

Doc. Number:

Tentative Specification
Preliminary Specification
Approval Specification

# MODEL NO.: N133FGE SUFFIX: L31

Customer:	
APPROVED BY	SIGNATURE
Name / Title Note	
Please return 1 copy for your cosignature and comments.	nfirmation with your

Approved By	Checked By	Prepared By
楊竣傑	陳逸銘	阮經綸
2011-09-15	2011-09-08	2011-08-31
20:21:56 CST	10:34:40 CST	10:45:46 CST

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### **REVISION HISTORY**

Version	Date	Page	Description
0.0	Aug.17, 2011	All	Tentative spec Ver.0.0 was first issued.



#### 1. GENERAL DESCRIPTION

#### 1.1 OVERVIEW

N133FGE-L31 is a 13.3" (13.3" diagonal) TFT Liquid Crystal Display module with LED Backlight unit and 40 pins LVDS interface. This module supports 1600 x 900 HD+ mode and can display 262,144 colors. The optimum viewing angle is at 6 o'clock direction.

#### 1.2 GENERAL SPECIFICATIONS

Item	Specification	Unit	Note
Screen Size	13.3 diagonal		
Driver Element	a-si TFT active matrix	-	-
Pixel Number	1600 x R.G.B. x 900	pixel	-
Pixel Pitch	0.18375 (H) x 0.18375 (V)	mm	-
Pixel Arrangement	rrangement RGB vertical stripe		-
Display Colors	262,144	color	-
Transmissive Mode Normally white		-	-
Surface Treatment	Anti-Glare, Haze 14%	-	-
Luminance, White	300	Cd/m2	
Power Consumption	TBD		(1)

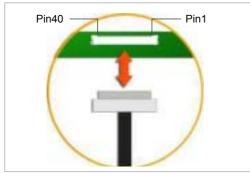
Note (1) The specified power consumption is under the conditions at VCCS = 3.3 V, Ta =  $25 \pm 2$  °C, LED VCCS = Typ, fPWM = 200 Hz, Duty=100% and fv = 60 Hz, whereas mosaic pattern is displayed.

#### 2. MECHANICAL SPECIFICATIONS

Item		Min.	Тур.	Max.	Unit	Note
	Horizontal (H)	305.8	306.3	306.8	mm	
	Vertical (V) (W/ PCBA)	187.7	188.2	188.7	mm	
Module Size	Thickness (T) (W/ PCBA)	NA	NA	3		(1)
	Thickness (T) (W/O PCBA)	NA	2.48	2.68	mm	
Active Area	Horizontal	293.7	294	294.3	mm	
Active Area	Vertical	165.075	165.375	165.675	mm	
	Weight	-	200	210	g	

Note (1) Please refer to the attached drawings for more information of front and back outline dimensions.

#### 2.1 CONNECTOR TYPE



Please refer Appendix Outline Drawing for detail design.

Connector Part No.: IPEX-20455-040E-12 or FOXCONN GS13401-1110A-7H or equivalent

User's connector Part No: IPEX-20453-040T-01 or equivalent



#### 3. ABSOLUTE MAXIMUM RATINGS

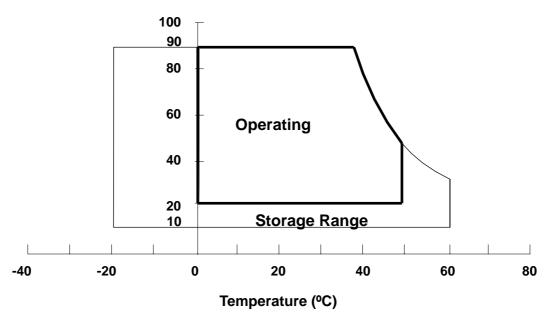
#### 3.1 ABSOLUTE RATINGS OF ENVIRONMENT

Item	Symbol	Va	lue	Unit	Note	
item	Symbol	Min.	Max.	Offic		
Storage Temperature	T <sub>ST</sub>	-20	+60	°C	(1)	
Operating Ambient Temperature T <sub>O</sub>		0	+50	°C	(1), (2)	

- Note (1) (a) 90 %RH Max. (Ta <= 40 °C).
  - (b) Wet-bulb temperature should be 39 °C Max. (Ta > 40 °C).
  - (c) No condensation.

Note (2) The temperature of panel surface should be 0 °C min. and 60 °C max.





#### 3.2 ELECTRICAL ABSOLUTE RATINGS

#### 3.2.1 TFT LCD MODULE

Item	Symbol	Va	lue	Unit	Note	
item	Cymbol	Min.	Min. Max.		Note	
Power Supply Voltage	VCCS	-0.3	+4.0	V	(1)	
Logic Input Voltage	V <sub>IN</sub>	-0.3	VCCS+0.3	V	(1)	
Converter Input Voltage	LED_VCCS	-0.3	(25)	V		
Converter Control Signal Voltage	LED_PWM,	-0.3	(5)	V		
Converter Control Signal Voltage	LED_EN	-0.3	(5)	V		

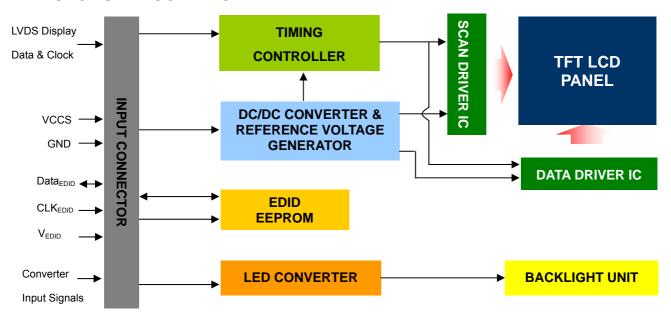
Note (1) Stresses beyond those listed in above "ELECTRICAL ABSOLUTE RATINGS" may cause permanent damage to the device. Normal operation should be restricted to the conditions described in "ELECTRICAL CHARACTERISTICS".

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# 4. ELECTRICAL SPECIFICATIONS

### **4.1 FUNCTION BLOCK DIAGRAM**



# 4.2. INTERFACE CONNECTIONS

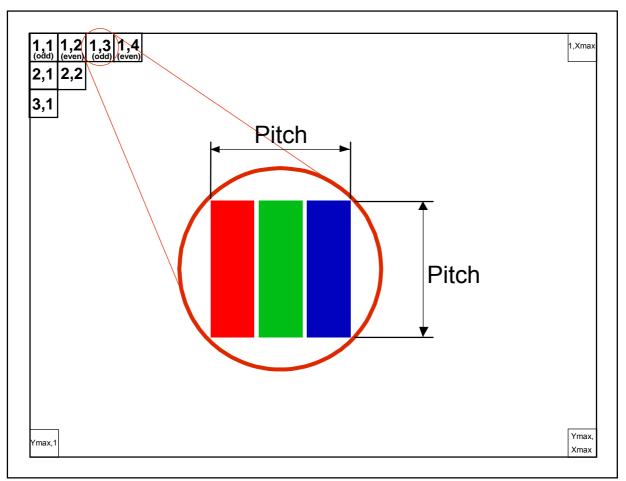
PIN ASSIGNMENT

Pin	Symbol	Description	Remark
1	NC	No Connection (Reserve)	
2	VCCS	Power Supply (3.3V typ.)	
3	VCCS	Power Supply (3.3V typ.)	
4	VEDID	DDC 3.3V power	
5	NC	No Connection (Reserved for CMI test)	
6	CLKEDID	DDC clock	
7	DATAEDID	DDC data	
8	RXO0-	LVDS Differential Data Input (Odd)	R0-R5, G0
9	RXO0+	LVDS Differential Data Input (Odd)	K0-K5, G0
10	VSS	Ground	
11	RXO1-	LVDS Differential Data Input (Odd)	C1- C5 D0 D1
12	RXO1+	LVDS Differential Data Input (Odd)	G1~G5, B0, B1
13	VSS	Ground	
14	RXO2-	LVDS Differential Data Input (Odd)	B2-B5,HS,VS, DE
15	RXO2+	LVDS Differential Data Input (Odd)	62-65,03,v3, DE
16	VSS	Ground	
17	RXOC-	LVDS Clock Data Input (Odd)	LVDS CLK
18	RXOC+	LVDS Clock Data Input (Odd)	LVDS CLK
19	VSS	Ground	
20	RXE0-	LVDS Differential Data Input (Even)	R0-R5, G0
21	RXE0+	LVDS Differential Data Input (Even)	
22	VSS	Ground	
23	RXE1-	LVDS Differential Data Input (Even)	G1~G5, B0, B1



24	RXE1+	LVDS Differential Data Input (Even)	
25	VSS	Ground	
26	RXE2-	LVDS Differential Data Input (Even)	B2-B5,HS,VS, DE
27	RXE2+	LVDS Differential Data Input (Even)	
28	VSS	Ground	
29	RXEC-	LVDS Clock Data Input (Even)	LVDS CLK
30	RXEC+	LVDS Clock Data Input (Even)	
31	LED_GND	LED Ground	
32	LED_GND	LED Ground	
33	LED_GND	LED Ground	
34	NC	No Connection (Reserve)	
35	LED_PWM	PWM Control Signal of LED Converter	
36	LED_EN	Enable Control Signal of LED Converter	
37	NC	No Connection (Reserve)	
38	LED_VCCS	LED Power Supply	
39	LED_VCCS	LED Power Supply	
40	LED_VCCS	LED Power Supply	

Note (1) The first pixel is odd as shown in the following figure.





#### 4.3 ELECTRICAL CHARACTERISTICS

### 4.3.1 LCD ELETRONICS SPECIFICATION

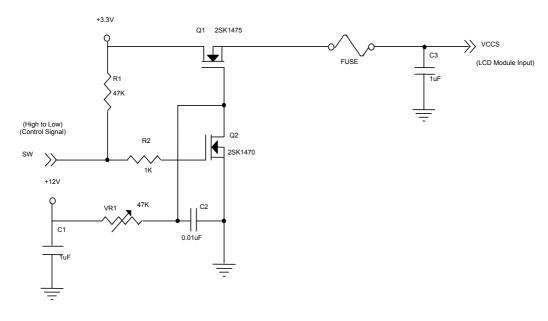
Parameter		Symbol	Value			Lloit	Note
		Symbol	Min.	Тур.	Max.	Unit	Note
Power Supply Voltage		vccs	3.0	3.3	3.6	V	(1)-
Ripple Voltage		$V_{RP}$	-	50	-	mV	(1)-
Inrush Current		I <sub>RUSH</sub>	-	-	1.5	Α	(1),(2)
Mosaic Mosaic		loo		(TBD)	(TBD)	(3)a	(3)a
Power Supply Current	Black	Icc		(TBD)	(TBD)	(3)b	(3)b

Note (1) The ambient temperature is  $Ta = 25 \pm 2$  °C.

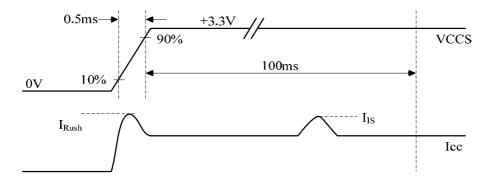
Note (2) I<sub>RUSH</sub>: the maximum current when VCCS is rising

 $I_{\text{IS}}$ : the maximum current of the first 100ms after power-on

Measurement Conditions: Shown as the following figure. Test pattern: black.



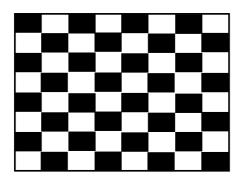
### VCCS rising time is 0.5ms





Note (3) The specified power supply current is under the conditions at VCCS = 3.3 V, Ta =  $25 \pm 2$  °C, DC Current and  $f_v$  = 60 Hz, whereas a power dissipation check pattern below is displayed.

