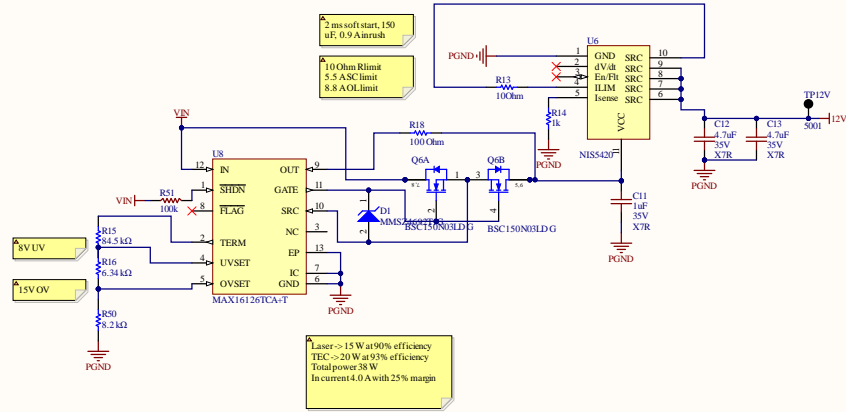
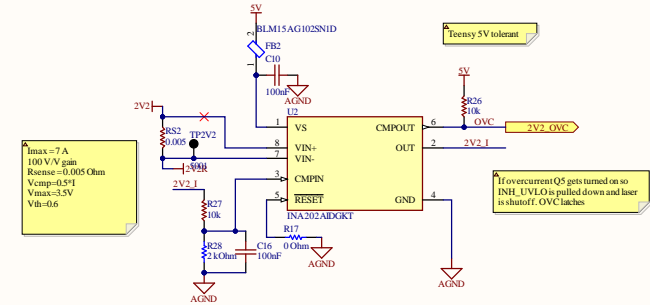


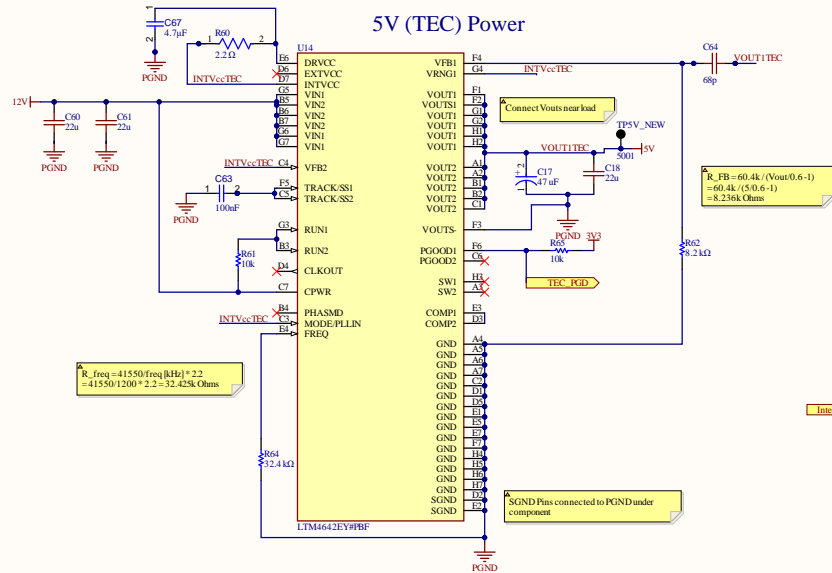
Power Input Protection



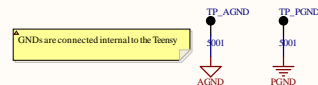
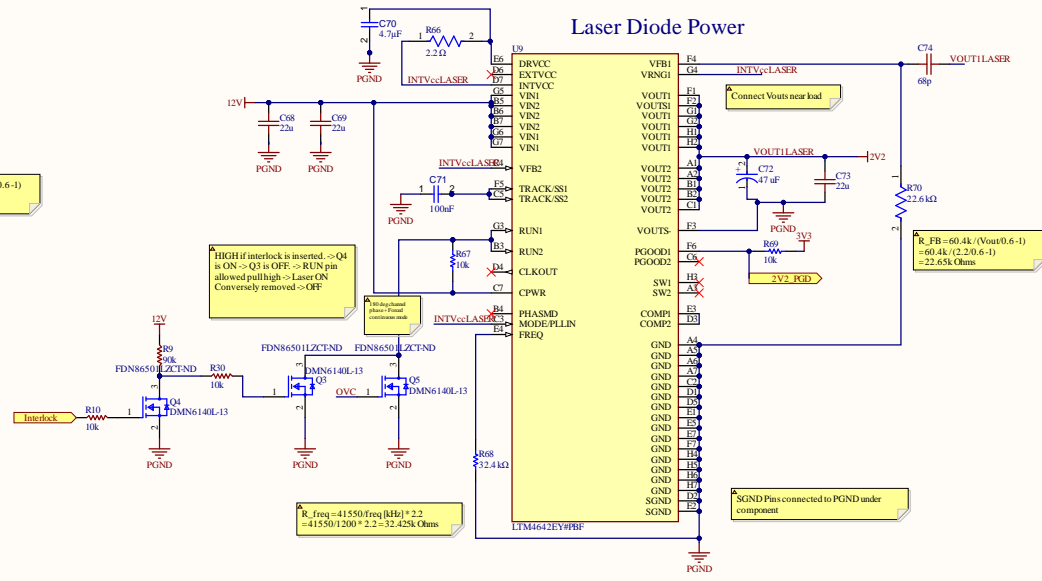
Laser Diode OVC

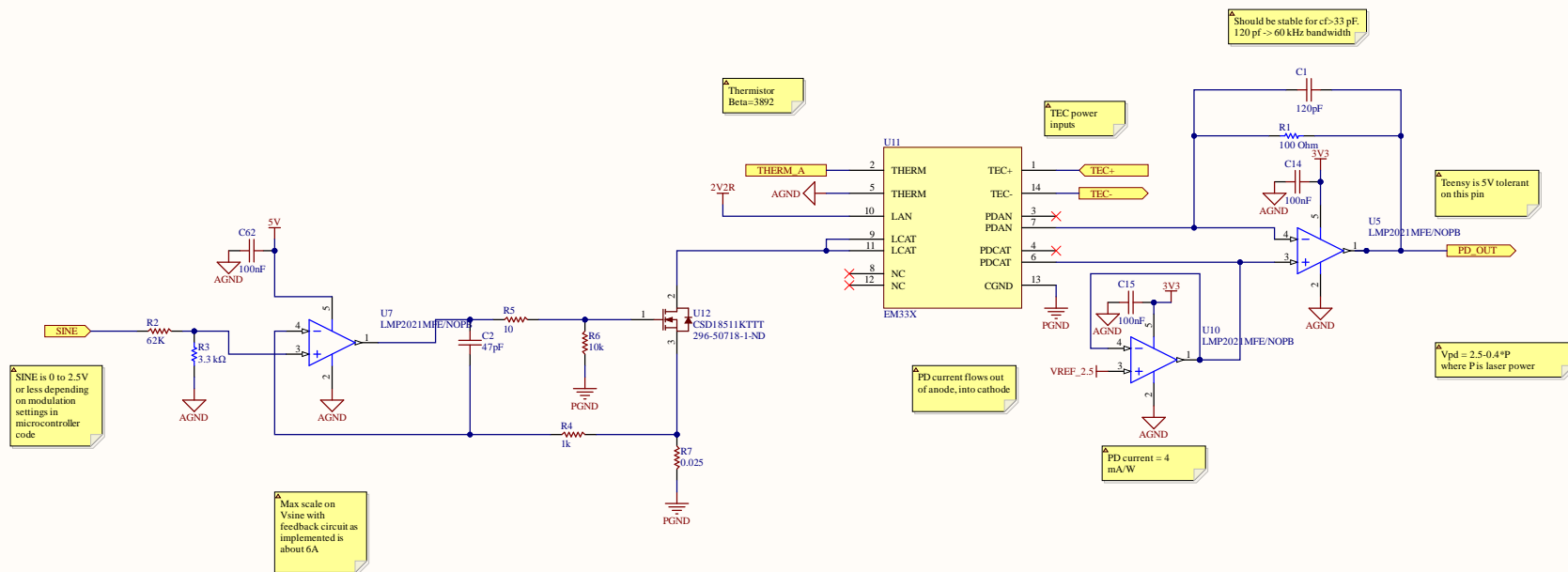


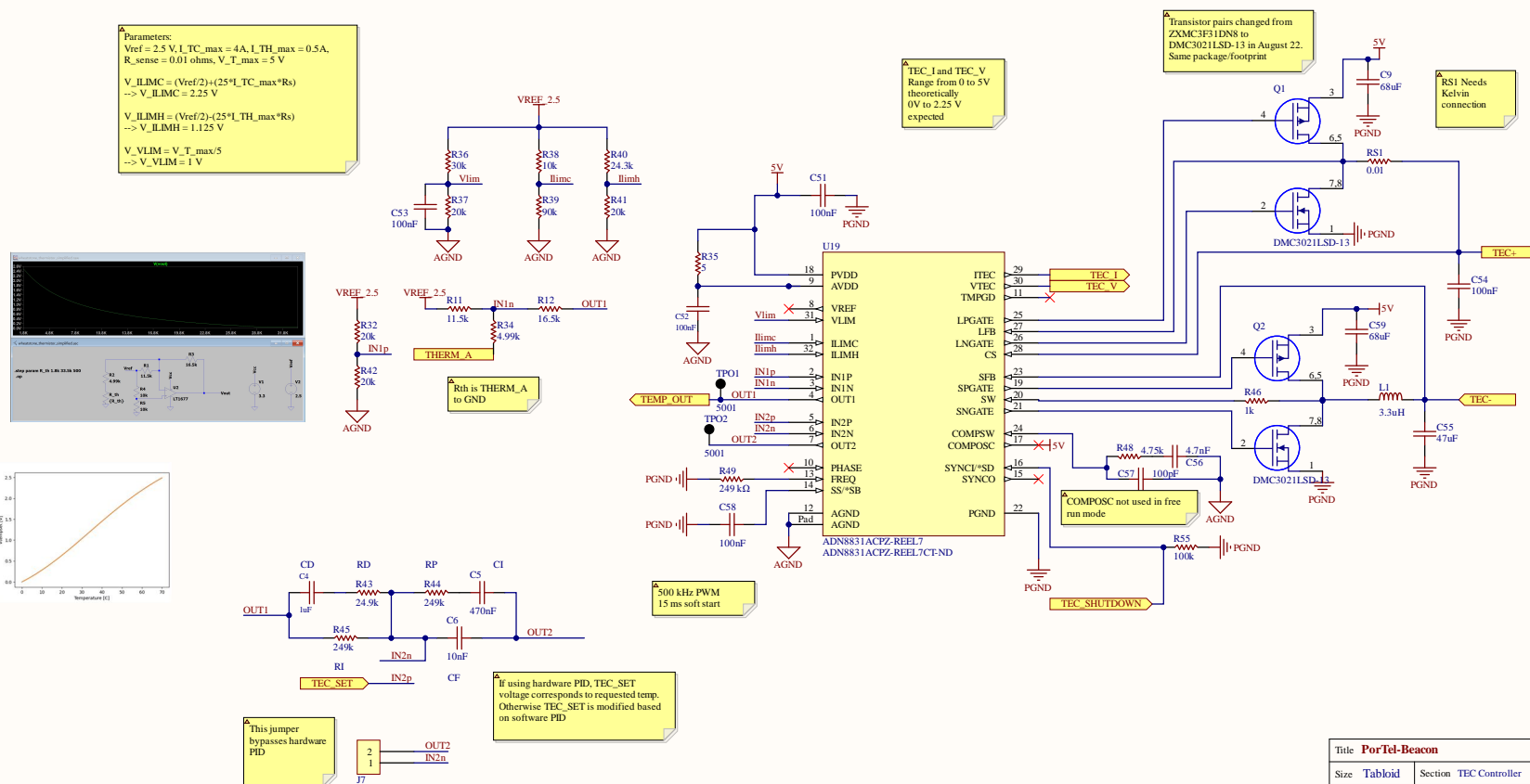
5V (TEC) Power




Laser Diode Power







Title PorTel-Beacon				 AEROSPACE 33-207 / 77 Mass. Ave. Cambridge, MA 02139
Size Tabloid	Section TEC Controller	Revision V2.0		
Date 11/14/2022	Time 12:33:13 PM	Sheet 5 of 5	Drawn Nicholas Belsten	
File C:\Users\nickb\Documents\GitHub\PorTel-Beacon\TECController.SchDoc				

Line #	Name	Description	Designator	Quantity	Procurement Instructions	Special Note	Manufacturer 1	Manufacturer Part Number 1	Manufacturer Lifecycle 1	Supplier 1	Supplier Part Number 1	Supplier Unit Price 1	Supplier Subtotal 1
	68p		C64, C74	2									
	SL02	2.54mm Header 1x2	J6, J7	2	Turnkey		TE Connectivity	5-146274-2	Volume Production	Arrow Electronics	5-146274-2	0.3174	0.6348
	5001	Test Point, Black, 1-Pin THD, RoHS, Bulk	TP2V2, TP5V, NEW, TP12V, TP_AGND, TP_PGND, TP01, TP02, TPQ_VREF	8	Turnkey		Keystone Electronics	5001	Volume Production	Future Electronics	6273627	0.199	1.59
	100pF	603 Capacitor	C57	1	Turnkey		Kyocera AVX	0603C101KAT2A	Volume Production	Digi-Key	478-7899-1-ND	0.21	0.21
	10nF	603 Capacitor	C6	1	Turnkey		Kyocera AVX	0603C5103KA12A	Volume Production	Newark	88W4176	0.005	0.005
