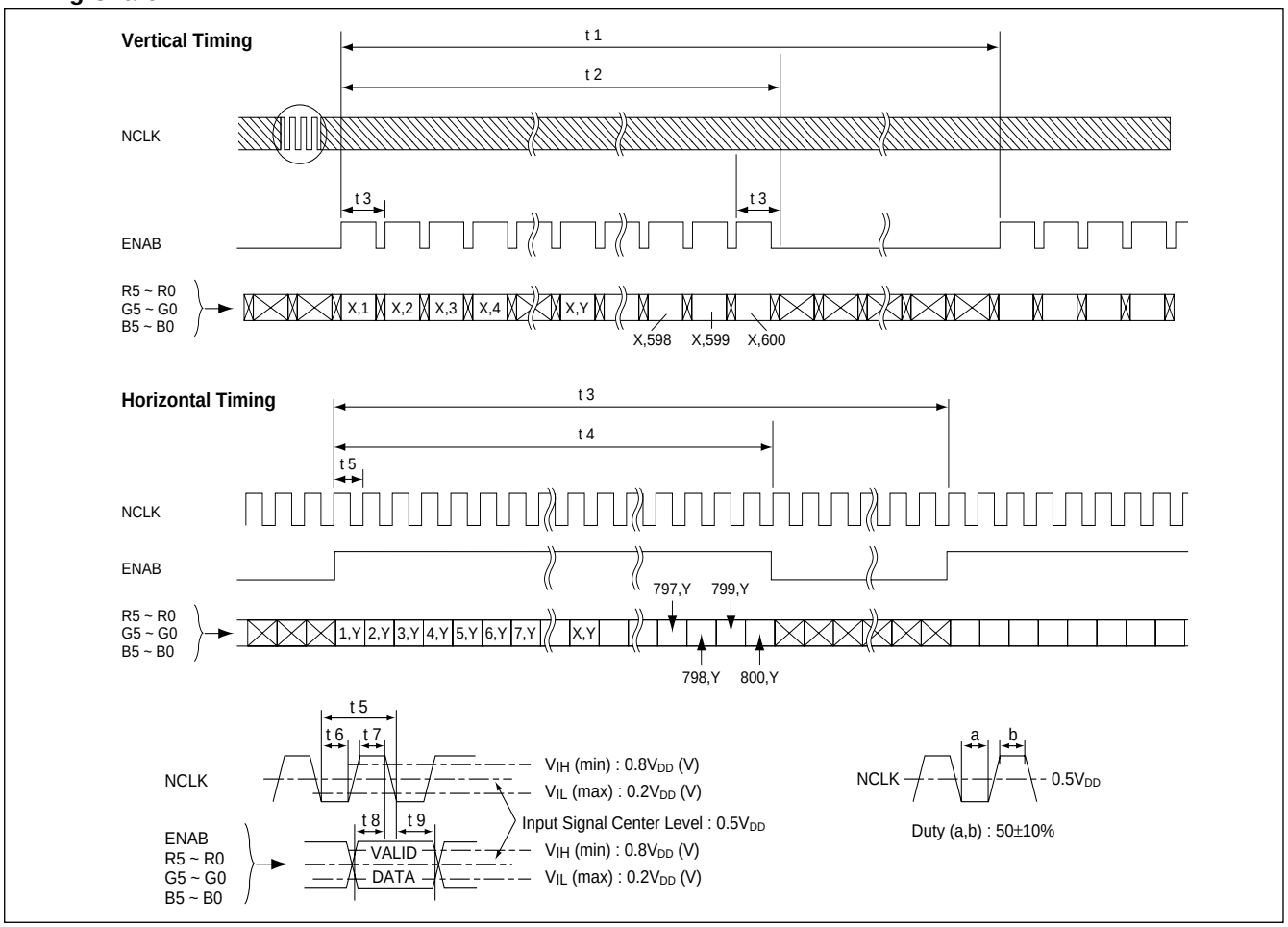
Timing Specifications

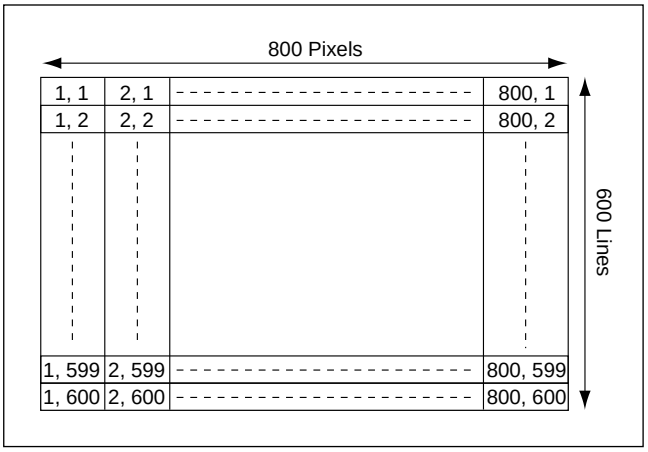
Item	Symbol	Min	Typ	Max	Unit
Frame Period	t1	604 x t3 –	625 x t3 17.78	628 x t3 17.86	– ms
Vertical Display Term	t2	600 x t3	600 x t3	600 x t3	t2 = N •t3
One Line Scanning Time	t3	844 x t5 26.4	1024 x t5 28.44	1056 x t5	– µs
Horizontal Display Period	t4	800 x t5	800 x t5	800 x t5	–
Clock Period	t5	25.0	27.78	_	ns
Clock “L” Time	t6	(7.0)	–	–	ns
Clock “H” Time	t7	(7.0)	–	–	ns
Set Up Time	t8	(3.0)	–	–	ns
Hold Time	t9	(10.0)	–	–	ns

