All information is subject to change without notice. Please read bottom notes.

FEATURES

TENTATIVE

(1) 14.9inch Diagonal Size, 1280 x 390 Unique Resolution
(2) LVDS interface

RoHS compatible

MECHANICAL SPECIFICATIONS

Item	Specifications
Dimensional Outline (typ.)	407.5(*W*) x 136.0(*H*) x 20.0(*D*) mm
Number of Pixels	1280(*W*) x 390(*H*)
Active Area	360.94(*W*) x109.98(*H*) mm
Pixel Pitch	0.282(*W*) x 0.282(*H*) mm
Weight (approximately)	890 g
Backlight	Twin CCFLs, Sidelight type
Viewing Direction	6 o'clock (contrast max.)
Surface treatment	Glare with Wide View Film

ABSOLUTE MAXIMUM RATINGS

Item		Min.	Max.	Unit
Supply Voltage	(V_{DD})	-0.3	4.0	V
FL Current	(I_{FL})	---	10	mA(rms)
Input Signal Voltage	(V_{IN})	V_{SS} -0.3	V_{DD}+0.3	V
Operating Temperature *1		-10	65	°C
Storage Temperature *1		-20	70	°C

*1: Temperature should be measured on LCD panel surface.

ELECTRICAL SPECIFICATION (*Ta*=25°C) (RECOMMENDED OPERATION CONDITION)

Item		Min.	Typ.	Max.	Unit	Remarks
Supply Voltage	(V_{DD})	3.15	3.3	3.45	V	
FL Voltage	(V_{FL})	---	(670)	---	V(rms)	I_{FL}=6.0mA(rms)
FL Current	(I_{FL})	4.5	6.0	7.0	mA(rms)	
FL Start Voltage *2	(V_{SFL})	1900	---	---	V(rms)	I_{FL}=6.0mA(rms)
Differential Input Voltage	(V_{ID})	100	---	600	mV	
Common Mode Input Voltage	(V_{CM})	1.1	---	2.4-(V_{ID})/2	V	
Power Consumption*3	(I_{DD})	---	385	500	mA	

*2 : The above start voltage is the minimum necessary voltage. Please consider about 1.2-times margin at the time of an inverter design. Please keep such as FL start voltage more than three seconds.

*3 : Current consumption is measured color bar pattern.

OPTICAL SPECIFICATION (*Ta*=25°C)

