

Variant: 001
Generated: 9/11/2025 9:23 AM
TID #: N/A

MCU178 REV E1 Bill of Materials



Item #	Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
1	PCB1	1		MCU178	Any	Printed Circuit Board	
2	C1	1	0.47uF	SR120907R474K1NT95(F)M1234	Presidio Components	CAP. CERM. 0.47 uF, 25 V, +/- 10%, X7R, 1209	1209
3	C2	1	22uF	C2012M6S1C226M125AC	TDK	CAP. CERM. 22 uF, 16 V, +/- 20%, X6S, 0805	0805
4	C4, C47	2	0.1uF	06035C104KAZ2A	AVX	CAP. CERM. 0.1 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0603	0603
5	C5, C6, C7, C8, C10, C12, C15, C19, C20, C21, C22, C23, C33, C36, C31, C72, C74, C75	18	100nF	8.85012E+11	Wurth Electronics	0.1uF ±10% 10V Ceramic Capacitor X7R 0402 (1005 Metric)	0402
6	C9, C11, C13	3	10uF	8.85012E+11	Wurth	10 uF ±20% 25V Ceramic Capacitor XSR 0603 (1608 Metric)	0603
7	C14	1	2.2uF	8.85012E+11	Wurth Elektronik	CAP. CERM. 2.2 uF, 16 V, +/- 20%, XSR, 0603	0603
8	C16	1	10uF	8.85012E+11	Wurth	10000 pF ±10% 16V Ceramic Capacitor X7R 0803 (1608 Metric)	0803
9	C17, C18	2	1uF	GRM155SR1E105KE11D	Murata	Chip Multilayer Ceramic Capacitors for General Purpose, 0402, 1.0uF, X6S, 22%, 10%, 25V	0402
10	C24, C25, C27	3	2.2uF	GRM155R61E225KE11D	Murata	2.2uF ±10% 25V Ceramic Capacitor XSR 0402 (1005 Metric)	0402 (1005 metric)
11	C26, C28, C29	3	0.1uF	GRM033Z71C104KE14D	MuRata	CAP. CERM. 0.1 uF, 16 V, +/- 10%, X7R, 0201	0201
12	C30, C31	2	18uF	GRM1555C1H180JA01D	MuRata	CAP. CERM. 18 uF, 50 V, +/- 5%, COG/NP0, 0402	0402
13	C32, C46, C48, C50	4	1000pF	8.85012E+11	Wurth Elektronik	CAP. CERM. 1000 pF, 50 V, +/- 10%, X7R, 0402	0402
14	C55	1	0.1uF	GRM155R71E104KE14D	MuRata	CAP. CERM. 0.1 uF, 25 V, +/- 10%, X7R, 0402	0402
15	C56, C57, C58, C59, C70	5	10nF	8.85012E+11	Wurth Electronics	10000pF ±10% 25V Ceramic Capacitor X7R 0402 (1005 Metric)	0402
16	C62, C69, C71, C73	4	1uF	8.85012E+11	Wurth Elektronik	CAP. CERM. 1 uF, 10 V, +/- 20%, XSR, 0402	0402
17	C76, C77	2	12uF	8.85362E+11	Wurth	12 uF ±2% 50V Ceramic Capacitor CUG, NP0 0402 (1005 Metric)	0402
18	D1, D2	2	Green	152050V/S75000	Wurth Elektronik	LED, Green, SMD	LED 0603
19	FB1	1		BLM18E1G121SNTD	Murata	120 Ohms @ 100MHz 1 Ferrite Bead 0603 (1608 Metric) 2A 40mOhm	0603
20	FD1, FD2, FD3, FD4, FD5, FD6	6		N/A	N/A	fiducial mark. There is nothing to buy or mount.	N/A
21	H1, H2	2		MAE-10	Kang Yang	Spacer Support, Nylon 66	Spacer Nylon Support
22	J1/J3, J2/J4	2		SSQ-119-03-T-D	Samtec	Receptacle, 2.54mm, 10x2, Tin, TH	10x2 Receptacle
23	J5	1		61300511121	Wurth Elektronik	Header, 2.54mm, 5x1, Gold, TH	Header, 2.54mm, 5x1, TH
24	J6, JP2, JP3	3		61300311121	Wurth Elektronik	Header, 2.54 mm, 3x1, Gold, TH	Header, 2.54mm, 3x1, TH
25	J7	1		FTSH-105-01-L-DV-K	Samtec	Header(Shrouded), 1.27mm, 5x2, Gold, SMT	Header(Shrouded), 1.27mm, 5x2, SMT
26	J8, J9, J10, J11, J13, J14, J15, J16, JP5	9		61300211121	Wurth Elektronik	Header, 2.54 mm, 2x1, Gold, TH	Header, 2.54mm, 2x1, TH
27	J12	1		PEC080AAN	Sullins Connector Solutions	Header, 2.54 mm, 8x2, Tin, Vertical, TH	Header, 2.54 mm, 8x2, TH
28	JP1	1		TSM-102-01-L-DV	Samtec	Header, 2.54mm, 2x2, Gold, SMT	Header, 2.54mm, 2x2, SMT
29	JP4	1		61300421121	Wurth Electronics	THT Vertical Pin Header WR-PHD, Pitch 2.54 mm, Dual Row, 4 pins	PHDR4
30	L1	1	1uH	74479773210	Wurth	Inductor Power Shielded Multi-Layer 1uH 20% 1MHz 14Q-Factor Powdered Iron 1.2A 180mOhm DCR 0805 T/R	0805
31	LED1, LED2, LED3, LED4	4	Red	1500805S75000	Wurth Elektronik	LED, Red, SMD	LED 0805
32	LED5	1	Green	1500805GS75000	Wurth Elektronik	LED, Green, SMD	LED 0805