#### a. Mosaic Pattern



Active Area

#### b. Black Pattern



Active Area



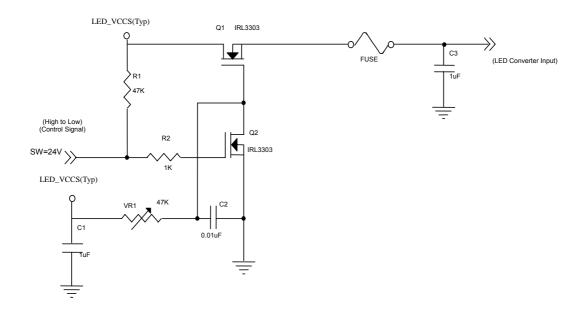
#### 4.3.2 LED CONVERTER SPECIFICATION

Doror	Parameter		Value			Linit	Noto
Parai	netei	Symbol	Min.	Тур.	Max.	Unit	Note
Converter Input pow	er supply voltage	LED_Vccs	(6.0)	(12.0)	(21.0)	V	
Converter Inrush Cu	ırrent	ILED <sub>RUSH</sub>	-	-	(1.5)	Α	(1)
EN Control Level	Backlight On		(2.3)	-	(5.0)	V	
EN Control Level	Backlight Off		(0)	-	(0.5)	V	
PWM Control Level	PWM High Level		(2.3)	-	(5.0)	V	
Pyvivi Control Level	PWM Low Level		(0)	-	(0.5)	V	
DWM Control Duty	Datia		(10)	-	(100)	%	
PWM Control Duty F	Ralio		(5)	-	(100)	%	(2)
PWM Control Permissive Ripple Voltage		VPWM_pp	-	-	(100)	mV	
PWM Control Frequency		$f_{PWM}$	(190)	-	(2K)	Hz	(3)
LED Power Current	LED_VCCS =Typ.	ILED	(132)	(165)	(185)	mA	(4)

Note (1) ILED<sub>RUSH</sub>: the maximum current when LED\_VCCS is rising,

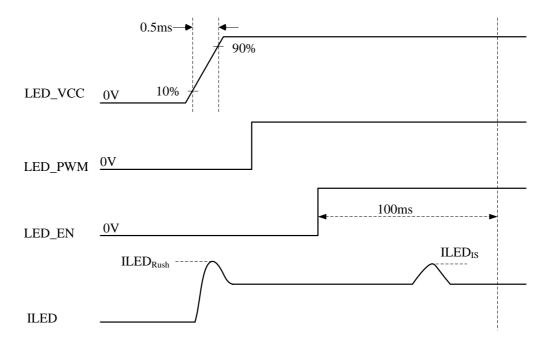
ILED<sub>IS</sub>: the maximum current of the first 100ms after power-on,

Measurement Conditions: Shown as the following figure. LED\_VCCS = Typ, Ta = 25  $\pm$  2 °C,  $f_{PWM}$  = 200 Hz, Duty=100%.





#### VLED rising time is 0.5ms



- Note (2) If the PWM control duty ratio is less than 10%, there is some possibility that acoustic noise or backlight flash can be found. And it is also difficult to control the brightness linearity.
- Note (3) If PWM control frequency is applied in the range less than 1KHz, the "waterfall" phenomenon on the screen may be found. To avoid the issue, it's a suggestion that PWM control frequency should follow the criterion as below.

PWM control frequency 
$$f_{\text{PWM}}$$
 should be in the range 
$$(N+0.33)*f \leq f_{\text{PWM}} \leq (N+0.66)*f$$
 
$$N: \text{Integer} \ \ (N\geq 3)$$
 
$$f: \text{Frame rate}$$

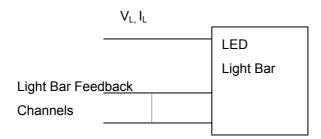
Note (4) The specified LED power supply current is under the conditions at "LED\_VCCS = Typ.", Ta = 25  $\pm$  2 °C,  $f_{PWM}$  = 200 Hz, Duty=100%.

#### 4.3.3 BACKLIGHT UNIT

Ta = 25 ± 2 °C

Davasastas	Comple ed		Value		1.1	Note
Parameter	Symbol	Min. Typ.		Max.	Unit	Note
LED Light Bar Power Supply Voltage	VL	25	29	30	V	(1)(2)(Duty(100%)
LED Light Bar Power Supply Current	ΙL	57	60	63	mA	(1)(2)(Duty100%)
Power Consumption	PL	1.425	1.74	1.89	W	(3)
LED Life Time	$L_BL$	15,000	ı	-	Hrs	(4)

Note (1) LED current is measured by utilizing a high frequency current meter as shown below:



- Note (2) For better LED light bar driving quality, it is recommended to utilize the adaptive boost converter with current balancing function to drive LED light-bar.
- Note (3)  $P_L = I_L \times V_L$  (Without LED converter transfer efficiency)
- Note (4) The lifetime of LED is defined as the time when it continues to operate under the conditions at Ta = 25  $\pm$ 2  $^{\circ}$ C and I<sub>L</sub> = 15 mA(Per EA) until the brightness becomes 50% of its original value.

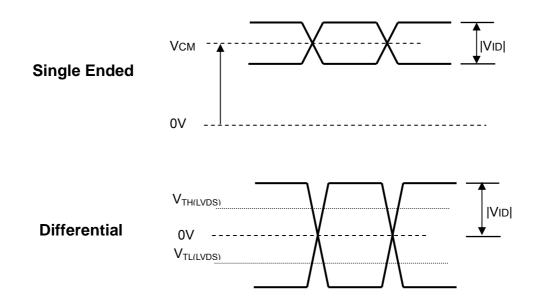


#### 4.4 LVDS INPUT SIGNAL TIMING SPECIFICATIONS

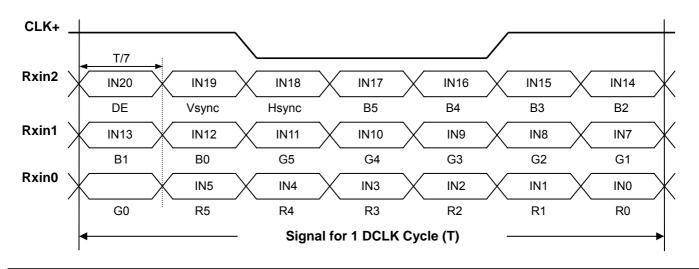
#### 4.4.1 LVDS DC SPECIFICATIONS

Parameter	Symbol		Value	Unit	Note	
	,	Min.	Тур.	Max.		
LVDS Differential Input High Threshold	V <sub>TH(LVDS)</sub>	-	-	+100	mV	(1), V <sub>CM</sub> =1.2V
LVDS Differential Input Low Threshold	$V_{TL(LVDS)}$	-100	-	-	mV	(1) V <sub>CM</sub> =1.2V
LVDS Common Mode Voltage	$V_{CM}$	1.125	-	1.375	V	(1)
LVDS Differential Input Voltage	V <sub>ID</sub>	100	-	600	mV	(1)
LVDS Terminating Resistor	$R_T$	-	100	-	Ohm	-

Note (1) The parameters of LVDS signals are defined as the following figures.



#### 4.4.2 LVDS DATA FORMAT



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### 4.4.3 COLOR DATA INPUT ASSIGNMENT

The brightness of each primary color (red, green and blue) is based on the 6-bit gray scale data input for the color. The higher the binary input the brighter the color. The table below provides the assignment of color versus data input.

									[	Data	Sign	al							
			Re	ed					Gre	en					Bl	ue			
		R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	В3	B2	B1	B0
	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Basic	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
Colors	Cyan	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Red(0)/Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(1)	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Gray	Red(2)	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Scale	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Of	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Red	Red(61)	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Red(62)	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(63)	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	Green(0)/Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green(1)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Gray	Green(2)	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Scale	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Of	i	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:		:
Green	Green(61)	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0
	Green(62)	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0
	Green(63)	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
	Blue(0)/Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Gray	Blue(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Scale	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Of	<u>:</u>	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	;
Blue	Blue(61)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1
	Blue(62)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0
	Blue(63)	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1

Note (1) 0: Low Level Voltage, 1: High Level Voltage



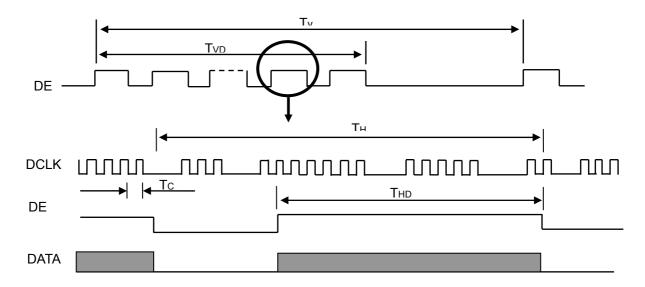
#### 4.5 DISPLAY TIMING SPECIFICATIONS

The input signal timing specifications are shown as the following table and timing diagram.

Signal	Item	Symbol	Min.	Тур.	Max.	Unit	Note
DCLK	Frequency	1/Tc	(32.50)	(48.89)	(53.78)	MHz	-
	Vertical Total Time	TV	(TBD)	926	(TBD)	TH	-
	Vertical Active Display Period	TVD	900	900	900	TH	-
DE	Vertical Active Blanking Period	TVB	TV-TVD	26	TV-TVD	TH	-
DE	Horizontal Total Time	TH	(TBD)	1760	(TBD)	Тс	-
	Horizontal Active Display Period	THD	1600	1600	1600	Tc	-
	Horizontal Active Blanking Period	THB	TH-THD	160	TH-THD	Tc	-

Note (1) Because this module is operated by DE only mode, Hsync and Vsync are ignored.

#### **INPUT SIGNAL TIMING DIAGRAM**

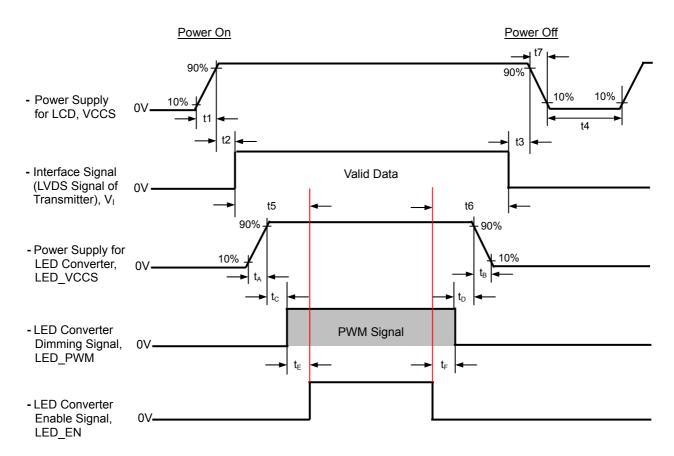




#### 4.6 POWER ON/OFF SEQUENCE

The power sequence specifications are shown as the following table and diagram.

Cymbol		Value		Unit	Note
Symbol	Min.	Тур.	Typ. Max.		Note
t1	(0.5)	-	(10)	ms	
t2	(0)	-	(50)	ms	
t3	(0)	-	(50)	ms	
t4	(500)	-	-	ms	
t5	(200)	-	-	ms	
t6	(200)	-	-	ms	
t7	(0.5)	-	(10)	ms	
$t_A$	(0.5)	-	(10)	ms	
t <sub>B</sub>	(0)		(10)	ms	
$t_{C}$	(10)	-	-	ms	
$t_{D}$	(10)	-	-	ms	
t <sub>∈</sub>	(10)	-	-	ms	
t⊧	(10)	-		ms	



- Note (1) Please don't plug or unplug the interface cable when system is turned on.
- Note (2) Please avoid floating state of the interface signal during signal invalid period.
- Note (3) It is recommended that the backlight power must be turned on after the power supply for LCD and the interface signal is valid.



#### 5. OPTICAL CHARACTERISTICS

### **5.1 TEST CONDITIONS**

Item	Symbol	Value	Unit				
Ambient Temperature	Ta	25±2	°C				
Ambient Humidity	На	50±10	%RH				
Supply Voltage	$V_{CC}$	3.3	V				
Input Signal	According to typical v	typical value in "3. ELECTRICAL CHARACTERISTICS"					
LED Light Bar Input Current	Ι <sub>L</sub>	60	mA				

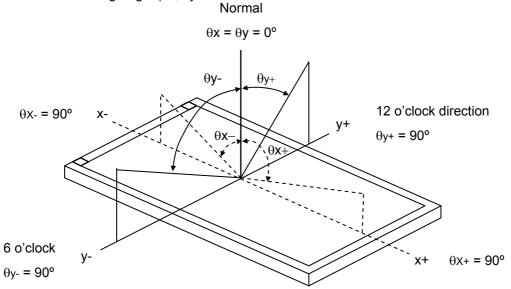
The measurement methods of optical characteristics are shown in Section 5.2. The following items should be measured under the test conditions described in Section 5.1 and stable environment shown in Note (5).

