

Alternate Alex Interface

This project was undertaken to generate a compatible interface to the Alex filter boards so that I could use my HF Projects LPF-100 R3A Packer Filters with Pennywhistle or Munin2 amplifiers.

Originally intended to just be a Transmitter Interface with a 6M LP Filter and T/R switch, it has become obvious that a 6M preamp was also desirable. This necessitated a second board for the Receive Interface, which also includes the attenuators and bypass circuitry.

Prototypes are in process – More info to follow.

Dick Faust K9IVB

Updates:

11/28/2014: RX Gerbers revised C7 moved because shorting two traces [RX ver 6.1].

6/16/2015:

RX Schematic revised L62 is 729nH not 729 uH [RX ver 6.1.1].

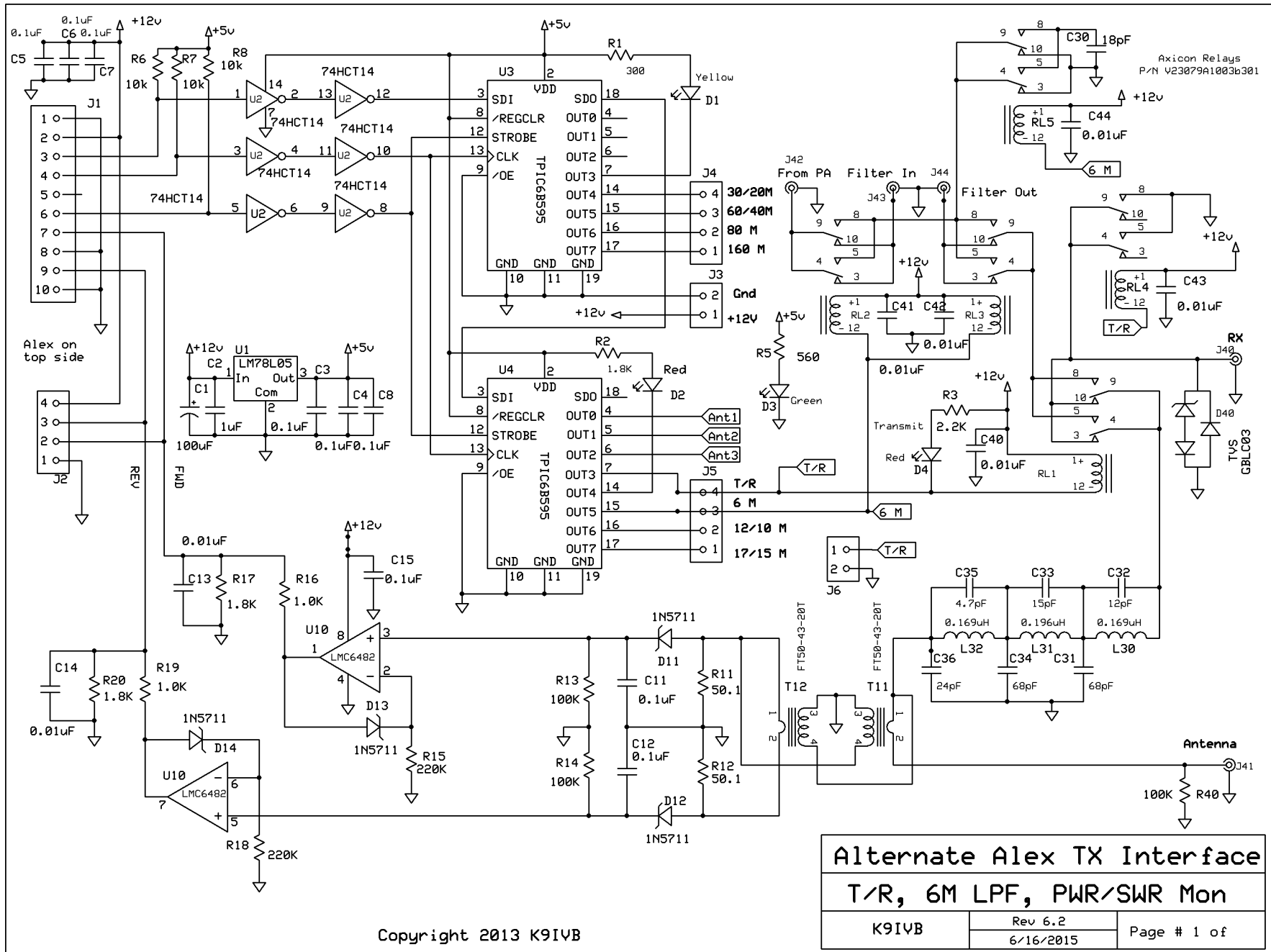
TX Schematic revised: [TX ver 6.2]

D2 & T/R pins on U4 reversed corrected D2 = pin 14, T/R = Pin 7.

