

FlexRadio Systems

FLEX-1500

Software Defined Radio

Service Manual



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Introduction

The FLEX-1500™ QRP Software Defined Radio is an entry level QRP radio and is also suited to be the ideal IF deck for VHF-Microwave operation. It provides all of the advantages of a software defined radio, including the sophisticated high performance filters, panoramic spectrum displays and computer based graphic interface characteristic of a software defined radio.

This service manual assumes that the reader / service technician is familiar with the operation of the radio and PowerSDR control software. If additional information is required on those topics, please refer to the Product Manual and Quick Start Guide.



Front View - FLEX-1500

Theory of Operation

Refer to the Block Diagrams on the two following pages.

The detailed schematic are included in Appendix “A” and Appendix “B”.

The unit is powered by +13.8 Volts DC, supplied via the 2.5 mm x 5.5 mm coaxial power connector on the rear of the unit. The unit has an internal 3.0 Ampere fuse that will blow if the unit draws excessive current or if the polarity of the power connected to the unit is reversed.

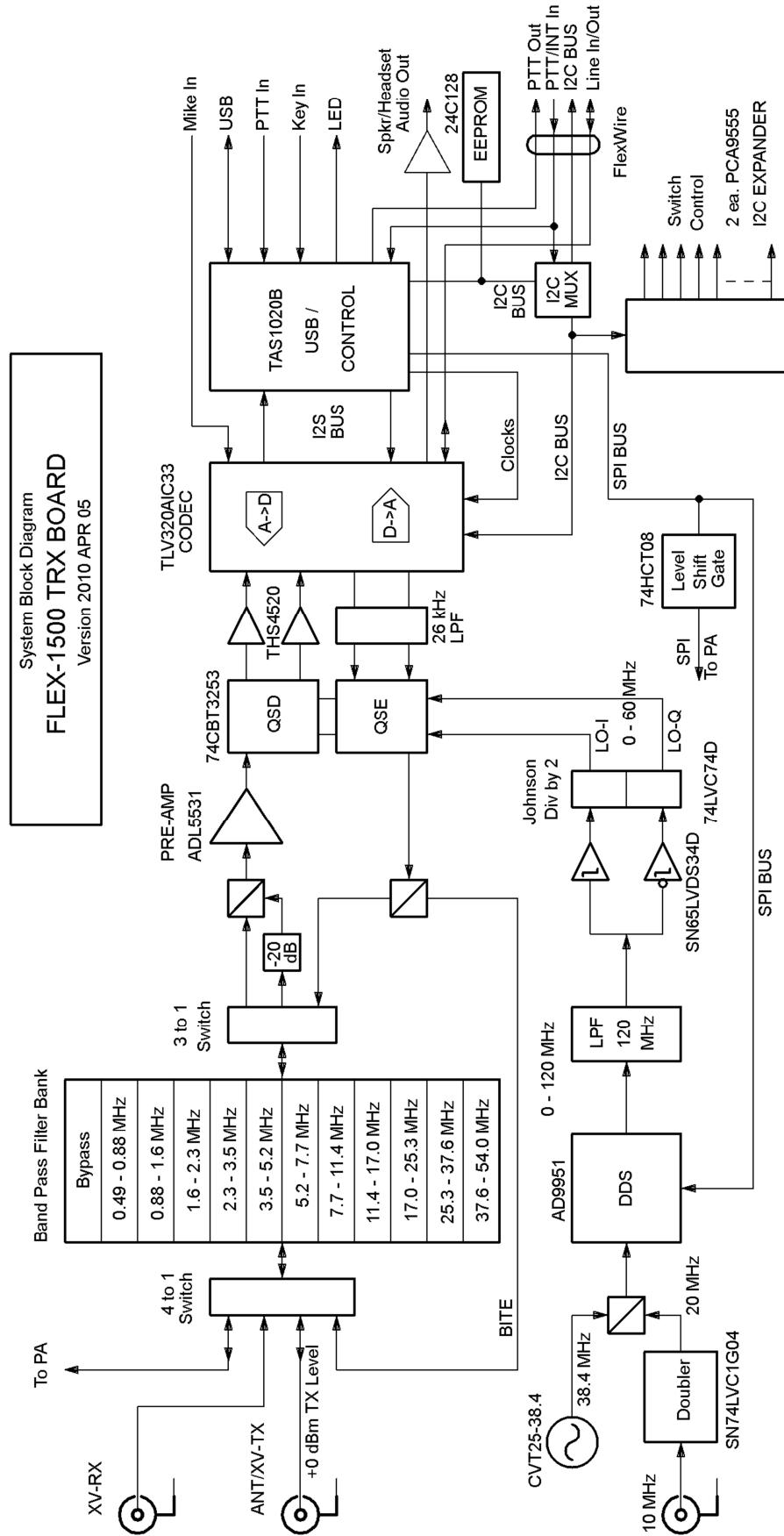
The FLEX-1500 CPU (TAS1020B Streaming USB Controller) will communicate via USB for both control and streaming baseband data with the host CPU running the PowerSDR software. The CPU in the FLEX-1500 has control of all switching, signal routing, frequency generation via the DDS, FlexWire port, audio amplifier, as well as audio and baseband routing, CODEC clock generation, data conversion, gain and level controls for the radio.

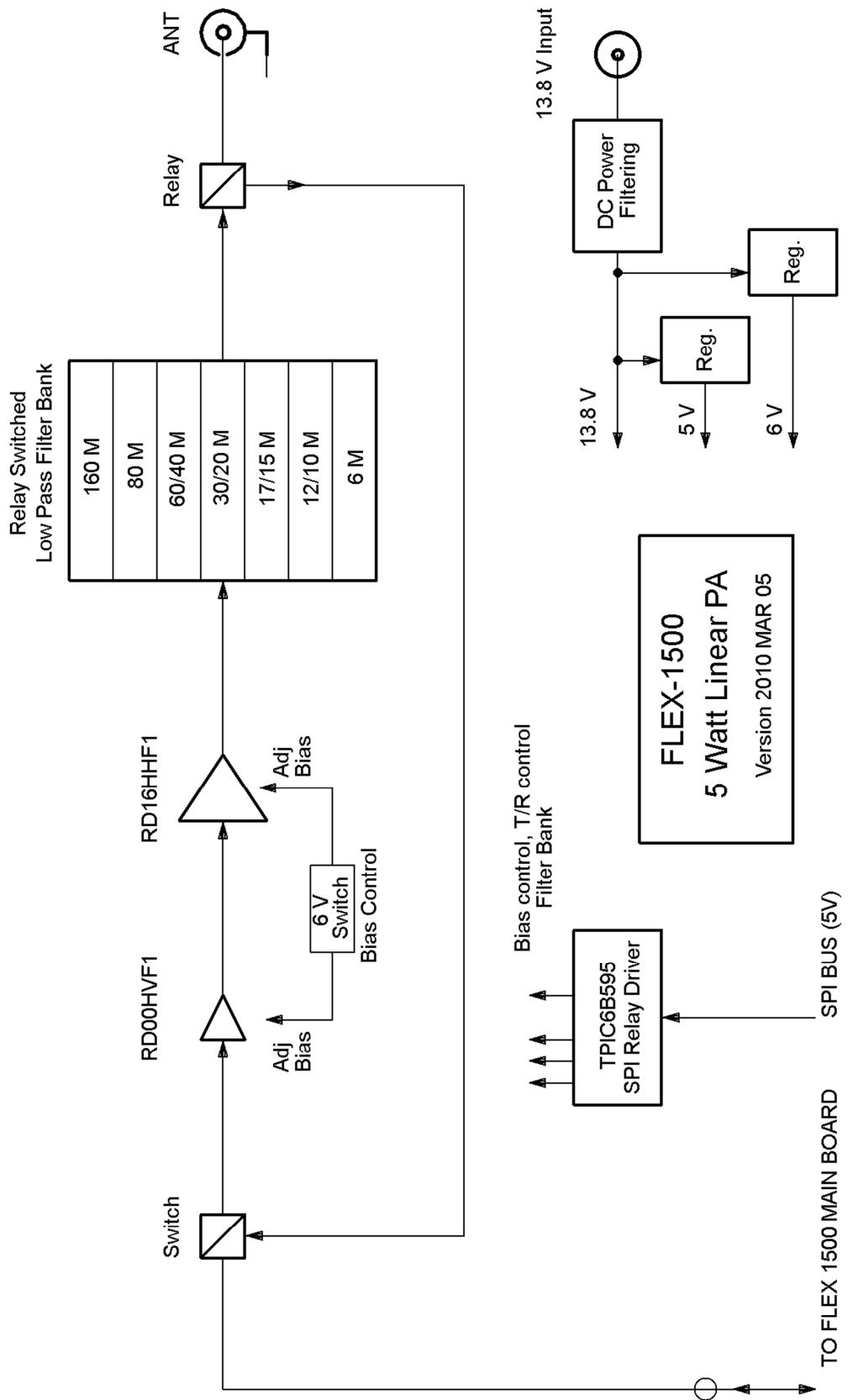
Communication between the Flex-1500 radio and the host computer is via a USB connection capable of USB 1.1 or higher level USB operation. The protocol is USB “Full Speed” or 12 Megabits per second data transfer rate.