### **5.2 OPTICAL SPECIFICATIONS**

Iter	m	Symbol	Condition	Min.	Тур.	Max.	Unit	Note	
Contrast Ratio		CR		300	500	1	1	(2), (5), (7)	
Response Time	<b>.</b>	$T_R$		-	3	4	ms	(3), (7)	
response rime	<del>-</del>	$T_F$		-	7	12	ms		
Average Lumina	ance of White	Lave		260	300	-	cd/m <sup>2</sup>	(4), (6), (7)	
	Bod	Rx			0.648		-		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Reu	Ry			0.332		-		
		-							
	Green	Gy			0.629	Typ +	-	(1), (7)	
	Bx		0.03	0.155	0.03	-	(1), (7)		
			0.135		-				
	\\/hito	Wx			0.313		-		
	vviile	Wy			0.329		-		
	Horizontal	$\theta_{x}$ +		40	45				
Viowing Anglo	Tionzoniai	$\theta_{x}$ -	CD>10	40	45	-	Dog	(1), (5),	
viewing Angle	Vertical	$\theta_{Y}$ +	UR≥10	15	20	-	Deg.	(7)	
	vertical	θ <sub>Y</sub> -		40	45	-			
Brightness Full width at		Horizontal	4/0.1	45			Dan	(1), (5),	
Half-maximum		Vertical	1/2 Lave	23			Deg.	(7)	
White Variation	of 5 Points	$\delta W_{5p}$	$\theta_x$ =0°, $\theta_Y$ =0°	70	-	-	%	(5), (6),	



Note (1) Definition of Viewing Angle ( $\theta x$ ,  $\theta y$ )



Note (2) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

Contrast Ratio (CR) = L63 / L0

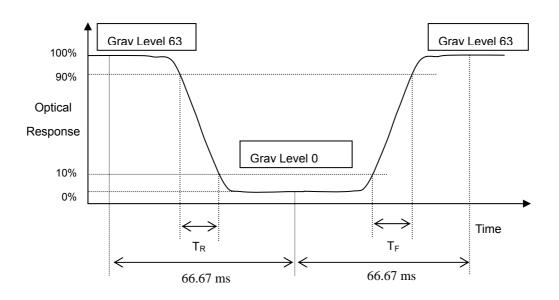
L63: Luminance of gray level 63

L 0: Luminance of gray level 0

CR = CR(1)

CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note (6).

# Note (3) Definition of Response Time $(T_R, T_F)$ :





#### Note (4) Definition of Average Luminance of White (L<sub>AVE</sub>):

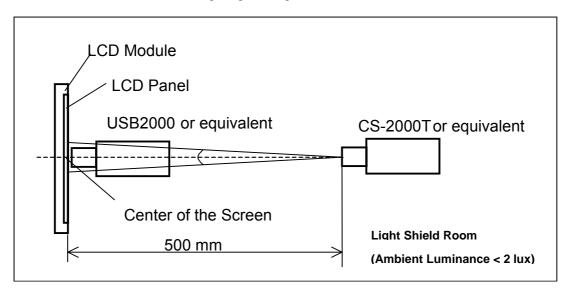
Measure the luminance of gray level 63 at 5 points

$$L_{AVE} = [L(1) + L(2) + L(3) + L(4) + L(5)] / 5$$

L (x) is corresponding to the luminance of the point X at Figure in Note (6)

#### Note (5) Measurement Setup:

The LCD module should be stabilized at given temperature for 20 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 20 minutes in a windless room.

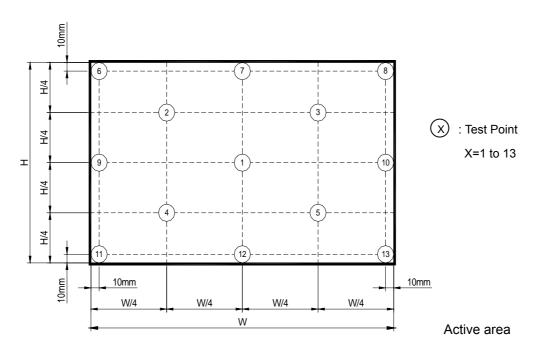


#### Note (6) Definition of White Variation ( $\delta W$ ):

Measure the luminance of gray level 63 at 5 points

 $\delta W_{5p} = \{Minimum [L (1)~L (5)] / Maximum [L (1)~L (5)]\}*100\%$ 





Note (7) The listed optical specifications refer to the initial value of manufacture, but the condition of the specifications after long-term operation will not be warranted.



### **6. RELIABILITY TEST ITEM**

Test Item	Test Condition	Note
High Temperature Storage Test	60°C, 240 hours	
Low Temperature Storage Test	-20°C, 240 hours	
Thermal Shock Storage Test	-20°C, 0.5hour←→60 , 0.5hour; 100cycles, 1hour/cycle	
High Temperature Operation Test	50°C, 240 hours	(1) (2)
Low Temperature Operation Test	0°C, 240 hours	( ) ( )
High Temperature & High Humidity Operation Test	50°C, RH 80%, 240hours	
ESD Test (Operation)	150pF, 330Ω, 1sec/cycle Condition 1 : Contact Discharge, ±8KV Condition 2 : Air Discharge, ±15KV	(1)
Shock (Non-Operating)	220G, 2ms, half sine wave,1 time for each direction of ±X,±Y,±Z	(1)(3)
Vibration (Non-Operating)	1.5G / 10-500 Hz, Sine wave, 30 min/cycle, 1cycle for each X, Y, Z	(1)(3)

Note (1) criteria: Normal display image with no obvious non-uniformity and no line defect.

Note (2) Evaluation should be tested after storage at room temperature for more than two hour

Note (3) At testing Vibration and Shock, the fixture in holding the module has to be hard and rigid enough so that the module would not be twisted or bent by the fixture.

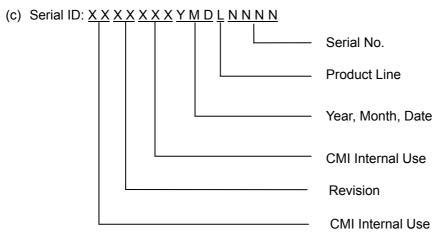
#### 7. PACKING

#### 7.1 MODULE LABEL

The barcode nameplate is pasted on each module as illustration, and its definitions are as following explanation.



- (a) Model Name: N133FGE L31
- (b) Revision: Rev. XX, for example: C1, C2 ...etc.



Serial ID includes the information as below:

(a) Manufactured Date: Year: 0~9, for 2010~2019

Month: 1~9, A~C, for Jan. ~ Dec.

Day: 1~9, A~Y, for 1st to 31st, exclude I, O and U

(b) Revision Code: cover all the change

(c) Serial No.: Manufacturing sequence of product

(d) Product Line: 1 -> Line1, 2 -> Line 2, ...etc.

(e) UL logo: "XXXX" is factory ID



### 7.2 CARTON

Box Dimensions : 540(L)\*450(W)\*275(H) Weight : Approx. 10.93Kg (40 module .per. 1box)

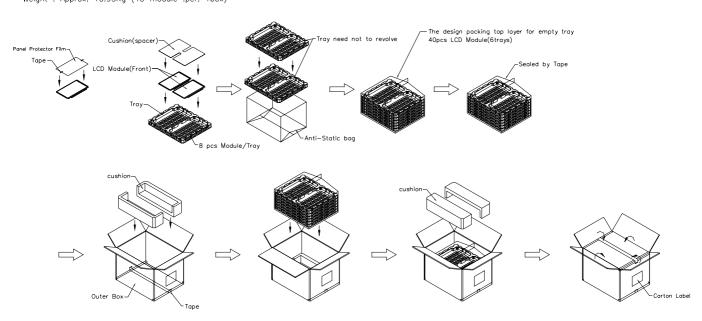


Figure. 7-2 Packing



### 7.3 PALLET

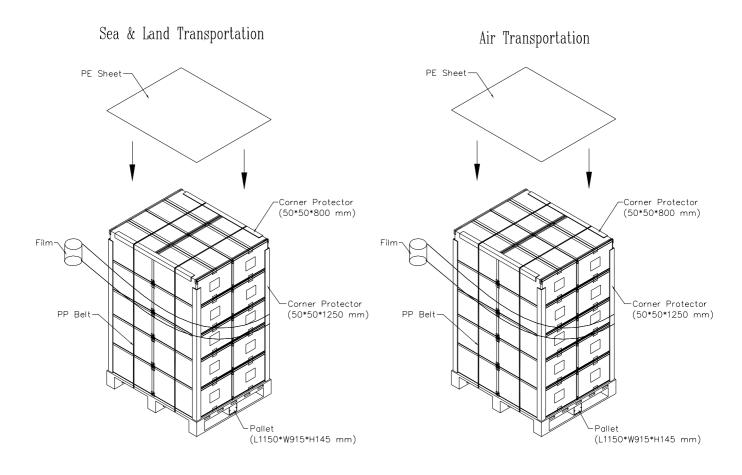


Figure. 7-3 Packing



#### 8. PRECAUTIONS

#### 8.1 HANDLING PRECAUTIONS

- (1) The module should be assembled into the system firmly by using every mounting hole. Be careful not to twist or bend the module.
- (2) While assembling or installing modules, it can only be in the clean area. The dust and oil may cause electrical short or damage the polarizer.
- (3) Use fingerstalls or soft gloves in order to keep display clean during the incoming inspection and assembly process.
- (4) Do not press or scratch the surface harder than a HB pencil lead on the panel because the polarizer is very soft and easily scratched.
- (5) If the surface of the polarizer is dirty, please clean it by some absorbent cotton or soft cloth. Do not use Ketone type materials (ex. Acetone), Ethyl alcohol, Toluene, Ethyl acid or Methyl chloride. It might permanently damage the polarizer due to chemical reaction.
- (6) Wipe off water droplets or oil immediately. Staining and discoloration may occur if they left on panel for a long time.
- (7) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contacting with hands, legs or clothes, it must be washed away thoroughly with soap.
- (8) Protect the module from static electricity, it may cause damage to the C-MOS Gate Array IC.
- (9) Do not disassemble the module.
- (10) Do not pull or fold the LED wire.
- (11) Pins of I/F connector should not be touched directly with bare hands.

#### **8.2 STORAGE PRECAUTIONS**

- (1) High temperature or humidity may reduce the performance of module. Please store LCD module within the specified storage conditions.
- (2) It is dangerous that moisture come into or contacted the LCD module, because the moisture may damage LCD module when it is operating.
- (3) It may reduce the display quality if the ambient temperature is lower than 10 °C. For example, the response time will become slowly, and the starting voltage of LED will be higher than the room temperature.

#### 8.3 OPERATION PRECAUTIONS

- (1) Do not pull the I/F connector in or out while the module is operating.
- (2) Always follow the correct power on/off sequence when LCD module is connecting and operating. This can prevent the CMOS LSI chips from damage during latch-up.
- (3) The startup voltage of Backlight is approximately 1000 Volts. It may cause electrical shock while assembling with converter. Do not disassemble the module or insert anything into the Backlight unit.



### Appendix. EDID DATA STRUCTURE

The EDID (Extended Display Identification Data) data formats are to support displays as defined in the VESA Plug & Display and FPDI standards.