33	LED6, LED7	2	Blue	1500805BS75000	Wurth Elektronik	LED, Blue, SMD	LED 0805
34	M1, M2, M3, M4, M5, M6, M7, M8, M9, M10, M11, M12, M13	13		60900213421	Wurth Elektronik	Shunt, 2.54mm, Gold, Black	Shunt, 2.54mm, Black
35	R1, R6, R7, R8, R9, R18, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40	16	0	RC0402JR-070RL	Yageo America	RES, 0, 0%, 0.063 W, 0402	0402
36	R3, R13	2	3.0k	RC0603JR-073KL	Yageo	RES, 3.0 k, 0%, 0.1 W, 0603	0603
37	R4, R5	2	5.1k	RC0603JR-075KL	Yageo	RES, 5.1 k, 0%, 0.1 W, 0603	0603
38	R10, R11	2		ERJ-2GEJ221X	Basic Passives	Chip Resistor, 220 Ohm, +/- 5%, 100 mW, -55 to 155 degC, 0402 (1005 Metric), RoHS, Tape and Reel	0402 (1005 Metric)
39	R12	1	0	ERJ-2GEY0R00V	Panasonic	RES, 0, 0%, 0.1 W, AEC-Q200 Grade 0, 0603	0603
40	R14	1	47.5k	RC0603FR-0747KL	Yageo	RES, 47.0 k, 0%, 0.1 W, 0603	0603
41	R15, R21, R42, R46, R49	5	0	ERJ-2GE0R00X	Panasonic	RES, 0, 0%, 0.1 W, AEC-Q200 Grade 0, 0402	0402
42	R16, R23, R24	3	680	CRCW0402680R0JNEJ	Vishay-Dale	RES, 680, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402
43	R17, R22, R29	3	10.0k	AC0402FR-0710KL	Yageo America	RES, 10.0 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402
44	R25, R26	2	10Meg	CRCW040210M0JNEJ	Vishay-Dale	RES, 10 M, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402
45	R28, R30, R46, R47	4	0	CRCW0603000J02EA	Vishay-Dale	RES, 0, 0%, 0.1 W, AEC-Q200 Grade 0, 0603	0603
46	R41	1	120	RC0603FR-07120RL	Yageo America	RES, 120, 1%, 0.1 W, 0603	0603
47	R43, R44, R45, R55, R56, R57, R58	7	1.0k	CRCW04021K00FKED	Vishay-Dale	RES, 1.00 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402
48	R50	1	10.0k	CRCW040210K0FKED	Vishay-Dale	RES, 10.0 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402
49	R60	1	100	CRCW0402100J0JNEJ	Vishay-Dale	RES, 100, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402
50	R63	1	3.3k	CRCW04023K30JNEJ	Vishay-Dale	RES, 3.3 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402
51	R64, R69	2	470	RC0402FR-07470RL	Yageo America	RES, 470, 1%, 0.063 W, 0402	0402
52	R65	1	10k	CRCW040210K0JNEJ	Vishay-Dale	RES, 10 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402
53	R67	1	4.87k	CRCW040424K87FKED	Vishay-Dale	RES, 4.87 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402
54	R68	1	51	CRCW040251R0JNEJ	Vishay-Dale	RES, 51, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402
55	S1, S2, S5	3		1188E-1K2-Y-1R	Diptronics	Switch, SPST, 0.05 A, 12 VDC, SMD	7.6x3.5mm Switch
56	S3, S6	2		CAS-120TA	Copal Electronics	Switch, Slide, SPDT, 100mA, SMT	Switch, 5.4x2.5x2.5mm
57	S4	1		CAS-220TA	Copal Electronics	SLIDE SWITCH DPDT -1A, SMT	SWITCH, 5.4x2.5x3.5mm
58	U1	1		XAM13E20190TPTM	Texas Instruments	AM13E2x Microcontroller, LQFP64	LQFP64
59	U2	1		LM2540MPX5.0NCPB	Texas Instruments	1A Low Dropout Regulator, DCY0004A (SOT-223-4)	DCY0004A
60	U3	1		1LV75733P3RVP	Texas Instruments	1A Low Quiescent-Current Low-Dropout (LDO) Regulator, DRV0006A (WSON48)	DRV0006A
61	U4	1		TPD4E050J02QAR	Texas Instruments	4-Channel Ultra-Low-Capacitance IEC ESD Protection Diode, DOA0010A (USON-10)	DOA0010A
62	U5	1		COUSB1111DW	Texas Instruments	±Full Low Speed Isolated USB Repeater, SOIC16-Wide	SCOW16
63	U6	1		TPS61241YFFR	Texas Instruments	5V, 500mA, 4MHz Step-Up DC/DC Converter, YFF0006AAEAE (DSBGA-6)	YFF0006AAEAE
64	U7	1		TPS3808EG33Q0VR	Texas Instruments	Low-Quiescent current supervisor with programmable delay and manual reset (SOT-23-4) to RS	SOT23-6