Versatile USB-I2C Bridge For Communication And Programming Of ST Wireless Charging IC User Manual

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Contents

Introduction

The STEVAL-USBI2CFT is a versatile USB-I2C bridge for communication and programming of ST wireless charging IC, and evaluation boards, with the STSW-WPSTUDIO software.

Figure 1. STEVAL-USBI2CFT

Software installation

The STEVAL-USBI2CFT is based on the FT260Q, USB HID to I2C bus convertor. The FT260Q does not require any additional software drivers.
The Windows operating system automatically installs the necessary driver after the first USB plug-in.

Hardware connection

Before starting the communication with a wireless receiver or transmitter, the dongles shall be correctly connected to each other. Connect GND of bridge with GND of evaluation board, continue with connecting of SDA, SCL, and INT.
The STEVAL-USBI2C board includes an internal level-shifter.
The voltage level can be changed soldering one of the soldering bridges.

The voltage can be set to 1.8, 2.5 or 3.3 V depending from what solder bridge was soldered.

Ensure that the target evaluation kit is connected to the USB-I2C bridge and the bridge is connected to the PC with the STSW-WPSTUDIO software installed.

The STSW-WPSTUDIO can connect a maximum of two USB-I2C converters, allowing PTx and PRx to be evaluated simultaneously.

