

# THC63LVDM83D / THC63LVDF(R)84C Evaluation Kit

LVDS Single Link Evaluation Board

Parts Number: THEVAM83D, THEVAF(R)84C

## 1. General Description

THEVAM83D and, THEVAF(R)84C boards are designed to support video data transmission between the host and display. One high-speed lane can carry up to 24bits data and 3bits of synchronizing signals at a pixel clock frequency from 8MHz to 160MHz.

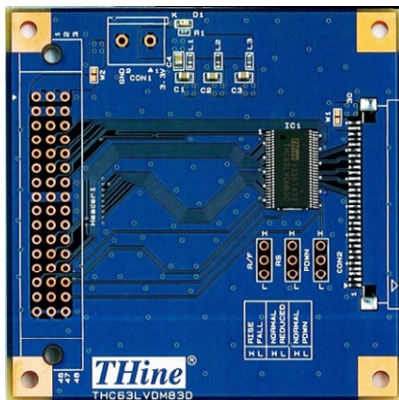
Table 1 Clock Frequency

Type	Parts Number	TTL Clock Freq.
Tx	THEVAM83D	8MHz to 160MHz
Rx	THEVAF(R)84C	8MHz to 112MHz

## 2. Features

- Compatible with TIA/EIA-644 LVDS Standard
  - 7:1 LVDS Transmitter and Receiver
  - Single power supply
  - Power Down Mode
- < THEVAM83D >
- LVDS swing is reducible as 200mV by RS-pin to reduce EMI and power consumption.
  - Input clock triggering edge is selectable by R/F-pin
- < THEVAF84C > • Falling Edge Clock
- < THEVAR84C > • Rising Edge Clock

## 3. Overview

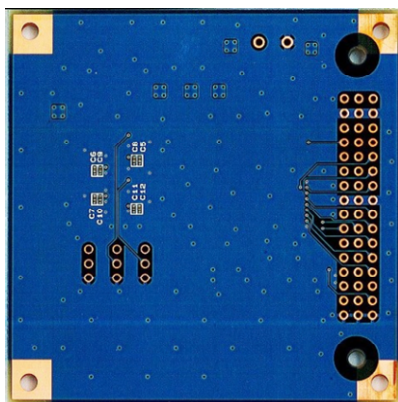


(a) THEVAM83D (Top Side)

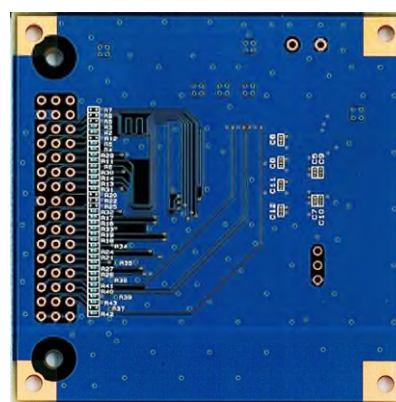


(b) THEVAF(R)84C (Top Side)

Figure 1 THEVAM83D and THEVAF(R)84C Top Side View



(a) THEVAM83D (Bottom Side)



(b) THEVAF(R)84C (Bottom Side)

Figure 2 THEVAM83D and THEVAF(R)84C Bottom Side View

## 4. Power Supply Set Up

This chapter shows power supply condition.

**Caution: Please check if there is no power-GND short on below red trace before supplying any power.**

### 3.3V Power Supply to Each Board

Each evaluation board require 3.3V power supply. Please use “CON1” connector typically.

