THEVA333-Q_HSD_FAKRA

THEVA334-Q_HSD_FAKRA

Hardware Manual

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1. Overview

The THEVA333-Q_HSD_FAKRA and THEVA333-Q_HSD_FAKRA transmit LVDS video stream by V-by-One® HSII. This evaluation board will demonstrate the functionality and operation of the THCV333-Q and THCV334-Q.

The evaluation board is not intended for EMC testing. The evaluation board was designed for easy accessibility to device pins with tap points for monitoring or applying signals, additional pads for termination, and multiple connector options.

2. Features

- Supports LVDS Pixel Clock Frequency up to 25 to 218MHz
- Dual V-by-One® HSII 3.75Gbps/lane
  - Single Link: up to 109MHz
  - Dual Link: up to 218MHz
- Supports 2M pixel and 1080p 60Hz resolution with RGB 24-bit color
- 2-wire bi-directional bridge
- Remote GPIO control & monitor
- Audio I2S bridge
- Up to 15m HSD (STP) or FAKRA (Coaxial) cable
- Single +12V Power supply for the evaluation board
- Quick and easy testing with USB IF and VDesignTool-HSII Software
  - For details, refer to the *THEVA333-334-Q_VDesignTool-HSII_UserManual*.
- FC/BC Margin Test by the eye monitor function
- Internal Pattern Generator

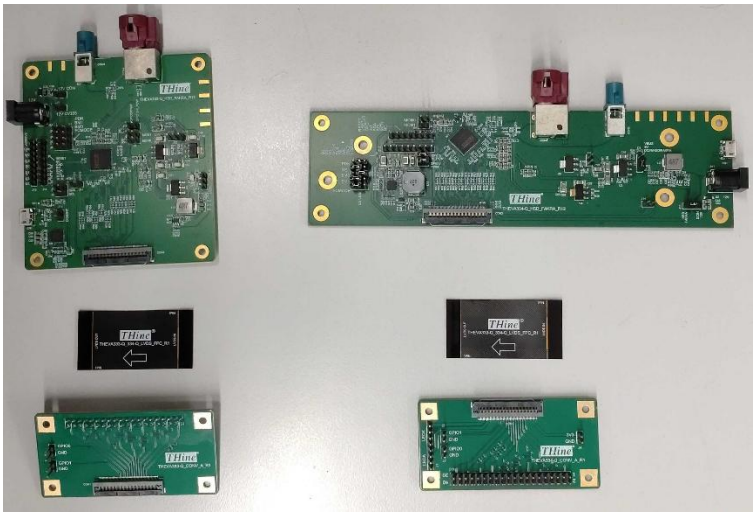

Figure 1. THEVA333/334-Q_HSD_FAKRA Pictures

3. Contents in package

- THEVA333-Q_HSD_FAKRA

Item	Description
THEVA333-Q_HSD_FAKRA (1pc)	THCV333-Q Serializer Evaluation Board with HSD and FAKRA connector
THEVA333-Q_CONV_A (1pc)	FFC/FPC to Pin header conversion board
THEVA333-Q_334-Q_LVDS_FPC (1pc)	Impedance controlled FPC

- THEVA334-Q_HSD_FAKRA

Item	Description
THEVA334-Q_HSD_FAKRA (1pc)	THCV334-Q Deserializer Evaluation Board with HSD and FAKRA connector
THEVA334-Q_CONV_A (1pc)	FFC/FPC to Pin header conversion board
THEVA333-Q_334-Q_LVDS_FPC (1pc)	Impedance controlled FPC

4. System Requirements

In order to demonstrate, excluding contents in package, the following is required;

- LVDS video source.
  - LVDS connector pin define of The evaluation board supports;
  - AC8015 Evaluation Board LVDS output
  - HSD123KPW1-Axx pin define LVDS video source
  - RK3358M_VEHICLE_Vxx LVDS output
- LVDS panel
  - LVDS connector pin define of the evaluation board supports;
  - HSD123KPW1-Axx : 1920x720p 60Hz
  - TDO-1230K92467 :1920x720p 60Hz
  - HSD156JUW2-Axx: 1920x1080p 60Hz
- 50pin 0.5mm pitch FFC (when using TDO-1230K92467)
- USB2.0 micro B cable
- Power Supply +12V@2A from DC Jack (@1A if LVDS panel drive is NOT required)
- HSD cable or FAKRA cable

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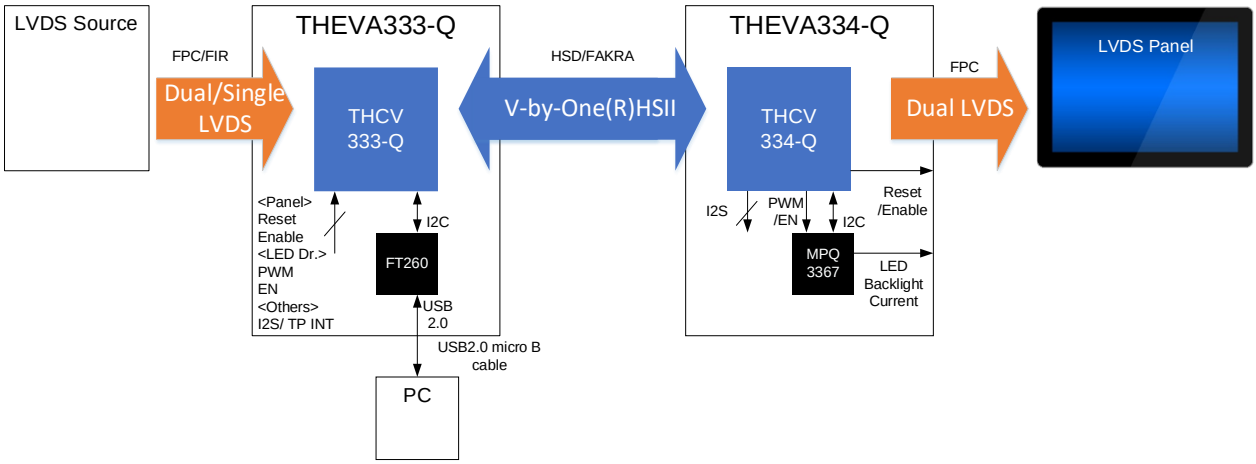
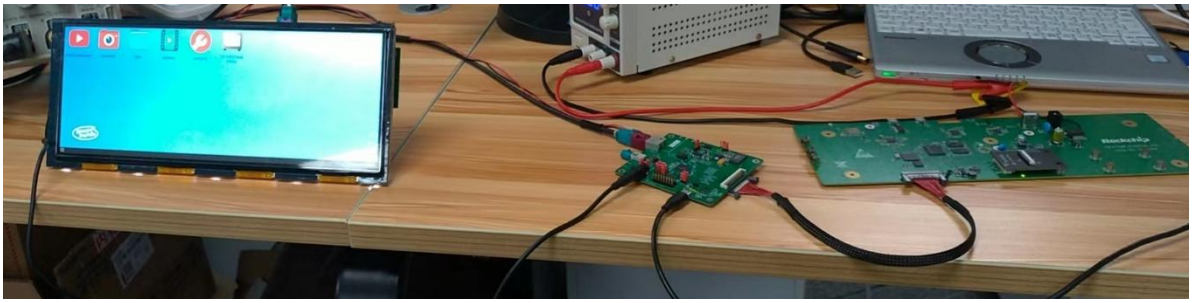
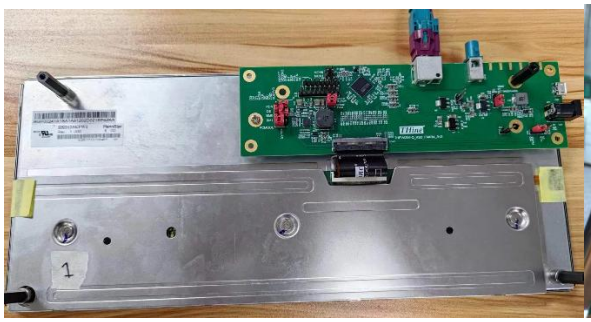
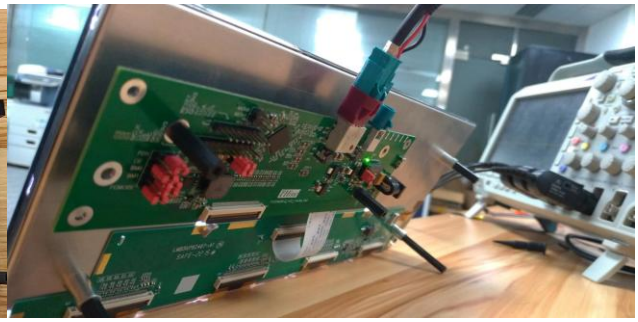
5. Typical Demonstration Block Diagram

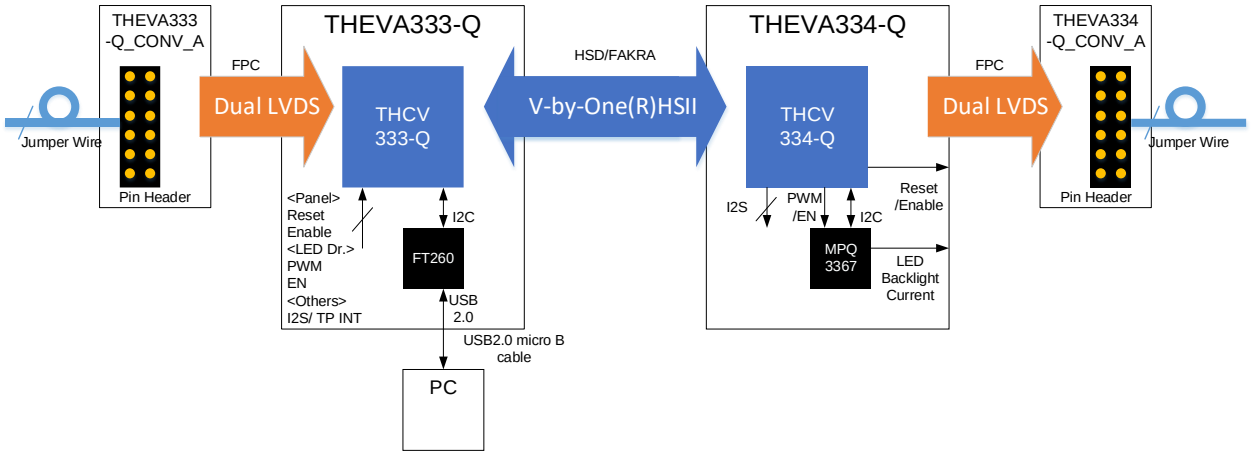


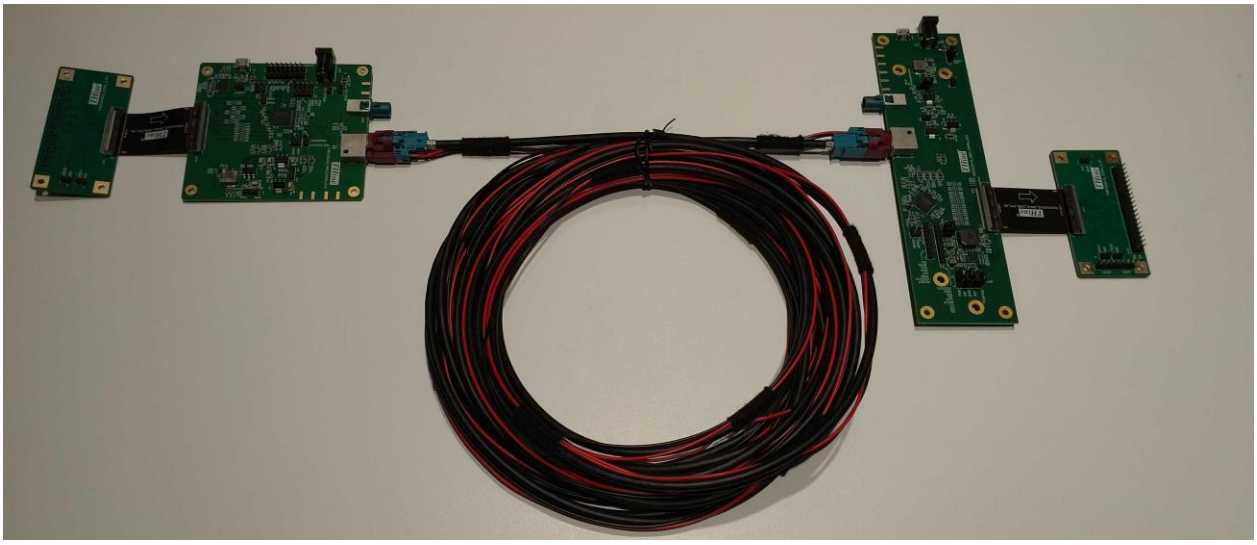






In order to connect to any LVDS source and LVDS panel.

