



Version	V1
Total page	13
Date	2009/12/12

## Product Specification

### TFT LCD DISPLAY Module

VF-035-71A1 (1 CH CVS Input)

VF-035-71A1A (1 CH CVS Input, with audio out)

VF-035-71A4 (4 CH CVS Input)

VF-035-71A4A (4 CH CVS Input, with Audio out)

3.5" QVGA (320xRGBx240)

### Approval

Issue by	R & D	QA	ME	Approve by

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## 1. Features

- 4:3 Aspect Ratio Screen.
- QVGA Resolution in RGB stripe dot arrangement.
- LED Back Light
- High Brightness.
- Wide viewing angle.
- Video input channel up to 4.
- NTSC/PAL auto switch.
- 2W, 2CH, audio power amplifier (optional).
- Green design.



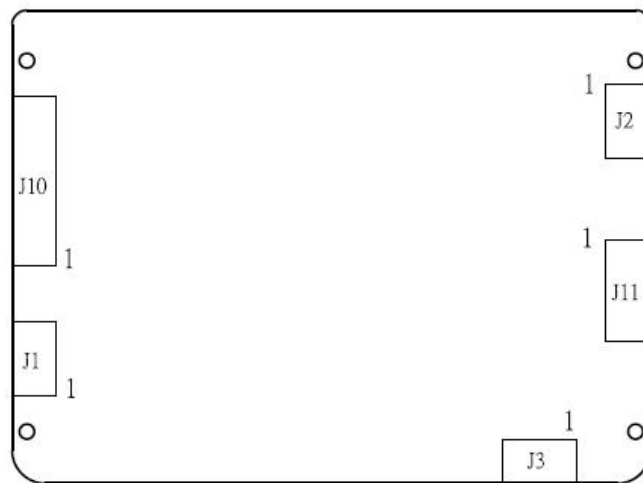
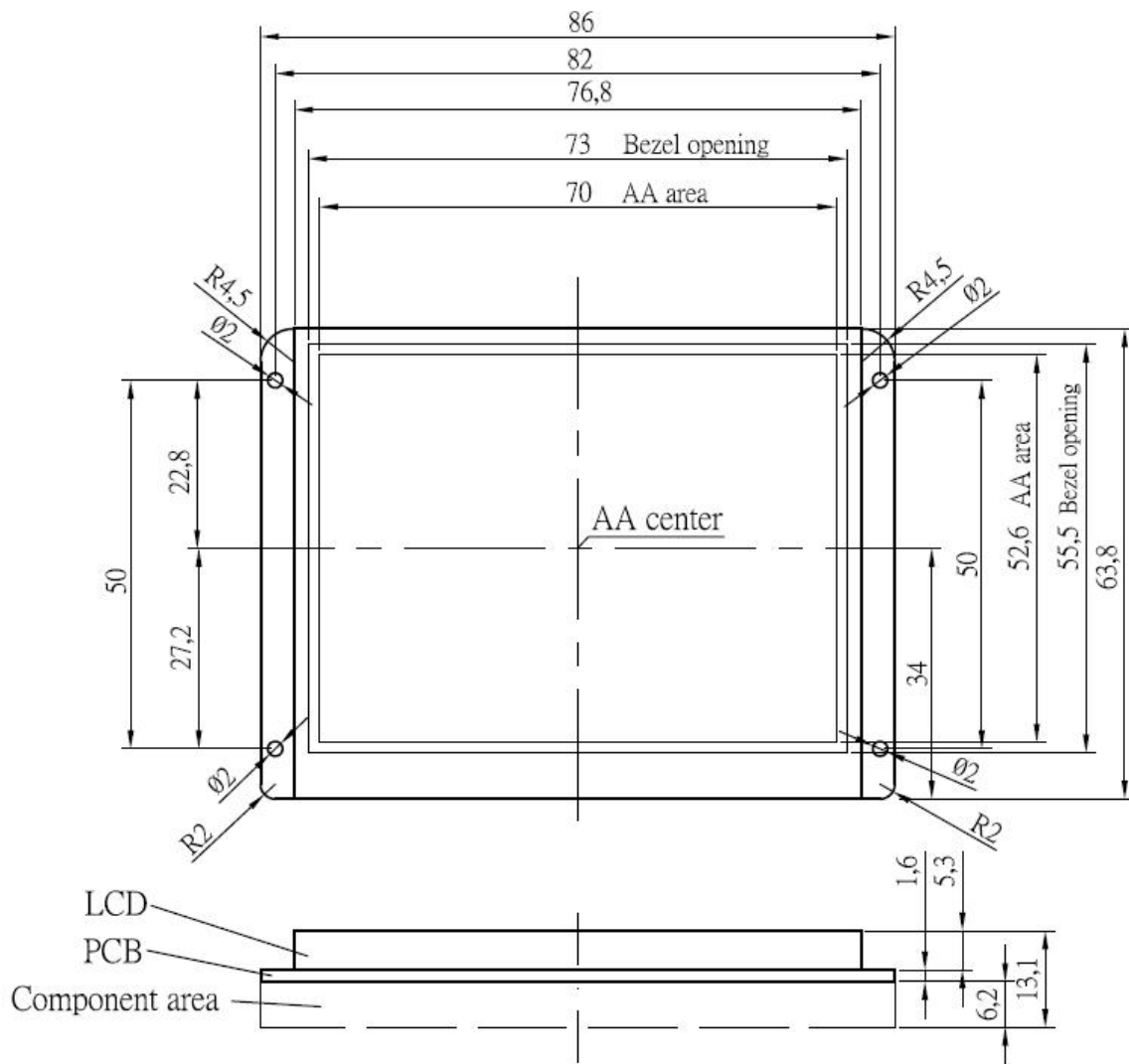
## 2. Specification.

