NUCLEO-64 STM32G5

MB2067

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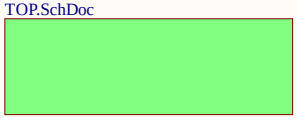
Sheet 7: USB User

Sheet 8: FDCAN

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Sheet 10: External Debugger Interface

U_TOP
TOP.SchDoc



HW1

STICKER PRODUCT

Sticker product

HW15

PCB

MB2067

Legend

General comment such as function title, configuration, ...

Text to be added to silkscreen.

Warning text.

Notes to generate the board layout.

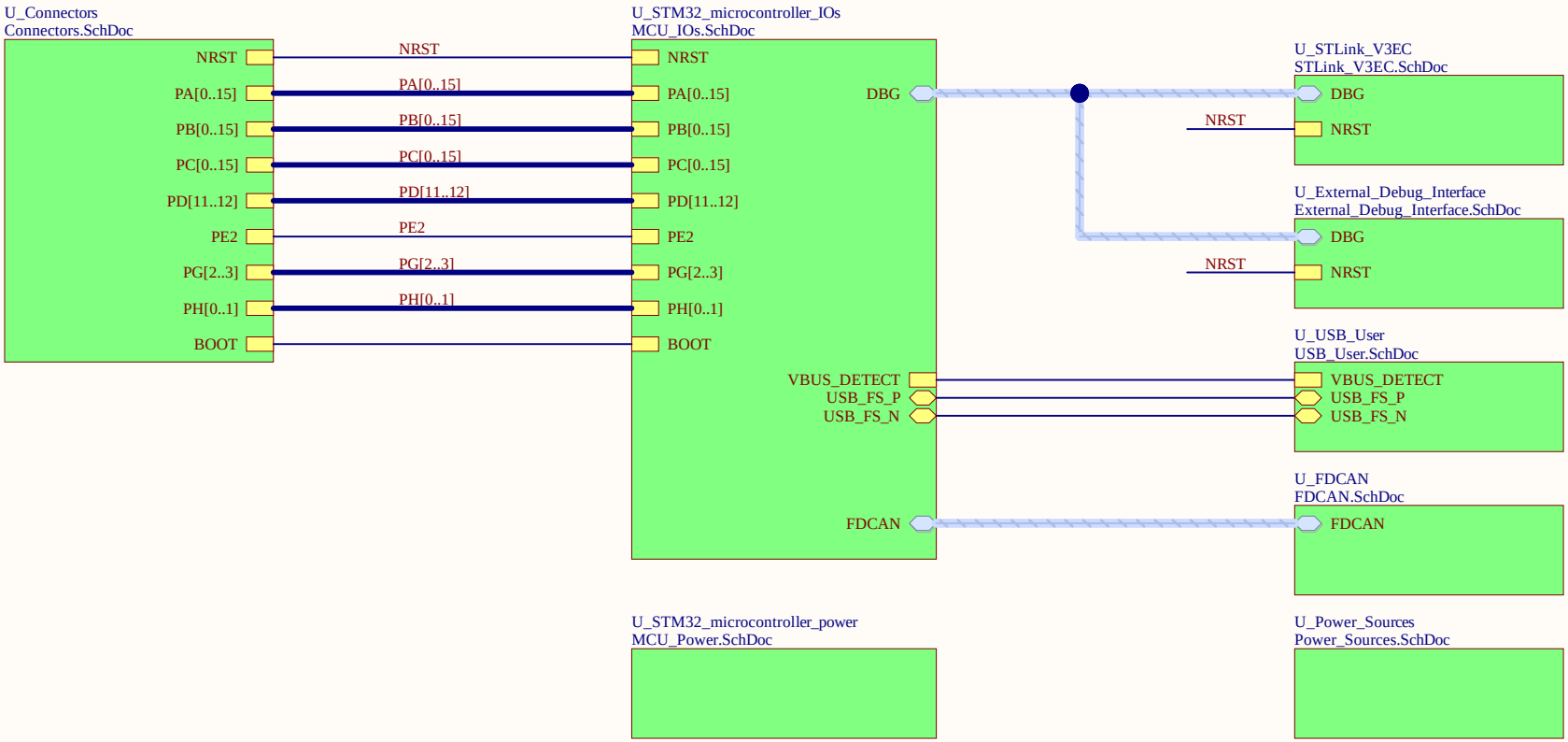
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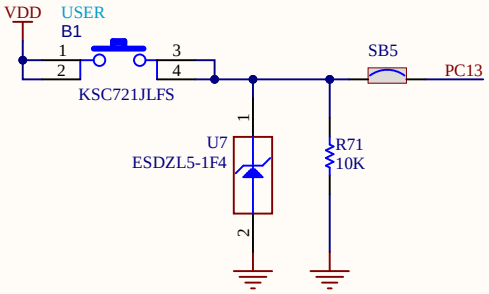
Title: **Project overview**		
Project: **NUCLEO-64 STM32G5**		
Variant: G564RE		
Revision: B-02		Reference: MB2067
Size: A4	Date: 23-JUN-2026	Sheet: 1 of 10



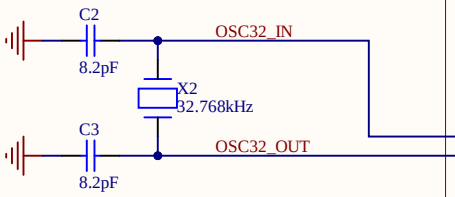
FID HW9 FID HW10
FID HW11 FID HW12

Title: **TOP**		
Project: **NUCLEO-64 STM32G5**		
Variant: G564RE		
Revision: B-02		Reference: MB2067
Size: A4	Date: 23-JUN-2026	Sheet: 2 of 10

