THC63LVDM83D / THC63LVDF(R)84B,84C Evaluation Kit

LVDS Single Link Evaluation Board

Parts Number: THEVAM83D, THEVAF(R)84B, THEVAF(R)84C

1.General Description

THEVAM83D and, THEVAF(R)84B, 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.

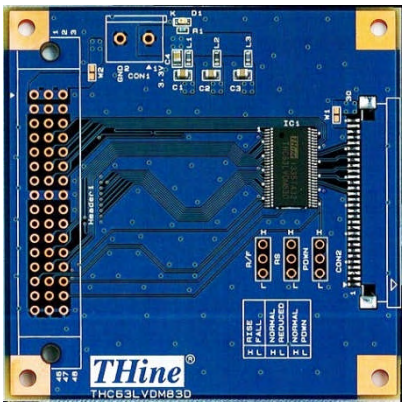
Table 1 Clock Frequency

Type	Parts Number	TTL Clock Freq.
Tx	THEVAM83D	8MHz to 160MHz
Rx	THEVAF(R)84B	15MHz to 85MHz
Rx	THEVAF(R)84C	8MHz to 112MHz

2. Features

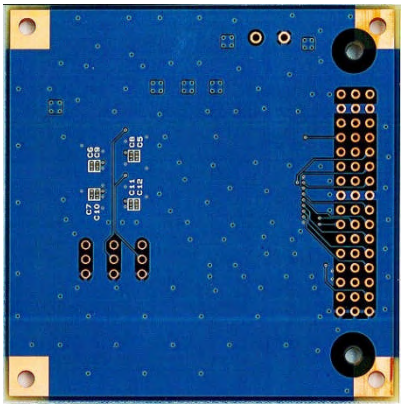
・Compatible with TIA/EIA-644 LVDS Standard
・7:1 LVDS Transmitter and Receiver
・Single power supply
・Power Down Mode
< THEVAM83D>
・LVDS swing is reducible as 200mV by RS-pin to reduce EMI and power consumption.
・Input clock triggering edge is selectable by R/F-pin
< THEVAF84B and C>・Falling Edge Clock
< THEVAR84B and C>・Rising Edge Clock

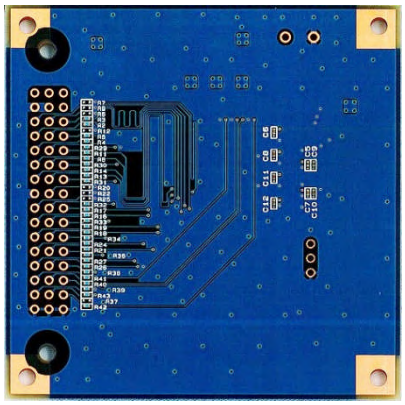
3. Overview



(a) THEVAM83D (Top Side) (b) THEVAM83D (Top Side)

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





(a) THEVAF(R)84B, 84C (Bottom Side) (b)THEVAF(R)84B, 84C (Bottom Side)

