

# Bill of Materials

**TI DESIGNS**

Board:

**TIDM-NFC-CE**  
 TRF7970A BOM

Item	QTY	Ref Des	Value	Part Description	Manufacturer	Manufacturer Part Number
1	0	ANT1	0.950uH			
2	5	C1 C3 C5 C7 C9	2.2uF		Kemet	C0603C225K8PACTU
3	5	C2 C4 C6 C8 C10	0.01uF		Panasonic - ECG	ECJ-1VB1E103K
4	3	C11 C12 C22	27pF		Panasonic - ECG	ECJ-1VC1H270J
5	2	C13 C14	1500pF		Panasonic - ECG	ECJ-1VB1H152K
6	2	C15 C16	1200pF		Panasonic - ECG	ECJ-1VB1H122K
7	2	C17 C20	680pF		Panasonic - ECG	ECJ-1VC1H681J
8	1	C18	10pF		Panasonic - ECG	ECJ-1VC1H100D
9	1	C19	220pF		Panasonic - ECG	ECJ-1VC1H221J
10	1	C21	100pF		Panasonic - ECG	ECJ-1VC1H101J
11	1	C23	68pF		Panasonic - ECG	GRM1885C2A680JA01D
12	1	C24	82pF	CAP CER 82PF 100V 5% COG 0603	Panasonic - ECG	GRM1885C2A820JA01D
13	2	C25 C26	10uF	CAP CER 10UF 6.3V X5R 0603	Taiyo Yuden	JMK107BJ106MA-T
16	1	J1	COAXIAL	RECEPTACLE_CON_COAXIAL_UFL-R-SMT	Hirose	U.FL-R-SMT-1
17	1	L1	150nH		Coilcraft	1008CS-151XJLB
18	1	L2	330nH		Coilcraft	1008CS-331XJLB
19	1	L4	4.7uH	Passive_4.7uH_IND_SM_EPL3015	Coilcraft, Inc.	EPL3015-472MLB
21	1	OSC1	13.560MHz	SMD XTAL 13.560MHz I30 series	ITTI Company	1300225-13.560MHz
22	2	P1 P2	SFM-110-02-L-D-A	SMT-20pin-30Au 50ni-Double Row-Alignment pin	SAMTEC	SFM-110-02-L-D-A
23	4	R1 R2 R3 R4	10k		Panasonic - ERJ	ERJ-3GEYJ103V
24	1	R5	0		Panasonic - ERJ	ERJ-3GEYJ0R00V
25	1	R6	680		Rohm	ESR03EZPJ681
26	0	TP1 TP2 TP3 TP4 TP9 TP11	TESTVIA_018			
27	2	TP5 TP12	Black	TEST POINT .025" SQR POST HDR BLACK	Components Corporation	TP-105-01-00
28	0	TP6 TP7 TP8	TESTPAD_018			
29	1	TP10	Gray	TEST POINT .025" SQR POST HDR GRAY	Components Corporation	TP-105-01-08
30	1	TP13	Blue	TEST POINT .025" SQR POST HDR BLUE	Components Corporation	TP-105-01-06
31	1	TP14	Green	TEST POINT .025" SQR POST HDR GREEN	Components Corporation	TP-105-01-05
32	1	TP15	Brown	TEST POINT .025" SQR POST HDR BROWN	Components Corporation	TP-105-01-01
33	1	U1	TRF7970ARHB	IC RFID/NFC AFE 13.56MHZ 32QFN	Texas Instruments	TRF7970ARHB
34	1	U2	TPS61222DCKT	+3VDC to +5VDC boost converter	Texas Instruments	TPS61222DCKT