Figure 2. STEVAL-USBI2CFT hardware connection with STEVAL-WLC98RX

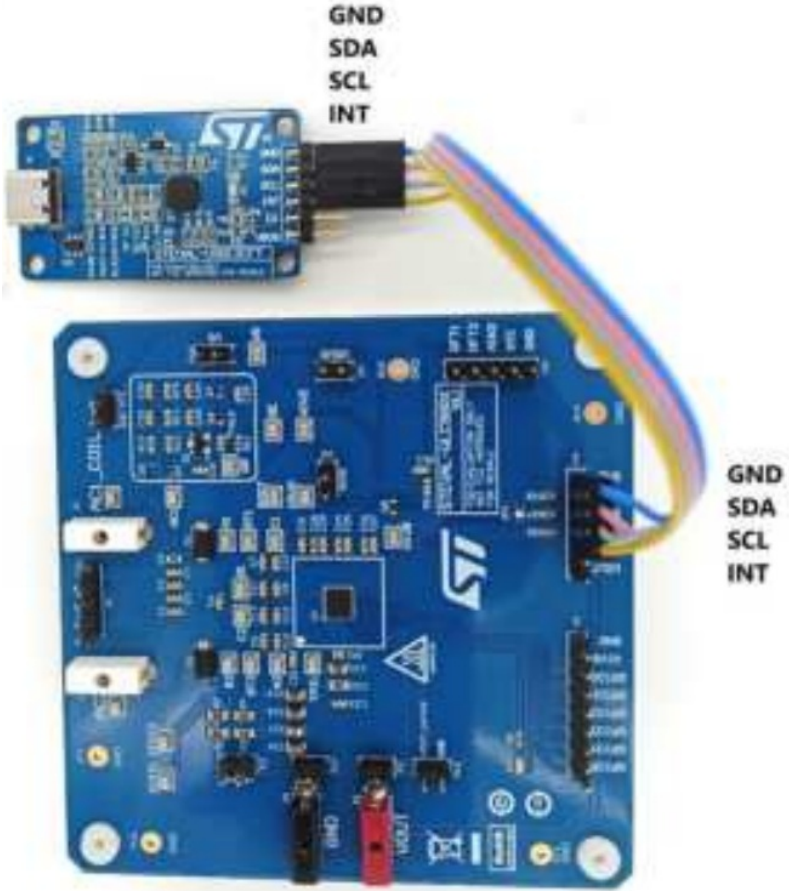


Figure 3. STEVAL-USBI2CFT hardware connection

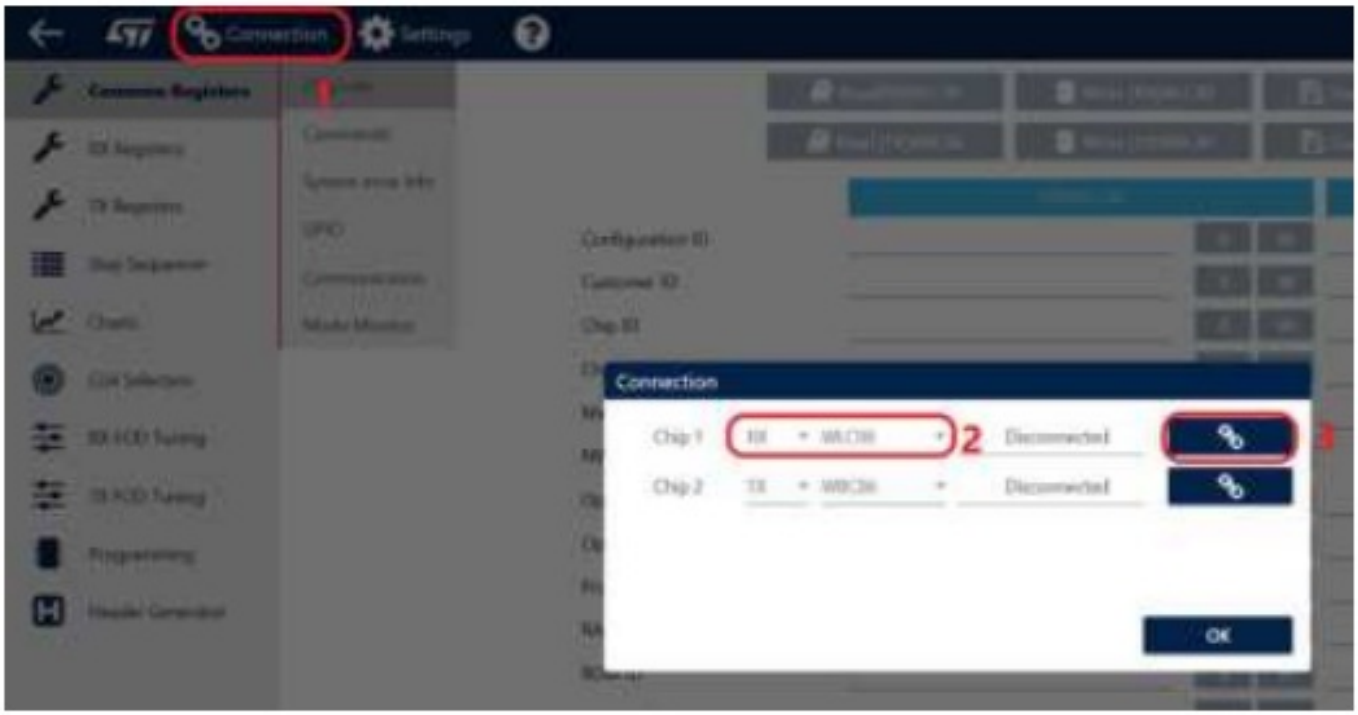
Part number	PRx/PTx	Description
STEVAL-WBC86TX	PTx	5 W PTx for general application
STEVAL-WLC98RX	PRx	Up to 50 W application
STEVAL-WLC38RX	PRx	5/15 W PRx for general application
STEVAL-WLC99RX	PRx	Up to 70 W application

