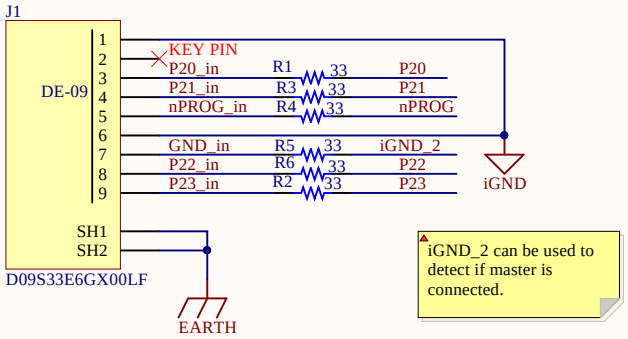
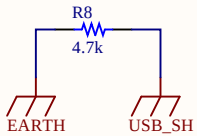
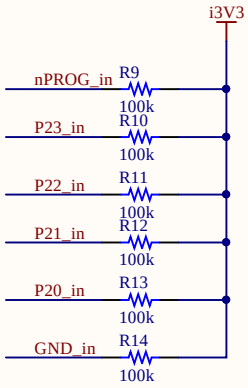
8243 I/O Input Header

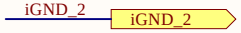
Input Pull-ups (to 3.3V)



iGND_2 can be used to detect if master is connected.

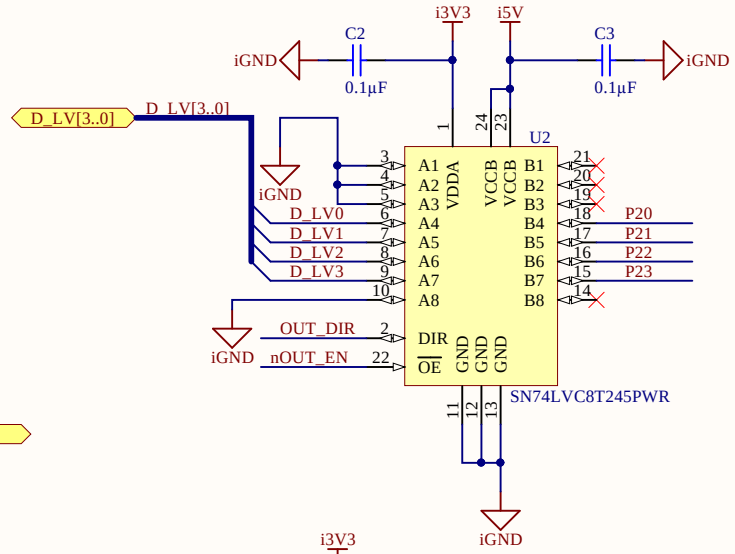


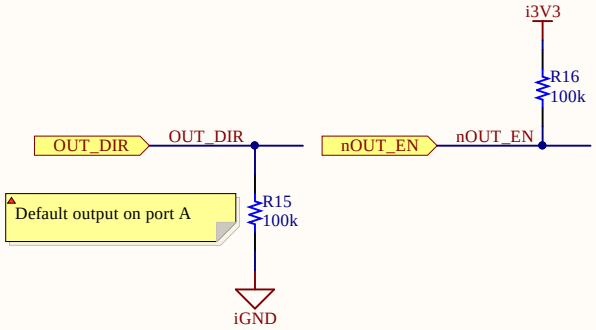




if 5V rail is 0V, pullups will not overpower LC102's internal 10k pullups. Also, 3.3 is closer to the switching voltage than 5V would be.