# Bill of Materials

TI DESIGNS

Board: **TIDM-NFC-CE**  
 MSP  
 EXP430F5529LP  
 BOM

ezFET or EXP?	Qty	Reference	Manufacturer	Description	Part Number	PCB DECAL/Package	Value	Supplier1	Digikey Number	Rev1.4 to Rev 1.5 Change
ezFET	1	C102	Standard	CAP CER 0.22UF 16V 10% X5R 0402.Digikey 445-4972-1-ND		C0402	220n	Digikey	445-4972-1-ND	
ezFET	1	C103	Standard	CAP CER 0.1UF 10V 20% X5R 0402.Digikey 445-4984-1-ND		C0402	100n	Digikey	445-4984-1-ND	
ezFET	1	C104	Standard	CAP TANT 10UF 10V 20% 1206.Digikey 493-2351-1-ND		TANT_3216	10u	Digikey	493-2351-1-ND	
ezFET	1	C107	Standard	CAP CER 0.22UF 16V 10% X5R 0402.Digikey 445-4972-1-ND		C0402	220n	Digikey	445-4972-1-ND	
ezFET	1	C110	Standard	CAP CER 10PF 50V NP0 0402.Digikey 445-1235-1-ND		C0402	10p	Digikey	445-1235-1-ND	
ezFET	1	C111	Standard	CAP CER 10PF 50V NP0 0402.Digikey 445-1235-1-ND		C0402	10p	Digikey	445-1235-1-ND	
ezFET	1	C112	Standard	CAP CER 1000PF 50V 10% X7R 0402.Digikey 445-1256-1-ND		C0402	1n	Digikey	445-1256-1-ND	
ezFET	1	C113	Standard	CAP CER 0.1UF 10V 20% X5R 0402.Digikey 445-4984-1-ND		C0402	100n	Digikey	445-4984-1-ND	
ezFET	1	C121	Standard	CAP CER 0.1UF 10V 20% X5R 0402.Digikey 445-4984-1-ND		C0402	100n	Digikey	445-4984-1-ND	
ezFET	1	C122	Standard	CAP CER 33PF 50V 5% NP0 0402.Digikey 445-1241-1-ND		C0402	33p	Digikey	445-1241-1-ND	
ezFET	1	C123	Standard	CAP CER 33PF 50V 5% NP0 0402.Digikey 445-1241-1-ND		C0402	33p	Digikey	445-1241-1-ND	
LP	1	C14	Standard	CAP CER 0.1UF 10V 20% X5R 0402.Digikey 445-4984-1-ND		C0402	100n	Digikey	445-4984-1-ND	
LP	1	C15	Standard	CAP CER 0.22UF 16V 10% X5R 0402.Digikey 445-4972-1-ND		C0402	220n	Digikey	445-4972-1-ND	
LP	1	C16	Standard	CAP CER 0.22UF 16V 10% X5R 0402.Digikey 445-4972-1-ND		C0402	220n	Digikey	445-4972-1-ND	
LP	1	C17	Standard	CAP CER 1000PF 50V 10% X7R 0402.Digikey 445-1256-1-ND		C0402	1n	Digikey	445-1256-1-ND	
LP	1	C18	Standard	CAP CER 0.47UF 16V 10% X5R 0402.Digikey 445-4976-1-ND		C0402	470n	Digikey	445-4976-1-ND	
LP	1	C19	Standard	CAP CER 0.1UF 10V 20% X5R 0402.Digikey 445-4984-1-ND		C0402	100n	Digikey	445-4984-1-ND	
LP	1	C20	Standard	CAP CER 0.1UF 10V 20% X5R 0402.Digikey 445-4984-1-ND		C0402	100n	Digikey	445-4984-1-ND	
LP	1	C21	Standard	CAP CER 0.1UF 10V 20% X5R 0402.Digikey 445-4984-1-ND		C0402	100n	Digikey	445-4984-1-ND	
LP	1	C23	Standard	CAP CER 10PF 50V 5% NP0 0402.Digikey 445-1235-1-ND		C0402	10p	Digikey	445-1235-1-ND	
LP	1	C24	Standard	CAP CER 10PF 50V 5% NP0 0402.Digikey 445-1235-1-ND		C0402	10p	Digikey	445-1235-1-ND	
LP	1	C25	Standard	CAP CER 12PF 50V 5% NP0 0402.Digikey 445-1236-1-ND		C0402	12p	Digikey	445-1236-1-ND	