Power Systems and Distribution

The transceiver board requires a source of regulated +5 Volts at approximately 400 mA to function. +3.3 Volts is supplied to the board in general by a linear +3.3 Volt regulator derived from the +5 Volt line. Additional +3.3 Volt and +1.8 Volts required to operate some of the integrated circuits is provided by point-of-load regulators in the vicinity of the IC.

Overall power for the unit is derived from the +13.8 Volt input on the RFPA board. This 13.8 Volts directly supplies the relays and power amplifier transistors. It is also feeds two regulators. A 6 Volt regulator is switched on when transmitting, and off when receiving. This switched +6 Volt output is used to bias the RF power transistors. A separate +5 Volt regulator supplies power for the SPI decoder and relay driver IC on the RFPA board, as well as supplies all +5 Volt power to the transceiver board (PTRX) via the board to board interconnect system.





Control Busses

There are several control busses that interconnect the radio. A USB “Full Speed” bus interconnects the host computer running PowerSDR with the on-board CPU, the TAS1020B. Control from the TAS1020B CPU to the rest of the radio and external control is via an I2C bus system, and two SPI busses.

Firmware for the CPU is resident in a local (I2C) EEPROM on the transceiver board. Upon power up, the CPU will look for the presence of a properly programmed EEPROM, load this code, begin execution, and register with the host computer as a FLEX-1500 device. In the absence of the EEPROM, or lack of correctly identified firmware, the CPU will execute from internal ROM, and identify itself to the host computer as a “TI DFU device.”

The FLEX-1500 CPU will communicate via USB for both control and streaming baseband data with the host CPU running the PowerSDR software. The CPU in the FLEX-1500 has control of all switching, signal routing, frequency generation via the DDS, FlexWire port, audio amplifier, as well as audio and baseband routing, CODEC clock generation, data conversion, gain and level controls for the radio. All of the above must be translated from local hardware and register controls to the Command and Data structures chosen for USB transport and interface in the host to the PowerSDR software.

I2C Bus

The I2C bus exists as three instances.

- (1.) The computer bus (I2C-C), which contains the (master) CPU, the EEPROM containing program memory and calibration parameters, and the Bus Mux.
- (2.) The Internal I2C bus, (I2C-I) containing the two bus expanders and the CODEC chip.
- (3.) The External I2C bus (I2C-E) which is routed to the FlexWire DB-9 connector, and is only used in conjunction with an external FlexWire device.

The I2C Bus Mux selects whether the Computer I2C bus will be connected to the Internal or External I2C bus extension at any given time, as well as passing any interrupt requests upwards to the CPU. Since the EEPROM and the Bus Mux are on the computer bus, their addresses will appear in all I2C bus spaces.

I2C Bus Structure

The I2C bus address values are provided according to the TI convention, where the address is an eight bit word, expressed as two hexadecimal characters. The least

significant bit is actually the ~read/write bit, but is always presented as a “0” when the address is expressed. The TAS1020B is the I2C Bus Master and is always connected to the I2C Multiplex Chip and the EEPROM.

When the Bus Mux is set to “Outside,” the I2C bus is routed to the appropriate pins on the FlexWire connector. When set to “Inside” the I2C bus is routed to the CODEC, and the two Bus Expanders, which convert I2C commands to many high/low outputs used to control the individual switches that control signal routing in the radio.

The Audio Amplifier is controlled by general purpose outputs from the CODEC.

SPI Bus

There is also a SPI bus, used to control the DDS and the RFPA. It appears as two physical instances, a 3.3V version and a 5V version. The SPI is outbound control only, for both the AD9951 DDS and RF PA board.

The AD9951 DDS is controlled via the 3.3 Volt SPI bus, directly from the CPU. The DDS can be programmed to operate with either a 20 MHz or 38.4 MHz reference input. The 20 MHz signal comes from doubling the external 10 MHz input, and the 38.4 MHz is generated by an onboard temperature compensated crystal oscillator.

The TPIC6B595 Relay Driver is controlled by the 5 Volt SPI bus, and controls the following relays according to the band of operation or transmit/receive status.

A “High” SPI control bit is the active state, which provides a LOW output from the relay driver to turn the relays ON.

I.C. Name	Bit	Pin	Name	Function	Initial
Drain0	0	4	15M	Active = 17 or 15 Meter Band	0 = Inactive
Drain1	1	5	160M	Active = 160 Meter Band	0 = Inactive
Drain2	2	6	20M	Active = 30 or 20 Meter Band	0 = Inactive
Drain3	3	7	6M	Active = 6 Meter Band	0 = Inactive
Drain4	4	14	80M	Active = 80 Meter Band	0 = Inactive
Drain5	5	15	10M	Active = 12 or 10 Meter Band	0 = Inactive
Drain6	6	16	XMIT	HIGH = Transmit mode, LOW = Receive mode	0 = Receive
Drain7	7	17	40M	Active = 60 or 40 Meter Band	0 = Inactive

RF Signal Processing

The incoming RF signals may be received via the antenna connector on the RFPA board, the transverter receive connector, or the transverter common connector. These signals are routed via the appropriate bandpass filter, then either directly to the preamp, or through a

20 dB pad to offset the gain of the preamp. The output of the preamp is fed to the QSD down-mixer, with an output of I and Q baseband signals in the range of 0 to 24 kHz.

The QSD down-mixer is also supplied with a quadrature local oscillator signal which is derived from the DDS. The DDS operates at twice the desired local oscillator signal, passes through a 120 MHz low pass filter, into a Johnson Counter that both divides the DDS frequency by two, as well as generates the two quadrature local oscillator signals.

In transmit, in a reverse manner, I-Q baseband signals from the CODEC in the baseband range of 0 to 24 kHz are supplied to the QSE, along with the quadrature local oscillator signals at the operating frequency, resulting in a direct QSE output on the final transmit frequency, which is routed via the bandpass filters to either the transverter output connector, or the input to the RFPA.

Baseband Processing

In the receive direction, output I and Q signals from the QSD are passed through a set of OpAmps that have 18 dB of signal gain and 28 kHz low pass filters, then sent to the CODEC for digitization and transmission to the host computer.

In transmit, analog I and Q signals output from the CODEC are filtered in a 26 kHz low pass filter to remove wideband digital noise, then sent to the QSE for up-mixing.

