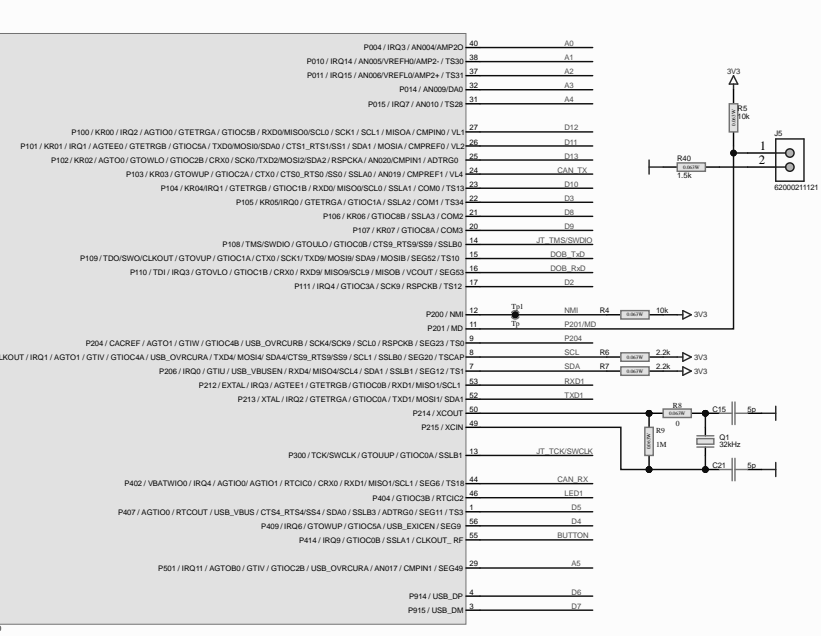
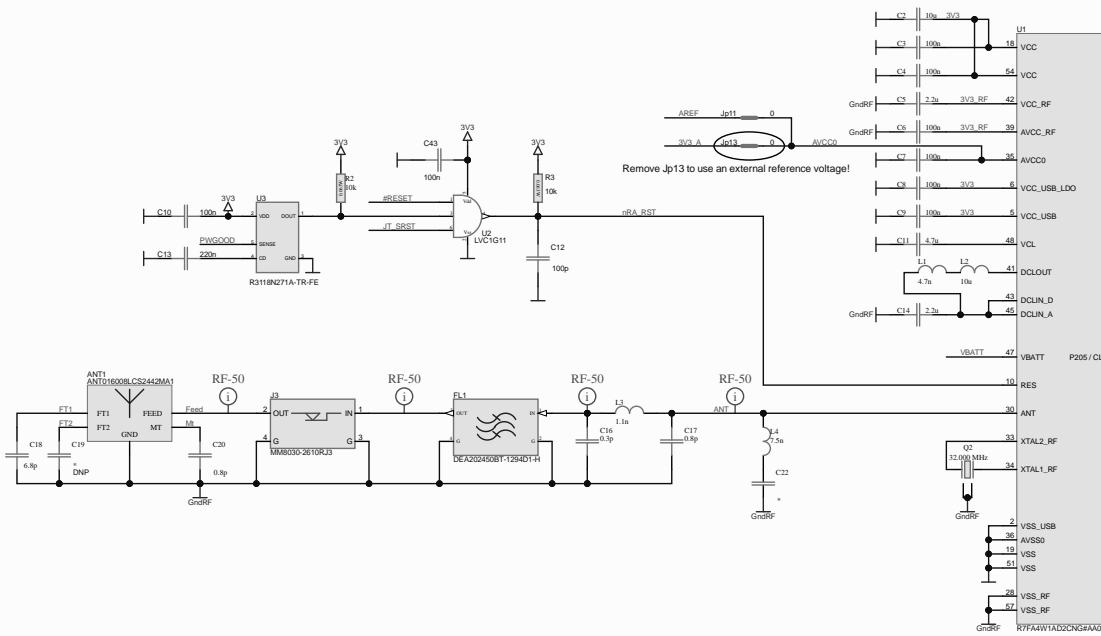
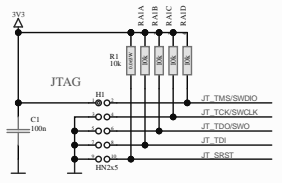
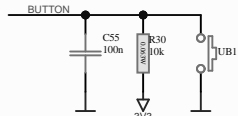
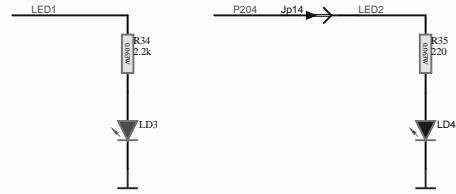


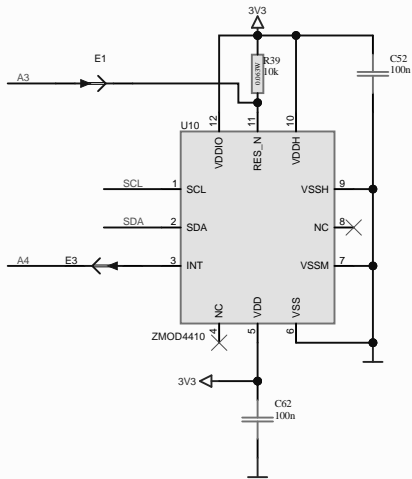
VK-RA4W1			
Board I/O			
A4	-	Revision: 2.0	
Date: 21.02.2022	Drawn by: DT	Approved by: -	Sheet 1 of 5



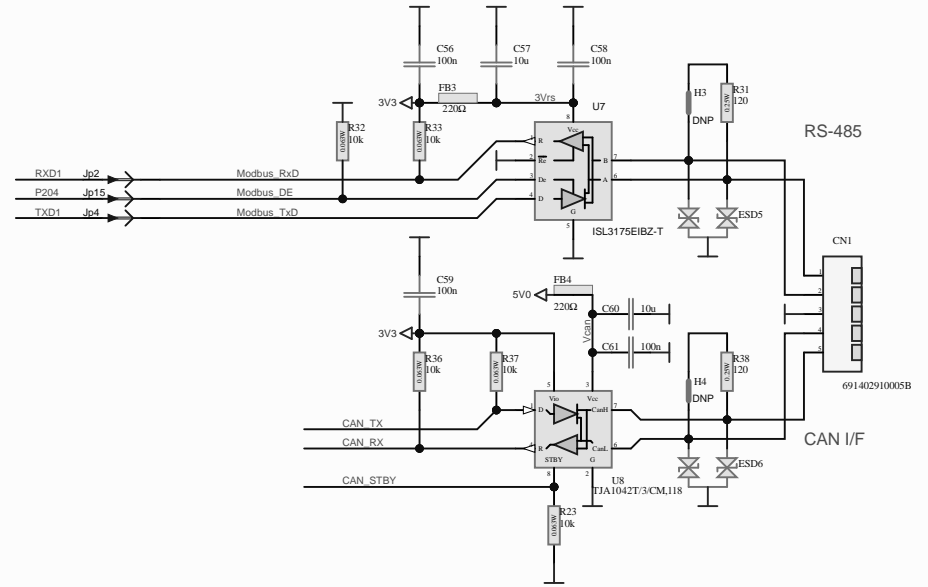
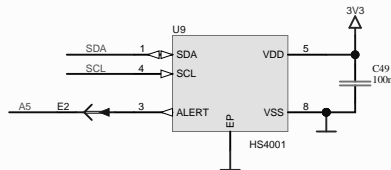
VK-RA4W1			
Control & RF			
A3	-	Revision: 2.0	
Date: 21.02.2022	Drawn by: DT	Approved by: -	Sheet 2 of 5



Gas Sensor



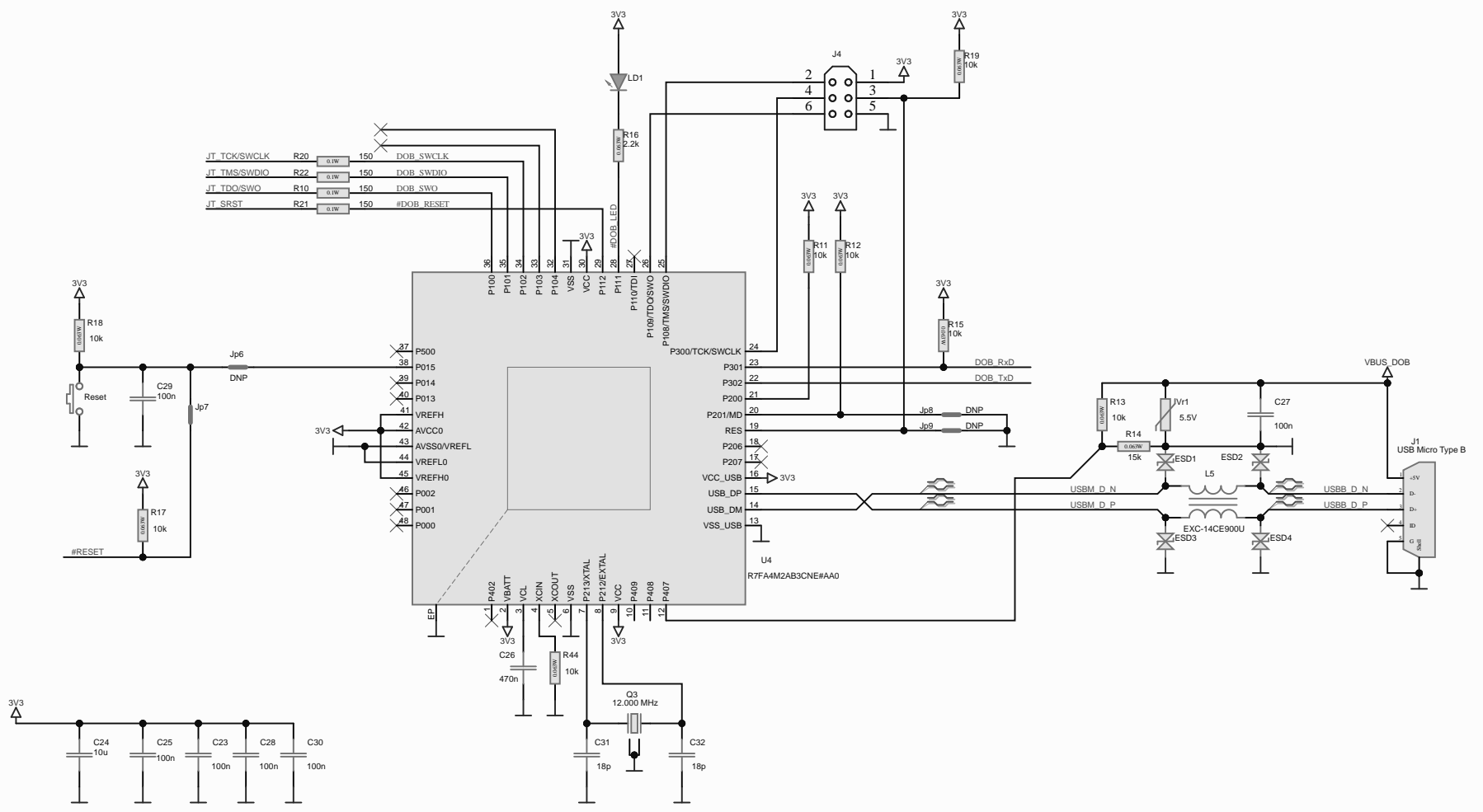
Relative Humidity and Temperature Sensor



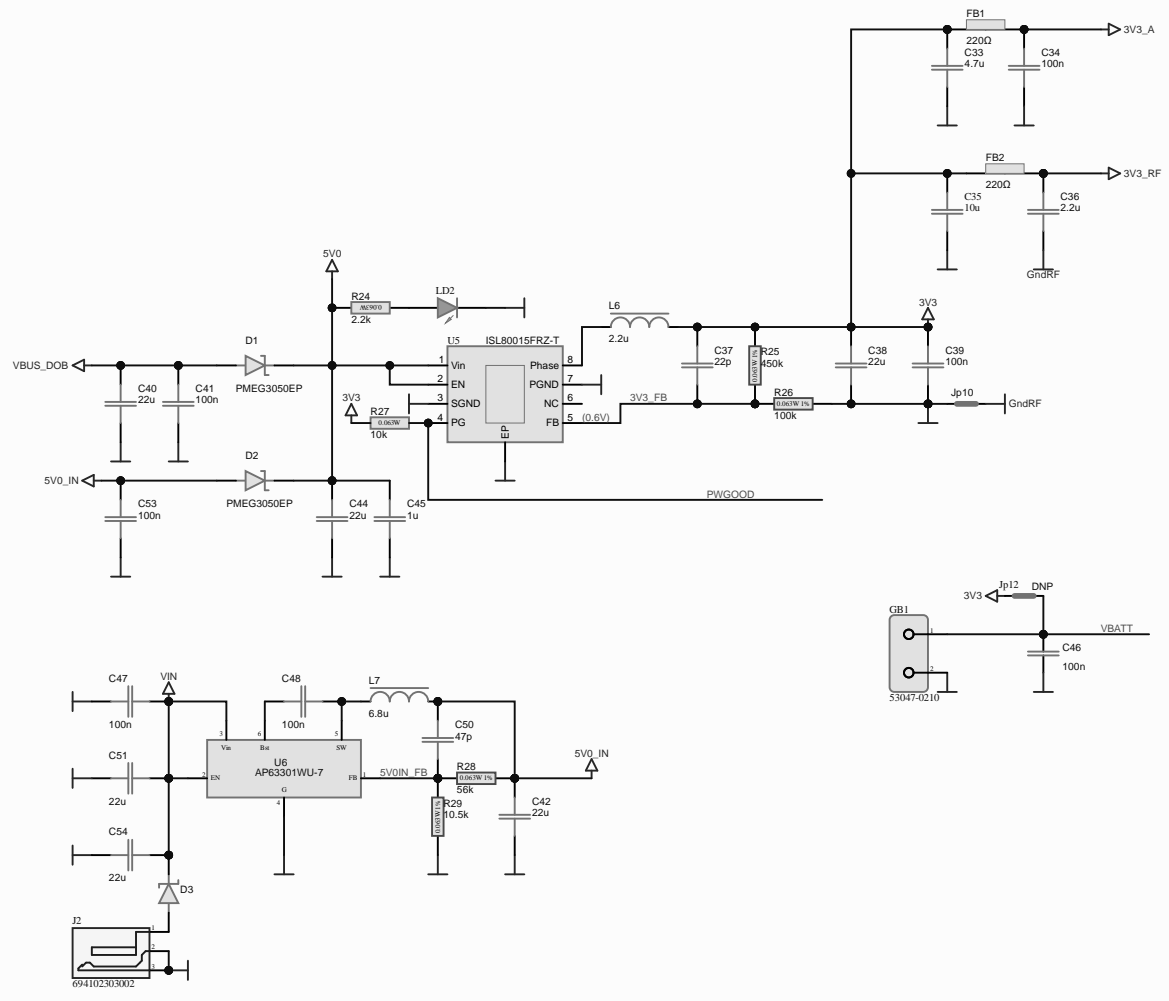
VK-RA4W1

On Board Periphery

A4	-	Revision: 2.0
Date: 21.02.2022	Drawn by: DT	Approved by: -
		Sheet 3 of 5



VK-RA4W1			
On Board Debugger			
A4	-	Revision: 2.0	
Date: 21.02.2022	Drawn by: DT	Approved by: -	Sheet 4 of 5



VK-RA4W1			
Power Supply			
A4	-	Revision: 2.0	
Date: 21.02.2022	Drawn by: DT	Approved by: -	Sheet 5 of 5

Designator	Description	Quantity	Comment	Part Number	Manufacturer	Placement
ANT1	Antenna CERAMIC CHIP ANTENNA 2.4GHz WLAN-BT	1		ANT10608LCS2442MA1	TDK	