Interface description

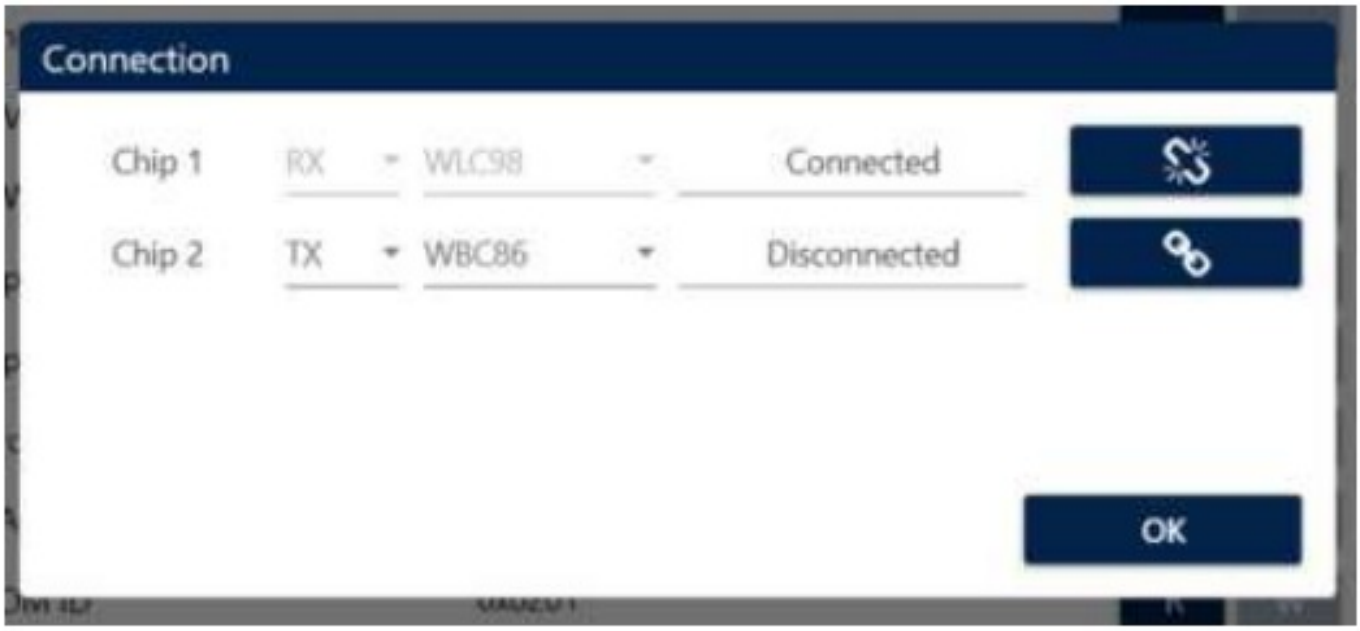
The STSW-WPSTUDIO main interface consists of three main sections: the top menu, the side menu bar, and the output window.
The side menu bar selects the output in the output window.

Figure 4. STSW-WPSTUDIO main interface

Connect the wireless receiver or transmitter to GUI. Select the correct device on the evaluation board.
Figure 5. Connection



The evaluation board was correctly connected to GUI.
Figure 6. Confirmed connection



The wireless receiver or transmitter setup is now ready to use. For the detail information about configuration, possibilities and features, follow the User Manual of the selected Wireless receiver or transmitter board.

