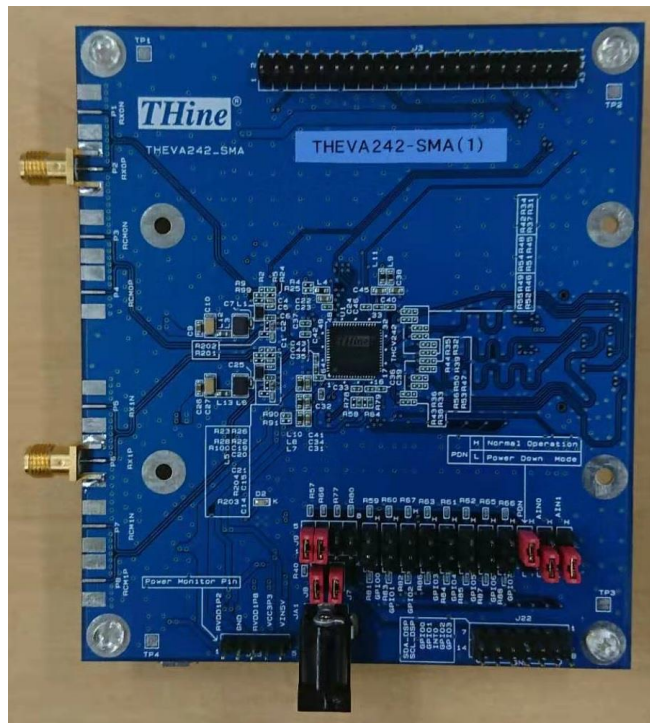




THEVA242-SMA Hardware Manual



Contents

1. Over view	3
2. 1-lane connection with V-by-One® HS transmitter board (THEVA241A-SMA-STP).....	5
3. 2-lane connection with V-by-One® HS transmitter board (THEVA241A-SMA-STP).....	6
4. Connection with V-by-One® HS transmitter board (THEVA241A-SMA-FFC).....	7
5. Take note on connecting with THEVA241A-SMA-FFC	8
6. Connection with THEVA242-SMA and SoC by the MIPI®.....	9
7. Pin setting of the THEVA242-SMA	10
8. Monitor pins.....	10
9. THEVA242-SMA Schematic.....	11
10. THEVA242-SMA Bill of Material	12
11. Notices and Requests.....	13

1. Over view

THEVA242-SMA is a board equipped with THCV242 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 or THEVA241A-SMA-FFC).

As shown here by this example connections.

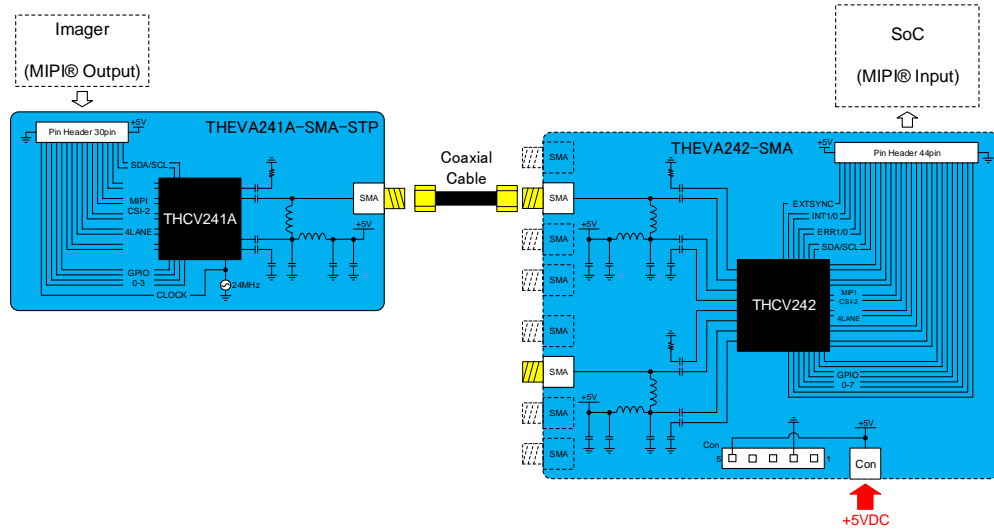


Figure 1 THEVA241A-SMA-STP and THEVA242-SMA connection example (1-lane)