Clescimal   Colombia   Colombia	Byte #	Byte #	Field News and Occurrents	Value	Value
1         1         Header         FF         11111111           2         2         Header         FF         11111111           3         3         Header         FF         11111111           4         4         Header         FF         11111111           5         5         Header         FF         11111111           7         7         Header         9         00         00000000           8         8         EISA ID manufacturer name ("CMN")         0D         0000110           9         9         EISA ID manufacturer name ("CMN")         4D         00         00000000           10         0A         ID product code (hex LSB first; N133FGE-L31)         4D         01000000           11         0B         ID product code (hex LSB first; N133FGE-L31)         13         00010011           12         0C         ID S/N (fixed "0")         00         00000000           13         0D         ID S/N (fixed "0")         00         00000000           14         0E         ID S/N (fixed "0")         00         00000000           15         0F         ID S/N (fixed "0")         00         00000000           16         <		•	Field Name and Comments		
2 2 Header FF 11111111 3 3 Header FF 11111111 4 4 Header FF 11111111 5 5 5 Header FF 11111111 6 6 6 Header FF 11111111 7 7 Header FF 11111111 7 7 Header FF 11111111 7 7 Header FF 11111111 9 9 9 EISA ID manufacturer name ("CMN") DD 00000000 8 8 EISA ID manufacturer name (Compressed ASCII) AE 10101110 10 0A ID product code (N133FGE-L31) 40 01000000 11 0B ID product code (N433FGE-L31) 40 01000000 11 0B ID product code (hex LSB first; N133FGE-L31) 13 00000011 12 0C ID S/N (fixed "0") 00 00000000 13 0D ID S/N (fixed "0") 00 00000000 14 0E ID S/N (fixed "0") 00 00000000 15 0F ID S/N (fixed "0") 00 00000000 16 10 Week of manufacture (fixed week code) 02 00000010 17 11 Year of manufacture (fixed week code) 16 00010110 18 12 EDID structure version # ("1") 01 00000001 19 13 EDID revision # ("3") 03 00000011 20 14 Video I/P definition ("digital") 80 10000000 21 15 Max H image size ("16.53 cm") 1D 00011101 22 16 Max V image size ("16.53 cm") 1D 00011101 23 17 Display Gamma (Gamma = "2.2") 78 01111000 23 17 Display Gamma (Gamma = "2.2") 78 01111000 24 18 Feature support ("Active off, RGB Color") 0A 00001101 25 19 Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0 CFF 11001111 26 1A Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0 15 0001010 37 1F Bx-0.659 A8 10101000 38 1C Ry=0.331 54 01010100 39 21 Standard timing ID # 1 01 00000001 39 22 Standard timing ID # 1 01 00000001 39 22 Standard timing ID # 1 01 00000001	0	0	Header	00	00000000
3 3 Header FF 11111111 4 4 Header FF 11111111 5 5 Header FF 11111111 6 6 6 Header FF 11111111 7 7 7 Header 00 00000000 8 8 EISA ID manufacturer name ("CMN") 0D 00001101 9 9 EISA ID manufacturer name (Compressed ASCII) AE 10101110 10 0A ID product code (N133FGE-L31) 40 01000001 11 0B ID product code (Nex LSB first; N133FGE-L31) 13 00010011 12 0C ID S/N (fixed "0") 00 00000000 13 0D ID S/N (fixed "0") 00 00000000 14 0E ID S/N (fixed "0") 00 00000000 15 0F ID S/N (fixed "0") 00 00000000 16 10 Week of manufacture (fixed week code) 02 00000010 17 11 Year of manufacture (fixed year code) 16 00010110 18 12 EDID structure version # ("1") 01 00000001 19 13 EDID revision # ("3") 03 00000011 19 13 EDID revision # ("3") 03 00000011 20 14 Video I/P definition ("digital") 80 10000000 21 15 Max H image size ("16.53 cm") 10 0001101 22 16 Max V image size ("16.53 cm") 10 0001101 25 19 Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0 CF 11001111 26 1A B st1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0 15 00010101 27 1B Rx=0.659 A8 10101000 38 1E Gy=0.616 9D 10011010 39 1E Gy=0.616 9D 10011010 31 22 Wy=0.323 55 01010101 31 1F Bx=0.148 26 0000000 36 24 Established timings 1 00 00000000 37 25 Manufacturer's reserved timings 00 000000000000000000000000000000000	1	1	Header	FF	11111111
4         4         Header         FF         11111111           5         5         Header         FF         11111111           6         6         Header         FF         11111111           7         7         Header         00         00000000           8         8         EISA ID manufacturer name ("CMN")         0D         00001101           9         9         EISA ID manufacturer name (Compressed ASCII)         AE         1010110           10         0A         ID product code (N133FGE-L31)         40         01000000           11         0B         ID product code (Nex LSB first; N133FGE-L31)         13         00010011           12         0C         ID S/N (fixed "0")         00         00000000           13         0D         ID S/N (fixed "0")         00         00000000           14         0E         ID S/N (fixed "0")         00         00000000           15         0F         ID S/N (fixed "0")         00         00000000           15         0F         ID S/N (fixed "0")         00         00000000           16         10         Week of manufacture (fixed week code)         10         00000001           17	2	2	Header	FF	11111111
5         5         Header         FF         11111111           6         6         Header         00         0000000           7         7         Header         00         0000000           8         8         EISA ID manufacturer name (Compressed ASCII)         AE         10101110           10         0A         ID product code (N133FGE-L31)         40         01000000           11         0B         ID product code (hex LSB first; N133FGE-L31)         13         00010011           11         0B         ID product code (hex LSB first; N133FGE-L31)         13         0001001           12         0C         ID S/N (fixed "0")         00         00000000           13         0D         ID S/N (fixed "0")         00         00000000           14         0E         ID S/N (fixed "0")         00         00000000           15         0F         ID S/N (fixed "0")         00         00000000           16         10         Week of manufacture (fixed week code)         02         00000010           17         11         Year of manufacture (fixed year code)         16         0001011           18         12         EDID structure version # ("1")         01         000	3	3	Header	FF	11111111
6 6 Header FF 11111111 7 7 Header 00 000000000 8 8 8 EISA ID manufacturer name ("CMN") 0D 00000000 10 9 9 EISA ID manufacturer name (Compressed ASCII) AE 10101110 10 0A ID product code (N133FGE-L31) 40 01000001 11 0B ID product code (hex LSB first; N133FGE-L31) 13 00010011 12 0C ID S/N (fixed "0") 00 00000000 13 0D ID S/N (fixed "0") 00 00000000 14 0E ID S/N (fixed "0") 00 000000000 15 0F ID S/N (fixed "0") 00 000000000000000000000000000000	4	4	Header	FF	11111111
7         7         Header         00         00000000           8         8         EISA ID manufacturer name ("CMN")         0D         00001101           9         9         EISA ID manufacturer name (Compressed ASCII)         AE         10101110           10         0A         ID product code (N133FGE-L31)         40         01000000           11         0B         ID product code (hex LSB first, N133FGE-L31)         13         00010011           12         0C         ID S/N (fixed "0")         00         00000000           13         0D ID S/N (fixed "0")         00         00000000           14         0E         ID S/N (fixed "0")         00         00000000           15         0F         ID S/N (fixed "0")         00         00000000           16         10         Week of manufacture (fixed week code)         02         00000010           17         11         Year of manufacture (fixed year code)         16         0001011           17         11         Year of manufacture (fixed year code)         16         0001011           18         12         EDID structure version # ("1")         01         00000001           19         13         EDID revision # ("1")         0	5	5	Header	FF	11111111
8         8         EISA ID manufacturer name ("CMN")         0D         00001101           9         9         EISA ID manufacturer name (Compressed ASCII)         AE         10101110           10         0A         ID product code (N133FGE-L31)         40         01000000           11         0B         ID product code (Nex LSB first; N133FGE-L31)         13         00010011           12         0C         ID S/N (fixed "0")         00         00000000           13         0D         ID S/N (fixed "0")         00         00000000           14         0E         ID S/N (fixed "0")         00         00000000           15         0F         ID S/N (fixed "0")         00         00000000           16         10         Week of manufacture (fixed week code)         02         00000010           17         11         Year of manufacture (fixed year code)         16         0001010           18         12         EDID structure version # ("1")         01         0000000           19         13         EDID revision # ("3")         03         0000001           20         14         Video I/P definition ("digital")         80         10000000           21         15         Max H image	6	6	Header	FF	11111111
9 9 EISA ID manufacturer name (Compressed ASCII) 10 0A ID product code (N133FGE-L31) 11 0B ID product code (N133FGE-L31) 12 0C ID S/N (fixed "0") 13 0D ID S/N (fixed "0") 14 0E ID S/N (fixed "0") 15 0F ID S/N (fixed "0") 16 10 Week of manufacture (fixed week code) 17 11 Year of manufacture (fixed week code) 18 12 EDID structure version # ("1") 19 13 EDID revision # ("3") 20 14 Video I/P definition ("digital") 21 15 Max H image size ("16.53 cm") 22 16 Max V image size ("16.53 cm") 23 17 Display Gamma (Gamma = "2.2") 24 18 Feature support ("Active off, RGB Color") 25 19 Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0 27 18 Rx=0.659 28 1C Ry=0.332 29 By=0.044 30 Established timings 1 30 Established timings 1 30 Established timings 1 31 Established timings 1 32 Standard timing ID # 1 33 Established timing ID # 1 34 O0000001 35 Estandard timing ID # 1 36 O0000001 37 Standard timing ID # 1 37 O000000000000000000000000000000000000	7	7	Header	00	00000000
10	8	8	EISA ID manufacturer name ("CMN")	0D	00001101
11         0B         ID product code (hex LSB first; N133FGE-L31)         13         00010011           12         0C         ID S/N (fixed "0")         00         00000000           13         0D         ID S/N (fixed "0")         00         00000000           14         0E         ID S/N (fixed "0")         00         00000000           15         0F         ID S/N (fixed "0")         00         00000000           16         10         Week of manufacture (fixed week code)         02         00000010           17         11         Year of manufacture (fixed year code)         16         00010110           18         12         EDID structure version # ("1")         01         00000001           19         13         EDID revision # ("3")         03         00000011           20         14         Video I/P definition ("digital")         80         10000000           21         15         Max H image size ("16.53 cm")         1D         00011010           22         16         Max V image size ("16.53 cm")         1D         00010000           23         17         Display Gamma (Gamma = "2.2")         78         01111000           24         18         Feature support ("Active	9	9	EISA ID manufacturer name (Compressed ASCII)	AE	10101110
12         0C ID S/N (fixed "0")         00 00000000           13         0D ID S/N (fixed "0")         00 00000000           14         0E ID S/N (fixed "0")         00 00000000           15         0F ID S/N (fixed "0")         00 00000000           16         10 Week of manufacture (fixed week code)         02 00000010           17         11 Year of manufacture (fixed year code)         16 00010110           18         12 EDID structure version # ("1")         01 00000001           19         13 EDID revision # ("3")         03 00000011           20         14 Video I/P definition ("digital")         80 10000000           21         15 Max H image size ("16.53 cm")         1D 00011101           22         16 Max V image size ("16.53 cm")         10 0001000           23         17 Display Gamma (Gamma = "2.2")         78 01111000           24         18 Feature support ("Active off, RGB Color")         0A 00001010           25         19 Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0         CF 11001111           26         1A Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0         15 00010101           27         1B Rx=0.659         A8 10101000           28         1C Ry=0.332         55 01010101           29         1D Gx=0.331         54 0101010 <td>10</td> <td>0A</td> <td>ID product code (N133FGE-L31)</td> <td>40</td> <td>01000000</td>	10	0A	ID product code (N133FGE-L31)	40	01000000
13         0D         ID S/N (fixed "0")         00         00000000           14         0E         ID S/N (fixed "0")         00         00000000           15         0F         ID S/N (fixed "0")         00         00000000           16         10         Week of manufacture (fixed week code)         02         00000010           17         11         Year of manufacture (fixed year code)         16         00010110           18         12         EDID structure version # ("1")         01         00000001           19         13         EDID revision # ("3")         03         00000001           20         14         Video I/P definition ("digital")         80         10000000           21         15         Max H image size ("29.40cm")         1D         00011101           22         16         Max V image size ("16.53 cm")         10         00010000           23         17         Display Gamma (Gamma = "2.2")         78         01111000           24         18         Feature support ("Active off, RGB Color")         0A         0001010           25         19         Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0         CF         11001111           26         1A         Bx1, Bx0,	11	0B	ID product code (hex LSB first; N133FGE-L31)	13	00010011
14         0E         ID S/N (fixed "0")         00         00000000           15         0F         ID S/N (fixed "0")         00         00000000           16         10         Week of manufacture (fixed week code)         02         00000010           17         11         Year of manufacture (fixed year code)         16         00010110           18         12         EDID structure version # ("1")         01         00000001           19         13         EDID revision # ("3")         03         00000011           20         14         Video I/P definition ("digital")         80         10000000           21         15         Max H image size ("29.40cm")         1D         0001101           22         16         Max V image size ("16.53 cm")         10         00010000           23         17         Display Gamma (Gamma = "2.2")         78         01111000           24         18         Feature support ("Active off, RGB Color")         0A         00001010           25         19         Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0         CF         11001111           26         1A         Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0         15         0001010           27         1B	12	0C	ID S/N (fixed "0")	00	00000000
15         0F         ID S/N (fixed "0")         00         00000000           16         10         Week of manufacture (fixed week code)         02         00000010           17         11         Year of manufacture (fixed year code)         16         00010110           18         12         EDID structure version # ("1")         01         00000001           19         13         EDID revision # ("3")         03         00000011           20         14         Video I/P definition ("digital")         80         10000000           21         15         Max H image size ("29.40cm")         1D         00011101           22         16         Max V image size ("16.53 cm")         10         00010000           23         17         Display Gamma (Gamma = "2.2")         78         01111000           24         18         Feature support ("Active off, RGB Color")         0A         00001010           25         19         Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0         CF         11001111           26         1A         Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0         15         00010101           27         1B         Rx=0.659         A8         1010100           28         1C <td< td=""><td>13</td><td>0D</td><td>ID S/N (fixed "0")</td><td>00</td><td>00000000</td></td<>	13	0D	ID S/N (fixed "0")	00	00000000
16       10       Week of manufacture (fixed week code)       02       00000010         17       11       Year of manufacture (fixed year code)       16       00010110         18       12       EDID structure version # ("1")       01       00000001         19       13       EDID revision # ("3")       03       00000011         20       14       Video I/P definition ("digital")       80       10000000         21       15       Max H image size ("29.40cm")       1D       0001101         22       16       Max V image size ("16.53 cm")       10       00010000         23       17       Display Gamma (Gamma = "2.2")       78       01111000         24       18       Feature support ("Active off, RGB Color")       0A       00001010         25       19       Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0       CF       11001111         26       1A       Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0       15       00010101         27       1B       Rx=0.659       A8       10101000         28       1C       Ry=0.332       55       0101010         29       1D       Gx=0.331       54       0101010         30       1E       Gy=0.616	14	0E	ID S/N (fixed "0")	00	00000000
17       11       Year of manufacture (fixed year code)       16       00010110         18       12       EDID structure version # ("1")       01       00000001         19       13       EDID revision # ("3")       03       0000001         20       14       Video I/P definition ("digital")       80       10000000         21       15       Max H image size ("29.40cm")       1D       00011011         22       16       Max V image size ("16.53 cm")       10       00010000         23       17       Display Gamma (Gamma = "2.2")       78       01111000         24       18       Feature support ("Active off, RGB Color")       0A       00001010         25       19       Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0       CF       11001111         26       1A       Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0       15       00010101         27       1B       Rx=0.659       A8       10101000         28       1C       Ry=0.332       55       01010101         29       1D       Gx=0.331       54       0101010         30       1E       Gy=0.616       9D       10011101         31       1F       Bx=0.148       26       00	15	0F	ID S/N (fixed "0")	00	00000000
18       12       EDID structure version # ("1")       01       00000001         19       13       EDID revision # ("3")       03       0000001         20       14       Video I/P definition ("digital")       80       10000000         21       15       Max H image size ("29.40cm")       1D       0001101         22       16       Max V image size ("16.53 cm")       10       0001000         23       17       Display Gamma (Gamma = "2.2")       78       01111000         24       18       Feature support ("Active off, RGB Color")       0A       00001010         25       19       Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0       CF       11001111         26       1A       Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0       15       00010101         27       1B       Rx=0.659       A8       10101000         28       1C       Ry=0.332       55       0101010         29       1D       Gx=0.331       54       0101010         30       1E       Gy=0.616       9D       10011101         31       1F       Bx=0.148       26       0010011         32       20       By=0.044       0B       00001011	16	10	Week of manufacture (fixed week code)	02	00000010
19       13       EDID revision # ("3")       03       00000011         20       14       Video I/P definition ("digital")       80       10000000         21       15       Max H image size ("29.40cm")       1D       00011101         22       16       Max V image size ("16.53 cm")       10       00010000         23       17       Display Gamma (Gamma = "2.2")       78       01111000         24       18       Feature support ("Active off, RGB Color")       0A       00001010         25       19       Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0       CF       11001111         26       1A       Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0       15       00010101         27       1B       Rx=0.659       A8       10101000         28       1C       Ry=0.332       55       0101010         29       1D       Gx=0.331       54       0101010         30       1E       Gy=0.616       9D       10011101         31       1F       Bx=0.148       26       00100110         32       20       By=0.044       0B       00001011         33       21       Wx=0.313       50       0101000         34	17	11	Year of manufacture (fixed year code)	16	00010110
20       14       Video I/P definition ("digital")       80       10000000         21       15       Max H image size ("29.40cm")       1D       00011101         22       16       Max V image size ("16.53 cm")       10       00010000         23       17       Display Gamma (Gamma = "2.2")       78       01111000         24       18       Feature support ("Active off, RGB Color")       0A       00001010         25       19       Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0       CF       11001111         26       1A       Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0       15       00010101         27       1B       Rx=0.659       A8       10101000         28       1C       Ry=0.332       55       01010101         29       1D       Gx=0.331       54       0101010         30       1E       Gy=0.616       9D       10011101         31       1F       Bx=0.148       26       00100110         32       20       By=0.044       0B       0001011         33       21       Wx=0.313       50       01010000         34       22       Wy=0.329       54       01010100         35       23 <td>18</td> <td>12</td> <td>EDID structure version # ("1")</td> <td>01</td> <td>00000001</td>	18	12	EDID structure version # ("1")	01	00000001
21       15       Max H image size ("29.40cm")       1D       00011101         22       16       Max V image size ("16.53 cm")       10       00010000         23       17       Display Gamma (Gamma = "2.2")       78       01111000         24       18       Feature support ("Active off, RGB Color")       0A       00001010         25       19       Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0       CF       11001111         26       1A       Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0       15       00010101         27       1B       Rx=0.659       A8       10101000         28       1C       Ry=0.332       55       01010101         29       1D       Gx=0.331       54       0101010         30       1E       Gy=0.616       9D       10011101         31       1F       Bx=0.148       26       00100110         32       20       By=0.044       0B       0001011         33       21       Wx=0.313       50       01010000         34       22       Wy=0.329       54       01010100         35       23       Established timings 1       00       00000000         36       24 <t< td=""><td>19</td><td>13</td><td>EDID revision # ("3")</td><td>03</td><td>00000011</td></t<>	19	13	EDID revision # ("3")	03	00000011
22       16       Max V image size ("16.53 cm")       10       00010000         23       17       Display Gamma (Gamma = "2.2")       78       01111000         24       18       Feature support ("Active off, RGB Color")       0A       00001010         25       19       Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0       CF       11001111         26       1A       Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0       15       00010101         27       1B       Rx=0.659       A8       10101000         28       1C       Ry=0.332       55       01010101         29       1D       Gx=0.331       54       0101010         30       1E       Gy=0.616       9D       10011101         31       1F       Bx=0.148       26       00100110         32       20       By=0.044       0B       00001011         33       21       Wx=0.313       50       01010000         34       22       Wy=0.329       54       01010100         35       23       Established timings 1       00       00000000         36       24       Established timings 2       00       00000000         37       25       Manu	20	14	Video I/P definition ("digital")	80	10000000
23       17       Display Gamma (Gamma = "2.2")       78       01111000         24       18       Feature support ("Active off, RGB Color")       0A       00001010         25       19       Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0       CF       11001111         26       1A       Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0       15       00010101         27       1B       Rx=0.659       A8       10101000         28       1C       Ry=0.332       55       0101010         29       1D       Gx=0.331       54       0101010         30       1E       Gy=0.616       9D       10011101         31       1F       Bx=0.148       26       00100110         32       20       By=0.044       0B       00001011         33       21       Wx=0.313       50       01010000         34       22       Wy=0.329       54       01010100         35       23       Established timings 1       00       00000000         36       24       Established timings 2       00       00000000         37       25       Manufacturer's reserved timings       00       00000000         39       27       Sta	21	15	Max H image size (" 29.40cm")	1D	00011101
24       18       Feature support ("Active off, RGB Color")       0A       00001010         25       19       Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0       CF       11001111         26       1A       Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0       15       00010101         27       1B       Rx=0.659       A8       10101000         28       1C       Ry=0.332       55       01010101         29       1D       Gx=0.331       54       01010100         30       1E       Gy=0.616       9D       10011101         31       1F       Bx=0.148       26       00100110         32       20       By=0.044       0B       00001011         33       21       Wx=0.313       50       01010000         34       22       Wy=0.329       54       01010100         35       23       Established timings 1       00       00000000         36       24       Established timings 2       00       00000000         37       25       Manufacturer's reserved timings       00       00000000         38       26       Standard timing ID # 1       01       000000001         40       28       Standar	22	16	Max V image size ("16.53 cm")	10	00010000
25       19       Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0       CF       11001111         26       1A       Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0       15       00010101         27       1B       Rx=0.659       A8       10101000         28       1C       Ry=0.332       55       01010101         29       1D       Gx=0.331       54       01010100         30       1E       Gy=0.616       9D       10011101         31       1F       Bx=0.148       26       00100110         32       20       By=0.044       0B       00001011         33       21       Wx=0.313       50       01010000         34       22       Wy=0.329       54       01010100         35       23       Established timings 1       00       00000000         36       24       Established timings 2       00       00000000         37       25       Manufacturer's reserved timings       00       00000000         38       26       Standard timing ID # 1       01       00000001         40       28       Standard timing ID # 2       01       000000001	23	17	Display Gamma (Gamma = "2.2")	78	01111000
26       1A       Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0       15       00010101         27       1B       Rx=0.659       A8       10101000         28       1C       Ry=0.332       55       01010101         29       1D       Gx=0.331       54       01010100         30       1E       Gy=0.616       9D       10011101         31       1F       Bx=0.148       26       00100110         32       20       By=0.044       0B       00001011         33       21       Wx=0.313       50       01010000         34       22       Wy=0.329       54       01010100         35       23       Established timings 1       00       00000000         36       24       Established timings 2       00       00000000         37       25       Manufacturer's reserved timings       00       00000000         38       26       Standard timing ID # 1       01       00000001         39       27       Standard timing ID # 2       01       00000001	24	18	Feature support ("Active off, RGB Color")	0A	00001010
27       1B       Rx=0.659       A8       10101000         28       1C       Ry=0.332       55       01010101         29       1D       Gx=0.331       54       01010100         30       1E       Gy=0.616       9D       10011101         31       1F       Bx=0.148       26       00100110         32       20       By=0.044       0B       00001011         33       21       Wx=0.313       50       01010000         34       22       Wy=0.329       54       01010100         35       23       Established timings 1       00       00000000         36       24       Established timings 2       00       00000000         37       25       Manufacturer's reserved timings       00       00000000         38       26       Standard timing ID # 1       01       00000001         39       27       Standard timing ID # 2       01       00000001	25	19	Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0	CF	11001111
28         1C         Ry=0.332         55         01010101           29         1D         Gx=0.331         54         01010100           30         1E         Gy=0.616         9D         10011101           31         1F         Bx=0.148         26         00100110           32         20         By=0.044         0B         00001011           33         21         Wx=0.313         50         01010000           34         22         Wy=0.329         54         01010100           35         23         Established timings 1         00         00000000           36         24         Established timings 2         00         00000000           37         25         Manufacturer's reserved timings         00         00000000           38         26         Standard timing ID # 1         01         00000001           39         27         Standard timing ID # 2         01         00000001	26	1A	Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0	15	00010101
29       1D       Gx=0.331       54       01010100         30       1E       Gy=0.616       9D       10011101         31       1F       Bx=0.148       26       00100110         32       20       By=0.044       0B       00001011         33       21       Wx=0.313       50       01010000         34       22       Wy=0.329       54       01010100         35       23       Established timings 1       00       00000000         36       24       Established timings 2       00       00000000         37       25       Manufacturer's reserved timings       00       00000000         38       26       Standard timing ID # 1       01       00000001         39       27       Standard timing ID # 2       01       00000001	27	1B	Rx=0.659	A8	10101000
30       1E       Gy=0.616       9D       10011101         31       1F       Bx=0.148       26       00100110         32       20       By=0.044       0B       00001011         33       21       Wx=0.313       50       01010000         34       22       Wy=0.329       54       01010100         35       23       Established timings 1       00       00000000         36       24       Established timings 2       00       00000000         37       25       Manufacturer's reserved timings       00       00000000         38       26       Standard timing ID # 1       01       00000001         39       27       Standard timing ID # 1       01       00000001         40       28       Standard timing ID # 2       01       00000001	28	1C	Ry=0.332	55	01010101
31       1F       Bx=0.148       26       00100110         32       20       By=0.044       0B       00001011         33       21       Wx=0.313       50       01010000         34       22       Wy=0.329       54       01010100         35       23       Established timings 1       00       00000000         36       24       Established timings 2       00       00000000         37       25       Manufacturer's reserved timings       00       00000000         38       26       Standard timing ID # 1       01       00000001         39       27       Standard timing ID # 1       01       00000001         40       28       Standard timing ID # 2       01       00000001	29	1D	Gx=0.331	54	01010100
32       20       By=0.044       0B       00001011         33       21       Wx=0.313       50       01010000         34       22       Wy=0.329       54       01010100         35       23       Established timings 1       00       00000000         36       24       Established timings 2       00       00000000         37       25       Manufacturer's reserved timings       00       00000000         38       26       Standard timing ID # 1       01       00000001         39       27       Standard timing ID # 1       01       00000001         40       28       Standard timing ID # 2       01       00000001	30	1E	Gy=0.616	9D	10011101
33       21       Wx=0.313       50       01010000         34       22       Wy=0.329       54       01010100         35       23       Established timings 1       00       00000000         36       24       Established timings 2       00       00000000         37       25       Manufacturer's reserved timings       00       00000000         38       26       Standard timing ID # 1       01       00000001         39       27       Standard timing ID # 1       01       00000001         40       28       Standard timing ID # 2       01       00000001	31	1F	Bx=0.148	26	00100110
34       22       Wy=0.329       54       01010100         35       23       Established timings 1       00       00000000         36       24       Established timings 2       00       00000000         37       25       Manufacturer's reserved timings       00       00000000         38       26       Standard timing ID # 1       01       00000001         39       27       Standard timing ID # 1       01       00000001         40       28       Standard timing ID # 2       01       00000001	32	20	By=0.044	0B	00001011
35       23       Established timings 1       00       00000000         36       24       Established timings 2       00       00000000         37       25       Manufacturer's reserved timings       00       00000000         38       26       Standard timing ID # 1       01       00000001         39       27       Standard timing ID # 1       01       00000001         40       28       Standard timing ID # 2       01       00000001	33	21	Wx=0.313	50	01010000
36       24       Established timings 2       00       00000000         37       25       Manufacturer's reserved timings       00       00000000         38       26       Standard timing ID # 1       01       00000001         39       27       Standard timing ID # 1       01       00000001         40       28       Standard timing ID # 2       01       00000001	34	22	Wy=0.329	54	01010100
37       25       Manufacturer's reserved timings       00       00000000         38       26       Standard timing ID # 1       01       00000001         39       27       Standard timing ID # 1       01       00000001         40       28       Standard timing ID # 2       01       00000001	35	23	Established timings 1	00	00000000
38       26       Standard timing ID # 1       01       00000001         39       27       Standard timing ID # 1       01       00000001         40       28       Standard timing ID # 2       01       00000001	36	24	Established timings 2	00	00000000
39 27 Standard timing ID # 1 01 00000001 40 28 Standard timing ID # 2 01 00000001	37	25	Manufacturer's reserved timings	00	00000000
39         27         Standard timing ID # 1         01         00000001           40         28         Standard timing ID # 2         01         00000001	38	26	Standard timing ID # 1	01	00000001
40 28 Standard timing ID # 2 01 00000001	39			01	0000001
	40		-	01	0000001
41   29   Standard timing ID # 2   01   00000001	41		-	01	00000001