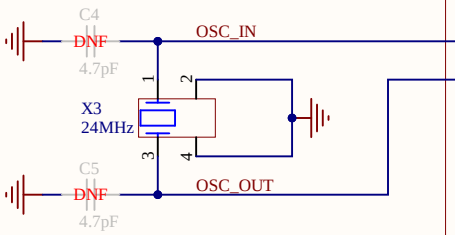
USER BUTTON



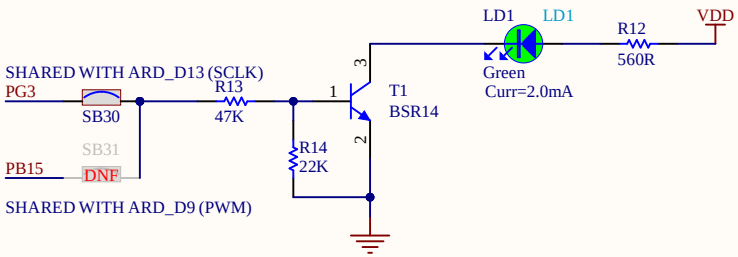
32.768kHz LSE



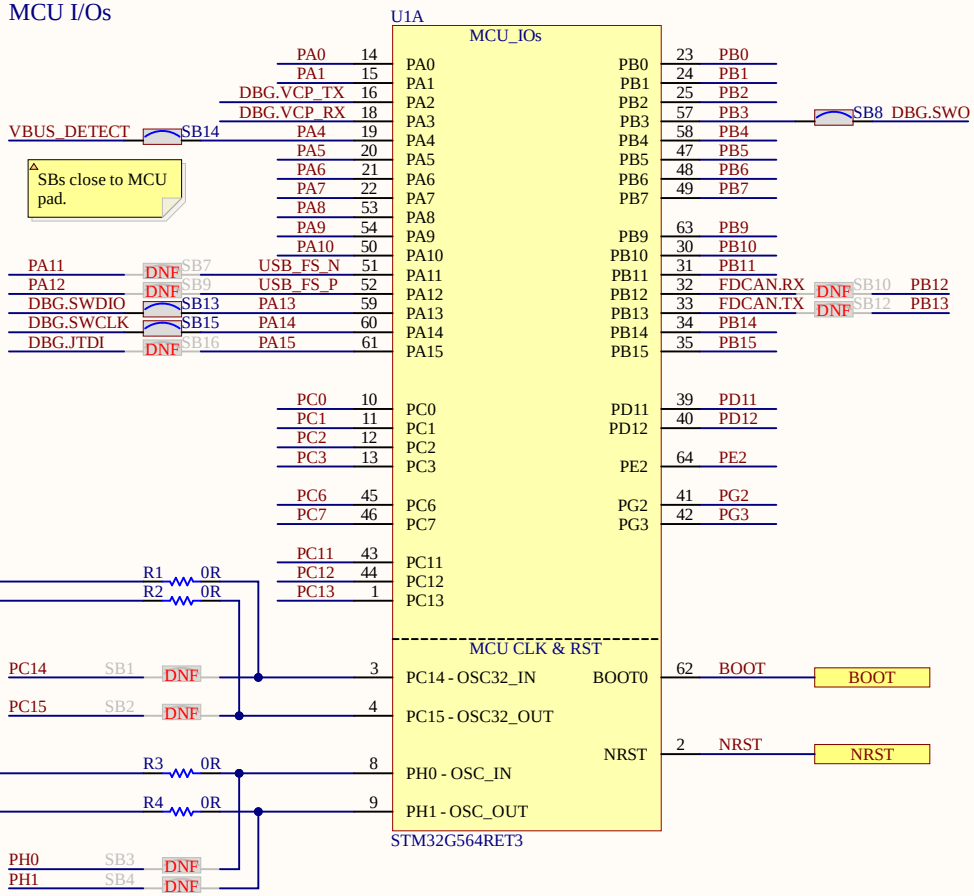
24MHz HSE

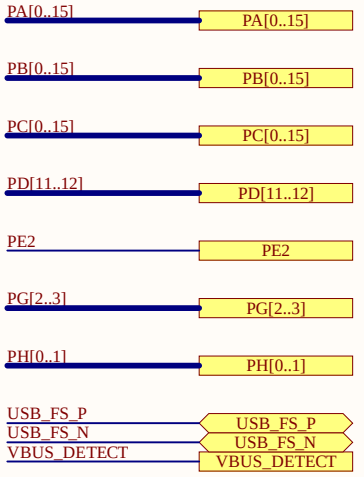


LEDs

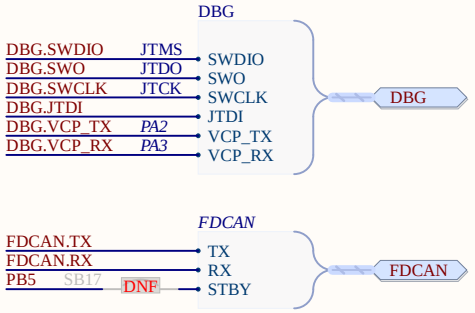


MCU I/Os

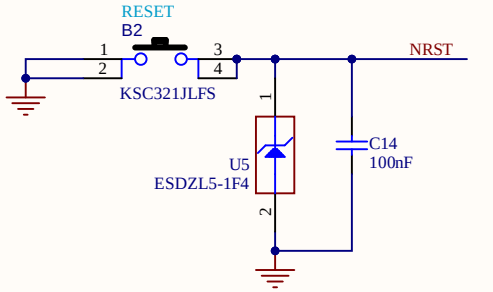




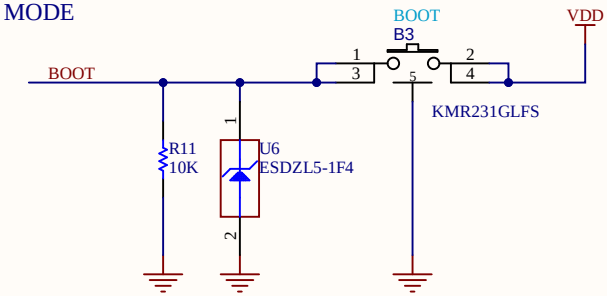
HARNESS



RESET BUTTON



BOOT MODE



DEFAULT (0) = INTERNAL FLASH
B3 PRESSED DURING RESET (1) = BOOTLOADER

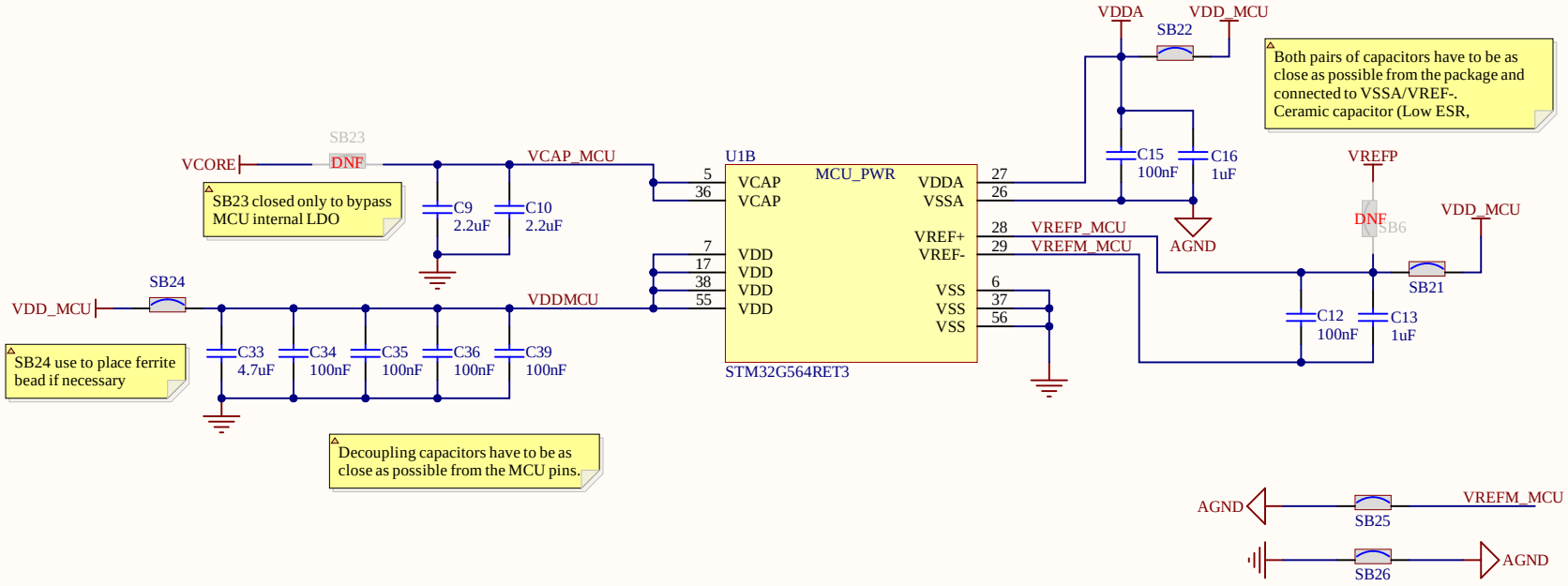
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Project: **NUCLEO-64 STM32G5**		
Variant: G564RE		
Revision: B-02		Reference: MB2067
Size: A4	Date: 23-JUN-2026	Sheet: 3 of 10