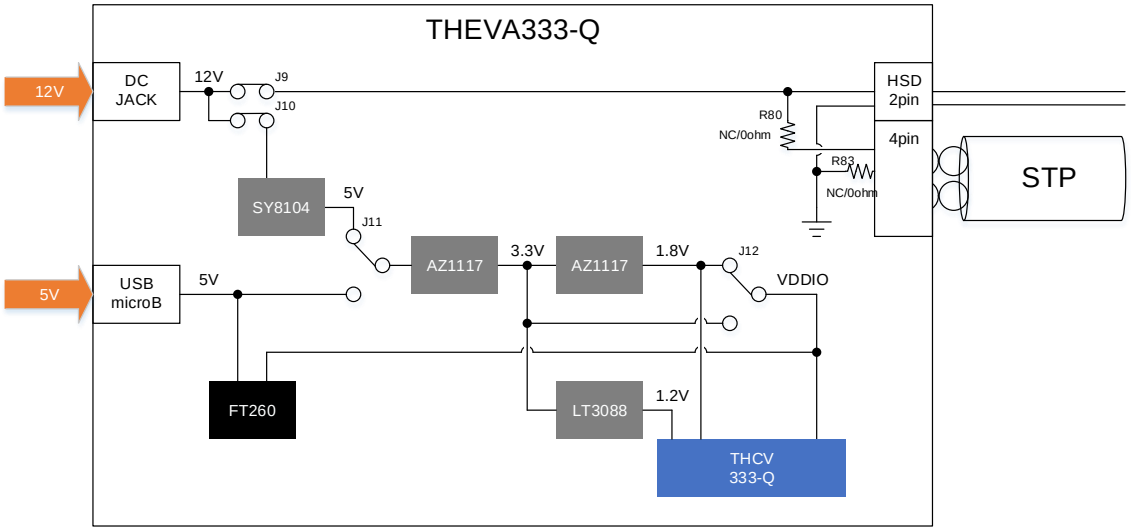


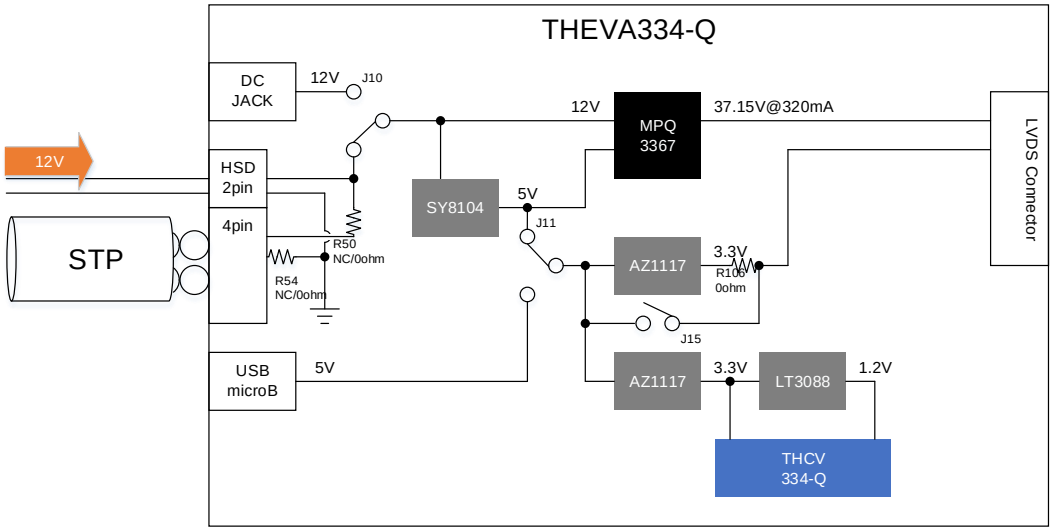


6. Power connections

6.1. Supply power for all functions

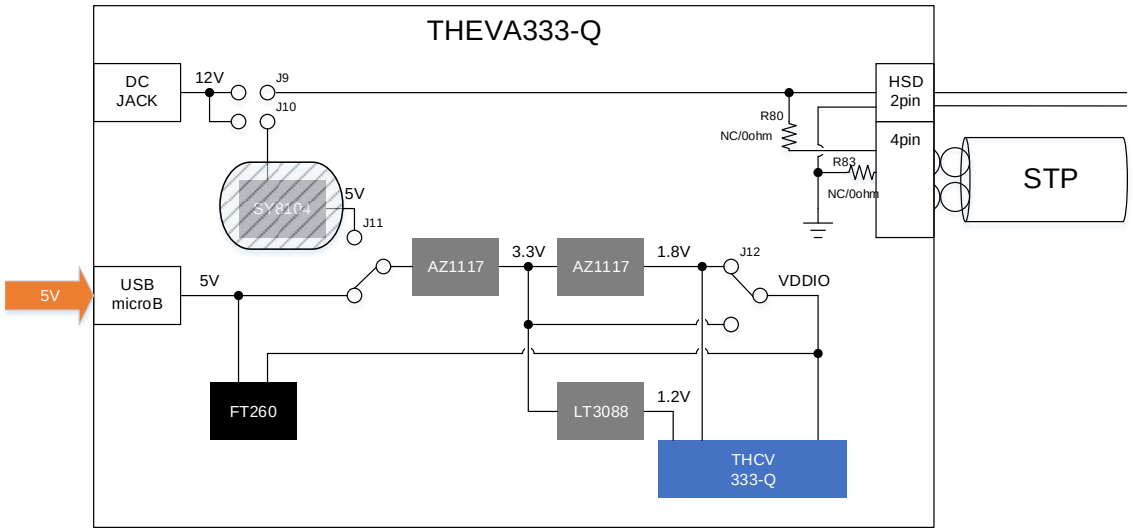
As following connection, all functions can be used with a 12V DC input on the side of the THEVA333-Q, a USB2.0 micro B cable, and power transmission via a 6pin-HSD Cable. In addition, mounting 0ohm resistors on R80/R83 allows 12V to be transmitted from one STP on a 4pin-HSD cable. In this case, V-by-One® HSII can work 1lane mode only.

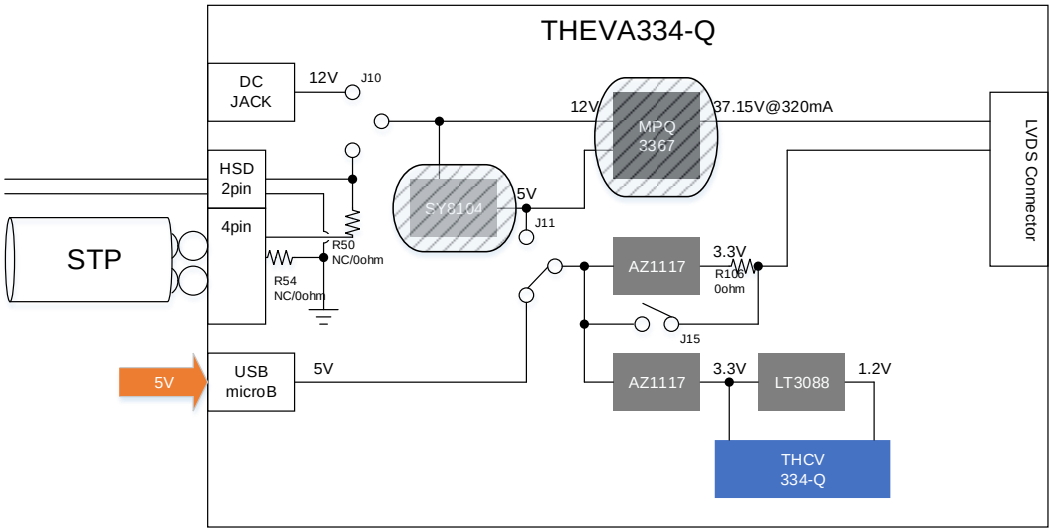




6.2. Supply power for THCV333/334-Q and FT260

As following connection, only work THCV333-Q/334-Q functions can be used both side connection of USB2.0 micro B cable.





7. V-by-One®HSII/LVDS Connection

The FAKRA connector, HSD connector, and SMA connector can be used to connect between the THEVA333-Q board and the THEVA334-Q board. THEVA333-Q board supports LVDS sources with two different FFC (FIR) connectors. The THEVA334-Q board supports LVDS panels with three different FFC connectors. The connection to each connector is switched using a 0ohm resistor to avoid stubs.

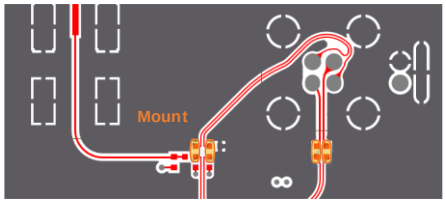
7.1. 6pin-HSD cable (Default mount)

6pin-HSD cable connection supports;

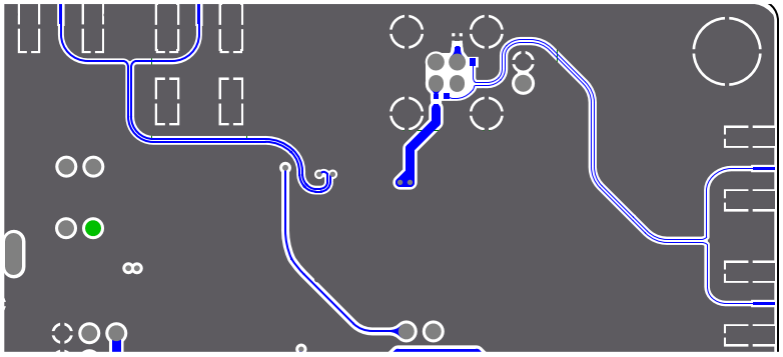
- 12V power transmission
- V-by-One®HSII Dual Link

Table 1. Mount/unmount components by 6pin-HSD cable (Default)

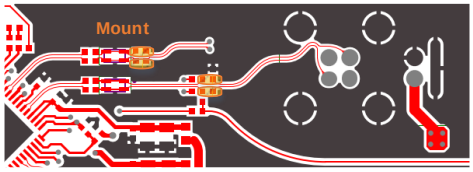
	Mount	Unmount
THEVA333-Q	R77, R78, R81, R82	R76, R79, R80, R83, R90, R91, R93, R94
THEVA334-Q	R5, R6, R51, R53	R4, R7, R50, R54, R98, R107, R108



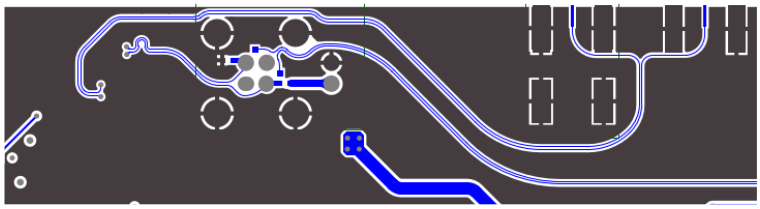
(a) THEVA333-Q Top



(b) THEVA333-Q Bottom



(a) THEVA334-Q Top



(b) THEVA334-Q Bottom

Figure 2. THEVA333-334-Q Mount/unmount components by 6pin-HSD cable (Default)

7.2. 4pin-HSD cable

HSD 4pin cable connection supports;

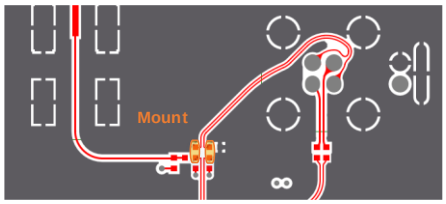
- 12V power transmission
- V-by-One®HSII Single Link

And

- V-by-One®HSII Dual Link

Table 2. Mount/unmount components for 12V power and V-by-One®HSII Single Link by 4pin-HSD cable

	Mount	Unmount
THEVA333-Q	R77, R78, R80, R83	R76, R79, R81, R82, R90, R91, R93, R94
THEVA334-Q	R5, R6, R50, R54	R4, R7, R51, R53, R98, R107, R108



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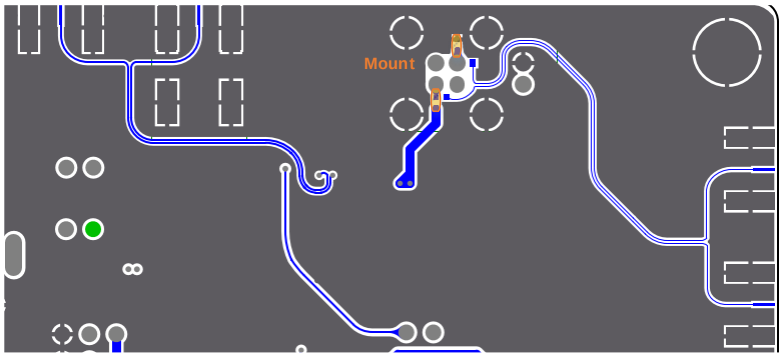
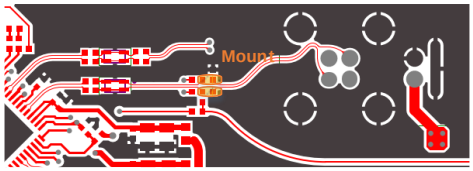
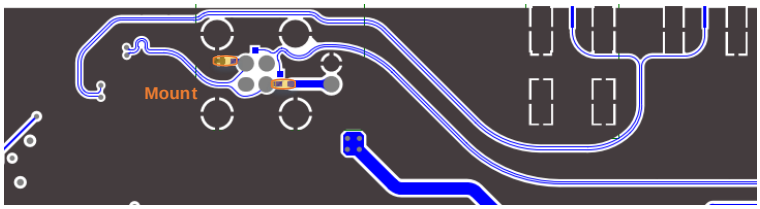


(b) THEVA333-Q Bottom



(a) THEVA334-Q Top



(b) THEVA334-Q Bottom

Figure 3. THEVA333-334-Q Mount/unmount components for 12V power and V-by-One®HSII Single Link by 4pin-HSD cable

The mounting/unmounting components in the V-by-One®HSII Dual Link by 4-pin-HSD cable use case are the same as those for the 6-pin-HSD cable. In this case, the THEVA334 board may be powered from a DC Jack or USB2.0 micro B cable.

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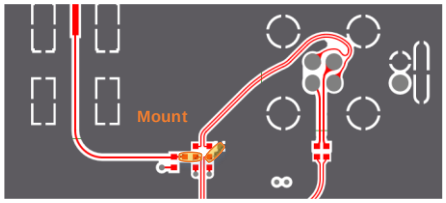
7.3. FAKRA

FAKRA cable supports;

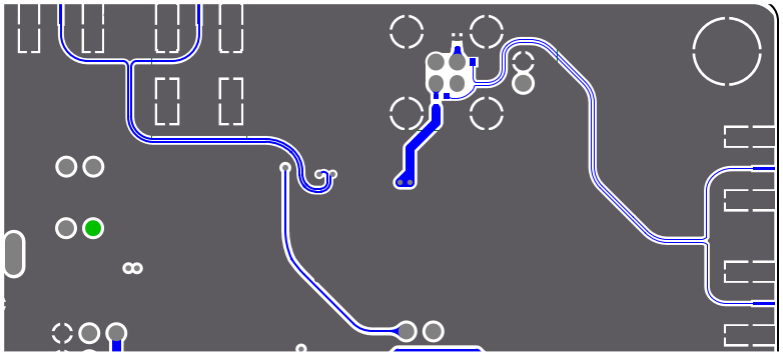
- V-by-One®HSII Single Link

Table 3. Mount/unmount components for V-by-One®HSII Single Link by FAKRA cable

	Mount	Unmount	Don't care
THEVA333-Q	R76, R79	R77, R78, R90, R91, R93, R94	R80, R81, R82, R83
THEVA334-Q	R4, R7	R5, R6, R98, R107, R108	R50, R51, R53, R54



(a) THEVA333-Q Top



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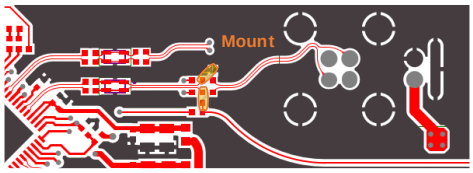
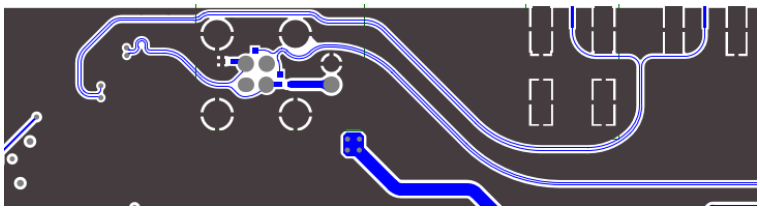


