



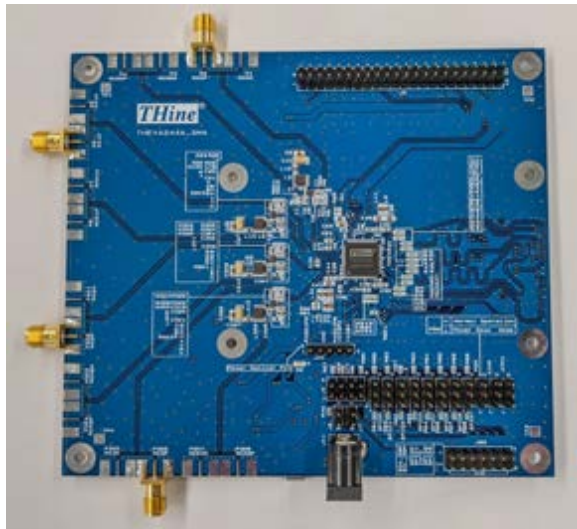
High Speed Interface Evaluation Kit



THEVA244A-SMA

THCV244A V-by-One® HS to MIPI® CSI-2 Interface Evaluation Board

Hardware Manual



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1. Over view

THEVA244A-SMA is a board equipped with THC244A that converts V-by-One® HS to MIPI® CSI-2 (or MIPI®). This board can be connected to a V-by-One® HS transmitter (THEVA241A-SMA-STP). As shown here by this example connections.

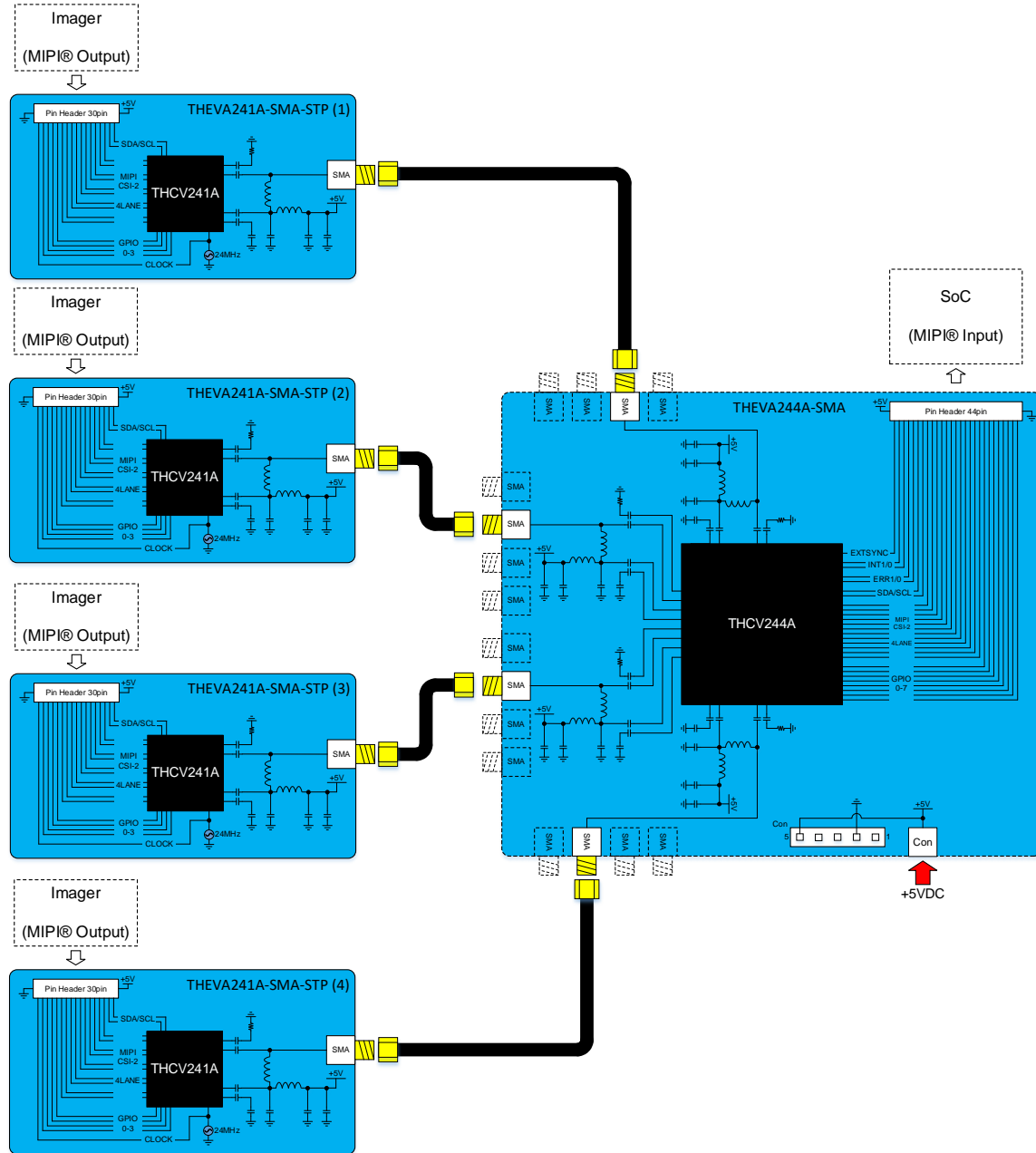


Figure 1 THEVA241A-SMA-STP and THEVA244A-SMA connection example (4-lane)

2. 4-lane connection with V-by-One® HS transmitter board (THEVA241A-SMA-STP)

Refer to the following figure for the THEVA241A-SMA-STP and the THEVA244A-SMA connections.

The power supply (+ 5.0V) is supplied to JA1 of the THEVA244A-SMA.

Power supply of the THEVA241A-SMA-STP is supplied from THEVA244A-SMA via a coaxial cable.

When power is supplied correctly, the green LED lights on both boards.

* The Coaxial-cable and the power supply should be prepared by users.