C1, C3, C4, C6, C7, C8, C9, C10, C23, C25, C27, C28, C29, C30, C34, C39, C41, C43, C46, C47, C48, C49, C52, C53, C56, C58, C59, C61, C62	SMD 0402 50V X7R 10%, SMD 0402 50V X7R 10%, SMD 0402 16V X7R 10%, SMD 0402 6.3V X5R 20%, SMD 0603 50V X7R 5%	30	100n	88501220506, C108104RBSNN C	Würth Elektronik, Samsung	
C2, C24, C35, C57, C60, L2	SMD 0402 6.3V X5R 20%, SMD 0402 16V X7R 10%, SMD 0805	6	10u	88501210500, CLOSA10K05NN NC, MLZ1608M100WT 000	Würth Elektronik, Samsung, TDK	
C5, C14, C36, L6	SMD 0402 6.3V X5R 20%, SMD 0402 50V X7R 10%, 3.1A 60mΩ 1x1x11mm	4	2.2u	CLOSA22M05NN NC, CLO8B10K05NN C, TFM001610ALMA2 R2M1AA	Samsung, TDK	
C11, C33	SMD 0402 6.3V X5R 10%, SMD 0402 6.3V X5R 20%	2	4.7u	CLOSA475M05NN NC, CLOSA10M05NN NC	Samsung	
C12	SMD 0402 50V COG 5%	1	100p	CLO8B22M05NN NC	Samsung	
C13	SMD 0402 16V X7R 10%	1	220n	CLO8B10K05NN C, CLOSA10M05NN NC	Samsung	
C15, C21	SMD 0402 50V X7R 10%, SMD 0402 6.3V X5R 20%	2	5p	CLO8B10K05NN C, CLOSA10M05NN NC	Samsung	
C16	SMD 0402 50V COG 5%	1	0.3p		Samsung	
C17, C20	SMD 0402 50V COG 5%, SMD 0201 50V COG 5%	2	0.3p		Samsung	
C18	SMD 0201 50V COG 5%	1	1a,8p		Samsung	
C19	SMD 0201 50V COG 5%	1	1		Samsung	DNP
