

MightyWatt 2.5 – Bill of Materials

Printed circuit board

Symbol in schematic	Description	Value	Package
C1, C8, C10, C11, C12, C13	MLCC X7R	10μF/16V	1206
C2	MLCC X7R	2.2μF/16V	1206
C3, C4, C5, C7, C9	MLCC X7R	100nF/16V	0603
C6	MLCC NP0	10pF	0603
C14	MLCC NP0	10nF	0805
C15, C16 (both optional)	MLCC X7R	1μF/16V	0603
C17	Tantalum capacitor	470μF/10V	E
D1	Bi-directional TVS	Standoff voltage 30V, 1.5kW	SMC
D2, D3, D6	Silicon diode	DA2S10400L	SOD523
D4	Schottky diode	RSX101M-30TR	SOD123
D5	Unidirectional TVS	Standoff voltage 5V, 600W	SMB
F1	PTC resettable fuse	0.2A/30V	1812
FET1	N-MOSFET	IXTH75N10L2/IXTH110N10L2	TO-247
IC1	DAC	AD5691RBRMZ	MSOP-10
IC2	OP-AMP	TLC2272AID	SOIC-8
IC3	DPDT analog switch	TS5A23157QDGSRQ1	MSOP-10
IC4	Current shunt monitor	INA214BIDCKT	SC70-6
IC5	SPST analog switch	TS5A3166DCKR	SC70-5
IC6	Charge pump	LM2766M6	SOT23-6
JP1, JP2, JP3, JP4	Extended pin headers	16 pins	2.54mm pitch
LED1	Orange LED	OSO50805C1E	0805
Q1	N-Channel FET	FDV301N	SOT23-3
R1	Current sense resistor 1%	R004, WSL36374L000FEA	WSL
R2, R4, R14	Resistor 1% 63 mW	1k	0603
R3	Resistor 1% 63 mW	22R	0603
R5	Resistor 1% 63 mW	1k5	0603
R6, R7	Resistor 0.1% thin-film 63 mW	330k	0603
R8, R9, R10, R11	Resistor 0.1% thin-film 63 mW	13k	0603
R12	Resistor 1% 63 mW	2k7	0603
R13, R15, R16, R17	Resistor 1% 63 mW	4k7	0603
R18	Resistor 1% 63 mW	560R	0603
REL1	Relay DPDT	IM03NS; G6J-2P-Y; UA2-5NU	
T1	NTC thermistor 1% Beta 3455	10k	0402
X1	Screw clamp terminal, 4 way	24A (20A pluggable version)	5mm pitch
X2	Connector – header, 2 way	Molex 22-23-2021 compatible	2.54mm pitch

Heatsink material

Name	Description	Model	Remark
Fan	50×50 mm, 5VDC	Sunon ME50100V1-A99	
Fan grill	50×50 mm	Sunon FG-05	
Heatsink	Anodized aluminium	Fischer ICKPGA20X20	1
Screws	4× M4×40 Phillips head screws	stainless steel A2	
Nuts	4× M4 nut	stainless steel A2	
Dielectric washers	8× polyamide washer for M4		
Spacers	4× Ni-plated brass for M4, 5 mm long		
Dielectric pad	16×20x1 mm compressible pad	Kerafol SOFTTHERM 86/200	2
Thermal grease	non-conductive, high-performance	Arctic Silver 5	
Socket	for fan cable, 2 way, 2.54mm pitch		
Crimp contacts	2× for fan cable, to housing		

Remarks

- 1 drill holes for fan, 4× 4.5 mm diameter
- 2 between FET1 and PCB