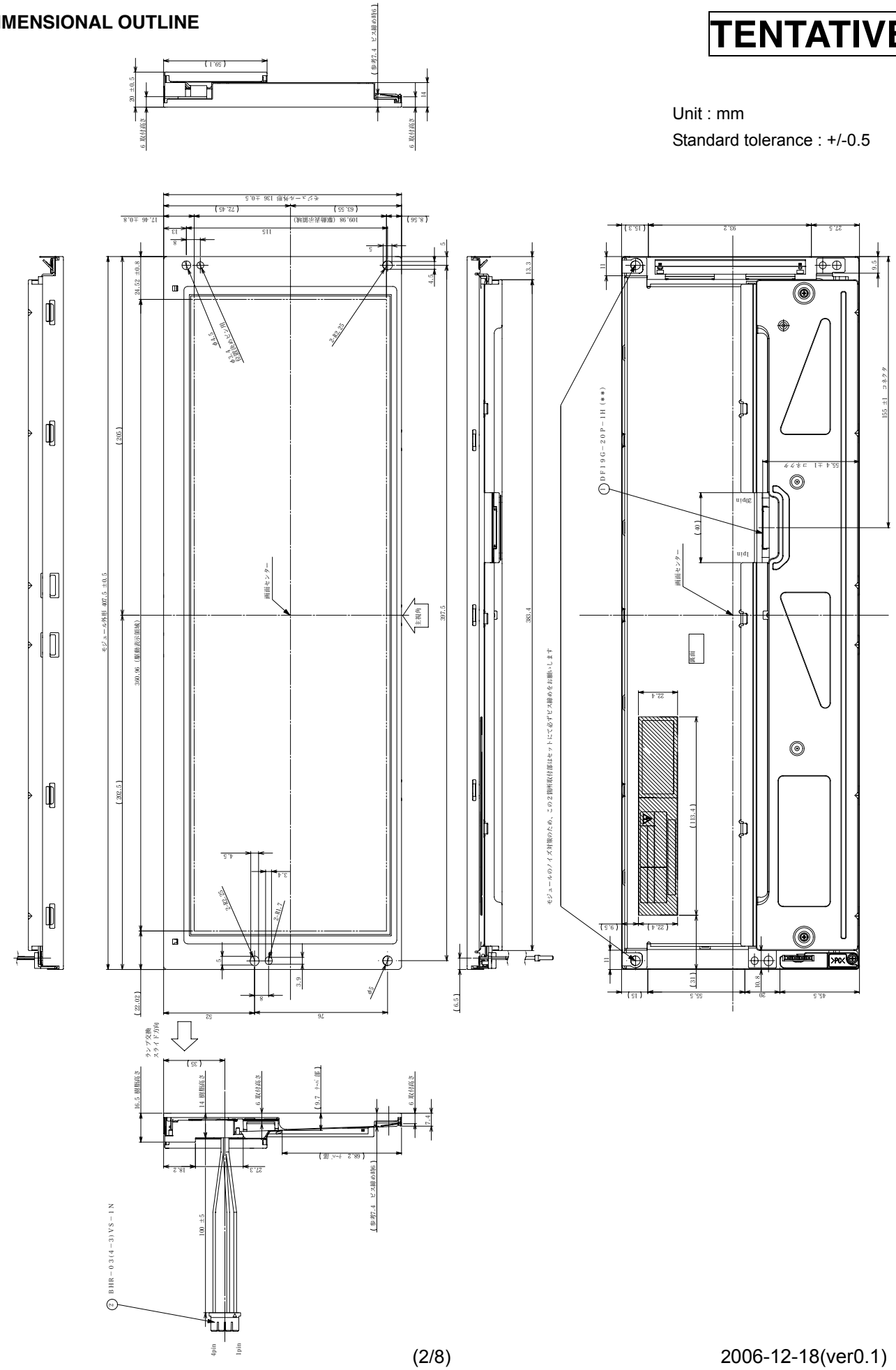
Item		Min.	Typ.	Max.	Unit	Remarks
Contrast Ratio	(*CR*)	250	500	---	---	
Response Time	(t_{ON})	---	10	40	ms	
	(t_{OFF})	---	20	70	ms	
Luminance	(*L*)	300	400	---	cd/m^2	I_{FL}=6.0mA(rms)
Viewing Angle ($CR \geq 10$)	(Up+Low)	25/40	45/75	---	°	
	(Left+Right)	45/45	80/80	---	°	
White Chromaticity		0.27	0.31	0.35	—	
	y	0.29	0.33	0.37	—	

