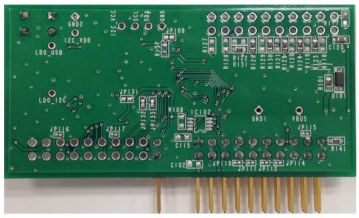

infineon S6SATU01A I2C Interface for PMIC Communication Tool Installation Guide

Contents

S6SATU01A I2C Interface for PMIC Communication Tool

Please note that Cypress is an Infineon Technologies Company.
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Continuity of document content

The fact that Infineon offers the following product as part of the Infineon product portfolio does not lead to any changes to this document. Future revisions will occur when appropriate, and any changes will be set out on the

document history page.

Continuity of ordering part numbers

Infineon continues to support existing part numbers. Please continue to use the ordering part numbers listed in the datasheet for ordering.

THIS SPEC IS OBSOLETE
Spec No: 002-08680
Spec Title: S6SATU01A I2C INTERFACE FOR PMIC
COMMUNICATION TOOL OPERATION GUIDE
Replaced by: NONE

Preface

This manual explains how to use the evaluation board. Be sure to read this manual before using the product.
For this product, please consult with sales representatives or support representatives.

Handling and use
Handling and use of this product and notes regarding its safe use are described in the manuals.
Follow the instructions in the manuals to use this product.
Keep this manual at hand so that you can refer to it anytime during use of this product.

Notice on this document
All information included in this document is current as of the date it is issued. Such information is subject to change without any prior notice.
Please confirm the latest relevant information with the sales representatives.

Cautions

Caution of the products described in this document
The following precautions apply to the product described in this manual.

⚠WARNING	Indicates a potentially hazardous situation which could result in death or serious injury and/or a fault in the user's system if the product is not used correctly.

Electric shock, Damage	Before performing any operation described in this manual, turn off all the power supplies to the system. Performing such an operation with the power on may cause an electric shock or device fault.
Electric shock, Damage	Once the product has been turned on, do not touch any metal part of it. Doing so may cause an electric shock or device fault.

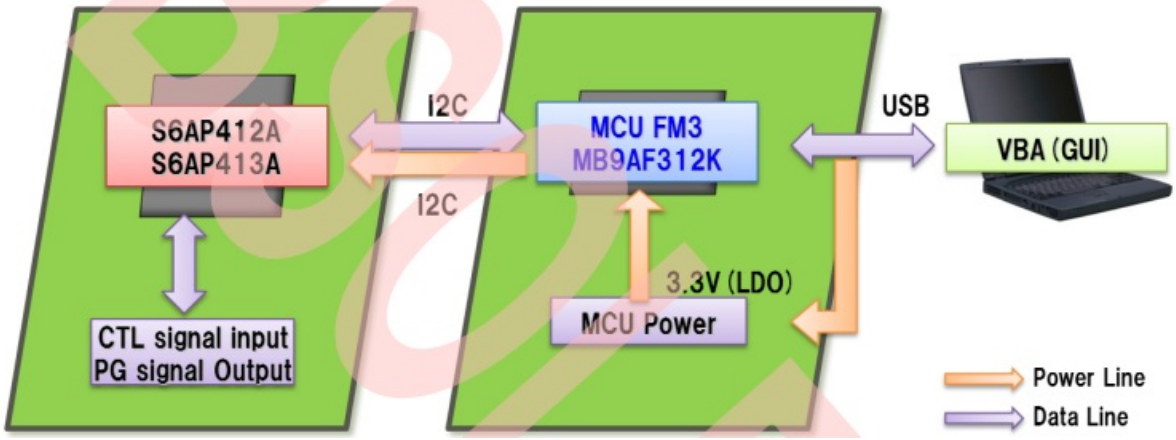
⚠CAUTION	Indicates the presence of a hazard that may cause a minor or moderate injury, damages to this product or devices connected to it, or may cause to lose software resources and other properties such as data, if the device is not used appropriately.

Cuts, Damage	Before moving the product, be sure to turn off all the power supplies and unplug the cables. Watch your step when carrying the product. Do not use the product in an unstable location such as a place exposed to strong vibration or a sloping surface. Doing so may cause the product to fall, resulting in an injury or fault.
Cuts	The product contains sharp edges that are left unavoidably exposed, such as jumper plugs. Handle the product with due care not to get injured with such pointed parts.
Damage	Do not place anything on the product or expose the product to physical shocks. Do not carry the product after the power has been turned on. Doing so may cause a malfunction due to overloading or shock.
Damage	Since the product contains many electronic components, keep it away from direct sunlight, high temperature, and high humidity to prevent condensation. Do not use or store the product where it is exposed to much dust or a strong magnetic or electric field for an extended period of time. Inappropriate operating or storage environments may cause a fault.
Damage	Use the product within the ranges given in the specifications. Operation over the specified ranges may cause a fault.
Damage	To prevent electrostatic breakdown, do not let your finger or other object come into contact with the metal parts of any of the connectors. Before handling the product, touch a metal object (such as a door knob) to discharge any static electricity from your body.

Description

The S6SATU01A is communication tool for 2ch Buck + 1ch Buck/Boost DC/DC, S6SAP412A and for 3ch Buck + 1ch Buck/Boost DC/DC, S6SAP413A. This board implements our MCU : FM3(MB9AF312K) and can communicate with I2 C easily by using windows PC and prepared software. It can select the output voltage, soft-start time, ON/OFF sequence, PFM/PWM mode.

Figure 1-1. Board outline



Pin Descriptions

2.1 Input/output pin descriptions

Table 2-1. Input/output Pin Descriptions

Block	Pin symbol	I/O	Function description
	GND	–	Ground terminal
	VBUS	O	VBUS terminal
	USB_VCC	I	USB_VCC terminal
	I2CVCC	I	Power supply terminal for I^2C.
	SCL_S	I	I^2C clock terminal
	SDA_S	I/O	I^2C data I/O terminal
	P10	I/O	MCU I/O port (25pin)
	JP110	–	GND through JP110
	P11	I/O	MCU I/O port (26pin)
	JP111	–	GND through JP111

MCU	P12	I/O	MCU I/O port (27pin)
	JP112	–	GND through JP112
	P13	I/O	MCU I/O port (28pin)
	JP114	–	GND through JP114
	P14	I/O	MCU I/O port (29pin)
	P15	I/O	MCU I/O port (30pin)
	JP115	–	GND through JP115
	P21	I/O	MCU I/O port (36pin)
	P22	I/O	MCU I/O port (35pin)
	P23	I/O	MCU I/O port (34pin)

