

Document reference:  
**Jun/10/2024 rev 1**

Product reference:  
**SERVO\_CTRL1**

Company: www.st.com  
**STMicroelectronics**



Index	Quantity	Reference	Description	Value / Generic Part Number	Voltage	Power/ Current	Tolerance	Package	Manufacturer	Manufacturer's ordering code / Orderable Part Number	Additional Notes
1	1	CN1	1,27 mm dual pin socket header 2x2	Strip 2x4					WURTH ELEKTRONIK	62200821821 or equivalent	On J9
2	1	CN2	1,27 mm dual pin socket header 2x2	Strip 2x4					WURTH ELEKTRONIK	62200821821 or equivalent	On J10
3	1	CN3	1,27 mm dual pin socket header 2x2	Strip 2x2					WURTH ELEKTRONIK	62200421821 or equivalent	On J11
4	5	C1,C31,C43,C44,C45	SMT ceramic capacitor	1nF	6.3V		10%	C0402			
5	2	C2,C4	SMT ceramic capacitor	2.2u	100V		10%	C1210	WURTH ELEKTRONIK	885012209071 or equivalent	
6	15	C3,C5,C7,C8,C10,C12,C32,C36,C38,C40,C42,C46,C47,C48,C49	SMT ceramic capacitor	100nF	6.3V		10%	C0402			
7	1	C6	SMT ceramic capacitor	2.2uF	6.3V		10%	C0603			
8	1	C9	SMT ceramic capacitor	220nF	100V		10%	C0805			
9	2	C11,C27	SMT ceramic capacitor	220nF	25V		10%	C0402			
10	4	C13,C30,C37,C41	SMT ceramic capacitor		6.3V		10%	C0402			
11	4	C14,C15,C16,C26	SMT ceramic capacitor	1uF	25V		10%	C0603	WURTH ELEKTRONIK	885012206076 or equivalent	
12	1	C17	SMT ceramic capacitor	2.2nF	100V		10%	C0805			
13	1	C18	SMT ceramic capacitor	1nF	50V		10%	C0402			
14	1	C19	SMT ceramic capacitor	270pF	50V		10%	C0402			
15	1	C20	SMT ceramic capacitor	1uF	100V		10%	C1206	WURTH ELEKTRONIK	885012208127 or equivalent	
16	1	C21	SMT ceramic capacitor	7.5nF	10V		10%	C0603			
17	1	C22	SMT ceramic capacitor	22nF	25V		10%	C0402			
18	1	C23	SMT ceramic capacitor	100nF	100V		10%	C0805			
19	1	C24	SMT ceramic capacitor	120nF	10V		10%	C0603			
20	1	C25	SMT ceramic capacitor	10uF	25V		10%	C0805	WURTH ELEKTRONIK	885012107027 or equivalent	
21	1	C28	SMT ceramic capacitor	22uF	25V			C1210	WURTH ELEKTRONIK	885012209074 or equivalent	
22	4	C29,C33,C35,C39	SMT ceramic capacitor	33nF	6.3V		10%	C0402			
23	1	C34	SMT ceramic capacitor	1uF	6.3V		10%	C0603			
24	2	C50,C51	SMT ceramic capacitor	100nF	25 V		10%	C0603			
25	5	D1,D2,D3,D11,D12	Small signal Schottky diode	BAT46	100 V			SOD-323	STMicroelectronics	BAT46JFILM or equivalent	
26	6	D4,D5,D6,D7,D8,D9	Small signal Schottky diode	BAT48	40 V			SOD-323	STMicroelectronics	BAT48JFILM or equivalent	
27	1	D10	100 V - 1 A power Schottky trench rectifier	STPST1H100	100 V	1 A		SOD123FLAT	STMicroelectronics	STPST1H100ZF or equivalent	
28	8	D13,D14,D16,D18,D20,D22,D24,D26	Small signal Schottky diodes	BAT30K	30 V			sod523	STMicroelectronics	BAT30KFILM or equivalent	
29	6	D15,D17,D19,D21,D23,D25	Small signal Schottky diodes	BAT30K	30 V			sod523	STMicroelectronics	BAT30KFILM or equivalent	N.M.
30	1	J1	SURFACE MOUNT MICRO HEADER (1.27 mm) .050" PITCH • FTSH SERIES	FTSH-107-01-L-DH				FTSH-107-01-X-DH-A-SAMTEC	SAMTEC	FTSH-107-01-L-DH or equivalent	
31	4	J2,J3,J6,J7	1,27 mm dual pin header 2x4	Strip 2x4				62130821021-WE-SMALL	WURTH ELEKTRONIK	62130821021 or equivalent	N.M.
32	5	J4,J5,J8,J9,J10	1,27 mm dual pin header 2x4	Strip 2x4				62130821021-WE-SMALL	WURTH ELEKTRONIK	62130821021 or equivalent	
33	1	J11	1,27 mm dual pin header 2x2	Strip 2x2				62130421021-WE	WURTH ELEKTRONIK	62130421021 or equivalent	
34	1	LED1	WL-SMCW SMT Mono-color Chip LED Waterclear	YELLOW				led-0603	WURTH ELEKTRONIK	150060YS75000 or Equivalent	
35	1	LED2	WL-SMCW SMT Mono-color Chip LED Waterclear	RED				led-0805	WURTH ELEKTRONIK	150080RS75000 or Equivalent	
36	1	L1	WE-PD SMT Shielded Power Inductor	18uH	120 V	1.41 A	20%	744778118-WURTH	WURTH ELEKTRONIK	744778118 or equivalent	
37	1	L2	WE-PD Performance SMT Shielded Power Inductor	15uH	120 V	2.2 A	20%	7447773150-WURTH	WURTH ELEKTRONIK	7447773150 or equivalent	
38	1	L3	WE-CBF SMT EMI Suppression Ferrite Bead	1000		1 A	25%	L0805	WURTH ELEKTRONIK	742792096 or equivalent	
39	1	Q1	100V P-CHANNEL ENHANCEMENT MODE MOSFET	ZXMP10A13FT	-100 V			SOT23	DIODES INCORPORATED	ZXMP10A13FTA / C or equivalent	