LP	1	C26	Standard	CAP CER 12PF 50V 5% NP0 0402.Digikey 445-1236-1-ND		C0402	12p	Digikey	445-1236-1-ND	
LP	1	C27	Standard	CAP TANT 4.7UF 10V 10% 1206.Digikey 493-4142-1-ND		A/3216-18R	4u7	Digikey	493-4142-1-ND	
LP	1	C28	Standard	CAP CER 0.1UF 10V 20% X5R 0402.Digikey 445-4984-1-ND		C0402	100n	Digikey	445-4984-1-ND	
LP	1	C29	Standard	CAP CER 0.1UF 10V 20% X5R 0402.Digikey 445-4984-1-ND		C0402	100n	Digikey	445-4984-1-ND	
LP	1	C30	Standard	CAP TANT 10UF 10V 20% 1206.Digikey 493-2351-1-ND		TANT_3216	10u	Digikey	493-2351-1-ND	
LP	1	C31	Standard	CAP CER 0.1UF 10V 20% X5R 0402.Digikey 445-4984-1-ND		C0402	100n	Digikey	445-4984-1-ND	
Hub	1	C401	Standard	CAP CER 1UF 10V 10% X7R 0805.Digikey 587-1284-2-ND		C5MD0805	1u	Digikey	587-1284-2-ND	
Hub	1	C402	Standard	CAP CER 0.1UF 10V 20% X5R 0402.Digikey 445-4984-1-ND		C0402	100n	Digikey	445-4984-1-ND	
Hub	1	C403	Standard	CAP TANT 4.7UF 10V 10% 1206.Digikey 493-4142-1-ND		A/3216-18R	4u7	Digikey	493-4142-1-ND	
Hub	1	C404	Standard	CAP CER 1UF 10V 10% X7R 0805.Digikey 587-1284-2-ND		C5MD0805	1u	Digikey	587-1284-2-ND	
Hub	1	C405	Standard	CAP CER 22PF 50V 5% NP0 0402.Digikey 445-1239-1-ND		C0402	22p	Digikey	445-1239-1-ND	
Hub	1	C406	Standard	CAP CER 22PF 50V 5% NP0 0402.Digikey 445-1239-1-ND		C0402	22p	Digikey	445-1239-1-ND	
Hub	1	C407	Standard	CAP CER 0.1UF 10V 20% X5R 0402.Digikey 445-4984-1-ND		C0402	100n	Digikey	445-4984-1-ND	
Hub	1	C408	Standard	CAP CER 0.1UF 10V 20% X5R 0402.Digikey 445-4984-1-ND		C0402	100n	Digikey	445-4984-1-ND	
Hub	1	C409	Standard	CAP CER 22PF 50V 5% NP0 0402.Digikey 445-1239-1-ND		C0402	22p	Digikey	445-1239-1-ND	
Hub	1	C410	Standard	CAP CER 22PF 50V 5% NP0 0402.Digikey 445-1239-1-ND		C0402	22p	Digikey	445-1239-1-ND	
Hub	1	C411	Standard	CAP CER 22PF 50V 5% NP0 0402.Digikey 445-1239-1-ND		C0402	22p	Digikey	445-1239-1-ND	
Hub	1	C412	Standard	CAP CER 22PF 50V 5% NP0 0402.Digikey 445-1239-1-ND		C0402	22p	Digikey	445-1239-1-ND	
Hub	1	IC401	TI	IC 4-PORT HUB FOR USB 32-QFN.Digikey 296-21926-1-ND	TUSB2046BIRHBR	RHB_S-POFF-N32	TUSB2046BIRHBRHB	Digikey	296-21926-1-ND	
LP	1	J1	CM	CONN HEADER 20POS .100" DUAL, FEMALE with long male leads	CNT-F254-2*10-GS-850-9	2X10		CM	to be provided by CM	Updated part # for stronger male leads
LP	1	J10	Standard	CONN HEADER 3POS .100" SNGL TIN.Digikey SAM1075-03-ND		1X03	PWR	Digikey	SAM1075-03-ND	
LP	1	J3	Standard	CONN HEADER 3POS .100" SNGL TIN.Digikey SAM1075-03-ND		1X03	PWR	Digikey	SAM1075-03-ND	
Hub	1	J401	Standard	CONN RCPT MICRO USB B SMD R/A, Digikey H11574CT-ND		CONN_USB-MICRO-B-SMT R	ZX62R-B-5P	Digikey	H11574CT-ND	