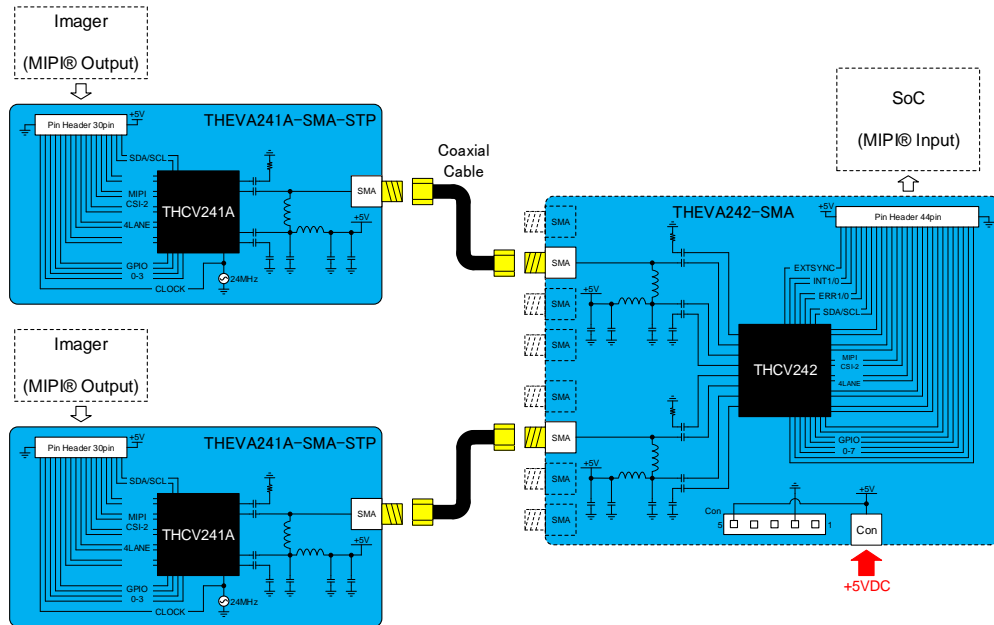


Figure 2 THEVA241A-SMA-STP and THEVA242-SMA connection example (2-lane)

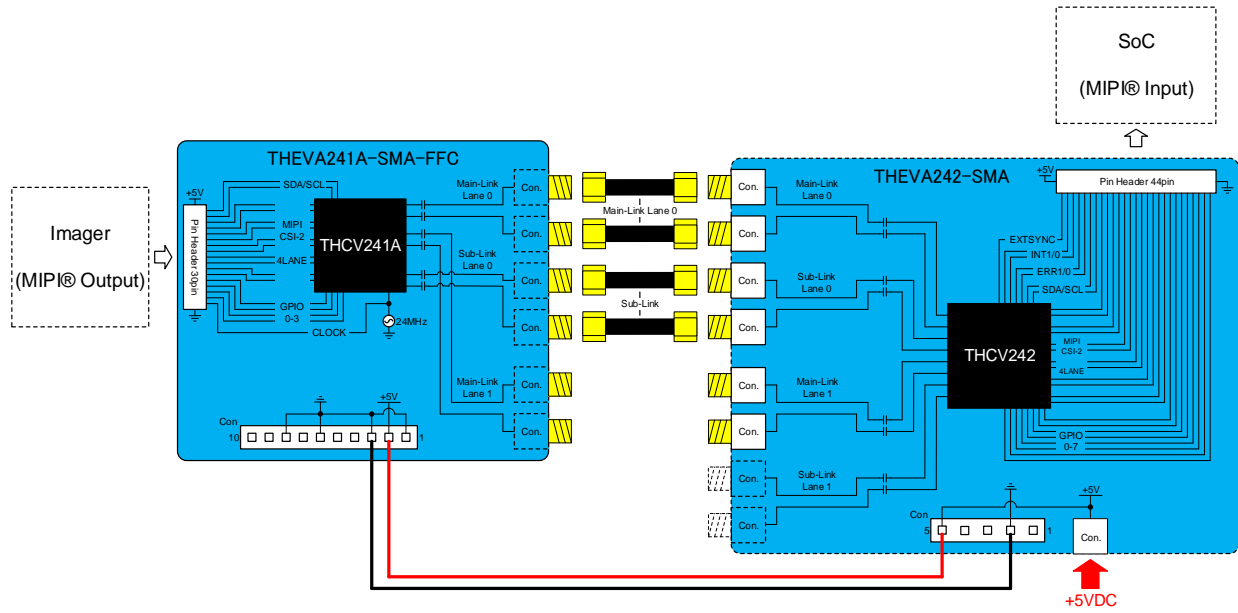


Figure 3 THEVA241A-SMA-FFC and THEVA242-SMA connection example

2. 1-lane connection with V-by-One® HS transmitter board (THEVA241A-SMA-STP)

Connect J5 of the THEVA241A-SMA-STP and P2 of the THEVA242-SMA with Coaxial-cable.

The power supply (+ 5.0V) is supplied to JA1 of the THEVA242-SMA.

Power supply of the THEVA241A-SMA-STP is supplied from THEVA242-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.