Component layout

Figure 7. STEVAL-USBI2CFT PCB layout

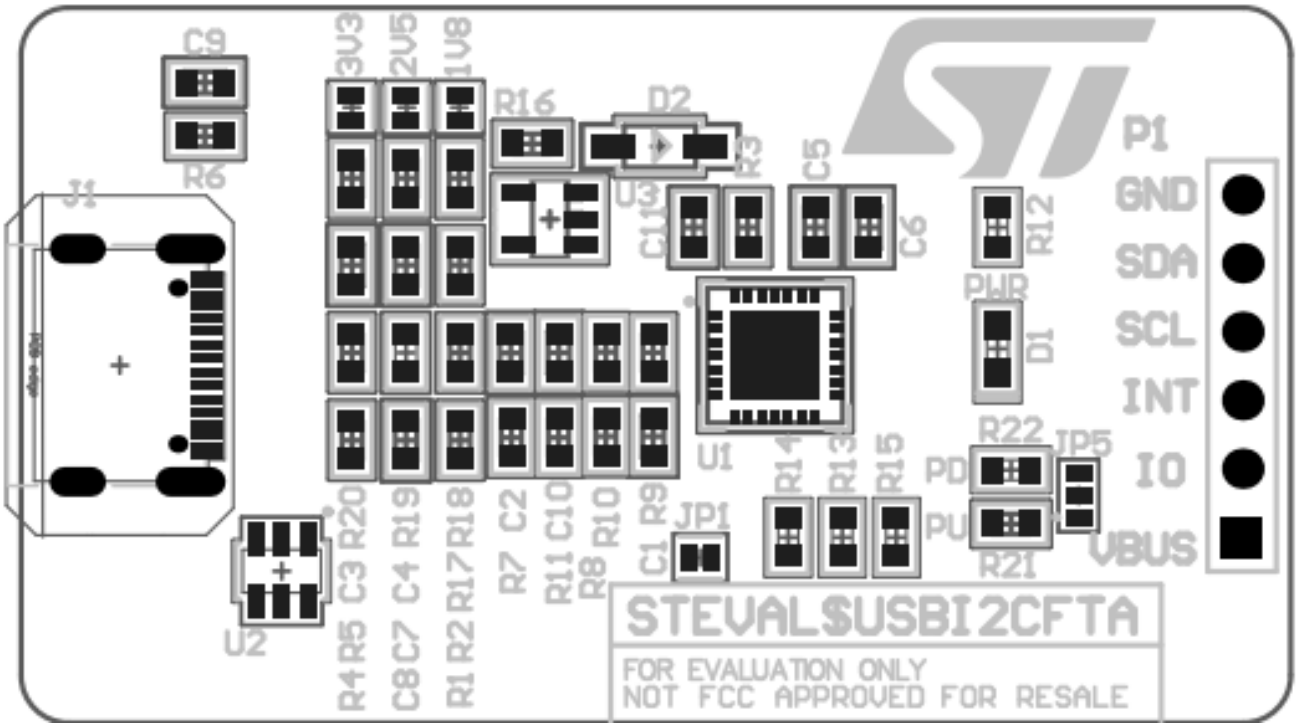