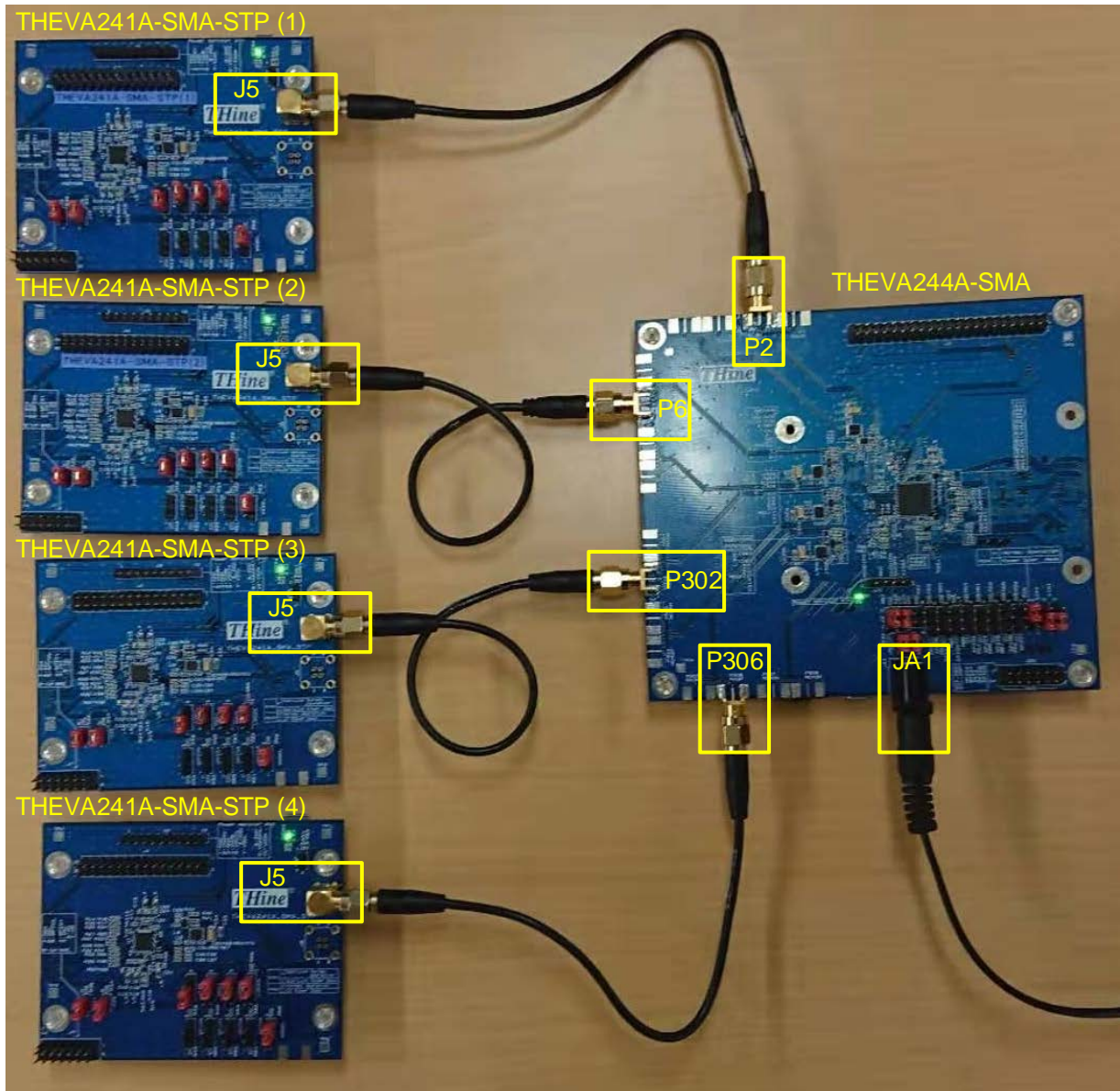


Figure 2 THEVA241A-SMA-STP and THEVA244A-SMA 4-lane connection

3. Connection with THEVA244A-SMA and SoC by the MIPI®

J3 pin-header can be used to connect THEVA242-SMA and SoC.

(J1 on the bottom side can also be used connect SoC. See the schematic on page 7 for details.)

When connecting 2-wire serial (SDA and SCL) to SoC, the J7 and J8 shall be shorted respectively.

Set the GPIO (J10 to J17) to pull-up or pull-down as required.

*The Jumper-Pin should be prepared by users.

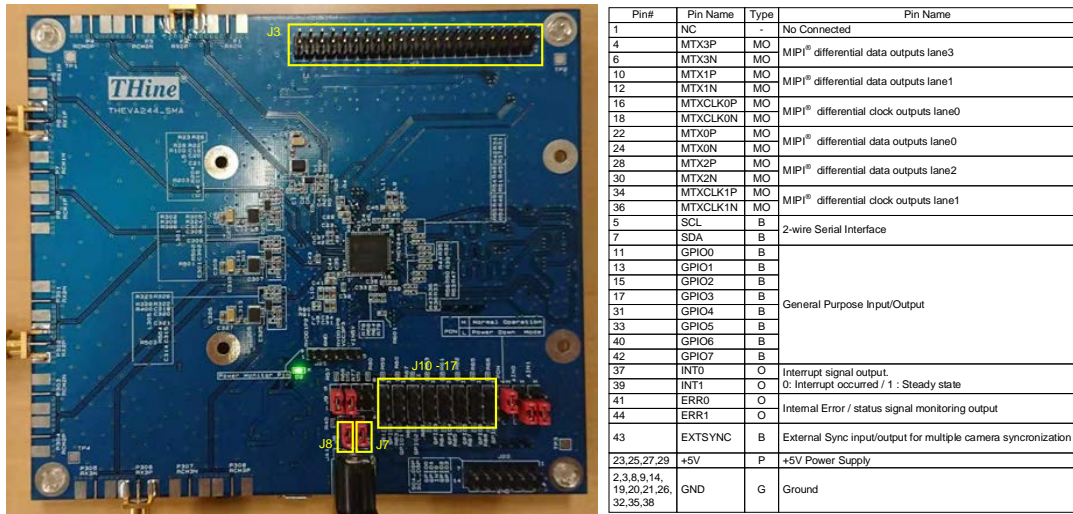


Figure 3 Connection with THEVA244A-SMA and SoC

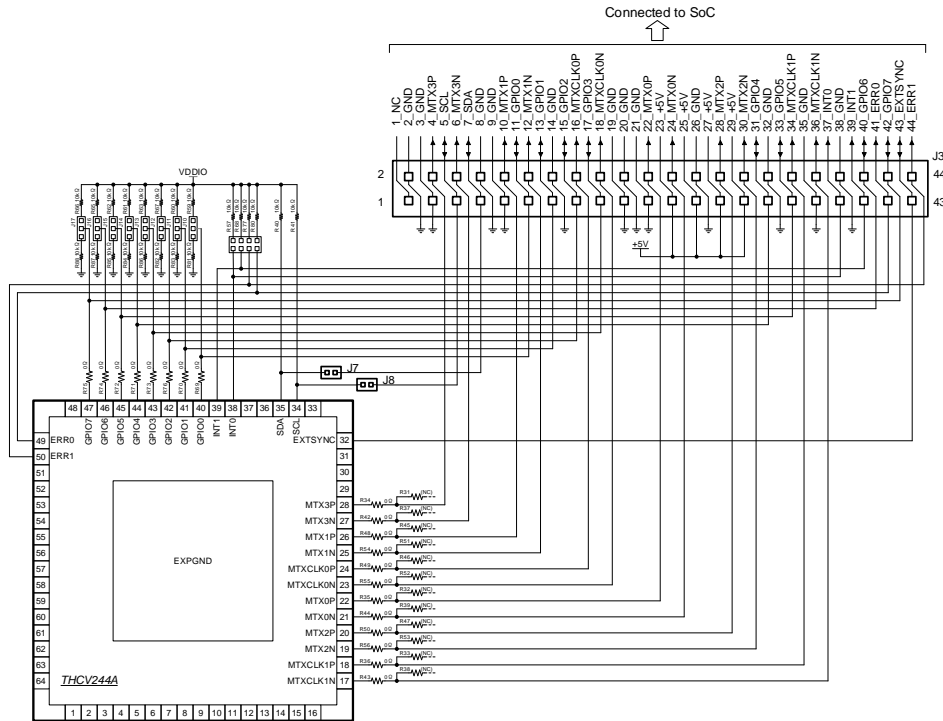
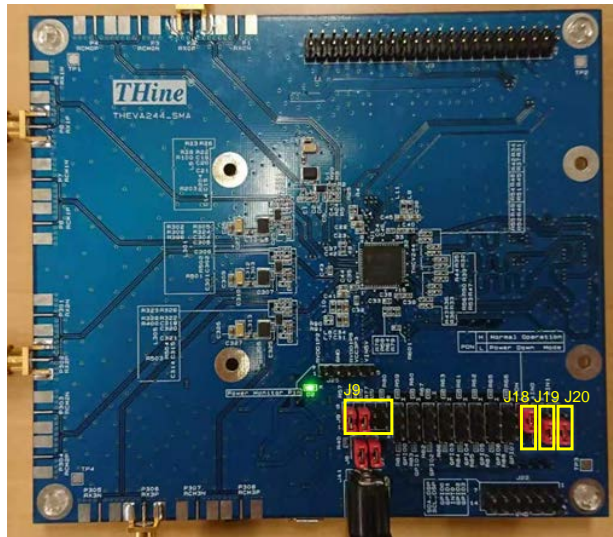


Figure 4 Connection with THEVA244A-SMA and SoC

4. Pin setting of the THEVA244A-SMA

As shown here by the Pin-settings.