(a) THEVA334-Q Top



(b) THEVA334-Q Bottom

Figure 4. THEVA333-334-Q Mount/unmount components for 12V power and V-by-One®HSII Single Link by FAKRA cable

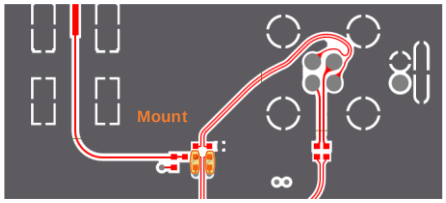
7.4. SMA

SMA connection supports;

- V-by-One®HSII Dual Link

Table 4. Mount/unmount components for V-by-One®HSII Dual Link by SMA

	Mount	Unmount
THEVA333-Q	R81, R82, R93, R94, TP3, TP4 P1, P2, P3, P4 (SMA connectors)	R76, R77, R78,R79, R90, R91, R80, R83 CON3 (FAKRA connector), CON4 (HSD connector)
THEVA334-Q	R51, R53, R107, R108, TP1, TP2 P1, P2, P3, P4 (SMA connectors)	R4, R5, R6, R50, R54, R7, R98, CON3 (FAKRA connector), CON4 (HSD connector)



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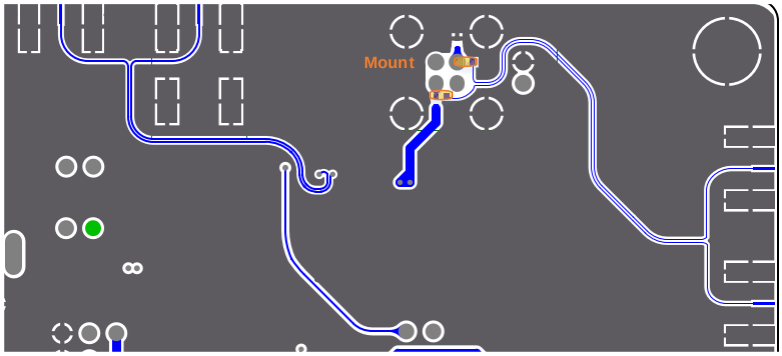

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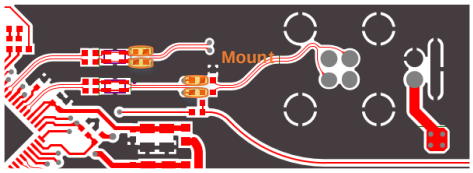
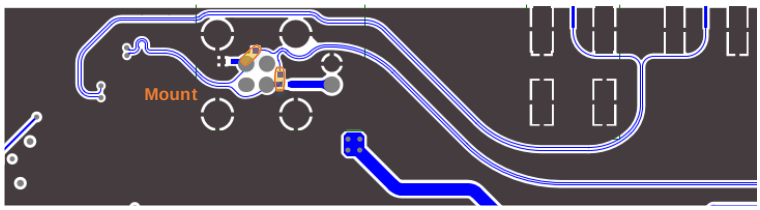


(a) THEVA334-Q Top



(b) THEVA334-Q Bottom

Figure 5. THEVA333-334-Q Mount/unmount components for V-by-One®HSII Dual Link by SMA

SMA connector is not included in package. The HSD/FAKRA connector must be removed to avoid stubs.

7.5. FFC/FPC Connector on THEVA333-Q for LVDS source

This FFC/FPC connector pin define supports;

A) AC8015 Evaluation Board LVDS output (Default)

B) HSD123KPW1-Axx pin define LVDS video source (Default)

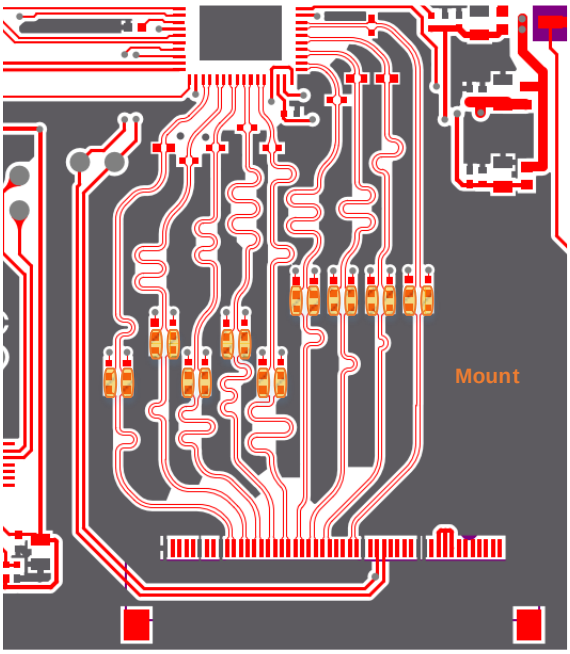
C) RK3358M_VEHICLE_Vxx LVDS output

D) THEVA333-Q_CONV_A

In default mounting, CON2 FFC connector of TOP layer is selected for the LVDS input.

Table 5. Mount/unmount components for FFC connector A/B/D options (Default)

	Mount	Unmount
THEVA333-Q	R40, R43, R44, R47, R48, R51, R52, R55, R56, R59, R60, R63, R64, R67, R68, R71, R72, R74	R41, R42, R45, R46, R49, R50, R53, R54, R57, R58, R61, R62, R65, R66, R69, R70, R73, R75



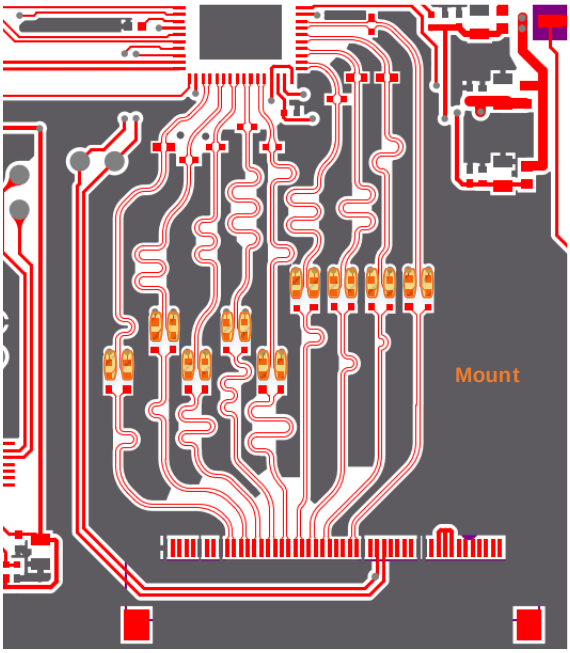
THEVA333-Q Top

Figure 6. THEVA333-Q Mount/unmount components for FFC connector A/B options (Default)

By switching the 0ohm mount, CON1 FIR connector on Bottom layer is selected for the LVDS input.

Table 6. Mount/unmount components for FFC connector C option

	Mount	Unmount
THEVA333-Q	R41, R42, R45, R46, R49, R50, R53, R54, R57, R58, R61, R62, R65, R66, R69, R70, R73, R75	R40, R43, R44, R47, R48, R51, R52, R55, R56, R59, R60, R63, R64, R67, R68, R71, R72, R74



THEVA333-Q Top

Figure 7. THEVA333-Q Mount/unmount components for FFC connector C option

7.6. FFC/FPC Connector on THEVA334-Q for LVDS panel

This FFC/FPC connector pin define supports;

A) HSD123KPW1-Axx : 1920x720p 60Hz

B) HSD156JUW2-Axx: 1920x1080p 60Hz

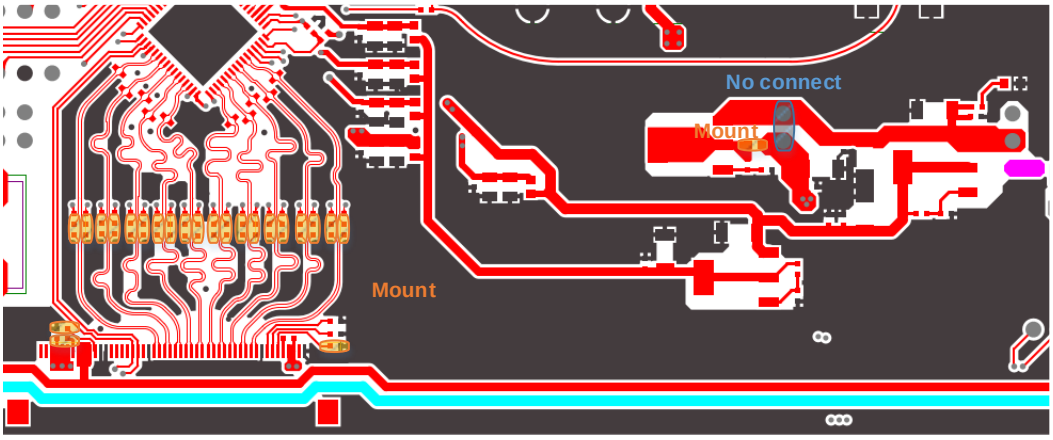
C) TDO-1230K92467 :1920x720p 60Hz

D) THEVA334-Q_CONV_A

In default mounting, CON2 FFC connector of TOP layer is selected for the LVDS output. The A option requires 3.3V, so J15 is not connected.

Table 7. Mount/unmount components for FFC connector A/D option (Default)

Item	Mount	Unmount
THEVA334-Q	R40, R44, R46, R49, R55, R58, R60, R63, R71, R78, R65, R73, R80, R86, R66, R74, R81, R87, R90, R93, R101, R104, R105, R106(U5 3.3V output)	R42, R45, R47, R52, R56, R59, R61, R64, R72, R79, R67, R76, R68, R77, R82, R88, R83, R89, R91, R94, R100, R102, R103



THEVA334-Q Top layer

Figure 8. THEVA334-Q Mount/unmount components for FFC connector A option (Default)

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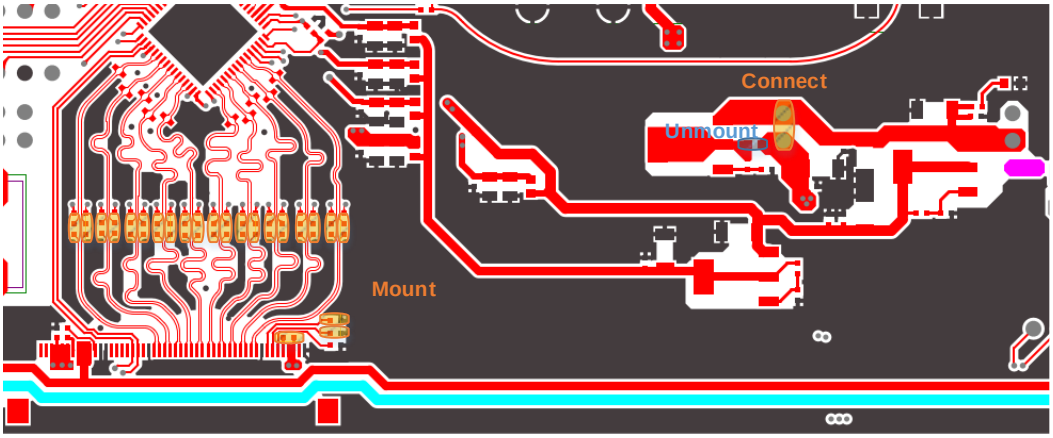
By switching some mounting, the same CON1 connector also can support the B option LVDS panel. The B option requires 5V, so J15 will be connected.

Table 8. Mount/unmount components for FFC connector B option

Item	Mount	Unmount
THEVA334-Q	R40, R44, R46, R49, R55, R58, R60, R63, R71, R78, R65, R73, R80, R86, R66, R74, R81, R87, R90, R93, R100, R102, R103,	R42, R45, R47, R52, R56, R59, R61, R64, R72, R79, R67, R76, R68, R77, R82, R88, R83, R89, R91, R94, R101, R104, R105, R106(U5 3.3V output)



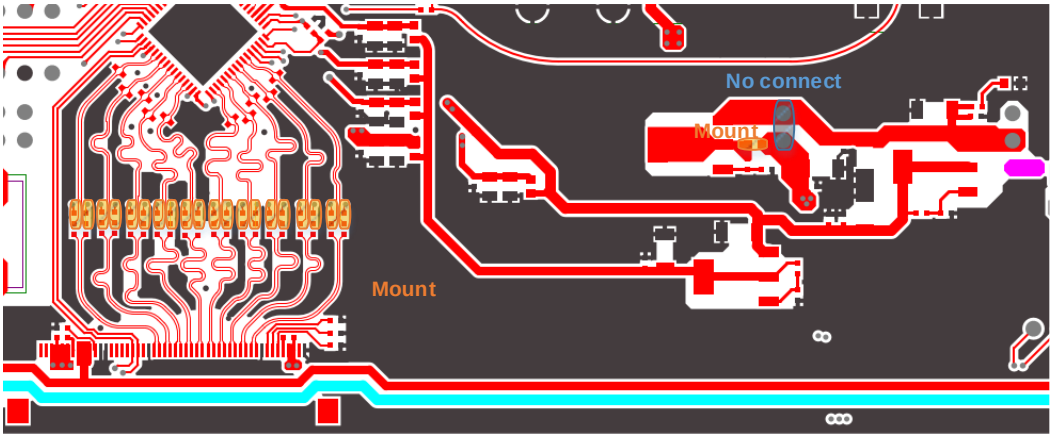
THEVA334-Q Top layer

Figure 9. THEVA334-Q Mount/unmount components for The FFC connector B option

By switching some mounting, the same CON1 connector also can support the B option LVDS panel. The B option requires 5V, so J15 will be connected.

Table 9. Mount/unmount components for FFC connector B option

Item	Mount	Unmount	Don't care
THEVA334-Q	R42, R45, R47, R52, R56, R59, R61, R64, R72, R79, R67, R76, R68, R77, R82, R88, R83, R89, R91, R94, R106(U5 3.3V output)	R40, R44, R46, R49, R55, R58, R60, R63, R71, R78, R65, R73, R80, R86, R66, R74, R81, R87, R90, R93,	R100, R101, R102, R103, R104, R105,



THEVA334-Q Top layer

Figure 10. THEVA334-Q Mount/unmount components for The FFC connector B option

7.7. THEVA333-Q_334-Q_LVDS_FPC

An FPC with impedance-controlled LVDS lines is included. Be careful the directional. Should be matched to the inputs and outputs of the LVDS signals.