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

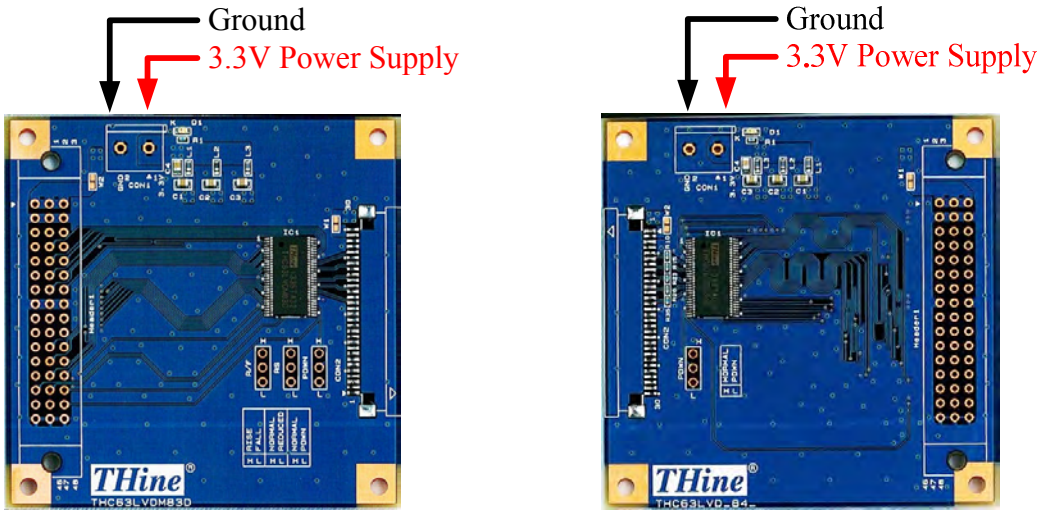
4. Power Supply Set Up

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.



(a)THEVAM83D (b) THEVAF(R)84B, 84C

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 W2solder 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.

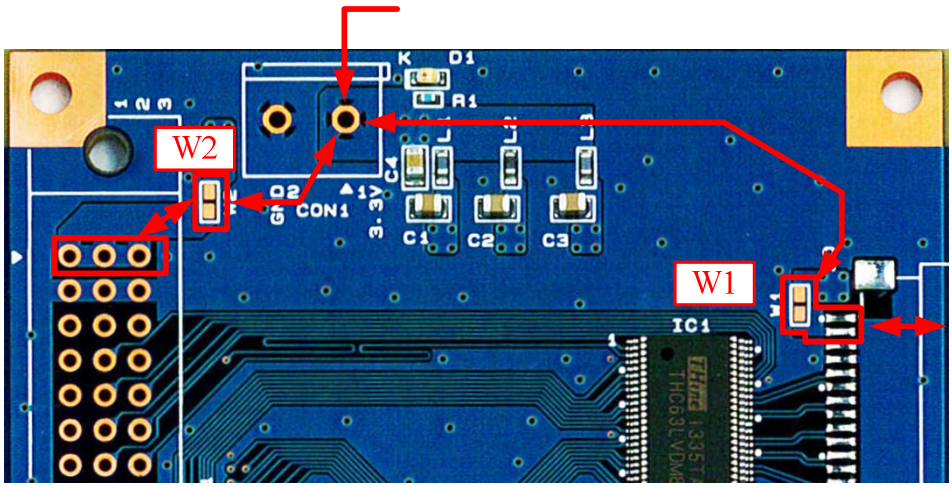


Figure 4 THEVAM83D Power Supply from / to Each Connector

THEVAF(R)84B, 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.

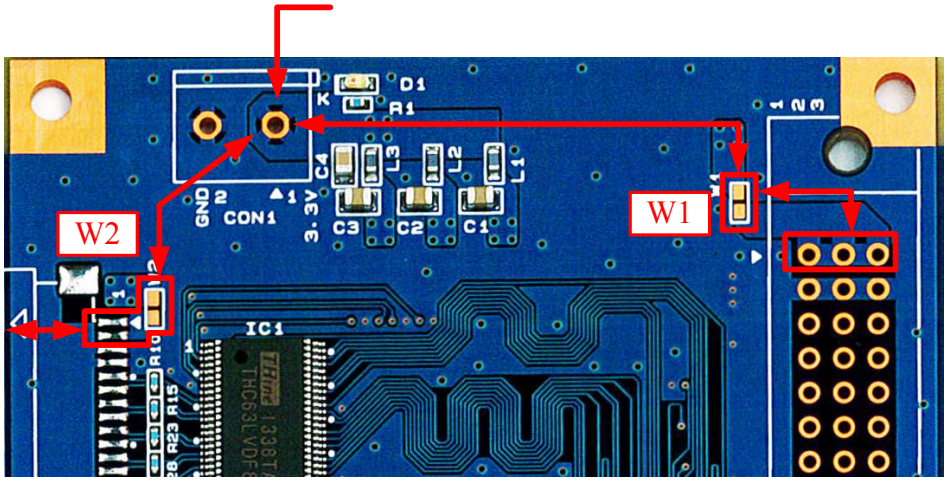
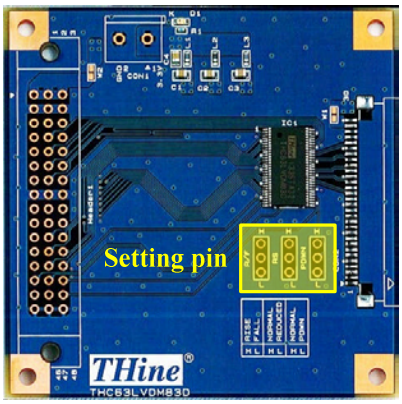


