

Introduction

The A33G539 Starter Kit makes it easy to develop applications when using the A33G539VLN general-purpose microcontroller with an ARM Cortex®-M3 32-bit core. The A33G539 Starter Kit includes essential features needed for both beginners and experienced users to get started quickly.

Based on the A33G539VLN, this A33G539 Starter Kit contains the ABOV CMSIS-DAP debugger embedded debug tool, LEDs, buttons and a Type-C USB connector. Specialized function boards can be connected to the extension header connectors.

The A33G539 Starter Kit comes with the ABOV software libraries and examples available with the reference software package.

Figure 1. Starter Kit Board

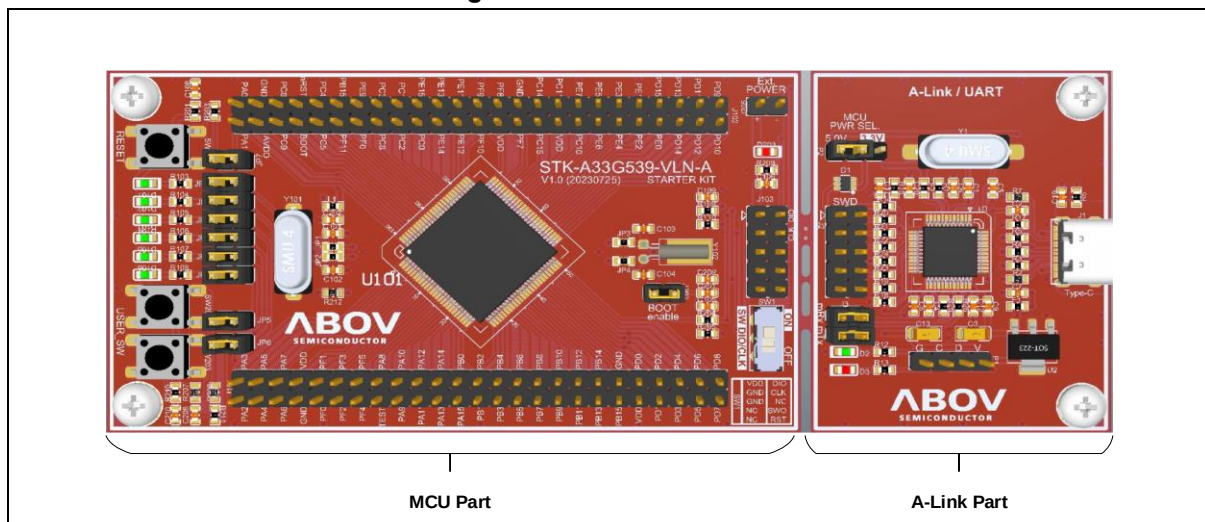


Table 1. Main Features of Starter Kit Board

Main feature		Specifications	Remark
Microcontroller		A33G539VLN	ARM Cortex-M3
Operating clock		Internal 1 MHz Internal 16 MHz External 32.768 kHz External 8 MHz	RINGOSC (LSI) IOSC16 (HSI) SXOSC (LSE) MXOSC (HSE)
Flash Memory	Code	768 KB	Dual Bank, 384 sectors
	Data	32 KB	32 sectors
SRAM		24 KB	-
Host Interface		USB 2.0	USB Type C
Debug Port		SWD	10-pin connector
Input Buttons		Reset and two event inputs	Tact switch

Reference Document

The following documents are available on www.abovsemi.com.

- A33G53x User's Manual
- A33G53x Datasheet

For more detailed technical information, please find the materials related to A33G53x, A33G538, and A33G539 on the official product website.

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1. Ordering Information

To order the starter kit board product of microcontrollers, refer to Table 2.

Additional information about starter kit board, please visit ABOV website (<https://www.abovsemi.com>).