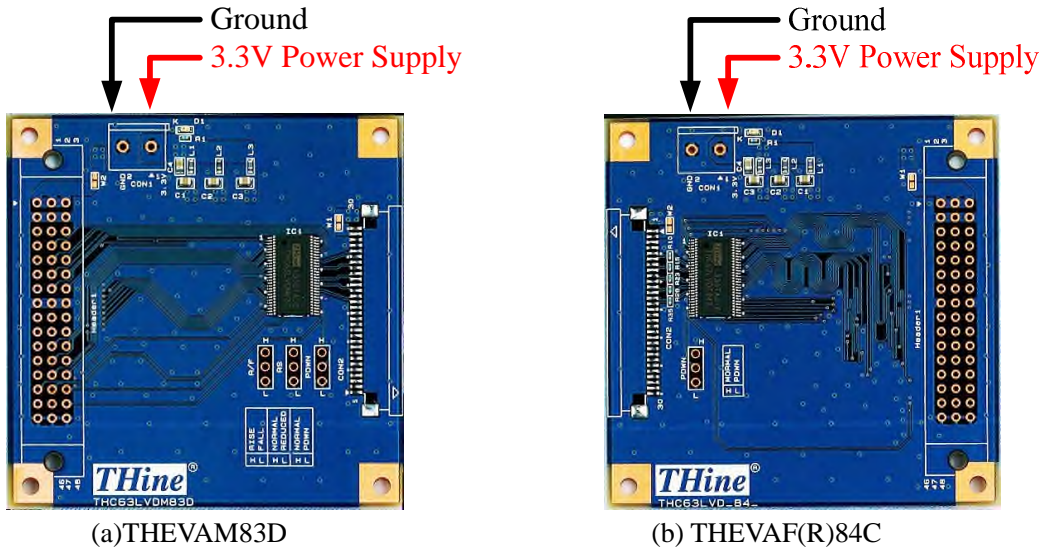


Figure 3 Power Supply for Evaluation Board

### Power Supply from / to Connector

3.3V power supply can be connected to Header1 and CON2 by using W1 and W2 solder jumper.

#### THEVAM83D

W1: Connect the 3.3V power supply with pin#29 and 30 of CON2.

W2: Connect the 3.3V power supply with pin#1, 2 and 3 of Header1.

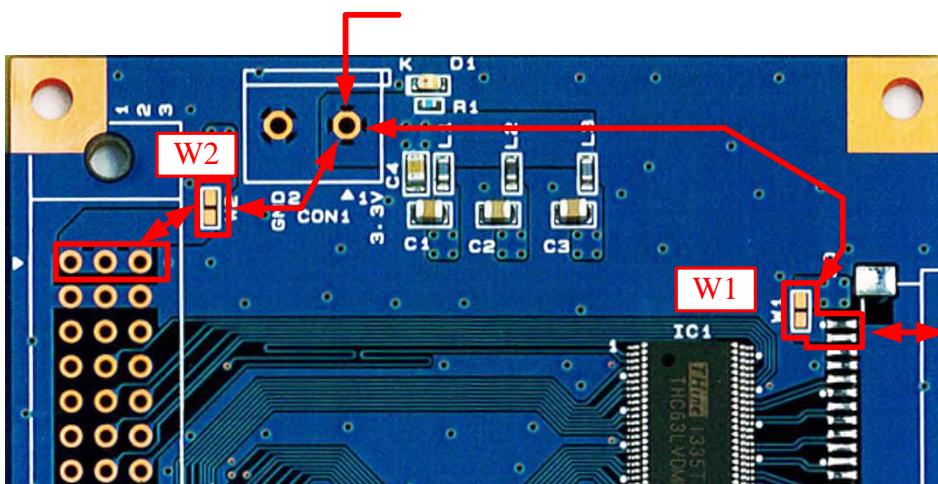


Figure 4 THEVAM83D Power Supply from / to Each Connector



**THEVAF(R)84C**

- W1: Connect the 3.3V power supply with pin#1, 2 and 3 of Header1.
- W2: Connect the 3.3V power supply with pin#1 and 2 of CON2.

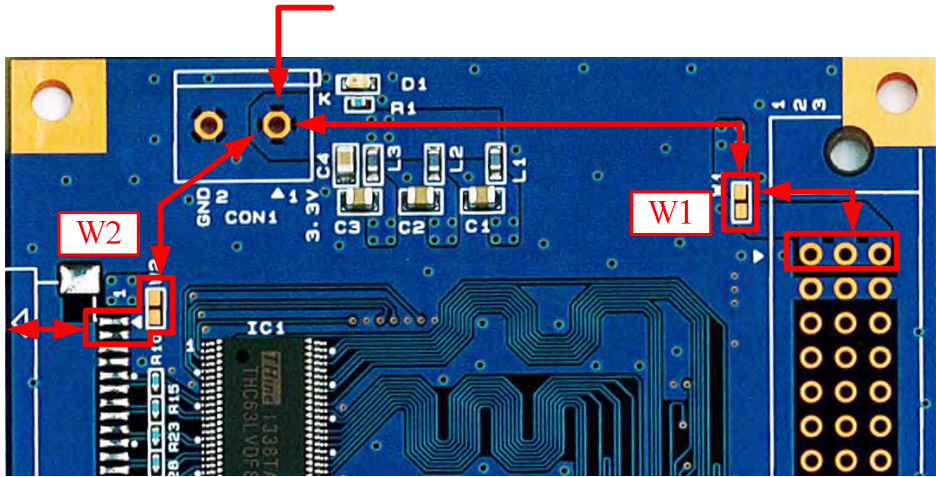
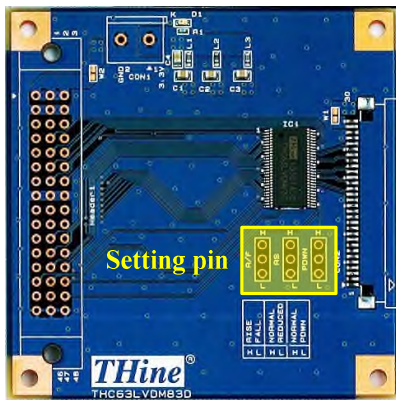