*The Jumper-Pin should be prepared by users.



v	Node Name	Def.	Description
J9 (1-5)	INT0		Interrupt signal output. <i>It must be connected with a pull-up resistor.</i>
J9 (2-6)	INT1	 INTO : Short INT1 : Short ERR0: Open ERR1: Open	Internal Error / status signal monitoring output
J9 (3-7)	ERR0		
J9 (4-8)	ERR1		
J18	PDN		
J19	AIN0	 High Low	Device Address Setting for 2-wire Serial Interface [AIN1:AIN0]=00: ID=7'h0B [AIN1:AIN0]=01: ID=7'h34 [AIN1:AIN0]=10: ID=7'h77 [AIN1:AIN0]=11: ID=7'h65
J20	AIN1	 High Low	

Figure 5 Pin setting of the THEVA244A-SMA

5. Monitor pins

Each power supply can be monitored by the J25 pin-header.

The 2-wire serial, the GPIO, and the INT signal can be monitored by the J22 pin-header.

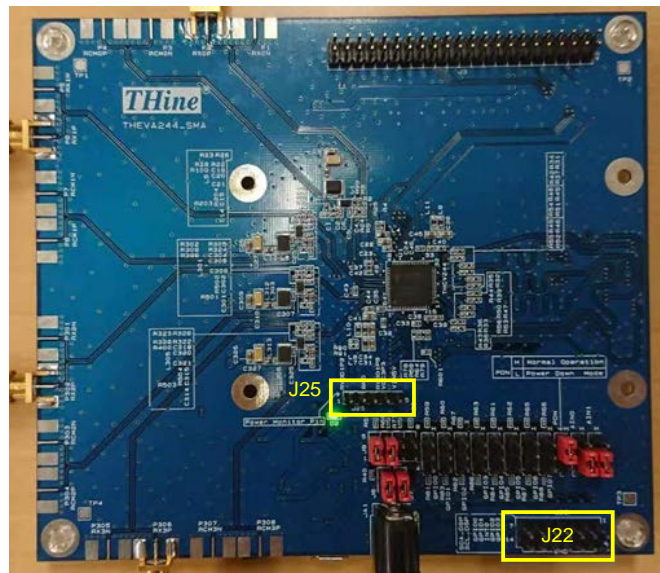
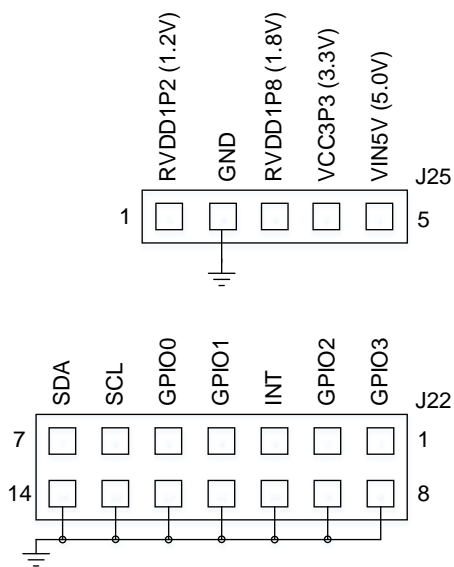
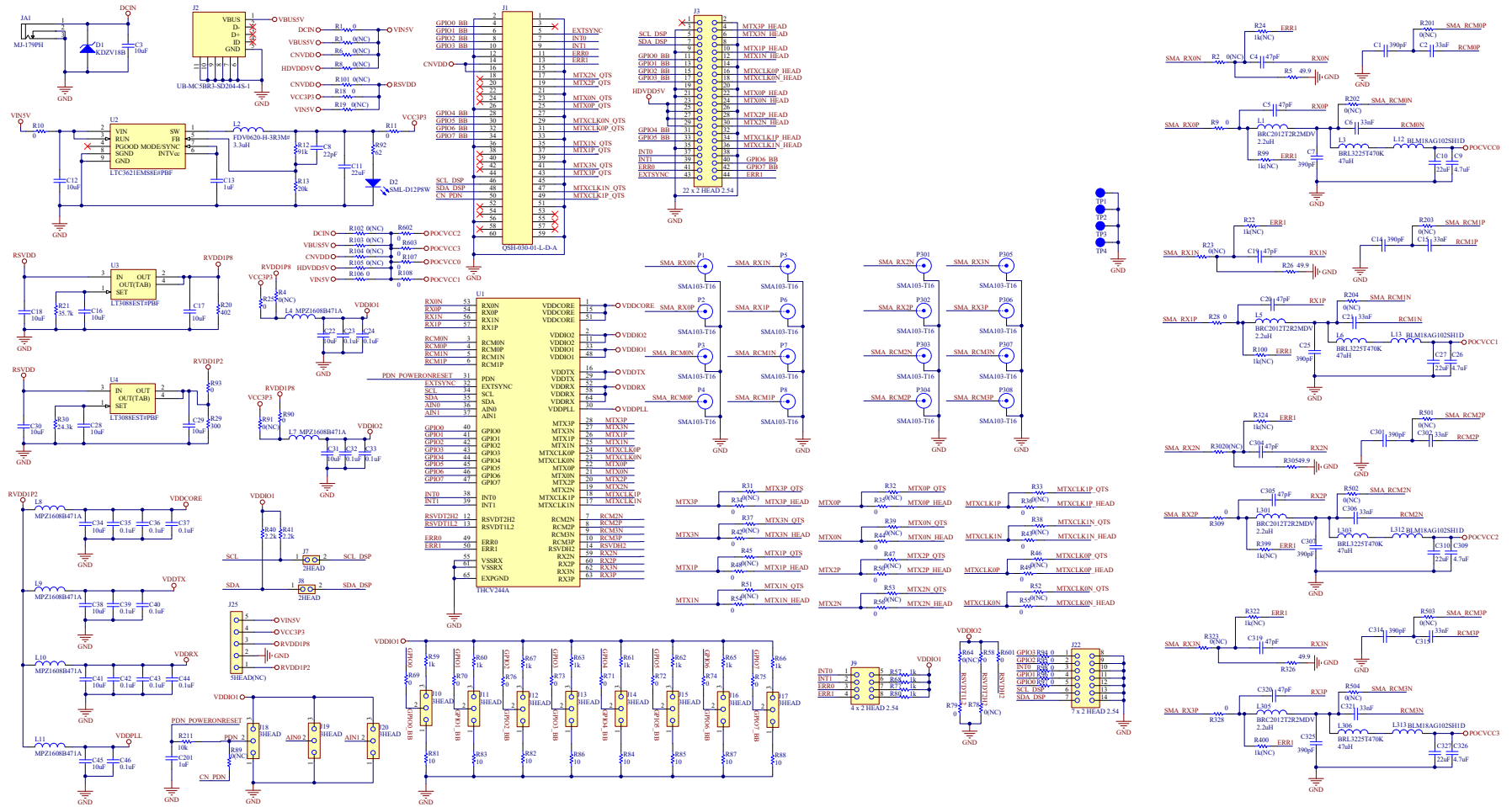