	ADN8831ACP2-REEL7	A High Efficiency TEC Controller Solution	U19	1	Consignment	No Overage Available!	Analog Devices	ADN8831ACP2-REEL7	Volume Production	Digi-Key	ADN8831ACP2-REEL7CT-ND		
	BLM15AG1025N1D	FERRITE BEAD 1 KOHM 0402 1LN	F81, F82	2	Turnkey		Murata	BLM15AG1025N1D	Volume Production	Digi-Key	490-1007-1-ND	0.1	0.2
	B5C150N03LD G	N-Channel OptiMOS 3 Power-Transistor, 30 V VDS, 20 A ID, -55 to 150 degC, PG-TDSON-8-4, Reel, Green	O6	1	Turnkey		Infineon	B5C150N03LDG	Volume Production	Arrow Electronics	B5C150N03LDGATMA1	1.17	1.17
	Capacitor 0.1 uF +/-5% 16 V 0402	Chip Capacitor, 0.1 uF, +/- 5%, 16 V, 0402 (1005 Metric)	C63, C71	2	Turnkey		KEMET	C0402C104JRACTU	Volume Production				
	1uF	603 Capacitor	C21	1	Turnkey		KEMET	C0603C105K3PACTU	Volume Production	Avnet	93K5996	0.029	0.029
	120pF	603 Capacitor	C1	1	Turnkey		KEMET	C0603C121J5GACTU	Volume Production	Newark	64K2841	0.004	0.004
	47pF	603 Capacitor	C2	1	Turnkey		KEMET	C0603C470J3GACTU	Volume Production	Arrow Electronics	C0603C470J3GACTU	0.0142	0.0142
	4.7nF	603 Capacitor	C56	1	Turnkey		KEMET	C0603C472J5GACTU	Volume Production	Newark	05AC7998	0.087	0.087
	470nF	603 Capacitor	C5	1	Turnkey		KEMET	C0603C474K4RACTU	Volume Production	Newark	12AC0600	0.126	0.126
	4.7uF	805 Capacitor	C12, C13	2	Turnkey		KEMET	C0805C475K3PACTU	Volume Production	Newark	36K2755	0.072	0.144
	Capacitor 4.7uF +/-40% 25V 0805	Chip Capacitor, 4.7uF +/-40%, 25V, 0805, Thickness 1.45 mm	C67, C70	2	Turnkey		KEMET	C0805C475M3PAC	Volume Production				