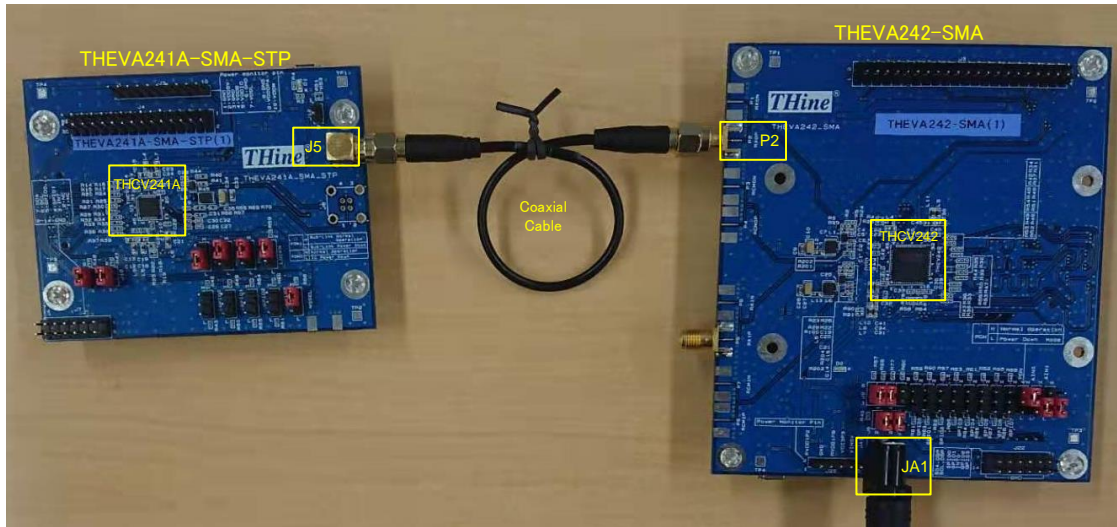


Figure 4 THEVA241A-SMA-STP and THEVA242-SMA 1-lane connection

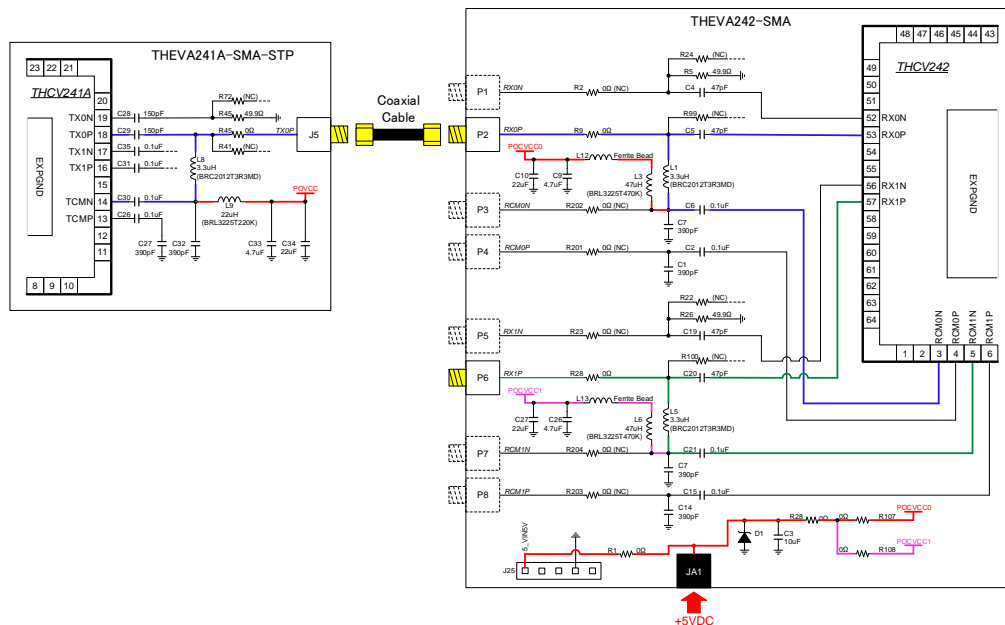


Figure 5 THEVA241A-SMA-STP and THEVA242-SMA 1-lane connection

3. 2-lane connection with V-by-One® HS transmitter board (THEVA241A-SMA-STP)

When adding 2 lanes, Connect J5 of the THEVA241A-SMA-STP and P6 of the THEVA242-SMA with Coaxial-cable.

The power supply (+ 5.0V) is supplied to JA1 of the THEVA242-SMA.

Power supply of the THEVA241A-SMA-STP is supplied from THEVA242-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.