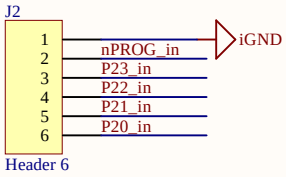
Output Drivers

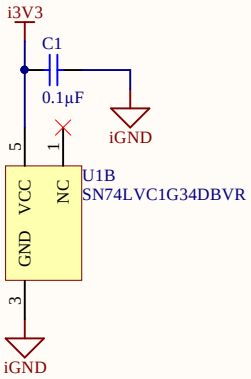


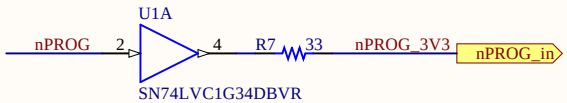


Default output on port A

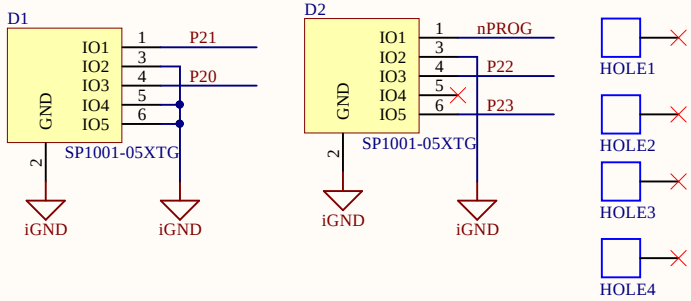
INPUT Level Translators



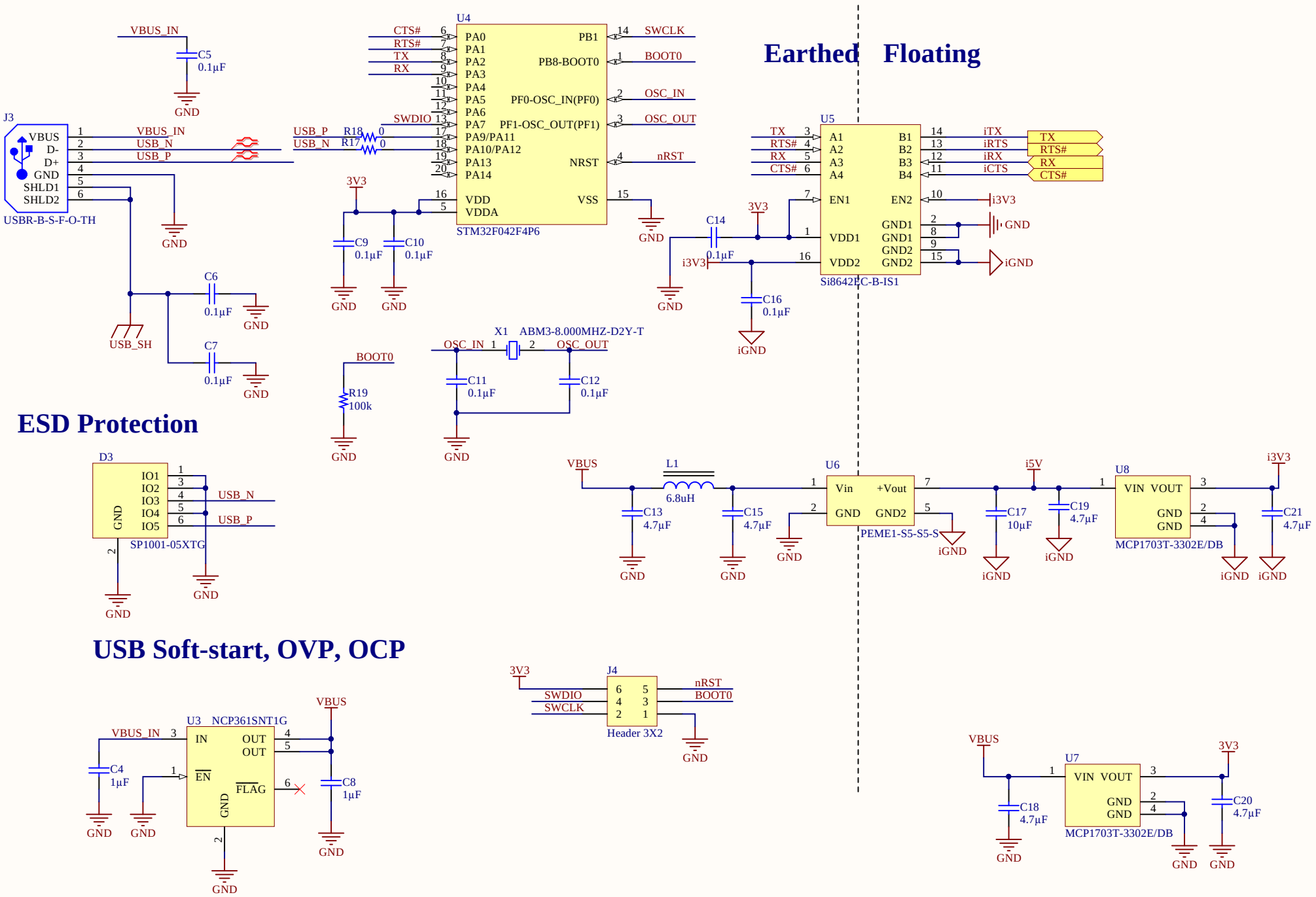




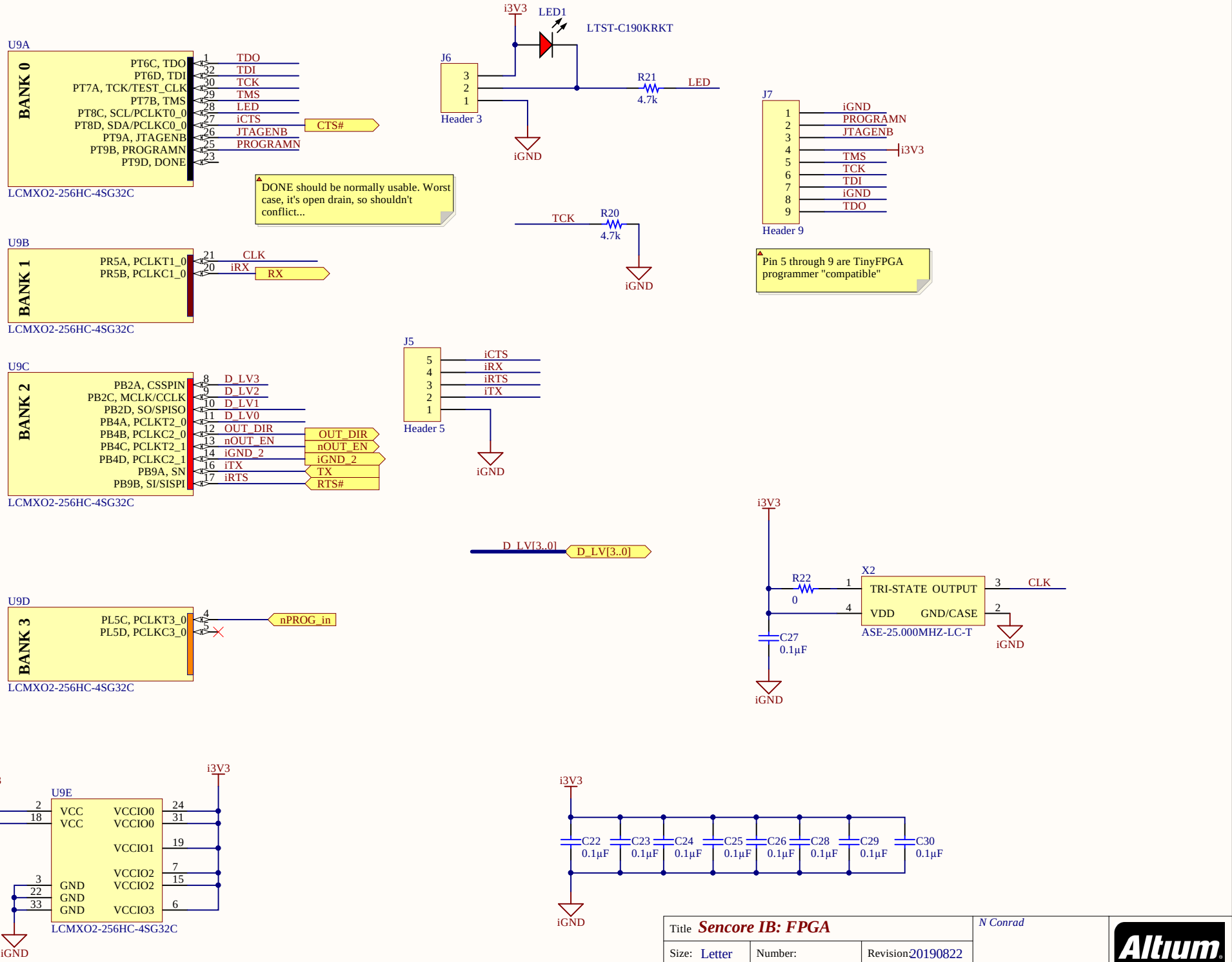
ESD Protection



Title	Sencore IB: Main		N Conrad
Size: Letter	Number:	Revision: 20190822	
Date: 8/27/2019	Time: 9:58:27 AM	Sheet 1 of 3	
File: C:\Users\ConraN01\AppData\Local\TempReleases\Snapshot\1\Main.SchDoc			



Title	*Sencore IB: Power & USB*		*N Conrad*
Size: Letter	Number:	Revision: 20190822	
Date: 8/27/2019	Time: 9:58:27 AM	Sheet 2 of 3	
File: C:\Users\ConraN01\AppData\Local\TempReleases\Snapshot\1\Power_USB.SchDoc			



Title	*Sencore IB: FPGA*		*N Conrad*
Size: Letter	Number:	Revision: 20190822	
Date: 8/27/2019	Time: 9:58:27 AM	Sheet 3 of 3	
File: C:\Users\ConraN01\AppData\Local\TempReleases\Snapshot\1\FPGA.SchDoc			