C22	SMD 0402 50V COG 5%	1	1		Samsung	
C26	SMD 0402 50V X7R 10%	1	470n	88501220506	Würth Elektronik	
C31, C32	SMD 0402 50V COG 5%	2	18p	CLO5C180BSNN C	Samsung	
C37	SMD 0402 50V COG 5%	1	22p	CLO5C470BSNN C	Samsung	
C38, C40, C42, C44, C51, C54	SMD 0603 6.3V X5R 10%, SMD 0603 10V X5R 20%, SMD 0805 25V X5R 10%	6	22u	CL10A22M03NR NC, C0603 10uF 10V X5R SAMSUNG, GRM218861E226 M44	Samsung	
C45	SMD 0603 25V X5R 10%	1	1u	CL10A105K03NN NC	Samsung	
C50	SMD 0402 50V COG 5%	1	47p	CLO5C470BSNN C	Samsung	
CN1	Fixed Terminal Block WR-TB, Terminal block - Screwless Push-IN-TH	1		4914029100058	Würth Elektronik	
D1, D2, D3	SMD 020128 5A 30V Schottky	3		PM6C3005P	Maxim	
ESD1, ESD2, ESD3, ESD4	ESD Suppressors / TVS Diodes WE-VE ESD 0402 12vdc 5gf	4		82357120050	Würth Elektronik	
ESD5, ESD6	TVS Diode WE-TV5 Standard 0.5uA 2VDC 2Channel	2		824098024	Würth Elektronik	
F81, FB2, FB3, FB4	SMD 0603 2A 2200/50mΩ	4	0.25u	BLM18EG215N10	Murata	
F11	Signal Conditioning 2.4FGz WLAN/BT Multilayer Band Pass Filter	1		DEA202458BT-1204D1-H	TDK	
G81	Headers & Wires Housing: VERTICAL HDR 2P	2		ESD47-0210	Molex	
H1	Pin Header, Board-to-Board, 1.27mm, 2 Rows, 10 Contacts, Surface Mount, WR-PHD Series	1		PH2x5	Würth Elektronik	