Note (1): When ENAB is fixed to “H” level or “L” level after NCLK’s input, the panel is displayed as a black. However, it may be occured a flicker on the display.

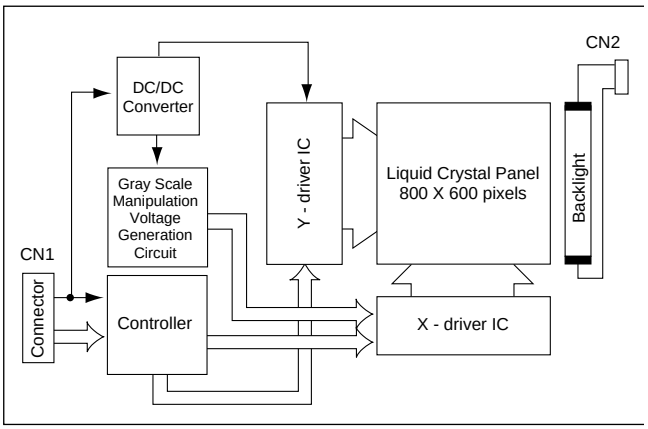
Note (2): Don’t fix NCLK to “H” or “L” level while the VDD (+3.3V) is supplied. If NCLK is fixed to “H” or “L” level, the normal operating signal isn’t supplied to LCD panel. This condition results in the degradation of the LCD panel display quality.

Timing Chart





Block Diagram



Connector Pin Assignment for Interface

CN2 CCFL Power Source
(BHR-03VS-1/Japan Solderless Terminal Mfg Co., Ltd.)
Mating Connector: (SM02(8.0) B-BHS-1)

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.)

CN1 Input Signal (1)
(DF9MB-41P-1V/Hirose Electric Co., Ltd.)
Mating Connector: (DF9M-41S-1V or DF9-41P-IV series)

Terminal No.		Symbol	Function
1		GND	
	2	NCLK	Sampling Clock
3		GND	
	4	NC(1)	
5		NC(1)	
	6	GND	
7		GND	
	8	GND	
9		R0(2)	Red Display Data (LSB)
	10	R1(2)	Red Display Data
11		R2(2)	Red Display Data
	12	GND	
13		R3(2)	Red Display Data
	14	R4(2)	Red Display Data
15		R5(2)	Red Display Data (MSB)
	16	GND	
17		GND	
	18	GND	
19		G0(2)	Green Display Data (LSB)
	20	G1(2)	Green Display Data
21		G2(2)	Green Display Data
	22	GND	
23		G3(2)	Green Display Data
	24	G4(2)	Green Display Data
25		G5(2)	Green Display Data (MSB)
	26	GND	
27		GND	
	28	GND	
29		B0(2)	Blue Display Data (LSB)
	30	B1(2)	Blue Display Data
31		B2(2)	Blue Display Data
	32	GND	
33		B3(2)	Blue Display Data
	34	B4(2)	Blue Display Data
35		B5(2)	Blue Display Data (MSB)
	36	GND	
37		ENAB	Compound Synchronization Signal
	38	NC(1)	
39		VDD	+3.3V Power Supply
	40	VDD	+3.3V Power Supply
41		NC(1)	

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	6	6	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		–
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	L2
					:						:						:			L3~L60
					:						:						:			
		H	H	H	H	L	H	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	L62
	Red	H	H	H	H	H	H	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	L2
					:						:						:			L3~L60
					:						:						:			
		L	L	L	L	L	L	H	H	H	H	L	H	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	L62
	Green	L	L	L	L	L	L	H	H	H	H	H	H	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	L2
					:						:						:			L3~L60
					:						:						:			
		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	L62
	Blue	L	L	L	L	L	L	L	L	L	L	L	L	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	L2
					:						:						:			L3~L60
					:						:						:			
		H	H	H	H	L	H	H	H	H	H	L	H	H	H	H	H	L	H	L61
	Light	H	H	H	H	H	L	H	H	H	H	H	L	H	H	H	H	H	L	L62
	White	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	White L63