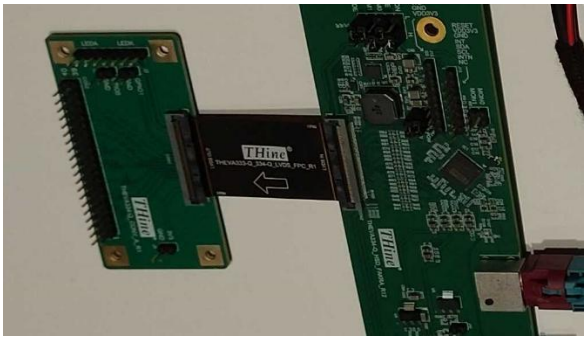
THEVA333-Q_334-Q_LVDS_FPC pin define supports;

A) HSD123KPW1-Axx : 1920x720p 60Hz

B) HSD156JUW2-Axx: 1920x1080p 60Hz

C) THEVA333-Q_CONV_A

D) THEVA334-Q_CONV_A



8. Jumper Pin Connections

Table 10. Power Supply

Item	Component	Signal	Description
THEVA333-Q	J9	12V	12V power connector that supplies to HSD connector
	J10	12V	12V power connector that supplies to Main Power
	J11	5V	5V power connector that selects from U2 or USB VBUS
	J12	1.8 or 3.3V	IO power connector that selects 1.8V or 3.3V
THEVA334-Q	J10	12V	12V power connector that select from HSD connector or DC Jack
	J11	5V	5V power connector that selects from U2 or USB VBUS
	J15	3.3 or 5V	LVDS panel power connector that selects 3.3V or 5V

Table 11. Mode Setting

Item	Component	Signal	Description
THEVA333-Q	J5	PDN	PDN pin setting
	J7	BM1	FCOUTPUTMODE_BM1 pin setting
	J6	BM0	LINPUTMODE_BM0 pin setting
	J8	FCMODE	FCTHRIO_MODE pin setting
THEVA334-Q	J5	PDN	PDN pin setting
	J6	OE	OE pin setting
	J7	BM0	LOUTPUTMODE_BM0 pin setting
	J8	BM1	FCINPUTMODE_BM1 pin setting
	J9	FCMODE	FCTHRIO_MODE pin setting

Table 12. I2S

Item	Component	Signal	Description
THEVA333-Q	J13	I2S	I2S Audio Signal Input
THEVA334-Q	J12	I2S	I2S Audio Signal Output

Table 13. Touch Panel

Item	Component	Signal	Description
THEVA333-Q	J14	TP	Touch Panel Signaling at local side
THEVA334-Q	J13	TP	Touch Panel Signaling at remote side

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Table 14. Others

Item	Component	Signal	Description
THEVA333-Q	J1	SDA	SDA signal connector that connects FT260
	J2	SCL	SCL signal connector that connects FT260
	J3	MON0	MON0 pin monitor
	J4	MON1	MON1 pin monitor
	J15	GPIO0 GPIO1	GPIO0 (333_LCD_PWM) and GPIO1 (333_HI_POW) connector that pass through LCD back light control signal
	J17	D_GPIO0 D_GPIO1	D_GPIO0 (LCD_RST / NC) and D_GPIO1 (LCD_STVD / TFT_POWER_N) monitor and input
THEVA334-Q	J1	GPIO1	GPIO1 (334_HI_POW) connector that connect to U1 MPQ3367GR EN pin
	J2	GPIO0	GPIO0 (334_LCD_PWM) connector that connect to U1 MPQ3367GR DIM pin
	J3	MON0	MON0 pin monitor
	J4	MON1	MON1 pin monitor
	J14	D_GPIO0 D_GPIO1	D_GPIO0 (LCD_RST / NC) and D_GPIO1 (LCD_STVD / TFT_POWER_N) monitor and input

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9. Bill of Materials

Table 15. THEVA333-Q_HSD_FAKRA Bill of Materials -1/2

Part Number	Description	Value	Designator	Footprint	Quantity
-	Capacitor	10uF	C1, C7, C12, C21, C22, C35	R0805	6
-	Capacitor	1uF	C2, C6, C13, C16, C18, C20, C23	R0402	7
-	Capacitor	0.1uF	C3, C5, C14, C19, C24, C31, C32, C33, C34, C45, C46, C49, C50, C53, C54, C56, C57, C59, C61, C63, C65, C75, C76	R0402	23
-	Capacitor	0.01uF	C4, C8, C9, C10, C11, C15, C17, C25, C26, C27, C28, C29, C30, C74	R0402	14
-	Capacitor	1uF	C36	r0805	1
-	Capacitor	0.1uF	C37, C38, C77	r0402	3
-	Capacitor	10uF	C39, C43	r0603	2
-	Capacitor	100pF	C40	r0402	1
-	Capacitor	22uF	C41, C42	r0805	2
-	Capacitor	22uF	C44, C47, C48, C51, C52, C55	R1206	6
-	Capacitor	4.7uF	C58, C60, C62, C64, C66, C69	r0805	6
-	Capacitor	47pF	C67, C68	R0402	2
-	Capacitor	nc/0.01uF	C72, C73	R0402	2
-	Capacitor	NC/100pF	C78	r0402	1
-	Capacitor	NC/22pF	C79	r0402	1
DLW21SZ900HQ2L	Chip Common Mode Choke Coil	NC	L6, L7	FIL_DLW21SZ900HQ2L	2
SY8104IADC	DCDC Converter	-	U2	TSOT23-6	1
LT3088EST#PBF	DCDC Converter	-	U5	SOT-223_DIO	1
MJ-179PH	DC-JACK	-	JA1	DC-JACK	1
PGB1010603MR	Diode	-	L9, L10	IND_PGB_0603_LTF	2
59S2AQ-40MT5-Z_1	FAKRA Connector	-	CON3	59S2AQ-40MT5-Z_1	1
FI-RE41S-HF	FIR Connector	-	CON1	JAE_FI-RE41S-HF	1
-	HEADER1x2	-	J1, J2, J3, J4, J9, J10, J15, J16, J17	1x2P_2.54	9
-	HEADER1x3	-	J5, J6, J7, J8, J11, J12	1x3P_2.54	6
-	HEADER1x8	-	J13	1x8P_2.54	1
-	HEADER1x8	-	J14	1x8P_2.54	1
99S20D-40MA5-D	HSD Connector	-	CON4	99S20D-40MA5-D	1
MPZ1608B471A	Inductor	-	L1, L2, L3, L4, L5, L8	R0603	6
MWSA0603S-4R7MT	Inductor	4.7uH	L14	MWSA0603S-4R7MT	1

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Table 16. THEVA333-Q_HSD_FAKRA Bill of Materials -2/2

Part Number	Description	Value	Designator	Footprint	Quantity
AZ1117CH-ADJTRG1	LDO	-	U3, U4	SOT-223_DIO	2
SML-D12P8WT86	LED	-	D2	LED-0603	1
-	Resistor	nc/100ohm	R1, R3, R5, R10, R11, R12, R13, R14, R16	R0402	9
-	Resistor	nc/0ohm	R2, R34, R39, R76, R80, R83, R84, R85, R86, R93, R94	R0402	11
-	Resistor	0ohm	R4, R17, R35, R38, R77, R78, R81, R82, R88	R0402	9
-	Resistor	2.2kohm	R6, R7	R0402	2
-	Resistor	10kohm	R8, R9, R29, R32, R36, R37	R0402	6
-	Resistor	100ohm	R15	R0402	1
-	Resistor	47Kohm	R18	r0402	1
-	Resistor	100Kohm	R19	r0402	1
-	Resistor	13.3Kohm	R20	r0402	1
-	Resistor	768ohm	R21, R25	R0402	2
-	Resistor	332ohm	R22	R0402	1
-	Resistor	62ohm	R23	R0402	1
-	Resistor	475ohm	R24	R0402	1
-	Resistor	NC/0ohm	R26, R89	R0402	2
-	Resistor	24.3kohm	R27	R0402	1
-	Resistor	5.1kohm	R28	R0402	1
-	Resistor	33ohm	R30, R31	R0402	2
-	Resistor	4.7kohm	R33	R0402	1
-	Resistor	0ohm	R40, R44, R47, R48, R51, R52, R55, R56, R59, R60, R63, R64, R67, R68, R71, R72, R74	R0402	17
-	Resistor	0ohm	R41, R45, R49, R53, R57, R61, R65, R69	R0402	8
-	Resistor	nc/0ohm	R42, R46, R50, R54, R58, R62, R66, R70, R73, R75	R0402	10
-	Resistor	nc/0ohm	R43	R0402	1
-	Resistor	nc/50ohm	R79, R87	R0402	2
-	Resistor	nc/1kohm	R90	R0402	1
-	Resistor	nc/30kohm	R91	R0402	1
-	Resistor	0ohm	R92	R0603	1
SMAJ103-T16	SMA Connector	NC	P1, P2, P3, P4	SMA-SMAJ103	4
TestPoint	TestPoint	-	TP1, TP3, TP4	TP0.8	3
F31L-1A7H1-21050	TFT Connector	-	CON2	F31L-50P	1
TE_2040002-1	USB 2.0 Micro Type B	-	CN1	TE_2040002-1	1
FT260	USB to UART/I2C Bridge	-	U6	WQFN-28	1
THCV333-Q	V-by-One®HSII Serializer	-	U1	QFN64	1
KDZLVTF82	Zener Diode	-	D1	SOD123	1

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Table 17. THEVA334-Q_HSD_FAKRA Bill of Materials -1/2

Part Number	Description	Value	Designator	Footprint	Quantity
-	Capacitor	10uF	C1, C6, C11, C19, C20, C27, C49	R0805	7
-	Capacitor	1uF	C2, C5, C12, C18, C21, C28, C41, C44, C45, C50	R0805	10
-	Capacitor	0.1uF	C3, C4, C13, C17, C22, C25, C26, C29, C32, C33, C34, C35, C38, C51, C52, C59, C60, C63, C64, C67, C68, C79	R0402	22
-	Capacitor	0.01uF	C7, C8, C9, C10, C14, C15, C16, C23, C24, C30, C31, C36	R0402	12
-	Capacitor	4.7uF	C37, C39	R0805	2
-	Capacitor	100uF	C40, C43	R1210	2
-	Capacitor	47u	C42	R1206	1
-	Capacitor	1nF	C46, C47	R0402	2
-	Capacitor	0.47uF	C48	R0805	1
-	Capacitor	10uF	C53, C57	R0603	2
-	Capacitor	100pF	C54	R0402	1
-	Capacitor	22uF	C55, C56	R0805	2
-	Capacitor	22uF	C58, C61, C62, C65, C66, C69	R1206	6
-	Capacitor	nc/0.1uF	C74, C75, C76	R0402	3
-	Capacitor	nc/33nF	C77, C78	R0402	2
-	Capacitor	NC/100pF	C80, C81, R13, R36	R0402	1
-	Capacitor	NC/22pF	C81	R0402	1
DLW21SZ900HQ2L	Chip Common Mode Choke Coil	NC	L7, L8	FIL_DLW21SZ900HQ2L	2
SY8104IADC	DCDC Converter	-	U2	TSOT23-6	1
LT3088EST#PBF	DCDC Converter	-	U4	SOT-223_DIO	1
MJ-179PH	DC-JACK	-	JA1	DC-JACK	1
1N4148W-7-F	Diode	-	CR1	SOD123_DIO	1
59S2AQ-40MT5-Z_1	FAKRA Connector	-	CON3	59S2AQ-40MT5-Z_1	1
SSM3K16FS	FET	-	Q1	2H1B	1
-	HEADER1x2	-	J1, J2, J3, J4, J14, J15	1x2P_2.54	6
-	HEADER1x3	-	J5, J6, J7, J8, J9, J10, J11	1x3P_2.54	7
-	HEADER1x8	-	J13	1x8P_2.54	1
-	HEADER1x9	-	J12	1x9P_2.54	1
99S20D-40MA5-D	HSD Connector	-	CON4	99S20D-40MA5-D	1
MPZ1608B471A	Inductor	-	L1, L2, L3, L4, L5, L6	R0603	6
MPZ1608S600ATAH0	Inductor	-	L9	IND_1608_TDK	1
DD1274AS-H-220M=P3	Inductor	22uH	L10	IND_DD1274AS-H-220M=P3	1
MWSA0603S-4R7MT	Inductor	4.7uH	L17	MWSA0603S-4R7MT	1

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Table 18. THEVA334-Q_HSD_FAKRA Bill of Materials -2/2

Part Number	Description	Value	Designator	Footprint	Quantity
AZ1117CH-ADJTRG1	LDO	-	U3, U5	SOT-223_DIO	2
SML-D12M8WT86	LED	-	D1	LED-0603	1
SML-D12P8WT86	LED	-	D3	LED-0603	1
MPQ3367GR-AEC1	LED Driver	-	U1	QFN-24	1
-	Resistor	NC/0ohm	R13	R0402	1
-	Resistor	NC/0ohm	R36	R0402	1
-	Resistor	nc/0ohm	R1, R4, R50, R54, R107, R108	R0402	6
-	Resistor	0ohm	R2, R5, R6, R11, R18, R19, R21, R24, R28, R29, R51, R53, R96, R97	R0402	14
-	Resistor	10kohm	R3, R14, R22	R0402	3
-	Resistor	nc / 50ohm	R7	R0402	1
-	Resistor	2.2kohm	R8, R9	R0402	2
-	Resistor	220ohm	R10	R0402	1
-	Resistor	200kohm	R12	R0402	1
-	Resistor	33kohm	R15	R0402	1
-	Resistor	1kohm	R16	R0402	1
-	Resistor	82kohm	R17	R0402	1
-	Resistor	33ohm	R20, R23	R0402	2
-	Resistor	270ohm	R25	R0402	1
-	Resistor	20kohm	R26, R27	R0402	2
-	Resistor	3.3kohm	R30	R0402	1
-	Resistor	0ohm	R31, R106	R0603	2
-	Resistor	47Kohm	R32	r0402	1
-	Resistor	100Kohm	R33	r0402	1
-	Resistor	62ohm	R34	R0402	1
-	Resistor	475ohm	R35, R39	R0402	2
-	Resistor	768ohm	R37, R40	R0402	2
-	Resistor	24.3kohm	R38	R0402	1
-	Resistor	0ohm	R41, R44, R46, R49, R55, R58, R60, R63, R65, R66, R71, R73, R74, R78, R80, R81, R86, R87, R90, R93, R101, R104, R105	R0402	23
-	Resistor	nc/0ohm	R42, R45, R47, R52, R56, R59, R61, R64, R67, R68, R72, R76, R77, R79, R82, R83, R88, R89, R91, R94, R100, R102, R103	R0402	23
-	Resistor	nc/100ohm	R43, R48, R57, R62, R69, R70, R75, R84, R85, R92, R95	R0402	11
-	Resistor	nc/1kohm	R98	R0402	1
-	Resistor	13.3Kohm	R99	R0402	1
SMAJ103-T16	SMA Connector	NC	P1, P2, P3, P4	SMA-SMAJ103	4
-	TestPoint	-	TP1, TP2	TP0.8	2
F31L-1A7H1-21050	TFT Connector	-	CON1, CON2	F31L-50P	2
TE_2040002-1	USB 2.0 Micro Type B	-	CN1	TE_2040002-1	1
THCV334-Q	V-by-One® HSII Deserializer	-	IC1	QFN64-2	1
KDZLVTF82	Zener Diode	-	D2	SOD123	1