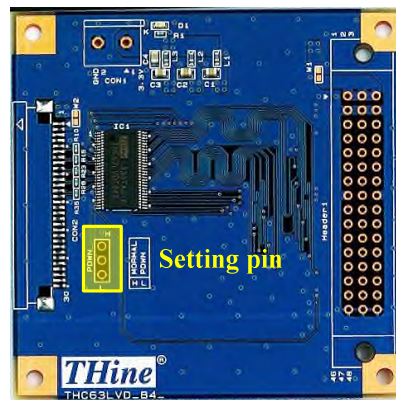
Figure 5 THEVAF(R)84C Power Supply from / to Each Connect

**5. Function Setting**

Setting pin of each boards are shown in yellow area of figure 6. HEADER is connected to IC’s setting pin. Each setting pin’s high or low setting can set by connecting HEADER and high level or low level.



(a)THEVAM83D



(b) THEVAF(R)84C

Figure 6 Position of Function Setting Pin

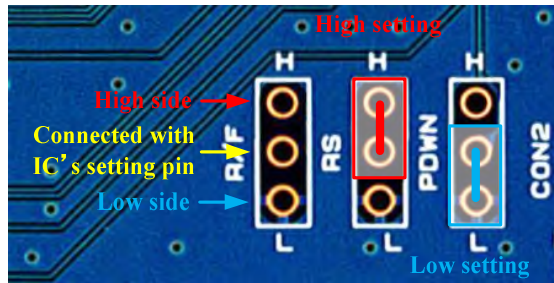


Figure 7 High / Low Setting Description

## 5. Function

This chapter shows function setting of THEVAM83D and THEVAF(R)84C.

Table 2 THEVAM83D Function Setting Description

Silk	Symbol	Function												
RF	RF	Input clock triggering edge select input for latching input data H: Rising edge L: Falling edge												
RS	RS	LVDS Swing Mode.												
		<table border="1"> <thead> <tr> <th>RS</th> <th>LVDS Swing</th> <th>Small Swing Input Support</th> </tr> </thead> <tbody> <tr> <td>VCC</td> <td>350mV</td> <td>N/A</td> </tr> <tr> <td>0.6 to 1.4V</td> <td>350mV</td> <td>RS=V<sub>REF</sub></td> </tr> <tr> <td>GND</td> <td>200mV</td> <td>N/A</td> </tr> </tbody> </table>	RS	LVDS Swing	Small Swing Input Support	VCC	350mV	N/A	0.6 to 1.4V	350mV	RS=V <sub>REF</sub>	GND	200mV	N/A
		RS	LVDS Swing	Small Swing Input Support										
		VCC	350mV	N/A										
0.6 to 1.4V	350mV	RS=V <sub>REF</sub>												
GND	200mV	N/A												
V <sub>REF</sub> : is Input Reference Voltage														
PWDN	PWDN	Power down input. H: Normal operation L: Power down												

Table 3 THEVAF(R)84C Function Setting Description

Silk	Symbol	Function
PWDN	PWDN	Power down input. H: Normal Operation L: Power Down





## 7. Bills of Materials

Table 4 THEVAM83D BOM

TYPE	Value / Part No.	Package	SPEC	Reference No.	Qty.
Capacitor	10uF	2012	16V	C1, C2, C3, C4	4
Capacitor	0.1uF	1005	16V	C5, C6, C7, C12	4
Capacitor	0.01uF	1005	16V	C8, C9, C10, C11	4
Connector	282836-2(NC)	5mm_pitch	2pin	CON1	1
Connector	52271-3069(NC)	1mm_pitch	30pin	CON2	1
Connector	PCN10-48P-2.54DSA_LEFT(NC)	2.54mm_pitch	48pin	Header1	1
Header	3HEAD(NC)	2.54mm_pitch	---	Header2, Header3, Header4	3
IC	THC63LVDM83D	TSSOP56	---	IC1	1
Inductor	MPZ1608R471A	1608	1.2A	L1, L2, L3	3
LED0	SML-310MT	1608	GREEN	D1	1
Resistor	150Ω	1005	0.1W	R1	1