MCU POWER SUPPLY

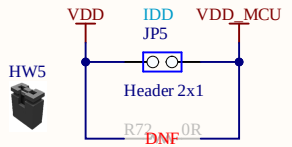
Operating range: 2.7V < VDD < 3.6V

Operating range: 2.7V < VDDA < 3.6V

Operating range: 1.17V < VCORE < 1.40V



IDD MEASUREMENT



Used to give access to VDD MCU consumption only

Title: **MCU_Power**		
Project: **NUCLEO-64 STM32G5**		
Variant: G564RE		
Revision: B-02		Reference: MB2067
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CONNECTORS

PA[0..15] PA[0..15]
PB[0..15] PB[0..15]
PC[0..15] PC[0..15]
PD[11..12] PD[11..12]
PE2 PE2
PH[0..1] PH[0..1]
PG[2..3] PG[2..3]
BOOT BOOT
NRST NRST

COLOR LEGEND

MORPHO SPECIFICATION
ARDUINO SPECIFICATION
STM32 ALTERNATE FUNCTION
STM32 IO PORT
~~FUNCTION NOT AVAILABLE~~

ST MORPHO CONNECTOR LEFT SIDE

CN7 Header 19x2

PB9	GPIO	DNF SB34	1	2			
PB12	GPIO		3	4			
PB10	GPIO		5	6	5V_EXT (2)		
BOOT	BOOT0	VDD	7	8	GND		5V_EXT
		BOOT0	9	10			
			11	12	IOREF		
PA13	SWDIO	SWDIO	13	14	NRST	NRST	NRST
PA14	SWCLK	SWCLK	15	16	3V3		
PB7	TIM_2_CH1 || I2S1_WS	TIMy_H1/I2S_WS	17	18	5V		
SB33		GND	19	20	GND		
			21	22	GND		
PC13	WKUP4	WKUP	23	24	VIN		
PC14	SYS_OSC32_IN	LSE_IN	25	26			
PC15	SYS_OSC32_OUT	LSE_OUT	27	28	ADC	ADC1_INP1 || ADC2_INP1	ADC0
PH0	SYS_OSC_IN	HSE_IN	29	30	ADC	ADC1_INP2 || ADC2_INP2 || TIM2_CH2	ADC1
PH1	SYS_OSC_OUT	HSE_OUT	31	32	ADC/DAC	DAC2_OUT1 || ADC2_INP13	PA5
		VBAT	33	34	ADC	ADC1_INP15 || ADC3_INP12 || TIM8_CH2N	ADC3
PB14	ADC1_INP5	ADC	35	36	ADC	ADC1_INP14 || ADC2_INP14	ADC4
PC3	ADC1_INP9 || ADC2_INP9	ADC	37	38	ADC	ADC1_INP7 || ADC2_INP7	ADC5

SB49 VDD

DNF SB35 GPIO/I2S_SDI PE2
GPIO PB13

VDD IOREF SB32 5V 5V_VIN VIN R5 1K

CN6 Socket 8x1

1	NC	
2	IOREF	
3	NRST	
4	(3)	3V3
5	(3)	5V
6		GND
7		GND
8	(1)	VIN

POWER

CN8 Socket 6x1

1	A0	ADC0
2	A1	ADC1
3	A2	PA5
4	A3	ADC3
5	A4	ADC4
6	A5	ADC5

ANALOG

ARDUINO V3

Operating range: 3V < VCC < 3.6V

ST MORPHO CONNECTOR RIGHT SIDE

VREFP C70 100nF

SB29 only for Tiny and Little compatibility in socket version. To be removed in soldered version.

CN5 Socket 10x1

SCL			10	10			
SDA			9	9			
AREF			8	8	PE2	TIM11_CH1	SB29 DNF
GND			7	7	PA8	GPIO	
SCK			6	6	PA15	I2C1_SCL || I3C1_SCL || TIM3_CH3	I2C_SCL
MISO			5	5	PB9	I2C1_SDA || I3C1_SDA || TIM17_CH1	I2C_SDA
~ MOSI			4	4			AREF (2)
~ NSS			3	3			GND
~ D9			2	2	PG3	SPI1_SCKSHARED WITH LD1	SPIA_SCK
D8			1	1	PC11	SPI1_MISO	SPIA_MISO
					SHARED WITH LD1	PB15	TIM_15_CH2 || ADC2_INP15
						PB6	TIM_8_CH2
						PC6	TIM_8_CH1
						PA9	TIM2_CH3 || TIM2_ETR
						PA10	TIM1_CH3
						PB3	SWO || TIM_2_CH2
						PC7	TIM_8_CH3
						PD12	UART4_TX
						PD11	UART4_RX

DIGITAL ~ PWM

CN9 Socket 8x1

D7			8	8			
~ D6			7	7			
~ D5			6	6			
D4			5	5			
~ D3			4	4			
D2			3	3			
TX			2	2			
RX			1	1			

DIGITAL ~ PWM

CN10 Header 19x2

			1	2			
			3	4			
			5	6	GPIO		SB36 DNF TIM8_BKIN2 PG2
			7	8	5V_STLK (3)	5V_STLK	SB39 DNF TIM8_ETR PG3
			9	10			SB40 DNF TIM8_ETR PD11
			11	12	USB_DP		SB41 DNF USB_DP PA12
			13	14	USB_DM		SB42 DNF USB_DM PA11
			15	16	TIMx_BKIN		SB44 DNF TIM8_BKIN2 PG2
			17	18	ADC		ADC1_INP6 || ADC2_INP6 ADC2
			19	20	GND		
			21	22	GPIO		TIM16_CH1 PB5
			23	24	GPIO		
			25	26	TIM_WL		TIM8_CH3N || ADC1_INP12 PB1
			27	28	TIM_VL		TIM_8_CH2N PB4
			29	30	TIM_UL		TIM8_CH1N PA7
			31	32	AGND	AGND	
			33	34	ADC		ADC_2_INP3 PA6
			35	36			
			37	38			

SB20
PA4 DAC1_OUT1 DNF
PC12 TIM13_CH1 SB28

PB7 SPI1_NSS || TIM12_CH1 DNF SB37

SB51 DNF SB52
PB2 SPI1_MOSI || ADC2_INP12 || TIM3_CH4 TIM8_CH1N || TIM17_CH1 PA7

ST MORPHO CONNECTOR LEFT SIDE

PA0 R69 0R ADC0
PA1 R70 0R ADC1
PC0 R37 0R ADC2
PB0 R57 0R ADC3
PB11 R58 0R ADC4
PB10 R7 0R
PC1 R59 DNF 0R ADC5

C71 10nF DNF
C72 100nF DNF
C73 10nF DNF
C74 100nF DNF
C75 100nF DNF
C8 10nF DNF
C76 10nF DNF

Motor Control Tuning

Capacitors close to MCU pins.