Screen Size	3.5 inch
Number of Pixels	320(H) x RGB x 240(V)
Pixel Pitch	0.219 (H) x 0.219 (V) mm
Pixel configuration	RGB-Stripe
Active Area (mm)	70.08(H) x 52.56(V)
Surface Treatment	Anti-glare (AG) 25%
Operation Temp.(°C)	-20 ~ 70
Storage Temp.	-30 ~ 80
View Angle (U/D/L/R)	50/55/60/60
Brightness (nits)	320
Contrast Ratio	250
Response Time	50
Lamp Life (hrs)	10,000
Supply Voltage (VDC)	8 ~ 14
Power Consumption	2.7W (TYP.)
TV system	NTSC/PAL auto-switching
Video input Level	1V <sub>p-p</sub> , 75Ω
Video input Signal	Standard Composite Video,
Video scan direction	Up/Down, Left/Right scan selectable
Video input channel	1 CH, VF-035-11A1. 4 CH, VF-035-11A4.

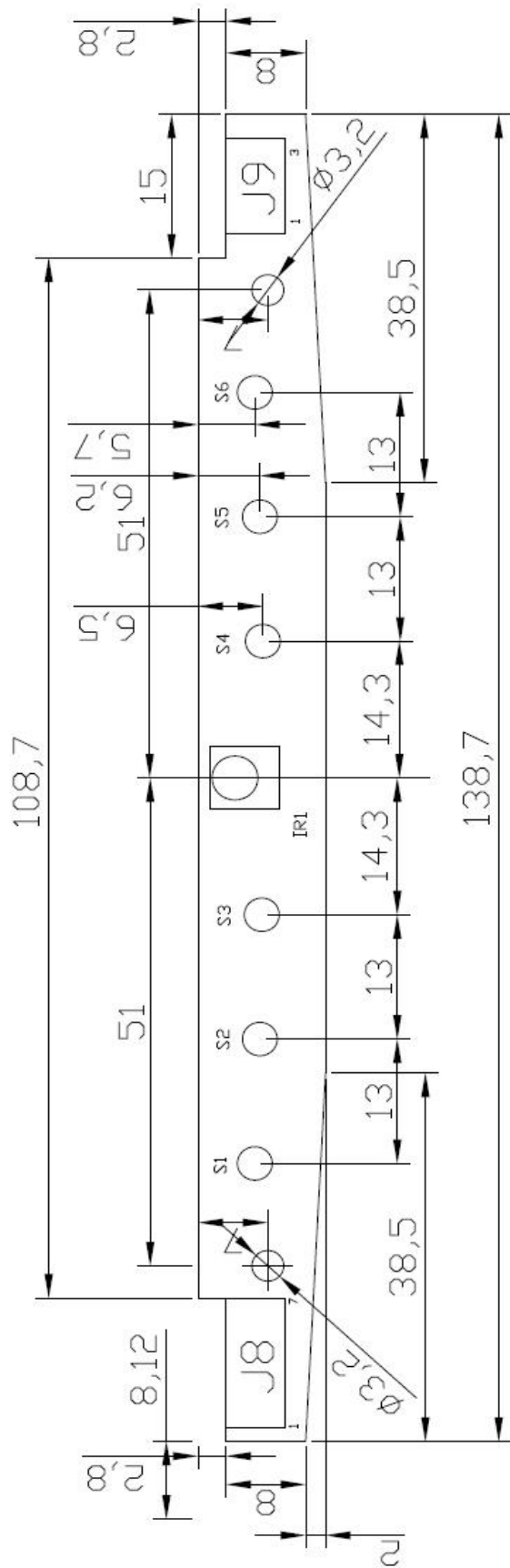
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### 3.2. Display Module Dimensions