TX Gerbers revised: [TX ver 6.2]

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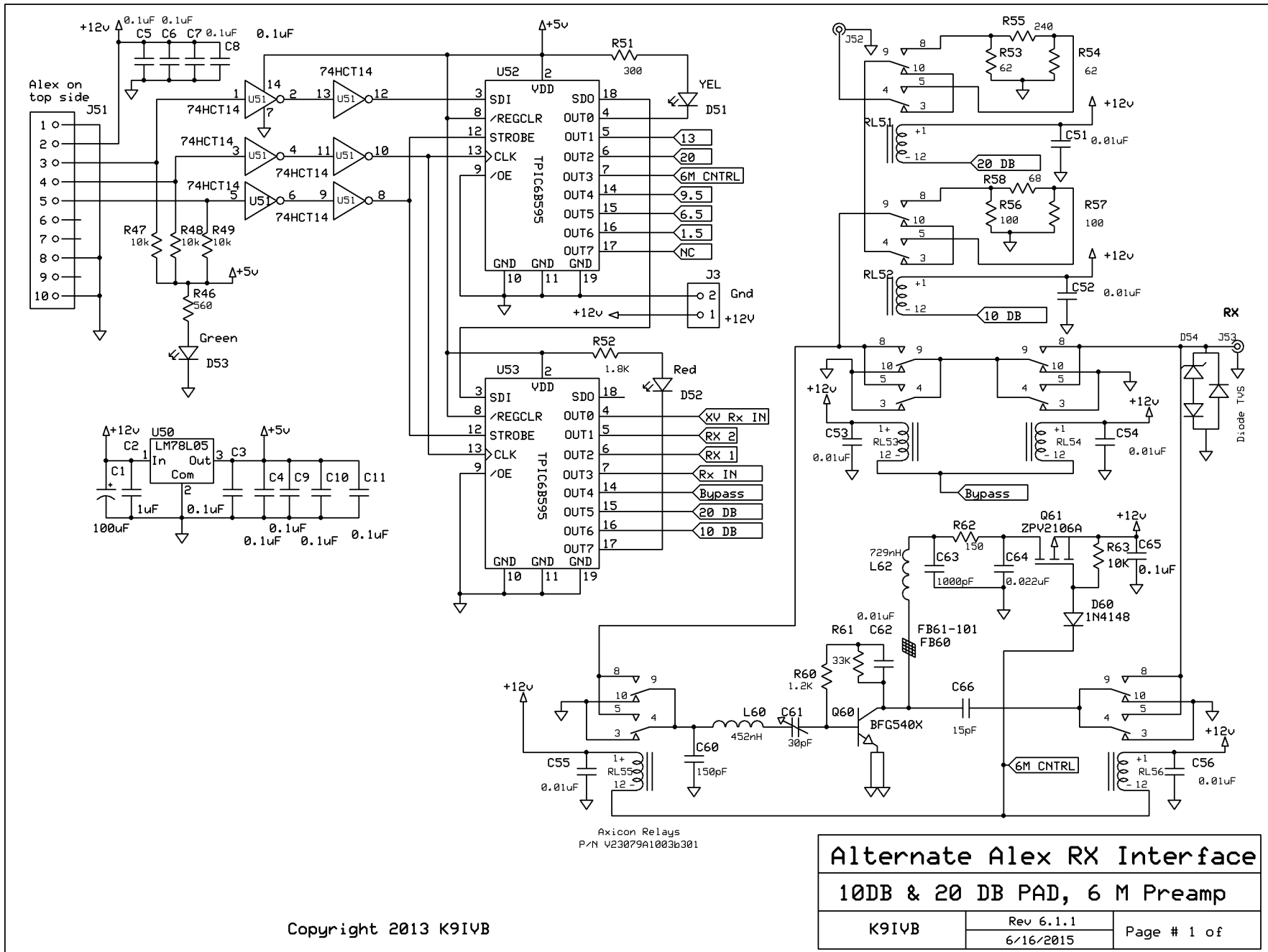
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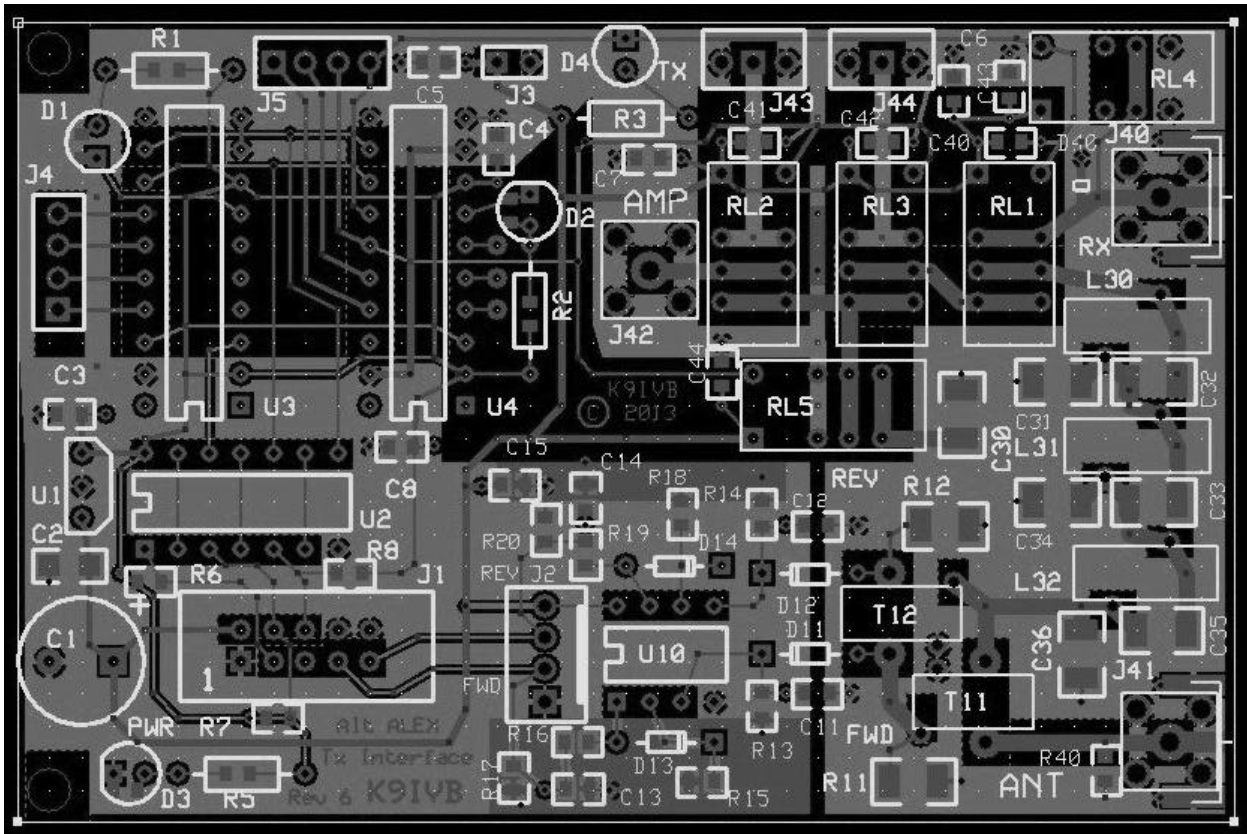
Alternate Alex TX Interface
T/R, 6M LPF, PWR/SWR Mon