(1): VIN (NUCLEO INPUT) WARNING voltage applied to 7V < VIN < 12V
(2): 5V_EXT, AREF (NUCLEO INPUT)
(3): 5V, 3V3, IOREF, 5V_STLK (NUCLEO OUTPUT, SHIELD INPUT)

Shields compatibility

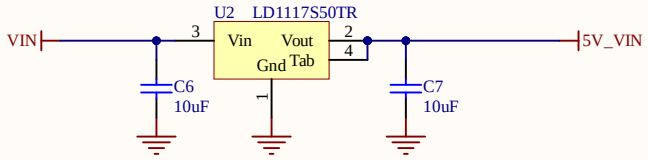
	IHM16 (default)	IHM09	IHM08	IHM17	ST MORPHO (standard)
SB20	OPEN	CLOSED	CLOSED	OPEN	OPEN
SB28	CLOSED	OPEN	OPEN	CLOSED	CLOSED
SB33	CLOSED	CLOSED	CLOSED	CLOSED	OPEN
SB34	OPEN	CLOSED	OPEN	CLOSED	OPEN
SB35	OPEN	CLOSED	OPEN	CLOSED	OPEN
SB36	CLOSED	CLOSED	CLOSED	CLOSED	OPEN
SB37	OPEN	OPEN	OPEN	OPEN	CLOSED
SB39	OPEN	OPEN	CLOSED (1)	CLOSED (1)	OPEN
SB40	OPEN	OPEN	CLOSED (2)	CLOSED (2)	OPEN
SB41	OPEN	OPEN	OPEN	OPEN	CLOSED
SB42	OPEN	OPEN	OPEN	OPEN	CLOSED
SB44	OPEN	OPEN	OPEN	OPEN	CLOSED
SB51	CLOSED	OPEN	OPEN	CLOSED	CLOSED
SB52	OPEN	CLOSED	CLOSED	OPEN	OPEN

(1) : No SPI on CN10.11/13/15/17
(2) : No UART on CN10.35/37

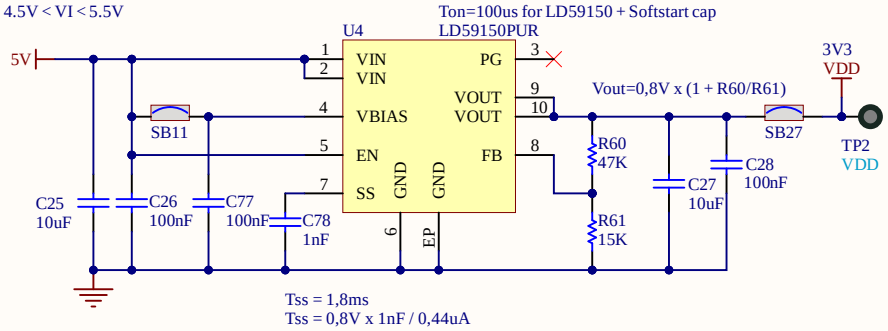
Title: **Connectors**			
Project: **NUCLEO-64 STM32G5**			
Variant: G564RE			
Revision: B-02		Reference: MB2067	
Size: A3	Date: 23-JUN-2026	Sheet: 5 of 10	

POWER SOURCES

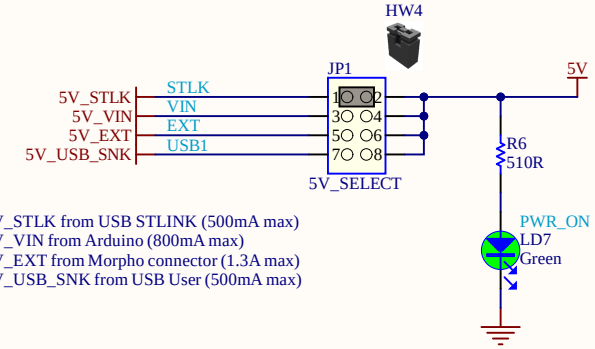
VIN/ 5V PWR/ 800mA
Operating range: 7V < VIN < 12V



3V3 PWR/ 1.5A
Operating range: 4.5V < VI < 5.5V



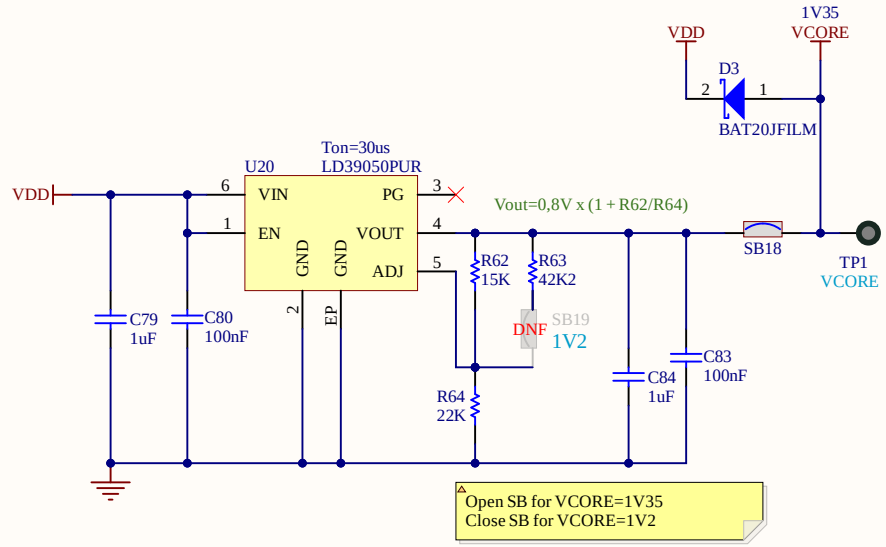
5V PWR SELECTION



5V_STLK from USB STLINK (500mA max)
5V_VIN from Arduino (800mA max)
5V_EXT from Morpho connector (1.3A max)
5V_USB_SNK from USB User (500mA max)

VCORE : 1V35 / 500mA

VCORE must be higher than VOS2 (1V2) when VDD reach POR/BOR (2V7)
VDD must always be higher than VCORE