40	1	Q2	N-CHANNEL ENHANCEMENT MODE MOSFET	BSS123WQ	100 V	170 mA		SOT323	DIODES incorporated	BSS123WQ-7-F or equivalent	
41	1	Q3	Field Effect Transistor Silicon N Channel MOS Type (U-MOS III)	SSM3K15AFU	30 V	100 mA		SC70	TOSHIBA	SSM3K15AFU or equivalent	
42	1	Q4	20V N-CHANNEL ENHANCEMENT MODE MOSFET	DMN2056U	20 V			SOT23	DIODES INCORPORATED	DMN2056U-7 / -13 or equivalent	
43	2	Q5,Q6	N-channel 100 V, 0.062 Ohm typ., 4 A STripFET VII DeepGATE Power MOSFET	STL3N10F7	100 V	4 A		PFLAT_2X2-78	STMicroelectronics	STL3N10F7 or equivalent	
44	1	Q7	Field Effect Transistor Silicon P Channel MOS Type	SSM3J15FV	-30 V			2-1L1B	TOSHIBA	SSM3J15FV or equivalent	
45	2	R1,R4	SMT resistor	100k		0.064W	5%	R0402			
46	1	R2	SMT resistor	120		0.064W	5%	R0402			
47	2	R3,R5	SMT resistor	200		0.064W	5%	R0402			
48	3	R6,R7,R8	SMT resistor	10		0.1W	5%	R0603			
49	1	R9	SMT resistor	22k		0.064W	1%	R0402			
50	3	R10,R61,R62	SMT resistor	10k		0.064W	1%	R0402			
51	1	R11	SMT resistor	30		0.1W	5%	R0603			
52	10	R12,R14,R16,R18,R19,R20,R21,R23,R25,R27	SMT resistor	0		0.1W	5%	R0603			
53	6	R13,R15,R17,R22,R24,R26	SMT resistor	15		0.1W	5%	R0603			
54	1	R28	SMT resistor	10k		0.25 W	5%	R0805			
55	1	R29	SMT resistor	220k		0.064W	5%	R0402			
56	1	R30	SMT resistor	19.6k		0.064W	1%	R0402			
57	1	R31	SMT resistor	3.74k		0.064W	1%	R0402			
58	1	R32	SMT resistor	680		0.064W	1%	R0402			
59	2	R33,R35	SMT resistor	22k		0.064W	5%	R0402			
60	1	R34	SMT resistor	2.7k		0.064W	1%	R0402			
61	1	R36	SMT resistor	2.2		0.064W	5%	R0402			
62	1	R37	SMT resistor	20.5k		0.064W	1%	R0402			
63	1	R38	SMT resistor	47k		0.064W	5%	R0402			
64	1	R39	SMT resistor	1k		0.064W	5%	R0402			
65	1	R40	SMT resistor	1k		0.064W	5%	R0402			N.M.
66	1	R41	SMT resistor	825		0.064W	1%	R0402			
67	6	R42,R43,R54,R55,R64,R65	SMT resistor	2.55k		0.064W	1%	R0402			
68	6	R44,R45,R56,R57,R66,R67	SMT resistor	102k		0.064W	1%	R0402			
69	1	R46	SMT resistor	72.3k		0.064W	1%	R0603			
70	1	R47	SMT resistor	3.01k		0.064W	1%	R0402			
71	3	R48,R49,R50	SMT resistor	1k		0.064W	1%	R0402			
72	3	R51,R58,R69	SMT resistor	51k		0.064W	1%	R0402			
73	1	R52	SMT resistor	4.7k		0.064W	1%	R0402			
74	1	R53	SMT resistor	100		0.064W	5%	R0402			
75	1	R59	SMT resistor	75k		0.064W	1%	R0402			
76	1	R60	SMT resistor	2k		0.064W	1%	R0402			
77	1	R63	SMT resistor	200k		0.064W	1%	R0402			
78	11	R68,R70,R71,R72,R73,R74,R75,R76,R77,R78,R79	SMT resistor	10k		0.064W	5%	R0402			
79	7	R80,R81,R82,R83,R84,R85,R86	SMT resistor	120		0.25 W	5%	R0603			
80	3	R87,R88,R89	SMT resistor	1k		0.064W	5%	R0402			N.M.
81	3	SB1,SB2,SB5	SMT resistor	0		0.1W	5%	point2_0603			
82	4	SB3,SB4,SB6,SB7	SMT resistor	0		0.1W	5%	point2_0603			N.M.
83	2	SW1,SW2	WS-TASU SMT Tact Switch	Switch		50 mA		WS-TASU_4343x10458xx	WURTH ELEKTRONIK	434351045816 or equivalent	
84	1	TP1	40x71 mils SMD PAD	TP-SMD-S1751-46R				S1751-46R	HARWIN	S1751-46R or equivalent	
85	1	TP2	TP for Probe	TP-diam1_27mm-Hole0_8mm				tphi_59r31_5			N.M.
86	3	TP3,TP4,TP5	Test point - PCB 1.5 mm diameter	TP-SMD-diam1_5mm				tp-1_5			N.M.
87	1	U1	3-phase brushless motor controller embedding STM32G4 MCU	STSPIN32G4				qfn64_9x9_e4_1	STMicroelectronics	STSPIN32G4	
88	1	U2	1 A low-side gate driver with configurable asymmetric sink/source	PM8851				sot23-6L	STMicroelectronics	PM8851D	