2.2 Jumper, Switch descriptions

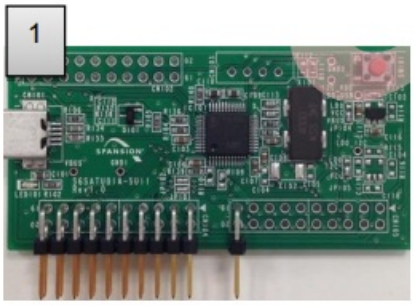
Figure 2-1. Jumper, Switch Descriptions

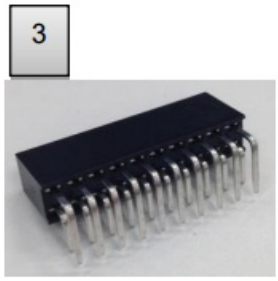
Jumper, Switch	Description	Initial setting
JP101	Short CN103 (2pin) and MCU I/O port (4pin)	Solder Short
JP102	Short CN103 (3pin) and MCU I/O port (3pin)	Solder Short
JP104	Short VBUS and VCC	Solder Short
JP105	Short VCC and I2CVCC	Solder Short
JP108 back side	Short MCU I/O port (31pin) and (32pin)	Pattern Short
JP110 back side	Short CN104 (8pin) and GND	Pattern Short
JP111 back side	Short CN104 (10pin) and GND	Pattern Short
JP112 back side	Short CN104 (12pin) and GND	Pattern Short
JP114 back side	Short CN104 (14pin) and GND	Pattern Short
JP115 back side	Short CN104(17pin) and GND	Pattern Short
JP116 back side	Short CN105(5pin) and GND	Pattern Short
JP117 back side	Short CN105(13pin) and GND	Pattern Short
JP131 back side	Short MCU MD0 pin (21pin) and VCC	Open
JP132 back side	Short CN105(14pin) and MCU I/O port (15pin)	Solder Short
JP133 back side	Short CN105(15pin) and MCU I/O port (16pin)	Solder Short
SW101	Reset push switch for MCU	–
CN101	USB connector	–
CN102	Test terminal	–
CN103	Test terminal	–
CN104	1,8,10,12,14,17 : GND pin 2 : VBUS pin 3 :USB_VCC pin 4 :I2CVCC pin 5 : SCL_S pin 6 : SDA_S pin 7 : P10 pin 9 : MCU P11 pin 11 : MCU P12 pin 13 : MCU P13 pin 15 : MCU P14 pin 16 : MCU P15 pin 18 : MCU P21 pin 19 : MCU P22 pin 20 : MCU P23 pin	–
CN105	Test terminal	–

Setup and Verification

3.1 Contents in a Package

No.	Contents	Description	Quantity	Notes
1	S6SATU01A	I^2C Communication board	1	–
2	USB cable	USB to USB mini B cable	1	–
3	L-Angle connector	Connector for PMIC board	1	–



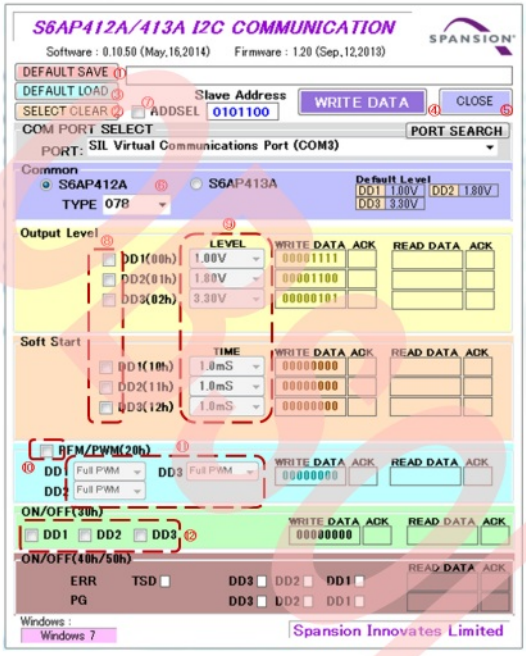


[Using items for evaluation with I2C control]

- S6SATU01A
- USB cable
- PC installed Windows7 or later OS
- S6SAP412A or S6SAP413A

3.2 Evaluation with I2 C control

Any setting of S6SAP412A/S6SAP413A can be evaluated with Windows PC connected to USB port by I2 C communication GUI.

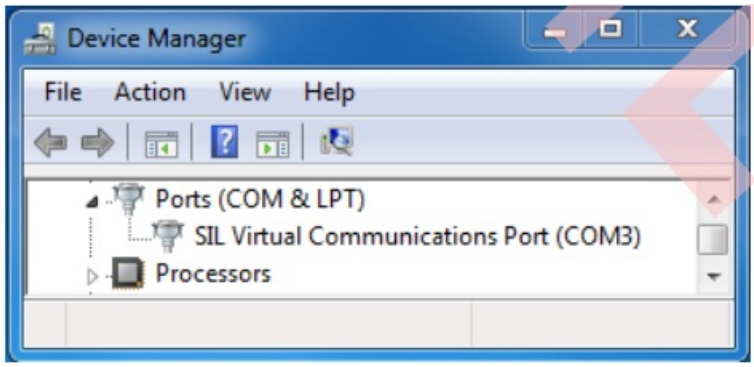


① : Save the setting data, which is shown next as default
② : Clear the ☑of ⑧, ⑩, ⑫
③ : Reset the IC factory default
④ : Write the data to IC
⑤ : Close the window
⑥ : Select the preset option (ex. Select MB39C031-341)
⑦ : Select ADDSEL
⑧ : Set output voltage/soft star transfer
⑨ : Select the setting value after ☑ of ⑧
⑩ : Set PFM/PWM mode transfer
⑪ : Select PFM/PWM mode after ☑ of ⑩
⑫ : Set ON

3.2.1 PC Setup

1. Unpack the driver file to a folder of PC running Windows 7 or later version OS, and run install.bat file.
2. Connect S6SATU01A to PC using USB cable.
3. After installed a device, open the device manager and confirm the new COM port.