Communications

In the receive configuration, digitized I and Q signals from the CODEC, representing the received pass band, are transferred using the I2S protocol to the Streaming USB controller. This controller then transfers this information via the USB protocol to the host computer. Processed and demodulated audio is returned via the USB protocol to the controller, then transferred to the CODEC via I2S protocol for conversion into analog audio signals.

In transmit configuration, digitized microphone audio signals from the CODEC are transferred using the I2S protocol to the Streaming USB controller. This controller then transfers this information via the USB protocol to the host computer. Processed transmit audio in a digital I and Q format is returned via the USB protocol to the controller, then transferred to the CODEC via I2S protocol for conversion into analog baseband signals to drive the QSE up-mixer.

In the BITE (Built In Test Equipment) configuration, digitized I and Q signals from the CODEC, representing the received pass band, are transferred using the I2S protocol to the Streaming USB controller. This controller then transfers this information via the USB protocol to the host computer. Transmit test signals in a digital I and Q format are

sent via the USB protocol to the controller, then transferred to the CODEC via I2S protocol for conversion into analog baseband signals to drive the QSE up-mixer.

Audio Amplifier

An audio amplifier is present, capable of driving stereo headphones, or stereo powered speakers, in the Stereo configuration, or a monophonic speaker directly, in the Mono configuration. In stereo, each of the two amplifiers are carrying the appropriate left or right channel information, and driving a low power amplifier suitable for headphones or high impedance loads. In the Mono configuration, the two incoming stereo signals are mixed together to form a single mono signal. This is fed to one amplifier directly and inverted and fed to the other amplifier to form an “H-Bridge” speaker amplifier. In this mode the speaker must be wired to bridge the amplifier output (connect to tip and ring on stereo speaker plug) with no connection to ground.

Alignment, Test and Calibration

The only manual alignment required is setting the quiescent bias for the RF power transistors on the RFPA (PPA05 PCB.)

All other alignment, test and calibration will occur under computer control using production test software built into PowerSDR.

Bias Adjustment

FLEX-1500 RFPA (PPA05) Bias settings

==

Power Supply Setup:
Adjust Power Supply to 13.8 Volts Output Voltage.

Adjust Power Supply maximum current limit to 2.5 Amperes. To do this, place a short across the output terminals of the power supply and adjust the Output Current knob to read 2.5 Amps on the current meter.

==

The Bias settings are normally set with the PA board out of the radio. It does not have to be connected to the TRX board, since it is all DC settings, and you do not want any RF drive present.

With just the PA by itself on the workbench...

Plug in +13.8 Volts into the normal power connector.

To turn on the PA bias, ground the test point named "XMIT" at the lower right corner of the board, between K8 and K15. This will also activate relay K15, so you will hear a "click."

To measure current in the driver transistor, there is a one Ohm shunt resistor between test points DM- and DM+. Put a voltmeter that will give good readings in the range of 50 millivolts across these two test points. Normally you would adjust R8 for 50 millivolts plus or minus 5 millivolts corresponding to 50 milliamps flowing through driver transistor Q1.

(Warning: do not use long test probes that will go all the way through the PC board and touch the plate below. This will short the +13.8 Volts to ground and/or destroy the metering resistor R2.)

After adjusting bias on Q1, adjust bias on Q3. The procedure with a cold plate will be to set total power drain to 530 mA, plus or minus 25 ma, by adjusting R10.

You will see it drift some with temperature. With a hot base plate, it can rise as high a 580 mA.

Test and Calibration

FLEX-1500 Transceiver Final Assembly, Test and Calibration.

Note: The FLEX-1599 USB signal generator is required to test receiver image calibration, and operation of the 10 MHz external reference. All other tests may be run without the USB signal generator. If not detected by the host computer, the appropriate test buttons will be disabled and “grayed out.”

Note: The PowerMaster model PM003 is required to run power calibration of the transmitter. If not detected by the host computer, the appropriate test button will be disabled and “grayed out.”

Required test equipment:

Host computer with PowerSDR version 2.0 or later with appropriate drivers for the FLEX-1500, FLEX-1599 signal generator, and PowerMaster RF power meter installed.

USB Signal Generator, FlexRadio Systems model FLEX-1599.

PowerMaster RF Power Meter model PM003 with serial interface, or USB serial adaptor as appropriate to connect to the host computer.

Loop-back test cable per accompanying diagram.

Suitable power and RF BNC connection cables.

Power Supply capable of supplying at least 2.5 Amperes at 13.8 Volts with maximum current limit adjustable to 2.5 Amperes.

==

Power Supply Setup:

Adjust Power Supply to 13.8 Volts Output Voltage.

Adjust Power Supply maximum current limit to 2.5 Amperes. To do this, place a short across the output terminals of the power supply and adjust the Output Current knob to read 2.5 Amps on the current meter.

==

If there is any question as to whether the quiescent bias currents are properly set on the RFPA power transistors, they should be set prior to performing the PA calibration tests.

==

Plug the BNC-Coaxial cable from the PowerMaster Watt meter into the BNC connector on the RFPA.

Plug the USB cable from the computer into the USB connector on the front edge of the PTRX board.

Plug the loop-back test cable into the FlexWire DB-9 connector on the rear card edge, and the Key and Mike connectors into the connectors on the front card edge.

Plug the +13.8 Volt power connector into the power connector on the RFPA.

==

Turn on the power switch on the PTRX board. The Blue LED should light within two seconds.

Open PowerSDR 2.0

Press "Start"

Note that the program is running and a moving Panadaptor noise floor appears.

Bring up the production test screen by pressing Control-Shift-P.

Check that the appropriate Com Port for the PowerMaster RF Power Meter is indicated.

The fully automated sequence of tests may be started by pressing the "Test All" at the bottom of the test screen, or the individual tests may be run for diagnostic purposes, by pressing their individual buttons.

If all tests are passed, as indicated by all green buttons, then radio level testing of the assembled radio is complete.

Close Production Test window, stop PowerSDR, close PowerSDR, turn off power switch on PTRX and remove cables from Radio Assembly.

==

Troubleshooting and Diagnostics

For bench testing the complete unit or RFPA as a stand alone board, it is recommended that a 13.8 Volt current limited bench supply is used, with the current limiter set to 2.5 Amperes.

If necessary to test a transceiver board as a stand alone board, a holding fixture with number 4 corner pins can be used to hold the board. A source of regulated +5.0 Volts, current limited at 600 mA may be applied in place of the power source jumper on J6, if present, or P2.

The results from the factory tests built into PowerSDR should provide direction as to any failures in the radio. The keyboard command to invoke the factory test page in PowerSDR is Control-Shift-P.

The blue light in the center of the power-on switch is controlled by the CPU. This light will only light if the CPU has downloaded valid firmware from the EEPROM and has completed initialization.

If no blue light, check all voltages, including the output of the dedicated +3.3V regulator feeding the CPU digital power pins, which is separate from the general 3.3V regulator.

If the blue light is present, but the unit will not enumerate on the USB host, check cables, connectors, and proper voltage output from the dedicated +3.3V regulator (IC28) feeding the CPU digital power pins.

None of the band pass filters in the transceiver board should have an insertion loss greater than 6 dB inside the band pass, so signal tracing with an RF signal generator and level meter or spectrum analyzer is very practical.

Excessive filter loss is usually associated with an incorrect inductance value, or shorted turns in one or more filter inductors.

Assembly and Disassembly

Required tools

Number 1 Phillips and number 2 Phillips screwdrivers are needed, and a *3/16 inch* nut driver to remove the DB-9 retention nuts.

Disassembly

Remove the two retention nuts on either side of the FlexWire DB-9 connector.

Remove the four corner screws on both the front and back covers using the number 2 Phillips screwdriver.