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10. Schematics

Figure 11. THEVA333-Q_HSD_FAKRA Schematics -1/4

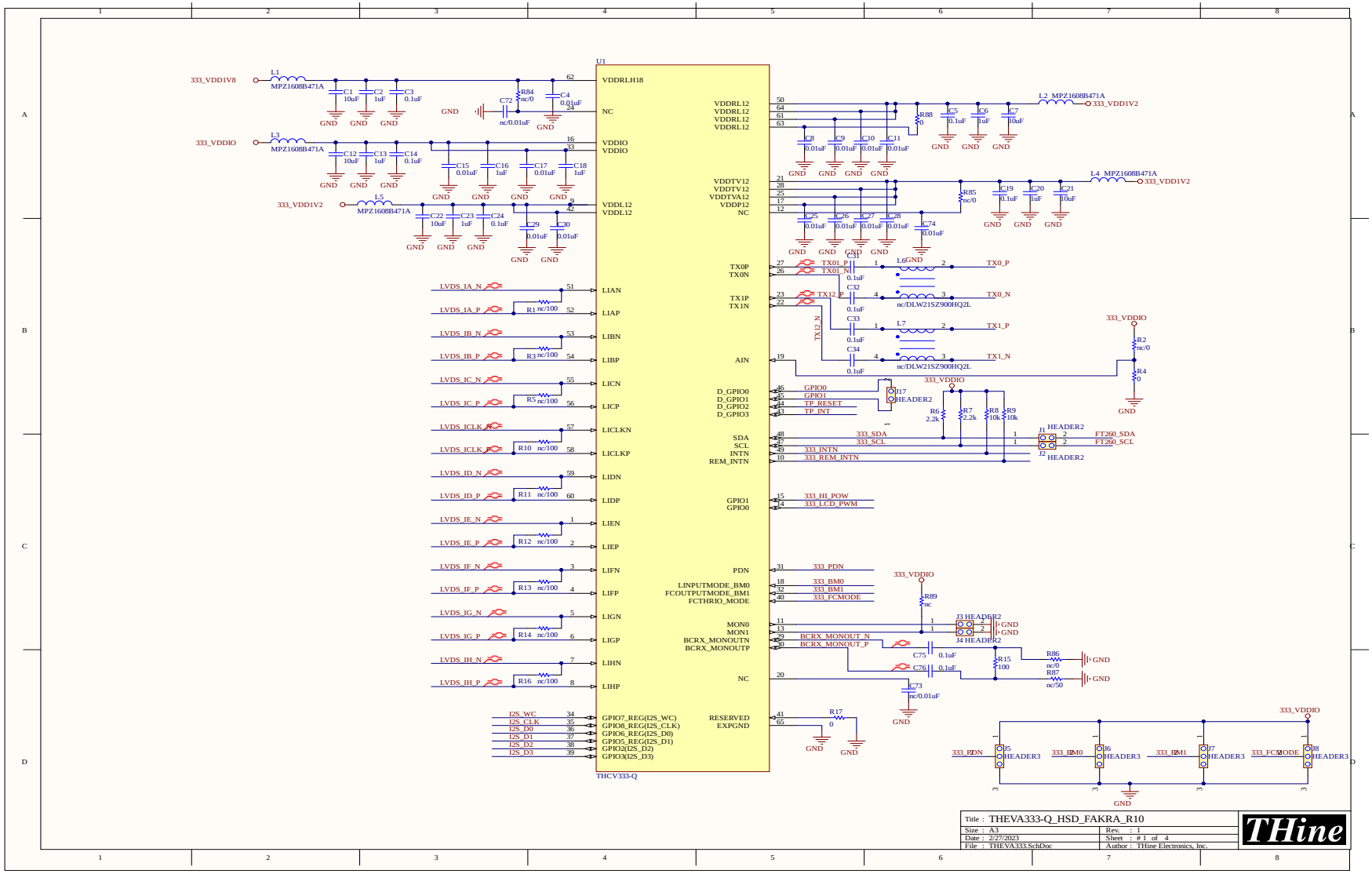


Figure 12. THEVA333-Q_HSD_FAKRA Schematics -2/4

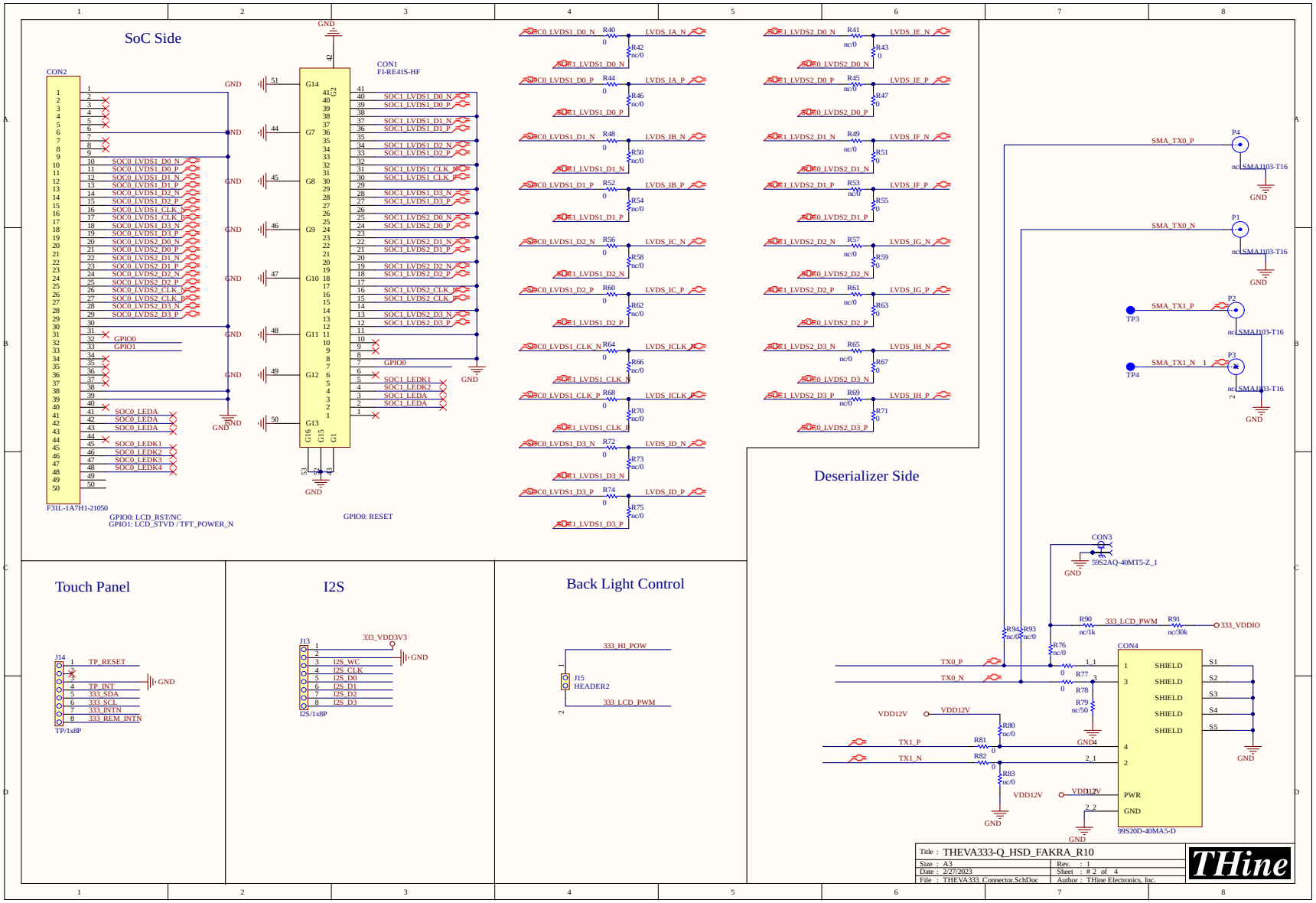


Figure 13. THEVA333-Q_HSD_FAKRA Schematics -3/4

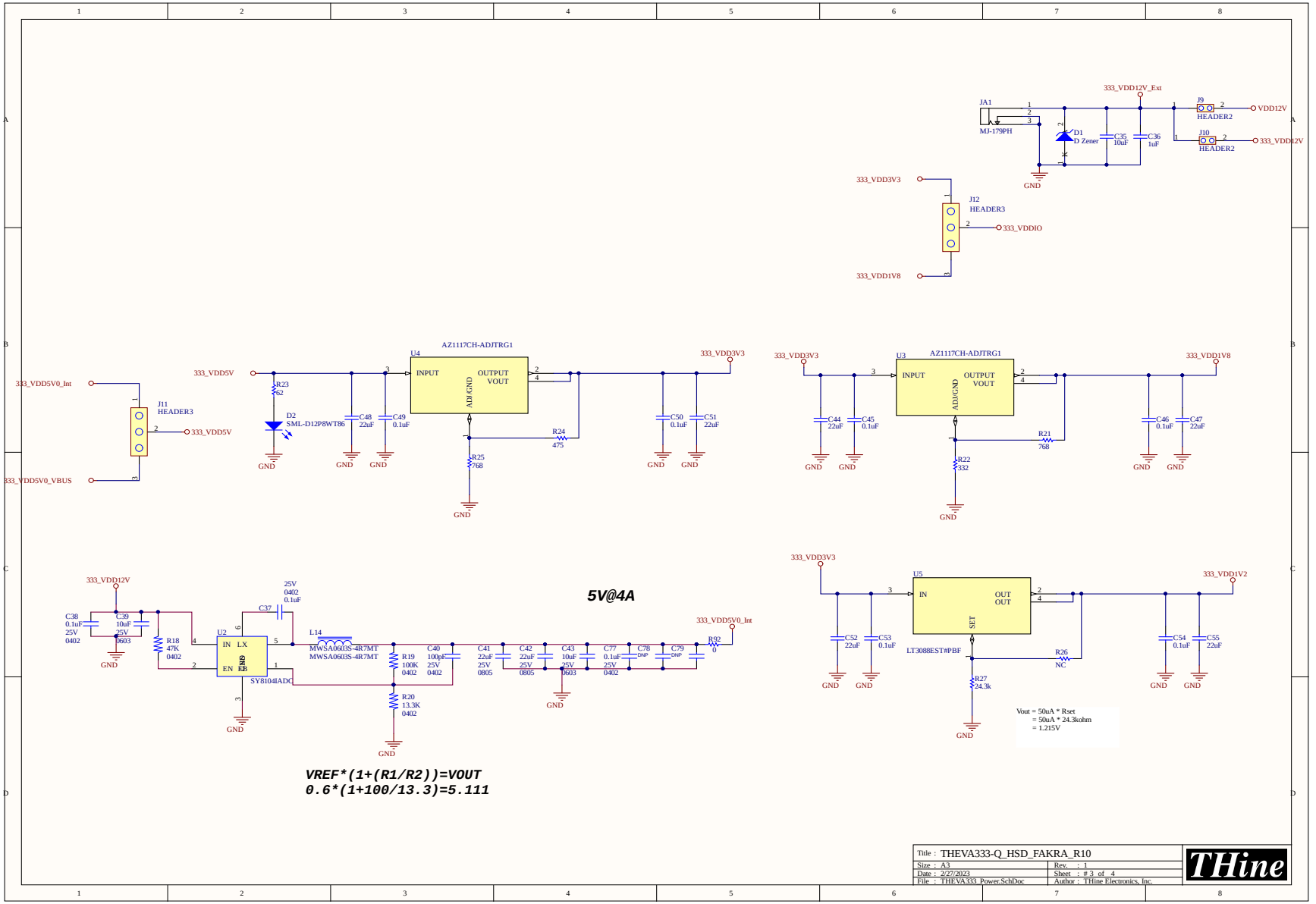


Figure 14. THEVA333-Q_HSD_FAKRA Schematics -4/4