	68uF	1206 Capacitor	C9, C59	2	Turnkey		TDK	C3216XSR1A68M160AC	Volume Production	Future Electronics	2103583	1.07	2.14
	100nF	603 Capacitor	C3, C8, C10, C14, C15, C16, C51, C52, C53, C54, C58, C62	12	Turnkey		Yageo	C0603KRX7R8BB104	Volume Production	Newark	4588226	0.012	0.144
	100k	603 Resistor	R51, R55	2	Turnkey		TE Connectivity	CR0603B100KE1	Volume Production	Newark	06AC1302	0.13	0.26
	CRCW06032R20FKEAHP	RES Thick Film, 2.2Q, 1%, 0.33W, 100ppm/C, 0603	R60, R66	2	Turnkey		Vishay Dale	CRCW06032R20FKEAHP	Volume Production	Mouser	71-CRCW06032R20FKEAH	0.3	0.6
	4.99k	603 Resistor	R34	1	Turnkey		Vishay	CRCW06034K99FKEA	Volume Production	Newark	24W2956	0.006	0.006
	CRCW06038K20FKEA		R50, R62	2	Turnkey		Vishay	CRCW06038K20FKEA	Volume Production	Digi-Key	541-8.20KCT-ND	0.1	0.2
	11.5k	603 Resistor	R11	1	Turnkey		Vishay	CRCW060311K5FKEA	Volume Production	Newark	52K3087	0.125	0.125
	20k	603 Resistor	R32, R41, R42	3	Turnkey		Vishay	CRCW060320K0FKEA	Volume Production	Newark	24W2769	0.005	0.015
	20k	603 Resistor	R37	1	Turnkey		Vishay	CRCW060320K0FKEA	Volume Production	Newark	24W2769	0.005	0.005
	30k	603 Resistor	R36	1	Turnkey		Vishay	CRCW060330K0FKEA	Volume Production	Newark	61M5379	0.048	0.48
	CRCW060332K4FKEA		R64, R68	2	Turnkey		Vishay	CRCW060332K4FKEA	Volume Production	Newark	25AC7460	0.005	0.01
	CRCW060384K5FKEA		R15	1	Turnkey		Vishay	CRCW060384K5FKEA	Volume Production	Digi-Key	541-84.5KCT-ND	0.1	0.1
	249k	603 Resistor	R44, R45	2	Turnkey		Vishay	CRCW0603249KFEA	Volume Production	Newark	24W2815	0.005	0.01