Figure 8. STEVAL-USBI2CFT top layout

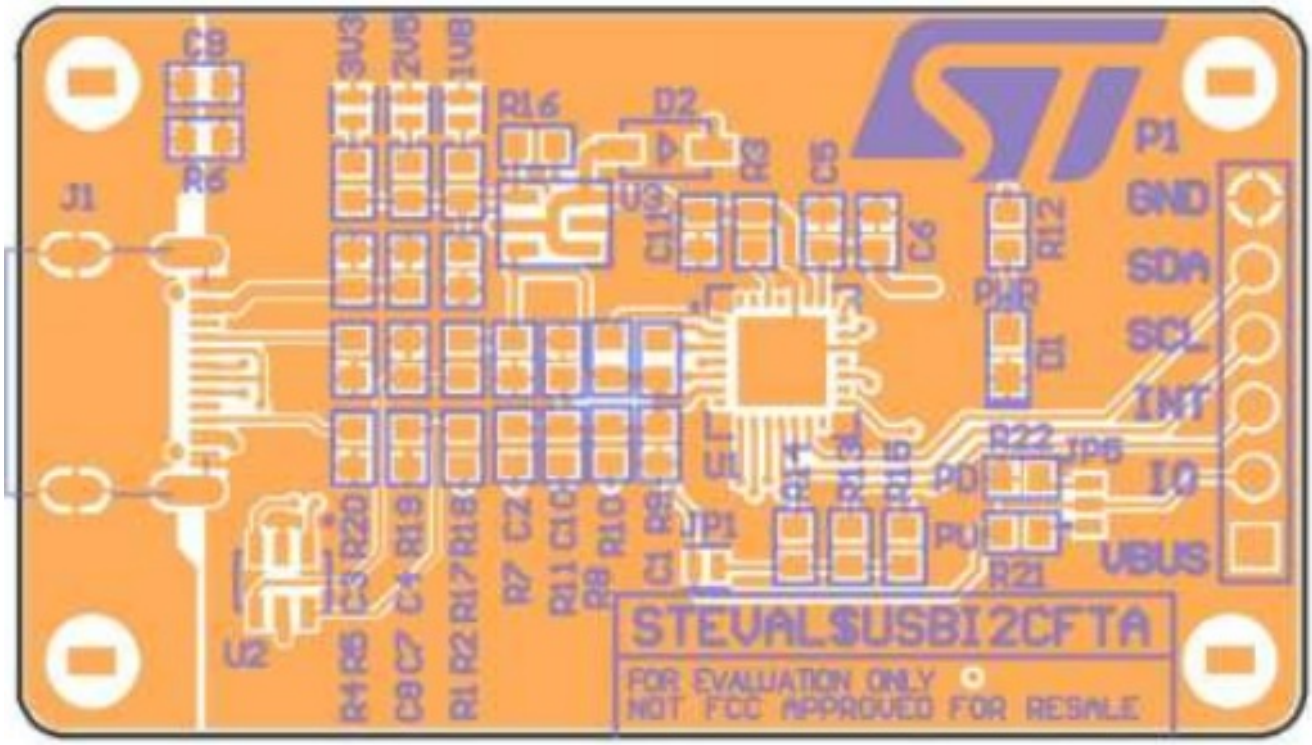