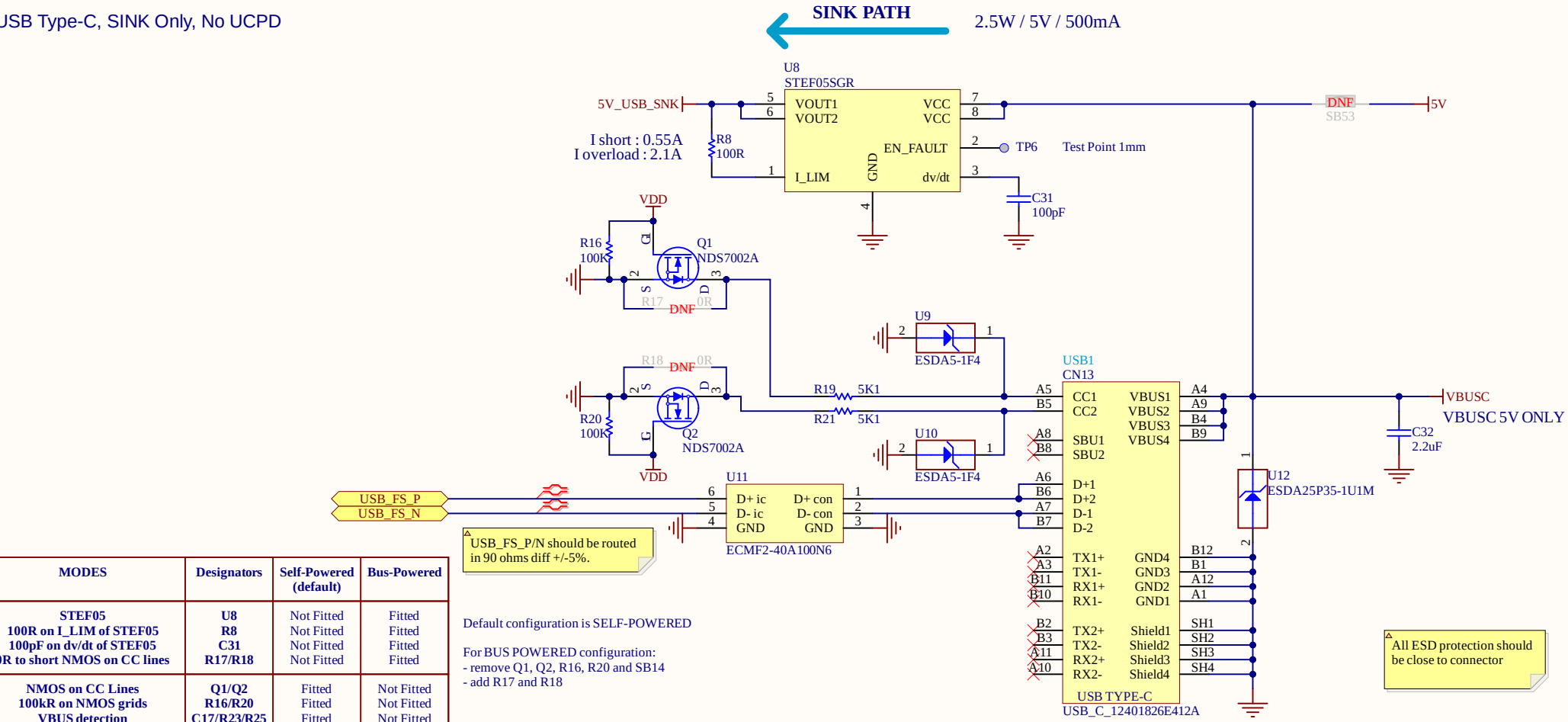


GND HEADERS



Title: **Power_Sources**		
Project: **NUCLEO-64 STM32G5**		
Variant: G564RE		
Revision: B-02		Reference: MB2067
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USB Type-C, SINK Only, No UCPD

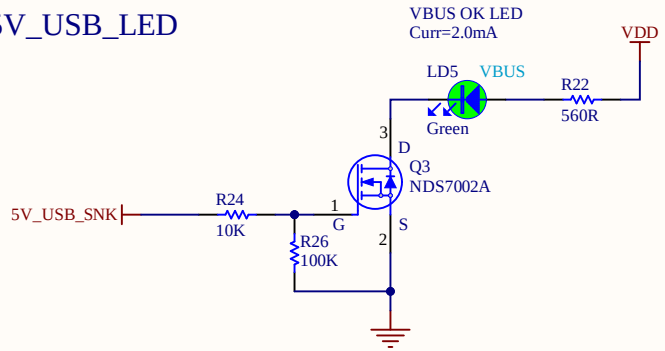


MODES	Designators	Self-Powered (default)	Bus-Powered
STEF05	**U8**	Not Fitted	Fitted
100R on I_LIM of STEF05	**R8**	Not Fitted	Fitted
100pF on dv/dt of STEF05	**C31**	Not Fitted	Fitted
0R to short NMOS on CC lines	**R17/R18**	Not Fitted	Fitted
NMOS on CC Lines	**Q1/Q2**	Fitted	Not Fitted
100kR on NMOS grids	**R16/R20**	Fitted	Not Fitted
VBUS detection	**C17/R23/R25**	Fitted	Not Fitted
ESD on CC lines	**U9/U10**	Fitted	Not Fitted

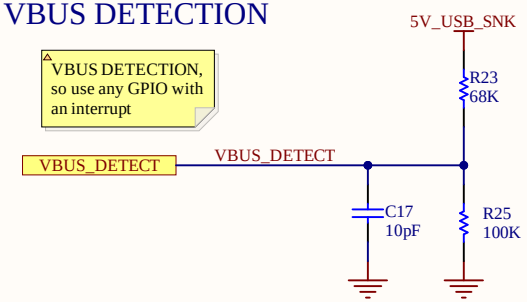
Default configuration is SELF-POWERED

For BUS POWERED configuration:
- remove Q1, Q2, R16, R20 and SB14
- add R17 and R18

5V_USB_LED

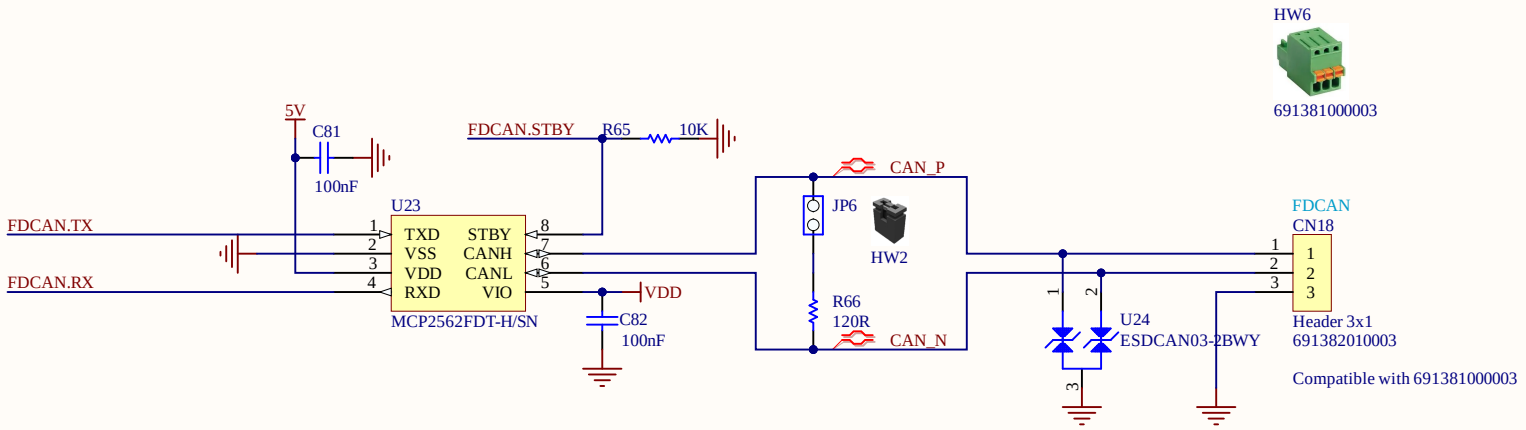


VBUS DETECTION

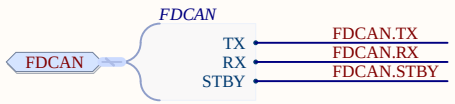


Title: **USB_User**		
Project: **NUCLEO-64 STM32G5**		
Variant: G564RE		
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Operation Volatage: VDD: 4.5 ~ 5.5V; VIO: 1.8 ~ 5.5V