Observe the position of the upper PCB. It is in the fourth card slot. That is, three empty slots are above it. Observe the position of the two screw clearance holes on the bottom of the case. These holes are not equally spaced from the ends. The hole farthest from the edge is on the rear end (end with all BNCs.)

Remove the four bottom feet using the number 1 Phillips screwdriver.

Gently slide both cards toward the rear panel, the one with all the BNCs until the connected pair of cards are clear of the outer case. The two cards may be separated.

Re-assembly

Reconnect the cards with the ten pin card to card connector.

Orient the case so that the rear of the case (end with screw clearance hole spaced farthest from the edge) is upwards.

Lower the upper board into the fourth board slot from the top of the housing. Once the upper board engages the side rails by an inch or two, lower the lower board and heat spreader plate into the box and engage the board to board connection. The lower (PA board) should not engage any board slots and will just roughly center in the bottom of the case. Gently slide in the pair of cards until fully inside the new case.

Check that the two transistor mounting screws in the heat spreader are visible and roughly centered in the screw clearance relief holes in the bottom of the case.

Install the four feet using the number 1 Phillips screwdriver.

Install the front and rear panels, using the black #6 pan head screws, with a number # 6 flat washer under each screw head, with the number 2 Phillips screwdriver.

Install the two retention screws, with flat washer and lock washer on either side of the DB-9 connector.

Fuse Replacement

The Flex-1500 contains a 3 Ampere, standard automotive type AutoFuse Mini fuse to protect the radio in the event of an internal short, excessive power drain, or application of power with reversed polarity to the radio. Replace with LittleFuse #297003 or equivalent, housing color purple, 3 Ampere.

To replace the fuse, follow the “Disassembly: instructions above, and separate the two boards.

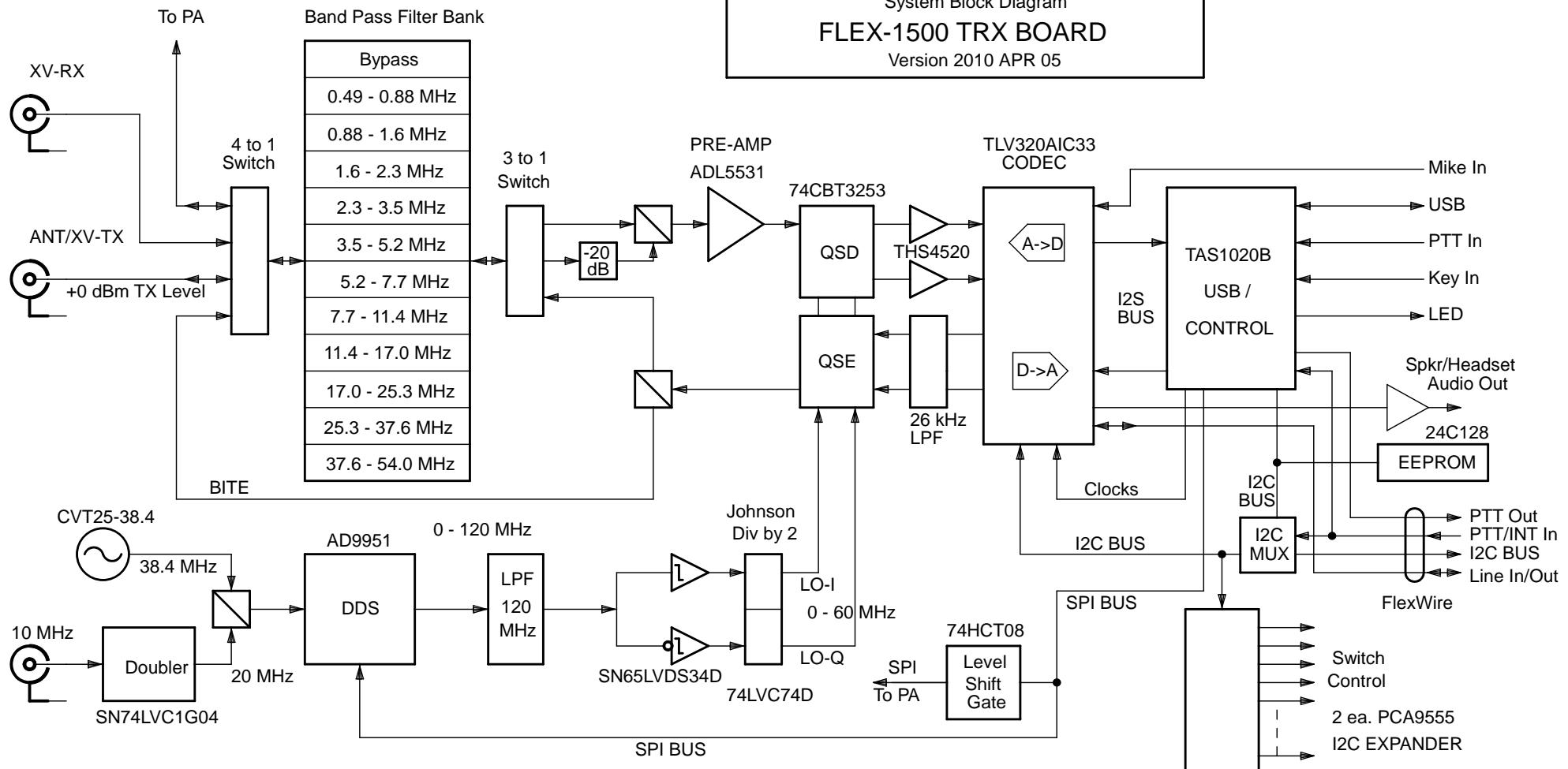
The fuse, component designator F1, is located on the RF Power Amplifier board immediately behind the +13.8 Volt power connector,. The fuse is a blade type fuse and is removed by pulling the fuse away from the board. It is replaced by inserting the contact blades into the fuse holder, and pushing downwards towards the PC board.