DIMENSIONAL OUTLINE

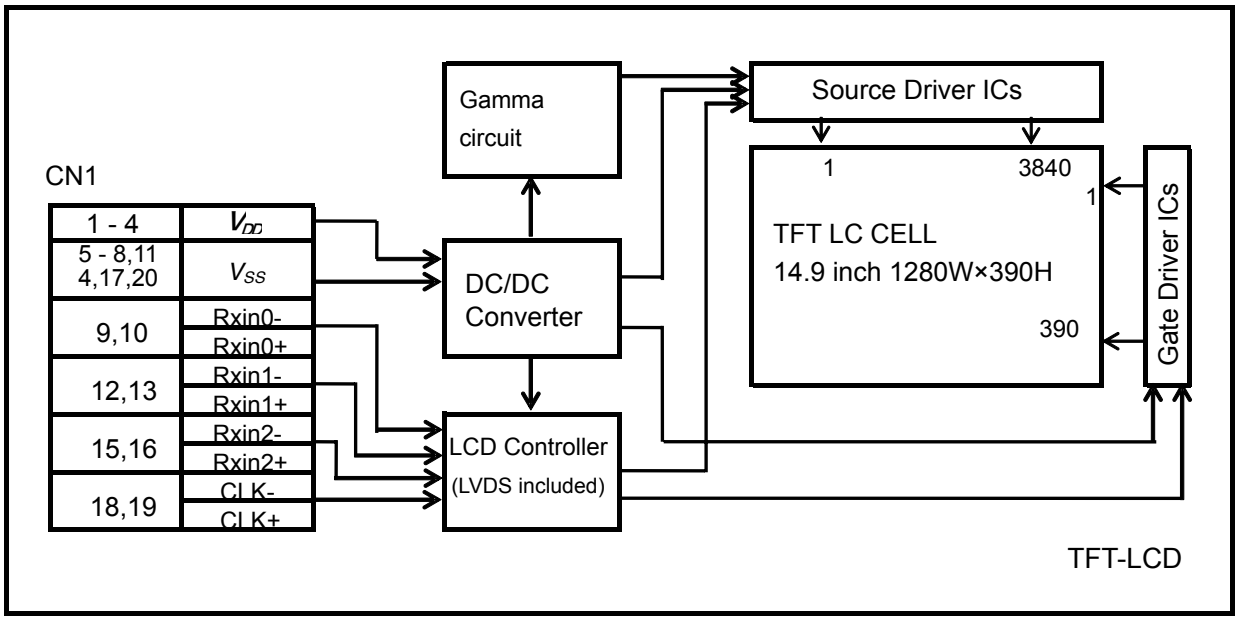
TENTATIVE

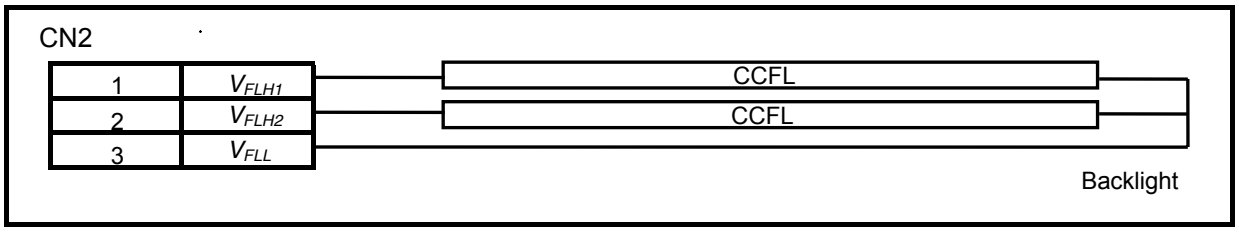
Unit : mm

Standard tolerance : +/-0.5

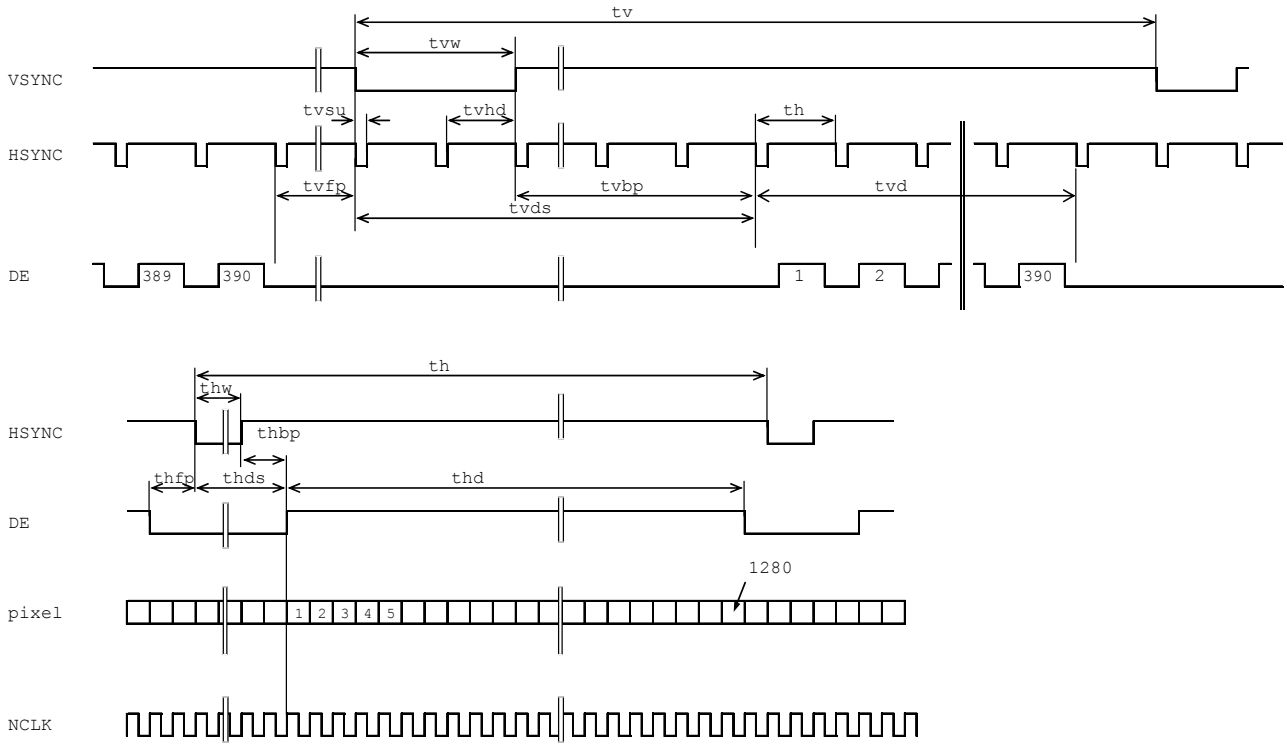


BLOCK DIAGRAM





TIMING CHART



TIMING SPECIFICATION

Item	Symbol	min.	typ.	max.	unit
Horizontal Scanning Term	*t*h	1314 x *t*c	1408 x *t*c	1430 x *t*c	clock
Horizontal Frequency	*f t*h	23.760-	25.052	25.996	kHz
H-sync Pulse Width	*t*hw	4 x *t*c	32 x *t*c	40 x *t*c	clock
Horizontal Front Porch	*t*hfp	6 x *t*c	32 x *t*c	40 x *t*c	clock
Horizontal Back Porch	*t*hbp	24 x *t*c	64 x *t*c	70 x *t*c	clock
Horizontal Data Sync Period	*t*hds	28 x *t*c	96 x *t*c	110 x *t*c	clock
Horizontal Display Term	*t*hd	1280 x *t*c	1280 x *t*c	1280 x *t*c	clock
