



Bill of Materials

TI DESIGNS

TIDM-SMOKEDETECTOR

MSP-EXP430G2

Item	Qty	Reference	Value	Part Description	Manufacturer	Manufacturer Part Number	Alternate Part	PCB Footprint	Note
1	2	C2, C3	16pF	Ceramic Capacitor				0402	
2	2	C9, C10	22pF	Ceramic Capacitor				0402	
3	1	C1	10nF	Ceramic Capacitor				0402	
4	5	C5, C7, C11, C12, C13	100nF	Ceramic Capacitor				0402	
5	3	C4, C6, C8	1uF	Ceramic Capacitor, 6.3V				0603	
6	1	D1	1V@ 50mA, 75V 0.15A	Switching Diode	Micro Commercial	1N4148WX-TP		0603	
7	1	EZ_USB	SB-MB-H	USB Connector	Wurth Electronics	65100516121	UX60A-MB-5ST		
8	1	Q1	12.0MHz, 16pF	Crystal	Freqtech	FT10A-12,0/16-30-30/27			
9	3	R1, R2, R3, R16, R17	47k	Resistor 5% tolerance				0402	DNP: R16 R17
10	1	R8	61.5k	Resistor 5% tolerance				0402	
11	2	R19, R22	3.3k	Resistor 5% tolerance				0402	
12	1	R9	30k	Resistor 5% tolerance				0402	
13	2	R12 R21	33k	Resistor 5% tolerance				0402	
14	5	R4, R5, R6, R7, R23	100R	Resistor 5% tolerance				0402	
15	2	R14, R15	33R	Resistor 5% tolerance				0402	
16	2	R18, R20	100k	Resistor 1% tolerance				0402	
17	3	R13, R24, R25	1.5k	Resistor 5% tolerance				0402	
18	1	R10	10k	Resistor 5% tolerance				0402	
19	1	R11	15k	Resistor 5% tolerance				0402	
20	1	U1	MSP430F1612IPMR	Texas Instrument Microcontroller	Texas Instruments	MSP430F1612IPMR		64QFP	
21	1	U4	TPD2E001DRLR	2 channel +/-15kV ESD Protection	Texas Instruments	TPD2E001DRLR		5SOT	
22	1	U3	TUSB3410VF	RS232/IrDA Serial-USB Converter	Texas Instruments	TUSB3410VF		32QFP	
23	1	U2	TPS77301DGKR	Single Output 250mA LDO, Adjust	Texas Instruments	TPS77301DGKR		8VSSOP	
24	1	U5	AT24C128-10TU-2.7	Serial EEPROM	Atmel	ATC24C128-10TU-2.7	24AA128-I/ST	8TSSOP	
25	1	C14	1nF	Ceramic Capacitor				0603	
26	2	C21, C22	12.5pF	Ceramic Capacitor				0603	DNP
27	1	C23	10uF	Ceramic Capacitor, 10V	TDK	C2012Y5V1A106Z		0805	
28	1	C20, C24	100nF	Ceramic Capacitor				0603	DNP: C24
29	2	LED0, LED1	Green	Green 0603 LED				0603	
30	1	LED2	Red	Red 0603 LED				0603	
31	1	R34, R27	47k	Resistor 5% tolerance				0603	DNP: R34
32	2	R32, R26	270R	Resistor 5% tolerance				0603	
33	1	R33	470R	Resistor 5% tolerance				0603	
34	2	R28, R29	0R	Resistor				0603	
35	1	U7	DIL20	20DIP IC Socket	Aries Electronics	20-3518-10	4820-3000-CP	20DIP	
36	1	Q2	Crystal						DNP
37	2	J1, J2,	10-pin header, TH	10x1 100mil male header					

Item	Qty	Reference	Value	Part Description	Manufacturer	Manufacturer Part Number	Alternate Part	PCB Footprint	Note
38	1	J3	2X05 Pin Header Male	5x2 100mil male header					place jumper on all header (5 pcs)
39	1	J4	6 Pin Header Male 1.28 mm						DNP
40	1	J5	2X02 Pin Header Male	2x2 100mil male header					place jumper on header (2 pcs)
41	2	J6	3-pin header, male, TH	3x1 100mil male header					
42	2	S1, S2	Push Button	SPST Push Button	Panasonic	EVQ-21505R			
43	1	MSP430	MSP430G2452IN20	Texas Instrument Microcontroller	Texas Instruments	MSP430G2452IN20		20DIP	Option for Socket
44	1	MSP430	MSP430G2553IN20	Texas Instrument Microcontroller	Texas Instruments	MSP430G2553IN20		20DIP	Option for Socket