	CSD18511K1T1T	40-V, N-Channel NexFET™ power MOSFET, single D2PAK, 2.6 mOhm	U12	1	Turnkey		Texas Instruments	CSD18511K1T1T	Unknown	Digi-Key	296-4749-1-ND	2.11	2.11
	DAC121S101CIMK/NOPB	12-Bit Micro Power, RRO Digital-to-Analog Converter, 6-pin Tiny SOT23, Pb-Free	U1	1	Turnkey		TI National Semiconductor	DAC121S101CIMK/NOPB	Volume Production	Mouser	926-DAC121S101CIMKNO	2.94	2.94
	Teensy3.2, Turnny		U3	1	ONP		SparkFun	DEV-13736	Unknown				
	FDS8960C	Trans Mosfet N/p-ch 30V 8.5A/7A 8-PIN SOIC T/r	O1, O2	2	Turnkey		Diodes	DMC3021LSD-13	Volume Production	Arrow Electronics	DMC3021LSD-13	0.2144	536
	EM33X	5W Cooled 9XX Multimode Lasers in 14-Pin Package	U11	1	ONP		Gooch and Housago	EM33X	Manual Solution				
	1k	603 Resistor	R46	1	Turnkey		Panasonic	ERA-3AEB103V	Volume Production	RSComponents	566890	0.67133	3.36
	10k	603 Resistor	R10, R26, R30	3	Turnkey		Panasonic	ERA-3AEB103V	Volume Production	RSComponents	566890	0.67133	3.36
	10k	603 Resistor	R38	1	Turnkey		Panasonic	ERA-3AEB103V	Volume Production	RSComponents	566890	0.67133	3.36
	ERJ-3EKF1000V		R1, R18	2	Turnkey		Panasonic	ERJ3EKF1000V	Volume Production	Newark	40W3098	0.007	0.014
	ERA3AEB102V		R14, R61, R65, R67, R69	5	Turnkey		Panasonic	ERJ3EKF1001V	Volume Production	Newark	25AC9114	0.007	0.035
	16.5k	603 Resistor	R12	1	Turnkey		Panasonic	ERJ3EKF1652V	Volume Production	Digi-Key	P16.5KHDR-ND	0.1	0.1
	ERJ6ENF3301V		R3	1	Turnkey		Panasonic	ERJ6ENF3301V	Volume Production	Avnet	64RS400	0.019	0.019