Frame Period	*t*v	396 x *t*h	418 x *t*h	434 x *t*h	line
Vertical Frequency	*f t*v	59.899	59.934	60.0	Hz
V-sync Pulse Width	*t*vw	2 x *t*h	3 x *t*h	10 x *t*h	line
V-sync Set Up Time (to H-sync)	*t*vsu	8 x *t*c	-	-	clock
V-sync Hold Time	*t*vhd	(thbp+16) x *t*c	-	-	clock
Vertical Front Porch	*t*vfp	1 x *t*h	1 x *t*h	5 x *t*h	line
Vertical Back Porch	*t*vbp	3 x *t*h	24 x *t*h	29 x *t*h	line
Vertical Data Sync Period	*t*vds	5 x *t*h	27 x *t*h	39 x *t*h	line
Vertical Display Term	*t*vd	390 x *t*h	390 x *t*h	390 x *t*h	line
Clock Period	*t*c	26.9	28.350	32.0	ns
Clock Frequency	*f t*c	31.221	35.274	37.175	MHz

CONNECTOR PIN ASSIGNMENT FOR INTERFACE

CN1 INPUT SIGNAL

Connector: DF19G-20P-1H / HIROSE

Mating Connector: DF19G-20S-1F (FPC), DF19G-20S-1C (Cable)