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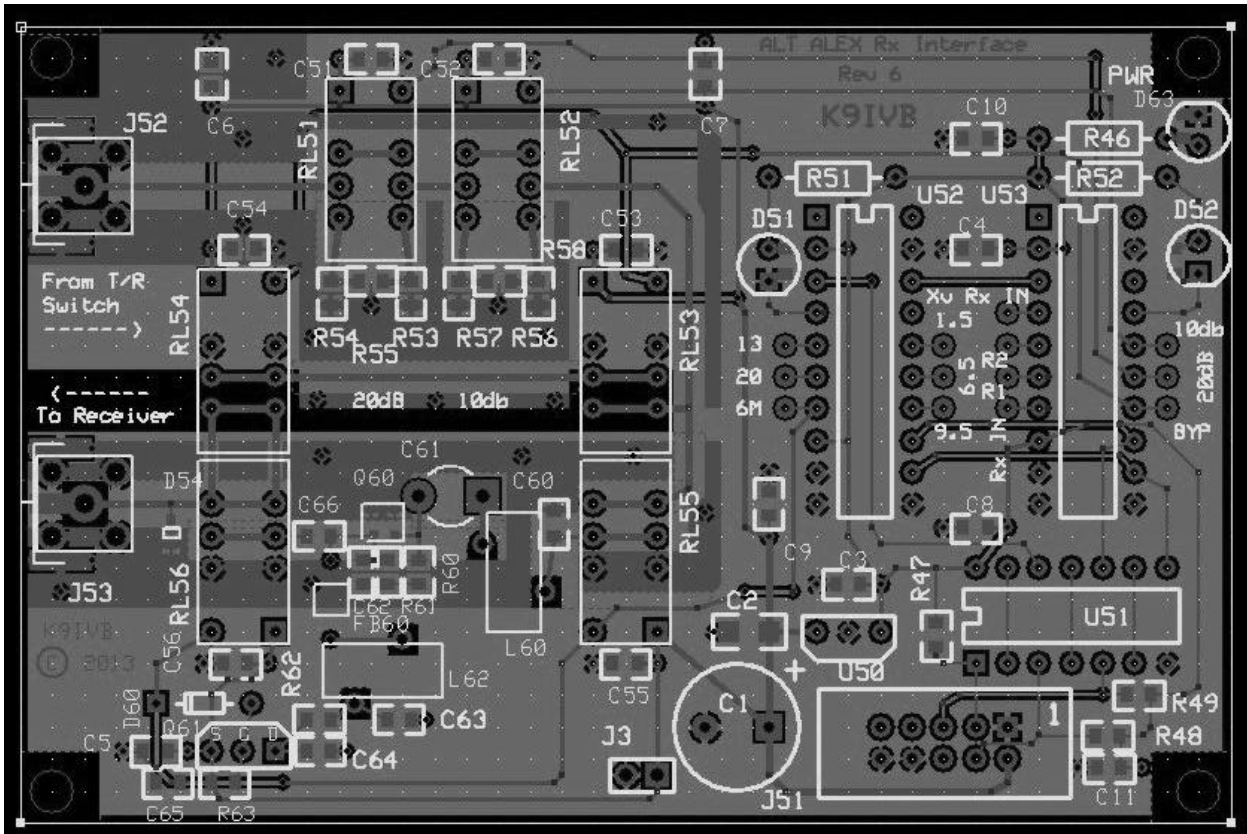
Alternate Alex Interface



