

# Smoke Detector demonstrator - Bill of Material



Number	Reference	Part	Description	Package	Manufacturer	Data Sheet
1	1	U1	RL78 I1D R5F117GCGFB	16-bit MCU RL78/I1D	QFP 48 pins	Renesas Electronics
2	1	AC-903A-RPA	BUZZER-AC-903Q-P6	Buzzer		Advanced Acoustic Technology Corporation (www.aatc.com.tw)
3	1	CN01,CN02	2X13 pin header 2.54mm	Male Header	0.1 inch (2.54mm) spacing	Common
4	1	C1	0.47uF C0603	Chip Capacitor	603	Common
5	11	C2,C3,C8,C9,C10,C11, C14,C17,C23,C45,C46	0.1uF C0603	Chip Capacitor	603	Common
6	2	C4,C5	20p C0603	Chip Capacitor	603	Common
7	2	C6,C7	10pF C0603	Chip Capacitor	603	Common
8	1	C12	10uF C0805	Chip Capacitor	805	Common
9	3	C13,C15,C16	1uF C0603	Chip Capacitor	603	Common
10	2	C35,C36	1nF C0603	Chip Capacitor	603	Common
11	2	C37,C47	20pF C0603	Chip Capacitor	603	Common
12	NO	DNI_J1,DNI_J2,DNI_J3,DNI_J4	1X12P254	Male Header	0.1 inch (2.54mm) spacing	Common
13	NO		1X2P254	Male Header	0.1 inch (2.54mm) spacing	Common
14	1	D1	LS4148 SMD-D	Diode	3.7mm x 1.6mm	Digikey (Vishay)
15	1	D4	ZLLS410 SOD323 (BAT60J)	Diode	SOD323	Digikey (Diodes Incorporated)
16	2	JP10,JP11	3362P-B VR-3362P-B		6.99mm x 6.6mm	Digikey (Bourns)
17	4	J1,J2,J3,J6	CON2 2P254	Male Header	0.1 inch (2.54mm) spacing	Common
18	2	J4,J7	CON3 2P254	Male Header	0.1 inch (2.54mm) spacing	Common
19	1	J9	2X6 female header P254VD	Female Header	0.1 inch (2.54mm) spacing	Common
21	1	J12	H1 1P254	Male Header	0.1 inch (2.54mm) spacing	Common
22	1	J13	H2 1P254	Male Header	0.1 inch (2.54mm) spacing	Common
23	1	L1	BLM41PG750S L1806	Inductor	1806	Digikey (Murata)
24	2	Q1,Q3	SSM3J114TU-S323	P-Channel MOSFET Transistor	S323	Digikey (Toshiba)
25	3	Q2,Q4,Q5	Q-2N3904-S23	Bipolar Transistor (NPN)	S23	Common
26	3	R1,R3,R12	10K R0603	Chip Resistor	603	Common
27	5	R2,R13,R31,R32,R40	1K R0603	Chip Resistor	603	Common
28	2	R4,R5	DNI_10=NO	Chip Resistor	603	Common
29	1	R6	200 R0603	Chip Resistor	603	Common
30	1	R7	100 R0603	Chip Resistor	603	Common
31	1	R8	3.3M R0603	Chip Resistor	603	Common
32	2	R9,R11	47K R0603	Chip Resistor	603	Common
33	5	R10,R59,R70,R71,R72	1M R0603	Chip Resistor	603	Common
34	1	R33	270K R0603	Chip Resistor	603	Common
35	1	R41	120 R0603	Chip Resistor	603	Common
36	1	R42	10 R0603	Chip Resistor	603	Common
37	4	R43,R46,R47,R48	DNI=NO	Chip Resistor	603	Common
38	1	R67	301K R0603 (1%)	Chip Resistor	603	Common
39	1	R68	38.3K R0603 (1%)	Chip Resistor	603	Common
40	1	R69	100K R0603	Chip Resistor	603	Common
41	1	SW1	SW-90-3.85mm SW-0770	Pushbutton Switch		Switronic
42	NO	TP1	ST1 M10-P20			Same as 0.1inch header stock

43	NO	TP2	OUT M10-P20			Same as 0.1inch header stock	
44	NO	U2	AIC1701L-18GV5	Voltage Reference IC		Analog Integrations Corporation	
45	1	Y1	FL 20MHz CRYSTAL-250200-3	20MHZ Crystal	2.5mm x 2.0mm	find replacement Digikey	
46	1	Y2	32.768KHZ CRYSTAL-320150-X	32768HZ Resonator	3.2mm x 1.5mm	find replacement Digikey	
47	1	bat	BH123A	CR123 Battery Holder		Digikey (Memory Protection Devices)	
48	1	J11: Pin 8 Cathode, Pin 7 Anode	OSE-1L7	InfraRed Emitter LED		OPTO-SENSOR	OSE-1L7.pdf
49	1	J10: Pin 1 Cathode Pin2 Anode	OSP-7FR4	InfraRed Photodiode		OPTO-SENSOR	OSP-7FR4.pdf
50	1		ES-21110PKG	Optical Smoke Chamber			

Note: All Chip Capacitors and Chip Resistors are 5% tolerance except for resistors marked as 1%

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