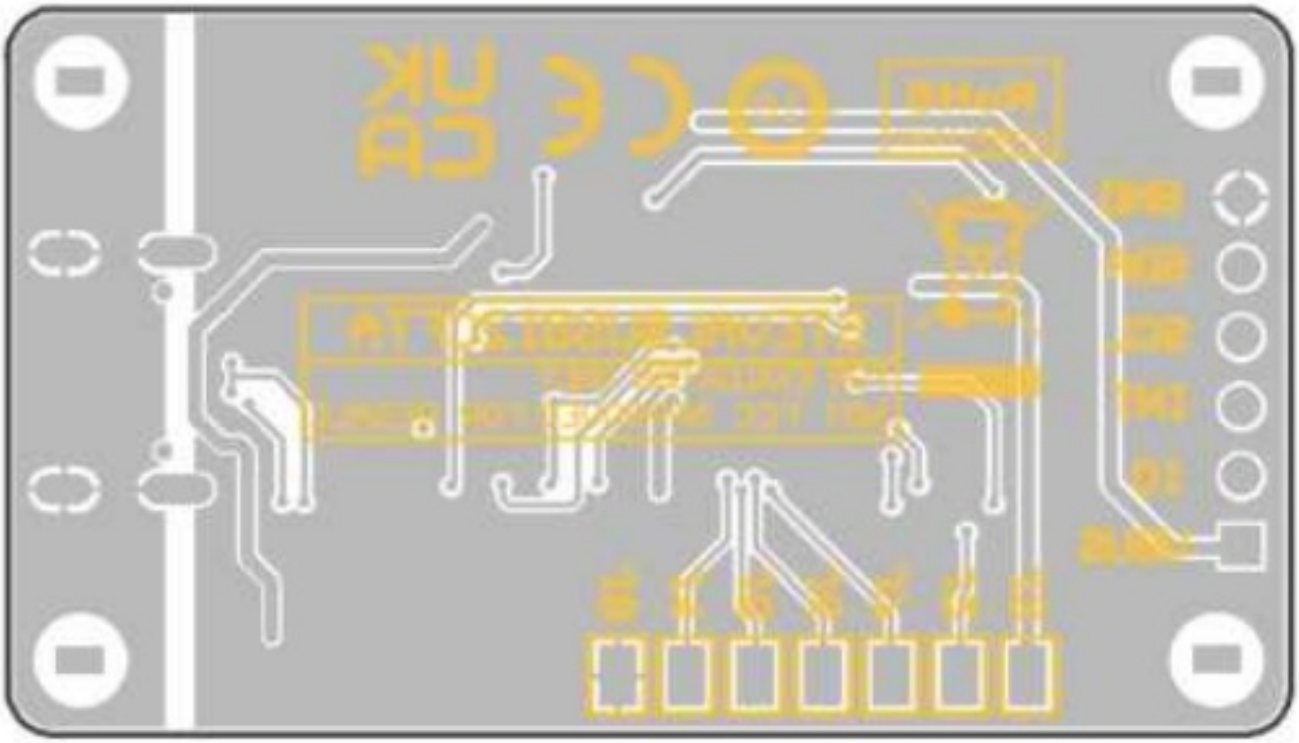
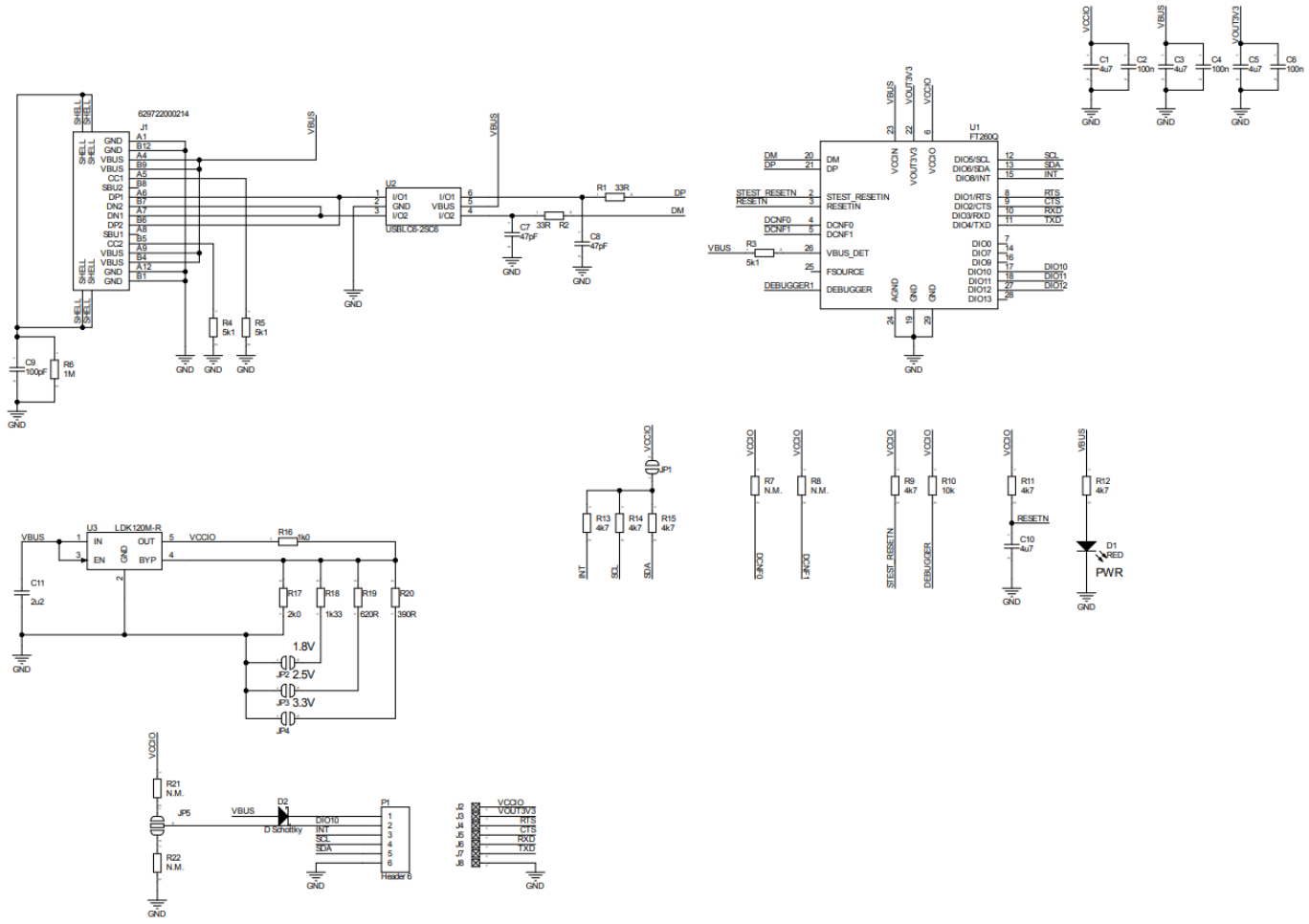


