# THC63LVDM83D / THC63LVDF(R)84C Evaluation Kit 

LVDS Single Link Evaluation Board<br>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 8 MHz to 160 MHz .

Table 1 Clock Frequency

| Type | Parts Number | TTL Clock Freq. |
| :---: | :---: | :---: |
| Tx | THEVAM83D | 8 MHz to 160 MHz |
| Rx | THEVAF $(\mathrm{R}) 84 \mathrm{C}$ | 8 MHz to 112 MHz |

## 2. Features

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


## 3. Overview



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


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 3.3 V power supply. Please use "CON1" connector typically.

(a)THEVAM83D

(b) THEVAF (R)84C

Figure 3 Power Supply for Evaluation Board

## Power Supply from / to Connector

3.3 V power supply can be connected to Header1 and CON2 by using W1 and W2solder jumper.

## THEVAM83D

W1: Connect the 3.3 V power supply with pin\#29 and 30 of CON2.
W2: Connect the 3.3 V 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 3.3 V power supply with pin\#1, 2 and 3 of Header1.
W2: Connect the 3.3 V 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.


Figure 6 Position of Function Setting Pin


Figure 7 High / Low Setting Description

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## 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 <br> H : Rising edge L: Falling edge |  |  |
| RS | RS | LVDS Swing Mode. |  |  |
|  |  | RS | LVDS <br> Swing | Small Swing Input Support |
|  |  | VCC | 350 mV | N/A |
|  |  | 0.6 to 1.4V | 350 mV | $\mathrm{RS}=\mathrm{V}_{\text {REF }}$ |
|  |  | GND | 200mV | N/A |
|  |  | $\mathrm{V}_{\text {REF }}$ : is Input Reference Voltage |  |  |
| PWDN | PWDN | Power down input. <br> H: Normal operation L: Power down |  |  |

Table 3 THEVAF(R)84C Function Setting Description

| Silk | Symbol | Function |  |
| :---: | :---: | :---: | :---: |
| PWDN | PWDN | Power down input. <br> H: Normal Operation | L: Power Down |

## 6. Schematic



Figure 8 THEVAM83D Schematic


Figure 9 THEVAF(R)84C Schematic

## 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) | 2.54 mm _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 | $150 \Omega$ | 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 | 16 V | C5, C6, C7, C12 | 4 |
| Capacitor | 0.01uF | 1005 | 16V | C8, C9, C10, C11 | 4 |
| Connector | PCN10-48P-2.54DSA_RIGHT(N C) | 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 | $150 \Omega$ | 1005 | 0.1W | R1 | 1 |
| Resistor | $100 \Omega$ | 1005 | 0.1W | R10, R15, R23, R28, R35 | 5 |
| Resistor | $10 \Omega$ | 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 | $0 \Omega(\mathrm{NC})$ | 1005 | 1A | R6, R7, R9, R12, R20, R22, R25, R37 | 8 |

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## 8. Set items

Table 6 Set Items

| TYPE | Part No. |
| :--- | :--- |
| 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.

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