	ERJ-2GEJ103X		R53, R56, R58	3	Turnkey		Panasonic	ERJ-2GEJ103X	Volume Production	Newark	12AC0920	0.004	0.012
	ERJ-3EKF2001V		R28	1	Turnkey		Panasonic	ERJ-3EKF2001V	Volume Production	Newark	12AC1028	0.006	0.006
	24.3k	603 Resistor	R40	1	Turnkey		Panasonic	ERJ-3EKF2432V	Volume Production	Allied Electronics	70265735	0.016	0.016
	24.9k	603 Resistor	R43	1	Turnkey		Panasonic	ERJ-3EKF2492V	Volume Production	Mouser	667-ERJ-3EKF2492V	0.1	0.1
	ERJ-3EKF6341V		R16	1	Turnkey		Panasonic	ERJ-3EKF6341V	Volume Production	Newark	6578502	0.004	0.004
	0.01	1206 Resistor	R51	1	Turnkey		Panasonic	ERJ-6B010010V	Volume Production	Digi-Key	P-010AUCT-ND	0.84	0.84
	0.025	1206 Resistor	R7	1	Turnkey		Panasonic	ERJ-6CWF025V	Volume Production	Newark	52W0479	0.121	0.121
	DMN6140L-13	MOSFET N-CH 60V 1.6A SOT123	O3, O4, O5	3	Turnkey		ON Semiconductor / Fairchild	FDN86501LZ	Volume Production	Arrow Electronics	FDN86501LZ	2.15	6.44
	22u	1210 Capacitor	C18, C60, C61, C68, C69, C73	6			Murata	GRM32ER61E226KE15L	Unknown	Future Electronics	5237714	0.56	3.36
	22uF	1210 Capacitor	C7	1	Turnkey		Murata	GRM32ER61E226KE15L	Unknown	Future Electronics	5237714	0.56	0.56
	1uF	805 Capacitor	C11	1	Turnkey		Murata	GRM216R61E105KA12D	Unknown	Future Electronics	7699986	0.32	0.32
	47uF	805 Capacitor	C55	1	Turnkey		Murata	GRT21BR60476ME13L	Volume Production	Future Electronics	1104112	0.415	0.415
	INA201AIDGKR	IC CURRENT MONITOR 3.5V BVSOP	U2	1	Turnkey		Texas Instruments	INA202AIDGKT	Volume Production	Mouser	595-INA202AIDGKT	3.49	3.49