43 28 Standard timing ID # 3 01 00000001 44 2C Standard timing ID # 4 01 00000001 45 2D Standard timing ID # 5 01 00000001 46 2E Standard timing ID # 5 01 00000001 47 2F Standard timing ID # 5 01 00000001 48 30 Standard timing ID # 6 01 00000001 49 31 Standard timing ID # 6 01 00000001 50 32 Standard timing ID # 7 01 00000001 51 33 Standard timing ID # 7 01 00000001 52 34 Standard timing ID # 8 01 00000001 53 35 Standard timing ID # 8 01 00000001 54 36 VESA CVT Rev1.1) 55 37 # 1 Pixel clock (hex LSB first) 01 00000001 55 37 # 1 Pixel clock (hex LSB first) 27 0010011 55 38 # 1 H active ("160") 40 1010000001 56 3C # 1 V blank ("50") 40 1010000001 57 39 # 1 H blank ("160") 40 1010000001 58 3A # 1 H active "900") 40 01100000001 60 3C # 1 V blank ("50") 32 00110010 61 3D # 1 V active : V blank ("900") 32 00110010 63 3F # 1 H sync pulse width ("32") 20 00100000000000000000000000000000000	40		0	04	00000004
44         2C         Standard timing 1D # 4         01         00000001           45         2D         Standard timing 1D # 5         01         00000001           47         2F         Standard timing 1D # 5         01         00000001           48         30         Standard timing 1D # 6         01         00000001           49         31         Standard timing 1D # 6         01         00000001           50         32         Standard timing 1D # 7         01         00000001           51         33         Standard timing 1D # 8         01         00000001           52         34         Standard timing 1D # 8         01         00000001           53         35         Standard timing 1D # 8         01         00000001           54         36         Standard timing 1D # 8         01         00000001           55         37         \$1 Pixel clock (kex LSB first)         27         0010011           54         36         Standard timing 1D # 8         01         00000001           54         36         Standard timing 1D # 8         01         00000001           55         37         # 1 Pixel clock (kex LSB first)         27         0010011	42	2A	Standard timing ID # 3	01	00000001
45         2D         Standard timing ID # 4         01         00000001           46         2E         Standard timing ID # 5         01         00000001           47         2F         Standard timing ID # 6         01         00000001           48         30         Standard timing ID # 6         01         00000001           50         32         Standard timing ID # 7         01         00000001           51         33         Standard timing ID # 8         01         00000001           52         34         Standard timing ID # 8         01         00000001           53         35         Standard timing description # 1 Pixel clock (100.22 MHz", According to VESA CVT Rev1.1)         26         00100110           54         36         VESA CVT Rev1.1)         27         00100111           55         37         # 1 Pixel clock (hex LSB first)         27         0010011           56         38         # 1 H active ("1600")         40         0100000           57         39         # 1 H blank ("1600")         A0         10100000           58         3A         # 1 H active ("1600")         A0         10100000           59         3B         # 1 V blank ("50")					
46         2E         Standard timing ID #5         01         00000001           47         2F         Standard timing ID #6         01         00000001           48         30         Standard timing ID #6         01         00000001           49         31         Standard timing ID #6         01         00000001           50         32         Standard timing ID #7         01         00000001           51         33         Standard timing ID #8         01         00000001           52         34         Standard timing ID #8         01         00000001           53         35         Standard timing ID #8         01         00000001           54         36         VESA CVT Rev1.1)         26         00100110           55         37         # 1 Pixel clock (hex LSB first)         27         00100111           56         38         # 1 H active "1600")         40         01000000           57         39         # 1 H blank ("160")         40         10100000           58         3A         # 1 H sync pixel ** Standard timing ID #8         40         10100000           59         3B         # 1 N sync offset ** Standard timing ID #8         40         10100000<			•		
47         2F         Standard timing ID #5         01         00000001           48         30         Standard timing ID #6         01         00000001           50         32         Standard timing ID #7         01         00000001           51         33         Standard timing ID #7         01         00000001           52         34         Standard timing ID #8         01         00000001           53         35         Standard timing ID #8         01         00000001           54         36         Standard timing ID #8         01         00000001           54         36         VESA CVT Rev1.1)         26         00100110           55         37         # 1 Pixel clock (nex LSB first)         27         00100111           56         38         # 1 H bank ("160")         40         0100000           57         39         # 1 H blank ("160")         40         0100000           58         3A         # 1 H bank ("160")         60         0110000           59         3B         # 1 V blank ("50")         32         00110010           60         3C         # 1 V blank ("50")         32         00110000           61 <td< td=""><td></td><td></td><td>-</td><td></td><td></td></td<>			-		
48         30         Standard timing ID #6         01         00000001           49         31         Standard timing ID #6         01         00000001           50         32         Standard timing ID #7         01         00000001           51         33         Standard timing ID #8         01         00000001           52         34         Standard timing ID #8         01         00000001           53         35         Standard timing ID #8         01         00000001           54         36         VESA CVT Rev1.1)         26         00100110           55         37         # 1 Pixel clock (hex LSB first)         27         00100111           56         38         # 1 H active ("1600")         40         0100000           57         39         # 1 H bank ("160")         40         0100000           58         3A         # 1 H active : H blank ("1600: 160")         60         0100000           59         3B         # 1 V active : V blank ("900:50")         32         00110010           60         3C         # 1 V blank ("50")         32         00110010           61         3D         # 1 Y v active ("48")         30         00110000      <					
49   31   Standard timing ID #6   01   00000001			•		
Solidard timing ID #7					
51         33         Standard timing ID # 7         01         00000001           52         34         Standard timing ID # 8         01         00000001           53         35         Standard timing ID # 8         01         00000001           54         36         VESA CVT Rev1.1)         26         00100110           55         37         H Pixel clock (hex LSB first)         27         00100111           56         38         # 1 H active ("1600")         40         01000000           57         39         # 1 H blank ("160")         40         10100000           58         3A         # 1 H active : H blank ("1600")         80         01100000           59         3B         # 1 V active ("900")         84         10000100           60         3C         # 1 V blank ("50")         32         00110010           61         3D         # 1 V active : V blank ("900:50")         30         00110000           62         3E         # 1 H sync offset ("48")         30         00110000           63         3F         # 1 H sync offset ("48")         30         00110000           64         40         # 1 V sync offset : V sync pulse width : V sync offset : V sync width			· ·		
52         34         Standard timing ID #8         01         00000001           53         35         Standard timing ID #8         01         00000001           54         36         Detailed timing description #1 Pixel clock (100.22 MHz", According to VESA CVT Rev1.1)         26         00100110           55         37         #1 Pixel clock (hex LSB first)         27         00100111           56         38         #1 H active ("1600")         40         01100000           57         39         #1 H blank ("160")         A0         10100000           58         3A         #1 H active : H blank ("160")         60         01100000           59         3B         #1 V active ("900")         84         1000010           60         3C         #1 V blank ("50")         32         00110010           61         3D         #1 V active : V blank ("900:50")         30         00110000           62         3E         #1 H sync offset : V sync uples width ("6:10")         6A         40         #11 y sync offset : V sync pulse width ("6:10")         6A         01110100           63         3F         #1 H sync offset : V sync pulse width ("50")         6A         01101010           64         40         #1 Y sync offset : V			•		-
Standard timing ID # 8   Detailed timing description # 1 Pixel clock (100.22 MHz", According to VESA CVT Rev1.1)   26    00100110   55    37    # 1 Pixel clock (hex LSB first)   27    00100111   55    37    # 1 Pixel clock (hex LSB first)   27    00100111   56    38    # 1 H active ("1600")   40    01000000   57    39    # 1 H blank ("160")   A0    011000000   59    38    # 1 H active : H blank ("1600")   84    10000100   59    38    # 1 V active ("900")   84    10000100   60    3C    # 1 V blank ("50")   32    00110010   61    3D    # 1 V active : V blank ("900:50")   32    00110010   62    3E    # 1 H sync offset ("48")   30    00110000   63    3F    # 1 H sync offset ("48")   30    00110000   64    40    # 1 V sync offset: V sync pulse width ("6: 10")   6A    01101010   65    # 1 H sync offset: V sync pulse width ("6: 10")   6A    01101010   65    41 H sync offset: H sync pulse width ("6: 10")   6A    01101010   65    41 H sync offset: V sync pulse width ("6: 10")   6A    01101010   65    41 H sync offset: V sync pulse width ("6: 10")   6A    01101010   65    41 H sync offset: V sync pulse width ("6: 10")   6A    01101010   6D    00000000   00000000   0000000000			•		-
54         Detailed timing description # 1 Pixel clock (100.22 MHz", According to VESA CVT Rev1.1)         26         00100110           55         37         # 1 Pixel clock (hex LSB first)         27         00100111           56         38         # 1 H active ("1600")         40         01000000           57         39         # 1 H blank ("160")         A0         10100000           58         3A         # 1 H active ("900")         84         10000100           59         3B         # 1 V active ("900")         84         10000100           60         3C         # 1 V blank ("50")         32         00110010           61         3D         # 1 V active : V blank ("900:50")         30         00110000           62         3E         # 1 H sync offset ("48")         30         00110000           63         3F         # 1 H sync offset : V sync bulse width ("6:10")         6A         0110100           64         40         # 1 v sync offset : V sync pulse width ("6:10")         6A         0110100           65         41         H sync offset : H sync pulse width ("6:10")         00         00000000           64         40         # 1 v sync offset : V sync bulse width ("6:10")         00         00100000			•		
54         36         VESA CVT Rev1.1)         20         00100110           55         37         # 1 Pixel clock (hex LSB first)         27         00100111           56         38         # 1 H active ("1600")         40         01000000           57         39         # 1 H blank ("160")         A0         10100000           58         3A         # 1 H active : H blank ("1600 : 160")         60         01100000           59         3B         # 1 V active ("900")         84         10000100           60         3C         # 1 V blank ("50")         32         00110010           61         3D         # 1 V active : V blank ("900:50")         30         00110000           62         3E         # 1 H sync poffset ("48")         30         00110000           63         3F         # 1 H sync poffset : V sync pulse width ("6:10")         6A         0110100           64         40         # 1 V sync offset : V sync pulse width : V sync offset : V sync width         00         00000000           65         41         ("48:32:6:10")         00         00000000           66         42         # 1 H image size ("294 mm")         A5         1010010           67         43         # 1 V im	53	35	<u> </u>	01	00000001
56         38         # 1 H active ("1600")         40         01000000           57         39         # 1 H blank ("160")         A0         10100000           58         3A         # 1 H active : H blank ("1600 : 160")         60         01100000           59         3B         # 1 V blank ("900")         84         10000100           60         3C         # 1 V blank ("900")         32         00110010           61         3D         # 1 V active : V blank ("900 : 50")         30         00110000           62         3E         # 1 H sync offset ("48")         30         00110000           63         3F         # 1 H sync offset : V sync pulse width ("52")         6A         01101010           64         40         # 1 V sync offset : V sync pulse width : V sync offset : V sync width         40         00000000           65         # 1 H sync offset : H sync pulse width : V sync offset : V sync width         40         00000000           66         42         # 1 H image size : ("165 mm")         A5         1010011           67         43         # 1 V image size ("165 mm")         A5         1010010           68         44         # 1 H image size ("165 mm")         A5         1010010           70		36		26	
57         39         # 1 H blank ("160")         A0         10100000           58         3A         # 1 H active : H blank ("1600 : 160")         60         01100000           59         3B         # 1 V active ("900")         84         10000100           60         3C         # 1 V blank ("50")         32         00110010           61         3D         # 1 V active : V blank ("900 : 50")         30         00110000           62         3E         # 1 H sync offset ("48")         30         00110000           63         3F         # 1 H sync offset : V sync pulse width ("6: 10")         6A         0110101           65         # 1 H sync offset : V sync pulse width ("6: 10")         6A         01101010           66         42         # 1 H image size ("185 mm")         6A         0100110           67         43         # 1 V image size ("185 mm")         A5         10100101           68         44         # 1 H image size ("185 mm")         A5         10100101           68         42         # 1 H boarder ("0")         00         00000000           70         46         # 1 V boarder ("0")         00         00000000           70         46         # 1 Non-interlaced, Normal, no stereo,	55	37	# 1 Pixel clock (hex LSB first)	27	
58         3A         # 1 H active: H blank ("1600: 160")         60         01100000           59         3B         # 1 V active ("900")         84         10000100           60         3C         # 1 V blank ("50")         32         00110010           61         3D         # 1 V active: V blank ("900:50")         30         00110000           62         3E         # 1 H sync offset ("48")         30         00110000           63         3F         # 1 H sync pulse width ("6:10")         6A         01101010           64         40         # 1 V sync offset: V sync pulse width: V sync offset: V sync width         00         00000000           65         41         # 1 H sync offset: H sync pulse width: V sync offset: V sync width         00         00000000           66         42         # 1 H inage size: V image size: V sync offset: V sync width         00         00000000           67         43         # 1 V image size: V image size ("294: 165")         10         00010000           68         44         # 1 H anderer ("0")         00         00000000           70         46         # 1 V boarder ("0")         00         00000000           71         47         Nor-interlaced, Normal, no stereo, Separate sync, H/V pol		38	# 1 H active ("1600")	40	01000000
59         3B         # 1 V active ("900")         84         10000100           60         3C         # 1 V blank ("50")         32         00110010           61         3D         # 1 V active : V blank ("900 :50")         30         00110000           62         3E         # 1 H sync offset ("48")         30         00110000           63         3F         # 1 H sync pulse width ("32")         6A         01101010           64         40         # 1 V sync offset : V sync pulse width : V sync offset : V sync width         00         00000000           65         41         ("48: 32 : 6: 10")         6A         01101010           66         42         # 1 H image size ("294 mm")         45         10100101           67         43         # 1 V image size ("165 mm")         A5         10100101           68         44         # 1 H image size : V image size ("294 : 165")         10         00010000           69         45         # 1 H boarder ("0")         00         00000000           70         46         # 1 V boarder ("0")         00         00000000           71         47         Negatives         1A         0011101           72         48         Y Exist Clock (hex LSB firs	57	39	# 1 H blank ("160")	A0	10100000
60 3C # 1 V blank ("50") 32 00110010 61 3D # 1 V active : V blank ("900 :50") 30 00110000 62 3E # 1 H sync offset ("48") 30 00110000 63 3F # 1 H sync pulse width ("32") 20 00100000 64 40 # 1 V sync pulse width ("6 : 10") 6A 01101010 65 41 H sync offset : V sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10") 6A 01101010 66 42 # 1 H image size ("294 mm") 70 0000000000000000000000000000000000	58	3A	# 1 H active : H blank ("1600 : 160")	60	01100000
61         3D         # 1 V active: V blank ("900:50")         30         00110000           62         3E         # 1 H sync offset ("48")         30         00110000           63         3F         # 1 H sync pulse width ("32")         20         00100000           64         40         # 1 V sync offset: V sync pulse width ("6:10")         6A         01101010           65         # 1 H sync offset: H sync pulse width: V sync offset: V sync width ("48:32:6:10")         00000000         00000000           66         42         # 1 H image size ("294 mm")         26         00100110           67         43         # 1 V image size: V image size ("294:165")         10         00010000           69         45         # 1 H boarder ("0")         00         00000000           70         46         # 1 V boarder ("0")         00         00000000           71         47         Negatives         1A         00011010           72         Detailed timing description # 2 Pixel clock (83.60 MHz", According to Negatives         A8         10101000           73         49         # 2 Pixel clock (hex LSB first)         20         00100000           74         4A         # 2 H active ("1600")         40         01000000 <td< td=""><td>59</td><td>3B</td><td># 1 V active ("900")</td><td>84</td><td></td></td<>	59	3B	# 1 V active ("900")	84	