Board Layouts
PC Boards are 3.8" x 2.5"



Alternate Alex TX Interface Board



Alternate Alex RX Interface Board

Alt Alex Tx Interface BOM

		Part #	Mfg	Mouser	Pkg
	Al Electrolytic Capacitors - Leaded 100uF 16volts 5x11 LS 5mm	EEU-HD1C101B		677-EEU-HD1C101B	5mm D x 5mm lead spacing
C1	MLCC - SMD/SMT 25volts 1uF X7R				
C2	10%	C1206C105K3RACTU	Kemet	80-C1206C105K3R	C1206
C3, C4, C5, C6, C7, C8, C11, C12,C15	MLCC - SMD/SMT 25volts 0.1uF X7R 1	C0805C104K3RACTU	Kemet	80-C0805C104K3R	C0805
C13, C14, C40, C41, C42, C43,	MLCC - SMD/SMT 0805 0.01uF 50volts				
C44	Y5V +80-20% MLCC - SMD/SMT 1210 18pF 500volts	GRM216F51H103ZA01D	Murata	81-GRM40Y103Z50D	C0805
C30	M 5% MLCC - SMD/SMT	SQCB7M180JAJME	AVX	581-SQCB7M180JAJME	C1210
C31, C34	500v 68pF 5% Tol MLCC - SMD/SMT	SQCB7M680JAJME	AVX	581-SQCB7M680JAJME	C1210
C32	500volts 12pF 5% MLCC - SMD/SMT	SQCB7M120JAJME		581-SQCB7M120JAJME	C1210
C33	1210 15pF 500volts M 5% MLCC - SMD/SMT	SQCB7M150JAJME	AVX	581-SQCB7M150JAJME	C1210
C35	500volts 4.7pF MLCC - SMD/SMT	SQCB7M4R7CAJME		581-SQCB7M4R7CAJME	C1210
C36	500volts 24pF 5%	SQCB7M240JAJME		81-SQCB7M240JAJME\5	C1210
D1	YEL LED SMT	LTST-C170YKT	Lite-On	859-LTST-C170YKT	D0805
D2	RED LED SMT	LTST-C170CKT	Lite-On	859-LTST-C170CKT	D0805
D8	GRN LED SMT	LTST-C170GKT	Lite-On	859-LTST-C170GKT	D0805
D4	RED LED TVS Diode Arrays				T1
D40	Unidirectional 3V	GBLC03	Protec		SOD323
D11, D12, D13, D14	HDR VERT DOUBLE 10P low profile	1N5711	STM	511-1N5711	DO-35
J1	4 Pin	5103309-1	TE	571-5103309-1	
J2, J4, J5	2 PIN	22-12-2044	MOLEX	538-22-12-2044	
J3					