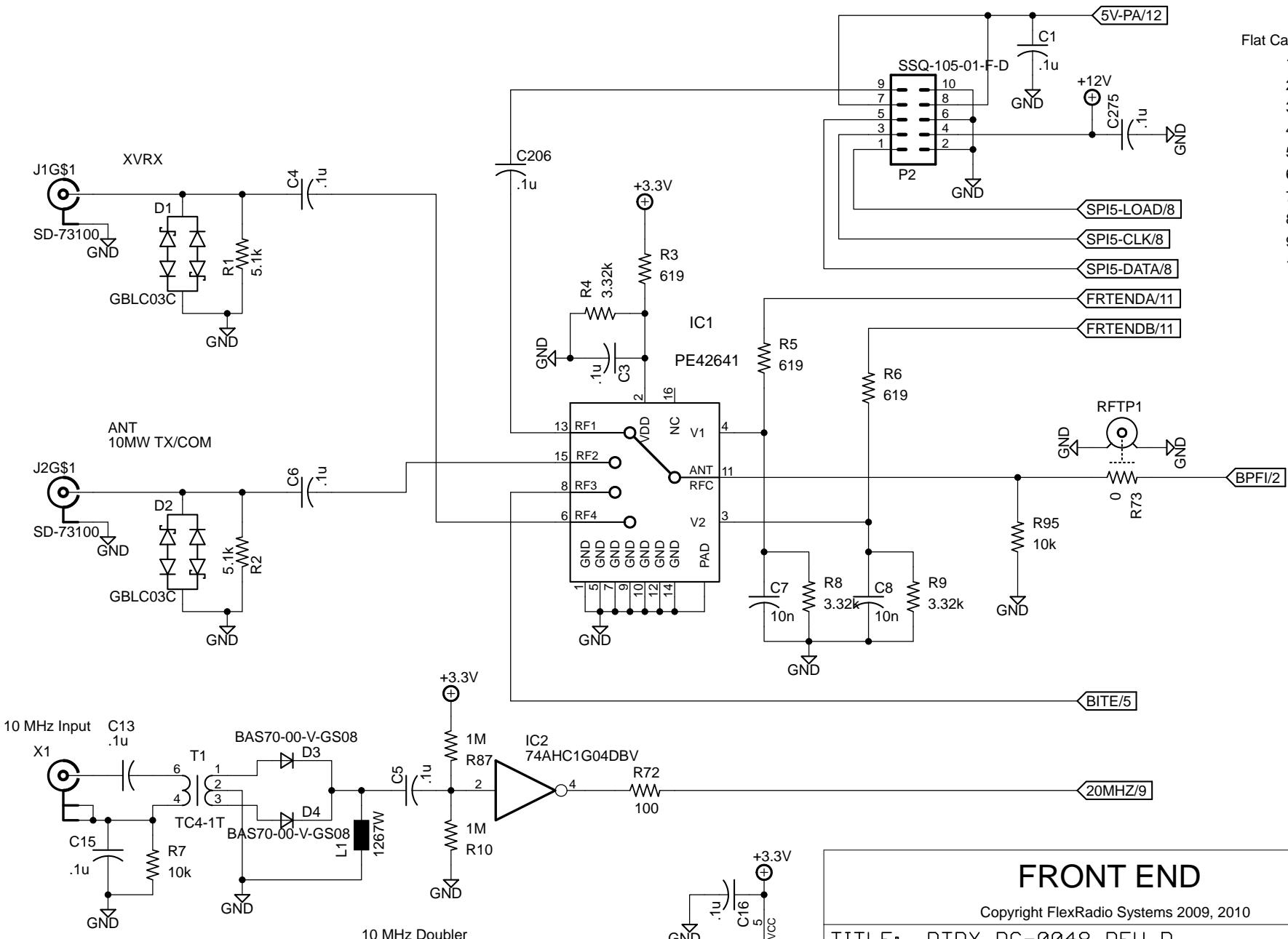
Reassemble the radio by following the “Re-assembly” instructions above.

Appendix "A"

Schematic, PTRX (Transceiver) Board

System Block Diagram
FLEX-1500 TRX BOARD
Version 2010 APR 05





FRONT END

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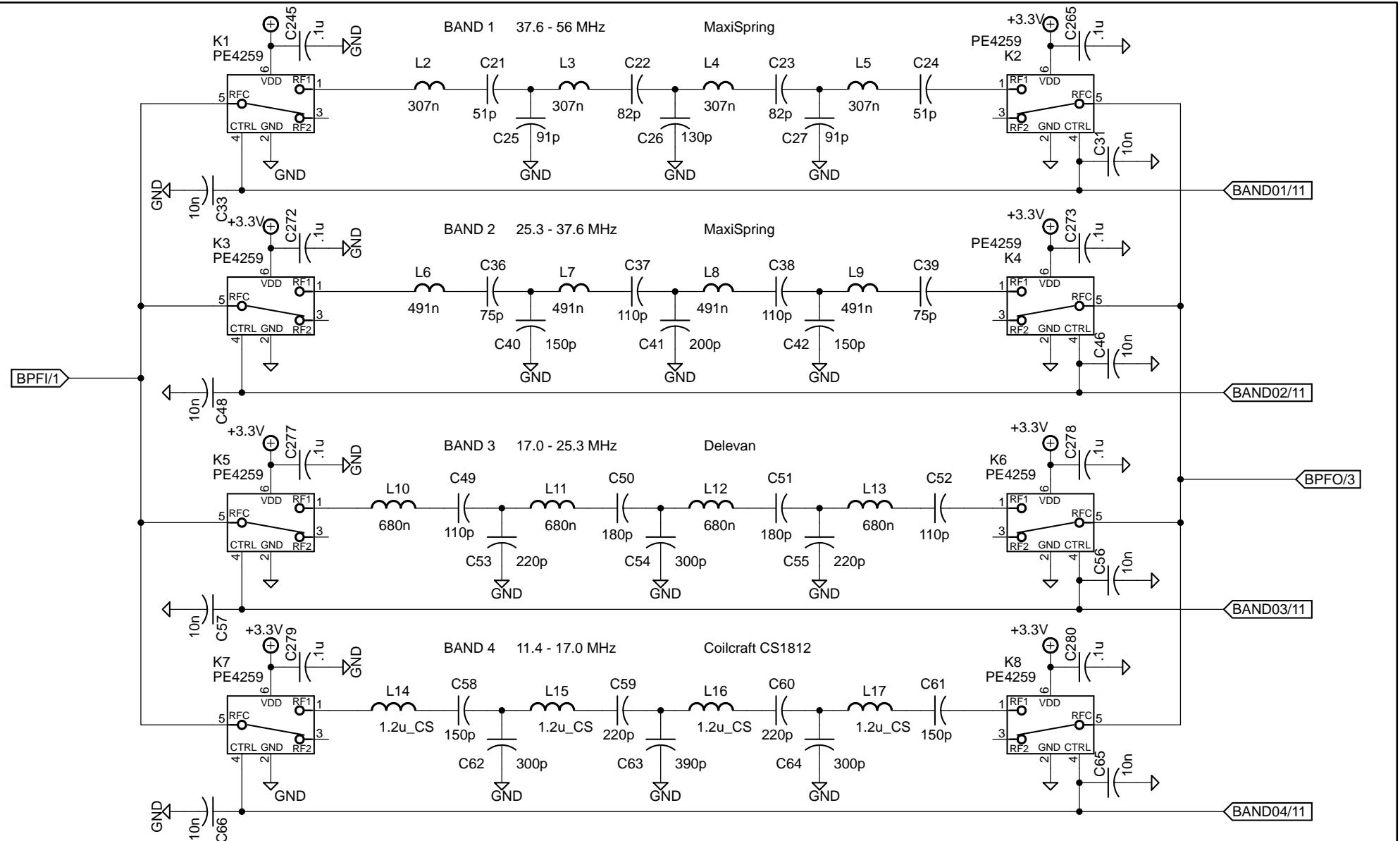
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Physical Position on PCB:

Band 4 - 11.4 - 17.0 MHz
 Band 8 - 2.3 - 3.5 MHz
 Band 2 - 25.3 - 37.6 MHz
 Band 5 - 7.7 - 11.4 MHz
 Band 9 - 1.6 - 2.3 MHz
 Band 1 - 37.6 - 56.0 MHz
 Band 12 - Bypass
 Band 6 - 5.2 - 7.7 MHz
 Band 10 - 0.88 - 1.6 MHz
 Band 3 - 17.0 - 25.3 MHz
 Band 7 - 3.5 - 5.2 MHz
 Band 11 - 0.49 - 0.88 MHz