Start menu → Control panel → Device manager



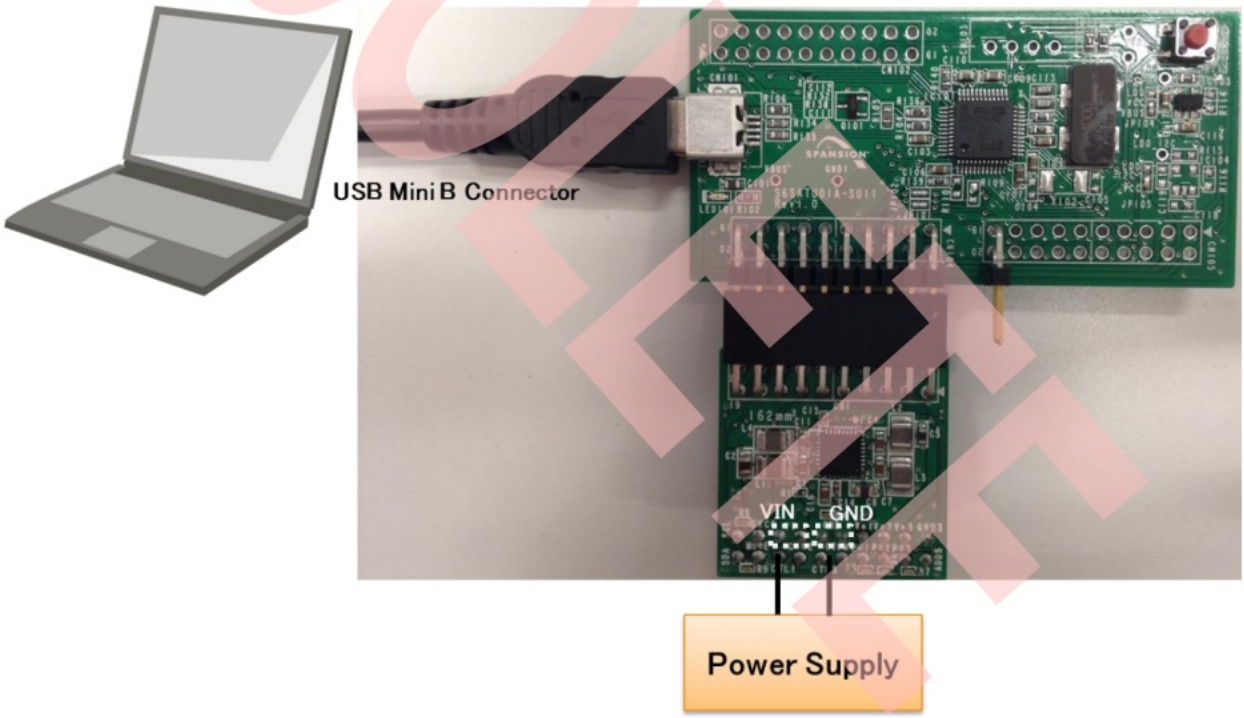
4. Run “S6AP412A_413A_I2C.exe”
5. Click “PORT SEARCH” at “COM PORT SELECT” field and select “SIL Virtual Communications Port (COMxx) ”

6. Please unplug the USB cable after setup.

3.2.2 Operation check

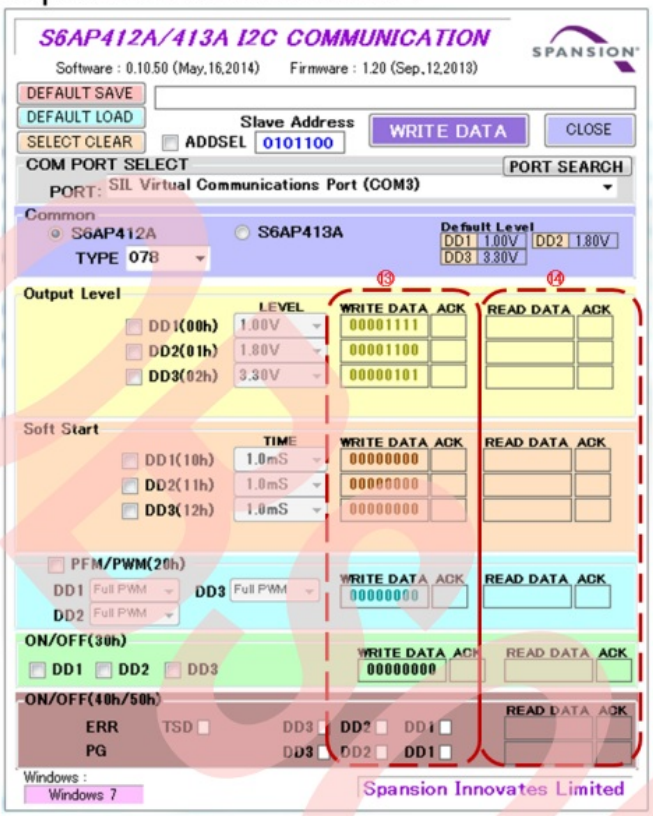
1. Connect the S6SATU01A and S6SAP412A/S6SAP413A.
2. 3.3V is applied to VIN terminal of S6SAP412A/S6SAP413A.
3. USB cable is connected.
4. Run I2 C communication software and click the box of ON/OFF field.