LP	1	J5	CM	CONN HEADER 20POS .100" DUAL, FEMALE with long male leads	CNT-F254-2*10-GS-850-9	2X10		CM	to be provided by CM	Updated part # for stronger male leads
LP	1	JP1	Standard	CONN HEADER 2POS .100" SNGL TIN.Digikey SAM1075-02-ND		JP1M	+5V	Digikey	SAM1075-02-ND	
LP	1	JP2	Standard	CONN HEADER 2POS .100" SNGL TIN.Digikey SAM1075-02-ND		JP1M	+3V3	Digikey	SAM1075-02-ND	
LP	1	JP3	Standard	CONN HEADER 2POS .100" SNGL TIN.Digikey SAM1075-02-ND		JP1M	GND	Digikey	SAM1075-02-ND	
LP	1	JP4.1	Standard	CONN HEADER 2POS .100" SNGL TIN.Digikey SAM1075-02-ND		JP1M	SBWTKC	Digikey	SAM1075-02-ND	
LP	1	JP4.2	Standard	CONN HEADER 2POS .100" SNGL TIN.Digikey SAM1075-02-ND		JP1M	SBWTDIO	Digikey	SAM1075-02-ND	
LP	0	JP4.3	Standard	CONN HEADER 2POS .100" SNGL TIN.Digikey SAM1075-02-ND		JP1M	SBWDAT (dnp)	Digikey	SAM1075-02-ND	
LP	1	JP6.1	Standard	CONN HEADER 2POS .100" SNGL TIN.Digikey SAM1075-02-ND		JP1M	TXD	Digikey	SAM1075-02-ND	
LP	1	JP6.2	Standard	CONN HEADER 2POS .100" SNGL TIN.Digikey SAM1075-02-ND		JP1M	RXD	Digikey	SAM1075-02-ND	
LP	1	JP6.3	Standard	CONN HEADER 2POS .100" SNGL TIN.Digikey SAM1075-02-ND		JP1M	CTS	Digikey	SAM1075-02-ND	
LP	1	JP6.4	Standard	CONN HEADER 2POS .100" SNGL TIN.Digikey SAM1075-02-ND		JP1M	RTS	Digikey	SAM1075-02-ND	
LP	1	JP8	Standard	CONN HEADER 2POS .100" SNGL TIN.Digikey SAM1075-02-ND		JP1	LED1_PWR	Digikey	SAM1075-02-ND	
Hub	1	L401	Taiyo Yuden	INDUCTOR 2.2UH 20% SMD.Digikey 587-1638-1-ND	NR3010T2R2M	L-NR3010	2.2uH (NR3010T2R2M)	Digikey	587-1638-1-ND	
LP	1	LED1	Standard	LED RED CLEAR 0603 SMD.Digikey 160-1181-1-ND		CHILED_0603		Digikey	160-1181-1-ND	
ezFET	1	LED101	Standard	LED RED CLEAR 0603 SMD.Digikey 160-1181-1-ND		LED603	Red	Digikey	160-1181-1-ND	
ezFET	1	LED102	Standard	LED GREEN CLEAR 0603 SMD.Digikey 160-1183-1-ND		LED603	Green	Digikey	160-1183-1-ND	
LP	1	LED2	Standard	LED GREEN CLEAR 0603 SMD.Digikey 160-1183-1-ND		CHILED_0603		Digikey	160-1183-1-ND	
ezFET	1	MSP101	TI	IC MCU 16BIT 128KB FLASH 64VQFN.Digikey 296-27400-1-ND	MSP430F5528IRGC	RGC-64	MSP430F5528IRGC	Digikey	296-27400-1-ND	
ezFET	1	Q101	Murata	CER RESONATOR 4.00MHZ SMD	CSTCR4M00G15L99	PIEZO-2X4.5MM	PIEZO CSTCR4M00G15L99	Murata	#VALUE!	
LP	1	Q2	Microcrystal	MS3V-T1R 32.768kHz CL 12pF +/-20ppm. Microcrystal	MS3V-T1R		32.768kHz Microcrystal	Microcrystal	#VALUE!	
LP	1	Q4	Murata	CER RESONATOR 4.00MHZ SMD	CSTCR4M00G15L99	PIEZO-2X4.5MM	PIEZO CSTCR4M00G15L99	Murata	#VALUE!	
Hub	1	Q401	Murata	CER RESONATOR 6.00MHZ SMD	CSTCR6M00G15L99	PIEZO-2X4.5MM	PIEZO CSTCR6M00G15L99	Murata	#VALUE!	