62         3E         # 1 H sync offset ("48")         30         00110000           63         3F         # 1 H sync pulse width ("32")         20         00100000           64         40         # 1 V sync offset : V sync pulse width ("6 : 10")         6A         01101010           65         # 1 H sync offset : H sync pulse width : V sync offset : V sync width         00         00000000           66         42         # 1 H image size ("294 mm")         26         00100110           67         43         # 1 V image size ("165 mm")         A5         10100101           68         44         # 1 H image size : V image size ("294 : 165")         10         00010000           69         45         # 1 H boarder ("0")         00         00000000           70         46         # 1 V boarder ("0")         00         00000000           71         # 1 Non-interlaced, Normal, no stereo, Separate sync, H/V pol         A0         1001010           72         Detailed timing description # 2 Pixel clock (83.60 MHz", According to VESA CVT Rev1.1)         A8         10101000           73         49         # 2 Pixel clock (hex LSB first)         20         00100000           74         4A         # 2 H active ("1600")         A0         10100000	60	3C	# 1 V blank ("50")	32	00110010
63       3F       # 1 H sync pulse width ("32")       20       00100000         64       40       # 1 V sync offset : V sync pulse width ("6 : 10")       6A       01101010         65       # 1 H sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       00       00000000         66       42       # 1 H image size ("294 mm")       26       00100110         67       43       # 1 V image size ("165 mm")       A5       10100101         68       44       # 1 H image size : V image size ("294 : 165")       10       00010000         69       45       # 1 H boarder ("0")       00       00000000         70       46       # 1 V boarder ("0")       00       00000000         71       # 1 Non-interlaced, Normal, no stereo, Separate sync, H/V pol Negatives       1A       00011010         72	61	3D	# 1 V active : V blank ("900 :50")	30	00110000
64         40         # 1 V sync offset : V sync pulse width ("6 : 10")         6A         01101010           65         # 1 H sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")         00000000           66         42         # 1 H image size ("294 mm")         26         00100110           67         43         # 1 V image size ("165 mm")         A5         10100101           68         44         # 1 H image size : V image size ("294 : 165")         10         00010000           69         45         # 1 H boarder ("0")         00         00000000           70         46         # 1 V boarder ("0")         00         00000000           71         # 1 Non-interlaced, Normal, no stereo, Separate sync, H/V pol Negatives         1A         00011010           72         Detailed timing description # 2 Pixel clock (83.60 MHz", According to VESA CVT Rev1.1)         A8         10101000           73         49         # 2 Pixel clock (hex LSB first)         20         00100000           74         4A         # 2 H active ("1600")         40         01000000           75         4B         # 2 H blank ("160")         A0         10100000           76         4C         # 2 H active : H blank ("1600": 160")         32         00110010<	62	3E	# 1 H sync offset ("48")	30	00110000
# 1 H sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")  66	63	3F	# 1 H sync pulse width ("32")	20	00100000
65       41 ("48: 32 : 6 : 10")       00       00000000         66       42 # 1 H image size ("294 mm")       26       00100110         67       43 # 1 V image size ("165 mm")       A5       10100101         68       44 # 1 H image size : V image size ("294 : 165")       10       00010000         69       45 # 1 H boarder ("0")       00       00000000         70       46 # 1 V boarder ("0")       00       00000000         71       47 Non-interlaced, Normal, no stereo, Separate sync, H/V pol Negatives       1A       00011010         72       48 Detailed timing description # 2 Pixel clock (83.60 MHz", According to VESA CVT Rev1.1)       A8       10101000         73       49 # 2 Pixel clock (hex LSB first)       20       00100000         74       4A # 2 H active ("1600")       40       01000000         75       4B # 2 H blank ("160")       A0       10100000         76       4C # 2 H active : H blank ("1600 : 160")       60       01100000         77       4D # 2 V active ("900")       32       00110010         78       4E # 2 V blank ("50")       30       00110000         80       50 # 2 H sync offset : V sync pulse width ("6: 10")       6A       01100000         81       51 # 2 H sync offset : V	64	40		6A	01101010
67       43       # 1 V image size ("165 mm")       A5       10100101         68       44       # 1 H image size : V image size ("294 : 165")       10       00010000         69       45       # 1 H boarder ("0")       00       00000000         70       46       # 1 V boarder ("0")       00       00000000         71       47       Negatives       1A       00011010         72       Detailed timing description # 2 Pixel clock (83.60 MHz", According to VESA CVT Rev1.1)       A8       10101000         73       49       # 2 Pixel clock (hex LSB first)       20       00100000         74       4A       # 2 H active ("1600")       40       01000000         75       4B       # 2 H blank ("160")       A0       10100000         76       4C       # 2 H active : H blank ("1600 : 160")       60       01100000         77       4D       # 2 V active ("900")       84       1000100         78       4E       # 2 V blank ("50")       32       00110010         80       50       # 2 H sync offset ("48")       30       00110000         81       51       # 2 H sync pulse width ("6: 10")       6A       01101010         82       52       # 2 V syn	65	41		00	00000000
68       44       # 1 H image size : V image size ("294 : 165")       10       00010000         69       45       # 1 H boarder ("0")       00       00000000         70       46       # 1 V boarder ("0")       00       00000000         71       47       Non-interlaced, Normal, no stereo, Separate sync, H/V pol       1A       00011010         72       48       Detailed timing description # 2 Pixel clock (83.60 MHz", According to VESA CVT Rev1.1)       A8       10101000         73       49       # 2 Pixel clock (hex LSB first)       20       00100000         74       4A       # 2 H active ("1600")       40       01000000         75       4B       # 2 H blank ("160")       A0       10100000         76       4C       # 2 H active : H blank ("1600 : 160")       60       01100000         77       4D       # 2 V active ("900")       84       10000100         78       4E       # 2 V blank ("50")       32       00110010         79       4F       # 2 V active : V blank ("900 :50")       30       00110000         80       50       # 2 H sync offset ("48")       30       00110000         81       51       # 2 H sync offset : V sync pulse width ("6 : 10")       6A       <	66	42	# 1 H image size ("294 mm")	26	00100110
69       45       # 1 H boarder ("0")       00       00000000         70       46       # 1 V boarder ("0")       00       00000000         71       # 1 Non-interlaced, Normal, no stereo, Separate sync, H/V pol       1A       00011010         72       Detailed timing description # 2 Pixel clock (83.60 MHz", According to VESA CVT Rev1.1)       A8       10101000         73       49       # 2 Pixel clock (hex LSB first)       20       00100000         74       4A       # 2 H active ("1600")       40       01000000         75       4B       # 2 H blank ("160")       A0       10100000         76       4C       # 2 H active : H blank ("1600 : 160")       60       01100000         77       4D       # 2 V active ("900")       84       10000100         78       4E       # 2 V blank ("50")       32       00110010         79       4F       # 2 V active : V blank ("900 :50")       30       00110000         80       50       # 2 H sync offset ("48")       30       00110000         81       51       # 2 H sync offset : V sync pulse width ("6 : 10")       6A       01101010         82       52       # 2 V sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       000	67	43	# 1 V image size ("165 mm")	A5	10100101
70       46       # 1 V boarder ("0")       00       00000000         71       # 1 Non-interlaced, Normal, no stereo, Separate sync, H/V pol       1A       00011010         72       Detailed timing description # 2 Pixel clock (83.60 MHz", According to VESA CVT Rev1.1)       A8       10101000         73       49       # 2 Pixel clock (hex LSB first)       20       00100000         74       4A       # 2 H active ("1600")       40       01000000         75       4B       # 2 H blank ("160")       A0       10100000         76       4C       # 2 H active : H blank ("1600")       60       01100000         77       4D       # 2 V active ("900")       84       10000100         78       4E       # 2 V blank ("50")       32       00110010         79       4F       # 2 V active : V blank ("900 :50")       30       00110000         80       50       # 2 H sync offset ("48")       30       00110000         81       51       # 2 H sync pulse width ("32")       20       00100000         82       52       # 2 V sync offset : V sync pulse width : V sync offset : V sync width       00       00000000         84       54       # 2 H image size ("294 mm")       26       00100110	68	44	# 1 H image size : V image size ("294 : 165")	10	00010000
71       47       #1 Non-interlaced, Normal, no stereo, Separate sync, H/V pol       1A       00011010         72       48       Detailed timing description #2 Pixel clock (83.60 MHz", According to VESA CVT Rev1.1)       A8       10101000         73       49       #2 Pixel clock (hex LSB first)       20       00100000         74       4A       #2 H active ("1600")       40       01000000         75       4B       #2 H blank ("160")       A0       10100000         76       4C       #2 H active : H blank ("1600 : 160")       60       01100000         77       4D       #2 V active ("900")       84       10000100         78       4E       #2 V blank ("50")       32       00110010         79       4F       #2 V active : V blank ("900 :50")       30       00110000         80       50       #2 H sync offset ("48")       30       00110000         81       51       #2 H sync pulse width ("32")       20       00100000         82       52       #2 V sync offset : V sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       00000000         84       54       #2 H image size ("294 mm")       26       00100110	69	45	# 1 H boarder ("0")	00	00000000
71       47       Negatives       1A       00011010         72       Detailed timing description # 2 Pixel clock (83.60 MHz", According to VESA CVT Rev1.1)       A8       10101000         73       49       # 2 Pixel clock (hex LSB first)       20       00100000         74       4A       # 2 H active ("1600")       40       01000000         75       4B       # 2 H blank ("160")       A0       10100000         76       4C       # 2 H active : H blank ("1600 : 160")       60       01100000         77       4D       # 2 V active ("900")       84       10000100         78       4E       # 2 V blank ("50")       32       00110010         79       4F       # 2 V active : V blank ("900 :50")       30       00110000         80       50       # 2 H sync offset ("48")       30       00110000         81       51       # 2 H sync pulse width ("32")       20       00100000         82       52       # 2 V sync offset : V sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       000000000         84       54       # 2 H image size ("294 mm")       26       00100110	70	46	# 1 V boarder ("0")	00	00000000
72       48       VESA CVT Rev1.1)       A8       10101000         73       49       # 2 Pixel clock (hex LSB first)       20       00100000         74       4A       # 2 H active ("1600")       40       01000000         75       4B       # 2 H blank ("160")       A0       10100000         76       4C       # 2 H active : H blank ("1600 : 160")       60       01100000         77       4D       # 2 V active ("900")       84       10000100         78       4E       # 2 V blank ("50")       32       00110010         79       4F       # 2 V active : V blank ("900 :50")       30       00110000         80       50       # 2 H sync offset ("48")       30       00110000         81       51       # 2 H sync pulse width ("32")       20       00100000         82       52       # 2 V sync offset : V sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       6A       01101010         83       53       ("48: 32 : 6 : 10")       60       00100110         84       54       # 2 H image size ("294 mm")       26       00100110	71	47		1A	00011010
74       4A       # 2 H active ("1600")       40       01000000         75       4B       # 2 H blank ("160")       A0       10100000         76       4C       # 2 H active : H blank ("1600 : 160")       60       01100000         77       4D       # 2 V active ("900")       84       10000100         78       4E       # 2 V blank ("50")       32       00110010         79       4F       # 2 V active : V blank ("900 :50")       30       00110000         80       50       # 2 H sync offset ("48")       30       00110000         81       51       # 2 H sync pulse width ("32")       20       00100000         82       52       # 2 V sync offset : V sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       6A       01101010         83       53       ("48: 32 : 6 : 10")       6A       01000100         84       54       # 2 H image size ("294 mm")       26       00100110	72	48		A8	10101000
75       4B       # 2 H blank ("160")       A0       10100000         76       4C       # 2 H active : H blank ("1600 : 160")       60       01100000         77       4D       # 2 V active ("900")       84       10000100         78       4E       # 2 V blank ("50")       32       00110010         79       4F       # 2 V active : V blank ("900 :50")       30       00110000         80       50       # 2 H sync offset ("48")       30       00110000         81       51       # 2 H sync pulse width ("32")       20       00100000         82       52       # 2 V sync offset : V sync pulse width ("6 : 10")       6A       01101010         83       # 2 H sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       000000000         84       54       # 2 H image size ("294 mm")       26       00100110	73	49	# 2 Pixel clock (hex LSB first)	20	00100000
76       4C       # 2 H active : H blank ("1600 : 160")       60       01100000         77       4D       # 2 V active ("900")       84       10000100         78       4E       # 2 V blank ("50")       32       00110010         79       4F       # 2 V active : V blank ("900 :50")       30       00110000         80       50       # 2 H sync offset ("48")       30       00110000         81       51       # 2 H sync pulse width ("32")       20       00100000         82       52       # 2 V sync offset : V sync pulse width ("6 : 10")       6A       01101010         83       # 2 H sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       00       00000000         84       54       # 2 H image size ("294 mm")       26       00100110	74	4A	# 2 H active ("1600")	40	01000000
77       4D       # 2 V active ("900")       84       10000100         78       4E       # 2 V blank ("50")       32       00110010         79       4F       # 2 V active : V blank ("900 :50")       30       00110000         80       50       # 2 H sync offset ("48")       30       00110000         81       51       # 2 H sync pulse width ("32")       20       00100000         82       52       # 2 V sync offset : V sync pulse width ("6 : 10")       6A       01101010         83       # 2 H sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       00       00000000         84       54       # 2 H image size ("294 mm")       26       00100110	75	4B	# 2 H blank ("160")	A0	10100000
78       4E       # 2 V blank ("50")       32       00110010         79       4F       # 2 V active : V blank ("900 :50")       30       00110000         80       50       # 2 H sync offset ("48")       30       00110000         81       51       # 2 H sync pulse width ("32")       20       00100000         82       52       # 2 V sync offset : V sync pulse width ("6 : 10")       6A       01101010         83       # 2 H sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       00       000000000         84       54       # 2 H image size ("294 mm")       26       00100110	76	4C	# 2 H active : H blank ("1600 : 160")	60	01100000
79       4F       # 2 V active : V blank ("900 :50")       30       00110000         80       50       # 2 H sync offset ("48")       30       00110000         81       51       # 2 H sync pulse width ("32")       20       00100000         82       52       # 2 V sync offset : V sync pulse width ("6 : 10")       6A       01101010         83       # 2 H sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       00       00000000         84       54       # 2 H image size ("294 mm")       26       00100110	77	4D	# 2 V active ("900")	84	10000100
80       50       # 2 H sync offset ("48")       30       00110000         81       51       # 2 H sync pulse width ("32")       20       00100000         82       52       # 2 V sync offset : V sync pulse width ("6 : 10")       6A       01101010         83       # 2 H sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       00       00000000         84       54       # 2 H image size ("294 mm")       26       00100110	78	4E	# 2 V blank ("50")	32	00110010
80       50       # 2 H sync offset ("48")       30       00110000         81       51       # 2 H sync pulse width ("32")       20       00100000         82       52       # 2 V sync offset : V sync pulse width ("6 : 10")       6A       01101010         83       # 2 H sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       00       00000000         84       54       # 2 H image size ("294 mm")       26       00100110	79	4F	# 2 V active : V blank ("900 :50")	30	00110000
81       51       # 2 H sync pulse width ("32")       20       00100000         82       52       # 2 V sync offset : V sync pulse width ("6 : 10")       6A       01101010         83       # 2 H sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       00       00000000         84       54       # 2 H image size ("294 mm")       26       00100110	80	50	, ,	30	00110000
82       52       # 2 V sync offset : V sync pulse width ("6 : 10")       6A       01101010         83       # 2 H sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       00       00000000         84       54       # 2 H image size ("294 mm")       26       00100110	81	51	· ,	20	00100000
83       # 2 H sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")       00       00000000         84       54       # 2 H image size ("294 mm")       26       00100110	82	52		6A	01101010
84 54 # 2 H image size ("294 mm") 26 00100110	83	53	# 2 H sync offset : H sync pulse width : V sync offset : V sync width	00	00000000
	84			26	00100110
	85	55	· , ,	A5	10100101