5. Vo1, Vo2, Vo3 or Vo4 are output by software settings Figure 3-1. For I2C control evaluation



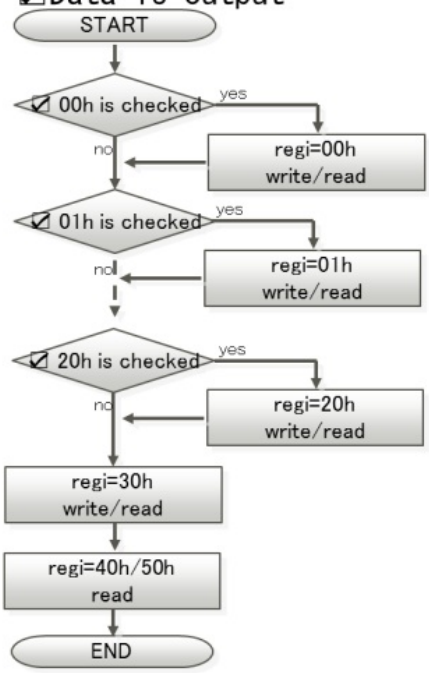
3.2.3 How to use I2 C communication GUI

■ Operation at write DATA

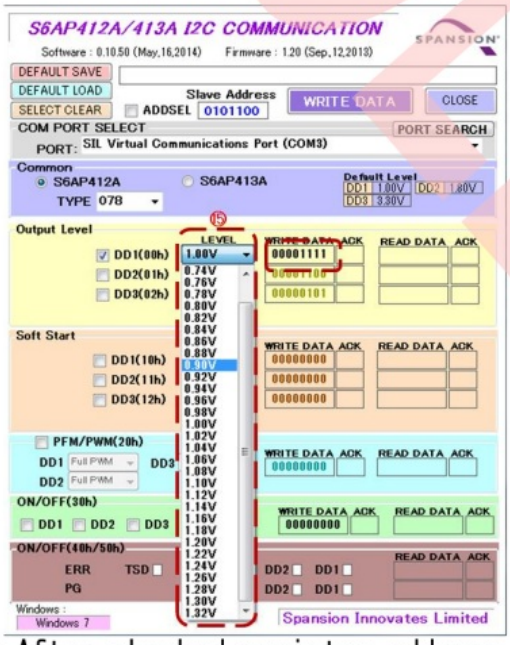


⑬ : Data written to IC
☑Data is transferred

⑭ : Data read from IC
after write
☑Data is output

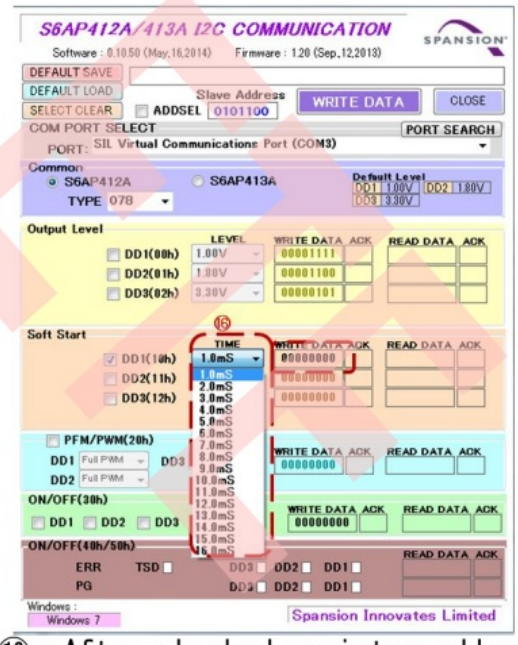


■ Selection of output voltage



⑮ : After checked register address ☑, preset voltage can be selected and bit data is shown.

■ Selection of soft start time



⑯ : After checked register address ☑, preset time can be selected and bit data is shown.

Component and Wiring Layout

4.1 Component layout

Figure 4-1. Component Layout (Layer 1)

Figure 4-1. Component Layout (Layer 1)

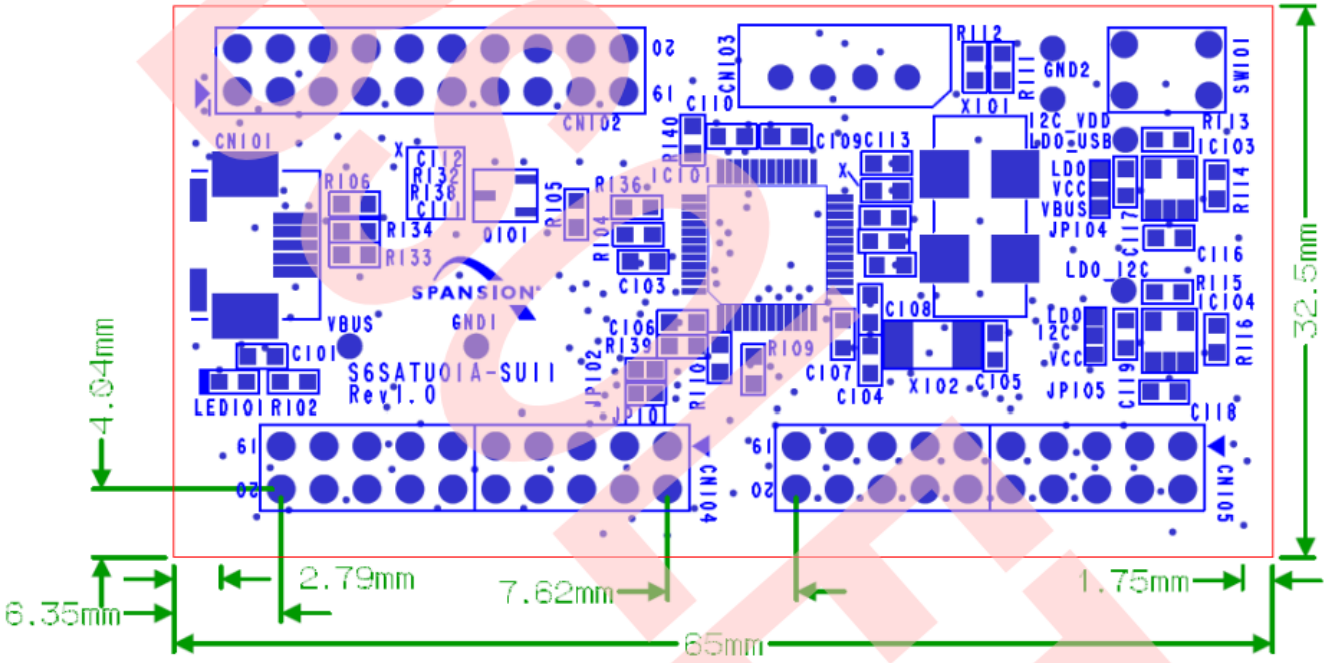
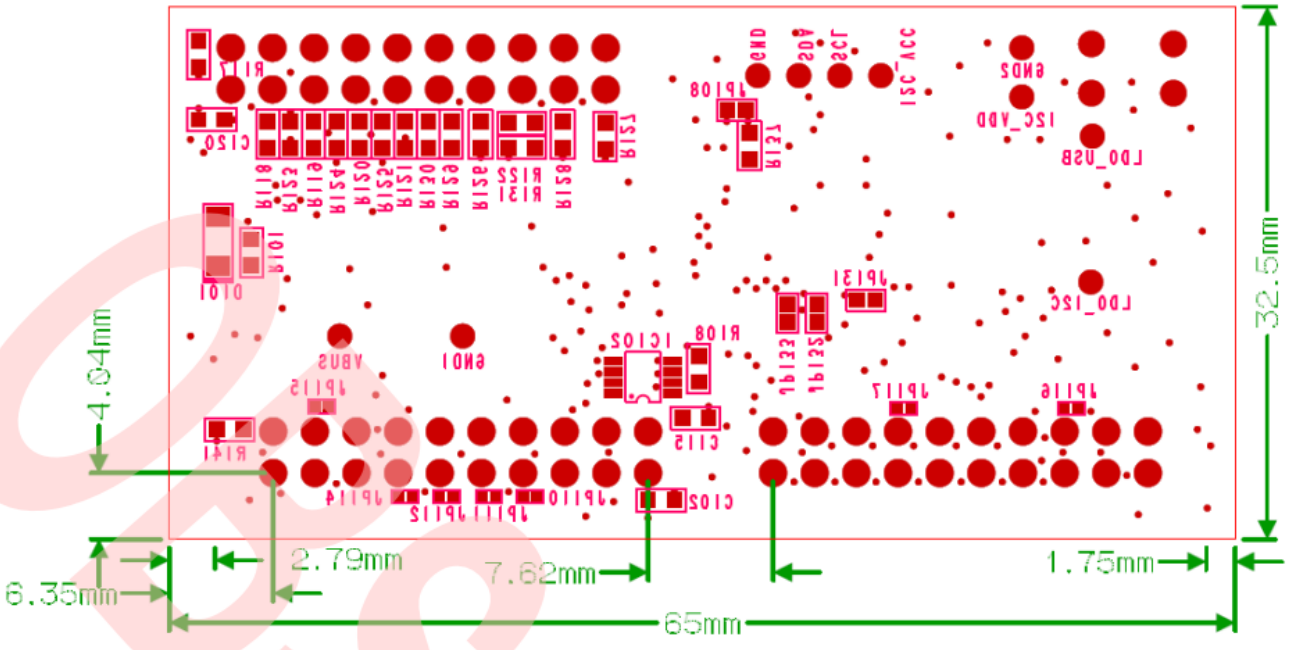