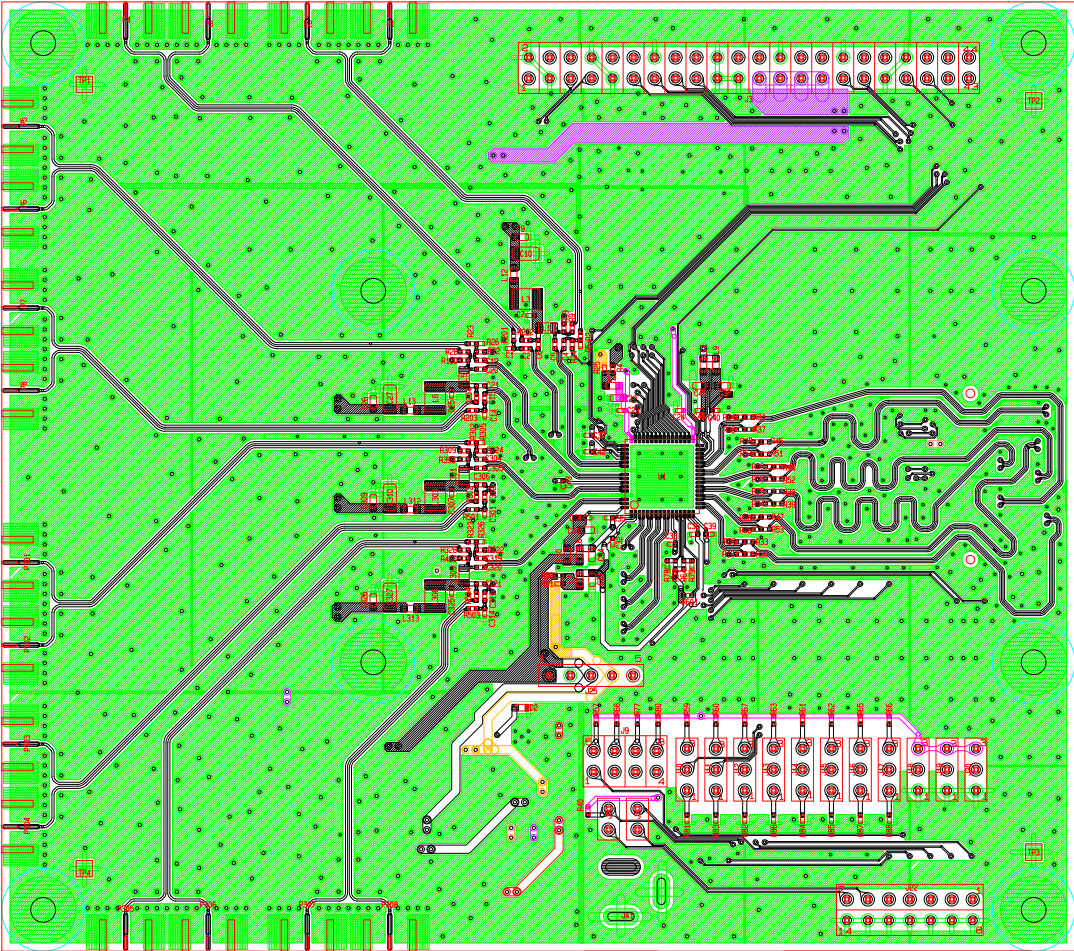
Figure 6 Monitor pins

6. THEVA244A-SMA Schematic

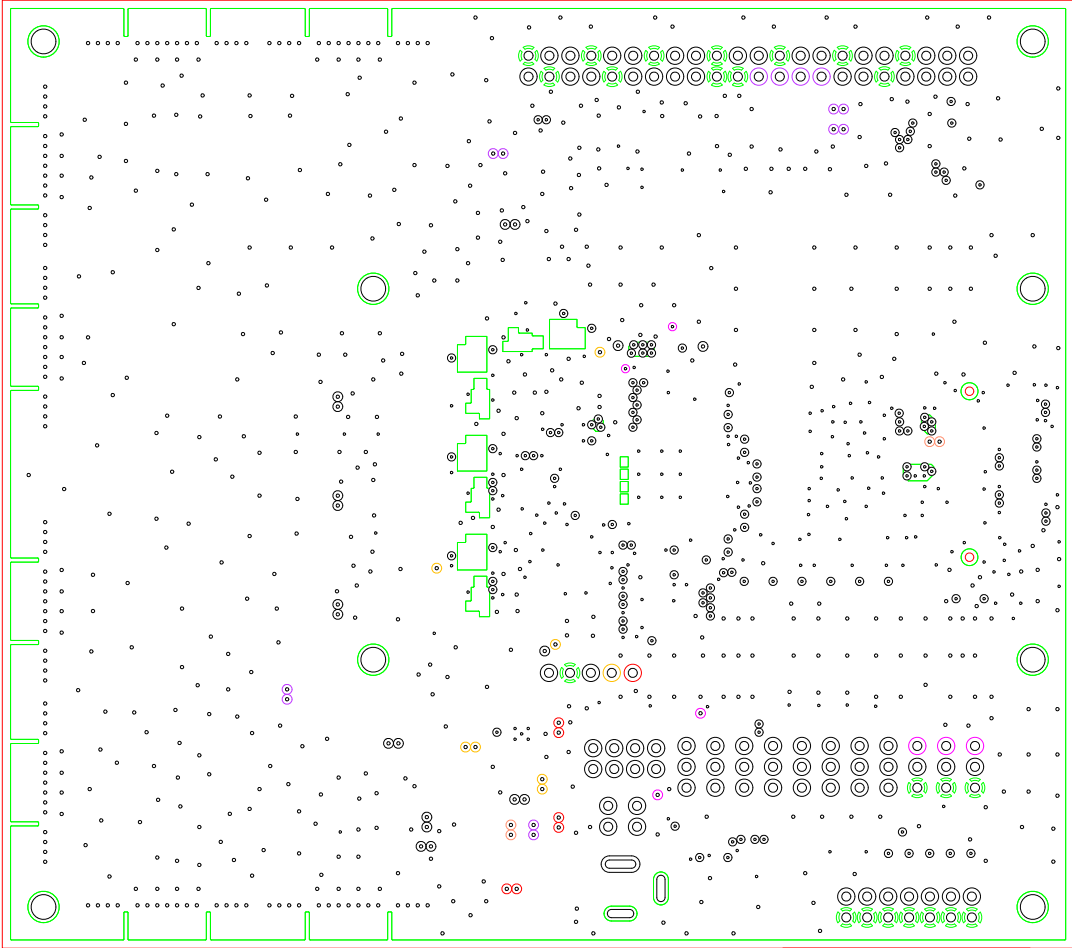


7. THEVA244A-SMA Layout

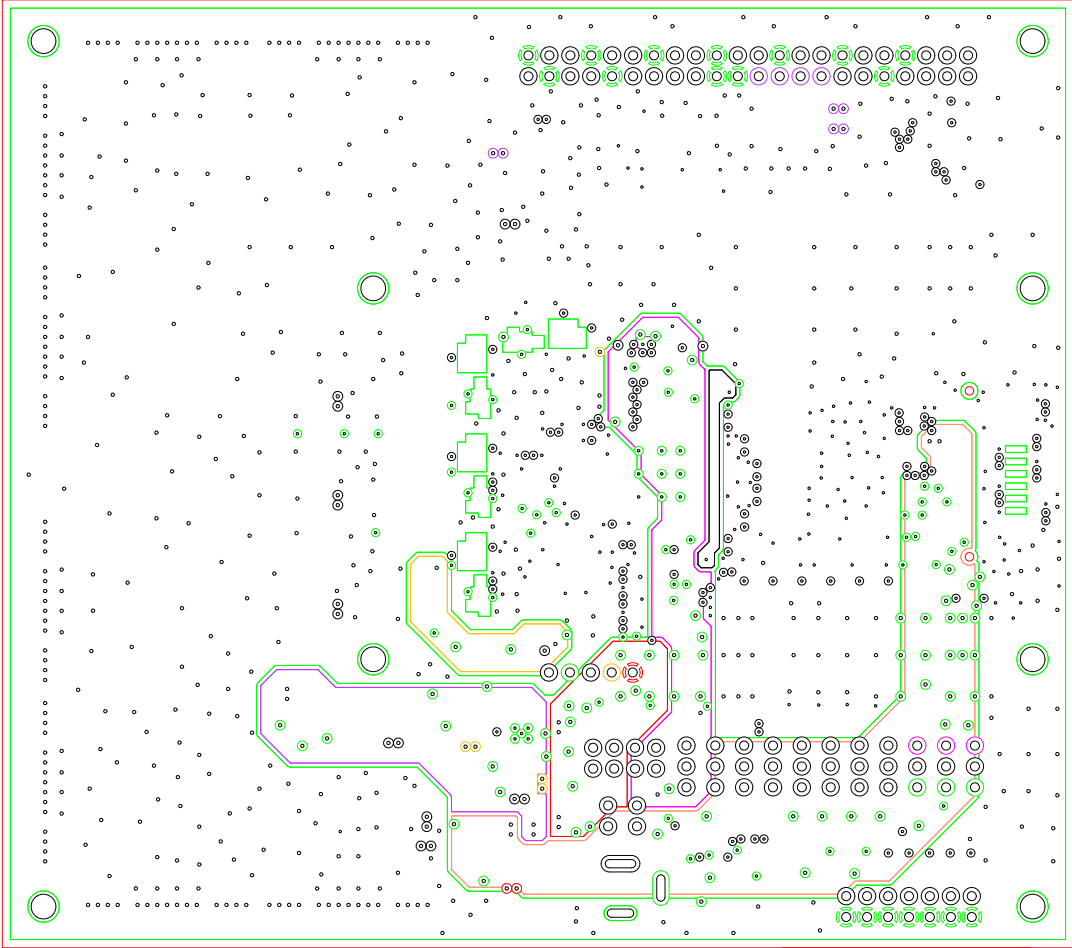
- L1 (Top) pattern



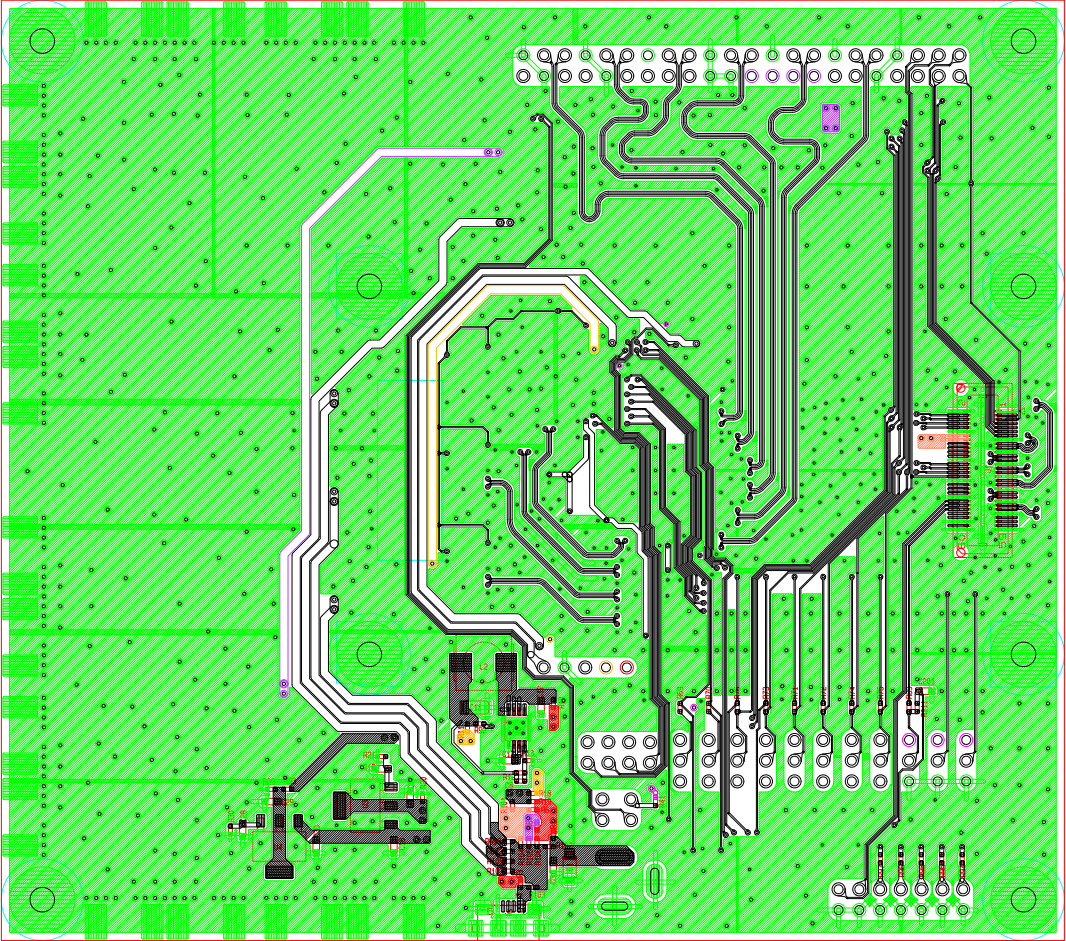
● L2 pattern



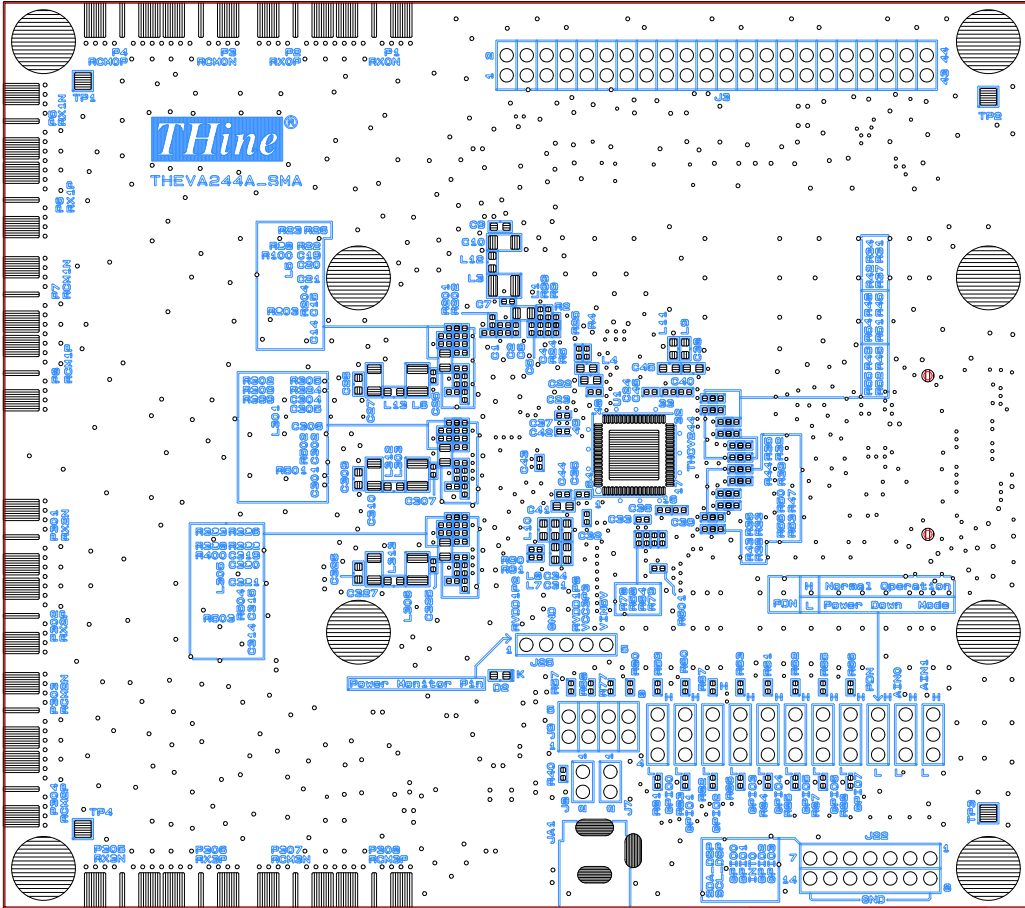
● L3 pattern



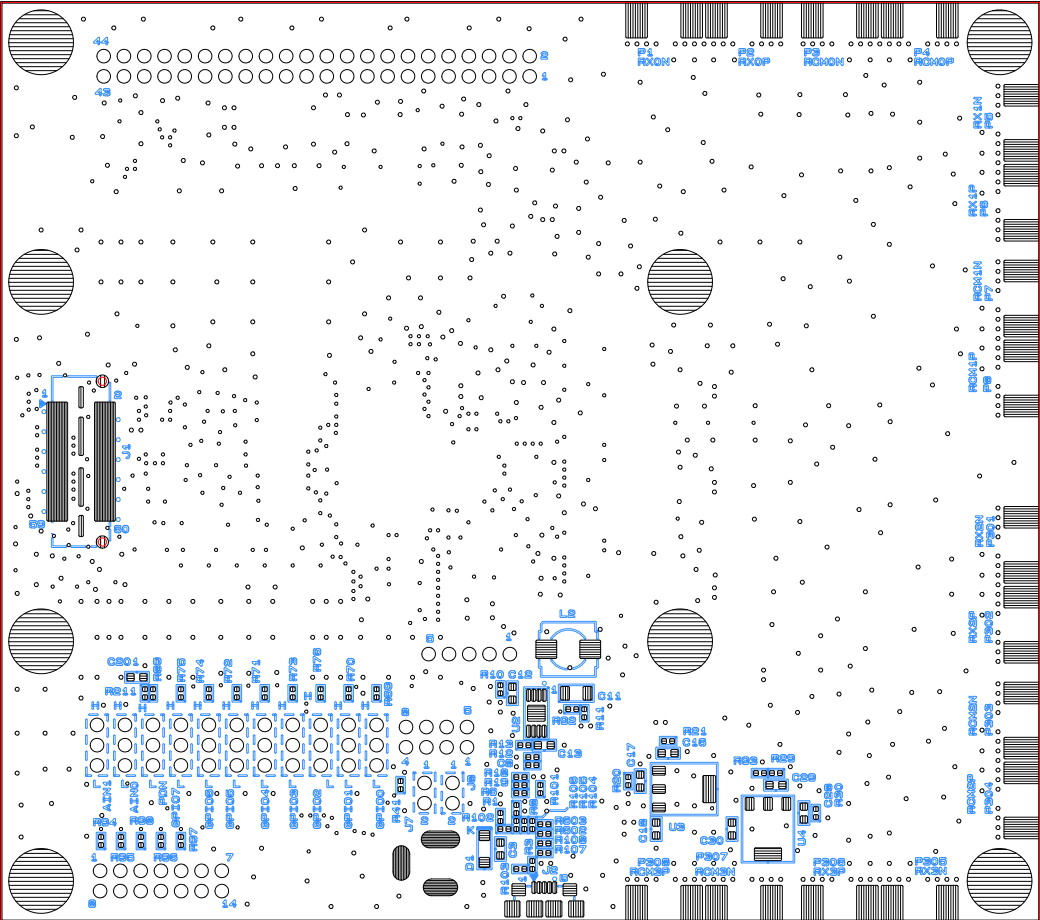
- L4 (Bottom) pattern



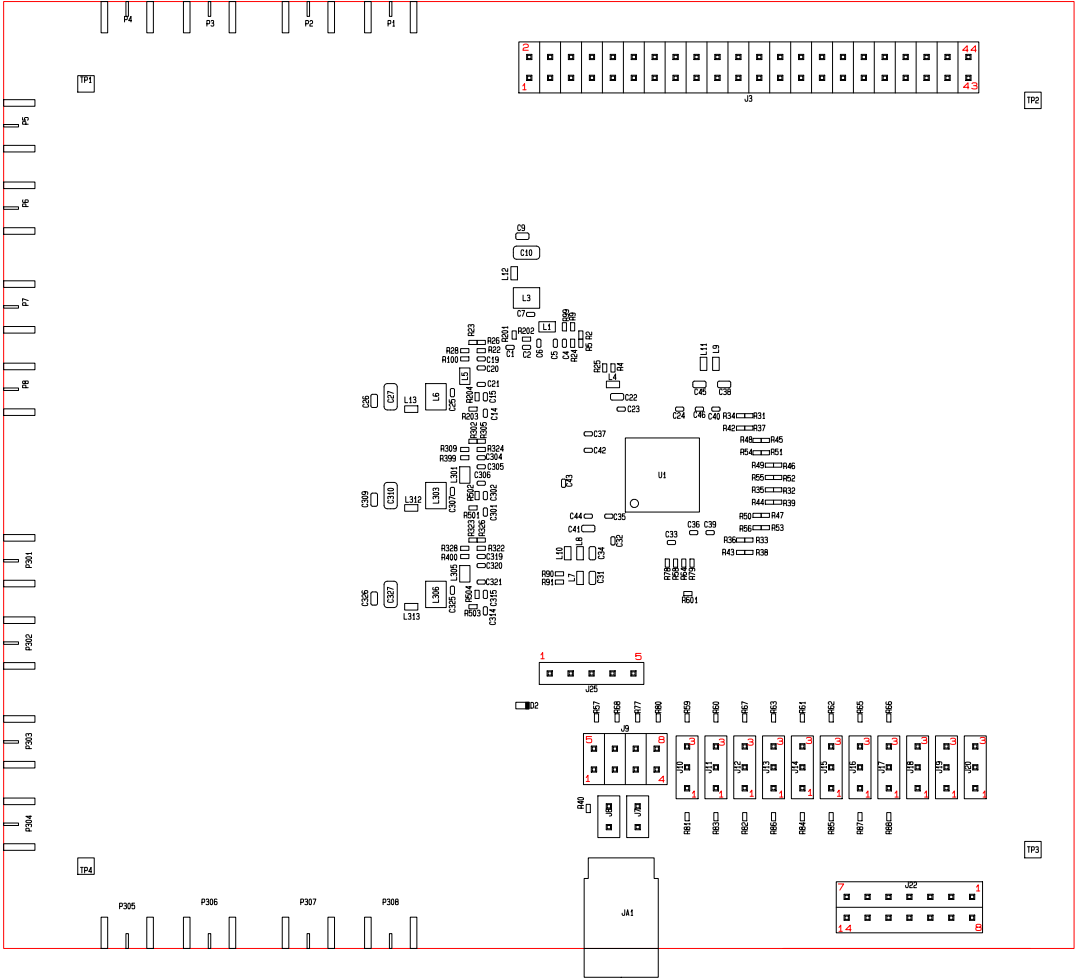
- Top Side Silk



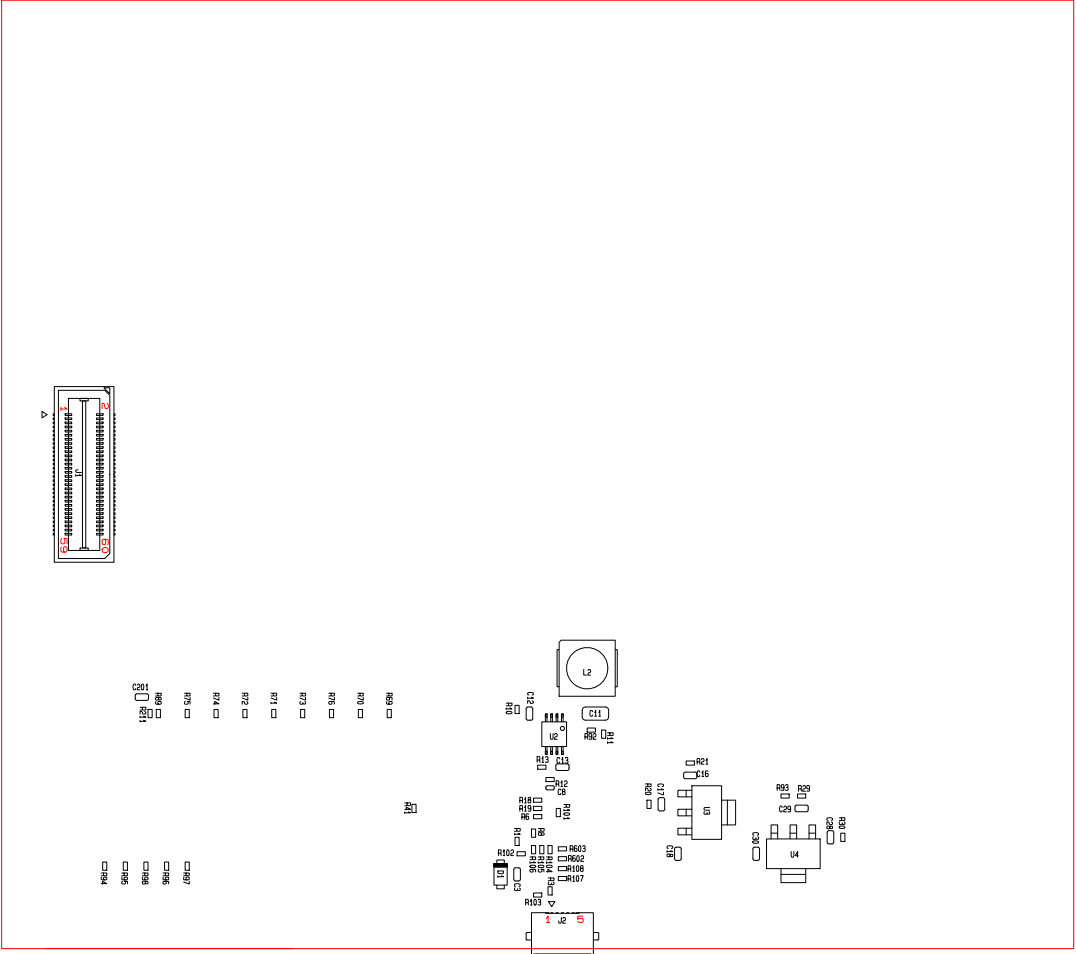
● Bottom Side Silk



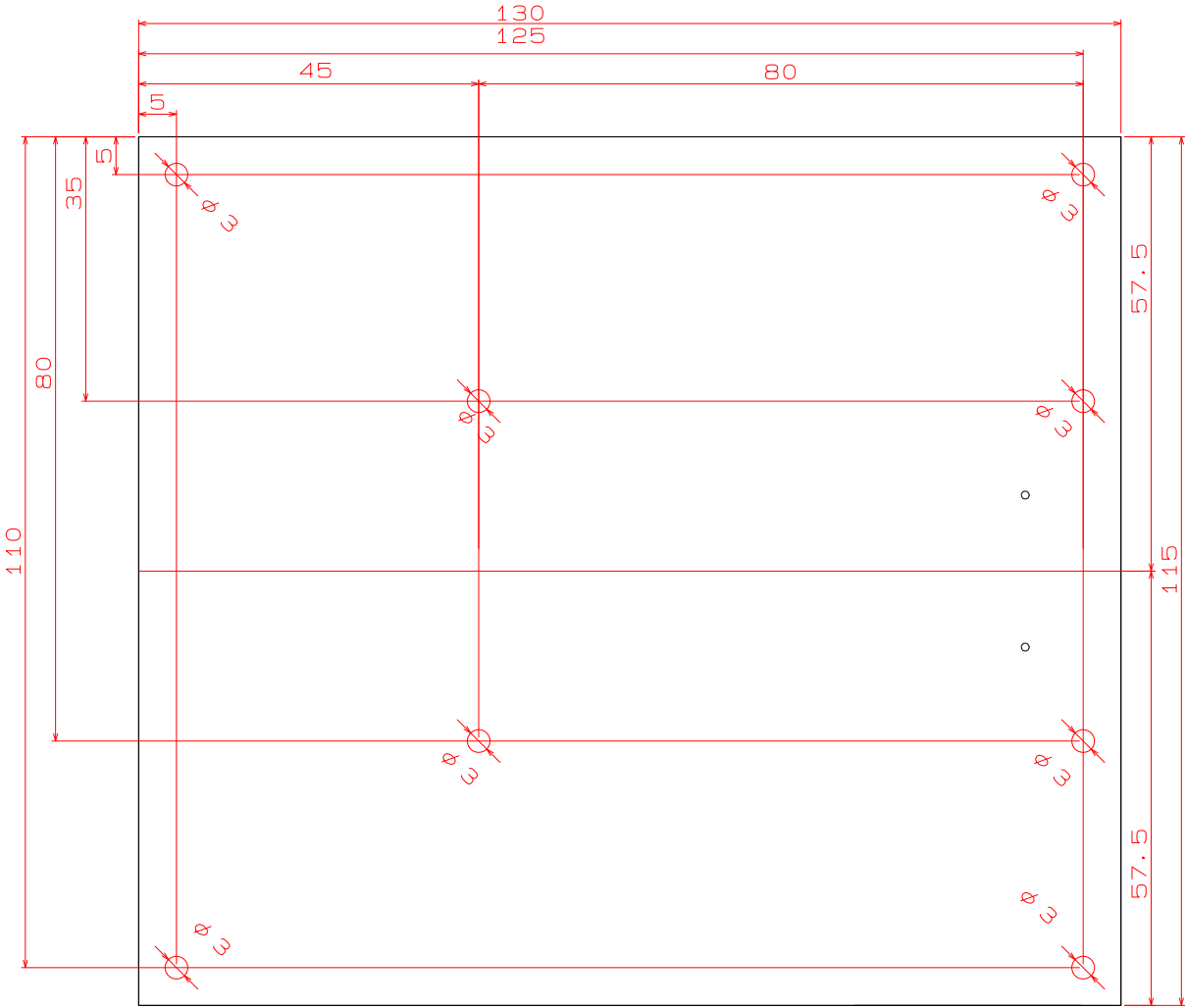
● Top Side Implementation diagram



- Bottom Side Implementation diagram



● Dimensions



8. THEVA244A-SMA Bill of Material

Designator	Parts type	Quantity	Parts name	Specification	Value