ezFET	1	R101	Standard	RES 470 OHM 1/16W 1% 0402 SMD,Digikey 311-470LRCT-ND		R0402	470	Digikey	311-470LRCT-ND	
ezFET	1	R102	Standard	RES 390 OHM 1/16W 1% 0402 SMD,Digikey 311-390LRCT-ND		R0402	390	Digikey	311-390LRCT-ND	
ezFET	1	R103	Standard	RES 27 OHM 1/16W 5% 0402 SMD,Digikey 311-27JRCT-ND		R0402	27	Digikey	311-27JRCT-ND	
ezFET	1	R104	Standard	RES 27 OHM 1/16W 5% 0402 SMD,Digikey 311-27JRCT-ND		R0402	27	Digikey	311-27JRCT-ND	
ezFET	1	R105	Standard	RES 1.33K OHM 1/16W 1% 0402 SMD,Digikey 311-1.33KLRCT-ND		R0402	1k4	Digikey	311-1.33KLRCT-ND	
ezFET	1	R106	Standard	RES 1.00M OHM 1/16W 1% 0402 SMD,Digikey 311-1.00MLRCT-ND		R0402	1M	Digikey	311-1.00MLRCT-ND	
ezFET	1	R109	Standard	RES 47.0K OHM 1/16W 1% 0402 SMD,Digikey 311-47.0KLRCT-ND		R0402	47k	Digikey	311-47.0KLRCT-ND	
ezFET	1	R121	Standard	RES 220K OHM 1/16W 1% 0402 SMD,Digikey 311-220KLRCT-ND		R0402	220k	Digikey	311-220KLRCT-ND	
ezFET	1	R122	Standard	RES 220K OHM 1/16W 1% 0402 SMD,Digikey 311-220KLRCT-ND		R0402	220k	Digikey	311-220KLRCT-ND	
ezFET	1	R124	Standard	RES 240K OHM 1/16W 1% 0402 SMD,Digikey 311-240KLRCT-ND		R0402	240k	Digikey	311-240KLRCT-ND	
ezFET	1	R125	Standard	RES 150K OHM 1/16W 1% 0402 SMD,Digikey 311-150KLRCT-ND		R0402	150k	Digikey	311-150KLRCT-ND	
LP	1	R14	Standard	RES 100 OHM 1/16W 1% 0402 SMD,Digikey 311-100LRCT-ND		R0402	100R	Digikey	311-100LRCT-ND	
LP	1	R15	Standard	RES 1.33K OHM 1/16W 1% 0402 SMD,Digikey 311-1.33KLRCT-ND		R0402	1k4	Digikey	311-1.33KLRCT-ND	
LP	1	R16	Standard	RES 1.00M OHM 1/16W 1% 0402 SMD,Digikey 311-1.00MLRCT-ND		R0402	1M	Digikey	311-1.00MLRCT-ND	
LP	1	R27	Standard	RES 47.0K OHM 1/16W 1% 0402 SMD,Digikey 311-47.0KLRCT-ND		R0402	47k	Digikey	311-47.0KLRCT-ND	
LP	1	R28	Standard	RES 0.0 OHM 1/16W 0402 SMD,Digikey 311-0.0JRTR-ND		R0402	0R	Digikey	311-0.0JRTR-ND	
LP	1	R29	Standard	RES 470 OHM 1/16W 1% 0402 SMD,Digikey 311-470LRCT-ND		R0402	470R	Digikey	311-470LRCT-ND	
LP	1	R30	Standard	RES 470 OHM 1/16W 1% 0402 SMD,Digikey 311-470LRCT-ND		R0402	470R	Digikey	311-470LRCT-ND	
LP	1	R31	Standard	RES 27 OHM 1/16W 5% 0402 SMD,Digikey 311-27JRCT-ND		R0402	27R	Digikey	311-27JRCT-ND	
LP	1	R32	Standard	RES 27 OHM 1/16W 5% 0402 SMD,Digikey 311-27JRCT-ND		R0402	27R	Digikey	311-27JRCT-ND	