BANDPASS FILTER BANK - HIGH

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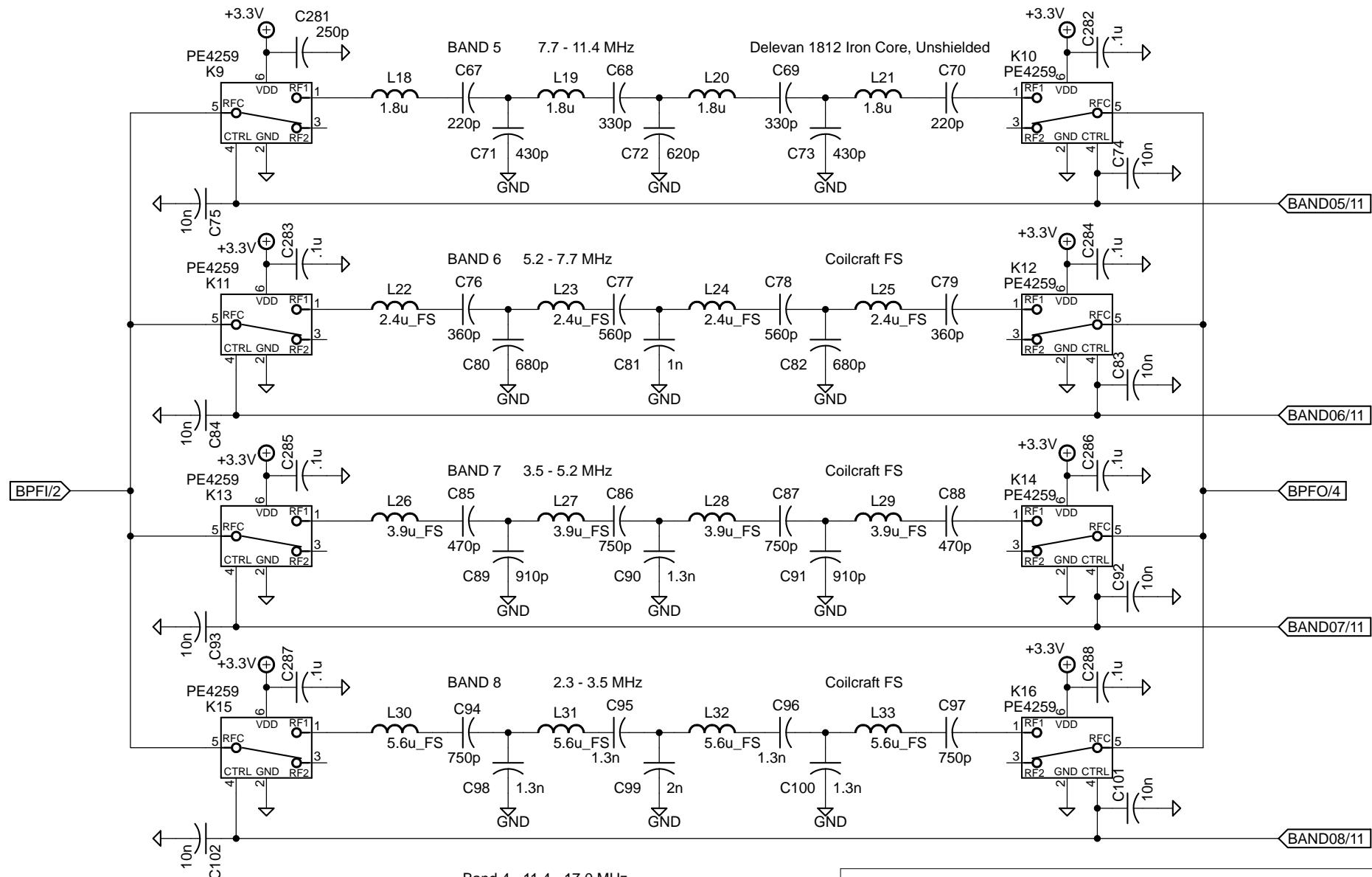
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Band 4 - 11.4 - 17.0 MHz
 Band 8 - 2.3 - 3.5 MHz
 Band 2 - 25.3 - 37.6 MHz
 Band 5 - 7.7 - 11.4 MHz
 Band 9 - 1.6 - 2.3 MHz
 Band 1 - 37.6 - 56.0 MHz
 Band 12 - Bypass
 Band 6 - 5.2 - 7.7 MHz
 Band 10 - 0.88 - 1.6 MHz
 Band 3 - 17.0 - 25.3 MHz
 Band 7 - 3.5 - 5.2 MHz
 Band 11 - 0.49 - 0.88 MHz

BANDPASS FILTER BANK - MIDDLE

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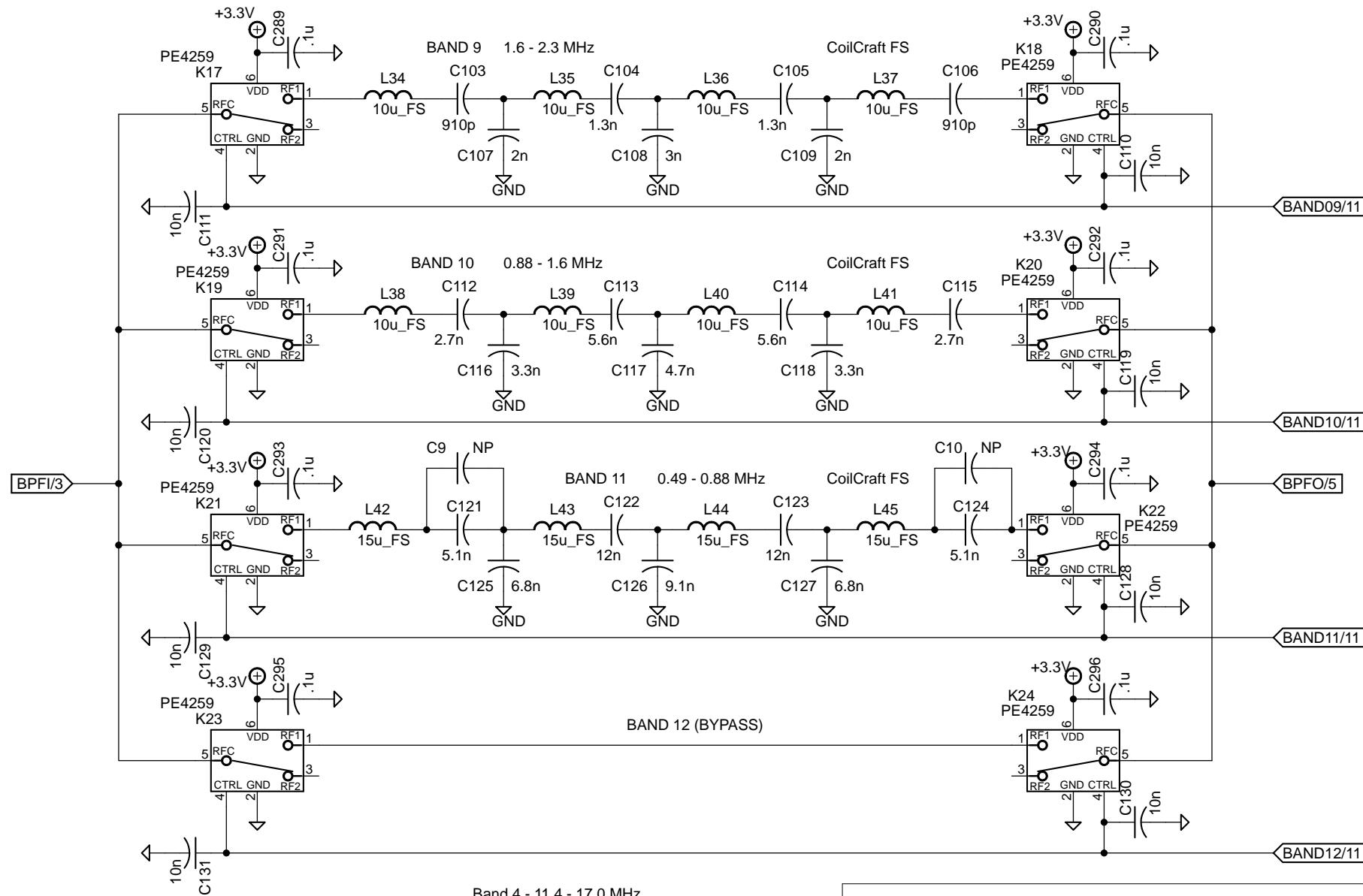
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BANDPASS FILTER BANK - LOW