Terminal No.	Symbol	Function	Input / output	Remarks
1	V_{DD}	Power Supply : +3.3V	input	Note 1)
2	V_{DD}	Power Supply : +3.3V	input	Note 1)
3	V_{DD}	Power Supply : +3.3V	input	Note 1)
4	V_{DD}	Power Supply : +3.3V	input	Note 1)
5	V_{SS}	GND	—	
6	V_{SS}	GND	—	
7	V_{SS}	GND	—	
8	V_{SS}	GND	—	
9	RxIN0-	Negative LVDS differential data input (R0-R5,G0)	input	Note 1)
10	RxIN0+	Positive LVDS differential data input (R0-R5,G0)	input	Note 1)
11	V_{SS}	GND	—	
12	RxIN1-	Negative LVDS differential data input (G1-G5, B0-B1)	input	Note 1)
13	RxIN1+	Positive LVDS differential data input (G1-G5, B0-B1)	input	Note 1)
14	V_{SS}	GND	—	
15	RxIN2-	Negative LVDS differential data input (B2-B5, HS, VS, DE)	input	Note 1)
16	RxIN2+	Positive LVDS differential data input (B2-B5, HS, VS, DE)	input	Note 1)
17	V_{SS}	GND	—	
18	CLK-	Clock Signal(-)	input	Note 1)
19	CLK+	Clock Signal(+)	input	Note 1)
20	V_{SS}	GND	—	

Please connect GND pin to ground. Don't use it as no-connect nor connection with high impedance.

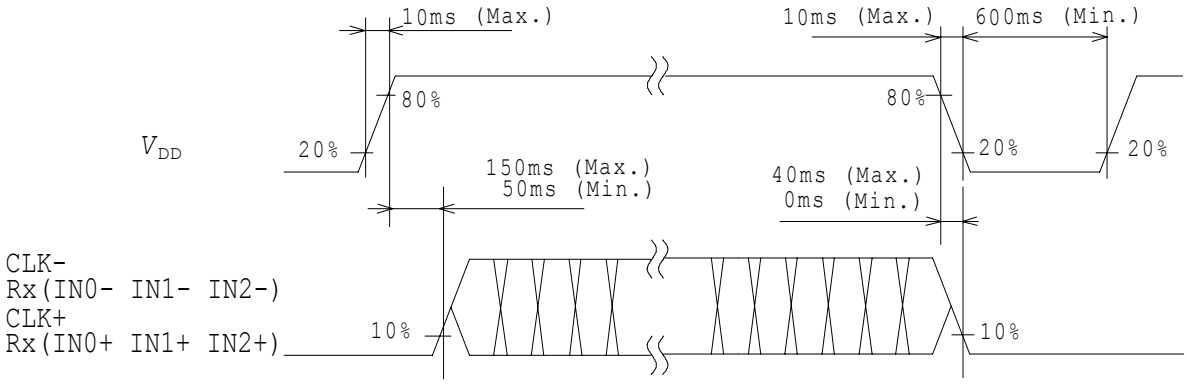
CN2 CCFL POWER SOURCE

Connector: BHR-03(4-3) VS-1N / JAPAN SOLDERLESS TERMINAL MFG CO., LTD.

Mating Connector: SM03 (7-D1) B-BHS-1N -TB/ JAPAN SOLDERLESS TERMINAL MFG CO., LTD.

Terminal No.	Symbol	Function	Input / output	Remarks
1	V_{FLH1}	CCFL Power Supply (high voltage)	input	
2	V_{FLH2}	CCFL Power Supply (high voltage)	input	
3	V_{FLL}	CCFL Power Supply (low voltage)	input	