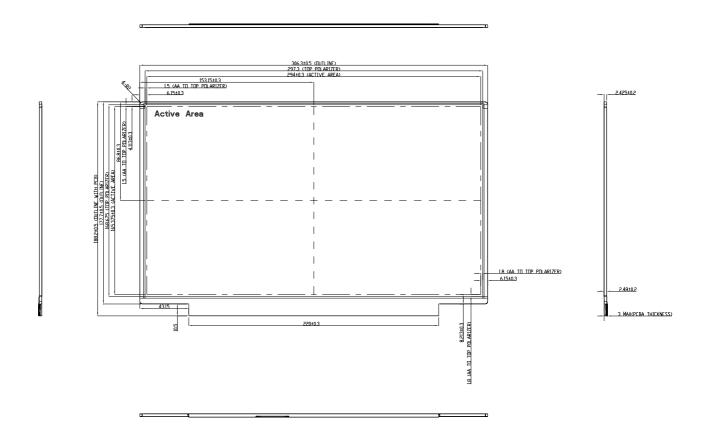
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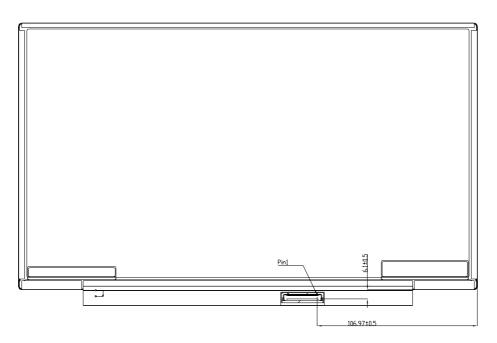