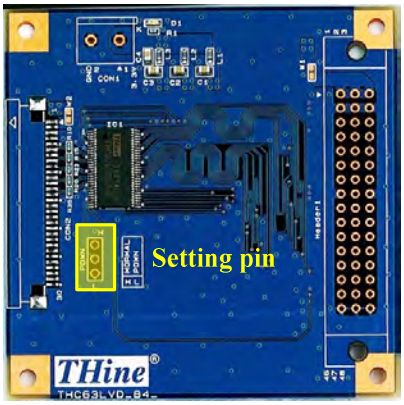
Figure 5 THEVAF(R)84B, 84C Power Supply from / to Each Connect

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)84B, 84C

Figure 6 Position of Function Setting Pin

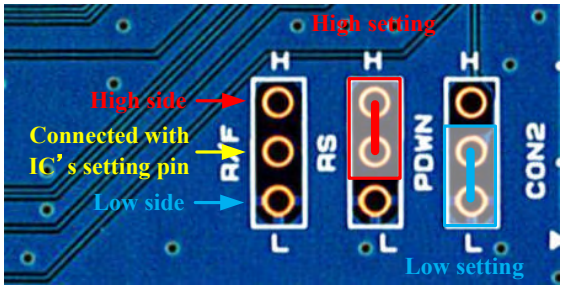


Figure 7 High / Low Setting Description

5. Function

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

Table 2 THEVAM83D Function Setting Description

<table>
<tr><th>Silk</th><th>Symbol</th><th>Function</th></tr>
<tr><td>RF</td><td>RF</td><td>Input clock triggering edge select input for latching input data
H: Rising edge L: Falling edge</td></tr>
<tr><td>RS</td><td>RS</td><td>LVDS Swing Mode.
<table>
<tr><th>RS</th><th>LVDS Swing</th><th>Small Swing Input Support</th></tr>
<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_{REF}</td></tr>
<tr><td>GND</td><td>200mV</td><td>N/A</td></tr>
</table>
V_{REF} : is Input Reference Voltage</td></tr>
<tr><td>PWDN</td><td>PWDN</td><td>Power down input.
H: Normal operation L: Power down</td></tr>
</table>