Altium

Line #	Description	Designator	Quantity	Manufacturer 1	Manufacturer Part Number 1	Supplier 1	Supplier Part Number 1	Supplier Unit Price 1	Supplier Subtotal 1
1	CAP CER 0.1UF 50V X7R 0603	C1-C3, C5-C7, C9-C12, C	21	Murata	GCJ188R71H104KA12D	Digi-Key	490-5798-1-ND	0.21	4.41
2	CAP CER 1UF 25V X7R 0603	C4, C8	2	Murata	GCM188R71E105KA64D	Digi-Key	490-10673-1-ND	0.31	0.62
3	CAP CER 4.7UF 25V X7S 0805	C13, C15, C18-C21	6	Murata	GCM21BC71E475KE36L	Digi-Key	490-14435-1-ND	0.49	2.94
4	CAP CER 10UF 10V X7R 0805	C17	1	Murata	GCM21BR71A106KE22K	Digi-Key	490-14531-1-ND	0.62	0.62
5	TVS DIODE 5.5VWM 13VC SOT563	D1-D3	3	Littelfuse	SP1001-05XTG	Digi-Key	F2898CT-ND	0.6	1.8
6	Conn D-Subminiature SKT 9 POS 2.74m	J1	1	Amphenol ICC	D09S33E6GX00LF	Digi-Key	609-6160-ND	1.43	1.43
7	Header, 6-Pin	J2	1						
8	Conn USB F 4 POS 2.5mm Solder RA TH	J3	1	Samtec	USBR-B-S-F-O-TH	Digi-Key	SAM10873-ND	1.18	1.18
9	Header, 3-Pin, Dual row	J4	1						
10	Header, 5-Pin	J5	1						
11	Header, 3-Pin	J6	1						
12	Header, 9-Pin	J7	1						
13	FIXED IND 6.8UH 1.45A 117.6 MOHM	L1	1	Taiyo Yuden	NRS4018T6R8MDGJ	Digi-Key	587-2894-1-ND	0.29	0.29
14	LED Uni-Color Red, 62.5 mW, 5 V, -30 to	LED1	1	Everlight	19-21SURC/S530-A2/TR8				
15	RES SMD 33 OHM 5% 1/10W 0603	R1-R7	7	Yageo	RC0603JR-0733RL	Digi-Key	311-33GRCT-ND	0.02	0.2
16	RES SMD 4.7K OHM 1% 1/4W 1206	R8	1	Yageo Phycomp	RC1206FR-074K7L	Digi-Key	311-4.70KFRCT-ND	0.1	0.1
17	RES SMD 100K OHM 5% 1/10W 0603	R9-R16, R19	9	Yageo	RC0603JR-07100KL	Digi-Key	311-100KGRCT-ND	0.02	0.2
18	RES SMD 0 OHM JUMPER 1/10W 0603	R17, R18, R22	3	Yageo	RC0603JR-070RL	Digi-Key	311-0.0GRCT-ND	0.022	0.22
19	RES SMD 4.7K OHM 5% 1/10W 0603	R20, R21	2	Yageo	RC0603JR-074K7L	Digi-Key	311-4.7KGRCT-ND	0.1	0.2
20	Single Buffer Gate, DBV0005A, LARGE T&	U1	1	Texas Instruments	SN74LVC1G34DBVR	Newark	01J0787	0.113	0.113
21	IC TRNSLTR BIDIRECTIONAL 24TSSOP	U2	1	Texas Instruments	SN74LVC8T245PWR	Digi-Key	296-18593-1-ND	1.05	1.05
22	IC USB POS OVP/OCP 5TSOP	U3	1	ON Semiconductor	NCP361SNT1G	Digi-Key	NCP361SNT1GOSCT-ND	0.73	0.73
23	ARM Cortex-M0 32-bit MCU, 16 KB Flash	U4	1	STMicroelectronics	STM32F042F4P6	Farnell	2469548	2.07	2.07
24	Low-Power Quad-Channel Digital Isolato	U5	1	Silicon Labs	SI8642EC-B-IS1	Mouser	634-SI8642EC-B-IS1	3	3
25	5 Vdc, 0.2 A, 1 W, 4.5 ~ 5.5 Vdc Input Ra	U6	1	CUI	PEME1-S5-S5-S	Digi-Key	102-6337-ND	2.29	2.29
26	250 mA, 16V, Low Quiescent Current LD	U7, U8	2	Microchip	MCP1703T-3302E/DB	Digi-Key	MCP1703T-3302E/DBDKR	0.64	1.28
27	IC FPGA 21 I/O 32QFN	U9	1	Lattice Semicondu	LCMXO2-256HC-4SG32C	Digi-Key	220-2636-ND	3.24	3.24
	Miniature Ceramic Crystal, 8 MHz, -40 to	X1	1	Abracon	ABM3-8.000MHZ-D2Y-T	Future Electro	ABM3-8.000MHZ-D2Y-T-C	0.67	0.67
28	CMOS Crystal Oscillatorl, 3.3 V, 25 MHz	X2	1	Seiko	Q33310F70055100				