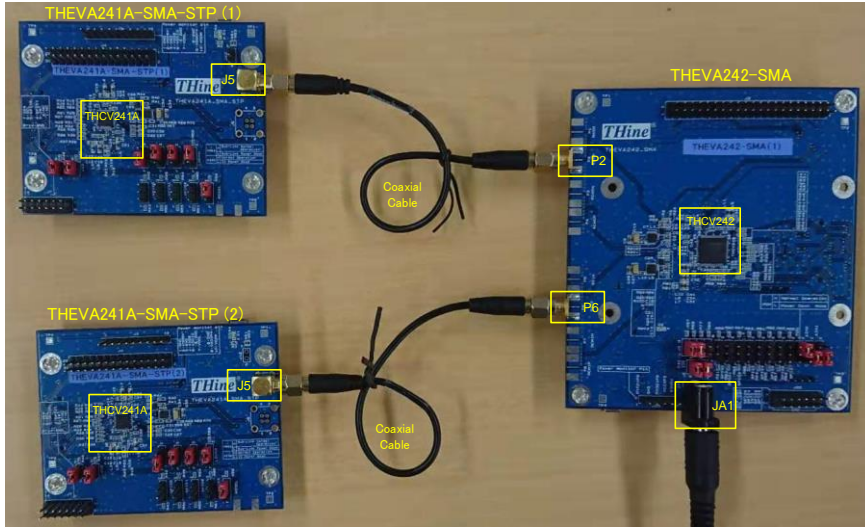


Figure 6 T THEVA241A-SMA-STP and THEVA242-SMA 2-lane connection

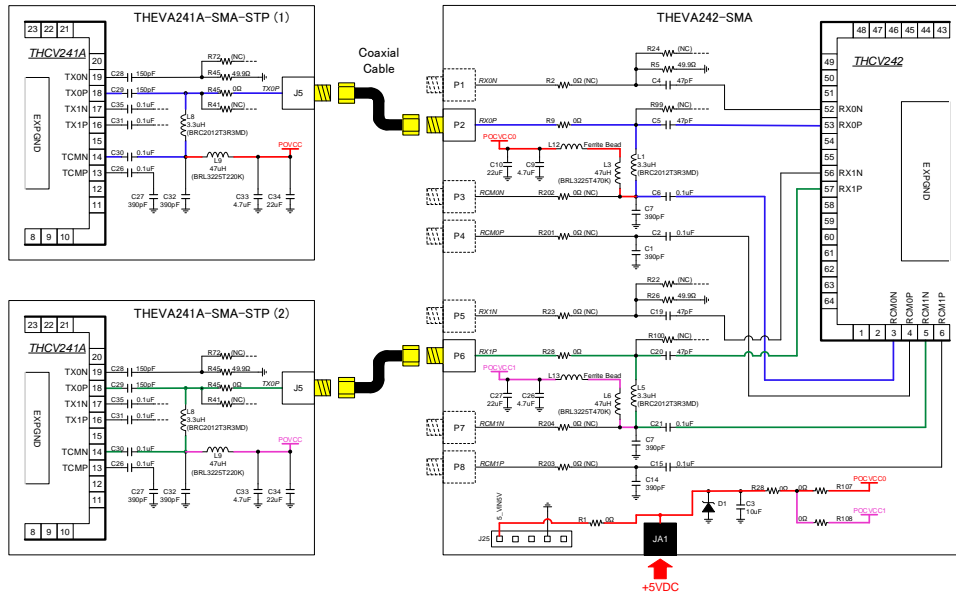


Figure 7 THEVA241A-SMA-STP and THEVA242-SMA 2-lane connection

4. Connection with V-by-One® HS transmitter board (THEVA241A-SMA-FFC)

Refer to the following figure for the THEVA241A-SMA-FFC and the THEVA242-SMA connections.

(It is possible to connect to THEVA231 with this method.)

The power supply (+ 5.0V) is supplied to JA1 of the THEVA242-SMA.

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

*The SMA-Connector, the Coaxial-cable, the DC-cable and the power supply should be prepared by users.