Figure 4-2. Component Layout (Layer 2)

Figure 4-2. Component Layout (Layer 2)



4.2 Wiring layout

Figure 4-3. Wiring Layout (Layer 1)

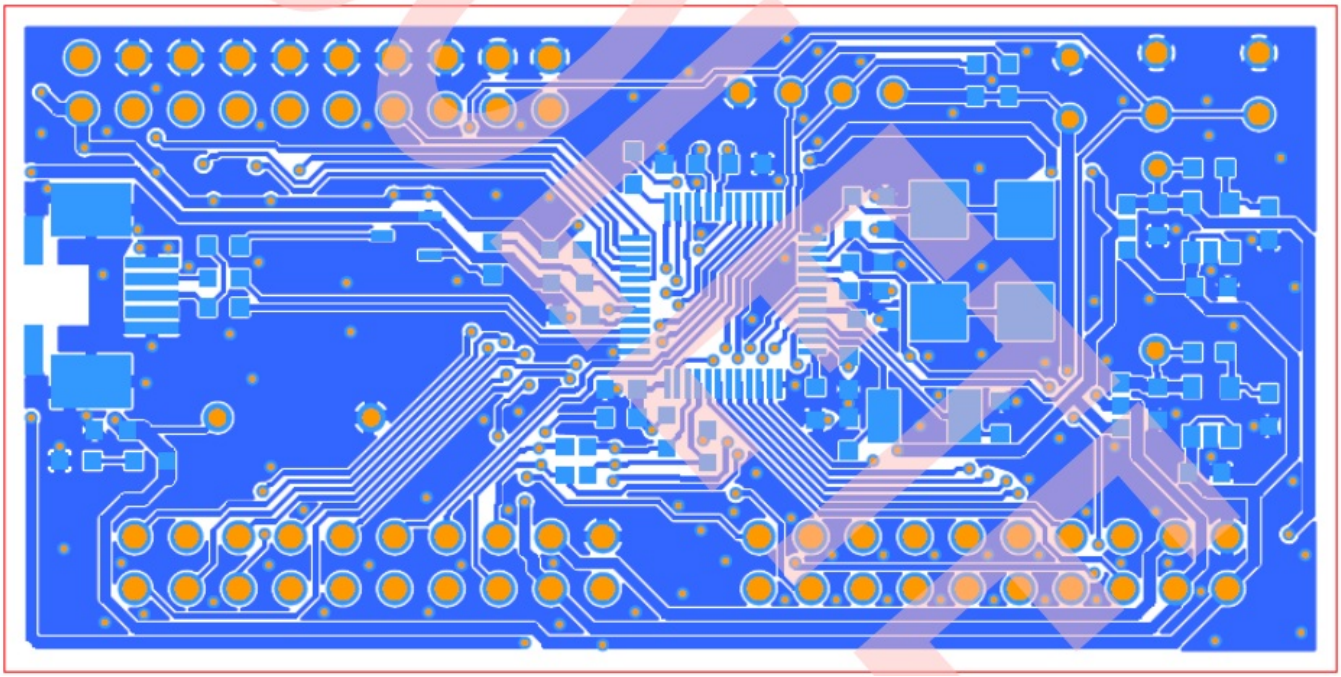
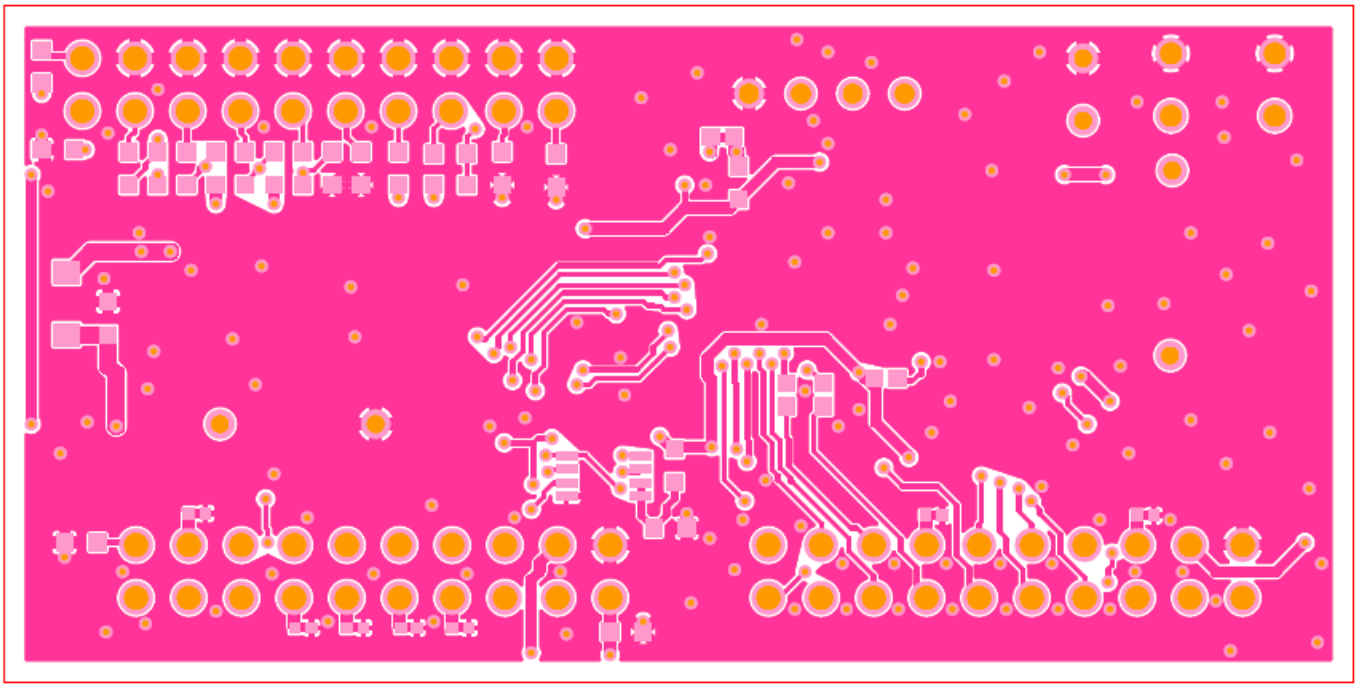
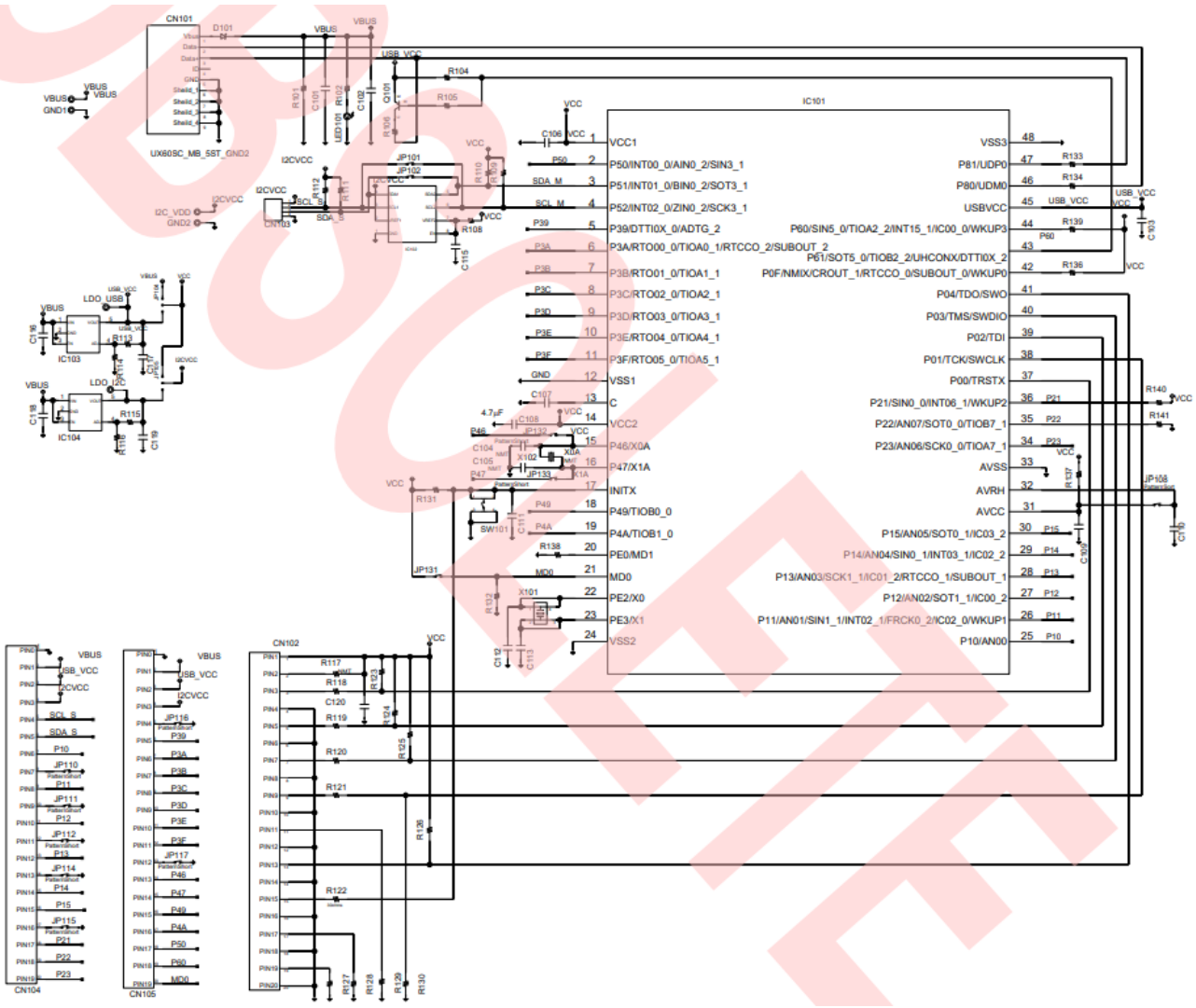