Figure 9. STEVAL-USBI2CFT bottom layout



Schematic diagrams

Figure 10. STEVAL-USBI2CFT circuit schematic



Bill of materials

Table 2. STEVAL-USBI2CFT bill of materials

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
1	2	6	R9, R11, R12, R13, R14, R15	4k7	Vishay/Dale	CRCW06034K70JNEC
2	3	4	C1, C3, C5, C10	4u7	Wurth	885012106012
3	4	3	C2, C4, C6	100n	Wurth	885012206071
4	5	3	R3, R4, R5	5k1	Vishay/Dale	CRCW06035K10FKEAC
5	6	2	C7, C8	47pF	Wurth	885012006055
6	9	2	R1, R2	33R	Vishay/Dale	CRCW060333R0JNEB
7	12	1	C9	100pF	Wurth	885012206077
8	13	1	C11	2u2	Wurth	885012106011
9	14	1	D1		Wurth	150060RS75000
10	15	1	D2		ST	STPS1L60ZF
11	16	1	J1		Wurth	629722000214
12	18	1	P1		Wurth	61300611021
13	19	1	R6	1M	Vishay/Dale	CRCW06031M00JNEB
14	20	1	R10	10k	Vishay/Dale	CRCW060310K0JNEAC
15	21	1	R16	1k0	Vishay/Dale	CRCW06031K00JNEC
16	22	1	R17	2k0	Vishay/Dale	CRCW06032K00JNEAC
17	23	1	R18	1k33	Vishay/Dale	CRCW06031K33FKEA
18	24	1	R19	620R	Vishay/Dale	CRCW0603620RFKEAC
19	25	1	R20	390R	Wishay/Dale	CRCW0603390RFKEAC
20	26	1	U1		FTDI	FT260Q-T
21	27	1	U2		ST	USBLC6-2SC6
22	28	1	U3		ST	LDK120M-R

Board versions

Table 3. STEVAL-USBI2CFT versions

FG version	Schematic diagrams	Bill of materials
STEVAL$USBI2CFTA(1)	STEVAL$USBI2CFTA- schematic diagrams	STEVAL$USBI2CFTA-bill of materials

1. This code identifies the STEVAL-USBI2CFT expansion board first version. It is printed on the board PCB.

Regulatory compliance information

Notice for US Federal Communication Commission (FCC)
For evaluation only; not FCC approved for resale
FCC NOTICE – This kit is designed to allow:

1. Product developers to evaluate electronic components, circuitry, or software associated with the kit to determine whether to incorporate such items in a finished product and
2. Software developers to write software applications for use with the end product.

This kit is not a finished product and when assembled may not be resold or otherwise marketed unless all required FCC equipment authorizations are first obtained. Operation is subject to the condition that this product not cause harmful interference to licensed radio stations and that this product accept harmful interference. Unless the assembled kit is designed to operate under part 15, part 18 or part 95 of this chapter, the operator of the kit must operate under the authority of an FCC license holder or must secure an experimental authorization under part 5 of this chapter 3.1.2.

Notice for Innovation, Science and Economic Development Canada (ISED)
For evaluation purposes only. This kit generates, uses, and can radiate radio frequency energy and has not been tested for compliance with the limits of computing devices pursuant to Industry Canada (IC) rules.

Notice for the European Union
This device is in conformity with the essential requirements of the Directive 2014/30/EU (EMC) and of the Directive 2015/863/EU (RoHS).

Notice for the United Kingdom
This device is in compliance with the UK Electromagnetic Compatibility Regulations 2016 (UK S.I. 2016 No. 1091) and with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (UK S.I. 2012 No. 3032).

Revision history

Table 4. Document revision history

Date	Revision	Changes
18-Sep-2023	1	Initial release.

Documents / Resources

	ST Versatile USB-I2C Bridge For Communication And Programming Of ST Wireless Charging IC [pdf] User Manual STEVAL-USBI2CFT, Versatile USB-I2C, Bridge For Communication, And Programming, Of ST Wireless, Charging IC

References

- STMicroelectronics: Our technology starts with you
- STEVAL-USBI2CFT - USB to I2C evaluation board for interfacing wireless applications with PC GUI tool - STMicroelectronics
- STPS1L60 - 60 V, 1 A Low Drop Power Schottky Rectifier - STMicroelectronics
- STSW-WPSTUDIO - Graphical user interface for wireless power receiver and transmitter evaluation boards - STMicroelectronics
- USBLC6-2 - ESD Protection for USB 2.0 High Speed - STMicroelectronics
- STMicroelectronics Trademark List - STMicroelectronics