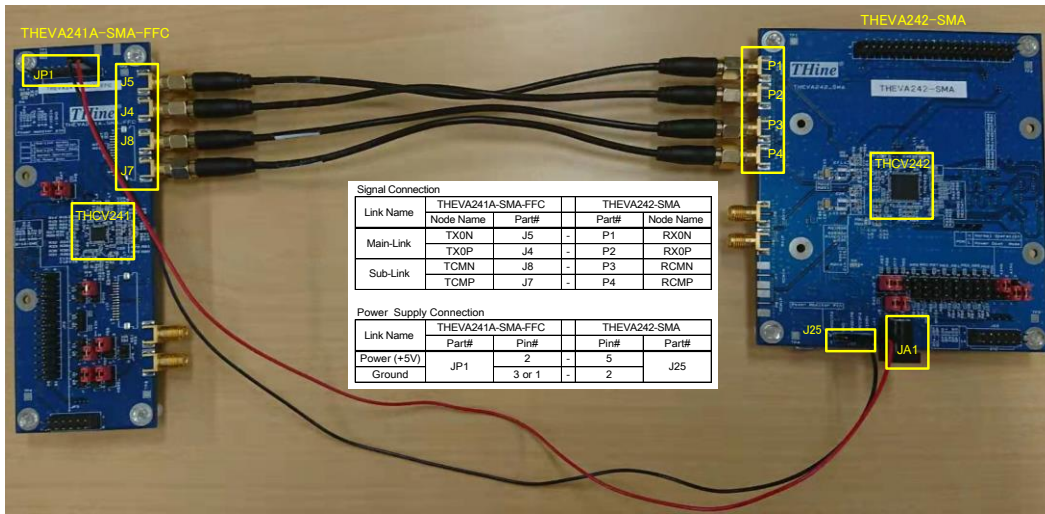


Figure 8 THEVA241A-SMA-FFC and THEVA242-SMA 1-lane connection

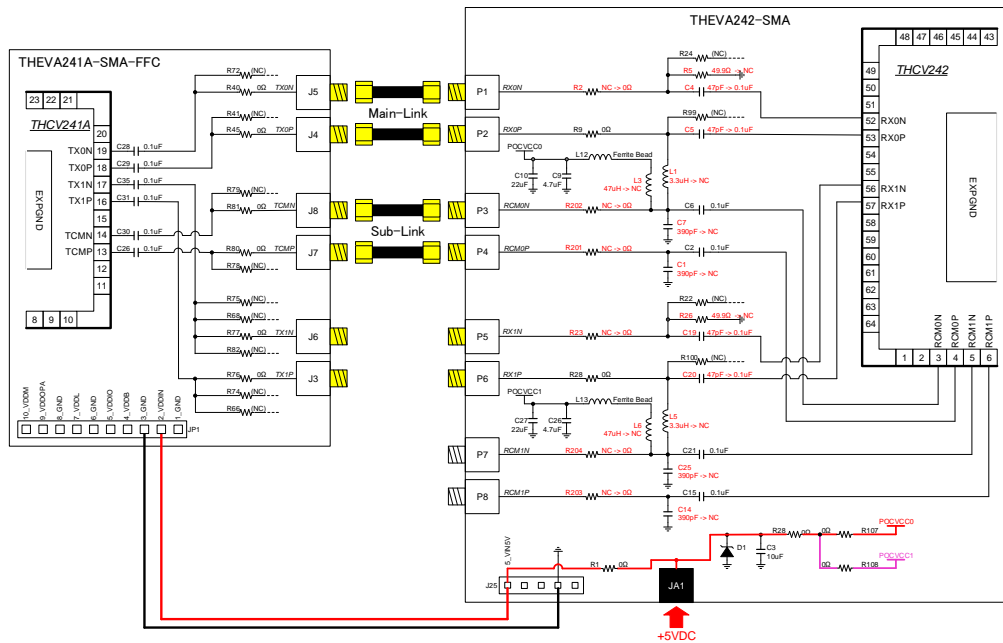


Figure 9 THEVA241A-SMA-FFC and THEVA242-SMA 1-lane connection

5. Take note on connecting with THEVA241A-SMA-FFC

When connecting THEVA241A-SMA-FFC and THEVA242-SMA, some parts need to be changed.

As shown here by this some ports.