	LM4128BMF-2.5	Precision Micropower Series Voltage Reference, 5-pin SOT-23	U4	1	Turnkey		TI National Semiconductor	LM4128BD01MF2.5/NOPB	Volume Production	Digi-Key	LM4128BD01MF2.5/NOPBCT-ND	3.12	3.12
	LMP2021MFE/NOPB	Zero Drift, Low Noise, EMI Hardened Amplifier, 5-pin SOT-23, Pb-Free	U5, U7, U10	3	Turnkey		TI National Semiconductor	LMP2021MFE/NOPB	Volume Production	Arrow Electronics	LMP2021MFE/NOPB	3.69	11.07
	LTM4642EYPBF	DC-DC CNVRT 0.6-5.5V 0.6-5.5V	U9, U14	2	Turnkey		Analog Devices / Linear Technology	LTM4642EYPBF	Volume Production	Digi-Key	505-LTM4642EYPBF-ND	30.4	61.2
	MAX16126TCA-T	Load-Dump/Reverse-Voltage Protection Circuit, switch-mode fault management, 12-Pin TQFN-EP, -40°C to +125°C, Pb-Free, Tape and Reel	U8	1	Turnkey		Maxim	MAX16126TCA-T	Volume Production	Newark	38AC1459	2.78	2.78
	MMS2469211G	Zener Voltage Regulator, 500 mW, 2-Pin SOD-123, Pb-Free, Tape and Reel	D1	1	Turnkey		ON Semiconductor	MMS2469211G	Volume Production	Digi-Key	MMS2469211GOSCT-ND	0.25	0.25
	NIS5420		U6	1	Turnkey		ON Semiconductor	NIS5420MT61XG	Unknown	Arrow Electronics	NIS5420MT61XG	1.8	1.8
	RC0402FR-073K3L		R52, R54, R57	3	Turnkey		Yageo	RC0402FR-073K3L	Volume Production	Mouser	603-RC0402FR-073K3L	0.014	0.14
	CRCW04022ZK6FKED	RES Thick Film, 22.6KQ, 1%, 0.063W, 100ppm/C, 0402	R70	1	Turnkey		Yageo	RC0402FR-0722K6L	Volume Production	Digi-Key	YAG3061CT-ND	0.1	0.1
	RC0603FR-0710RL		R13	1	Turnkey		Yageo	RC0603FR-0710RL	Volume Production	Avnet	98K7348	0.042	0.042