H11	USB Connector WR-COM Type-B SMT 5Pin Horiz 1mm Mono	1		629105126821	Würth Elektronik	
H2	DC Power Connector WR-DC Powrk CH-PTH Right Angled	1		69410230302	Würth Elektronik	
H3	Microwave Coaxial Connectors with Switch SWG Type 250Vrms 0.57ohms 13GHz	1		MH8030-2610R3	Murata	
H5	WR-PHD Pin Header, TH, pitch 2mm, Single Row, Vertical, 2p	1		62000211121	Würth Elektronik	
Ip6	SMD 0603 0 Ω	1	0 Ω	6603SAJ0001F50	UniChm	DNP
Ip7	SMD 0603 0 Ω	1	0 Ω	6603SAJ0001F50	UniChm	DNP
Ip11, Ip13, R8	SMD 0603 0 Ω, SMD 0402 0.063W 5% 50V	3		6603SAJ0001F50, (NoValue)	UniChm, YAGEO	
L1	SMD 0402	1	4.7n	LCG19154S4750D	Murata	
L3	SMD 0402	1	1.1n	LCM15AN94800 D	Murata Electronics	
L4	SMD 0402	1	7.5n	LCG19154S750D	Murata	
L5	Common mode Noise Filter 900	1		EXC-14E19000	Panasonic	
L7	1.3A 120mΩ 4x4x1.65mm	1		LCM449668WRP C	Murata	
LD1, LD2	Standard LED - SMD WL-SMCD SMD Mono SMD 0603 Green 520nm	2		150060555040	Würth Elektronik	
LD3	IR-LED Red 630nm 600mΩ 20mA	1		150060555040	Würth Elektronik	
LD4	Standard LED - SMD WL-SMCD SMD Mono SMD 0603 Blue 465nm	1		150060555040	Würth Elektronik	
PN1, PN3	Съединител гнезда, височина на тялото 8.5mm, 1x8, прав за платна TH P2 54mm	2		CE39062V100	CVILIX	