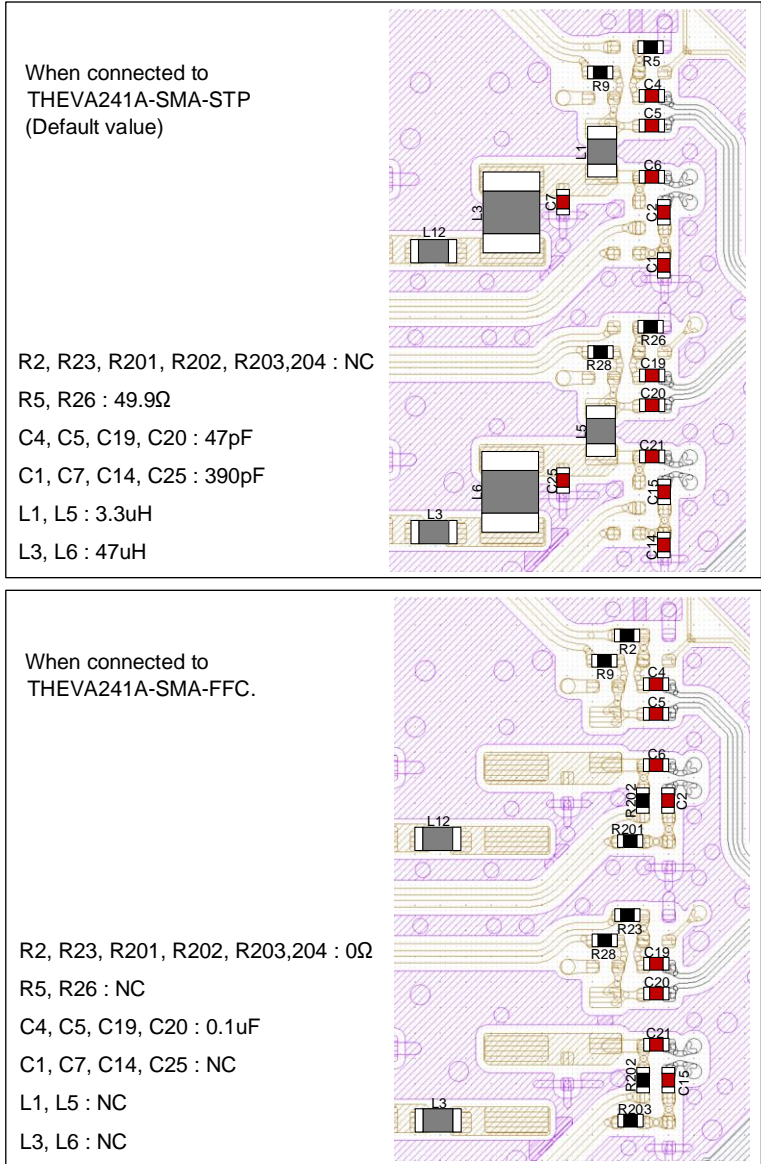
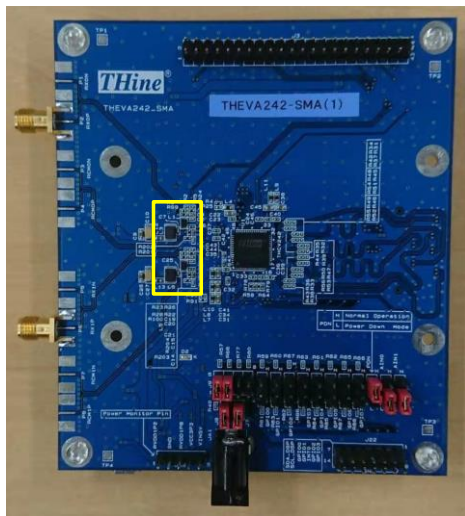


Figure 10T Changing parts of THEVA242-SMA

6. Connection with THEVA242-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 11 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.