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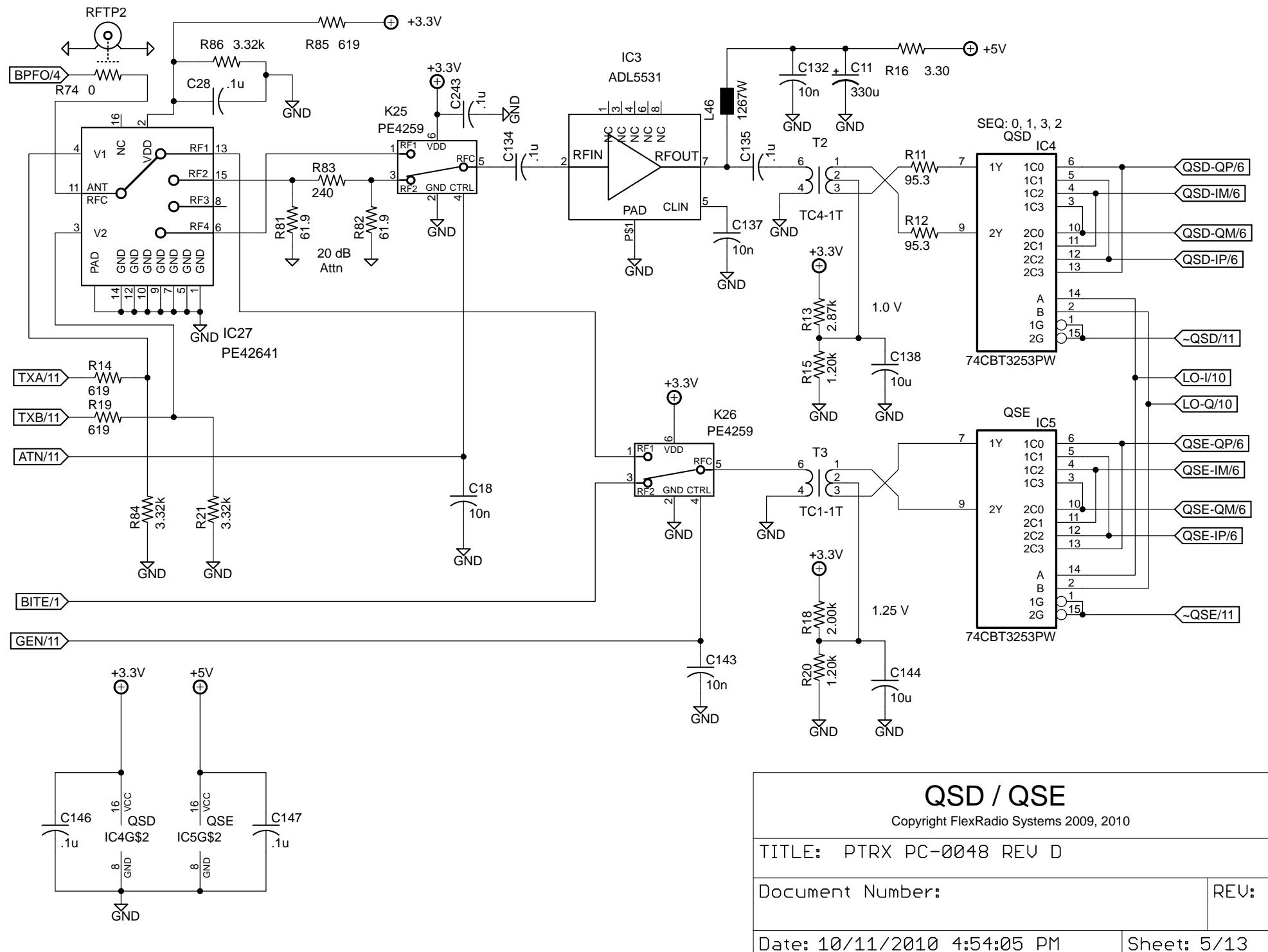
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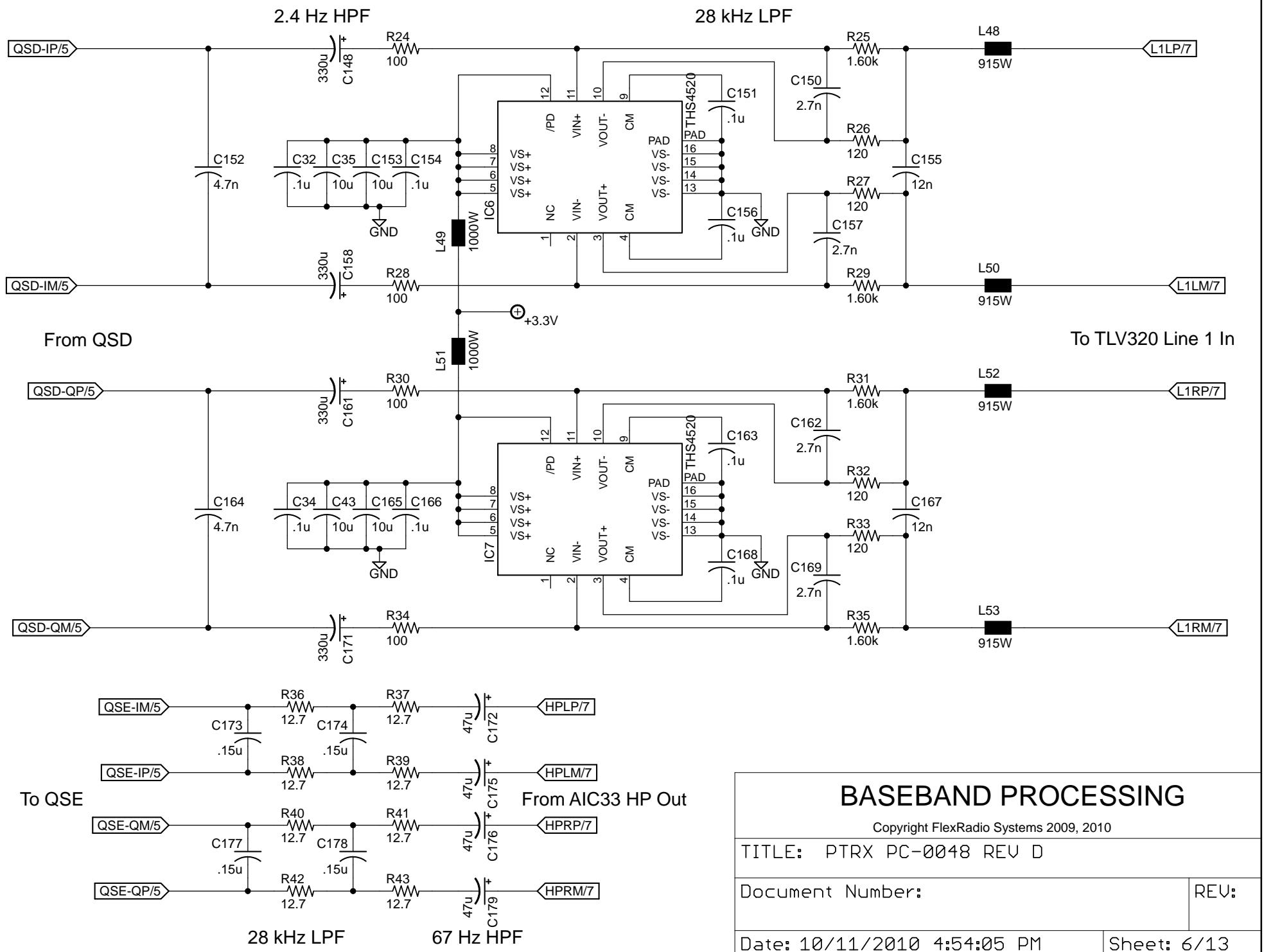