	90k	603 Resistor	R8, R9, R39	3	Turnkey		Yageo	RC0603FR-07390KL	Volume Production	Digi-Key	311-390KHCT-ND	0.021	0.21
	0	603 Resistor	R47	1	Turnkey		Yageo	RC0603JR-070RL	Volume Production	Newark	68R0136	0.065	0.065
	10k	805 Resistor	R6, R27	2	Turnkey		Yageo	RC0805FR-0710KL	Volume Production	Newark	85K1799	0.004	0.008
	1k	805 Resistor	R4	1	Turnkey		Susumu	RG2012P-102-B-15	Volume Production	Future Electronics	2000243	0.29	0.29
	5	805 Resistor	R35	1	Turnkey		Cyntec	RLT1220-F-5R00-FNH	Unknown	Digi-Key	2037-RLT1220-F-5R00-FNHCT-ND	0.53	0.53
	10	805 Resistor	R5	1	Turnkey		Stackpole Electronics	RNCF0805AKT10R0	Volume Production	Arrow Electronics	RNCF0805AKT10R0	0.9458	0.9458
	62k	805 Resistor	R2	1	Turnkey		Susumu	RR1220P-623-D	Volume Production	Digi-Key	RR12P620K0CT-ND	0.16	0.16
	4.75k	603 Resistor	R48	1	Turnkey		Yageo	RT0603BRD074K75L	Volume Production	Arrow Electronics	RT0603BRD074K75L	0.2882	0.2882
	3.3uH	Bourns SRP0520 3.3uH 4.8A Inductor	L1	1	Turnkey		Bourns	SRP0520-3R3K	Unknown	Arrow Electronics	SRP0520-3R3K	0.4583	0.4583
	1491D476K025AT	CAP TANT 47UF 10% 25V 2917	C17, C72	2			KEMET	T491D476K025AT	Volume Production	Newark	95W0144	1.04	2.08
	249 kQ	603 Resistor	R49	1	Turnkey		Vishay Dale	TNPW0603249KBEEA	Volume Production	Arrow Electronics	TNPW0603249KBEEA	0.5701	0.5701
	1uF	603 Capacitor	C4	1	Turnkey		Taiyo Yuden	UMK107B105KA-T	Volume Production	Newark	06X2717	0.018	0.018
	0.005	1206 Resistor	R52	1	Turnkey		Vishay Dale	WSLP1206S1000FA	Volume Production	Digi-Key	WSLP-005CT-ND	1.06	1.06