PN2	Съединител гнезда, височина на тялото 8.5mm, 1x10, прав за платна TH P2 54mm	1		CE39102V100	CVILIX	
PN4	съединител гнезда, височина на тялото 8.5mm, 1x6, прав за платна TH P2 54mm	1		CE39062V100	CVILIX	
Q1	SMD 5.0x3.2x1.1mm 2pin	1	32kHz	NK0125A-32-768K-STD-MLB	NDK	
Q2	Crystal 32MHz 10uW 5gf SMD 1.6mm x 1.2mm	1	32,000MHz	NK16125A-32-000MHz-CHP-C15-3	NDK	
Q3	Crystal WE-XTAL 12.0MHz 30ppm 3.2 x 2.5mm	1	12,000MHz	830180338899	Würth Elektronik	
R1, R2, R3, R4, R5, R11, R12, R13, R15, R17, R18, R19, R23, R27, R30, R32, R33, R36, R37, R39, R44, RA1	SMD 0402 0.063W 5% 50V, SMD 0805 (88A-0402) 0.0625W 5%	22	1k	(NoValue), YC124, R8-0747L	YAGEO	
R6, R7, R16, R24, R24	SMD 0402 0.063W 5% 50V	3	2k		YAGEO	
R9	SMD 0402 0.063W 5% 50V	1	1k1		YAGEO	
R10, R20, R21, R22	SMD 0603 0.1W 5% 75V	4	150		YAGEO	
R14	SMD 0402 0.063W 5% 50V	1	15k		YAGEO	
R25	SMD 0402 0.063W 5% 50V	1	48k		YAGEO	
R26	SMD 0402 0.063W 5% 50V	1	10k		YAGEO	
R28	SMD 0402 0.063W 1% 50V	1	50k		YAGEO	
R29	SMD 0402 0.063W 1% 50V	1	10.5k		YAGEO	
R31, R38	SMD 1206 0.25W 5% 200V	2	120	RC1206R-07120RL (NoValue)	YAGEO	
R35	SMD 0402 0.063W 5% 50V	1	220		YAGEO	