Figure 4-4. Wiring Layout (Layer 2)



Circuit Schematic

Figure 5-1. Circuit Schematic



Component List

Table 6-1. Component List

No.	Component	Item	Parts number	Vendor	Value	Remarks
1	IC101	MCU	MB9AF312K	Cypress	–	–
2	IC102	–	–	–	–	NMT
3	IC103	PMIC	TCR5SB33	TOSHIBA	–	–
4	IC104	–	–	–	–	NMT
5	Q101	Tr	BC857BLT1G	ROHM	–	PNP
6	X101	–	–	–	–	NMT
7	X102	Crystal	CX1255GB04000 H0PESZ1	KYOCERA	4MHz	–
8	LED101	LED	OSHR1608C1A	OptoSupply	–	RED

9	SW101	Push-SW	SKHRAHA010	ALPS	–	–
10	C101	Ceramic Capacitor	C1608JB1H106M	TDK	10μF	50V
11	C109	Ceramic Capacitor	C1608JB1H106M	TDK	10μF	50V
12	C110	Ceramic Capacitor	C1608JB1H106M	TDK	10μF	50V
13	C102	–	–	–	–	NMT
14	C104	–	–	–	–	NMT
15	C105	–	–	–	–	NMT
16	C107	Ceramic Capacitor	C1608JB1V475K	TDK	4.7μF	35V
17	C103	Ceramic Capacitor	C1608JB1H104K	TDK	0.1μF	50V
18	C105	–	–	–	–	NMT
19	C106	Ceramic Capacitor	C1608JB1H104K	TDK	0.1μF	50V
20	C108	Ceramic Capacitor	C1608JB1H104K	TDK	0.1μF	50V
21	C111	Ceramic Capacitor	C1608JB1H104K	TDK	0.1μF	50V
22	C114	Ceramic Capacitor	C1608JB1H104K	TDK	0.1μF	50V
23	C115	–	–	–	–	NMT
24	C116	Ceramic Capacitor	C1608JB1H104K	TDK	0.1μF	50V
25	C120	Ceramic Capacitor	C1608JB1H104K	TDK	0.1μF	50V
26	C112	Ceramic Capacitor	C1608C0G1H120J	TDK	12pF	50V