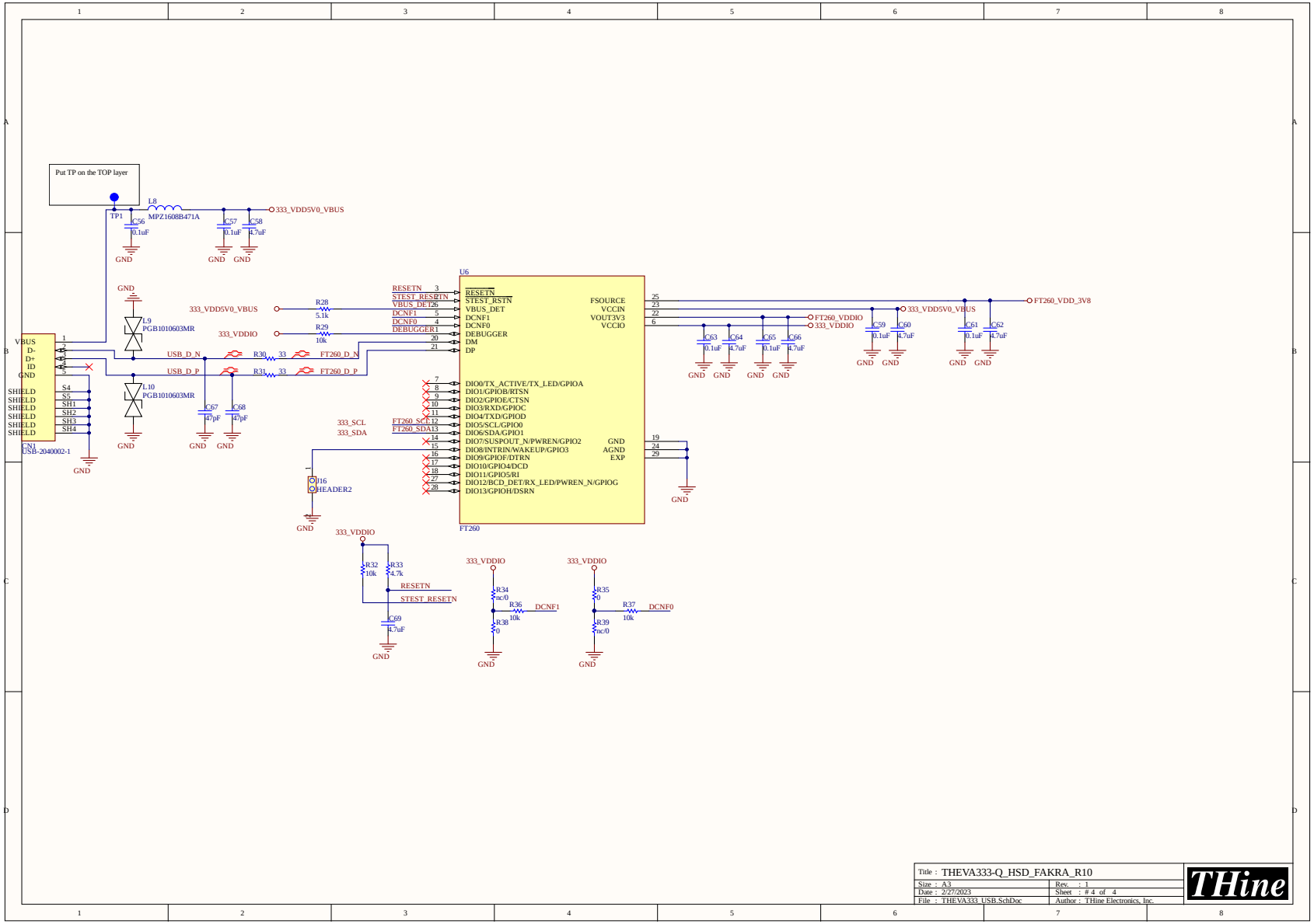


Figure 15. THEVA334-Q_HSD_FAKRA Schematics -1/4

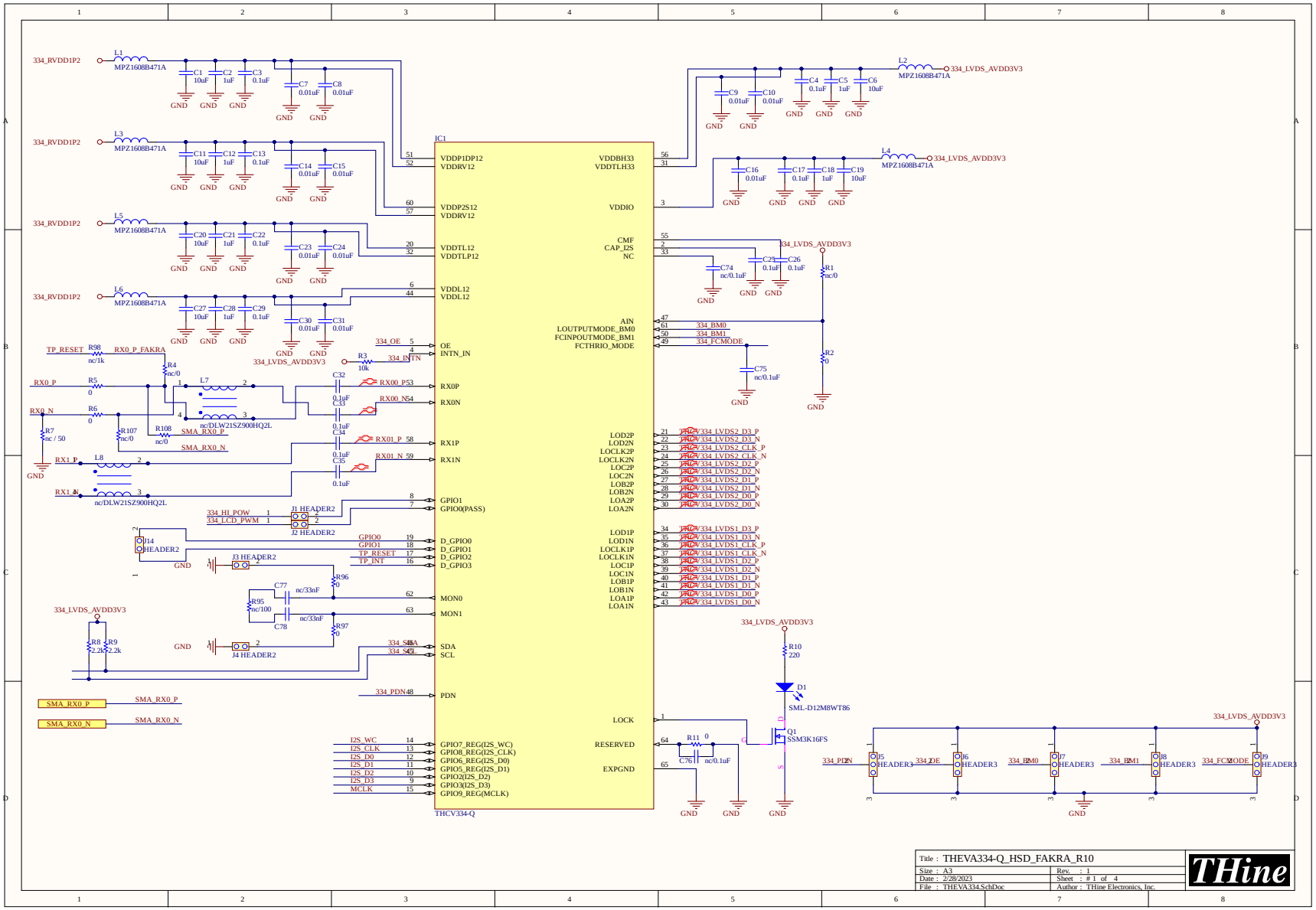


Figure 16. THEVA334-Q_HSD_FAKRA Schematics -2/4

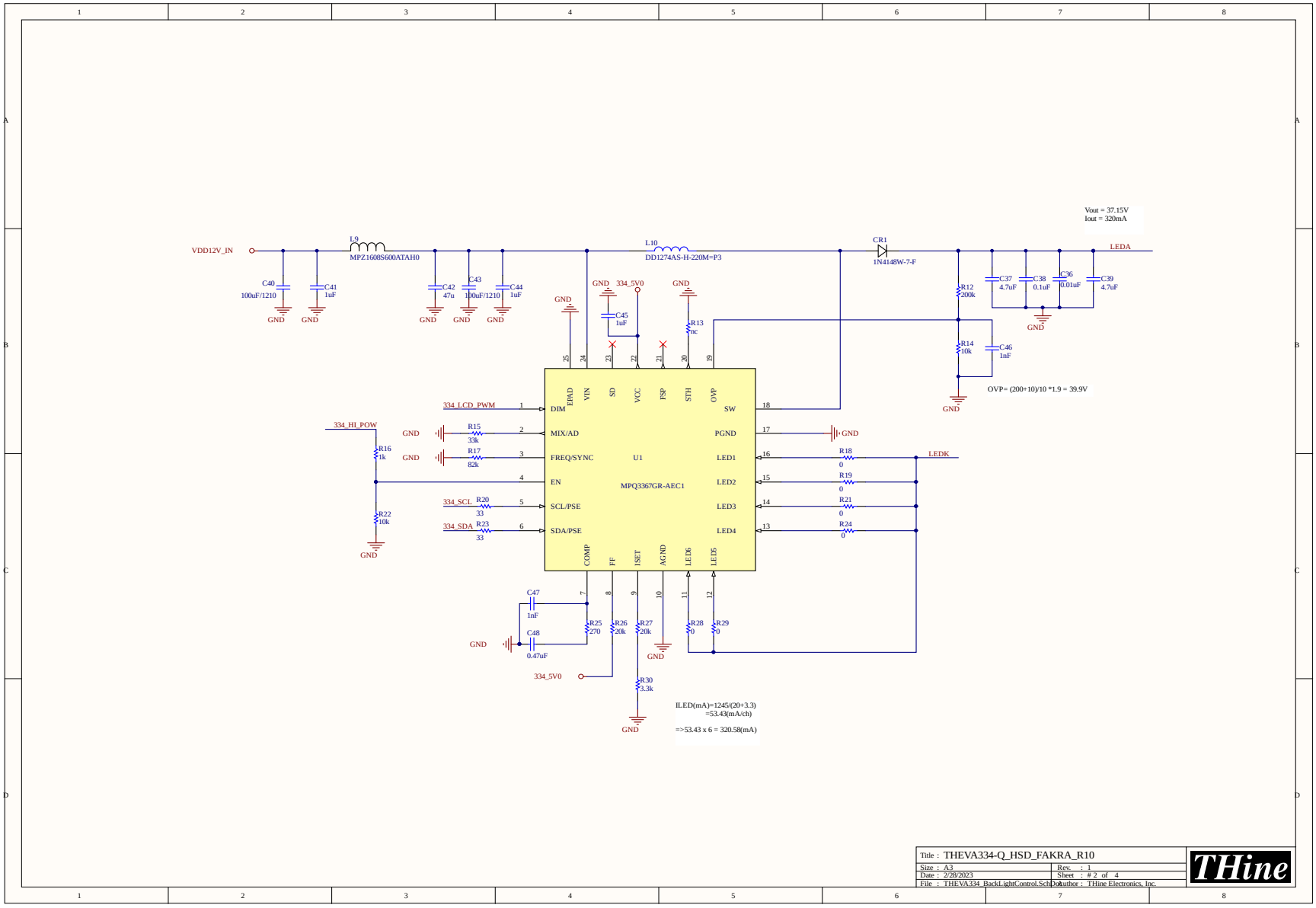


Figure 17. THEVA334-Q_HSD_FAKRA Schematics -3/4

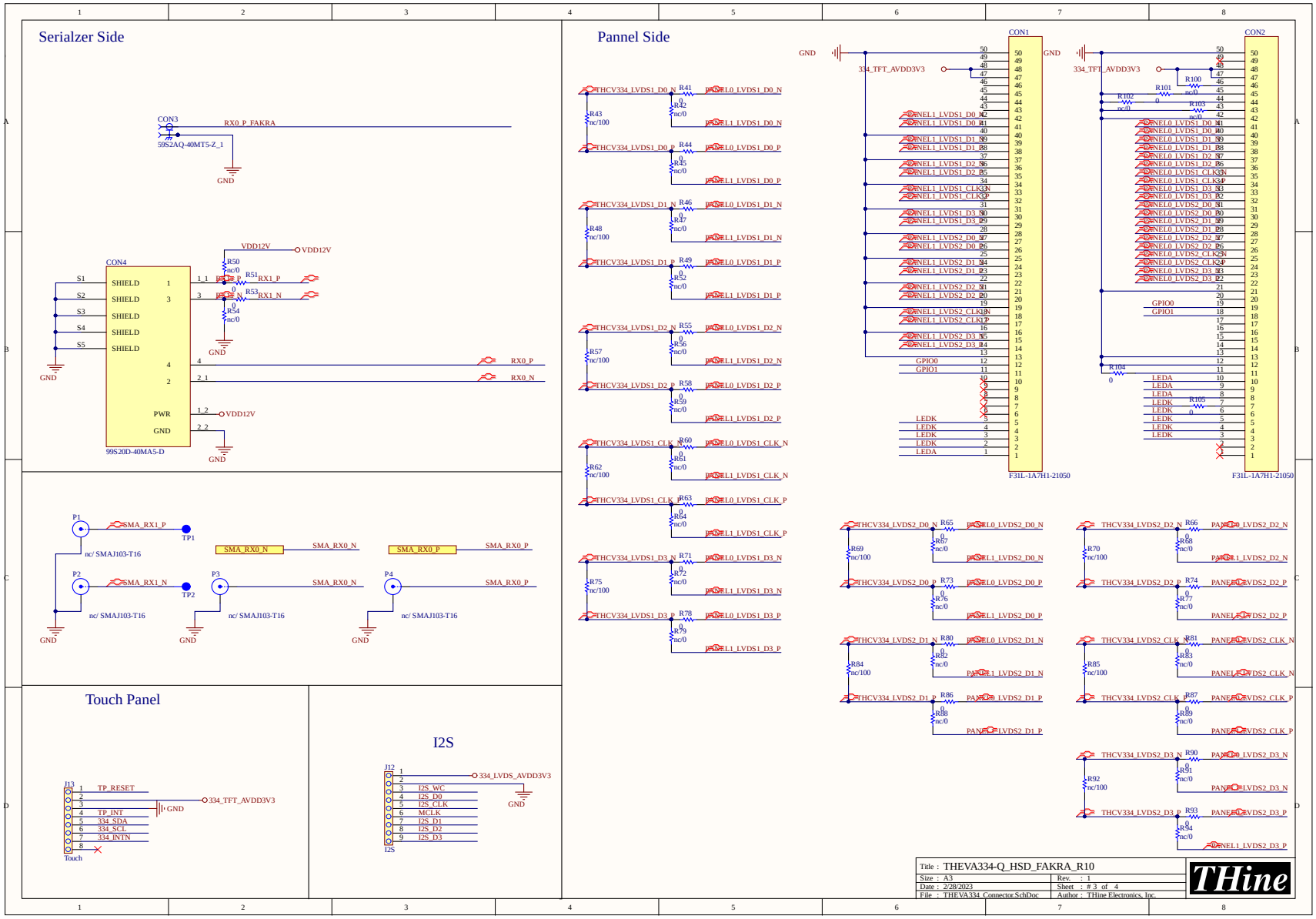


Figure 18. THEVA334-Q_HSD_FAKRA Schematics -4/4

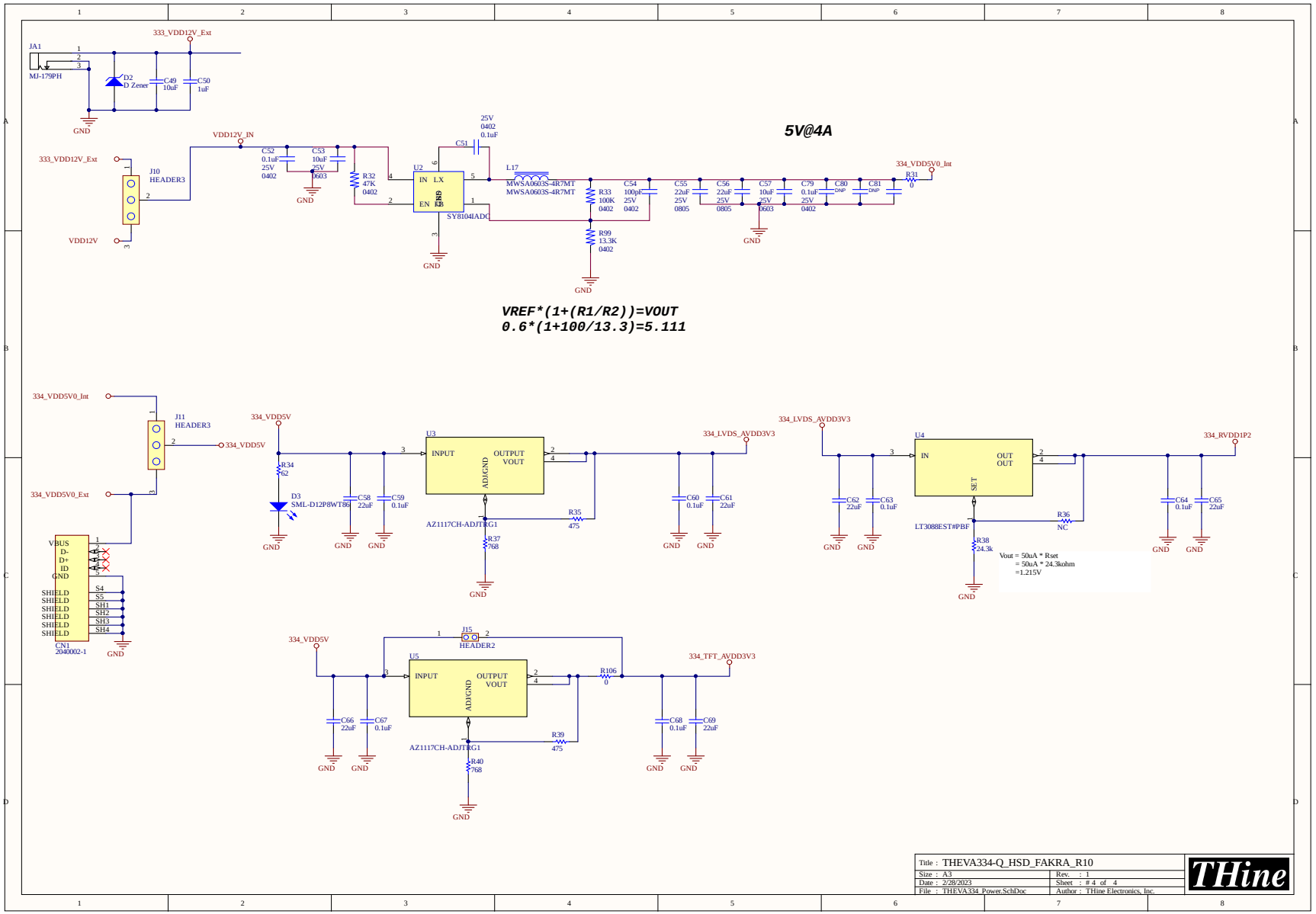