89	1	U3	Wide 6 V to 75 V input voltage synchronous buck controller	L3751	6 to 75 Vin - 0.8 to 60 Vout			QFN20-3_5x4_5mm	STMicroelectronics	L3751	
90	3	U4,U5,U7	High bandwidth (20 MHz for gain = 4) micro-power (820 µA) rail-to-rail 5 V op amps	TSV991AIQ	2.5 to 5.5 V			DFN8-2X2-EXP	STMicroelectronics	TSV991AIQ2T or equivalent	
91	1	U6	Rail-to-rail high-speed comparator	TS3011IYQ	2.2 to 5 V			DFN8-2X2	STMicroelectronics	TS3011IYQ3T or equivalent	
92	2	U8,U9	3.3 V RS485 compatible with 1.8 V I/Os and selectable speed 20 Mbps or 250 kbps	STR485E				DFN10-3X3	STMicroelectronics	STR485E or Equivalent	
93	1	U10	CMOS quad 3-state differential line receiver	ST26C32AB				TSSOP16	STMicroelectronics	ST26C32ABTR or equivalent	
94	1	U11	TCAN33x 3.3-V CAN Transceivers with CAN FD (Flexible Data Rate)	TCAN330DCNT				sot23-8L	TEXAS INSTRUMENTS	TCAN330DCNT or equivalent	
95	1	Y1	1.8V-3.3V Low-Power Precision CMOS Oscillators	24MHz			10 ppm	CDFN2_5x2mm	Microchip Technology Inc.	DSC1001DL5-024.0000Tor SIT8918BA-11-33E-24.000000 or 830208215109 or equivalent	

Chip cap  
X7R