C1, C7, C14, C25, C301, C307, C314, C325	Capacitor	8	GRM1552C1H391JA01D	50V/1005	390pF
C2, C6, C15, C21, C302, C306, C315, C321	Capacitor	8	CGA2B3X7R1H333K050BB	50V/1005	33nF
C4, C5, C19, C20, C304, C305, C319, C320	Capacitor	8	GRM1552C1H470JA01D	50V/1005	47pF
C8	Capacitor	1	GRM1552C1H220JA01D	50V/1005	22pF
C9, C26, C309, C326	Capacitor	4	GRM188R61E475KE11D	25V/1608	4.7uF
C10, C11, C27, C310, C327	Capacitor	5	GRT31CC81C226ME01L	16V/3216	22uF
C3, C12, C16, C17, C18, C22, C28, C29, C30, C31, C34, C38, C41, C45	Capacitor	14	GRM188R61E106MA73D	25V/1608	10uF
C13, C201	Capacitor	2	GRM188B31E105KA75D	25V/1608	1uF
C23, C24, C32, C33, C35, C36, C37, C39, C40, C42, C43, C44, C46	Capacitor	13	GRM155B31H104KE14D	50V/1005	0.1uF
D1	Zener diode	1	KDZVTR18B	-	
D2	LED	1	SML-D12P8WT86	-	
J1	Connector	1	QSH-030-01-L-D-A	-	