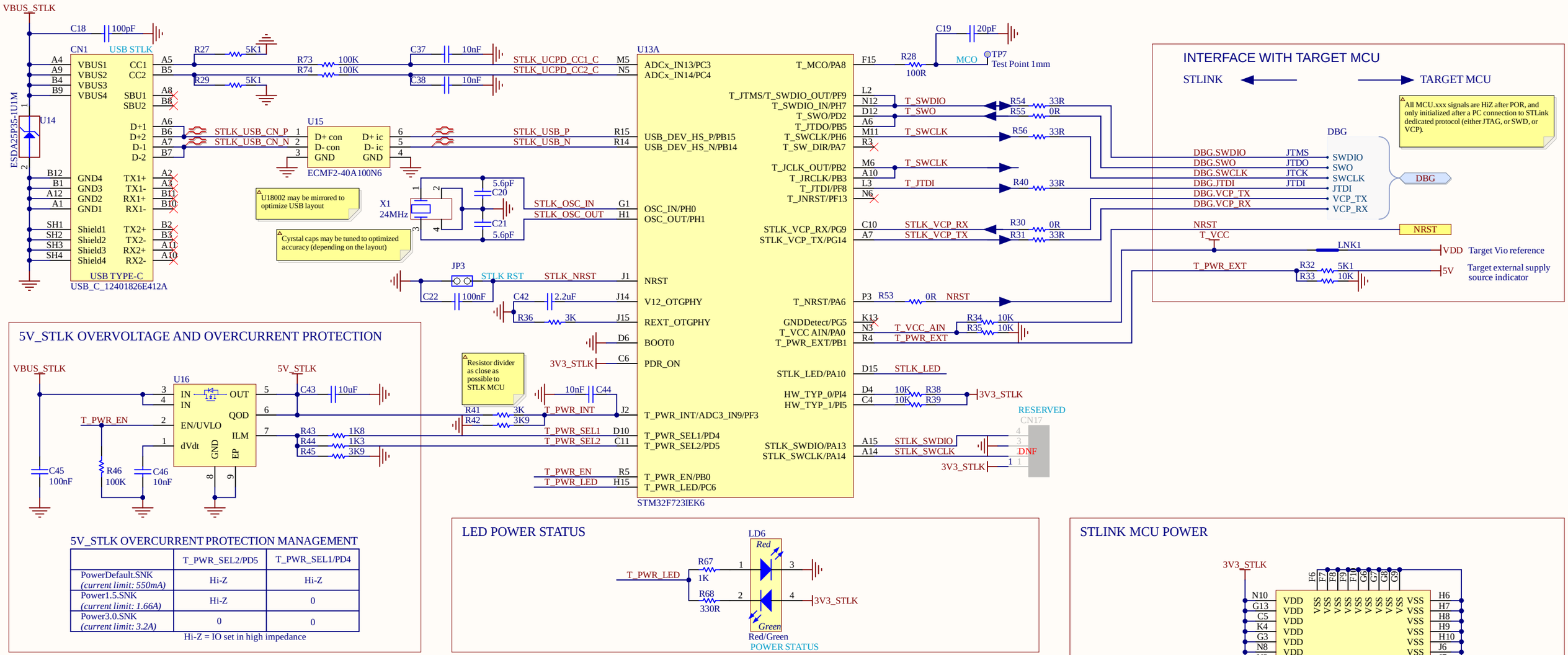


HARNESS



Title: **FDCAN**		
Project: **NUCLEO-64 STM32G5**		
Variant: G564RE		
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STLINK-V3EC



5V_STLK OVERVOLTAGE AND OVERCURRENT PROTECTION

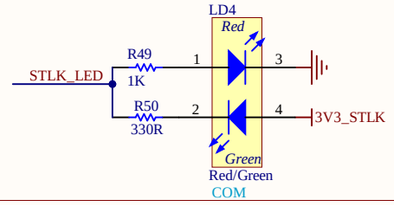
5V_STLK OVERCURRENT PROTECTION MANAGEMENT

	T_PWR_SEL2/PD5	T_PWR_SEL1/PD4
PowerDefault.SNK *(current limit: 550mA)*	Hi-Z	Hi-Z
Power1.5.SNK *(current limit: 1.66A)*	Hi-Z	0
Power3.0.SNK *(current limit: 3.2A)*	0	0

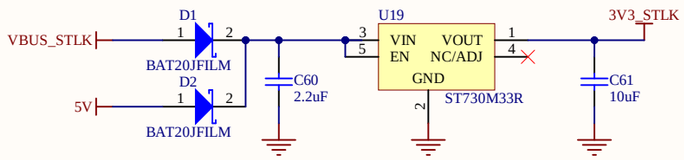
Hi-Z = IO set in high impedance

LED POWER STATUS

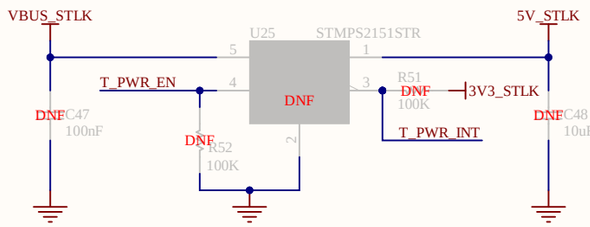
LED STLINK



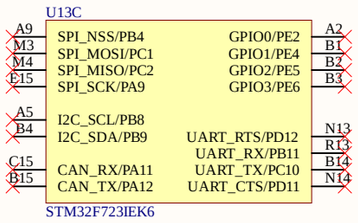
ST-LINK POWER (3V3/300mA)



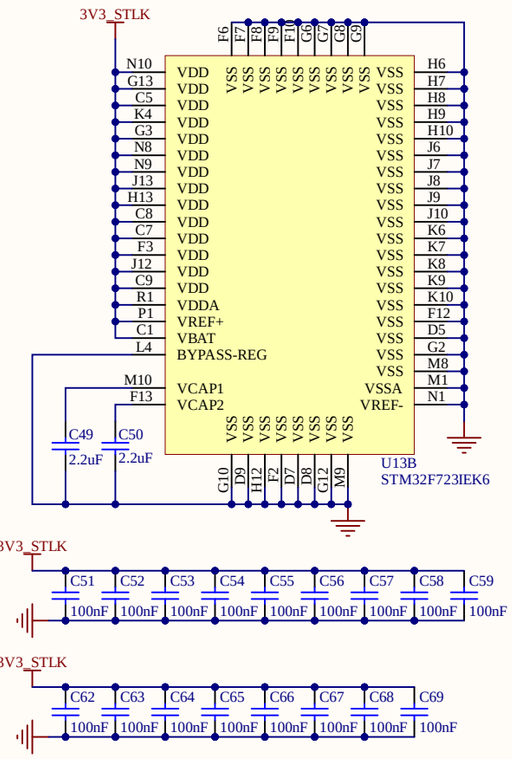
STMPS2151STR is backup of the TPS259535DSG