	RF Connectors SMA STRAIGHT[vertical] PCB		Amphenol		
J42	RECEPTACLE		132134 Connex	523-132134	
J43, J44	3 PIN				
	RF Connectors SMA ST PCB-JCK BHD EMT I-AU				
J40, J41	Gold w/hard	73251-1290	Molex	538-73251-1290	
L30, L32	0.169uH	T50-10-6T #22		T50-10 [Black]	
L31	0.196uH	T50-10-7T #22		T50-10 [Black]	
R1	300 0.25W 5% Thick Film Resistors - SMD 0.25W 300ohm 5%				TH
R1	200ppm	SG73P2ATTD301J		660-SG73P2ATTD301J	R0805
R2	1.8K Thick Film Resistors - SMD 1/8W 1.8K OHM				
R2	5%	RK73B2ATTDD182J	KOA Speer	660-RK73B2ATTDD182J	R0805
R3	2.2K Thick Film Resistors - SMD 1/8watts 2.2Kohms				
R3	5%	RK73B2ATTD222J	KOA Speer	660-RK73B2ATTD222J	R0805
R5	560 Thick Film Resistors - SMD 0.25W 560ohm 5%				
R5	200ppm	SG73P2ATTD561J	KOA Speer	660-SG73P2ATTD561J	R0805
	Thick Film Resistors 1/10watts				
R6, R7, R8,	10Kohms 5%	RK73B1JTTDD103J	KOA Speer	660-RK73B1JTTDD103J	R0805
	Thick Film Resistors - SMD 1/8watts 100Kohms				
R13, R14,R40	5%	RK73B2ATTD104J	KOA Speer	660-RK73B2ATTD104J	R0805
	Thick Film Resistors - SMD 3/4watt 51.1ohms				
R11, R12	1%	CRCW201051.1-E3	Vishay / Dale	71-CRCW201051.1-E3	P2010
	Thick Film Resistors - SMD 1/8watts 220Kohms				
R15, R18	5%	RK73B2ATTD224J	KOA Speer	660-RK73B2ATTD224J	R0805

	Thick Film Resistors - SMD 0.25W 1Kohm 5%				
R16, R19	200ppm	SG73P2ATTD102J	KOA Speer	660-SG73P2ATTD102J	R0805
	Thick Film Resistors - SMD 1/8W 1.8K OHM				
R17, R20	5%	RK73B2ATTDD182J	KOA Speer	660-RK73B2ATTDD182J	R0805
RL1, RL2, RL3, RL4, RL5 T11, T12	DPDT-2 FT50-43-20T	V23079A1003B301		655-V23079A1003B301	
U1	LM78L05	LM78L05ACZ	Fairchild	512-LM78L05ACZ	TO-93
U2	74HCT14N	74HCT14N		771-74HCT14N	PDIP-14
U3, U4	TPIC6B595	TPIC6B595N		595-TPIC6B595N	PDIP-20
U10	LMC6482	LMC6482IN/NOPB		926-LMC6482IN/NOPB	DIP-8