Table 2. Ordering Information

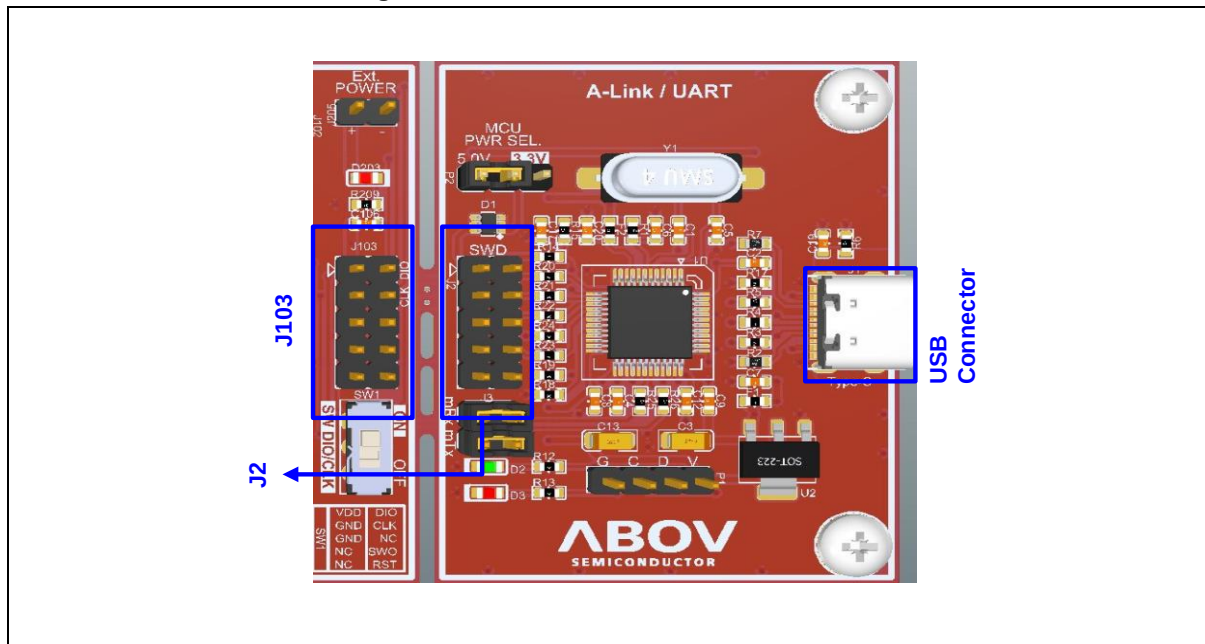
Order Code	Board Name	Microcontroller
StarterKit-A33G539VLN	STK-A33G539-VLN-A	A33G539VLN

2. Hardware Configuration: A-Link Part

In this chapter, A-Link part of the starter kit board is described.

2.1 Interface Connector

Figure 2. A-Link Part of Starter Kit Board



2.1.1 J1: USB Type-C Connector

- Power supply by USB connector from host computer
- SWD hardware interface for CMSIS-DAP debug
- Virtual COM Port (UART)

2.1.2 J2: SWD Connector on A-Link Part

Table 3. SWD Connector Pin Description on A-Link Part (J2)

Pin Name	Pin Number		Pin Name
V-Sense	1	2	SWDIO
GND	3	4	SWCLK
GND	5	6	N.C.
N.C.	7	8	N.C.
GND	9	10	nRESET

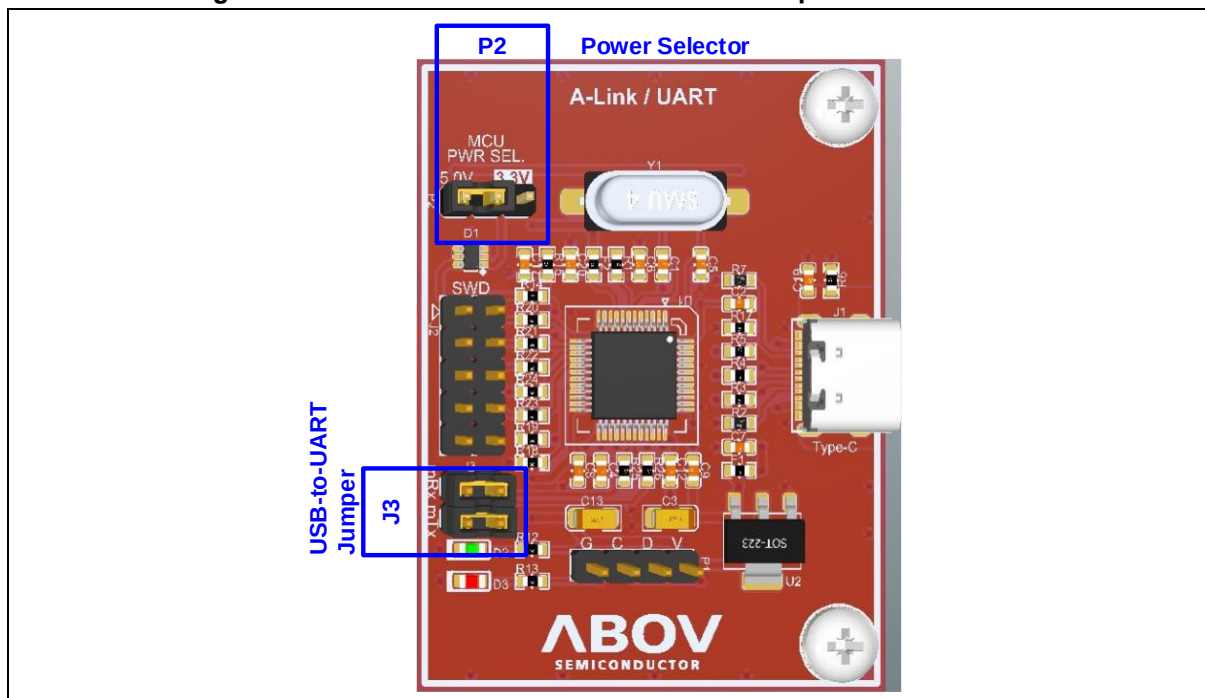
2.1.3 J103: SWD Connector on Microcontroller Part