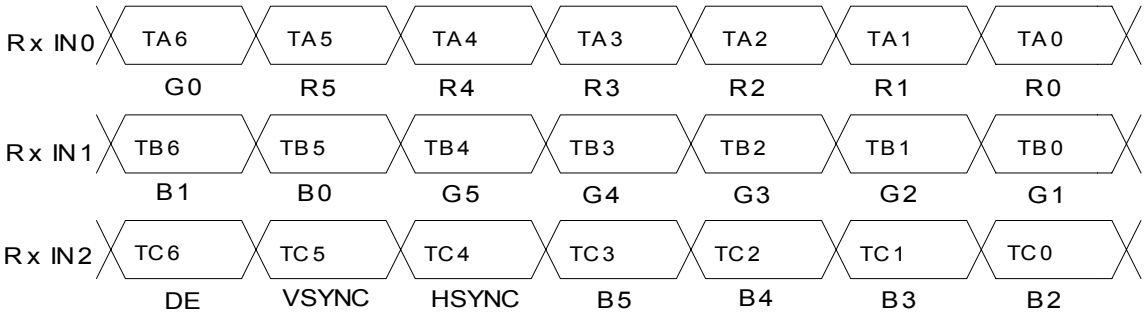
Note 1) Please do an input power supply sequence as follows.



Note 3) When input signal is applied while operating CCFL, horizontal line will be displayed for an instant.
This phenomenon is not abnormal for LCD characteristic. However, in case of need avoid this phenomenon, please apply that signal input first and then turn CCFL on as recommendable usage.

RECOMMENDED TRANSMITTER (THC63LVDM83C) TO LTA149B780F INTERFACE ASSIGNMENT

THC63LVDM83C					LTA149B780F Interface (CN1)	
Input Terminal No.		Input Signal (Graphics controller output signal)		Output Signal Symbol		
Symbol	THC63LVDM83C	Symbol	Function		Terminal	Symbol
TA0	51	R0	Red Pixels Display Data (LSB)	TA- TA+	No.9 No.10	RxIN0- RxIN0+
TA1	52	R1	Red Pixels Display Data			
TA2	54	R2	Red Pixels Display Data			
TA3	55	R3	Red Pixels Display Data			
TA4	56	R4	Red Pixels Display Data			
TA5	3	R5	Red Pixels Display Data (MSB)			
TA6	4	G0	Green Pixels Display Data (LSB)			
TB0	6	G1	Green Pixels Display Data	TB- TB+	No.12 No.13	RxIN1- RxIN1+
TB1	7	G2	Green Pixels Display Data			
TB2	11	G3	Green Pixels Display Data			
TB3	12	G4	Green Pixels Display Data			
TB4	14	G5	Green Pixels Display Data (MSB)			
TB5	15	B0	Blue Pixels Display Data (LSB)			
TB6	19	B1	Blue Pixels Display Data			
TC0	20	B2	Blue Pixels Display Data	TC- TC+	No.15 No.16	RxIN2- RxIN2+
TC1	22	B3	Blue Pixels Display Data			
TC2	23	B4	Blue Pixels Display Data			
TC3	24	B5	Blue Pixels Display Data (MSB)			
TC4	27	HSYNC	H-Sync			
TC5	28	VSYNC	V-Sync			
TC6	30	DE	Compound Synchronization Signal			
CLK IN	31	NCLK	Data Sampling Clock	TCLK- TCLK+	No.18 No.19	CLK- CLK+



256k (k=1024) COLORS COMBINATION TABLE

	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	---
	Light 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	L 0
	Dark ↑ ↓ Light	L	L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L 1
		L	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L 2
		:						:						:						L3... L60
		H	H	H	H	L	H	L	L	L	L	L	L	L	L	L	L	L	L	L61
		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	Red L63
Gray Scale of Green	Black	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L 0
	Dark ↑ ↓ Light	L	L	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L 1
		L	L	L	L	L	L	L	L	L	L	H	L	L	L	L	L	L	L	L 2
		:						:						:						L3... L60
		L	L	L	L	L	L	H	H	H	H	L	H	L	L	L	L	L	L	L61
		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	L 0
	Dark ↑ ↓ Light	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L 1
		L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	L	L 2
		:						:						:						L3... L60
		L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	L	H	L61
		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	L 0
	Dark ↑ ↓ Light	L	L	L	L	L	H	L	L	L	L	L	H	L	L	L	L	L	H	L 1
		L	L	L	L	H	L	L	L	L	L	H	L	L	L	L	L	H	L	L 2
		:						:						:						L3... L60
		H	H	H	H	L	H	H	H	H	H	L	H	H	H	H	H	L	H	L61
		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