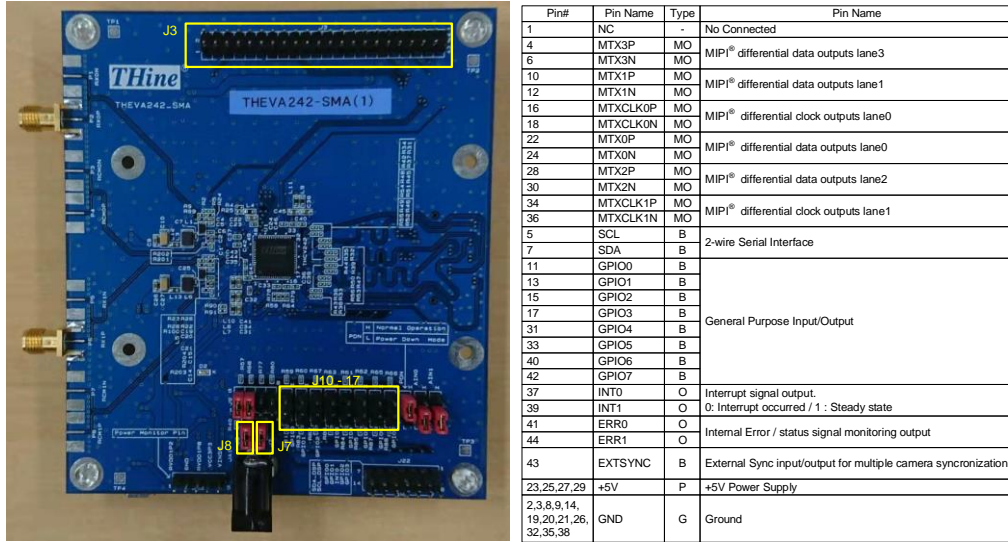


Figure 11 Connection with THEVA242-SMA and SoC

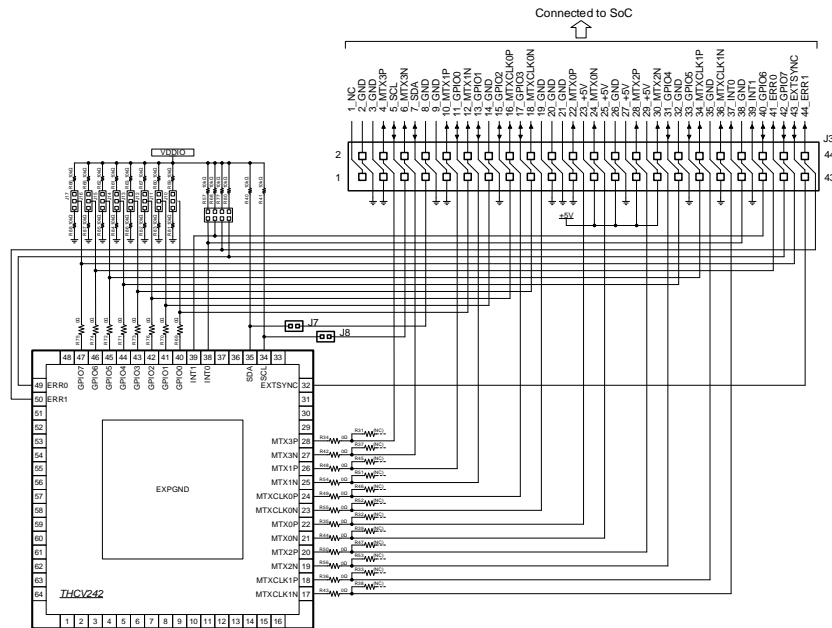
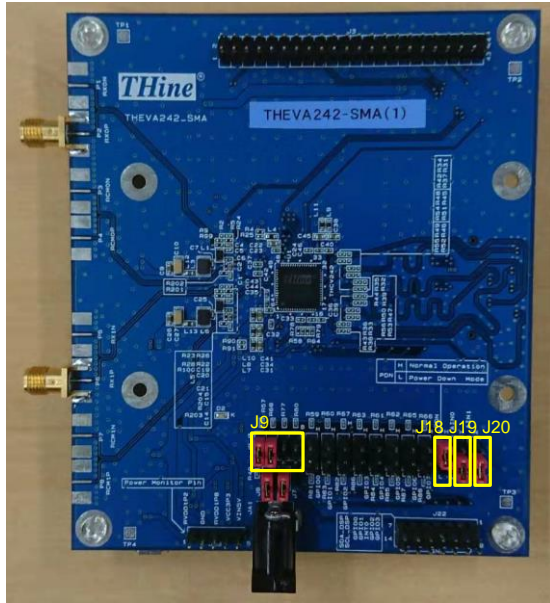


Figure 12 Connection with THEVA242-SMA and SoC

7. Pin setting of the THEVA242-SMA

As shown here by the Pin-settings.

*The Jumper-Pin should be prepared by users.



Ports#	Node Name	Def.	Description
J9 (1-5)	INT0		Interrupt signal output. It must be connected with a pull-up resistor.
J9 (2-6)	INT1		
J9 (3-7)	ERR0		Internal Error / status signal monitoring output
J9 (4-8)	ERR1		
J18	PDN		Power Down Low : Power Down Mode High : Normal Operation
J19	AIN0		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		

Figure 13 Pin setting of the THEVA242-SMA

8. 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.