DNF



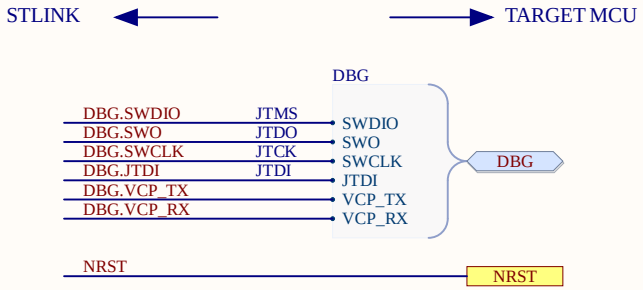
STLINK MCU POWER



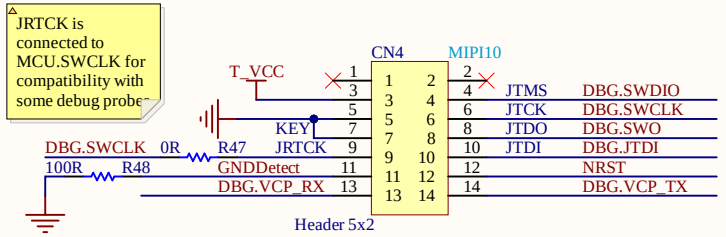
Title: **STLINK-V3EC**		
Project: **NUCLEO-64 STM32G5**		
Variant: G564RE		
Revision: B-02		Reference: MB2067
Size: A3	Date: 23-JUN-2026	Sheet: 9 of 10

EXTERNAL DEBUGER INTERFACES

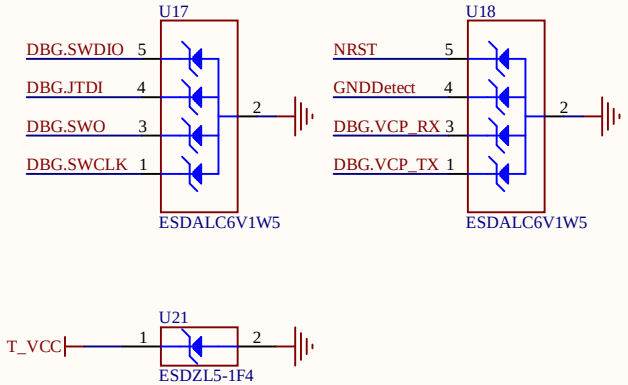
INTERFACE WITH TARGET MCU



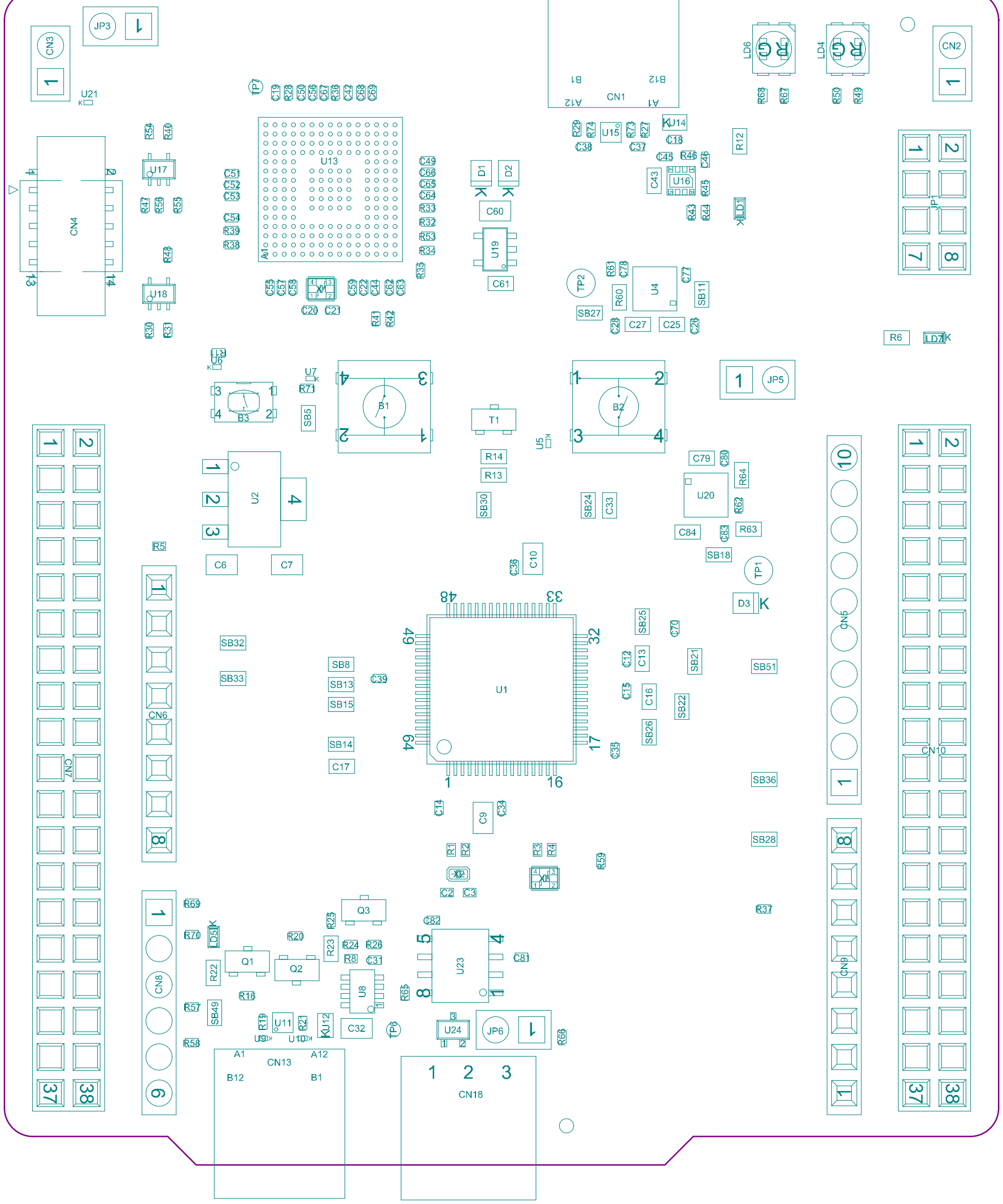
STDC14 RECEIVER



ESD PROTECTIONS



Title: **External_Debug_Interface**		
Project: **NUCLEO-64 STM32G5**		
Variant: G564RE		
Revision: B-02		Reference: MB2067
Size: A4	Date: 23-JUN-2026	Sheet: 10 of 10