Table 5 THEVAF(R)84C BOM

TYPE	Value / Part No.	Package	SPEC	Reference No.	Qty.
Capacitor	10uF	2012	16V	C1, C2, C3, C4	4
Capacitor	0.1uF	1005	16V	C5, C6, C7, C12	4
Capacitor	0.01uF	1005	16V	C8, C9, C10, C11	4
Connector	PCN10-48P-2.54DSA_RIGHT(NC)	2.54mm_pitch	48pin	Header1	1
Connector	52271-3069(NC)	1mm_pitch	30pin	CON2	1
Connector	282836-2(NC)	5mm_pitch	2pin	CON1	1
Header	3HEAD(NC)	2.54mm_pitch	---	Header2	1
IC	THC63LVDF(R)84C	TSSOP56	---	IC1	1
Inductor	MPZ1608R471A	1608	1.2A	L1, L2, L3	3
LED0	SML-310MT	1608	GREEN	D1	1
Resistor	150Ω	1005	0.1W	R1	1
Resistor	100Ω	1005	0.1W	R10, R15, R23, R28, R35	5
Resistor	10Ω	1005	0.1W	R2, R3, R4, R5, R8, R11, R13, R14, R16, R17, R18, R19, R21, R24, R26, R27, R29, R30, R31, R32, R33, R34, R36, R38, R39, R40, R41, R42, R43	29
Resistor	0Ω(NC)	1005	1A	R6, R7, R9, R12, R20, R22, R25, R37	8

## **8. Set items**

Table 6 Set Items

<b>TYPE</b>	<b>Part No.</b>
DC Connector	282836-2
FFC Connector for LVDS Link	52271-3069
FFC 30pin 1mm pitch for LVDS Link	98267-0475
Pin Header	---

It's possible to mount these parts on this board and use.



---

## **9. Notices and Requests**

Please kindly read, understand and accept this “Notices and Requests” before using this product.

### **For the Material:**

1. The product specifications described in this material are subject to change without prior notice.
2. The circuit diagrams described in this material are examples of the application which may not always apply to design of respective customers. THine Electronics, Inc. (“THine”) is not responsible for possible errors and omissions in this material. Please note even if the errors or omissions should be found in this material, THine may not be able to correct them immediately.
3. This material contains THine’s copyright, know-how or other proprietary. Copying or disclosing of the contents of this material to any third party without THine’s prior permission is strictly prohibited.

### **For the Product:**

1. This product is solely designed for evaluation purpose, and other purposes including mass production and distribution are not intended.
2. This product has been solely manufactured for electric design engineers but not for end-users.
3. This product is not radiation-tolerant product.
4. This product is presumed to be used for general electric device, not for applications which require extremely high-reliability/safety (including medical device concerned with critical care, aerospace device, or nuclear power control device). Also, when using this product for any device concerned with control and/or safety of transportation means, traffic signal device, or other various types of safety device, such use must be after applying appropriate measures to the product.
5. This product has been designed with the utmost care to accomplish the purpose of evaluation of IC products manufactured by THine Electronics, Inc. (“THine”); however, THine MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO ANY PERFORMANCE OR FUNCTION OF THIS PRODUCT IN ANY CIRCUMSTANCES.
6. This product has been manufactured with the utmost care in quality control and product reliability; however, there may be faults or defects with a low but fixed probability, as inevitable phenomenon concerned with semiconductor manufacturing processes. Therefore, customers are encouraged to have sufficiently redundant or error-preventive design applied to the use of the product so as not to have THine’s product cause any social or public damage. Neither replacement nor failure analysis of the product is available in any case of defects with the product and/or the product’s components.
7. Customers are asked, if required, to judge by themselves on whether this product falls under the category of strategic goods under the Foreign Exchange and Foreign Trade Act.
8. Please Note that even if infringement of any third party’s industrial ownership should occur by using this product, THine will be exempted from any responsibility unless it directly relates to the production process or functions of the product.
9. Developing, designing and manufacturing of customers’ own products, equipment or system by using of this product is strictly prohibited in any way.

***THine Electronics, Inc.***

<https://www.thine.co.jp/>