J2	USB 2.0 micro	1	UB-MC5BR3-SD204-4S-1-TBNMP	-	
J3	Pin header	1	TCHM23-70-044S-803R	2.54 mm pitch 22 pin X 2 row	
J7, J8	Pin header	2	TCHM13-70-002S-803R	-	
J9	Pin header	1	TCHM23-70-008S-803R	2.54 mm pitch 4 pin X 2 row	
J10, J11, J12, J13, J14, J15, J16, J17, J18, J19, J20	Pin header	11	TCHM13-70-003S-803R	-	
J22	Pin header	1	TCHM23-70-014S-803R	-	
J25	Pin header	1	TCHM13-70-005S-803R	2.54 mm pitch 5 pin X 1 row	
JA1	DC jack	1	MJ-179PH	-	
L1, L5, L301, L305	Inductor	4	BRC2012T2R2MD	-	2.2uH
L2	Inductor	1	RLF7030T-3R3M4R1	-	3.3uH
L3, L6, L303, L306	Inductor	4	BRL3225T470K	-	47uH
L4, L7, L8, L9, L10, L11	Ferrite beads	6	MPZ1608B471ATA00	-	
L12, L13, L312, L313	Ferrite beads	4	BLM18AG102SH1D	-	
* R2, R3, R4, R6, R8, R19, R23, R31, R32, R33, R37, R38, R39, R45, R46, R47, R51, R52, R53, R64, R78, R89, R91, R101, R102, R103, R104, R105, R201, R202, R203, R204, R302, R323, R501, R502, R503, R504	Resistor	38	RK73Z1ETTP	-	0(NC)
R5, R26, R305, R326	Resistor	4	RK73H1ETTP49R9F	0.1W/1005	49.9
R1, R9, R10, R11, R18, R25, R28, R34, R35, R36, R42, R43, R44, R48, R49, R50, R54, R55, R56, R58, R69, R70, R71, R72, R73, R74, R75, R76, R79, R90, R93, R94, R95, R96, R97, R98, R106, R107, R108, R309, R328, R601, R602, R603	Resistor	44	RK73Z1ETTP0	-	0
R12	Resistor	1	RK73H1ETTP9102F	0.1W/1005	91k
R13	Resistor	1	RK73H1ETTP2002F	0.1W/1005	20k
R20	Resistor	1	RK73H1ETTP4020F	0.1W/1005	402
R21	Resistor	1	RK73H1ETTP3572F	0.1W/1005	35.7k
* R22, R24, R99, R100, R322, R324, R399, R400	Resistor	8	RK73H1ETTP1001F	0.1W/1005	1k(NC)
R29	Resistor	1	RK73H1ETTP3000F	0.1W/1005	300