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TI DESIGNS

TIDM-SMOKEDETECTOR

Smoke Detector

Item	Qty	Reference	Value	Part Description	Manufacturer	Manufacturer Part Number	Alternate Part	PCB Footprint	Note
1	1	C1	3.3pF	CAP, CERM, 3.3 pF, 50 V, +/- 8%, COG/NPO, 0603	AVX	06035A3R3CAT2A		0603	
2	1	C2	100uF	CAP, CERM, 100 µF, 6.3 V, +/- 20%, X5R, 1210	MuRata	GRM32ER60J107ME20 L		1210	
3	1	C3	1uF	CAP, CERM, 1 µF, 10 V, +/- 10%, X5R, 0603	MuRata	GRM185R61A105KE36 D		0603	
4	1	C4	10uF	CAP, CERM, 10 µF, 10 V, +/- 10%, X5R, 1210	Kemet	C1210C106K8PACTU		1210	
5	1	D1	Red	LED, Red, SMD	Rohm	SML-311UTT86		SML-31_Red	
6	1	D2	30V	Diode, Schottky, 30V, 0.5A, SOD-123	ON Semiconductor	MBR0530T1G		SOD-123	
7	1	J1/J2		20 Pin Booster Pack Connection	Samtec	SSW-110-23-F-5 (requires 2)		20Pin BP	
8	2	J3, J4		Header, 100mil, 2x1, Tin, TH	Molex	90120-0122		CONN_90120-0122	
9	1	L1	10uH	Inductor, Shielded, Ferrite, 10uH, 0.45A, 1.33 ohm, SMD	Vishay-Dale	IFSC0806AZER100M01		IFSC-0806AZ-01	
10	1	P1		Buzzer	Murata	PKM24SPH3805		PKM24SPH3805	
11	2	Q1, Q2	2.6V	Transistor, NPN, 30V, 0.6A, SOT-23	ON Semiconductor	MMBT2222LT1G		SOT-23	
12	1	Q3	0.075V	Transistor, PNP, 45V, 0.1A, SOT-23	Diodes Inc.	BC857C-7-F		SOT-23	
13	1	Q4		NPN Transistor	Toshiba	2SC4738		SC-75-3	
14	1	R1	2.2Meg	RES, 2.2Meg ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW06032M20JNEA		0603	
15	1	R2	15k	RES, 15k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW060315K0JNEA		0603	
16	1	R3	5.1k	RES, 5.1k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW06035K10JNEA		0603	
17	1	R4	100	RES, 100 ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW0603100RJNEA		0603	
18	1	R5	6.8	RES, 6.8 ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW06036R80JNEA		0603	
19	1	R6	560	RES, 560 ohm, 5%, 0.1W, 0603	Yageo America	RC0603JR-07560RL		0603	
20	1	R7	180k	RES, 180k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-07180KL		0603	
21	1	R8	150k	RES, 150k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW0603150KJNEA		0603	
22	1	R9	620	RES, 620 ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW0603620RJNEA		0603	
23	1	R10	2.21Meg	RES, 2.21Meg ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW06032M21FKEA		0603	
24	1	R11	3.9k	RES, 3.9k ohm, 5%, 0.1W, 0603	Yageo America	RC0603JR-073K9L		0603	
25	1	R12	160k	RES, 160k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-07160KL		0603	
26	1	R13	47k	RES, 47k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW060347K0JNEA		0603	

Item	Qty	Reference	Value	Part Description	Manufacturer	Manufacturer Part Number	Alternate Part	PCB Footprint	Note
27	1	S1		SWITCH TACTILE SPST-NO 0.05A 12V	Omron Electronic Cor	B3U-1000P		SW_B3U-1000P	
28	1	U1		Single RRIO, 8 MHz Amplifier with Shutdown, 1.8 to 3.6 V, -40 to 125 degC, 6-pin SOT23 (DBV0006A), Green (RoHS & no Sb/Br)	Texas Instruments	TLV2780IDBVR		DBV0006A_N	
29	1	U2		Smoke Chamber				Smoke Chamber	Not commercially available
30	1	U3		28 V, 400 mA Switch Boost Converter for White LED Applications, 1.8 to 6 V, -40 to 85 degC, 5-pin SOT23 (DBV5), Green (RoHS & no Sb/Br)	Texas Instruments	TPS61040DBVR		DBV0005A_N	

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