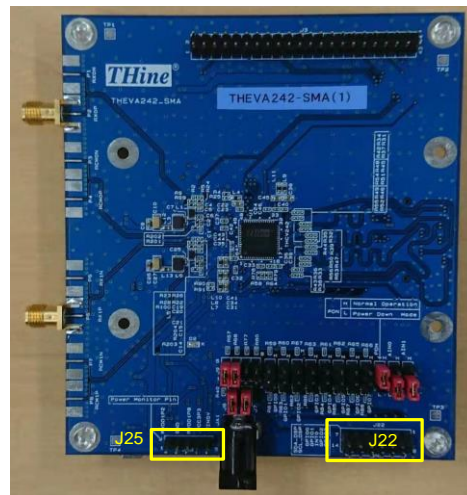
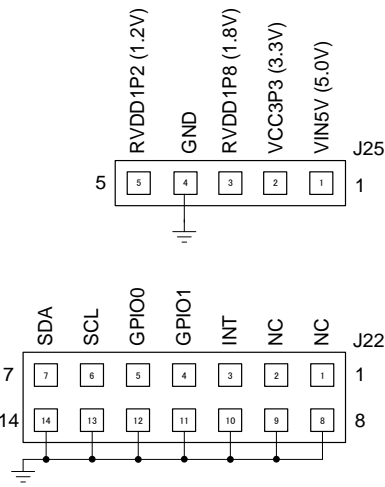
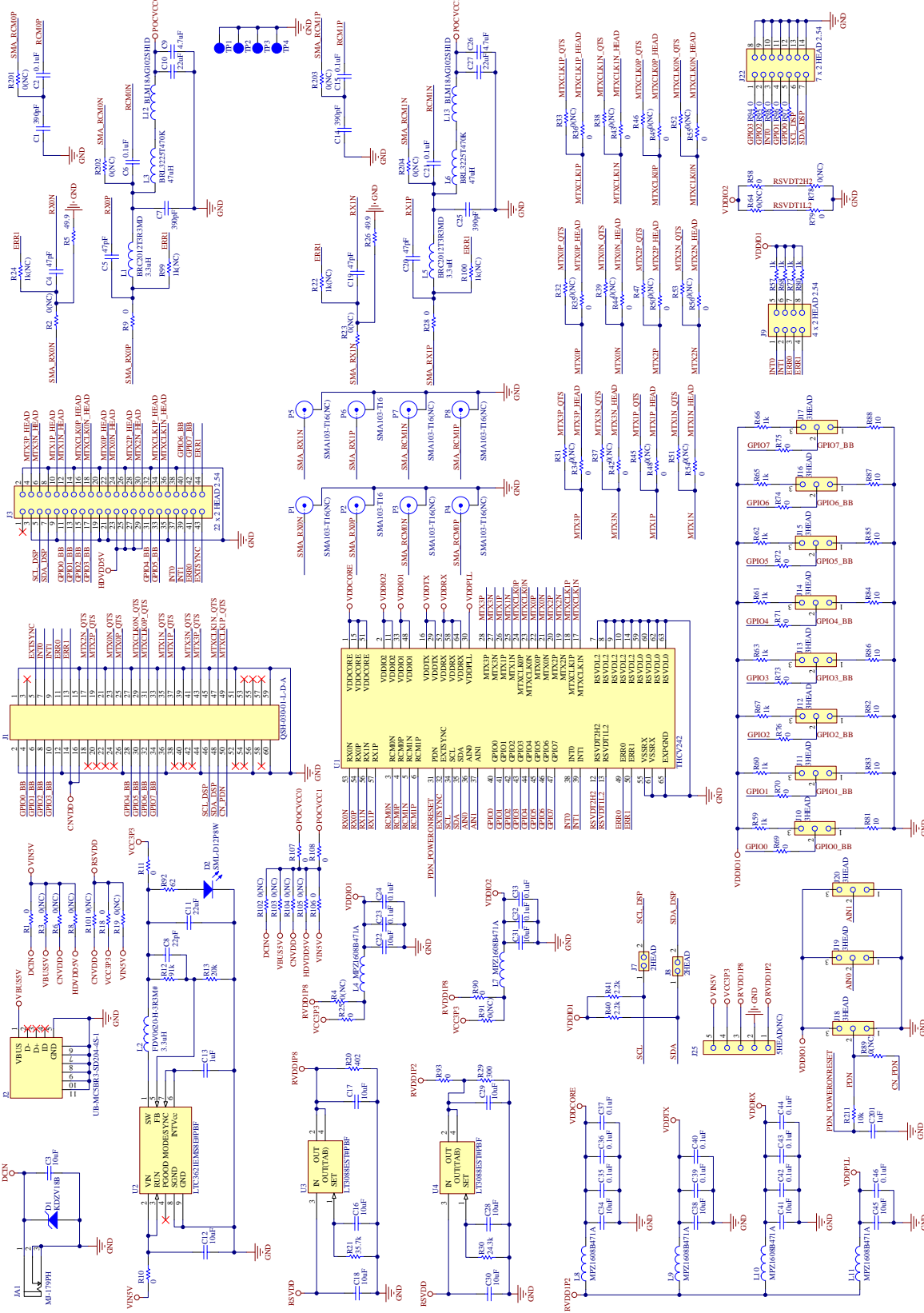


Figure 11 Monitor pins

9. THEVA242-SMA Schematic



10. THEVA242-SMA Bill of Material

Designator	Parts type	Quantity	Parts name	Specification	Value
C1, C7, C14, C25	Capacitor	4	GRM1552C1H391JA01D	50V/1005	390pF
C4, C5, C19, C20	Capacitor	4	GRM1552C1H470JA01D	50V/1005	47pF
C8	Capacitor	1	GRM1552C1H220JA01D	50V/1005	22pF
C9, C26	Capacitor	2	GRM188R61E475KE11D	25V/1608	4.7uF
C10, C11, C27	Capacitor	3	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
C2, C6, C15, C21, C23, C24, C32, C33, C35, C36, C37, C39, C40, C42, C43, C44, C46	Capacitor	17	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	2.54 mm pitch 2 pin X 1 row	
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	2.54 mm pitch 3 pin X 1 row	
J22	Pin header	1	TCHM23-70-014S-803R	2.54 mm pitch 7 pin X 2 row	
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	Inductor	2	BRC2012T3R3MD	-	3.3uH
L2	Inductor	1	RLF7030T-3R3M4R1	-	3.3uH
L3, L6	Inductor	2	BRL3225T470K	-	47uH
L4, L7, L8, L9, L10, L11	Ferrite beads	6	MPZ1608B471ATA00	-	
L12, L13	Ferrite beads	2	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	Resistor	32	RK73Z1ETTP	-	0(NC)
R5, R26	Resistor	2	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	Resistor	39	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	Resistor	4	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	THCV242	1	THCV242	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	SMA Connector	2	SMA103-T16		
* P1, P3, P4, P5, P7, P8	SMA Connector	6	SMA103-T16		NC

*Un-mount

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