Hub	1	R401	Standard	RES 33 OHM 1/16W 5% 0402 SMD,Digikey 311-33JRCT-ND		R0402	33R	Digikey	311-33JRCT-ND	
Hub	1	R402	Standard	RES 10.0K OHM 1/16W 1% 0402 SMD,Digikey 311-10.0KLRCT-ND		R0402	10k	Digikey	311-10.0KLRCT-ND	
Hub	1	R403	Standard	RES 1.50K OHM 1/16W 1% 0402 SMD,Digikey 311-1.50KLRCT-ND		R0402	1k5	Digikey	311-1.50KLRCT-ND	
Hub	1	R404	Standard	RES 47.0K OHM 1/16W 1% 0402 SMD,Digikey 311-47.0KLRCT-ND		R0402	47k	Digikey	311-47.0KLRCT-ND	
Hub	1	R405	Standard	RES 22 OHM 1/16W 5% 0402 SMD,Digikey 311-22JRCT-ND		R0402	22R	Digikey	311-22JRCT-ND	
Hub	1	R406	Standard	RES 22 OHM 1/16W 5% 0402 SMD,Digikey 311-22JRCT-ND		R0402	22R	Digikey	311-22JRCT-ND	
Hub	1	R407	Standard	RES 1.50K OHM 1/16W 1% 0402 SMD,Digikey 311-1.50KLRCT-ND		R0402	1k5	Digikey	311-1.50KLRCT-ND	
Hub	1	R408	Standard	RES 15.0K OHM 1/16W 1% 0402 SMD,Digikey 311-15.0KLRCT-ND		R0402	15k	Digikey	311-15.0KLRCT-ND	
Hub	1	R409	Standard	RES 15.0K OHM 1/16W 1% 0402 SMD,Digikey 311-15.0KLRCT-ND		R0402	15k	Digikey	311-15.0KLRCT-ND	
Hub	1	R410	Standard	RES 22 OHM 1/16W 5% 0402 SMD,Digikey 311-22JRCT-ND		R0402	22R	Digikey	311-22JRCT-ND	
Hub	1	R411	Standard	RES 22 OHM 1/16W 5% 0402 SMD,Digikey 311-22JRCT-ND		R0402	22R	Digikey	311-22JRCT-ND	
Hub	1	R412	Standard	RES 15.0K OHM 1/16W 1% 0402 SMD,Digikey 311-15.0KLRCT-ND		R0402	15k	Digikey	311-15.0KLRCT-ND	
Hub	1	R413	Standard	RES 15.0K OHM 1/16W 1% 0402 SMD,Digikey 311-15.0KLRCT-ND		R0402	15k	Digikey	311-15.0KLRCT-ND	
Hub	1	R414	Standard	RES 15.0K OHM 1/16W 1% 0402 SMD,Digikey 311-15.0KLRCT-ND		R0402	15k	Digikey	311-15.0KLRCT-ND	
Hub	1	R415	Standard	RES 15.0K OHM 1/16W 1% 0402 SMD,Digikey 311-15.0KLRCT-ND		R0402	15k	Digikey	311-15.0KLRCT-ND	
Hub	1	R416	Standard	RES 22 OHM 1/16W 5% 0402 SMD,Digikey 311-22JRCT-ND		R0402	22R	Digikey	311-22JRCT-ND	
Hub	1	R417	Standard	RES 22 OHM 1/16W 5% 0402 SMD,Digikey 311-22JRCT-ND		R0402	22R	Digikey	311-22JRCT-ND	
Hub	1	R418	Standard	RES 15.0K OHM 1/16W 1% 0402 SMD,Digikey 311-15.0KLRCT-ND		R0402	15k	Digikey	311-15.0KLRCT-ND	
Hub	1	R419	Standard	RES 15.0K OHM 1/16W 1% 0402 SMD,Digikey 311-15.0KLRCT-ND		R0402	15k	Digikey	311-15.0KLRCT-ND	
LP	1	S1	Standard	SWITCH TACTILE SPST-NO 0.02A 15V,Digikey P8079STB-ND		PBTH	SPST	Digikey	P8079STB-ND	