Alt Alex Rx Interface BOM

		Part #	Mfg	Mouser	Pkg
	Al Electrolytic Capacitors - Leaded 100uF 16volts 5x11 LS 5mm	EEU-HD1C101B		677-EEU-HD1C101B	5mm D x 5mm lead spacing
C1	MLCC - SMD/SMT 25volts 1uF X7R				
C2	10%	C1206C105K3RACTU	Kemet	80-C1206C105K3R	C1206
C3, C4, C5, C6, C7, C8, C9, C10, C11, C65	MLCC - SMD/SMT 25volts 0.1uF X7R 1	C0805C104K3RACTU	Kemet	80-C0805C104K3R	C0805
C51, C52, C53, C54, C55, C56,	MLCC - SMD/SMT 0805 0.01uF 50volts				
C44	Y5V +80-20% MLCC - SMD/SMT 50volts 150pF C0G	GRM216F51H103ZA01D	Murata	81-GRM40Y103Z50D	C0805
C60	5%	C0805C151J5GACTU	KEMET	80-C0805C151J5G	
	Trimmer / Variable Capacitors 6.5- 30pF 100V 85 DEG	GKG30015	SPRAUGE	659-GKG30015	C0805
C62	MLCC - SMD/SMT 50volts 1000pF				
C63	C0G 5%	C0805C102J5GACTU	KEMET	80-C0805C102J5G	C0805
	Multilayer Ceramic Capacitors MLCC - SMD/SMT 50volts				
C64	22000pF X7R 10% MLCC - SMD/SMT 50volts 15pF C0G	C0805C223K5RACTU	KEMET	80-C0805C223K5R	C0805
C66	5%	C0805C150J5G	KEMET	80-C0805C150J5G	
D1	YEL LED SMT	LTST-C170YKT	Lite-On	859-LTST-C170YKT	D0805
D2	RED LED SMT	LTST-C170CKT	Lite-On	859-LTST-C170CKT	D0805
D3	GRN LED SMT	LTST-C170GKT	Lite-On	859-LTST-C170GKT	D0805
	TVS Diode Arrays				
D54	Unidirectional 3V	GBLC03	Protec		SOD323
D60	1N4148				DO-35
FB60	FB-61-101 HDR VERT DOUBLE 10P low profile	5103309-1	TE	571-5103309-1	
J1 J3	2 pin				

	RF Connectors				
	SMA ST PCB-JCK				
	BHD EMT I-AU				
J52, J53	Gold w/hard	73251-1290	Molex	538-73251-1290	
L60	452nH	T37-6-12T #24		T37-6 [Yellow]	
L61	729uH	T37-6-15T #24		T37-6 [Yellow]	
Q60	BFG540X	BFG540/X T/R	NXP	771-BFG540/X-T/R	
	ZPV2106A				
	MOSFET P-Chnl				
Q61	60V	ZVP2106A	Zetex	522-ZVP2106A	TO-92
R1	300 0.25W 5%				TH
R2	1.8K 0.25W 5%				TH
R3	2.2K 0.25W 5%				TH
R5	560 0.25W 5%				TH
	Thick Film				
R47, R48,	Resistors 1/10watts				
R49, R63	10Kohms 5%	RK73B1JTDD103J	KOA Speer	660-RK73B1JTDD103J	R0805
	Thick Film				
	Resistors - SMD				
	1/8watts 62ohms				
R53, R54	1%	RK73H2ATTD62R0F	KOA Speer	660-RK73H2ATTD62R0F	R0805
	Thick Film				
	Resistors - SMD				
	1/8watts 240ohms				
F55	1%	RK73H2ATTD2400F	KOA Speer	660-RK73H2ATTD2400F	R0805
	Thick Film				
	Resistors - SMD				
	1/8watts 100ohms				
R56, R57	1%	RK73H2ATTE1000F	KOA Speer	660-RK73H2ATTE1000F	R0805
	Thick Film				
	Resistors - SMD 68				
R58	OHM 1%	RK73H2ATTD68R0F	KOA Speer	660-RK73H2ATTD68R0F	R0805
	Thick Film				
	Resistors - SMD				
	1/8watts 33Kohms				
R61	1%	RK73H2ATTD3302F	KOA Speer	660-RK73H2ATTD3302F	R0805
	Thick Film				
	Resistors - SMD				
	1/8watts 150ohms				
R62	1%	RK73H2ATTD1500F	KOA Speer	660-RK73H2ATTD1500F	R0805
					R0805
RL51,					
RL52.					
RL53.					
RL44,					
RL55,					
R56	DPDT-2	V23079A1003B301		655-V23079A1003B301	
U50	LM78L05	LM78L05ACZ	Fairchild	512-LM78L05ACZ	TO-93
U51	74HCT14N	74HCT14N		771-74HCT14N	PDIP-14
U52, U53	TPIC6B595	TPIC6B595N		595-TPIC6B595N	PDIP-20