### 3.3. Key Board Dimensions (Top View)



T=1.0mm key board (component side)

## 4. Electrical Specifications

### 4.1. TFT LCD Panel

#### 4.1.1. Socket PIN Assignment

NO	Pin Name	I/O	Description	Remarks
1	VBL-	I	Back Light LED Cathode	
2	VBL-	I	Back Light LED Cathode	
3	VBL+	I	Back Light LED Anode	
4	VBL+	I	Back Light LED Anode	
5	NC	-	NC	
6	RESET	-	Reset	
7	NC	-	Not Connected	
8	NC	O	Reserved for Touch panel	
9	NC	O	Reserved for Touch panel	
10	NC	O	Reserved for Touch panel	
11	NC	O	Reserved for Touch panel	
12	B0	I	Blue signal data bus(LSB)	
13	B1	I	Blue signal data bus	
14	B2	I	Blue signal data bus	
15	B3	I	Blue signal data bus	
16	B4	I	Blue signal data bus	
17	B5	I	Blue signal data bus	
18	B6	-	Blue signal data bus	
19	B7	-	Blue signal data bus(MSB)	
20	G0	I	Green signal data bus(LSB)	
21	G1	I	Green signal data bus	
22	G2	I	Green signal data bus	
23	G3	I	Green signal data bus	
24	G4	I	Green signal data bus	
25	G5	I	Green signal data bus	
26	G6	-	Green signal data bus	
27	G7	-	Green signal data bus(MSB)	
28	R0	I	Red signal data bus(LSB)	
29	R1	I	Red signal data bus	
30	R2	I	Red signal data bus	
31	R3	I	Red signal data bus	



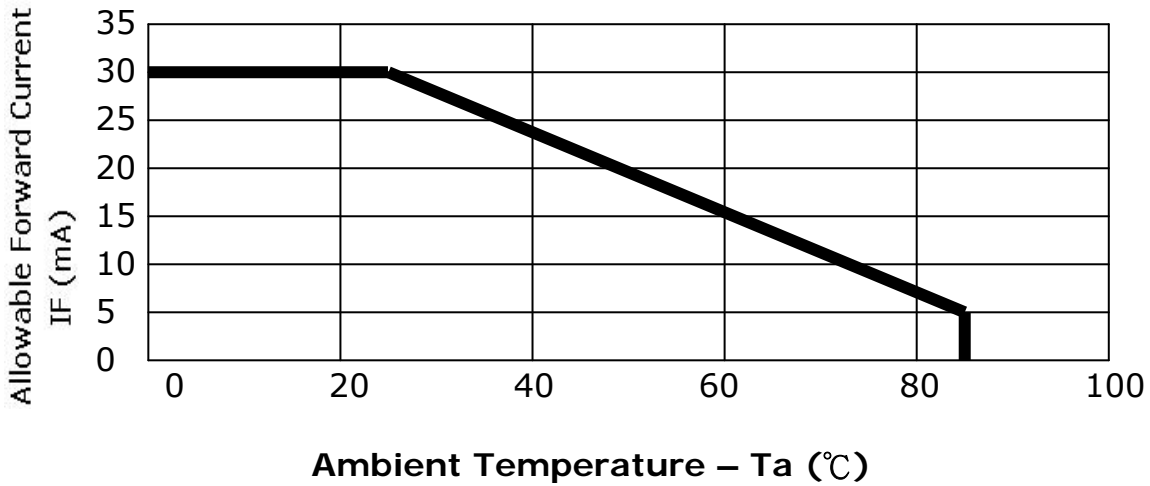
32	R4	I	Red signal data bus	
33	R5	I	Red signal data bus	
34	R6	I	Red signal data bus	
35	R7	I	Red signal data bus(MSB)	
36	HSYNC	I	Horizontal Sync Input	
37	VSYNC	I	Vertical Sync Input	
38	DCLK	I	Dot Data Clock	
39	NC	-	Not Connected	
40	NC	-	Not Connected	
41	VCC	I	Power Input	
42	VCC	I	Power Input	
43	SPENA	I	Chip Select Pin of serial interface	
44	NC	-	Not Connected	
45	NC	-	Not Connected	
46	NC	-	Not Connected	
47	NC	-	Not Connected	
48	GND	G	Ground	
49	SCK	I	Clock input pin in serial mode	
50	SDI	I	Data input pin in serial mode	
51	NC	-	Not Connected	
52	DEB	I	Display enable pin from controller	
53	GND	G	Ground	
54	GND	G	Ground	

I: Digital signal Input. O: Digital signal Output. G: GND.  
 PI: Power Input, C: Capacitor.