LP	1	S2	Standard	SWITCH TACTILE SPST-NO 0.02A 15V,Digikey P8079STB-ND		PBTH	SPST	Digikey	P8079STB-ND	
LP	1	S3	Standard	SWITCH TACTILE SPST-NO 0.02A 15V,Digikey P8079STB-ND		PBTH	SPST	Digikey	P8079STB-ND	
LP	1	S5	Standard	SWITCH TACTILE SPST-NO 0.02A 15V,Digikey P8079STB-ND		PBTH	SPST	Digikey	P8079STB-ND	
ezFET	1	TP104	PCB	Test Point,Q.038 Hole, Digikey nothing-to-purchase		TP		Digikey	nothing-to-purchase	
ezFET	1	TP105	PCB	Test Point,Q.038 Hole, Digikey nothing-to-purchase		TP		Digikey	nothing-to-purchase	
ezFET	1	TP106	PCB	Test Point,Q.038 Hole, Digikey nothing-to-purchase		TP		Digikey	nothing-to-purchase	
ezFET	1	TP107	PCB	Test Point,Q.038 Hole, Digikey nothing-to-purchase		TP		Digikey	nothing-to-purchase	
ezFET	1	TP108	PCB	Test Point,Q.038 Hole, Digikey nothing-to-purchase		TP		Digikey	nothing-to-purchase	
ezFET	1	TP109	PCB	Test Point,Q.038 Hole, Digikey nothing-to-purchase		TP		Digikey	nothing-to-purchase	
ezFET	1	TP110	PCB	Test Point,Q.038 Hole, Digikey nothing-to-purchase		TP		Digikey	nothing-to-purchase	
Hub	0	U401	TI	IC PWR DIST SWITCH SNGL SOT23-5,Digikey 296-21263-1-ND	TPS2041BDBVR	DBV5	TPS2041B DBV 5	Digikey	296-21263-1-ND	DNP- Parts Removed from PCB
Hub	1	U402	TI	IC REG BUCK SYNC 3.3V 0.5A 6SON,Digikey 296-25630-1-ND	TPS6223DRYT	DRY6	TPS6223DRY	Digikey	296-25630-1-ND	
Hub	0	U403	TI	IC PWR DIST SWITCH SNGL SOT23-5,Digikey 296-21263-1-ND	TPS2041BDBVR	DBV5	TPS2041B DBV 5	Digikey	296-21263-1-ND	DNP- Parts Removed from PCB
Hub	1	U404	TI	IC ESD-PROT ARRAY 2CH SOT-5,Digikey 296-21883-1-ND	TPD2E001DRLR	TPD2E001-DRL	TPD2E001DRLR	Digikey	296-21883-1-ND	
LP	1	U6	TI	IC MCU 16BIT 128K FLASH 80LQFP,Digikey 296-27306-1-ND	MSP430F5529IPNR	PN80	MSP430F5529IPNR	Digikey	296-27306-1-ND	
PCB	1	STAND1	PCB	Mounting Hole 110 mil, Digikey nothing-to-purchase		110mil	110mil	Digikey	nothing-to-purchase	
PCB	1	STAND2	PCB	Mounting Hole 110 mil, Digikey nothing-to-purchase		110mil	110mil	Digikey	nothing-to-purchase	
PCB	1	STAND3	PCB	Mounting Hole 110 mil, Digikey nothing-to-purchase		110mil	110mil	Digikey	nothing-to-purchase	
PCB	1	STAND4	PCB	Mounting Hole 110 mil, Digikey nothing-to-purchase		110mil	110mil	Digikey	nothing-to-purchase	