Table 3 THEVAF(R)84B, 84C Function Setting Description

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

6. Schematic

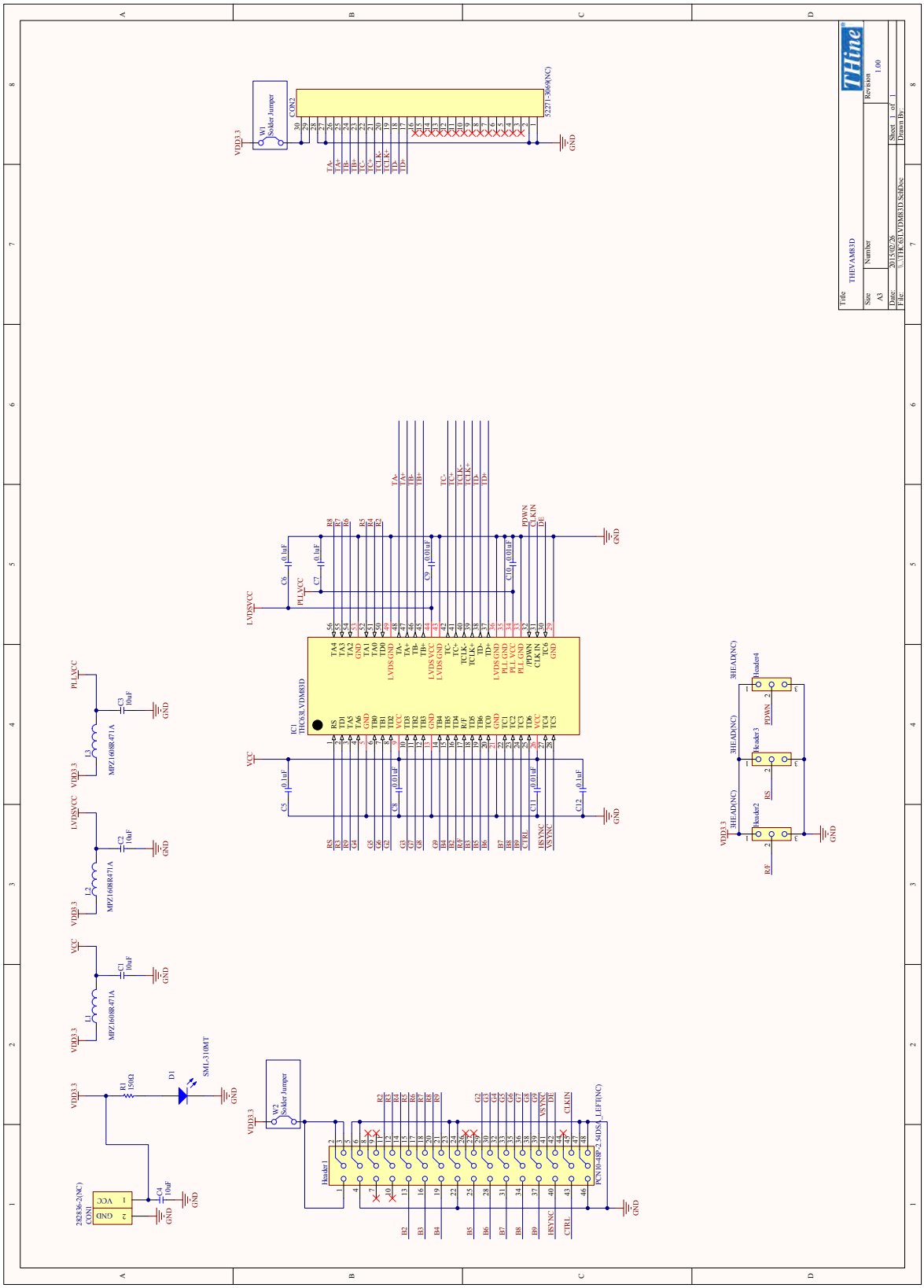


Figure 8 THEVAM83D Schematic

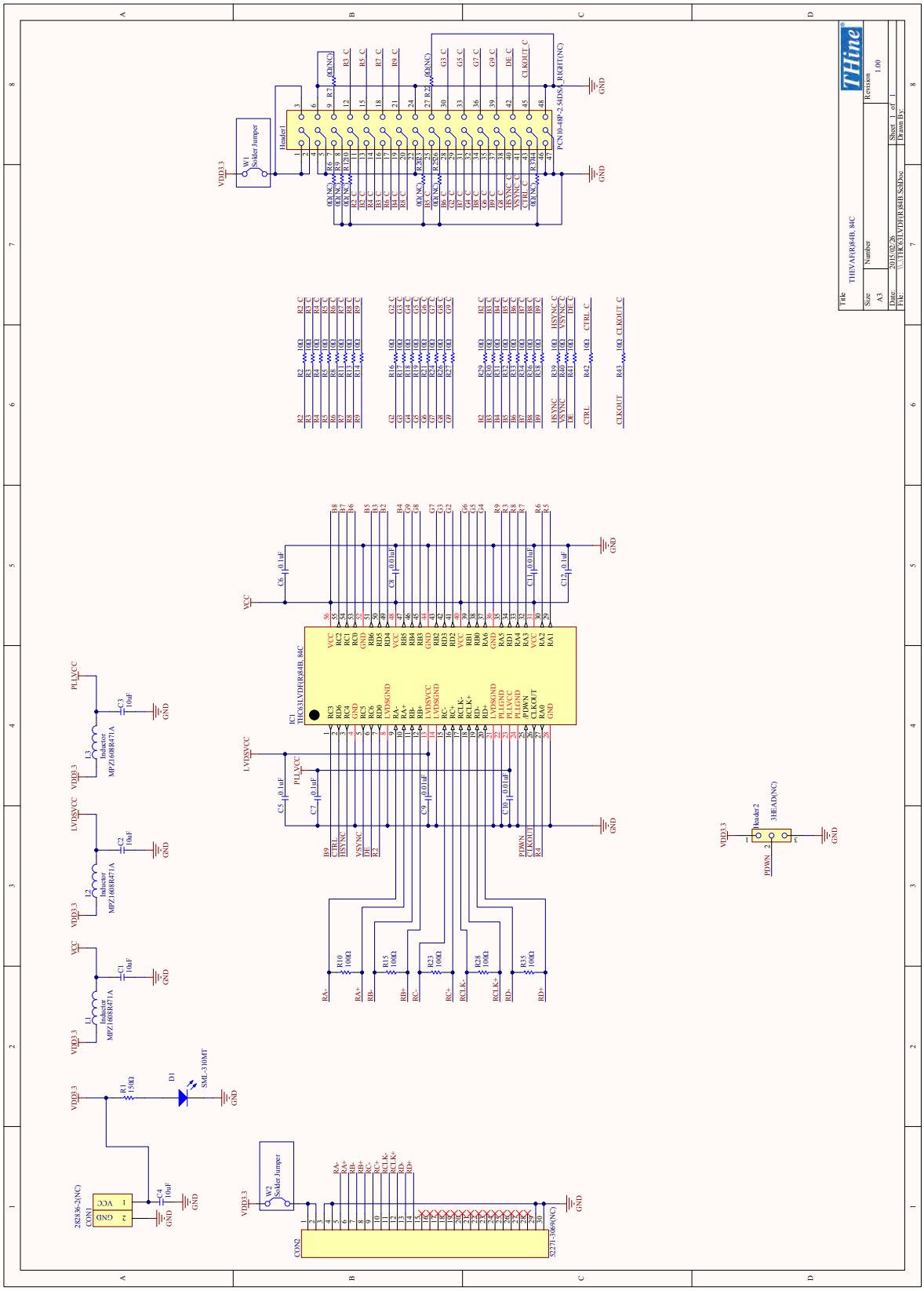


Figure 9 THEVAF(R)84B, 84C Schematic

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)	2.54mm_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)84B, 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)84B, 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

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

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 the customer's design. We are not responsible for possible errors and omissions in this material. Please note if errors or omissions should be found in this material, we may not be able to correct them immediately.
3. This material contains our copyright, know-how or other proprietary. Copying or disclosing to third parties the contents of this material without our prior permission is prohibited.
4. Note that if infringement of any third party's industrial ownership should occur by using this product, we will be exempted from the responsibility unless it directly relates to the production process or functions of the product.
5. This product is presumed to be used for general electric equipment, not for the applications which require very high reliability (including medical equipment directly concerning people's life, aerospace equipment, or nuclear control equipment). Also, when using this product for the equipment concerned with the control and safety of the transportation means, the traffic signal equipment, or various Types of safety equipment, please do it after applying appropriate measures to the product.
6. Despite our utmost efforts to improve the quality and reliability of the product, faults will occur with a certain small probability, which is inevitable to a semi-conductor product. Therefore, you are encouraged to have sufficiently redundant or error preventive design applied to the use of the product so as not to have our product cause any social or public damage.
7. Please note that this product is not designed to be radiation-proof.
8. Customers are asked, if required, to judge by themselves if this product falls under the category of strategic goods under the Foreign Exchange and Foreign Trade Control Law.

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