Table 4. SWD Connector Pin Description on Microcontroller Part (J103)

Pin Name	Pin Number		Pin Name
VDD	1	2	SWDIO
GND	3	4	SWCLK
GND	5	6	N.C.
N.C.	7	8	N.C.
GND	9	10	nRESET

2.2 Power Selector and USB to UART Connector

Figure 3. Power Selector and USB-to-UART Jumper on A-Link Part



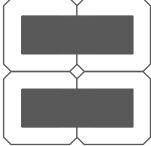
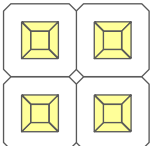
2.2.1 P2: Microcontroller Power Selector

Table 5. Microcontroller Power Selector on A-Link Part (P2)

P2	VDD Source
	Use 5.0 V power supply by USB connector (P2)
	Use 3.3 V power supply by USB connector (P2)
	Use external power supply for the microcontroller (J205) See section 3.1.1

2.2.2 J3: USB-to-UART Connection

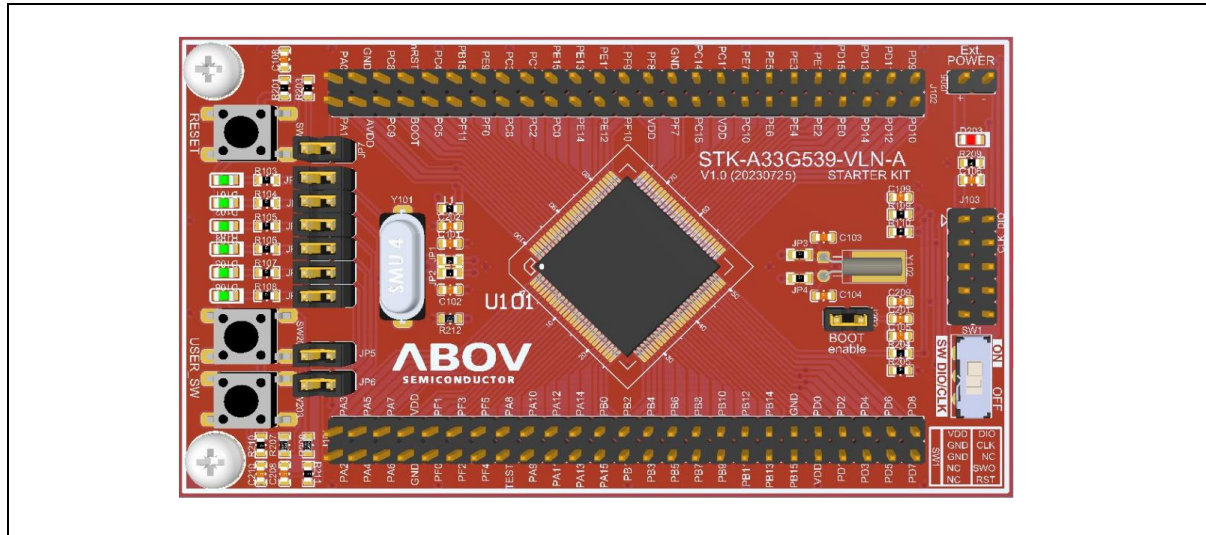
Table 6. USB-to-UART Jumper on A-Link Part (J3)

J3	Pin State	Description
	Short	PC TXD is connected to PC8/RXD0 (mRX). PC RXD is connected to PC9/TXD0 (mTX).
	Open	PC TXD and PC RXD are not connected with the target microcontroller.

