

Bill of Materials for compact tES/tCS stimulator

Updated 11th July 2025 by Neuro & Bio Electronics Lab at PNU, South Korea

full content from: https://github.com/NBESlab/tES_Stimulator

Part	Value	Device/Size	Q'ty	Circuit	Description
C12	1uF	1uF Capacitor 1608	2	Push Button	Capacitor
C13	47-100uF	100uF Capacitor 2012	1	Push Button	Capacitor
D3	PMEG1030EJ,115	PMEG1030EJ,115	1	Push Button	Schottky Diode & Rectifier
IC6	SN74*17	SN74LVC1G17DBVR	1	Push Button	Single Schmitt-trigger Buffer
IC7	SN74*14	SN74LVC1G14DBVR	1	Push Button	Schmitt Trigger Inverter
IC8	SN74*175	SN74LVC1G175DCKR	1	Push Button	Single D-Type Flip-Flop
R10	1kΩ	1kΩ Resistor 1608	1	Push Button	Resistor
R11	200k	200kΩ Resistor 1608	1	Push Button	Resistor
U1	SWITCH	SMD PUSH BUTTON	1	Push Button	SMD PUSH BUTTON
DR2	LED RED	LED RED 2012	2	LED Indicator	V-Ref Adjustable
DG1	LED GREEN	LED GREEN 2012	1	LED Indicator	LED GREEN
R12	1kΩ	1kΩ Resistor 1608	1	LED Indicator	Resistor
R13	1kΩ	1kΩ Resistor 1608	1	LED Indicator	Resistor
R5	1kΩ	1kΩ Resistor 1608	8	Battery Charger	Resistor
C1	0.1uF	100nF Capacitor 1608	1	Battery Charger	Capacitor
C5	0.1uF	100nF Capacitor 1608	1	Battery Charger	Capacitor
C6	10uF	10uF Capacitor 1608	1	Battery Charger	Capacitor
DB1	LED BLUE	LED BLUE 2012	1	Battery Charger	LED BLUE
DR1	LED RED	LED RED 2012	1	Battery Charger	LED RED
IC1	TP4056X	TP4056X	1	Battery Charger	PMIC Battery Charger
IC2	AP9101	AP9101	1	Battery Charger	One Cell LiPo Battery Protection IC
Q1	FS8205A	FS8205A	1	Battery Charger	Dual N-Channel MOSFET
R1	1kΩ	1kΩ Resistor 1608	1	Battery Charger	Resistor
R2	1kΩ	1kΩ Resistor 1608	1	Battery Charger	Resistor
R3	1.2kΩ	1.2kΩ Resistor 1608	1	Battery Charger	Resistor
R4	100Ω	100Ω Resistor 1608	1	Battery Charger	Resistor
USB	-	USB Type C Port	1	Battery Charger	USB
C8	2.2uF	2.2uF Capacitor 1608	2	5V Booster	Capacitor
C7	0.22uF	0.22uF Capacitor 1005	1	5V Booster	Capacitor
C9	2.2uF	2.2uF Capacitor 1608	1	5V Booster	Capacitor
IC5	REG71050	REG71050DDCR	1	5V Booster	60-mA 5V Voltage Pump Booster
C16	1uF X7R	1uF Capacitor 1608 X7	2	32V Booster	Capacitor
R23	100Ω	100Ω Resistor 1608	2	32V Booster	Resistor
C15	4.7uF	4.7uF Capacitor 1608	1	32V Booster	Capacitor
C17	1uF X7R	1uF Capacitor 1608 X7	1	32V Booster	Capacitor

D4	ZHCS500TA	ZHCS500TA	1	32V Booster	Schottky Diode
FL1	51uH	DLW43SH510XK2L Ind	1	32V Booster	Inductor
IC11	MAX5026EUT+T	MAX5026EUT+T	1	32V Booster	Maxim
R22	11k Ω	11k Ω Resistor 1608	1	32V Booster	Resistor
R9	270k Ω	270k Ω Resistor 1608	1	32V Booster	Resistor
C11	0.1uF	100nF Capacitor 1608	6	Pulse Generator	Capacitor
D1	MMSD4148	MMSD4148	2	Pulse Generator	Diode D4148
C10	1uF	1uF Capacitor 1608	1	Pulse Generator	Capacitor
C2	100nF	100nF Capacitor 1608	1	Pulse Generator	Capacitor
C3	100nF	100nF Capacitor 1608	1	Pulse Generator	Capacitor
D2	MMSD4148	MMSD4148	1	Pulse Generator	Diode D4148
IC3	LM555	LM555CM_NOPB	1	Pulse Generator	Timer 555
R6	1k Ω	1k Ω Resistor 1608	1	Pulse Generator	Resistor
R7	82k Ω	82k Ω Resistor 1608	1	Pulse Generator	Resistor
IC12	OPA991	OPA991SIDBVR	1	Amplifier	OPAM JFET
R24	11k Ω	1k Ω Resistor 1608	1	Amplifier	Resistor
R25	10k Ω	10k Ω Resistor 1608	1	Amplifier	Resistor
R26	91k Ω	91k Ω Resistor 1608	1	Amplifier	Resistor
IC4	LM334	LM334A	1	Current Source	Current source
SW	SS-2150	4-way Rotary Switch	1	Current Source	Rotary Switch
R_{x1}	200 Ω	200 Ω Resistor 1608	1	Current Source	I _{out} set to 0.33 mA
R_{x2}	100 Ω	100 Ω Resistor 1608	1	Current Source	I _{out} set to 0.68 mA
R_{x3}	68 Ω	68 Ω Resistor 1608	1	Current Source	I _{out} set to 1.0 mA
R_{x4}	33 Ω	33 Ω Resistor 1608	1	Current Source	I _{out} set to 2.0 mA
BATT	-	Pin Header 1x1	5	PIN	PIN
BGND	-	Pin Header 1x1	1	PIN	PIN
JP2	-	Pin Header 1x1	1	PIN	PIN
PULSE	-	Pin Header 1x1	1	PIN	PIN
OUT+	-	Pin Header 1x1	1	PIN	PIN