27	C113	Ceramic Capacitor	C1608C0G1H120J	TDK	12pF	50V
28	C118	–	–	–	–	NMT
29	C119	–	–	–	–	NMT
30	R137	Chip Resistor	RK73H1JTTD4R70F	KOA	4.7Ω	
31	R106	Chip Resistor	RR0816P-152-D	SUSUMU	1.5kΩ	
32	R108	–	–	–	–	NMT
33	R109	–	–	–	–	NMT
34	R110	–	–	–	–	NMT
35	R117	–	–	–	–	NMT
36	R113	Chip Resistor	RR0816P-563-D	SUSUMU	56kΩ	
37	R138	Chip Resistor	RR0816P-102-D	SUSUMU	1kΩ	
38	R111	Chip Resistor	RR0816P-103-D	SUSUMU	10kΩ	1/16W, 0.5%
39	R112	Chip Resistor	RR0816P-103-D	SUSUMU	10kΩ	1/16W, 0.5%
40	R101	Chip Resistor	RR0816P-103-D	SUSUMU	10kΩ	1/16W, 0.5%
41	R104	Chip Resistor	RR0816P-103-D	SUSUMU	10kΩ	1/16W, 0.5%
42	R114	–	–	–	–	NMT
43	R115	–	–	–	–	NMT
44	R116	–	–	–	–	NMT
45	R123	Chip Resistor	RR0816P-202-D	SUSUMU	2kΩ	1/16W, 0.5%
46	R124	Chip Resistor	RR0816P-202-D	SUSUMU	2kΩ	1/16W, 0.5%
47	R125	Chip Resistor	RR0816P-202-D	SUSUMU	2kΩ	1/16W, 0.5%

48	R126	Chip Resistor	RR0816P-103-D	SUSUMU	10kΩ	1/16W, 0.5%
49	R127	–	–	–	–	NMT
50	R128	–	–	–	–	NMT
51	R129	–	–	–	–	NMT
52	R130	Chip Resistor	RR0816P-103-D	SUSUMU	10kΩ	1/16W, 0.5%
53	R131	Chip Resistor	RR0816P102D	SUSUMU	1kΩ	1/16W, 0.5%
54	R132	Chip Resistor	RR0816P-103-D	SUSUMU	10kΩ	1/16W, 0.5%
55	R133	Chip Resistor	RR0816P-220-D	SUSUMU	22Ω	1/16W, 0.5%
56	R134	Chip Resistor	RR0816P-220-D	SUSUMU	22Ω	1/16W, 0.5%
57	R135	–	–	–	–	NMT
58	R136	Chip Resistor	RR0816P-103-D	SUSUMU	10kΩ	1/16W, 0.5%
59	R137	–	–	–	–	NMT
60	R138	–	–	–	–	NMT
61	R139	Chip Resistor	RR0816P-103-D	SUSUMU	10kΩ	1/16W, 0.5%
62	R140	Chip Resistor	RR0816P-103-D	SUSUMU	10kΩ	1/16W, 0.5%
63	R141	Chip Resistor	RR0816P-103-D	SUSUMU	10kΩ	1/16W, 0.5%
64	R102	Chip Resistor	RR0816P-202-D	SUSUMU	2kΩ	1/16W, 0.5%
65	R103	–	–	–	–	NMT
66	R105	Chip Resistor	RR0816P-222-D	SUSUMU	2.2kΩ	1/16W, 0.5%
67	R118	–	–	–	–	NMT
68	R119	–	–	–	–	NMT
69	R120	–	–	–	–	NMT

70	R121	–	–	–	–	NMT
71	R122	–	–	–	–	NMT
72	CN101	Connector	UX60SC-MB-5ST	HIROSE	–	mini USB
73	CN102	–	–	–	–	NMT
74	CN103	–	–	–	–	NMT
75	CN104	Connector	90122-0770	MOLEX	–	2×10 L-angle pin header
76	CN105	Connector	90122-0770	MOLEX	–	2×10 L-angle pin header, Cut 90122-0770
77	JP110	JMP	JPPAD	–	–	Pattern Short
78	JP111	JMP	JPPAD	–	–	Pattern Short
79	JP112	JMP	JPPAD	–	–	Pattern Short
80	JP114	JMP	JPPAD	–	–	Pattern Short
81	JP115	JMP	JPPAD	–	–	Pattern Short
82	JP116	JMP	JPPAD	–	–	Pattern Short
83	JP117	JMP	JPPAD	–	–	Pattern Short
84	JP101	Solder JMP	JPPAD	–	–	Solder Short
85	JP102	Solder JMP	JPPAD	–	–	Solder Short
86	JP108	JMP	JPPAD	–	–	Pattern Short
87	JP131	–	–	–	–	NMT
88	JP132	JMP	JPPAD	–	–	Pattern Short
89	JP133	JMP	JPPAD	–	–	Pattern Short
90	JP104	Solder JMP	JPPAD	–	–	Solder Short

91	JP105	Solder JMP	JPPAD	–	–	Solder Short

Evaluation Board Picture

Figure 7-1. Picture (top)