#### 4.1.2. Absolute Maximum Ratings

Items	Symbol	Values		Unit	Condition
		MIN.	MAX.		
Power Voltage	VCC	-0.3	4	V	
LED Reverse Voltage	Vr		5	V	One LED
LED Forward Current	If		35	mA	One LED

## LED SAFETY OPERATION AREA



The LED back light Lifetime will drop dramatically if the LED operation exceeds the safety operation area!

### 4.1.3. Electrical Characteristics

#### a. TFT-LCD Panel (GND=0V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply	Vcc	-	3.3	-	V	
Frame Frequency	F <sub>FRAM</sub>		60		Hz	
Dot Data Clock	DCLK		5		MHz	
Input Signal Voltage	V <sub>i</sub>	0		0.2xVDDIO	V	
	V <sub>l</sub>	0.8xVDDIO		VDDIO	V	

#### b. Back Light Driving Conditions

Parameter	Symbol	Min.	Typ	Max.	Unit	Remark
LED Supply Current	I <sub>L</sub>	-	20	-	mA	LED*6
LED Supply Voltage	V <sub>L</sub>	-	19.8	-	V	LED*6
Power Consumption	P <sub>LED</sub>	-	396	-	mW	LED*6

## 4.2. A/D board, Socket PIN Assignment

For VF-035-71A1 1 channel Video input.

J10: Input Connector ( Pitch= 1.25mm, 7 PIN )

Pin	Function	Note
1	CVS IN	
2	GND	
3	GND	
4	DC12V	
5	Audio L in	Optional
6	Audio R in	Optional
7	GND	

For VF-035-71A4 4 channel Video input.

J10: Input Connector ( Pitch= 1.25mm, 15 PIN )

Pin	Function	Note
1	CVS 4 IN	Channel 4
2	GND	
3	CVS 3 IN	Channel 3
4	GND	
5	CVS 2 IN	Channel 2, Second priority display channel when pin 14 input=5~12V
6	GND	
7	CVS 1 IN	Channel 1, first priority display channel when pin 15 input=5~12V
8	GND	
9	GND	
10	DC12V	Power Input
11	Audio L in	Optional
12	Audio R in	Optional
13	GND	
14	B IN	Channel 2, Second priority display channel when pin 14 input=5~12V, GND= function disable
15	R IN	Channel 1, first priority display channel when

		pin 15 input=5~12V, GND= function disable
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J1: 2 CH Audio Amplify output to speaker (optional).  
( Pitch= 1.25mm, 4 PIN )

Pin	Function	Note
1	L Out +	
2	L Out -	
3	R Out +	
4	R Out -	

J3: Program download port. ( Pitch= 1.25mm, 4 PIN )

Pin	Function	Note
1	VCC 5V	
2	TX	Optional
3	RX	
4	GND	

J11: Key Board Connector ( Pitch= 1.25mm, 7 PIN )

Pin	Function	Note
1	GND	
2	+ /UP	
3	MENU	OSD mode
4	- /DOWN	
5	SOURCE	Input signal Select
6	MUTE	For Audio volume
7	POWER	Power on/off

J12: Optional IR remote function Connector (Pitch= 1.25mm, 3 PIN )

Pin	Function	Note
1	GND	
2	IR Data Input	
3	+3.3V	

J2: External LED driver interface (optional) ( Pitch= 1.25mm, 4 PIN )

Pin	Function	Note
1	VCC 12V	power

2	ON/OFF	
3	Dimming	
4	GND	

### 4.3. Key board, Socket PIN Assignment

J8: Pitch= 1.25mm, 4 PIN.

Pin	Function	Note
1	GND	
2	+ /UP	
3	MENU	OSD mode
4	- /DOWN	
5	SOURCE	Input signal Select
6	MUTE	For Audio volume
7	POWER	Power on/off

J9: Optional IR function connector

Pin	Function	Note
1	GND	
2	IR Data Input	
3	+3.3V	

### 4.4. Key board, Switch function define.

NO	Function	Note
S1	- /DOWN	
S2	MENU	OSD mode
S3	+ /UP	
S4	SOURCE	Input signal Select
S5	MUTE	For Audio volume
S6	POWER	Power ON/OFF