VBY1 TCON 逻辑板规格书

修订记录：

版本	内容	作者	日期	备注
1.0	初稿	**TCON Team**	**2016.1.15**	

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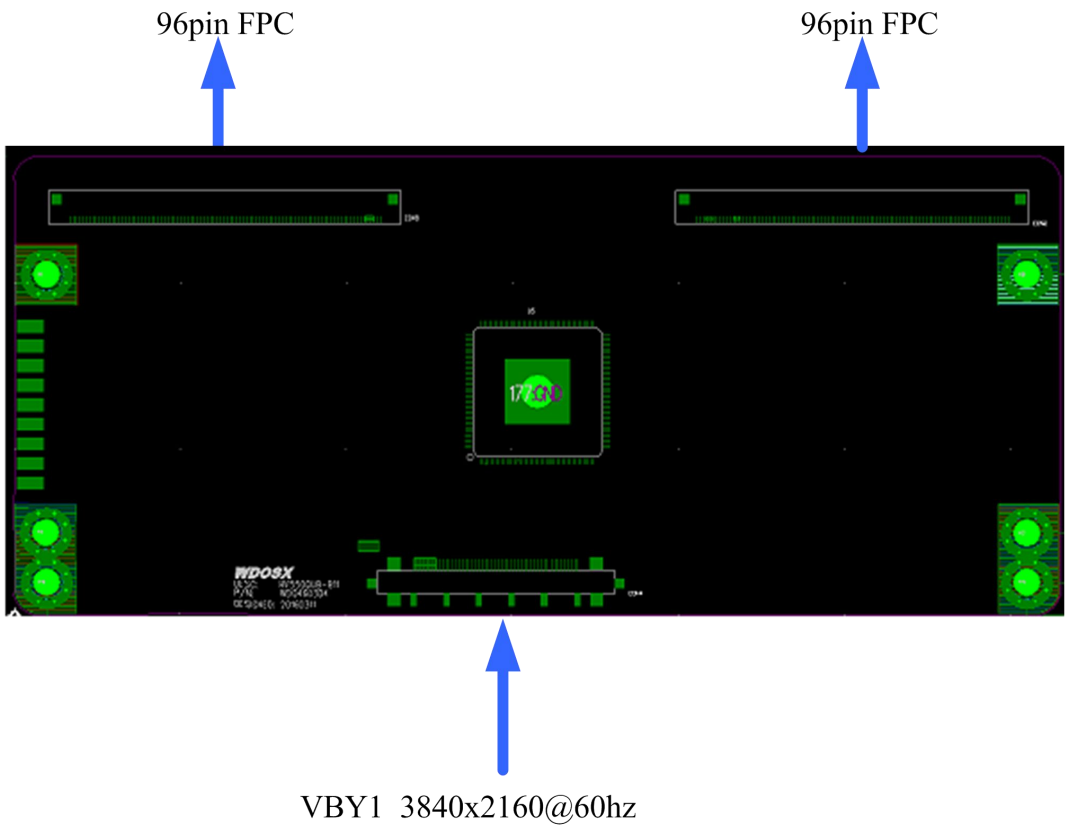
1. 概述

VBY1 TCON 逻辑板是专为液晶屏行业开发的 8 Lane VBY1 真 4K 逻辑板，目前稳定支持 CMI V500DJ4 和 BOE HV550QUB-B11 液晶屏，后续会陆续添加新的屏型号。此板采用专业图像芯片设计，性能稳定可靠。

产品示意图:



2. 常用规格

板尺寸	160x70mm
板厚度	1.6mm
板材	FR4
生产工艺	高速 SMT
耐温	-40°~100°
输入接口	51pin 0.5mm SMD 座子，2160p 分辨率
输出接口	96PIN 贴片 FPC 翻盖下接触连接座 脚距 0.5mm
电源	12V 电压，2A 电流

3. 电气特性

3-1．AC/DC Specification：

ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Storage Temperature	TST	-20	60	℃	
Operating Ambient Temperature	TOP	0	50	℃	
Shock (Non-Operating)	SNOP	-	35	G	
Vibration (Non-Operating)	VNOP	-	1	G	

Note (1) Temperature and relative humidity range is shown in the figure below.

(a) 90 %RH Max. (Ta 40 °C). ?