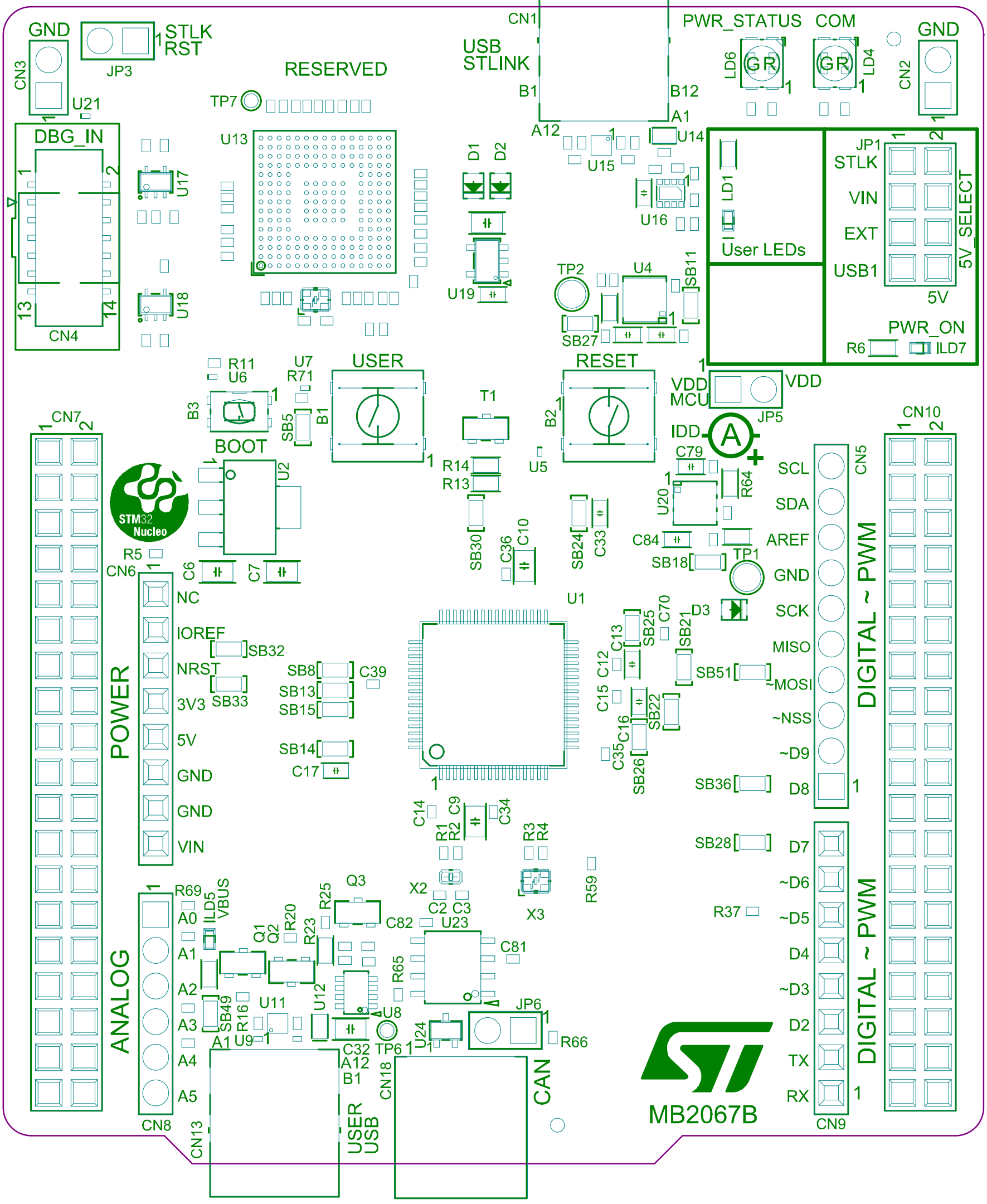
Project: NUCLEO-64 STM32G5	
Layer: M14-Top Assembly	Gerber: .GM14
Variant: G564RE	MB2067
Date: 23-JUN-2026	Rev: B

LNK1

HW1

Product 25x9 sticker

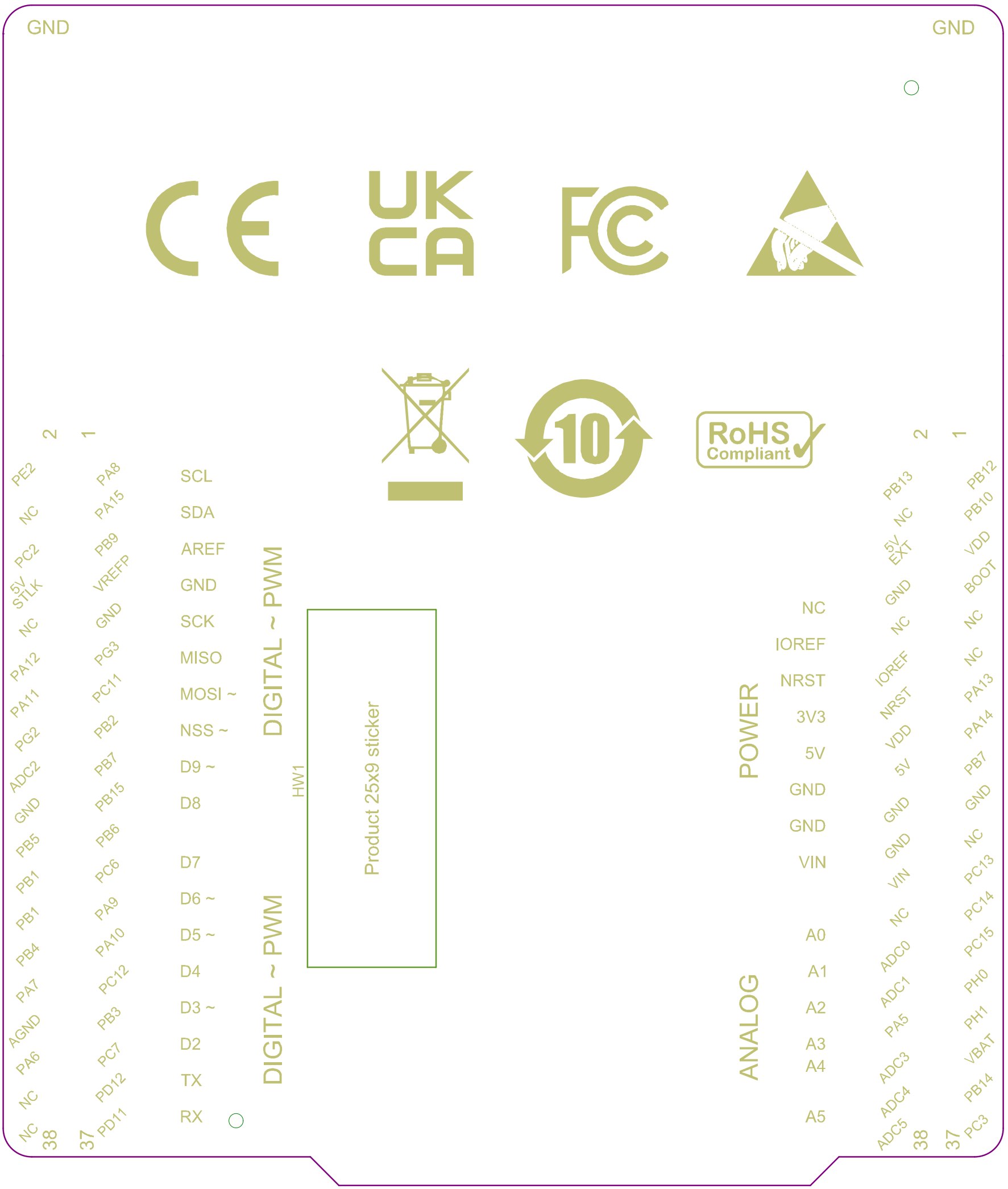
Project: NUCLEO-64 STM32G5	
Layer: M15-Bottom Assembly	Gerber:.GM15
Variant: G564RE	MB2067
Date: 23-JUN-2026	Rev: B



Top Overlay

Assembly

.GTO



M15-Bottom Assembly .GM15