## IMPORTANT NOTICE FOR TI REFERENCE DESIGNS

Texas Instruments Incorporated ("TI") reference designs are solely intended to assist designers ("Buyers") who are developing systems that incorporate TI semiconductor products (also referred to herein as "components"). Buyer understands and agrees that Buyer remains responsible for using its independent analysis, evaluation and judgment in designing Buyer's systems and products.

TI reference designs have been created using standard laboratory conditions and engineering practices. **TI has not conducted any testing other than that specifically described in the published documentation for a particular reference design.** TI may make corrections, enhancements, improvements and other changes to its reference designs.

Buyers are authorized to use TI reference designs with the TI component(s) identified in each particular reference design and to modify the reference design in the development of their end products. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER TI INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY THIRD PARTY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT, IS GRANTED HEREIN, including but not limited to any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services, or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

TI REFERENCE DESIGNS ARE PROVIDED "AS IS". TI MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO THE REFERENCE DESIGNS OR USE OF THE REFERENCE DESIGNS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ACCURACY OR COMPLETENESS. TI DISCLAIMS ANY WARRANTY OF TITLE AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, QUIET POSSESSION, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS WITH REGARD TO TI REFERENCE DESIGNS OR USE THEREOF. TI SHALL NOT BE LIABLE FOR AND SHALL NOT DEFEND OR INDEMNIFY BUYERS AGAINST ANY THIRD PARTY INFRINGEMENT CLAIM THAT RELATES TO OR IS BASED ON A COMBINATION OF COMPONENTS PROVIDED IN A TI REFERENCE DESIGN. IN NO EVENT SHALL TI BE LIABLE FOR ANY ACTUAL, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES, HOWEVER CAUSED, ON ANY THEORY OF LIABILITY AND WHETHER OR NOT TI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, ARISING IN ANY WAY OUT OF TI REFERENCE DESIGNS OR BUYER'S USE OF TI REFERENCE DESIGNS.

TI reserves the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI's terms and conditions of sale of semiconductor products. Testing and other quality control techniques for TI components are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers' products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers' products and applications, Buyers should provide adequate design and operating safeguards.

Reproduction of significant portions of TI information in TI data books, data sheets or reference designs is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards that anticipate dangerous failures, monitor failures and their consequences, lessen the likelihood of dangerous failures and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in Buyer's safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI's goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed an agreement specifically governing such use.

Only those TI components that TI has specifically designated as military grade or "enhanced plastic" are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components that have **not** been so designated is solely at Buyer's risk, and Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.