R40	SMD 0402 0.063W 5% 50V	1	1.5k		YAGEO	
Reset, LB1	Tactile Switch WS-1ASV SMT 2.5mm 180q 500mA 10V Black	2		43413305816	Würth Elektronik	
U1	RF Microcontroller - MCU MCU ARM ARM CM4 48MHz 512A/96k DRAM	1		R7FAA71AD2CNGFAA0	Renesas	
U2	3 Inpt Pos AND Gate	1		LVCI011	Texas Instruments	
U3	Supervisory Circuits Low Voltage Detector w/SENSE pin	1		R3118N271A-TR-FE	Richo Electronics	
U4	ARM Microcontrollers - MCU MCU ARM ARM CM33 100MHz 256K/128K CFN48	1		R7FAA0DAB3CNEFAA0	Renesas Electronics	
U5	Switching Voltage Regulators 1.5A Low Iq High Efficiency Synch Buck Reg, IDFN 2mm x 2mm	1		ISL8001SRZ-T	Renesas Electronics	
U6	Switching Voltage Regulator DC-DC Conv HV Buck TS0126 Fb=0.8V Ind=3μ	1		AP63301WJ-7	Diodes Incorporated	
U7	RS-422/RS-485 Interface IC BLDC/ECM ESD 3V RS-485 1/2 DUPLEX 500 kb/s	1		ISL3175EBZ-T	Renesas Electronics	
U8	CAN Interface IC 16-Speed CAN Tmscr w/Standby Mode	1		TJA1042T/3/CM118	NXP Semiconductors	
U9	Multiple Function Sensor Modules HS4001 3.5%RH RELATIVE HUMIDITY AND TEMPERATURE	1		HS4001	Renesas Electronics	
U10	Indoor Air Quality Sensor	1		ZAKM3410	Renesas	
U11	Sensor WE-V5 SMD 0402 220gf 20A 5.5VDC	1		82537040	Würth Elektronik	