R30	Resistor	1	RK73H1ETTP2432F	0.1W/1005	24.3k
R40, R41	Resistor	2	RK73H1ETTP2201F	0.1W/1005	2.2k
R57, R59, R60, R61, R62, R63, R65, R66, R67, R68, R77, R80	Resistor	12	RK73H1ETTP1001F	0.1W/1005	1k
R81, R82, R83, R84, R85, R86, R87, R88	Resistor	8	RK73H1ETTP10R0F	0.1W/1005	10
R92	Resistor	1	RK73H1ETTP62R0F	0.1W/1005	62
R211	Resistor	1	RK73H1ETTP1002F	0.1W/1005	10k
* TP1, TP2, TP3, TP4	TP	4	-	2mm X 2mm	NC
U1	THCV244A	1	THCV244A	See datasheet (QFN package)	
U2	LTC3621EMS8E#PBF	1	LTC3621EMS8E#PBF	See datasheet (MS8E package)	
U3, U4	LT3088EST#PBF	2	LT3088EST#PBF	See datasheet (ST package)	
P2, P6, P302, P306	SMA Connector	4	SMA103-T16		
* P1, P3, P4, P5, P7, P8, P301, P303, P304, P305, P307, P308	SMA Connector	12	SMA103-T16		NC

*Un-mount

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