3. Hardware Configuration: Microcontroller Part

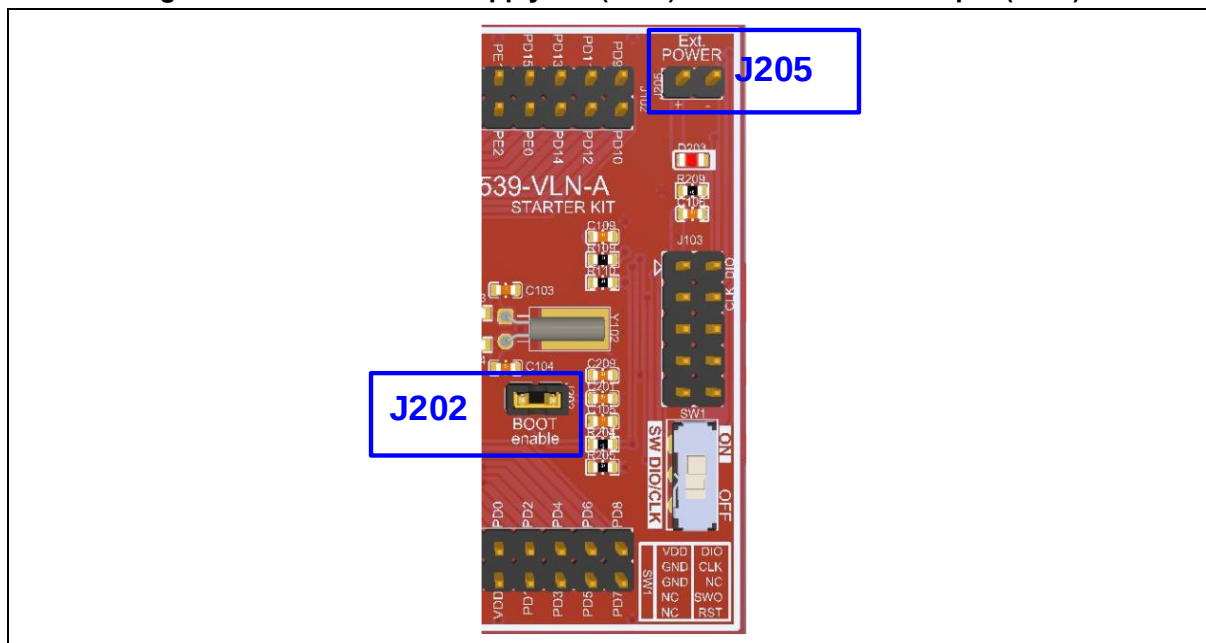
Chapter 3 describes the power, BOOT mode selector and switches, and LED array on the starter kit board.

Figure 4. Microcontroller Part of Starter Kit Board



3.1 External Power Supply Pin and BOOT Mode Jumper

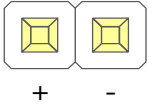
Figure 5. External Power Supply Pin (J205) and BOOT Mode Jumper (J202)



3.1.1 J205: External Power

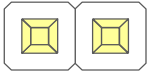
J205 pin can be used to supply external power to the microcontroller part if the USB connector (J1) is not used for power supply.

Table 7. Pin Description of Power Supply Pin (J205)