Figure 19. THEVA333-Q_CONV_A Schematics -1/1

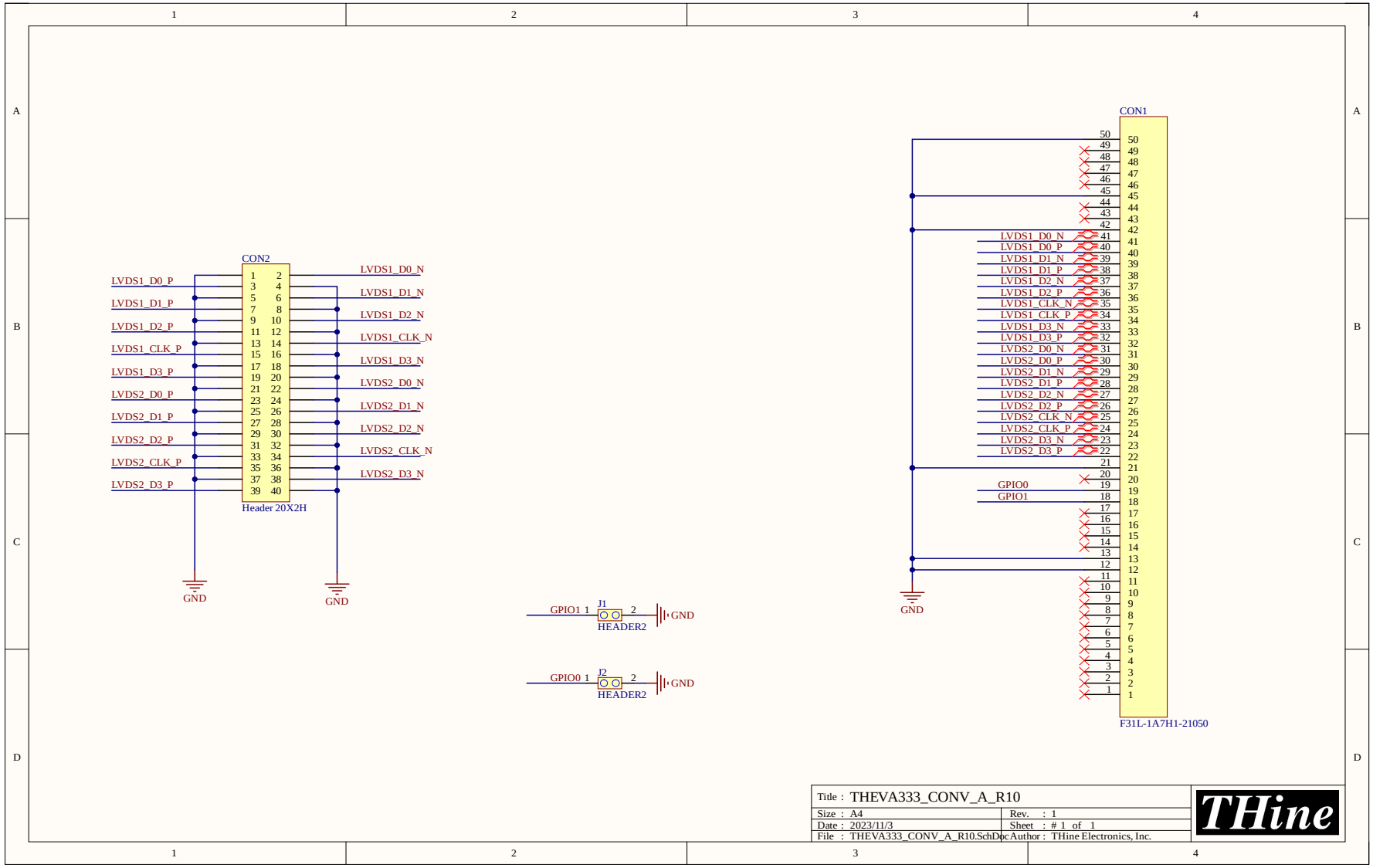
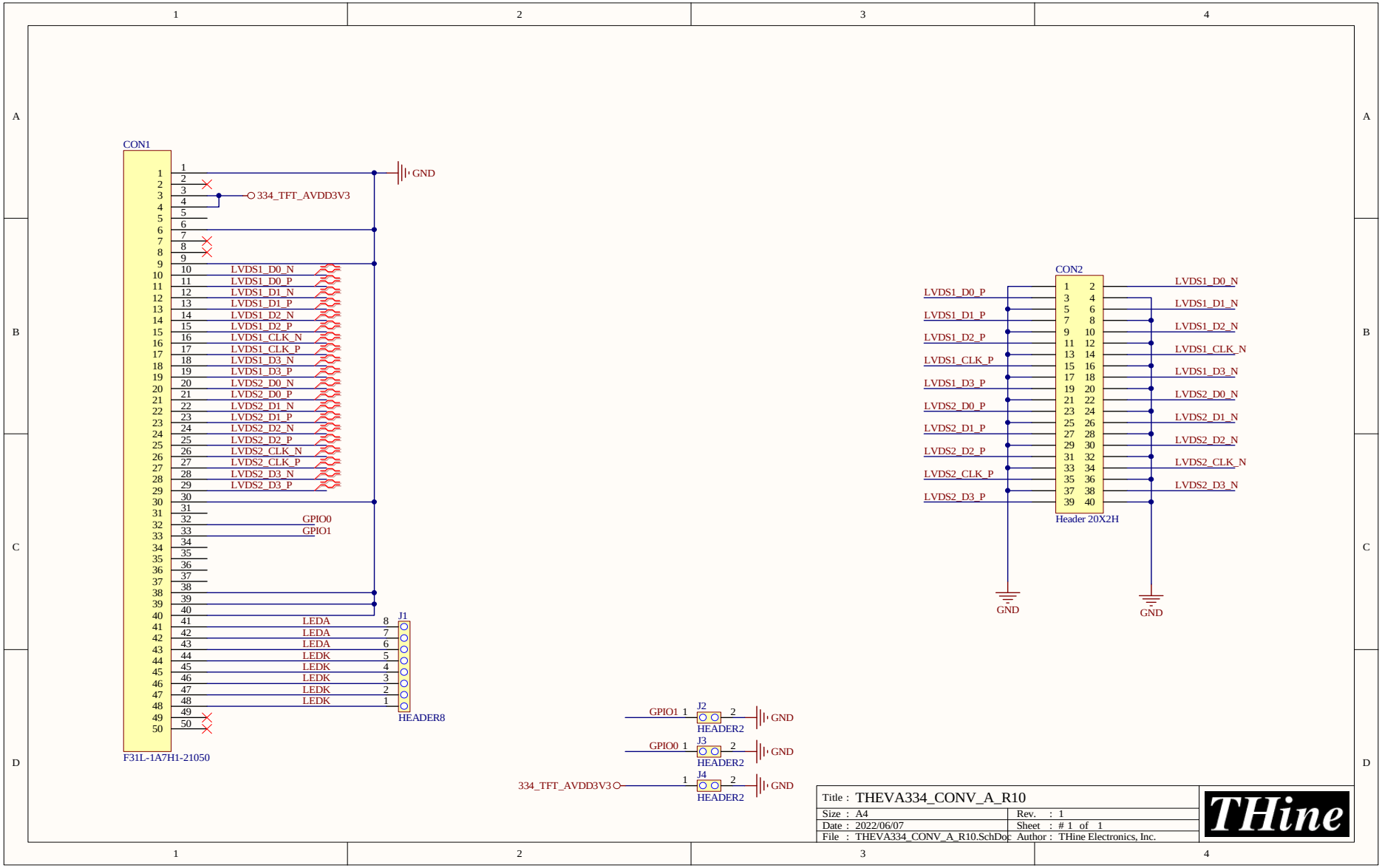


Figure 20. THEVA334-Q_CONV_A Schematics -1/1



11. Layouts

Figure 21. THEVA333-Q_HSD_FAKRA Layout -1/2

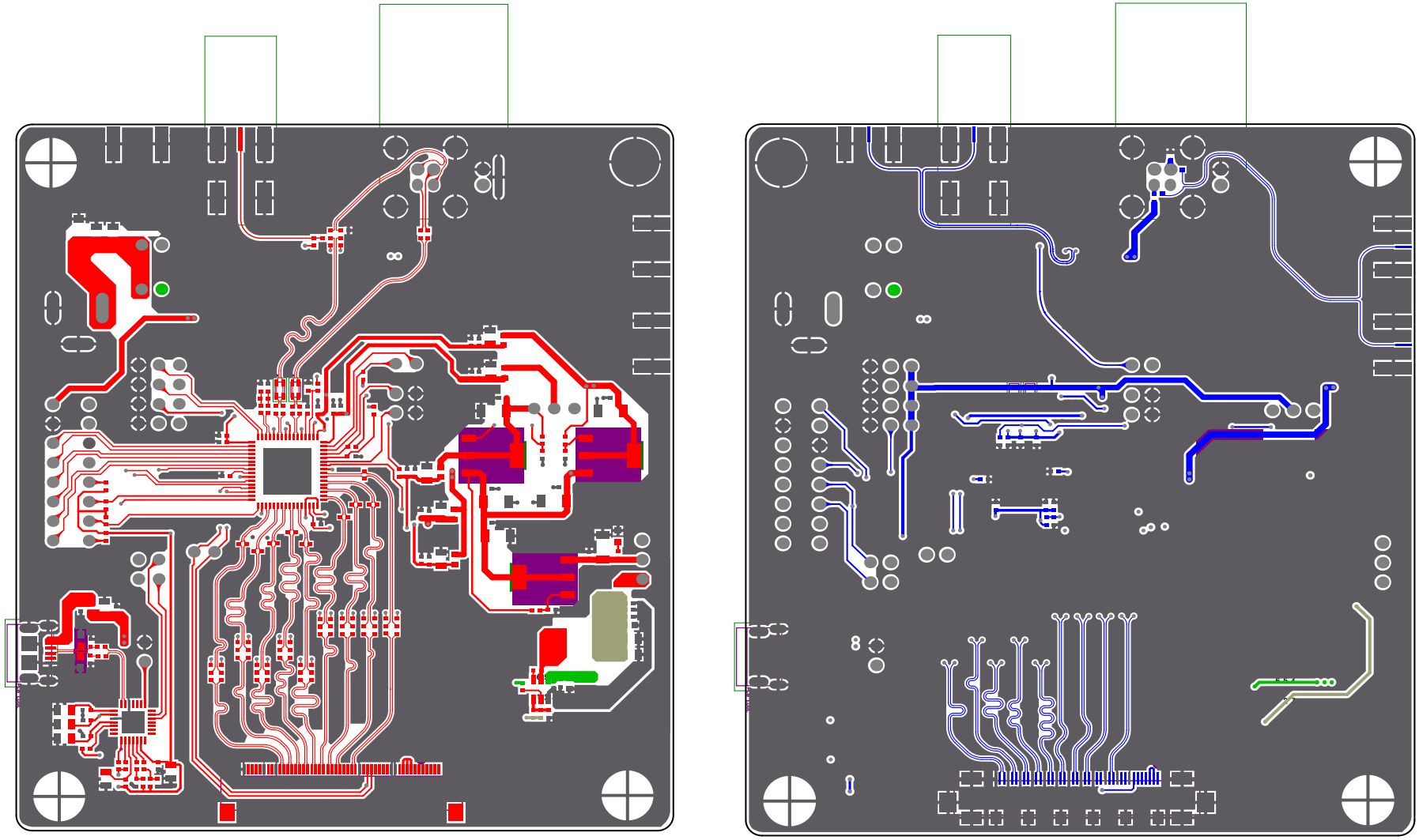


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Figure 22. THEVA333-Q_HSD_FAKRA Layout -2/2