86	56	# 2 H image size : V image size ("294 : 165")	10	00010000
87	57	# 2 H boarder ("0")	00	00000000
88	58	# 2 V boarder ("0")	00	00000000
89	59	# 2 Non-interlaced, Normal, no stereo, Separate sync, H/V pol Negatives	1A	00011010
90	5A	Detailed timing description # 3 Pixel clock (66.88 MHz", According to VESA CVT Rev1.1)	20	00100000
91	5B	# 3 Pixel clock (hex LSB first)	1A	00011010
92	5C	# 3 H active ("1600")	40	01000000
93	5D	# 3 H blank ("160")	A0	10100000
94	5E	# 3 H active : H blank ("1600 : 160")	60	01100000
95	5F	# 3 V active ("900")	84	10000100
96	60	# 3 V blank ("50")	32	00110010
97	61	# 3 V active : V blank ("900 :50")	30	00110000
98	62	# 3 H sync offset ("48")	30	00110000
99	63	# 3 H sync pulse width ("32")	20	00100000
100	64	# 3 V sync offset : V sync pulse width ("6 : 10")	6A	01101010
101	65	# 3 H sync offset : H sync pulse width : V sync offset : V sync width ("48: 32 : 6 : 10")	00	00000000
102	66	# 3 H image size ("294 mm")	26	00100110
103	67	# 3 V image size ("165 mm")	A5	10100101
104	68	# 3 H image size : V image size ("294 : 165")	10	00010000
105	69	# 3 H boarder ("0")	00	00000000
106	6A	# 3 V boarder ("0")	00	00000000
107	6B	# 3 Non-interlaced, Normal, no stereo, Separate sync, H/V pol Negatives	1A	00011010
108	6C	Detailed timing description # 4	00	00000000
109	6D	# 4 Flag	00	00000000
110	6E	# 4 Reserved	00	00000000
111	6F	# 4 FE (hex) defines ASCII string (Model Name"N133FGE-L31", ASCII)	FE	11111110
112	70	# 4 Flag	00	00000000
113	71	# 2 1st character of name ("N")	4E	01001110
114	72	# 2 2nd character of name ("1")	31	00110001
115	73	# 2 3rd character of name ("3")	33	00110011
116	74	# 2 4th character of name ("3")	33	00110011
117	75	# 2 5th character of name ("F")	46	01000110
118	76	# 2 6th character of name ("G")	47	01000111
119	77	# 2 7th character of name ("E")	45	01000101
120	78	# 2 8th character of name ("-")	2D	00101101
121	79	# 2 9th character of name ("L")	4C	01001100
122	7A	# 2 Ath character of name ("3")	33	00110011
123	7B	# 2 Bth character of name ("1")	31	00110001
124	7C	# 2 New line character indicates end of ASCII string	0A	00001010
125	7D	# 4 Padding with "Blank" character	20	00100000
126	7E	Extension flag	00	00000000
127	7F	Checksum	6C	01101100



# **Appendix. OUTLINE DRAWING**





NOTES:
1.FLATNESS 0.5 mm MAX
2.\*( )\* MARKS THE REFERENCE DIMENSIONS.
3.LCD MODULE INPUT CONNECTOR: 20455-040E-12 (1-PEX) OR EQUIVALENT
4.IN DROER TO AVOID ABNORMAL DISPLAY, PODILING AND WHITE
SPOT, NO DVERLAPPING IS SUGGESTED AT CABLES, ANTENNAS,
CAMERA, WLAN, WAM OR OTHER FOREIGN OBJECTS OVER COF
DRIVER IC, TCON AND VR LOCATION.