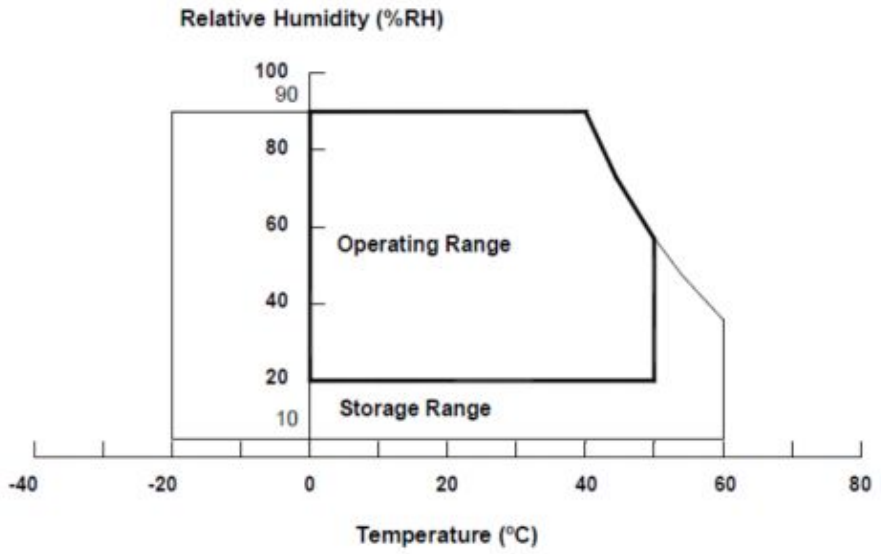
(b) Wet-bulb temperature should be 39 °C Max. (Ta > 40 °C).

(c) No condensation.

Note (2) The maximum operating temperature is based on the test condition that the surface temperature of display area is less than or equal to 65 °C with LCD module alone in a temperature controlled chamber.

Thermal management should be considered in final product design to prevent the surface temperature of display area from being over 65 °C.

The range of operating temperature may degrade in case of improper thermal management in final product design.



Item	Symbol	Value		Unit	Note
		Min.	Max.		
Power Supply Voltage	VCC	8	13.5	V	(1) (2)
Logic Input Voltage	VIN	2.8	3.4	V	(1) (2)

Note (1) Permanent damage to the device may occur if maximum values are exceeded. Function operation should be restricted to the conditions described under Normal Operating Conditions.

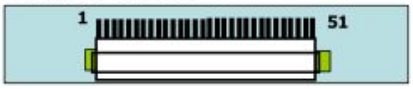
Note (2) No moisture condensation or freezing.

3-2. 输入接口：

8LANE VBYONE 输入，支持 3840x2160@60hz。

Pin No	Symbol	Description	Pin No	Symbol	Description
1	VDD	Power Supply +12.0V	27	GND	Ground
2	VDD	Power Supply +12.0V	28	Rx3n	V-by-One HS Data Lane 3
3	VDD	Power Supply +12.0V	29	Rx3p	V-by-One HS Data Lane 3
4	VDD	Power Supply +12.0V	30	GND	Ground
5	VDD	Power Supply +12.0V	31	Rx4n	V-by-One HS Data Lane 4
6	VDD	Power Supply +12.0V	32	Rx4p	V-by-One HS Data Lane 4
7	VDD	Power Supply +12.0V	33	GND	Ground
8	VDD	Power Supply +12.0V	34	Rx5n	V-by-One HS Data Lane 5
9	VDD	Power Supply +12.0V	35	Rx5p	V-by-One HS Data Lane 5
10	VDD	Power Supply +12.0V	36	GND	Ground
11	NC	No Connection	37	Rx6n	V-by-One HS Data Lane 6
12	GND	Ground	38	Rx6p	V-by-One HS Data Lane 6
13	GND	Ground	39	GND	Ground
14	GND	Ground	40	Rx7n	V-by-One HS Data Lane 7
15	GND	Ground	41	Rx7p	V-by-One HS Data Lane 7
16	HTPD	Hot plug detec	42	GND	Ground
17	LOCKN	Lock detect	43	Main check	Main check
18	GND	Ground	44	SCL	Tcon_SCL_IN
19	Rx0n	V-by-One HS Data Lane 0	45	TCON_IIC_EN2	TCON_IIC_EN2
20	Rx0p	V-by-One HS Data Lane 0	46	SDA	Tcon_SDA_IN
21	GND	Ground	47	BT_SYNC	BT_SYNC
22	Rx1n	V-by-One HS Data Lane 1	48	FRC_SCL	FRC_SCL
23	Rx1p	V-by-One HS Data Lane 1	49	Aging_EN	Aging_EN
24	GND	Ground	50	FRC_SDA	FRC_SDA
25	Rx2n	V-by-One HS Data Lane 2	51	Ident_jackpak	Ident_jackpak
26	Rx2p	V-by-One HS Data Lane 2			