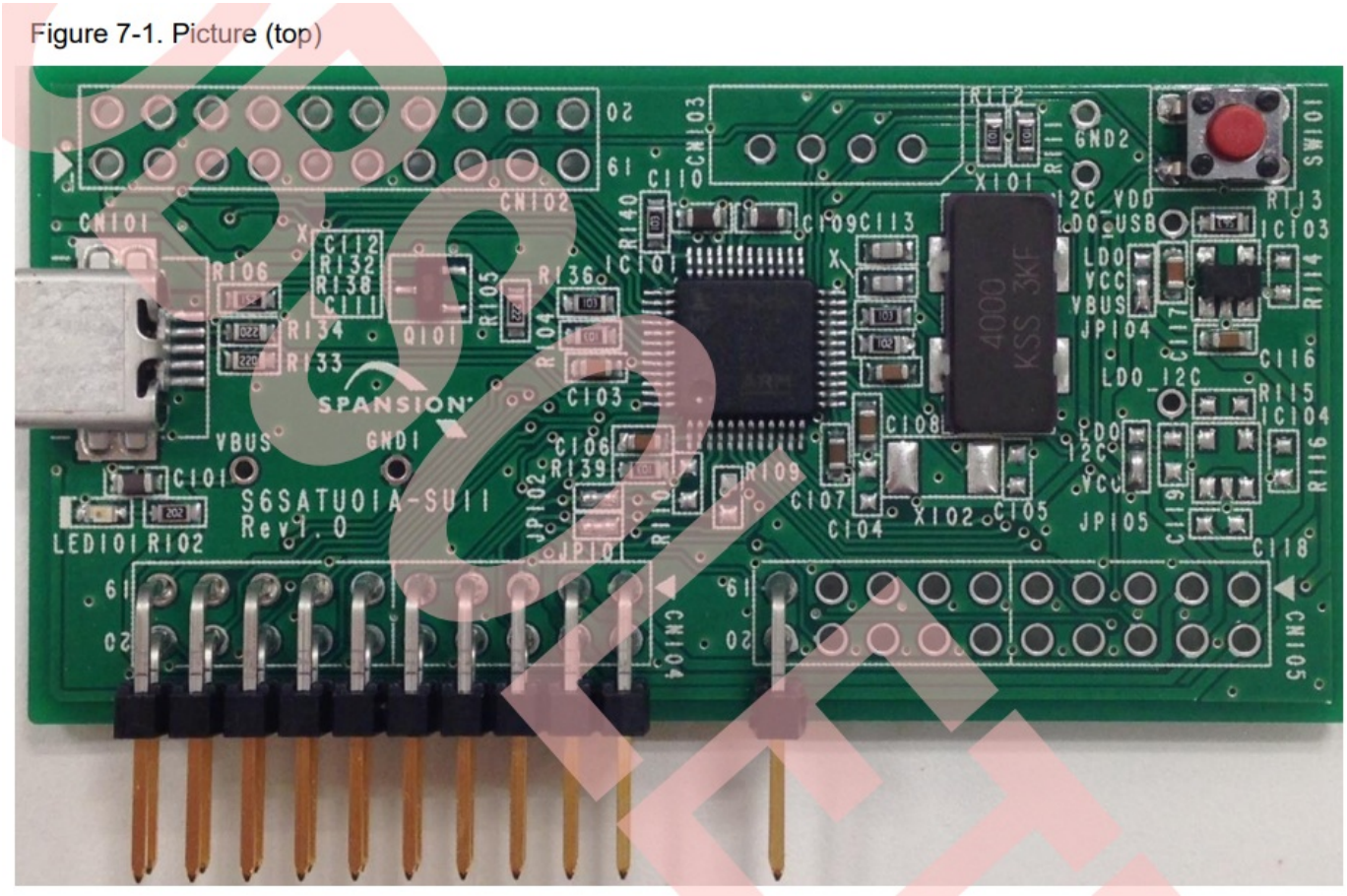
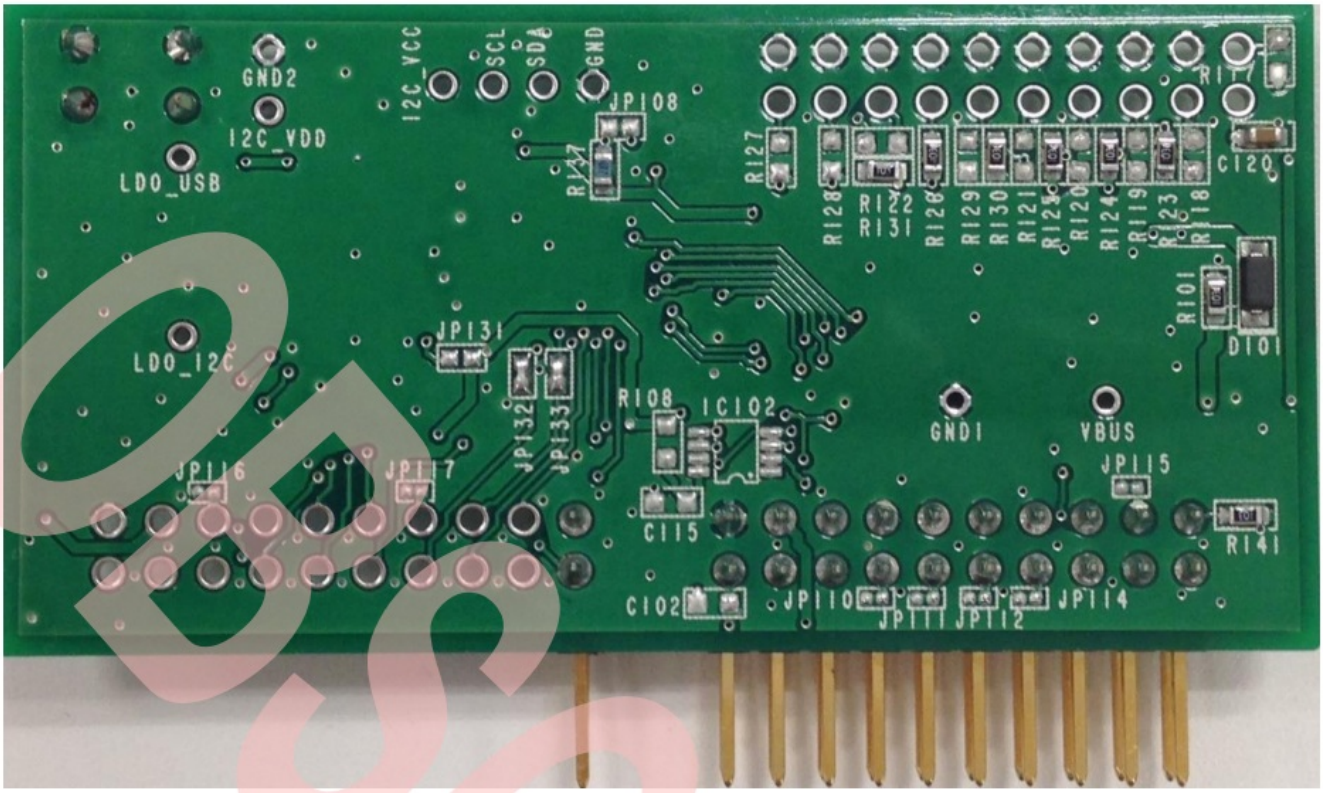


Figure 7-2. Picture (back)

Figure 7-2. Picture (back)



Ordering Information

Table 8-1. Ordering Information

Part number	EVB revision	Note
S6SATU01A00SU1101	Rev 1.0	—

Revision History

Document Revision History

Document Title: S6SATU01A I2 C Interface for PMIC Communication Tool Operation Guide
Document Number: 002-08680

Revision	Issue Date	Origin of Change	Description of Change
**	7/22/2014	MITK	Initial release.
*A	2/4/2016	MITK	Migrated Spansion Guide from S6SATUO1A_SS901-00027-1v0-E to Cypress format.
*13	11/30/2017	MASG	Updated Cypress new logo and copyright.
*C	8/22/2022	ATTS	Obsolete document. Completing Sunset Review.

S6SATU01A I2 C Interface for PMIC Communication Tool Operation Guide, Doc. No. 002-08680 Rev. *C

Documents / Resources

	infineon S6SATU01A I2C Interface for PMIC Communication Tool [pdf] Installation Guide S6SATU01A I2C Interface for PMIC Communication Tool, S6SATU01A, I2C Interface for PMIC Communication Tool, PMIC Communication Tool, Communication Tool

References

- User Manual