J205	Pin Name	Description
	VDD	3.0 V to 5.0 V
	GND	0 V

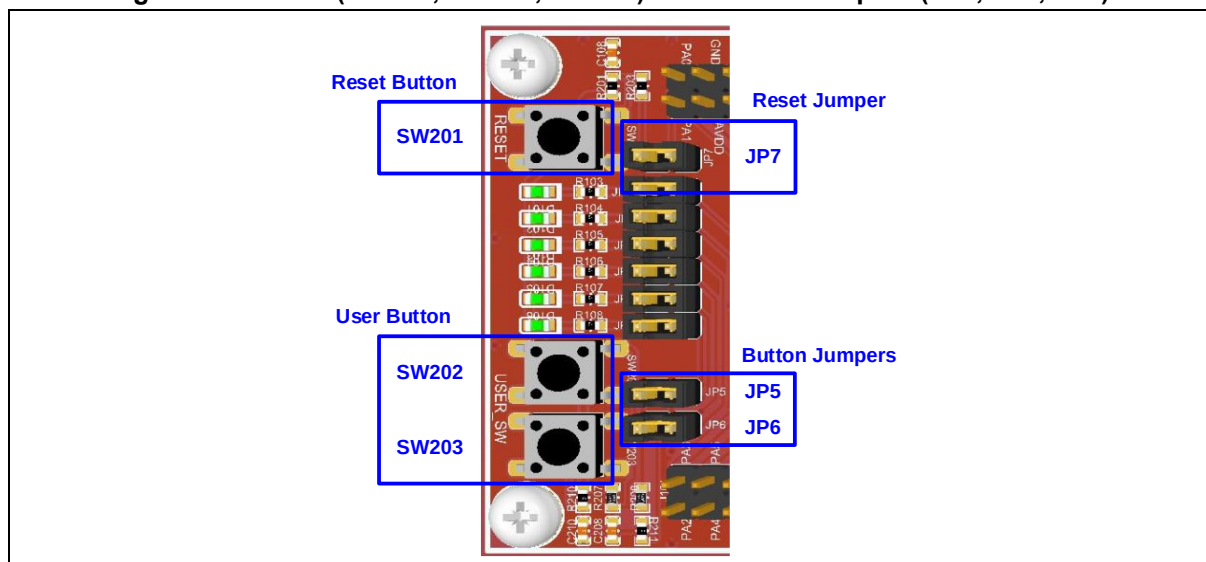
3.1.2 J202: BOOT Mode Jumper

Table 8. Pin Description of BOOT Mode Jumper (J202)

J202	Connection State	Description
	Short	BOOT mode
	Open	Normal mode

3.2 nRESET and User Buttons

Figure 6. Buttons (SW201, SW202, SW203) and Button Jumpers (JP5, JP6, JP7)



3.2.1 SW201, SW202, SW203, JP5, JP6, JP7: Button and Jumpers

Table 9. Description of Buttons (SW201, SW202, SW203)

Switch	Function	Jumper	Microcontroller Pin
SW201	Reset button	JP7	nRESET/PC6
SW202	User button	JP5	PB1/T10
SW203	User button	JP6	PB2/T20

Table 10. Pin Description of Button Jumper (J5)

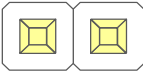
J5	Connection Status	Description
	Short	Connected to PB1 pin
	Open	Not connected to SW202

Table 11. Pin Description of Button Jumper (J6)

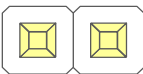
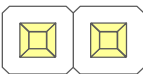
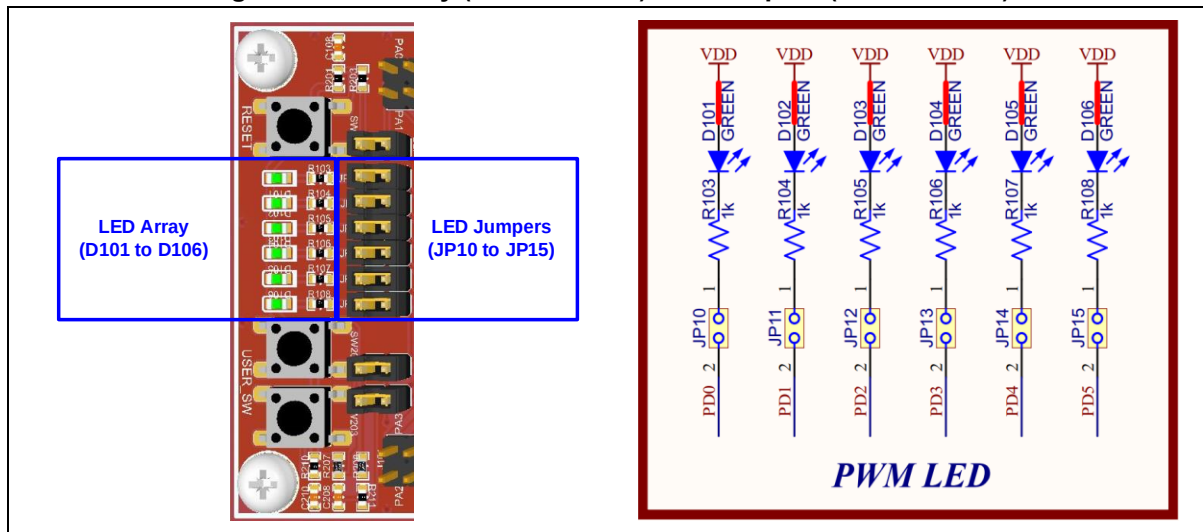
J6	Connection Status	Description
	Short	Connected to PB2 pin
	Open	Not connected to SW203