Rear view of LCM



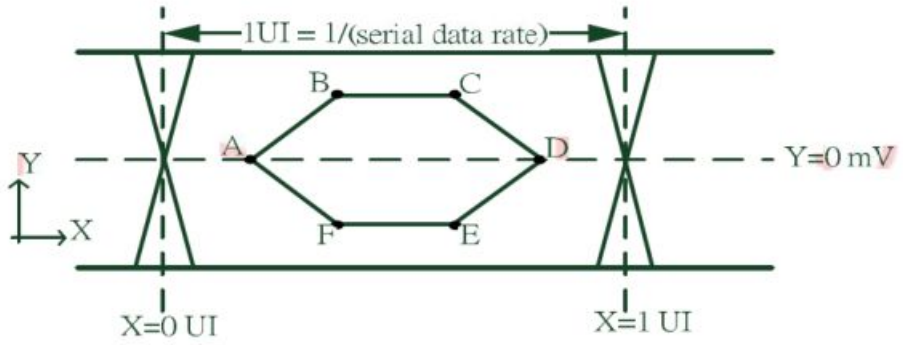
V-BY-ONE RX DC SPECIFICATION

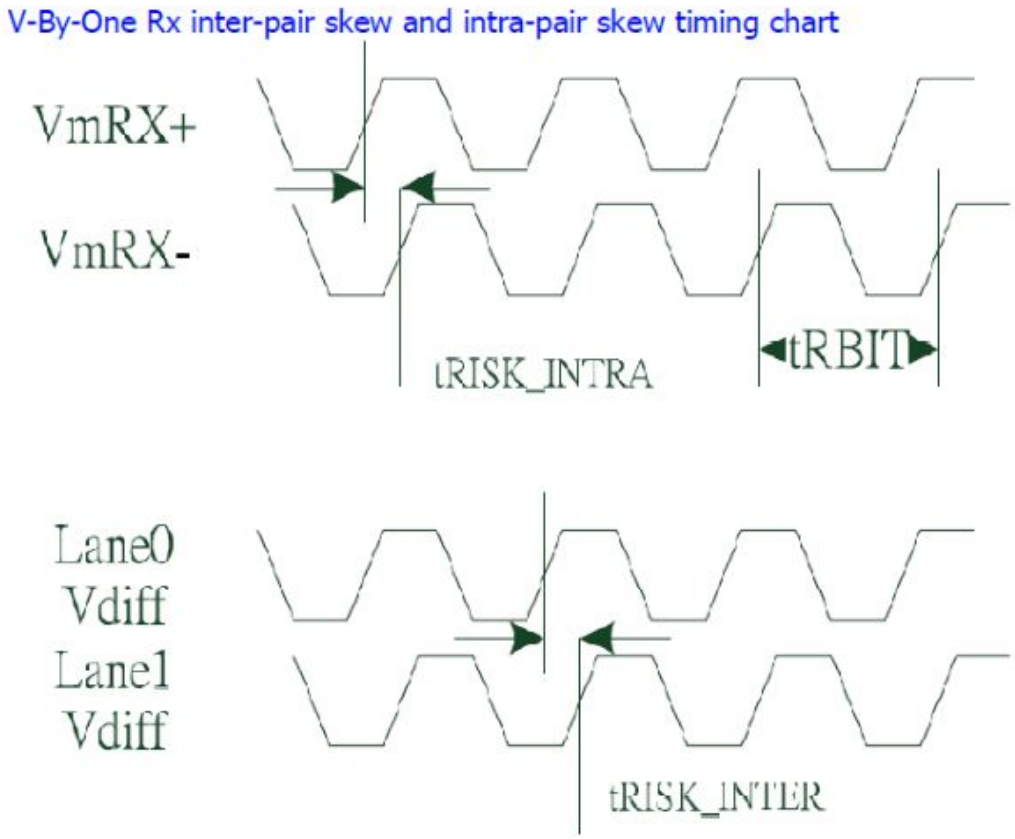
Parameter	Symbol	Min	Typ	Max	Unit
CML Differential Input High Threshold	VRTH			50	mV
CML Differential Input Low Threshold	VRTL	-50			mV
CML Common mode Bias Voltage	VRCT	0		3.3	V
CML Differential Input Resistance	RRIN	80	100	120	ohm

V-BY-ONE RX AC SPECIFICATION

V-By-One RX AC Specification

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Unit Interval	tRBIT	3byte mode	392	tTCIP/30	1667	ps
		4byte mode	294	tTCIP/40	1667	Ps
Allowable Intra-pair Skew	tRISK_INTRA		0.3			UI
Allowable Inter-pair Skew	tRISK_INTER	3byte mode	5			UI
		4byte mode	5			UI
Eye Diagram at Receiver	A_X			0.25		UI
	A_Y			0		mV
	B_X			0.3		UI
	B_Y			50		mV
	C_X			0.7		UI
	C_Y			50		mV
	D_X			0.75		UI
	D_Y			0		mV
	E_X			0.7		UI
	E_Y			-50		mV
	F_X			0.3		UI
	F_Y			-50		mV





3-3. **输出接口：**

输出两个 96pin 的 FPC 座子，线序定义支持 CMI V500DJ4 和 BOE HV550QUB-B11 两款液晶屏。

4. 单板结构图