FOR SAFETY

LCD module is generally designed with precise parts to achieve light weighted thin mechanical dimensions.
In using our Modules, make certain that you fully understand and put into practice the warnings and safety precautions detailed in Engineering Information No.EE-N001,"CAUTIONS AND INSTRUCTIONS FOR TOSHIBA LCD MODULES".
Refer to individual specifications and TECHNICAL DATA sheets (hereinafter called "TD") for more detailed technical information.

1) SPECIAL PURPOSES

A) Toshiba Matsushita Display Technology's Standard LCD Modules have not been customized for operation in extreme environments or for use in applications where performance failures could be life-threatening or otherwise catastrophic.

B) Since Toshiba Matsushita Display Technology's Standard LCD Modules have not been designed for operation in extreme environments, they must never be used in devices that will be exposed to abnormally high levels of vibration or shock which exceed Toshiba Matsushita Display Technology's published specification limits.

C) In addition, since Toshiba Matsushita Display Technology Standard LCD Modules have not been designed for use in applications where performance failures could be life-threatening or catastrophic, they must never be installed in aircraft navigation control systems (such as, but not limited to Traffic Collision Avoidance System and Air Traffic Indicator), in military defense or weapons systems, in critical industrial process-control systems (e.g., those involved in the production of nuclear energy), or in critical medical device or patient life-support systems.

2) DISASSEMBLING OR MODIFICATION

DO NOT DISASSEMBLE OR MODIFY the module. It may damage sensitive parts inside LCD module, and may cause scratches or dust on the display.
Toshiba Matsushita Display Technology doses not warrant the module, if customer disassembled or modified it.

3) BREAKAGE OF LCD PANEL

DO NOT INGEST liquid crystal material, DO NOT INHALE this material, and DO NOT CONTACT the material with skin, if LCD panel is broken and liquid crystal material spills out.
If liquid crystal material comes into mouth or eyes, rinse mouth or eyes out with water immediately.
If this material contact with skin or cloths, wash it off immediately with alcohol and rinse thoroughly with water.

4) GLASS OF LCD PANEL

BE CAREFUL WITH CHIPS OF GLASS that may cause injuring fingers or skin, when the glass is broken.

5) ELECTRIC SHOCK

DISCONNECT POWER SUPPLY before handling LCD module.
DO NOT TOUCH the parts inside LCD module and the fluorescent lamp's connector or cables in order to prevent electric shock, because high voltage is supplied to these parts from the inverter unit while power supply is turned on.

6) ABSOLUTE MAXIMUM RATINGS AND POWER PROTECTION CIRCUIT

DO NOT EXCEED the absolute maximum rating values under the worst probable conditions caused by the supply voltage variation, input voltage variation, variation in parts' constants, environmental temperature, etc., otherwise LCD module may be damaged.
Employ protection circuit for power supply, whenever the specification or TD specifies it.
Suitable protection circuit should be applied for each system design.

7) RECOMMENDED OPERATION CONDITIONS

The performance and quality of the LCD panel are warranted only when the LCD panel is used within “the recommended operation conditions”. Toshiba Matsushita Display Technology Co., Ltd. never warrants the performance and quality of the LCD panel when you use the LCD panel over “the recommended operation conditions”, although within “the absolute maximum rating”.
To use the LCD panel over “the recommended operation conditions” may have bad influence on the characteristics and reliability of the LCD panel and may shorten the life of the LCD panel.
Therefore, when designing the whole set, not to be over “the recommended operation conditions”, you should fully take care of supply voltage change, characteristic of connection parts, serge of input-and-output line, and surrounding temperature.

8) DISPOSAL

When dispose LCD module, obey to the applicable environmental regulations.