Table 12. Pin Description of Button Jumper (J7)

J7	Connection status	Description
	Short	Connected to nRESET (PC6) pin
	Open	Not connected to SW201

3.3 LED Array and Jumpers

Figure 7. LED Array (D101 to D106) and Jumpers (JP10 to JP15)



3.3.1 LED Array Pin Assignment

Table 13. LED Array Pin Description (D101 to D106)

LED Name	Jumper	Microcontroller Pin
D101	JP10	PD0/PWM0
D102	JP11	PD1/PWM1
D103	JP12	PD2/PWM2
D104	JP13	PD3/PWM3
D105	JP14	PD4/PWM4
D106	JP15	PD5/PWM5

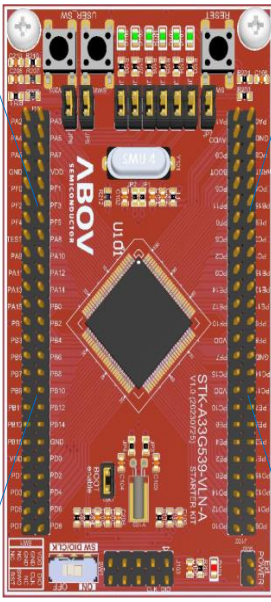
Table 14. Usage of LED by Jumper (JP10 to JP15)

JP10 to JP15	Connection Status	Description
	Short	Use LED
	Open	Not use LED

3.4 Pin Assignment

Figure 8. Pin Assignment of Starter Kit-A33G539VLN

1	PA2/AN2	PA3/AN3	2
3	PA4/AN4	PA5/AN5	4
5	PA6/AN6/TOC	PA7/AN7/T1C	6
7	GND	VDD	8
9	PF0/AN8	PF1/AN9	10
11	PF2/AN10	PF3/AN11	12
13	PF4/AN12	PF5/AN13	14
15	TEST	PA8/T2C	16
17	PA9/T3C	PA10/T4C	18
19	PA11/T5C	PA12/T6C	20
21	PA13/T7C	PA14/T8C/AN14	22
23	PA15/T9C/AN15	PB0/T0O	24
25	PB1/T1O	PB2/T2O	26
27	PB3/T3O	PB4/T4O	28
29	PB5/T5O	PB6/T6O	30
31	PB7/T7O	PB8/T8O	32
33	PB9/T9O	PB10/SSO	34
35	PB11/SCKO	PB12/MOSIO	36
37	PB13/M S0O	PB14/SCL0	38
39	PB15/SDA0	GND	40
41	VDD	PD0/PWM0	42
43	PD1/PWM1	PD2/PWM2	44
45	PD3/PWM3	PD4/PWM4	46
47	PD5/PWM5	PD6/PWM6	48
49	PD7/PWM7	PD8/SSI	50



100	PA1/AN1	PA0/AN0	99
98	AVDD	AGND	97
96	PC9/TXD0	PC8/RXD0	95
94	PC7/BOOT	PC6/hRESET	93
92	PC5	PC4/TDO/SWO	91
90	PF11	PC12/SB YO	89
88	PC13/CLKO	PE9/SXOUT	87
86	PE8/SXIN	PC3/TCK/SWCLK	85
84	PC2/TMS/SWDIO	PC1/TDI	83
82	PC0/hTRST	PE15/TraceCLK	81
80	PE14/TraceD0	PE13/TraceD1	79
78	PE12/TraceD2	PE11/TraceD3	77
76	PF10	PF9	75
74	VDD	PF8	73
72	PF7	GND	71
70	PC15XTALI	PC14XTALO	69
68	VDD	PC11/TXD2	67
66	PC10/RXD2	PE7/PWM87/TXD3	65
64	PE6/PWM86/RXD3	PE5/PWM85	63
62	PE4/PWM84	PE3/PWM83	61
60	PE2/PWM82	PE1/PWM81	59
58	PE0/PWM80	PD15/SDA1	57
56	PD14/SCL1	PD13/TXD1	55
54	PD12/RXD1	PD11/MISO1	53
52	PD10/MOSI1	PD9/SCK1	51

VDD

GND

PA

PB

PC

PD

PE

PF

Revision History

Revision	Date	Notes
1.00	Dec. 18, 2023	Initial release
1.01	Dec. 2, 2024	Updated the disclaimer.

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