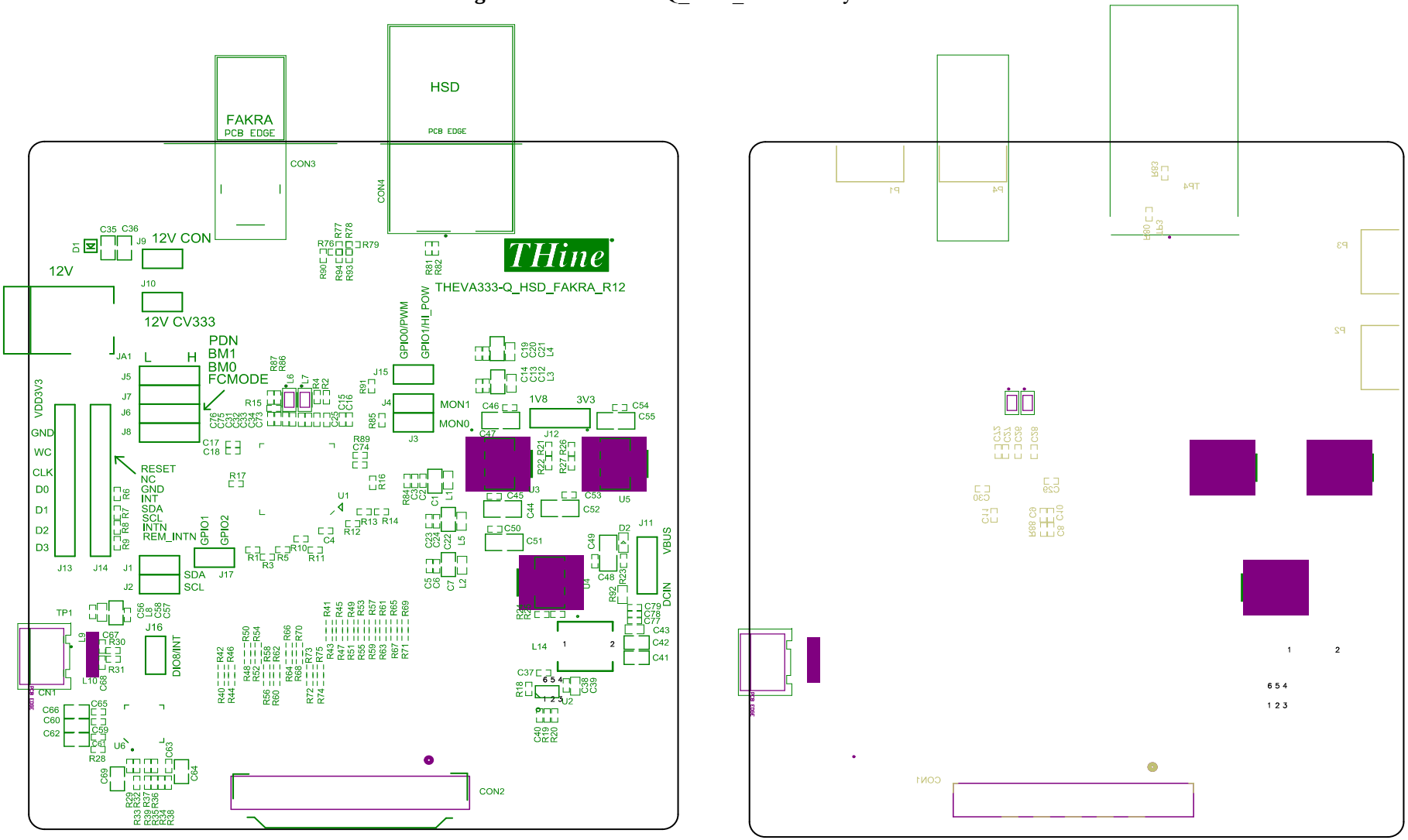

Figure 23. THEVA334-Q_HSD_FAKRA Layout -1/2

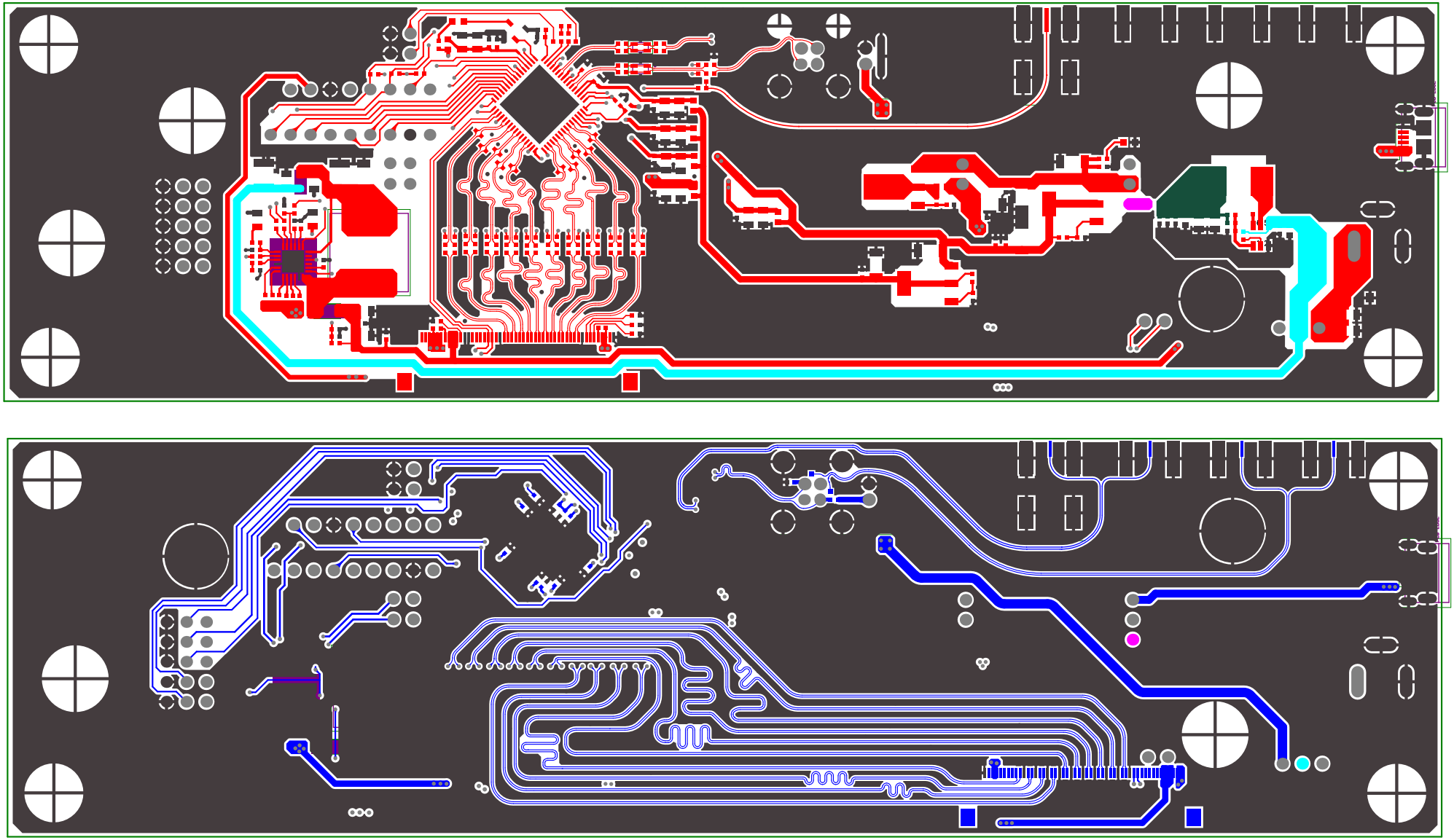

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Figure 24. THEVA334-Q_HSD_FAKRA Layout -2/2

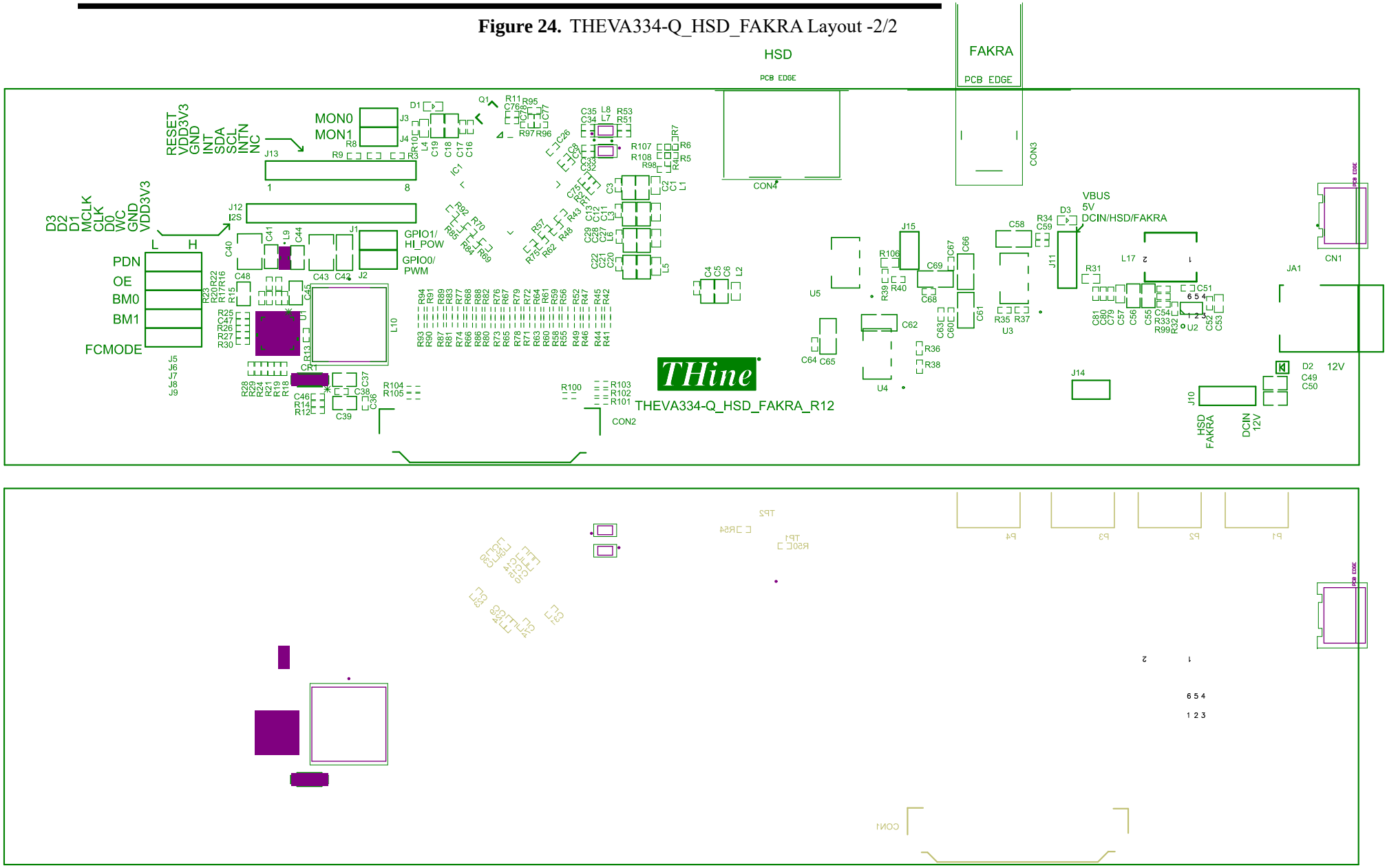


Figure 25. THEVA333-Q_CONV_A Layout

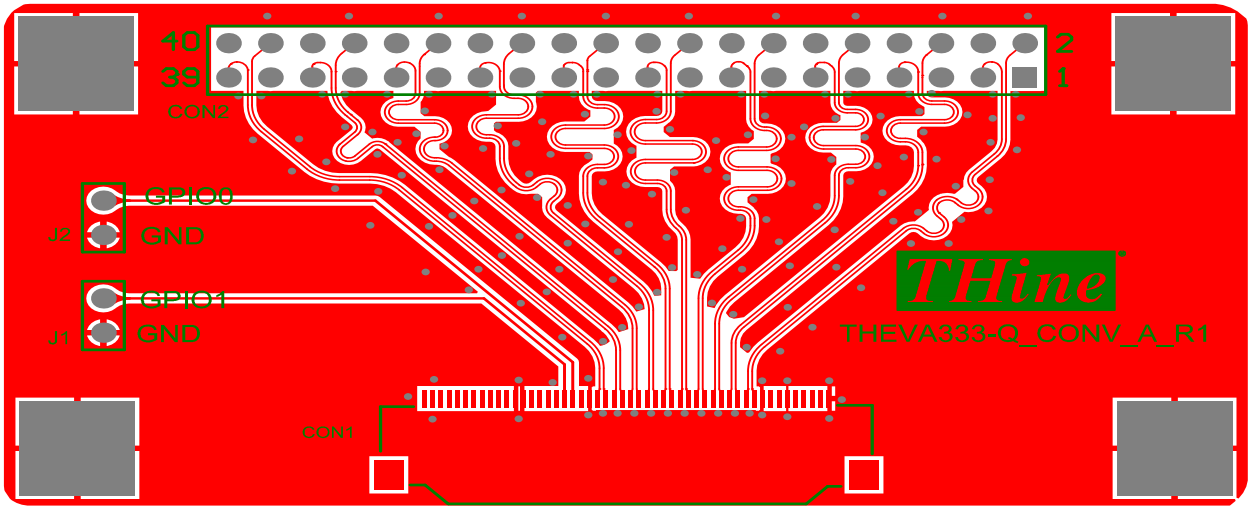
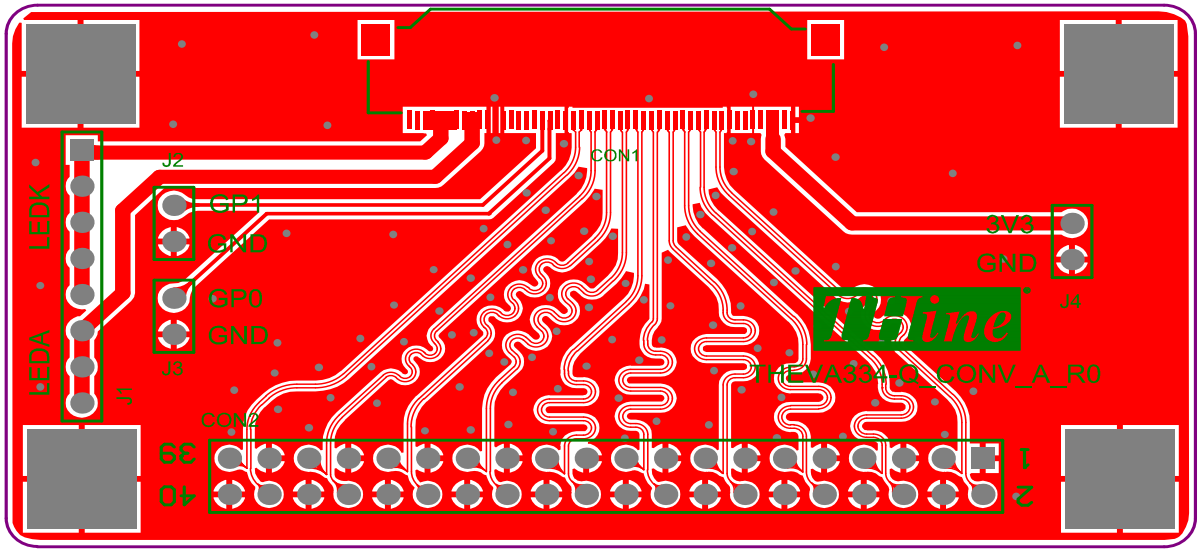


Figure 26. THEVA334-Q_CONV_A Layout



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