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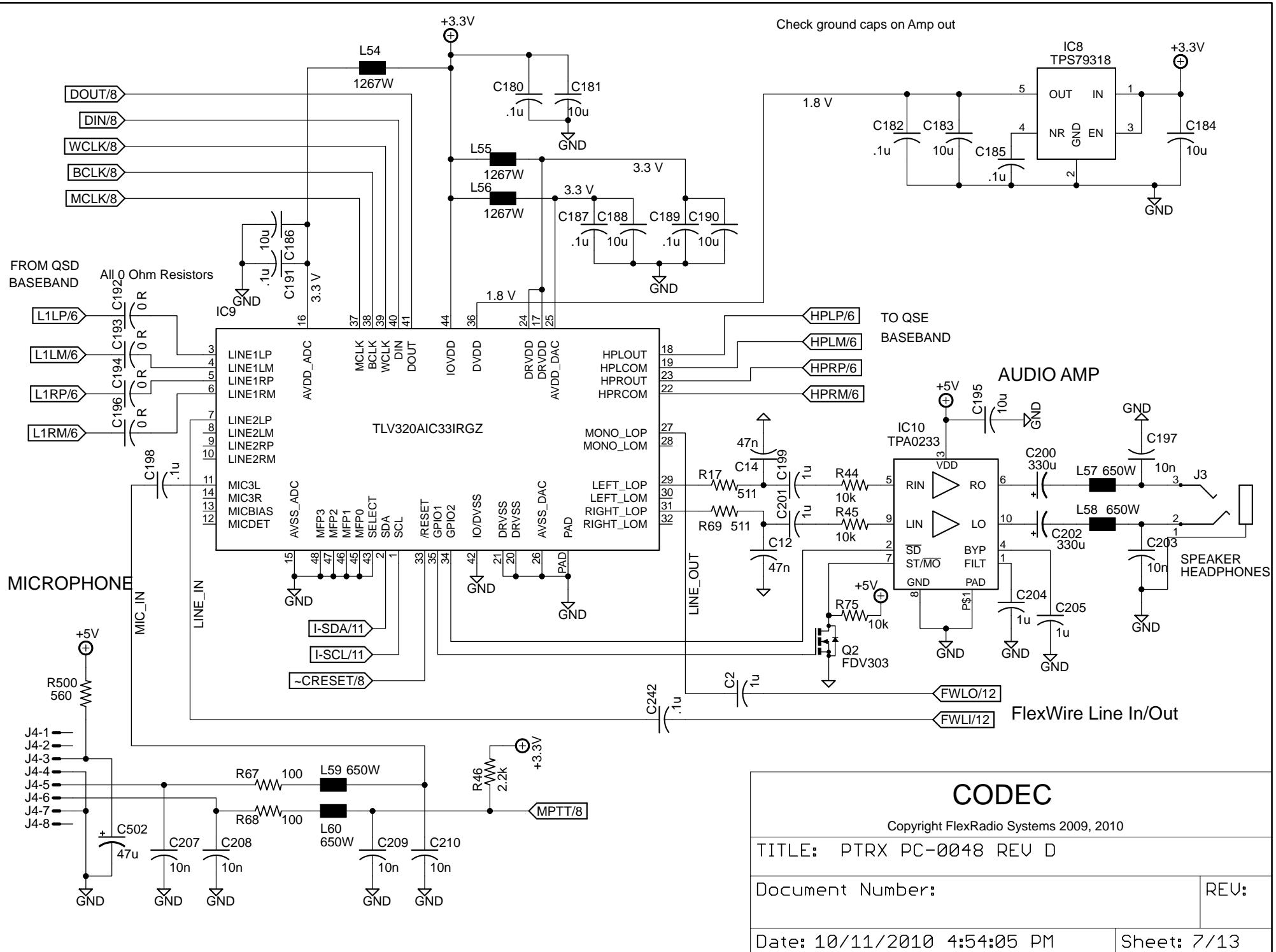
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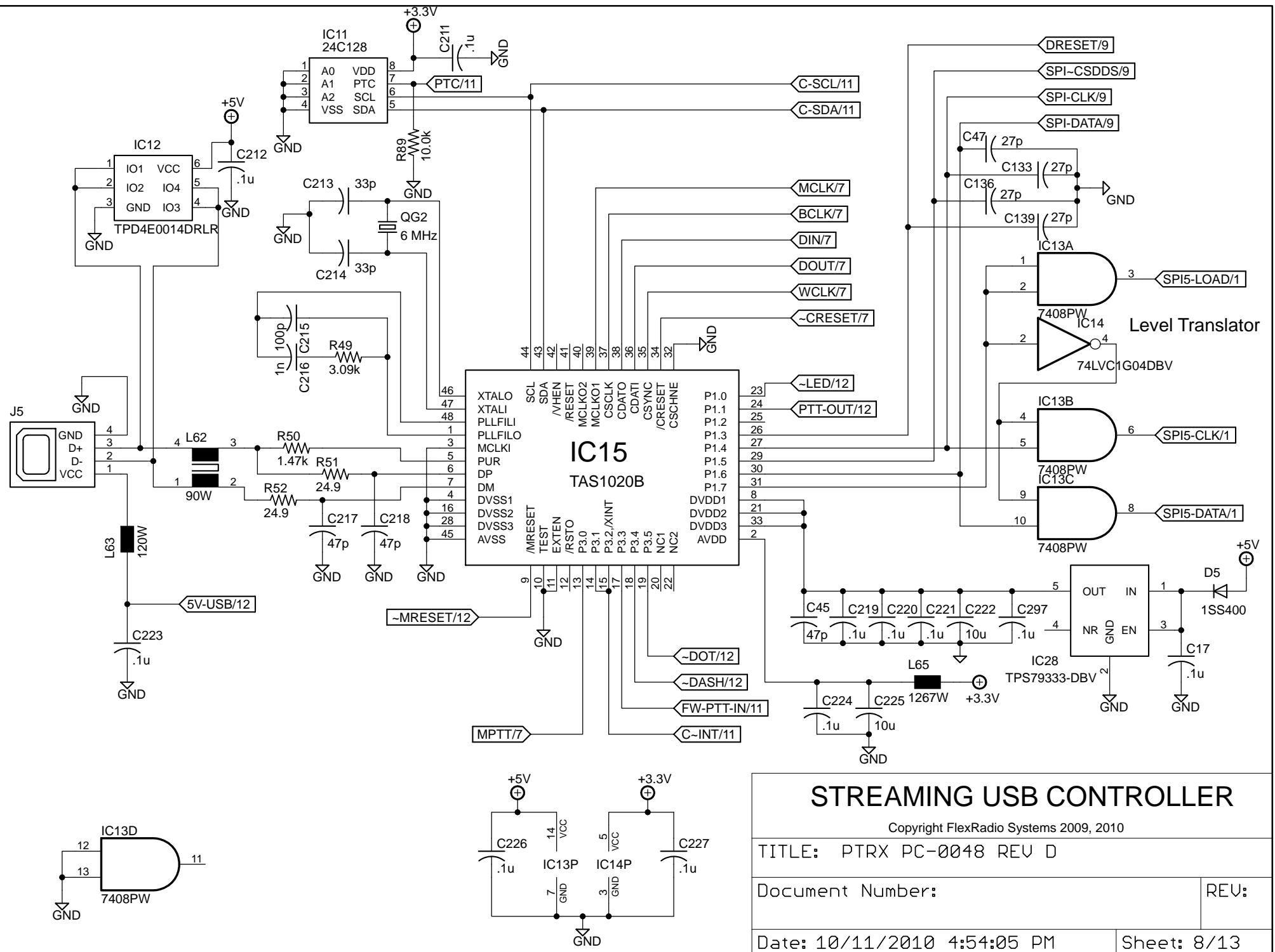
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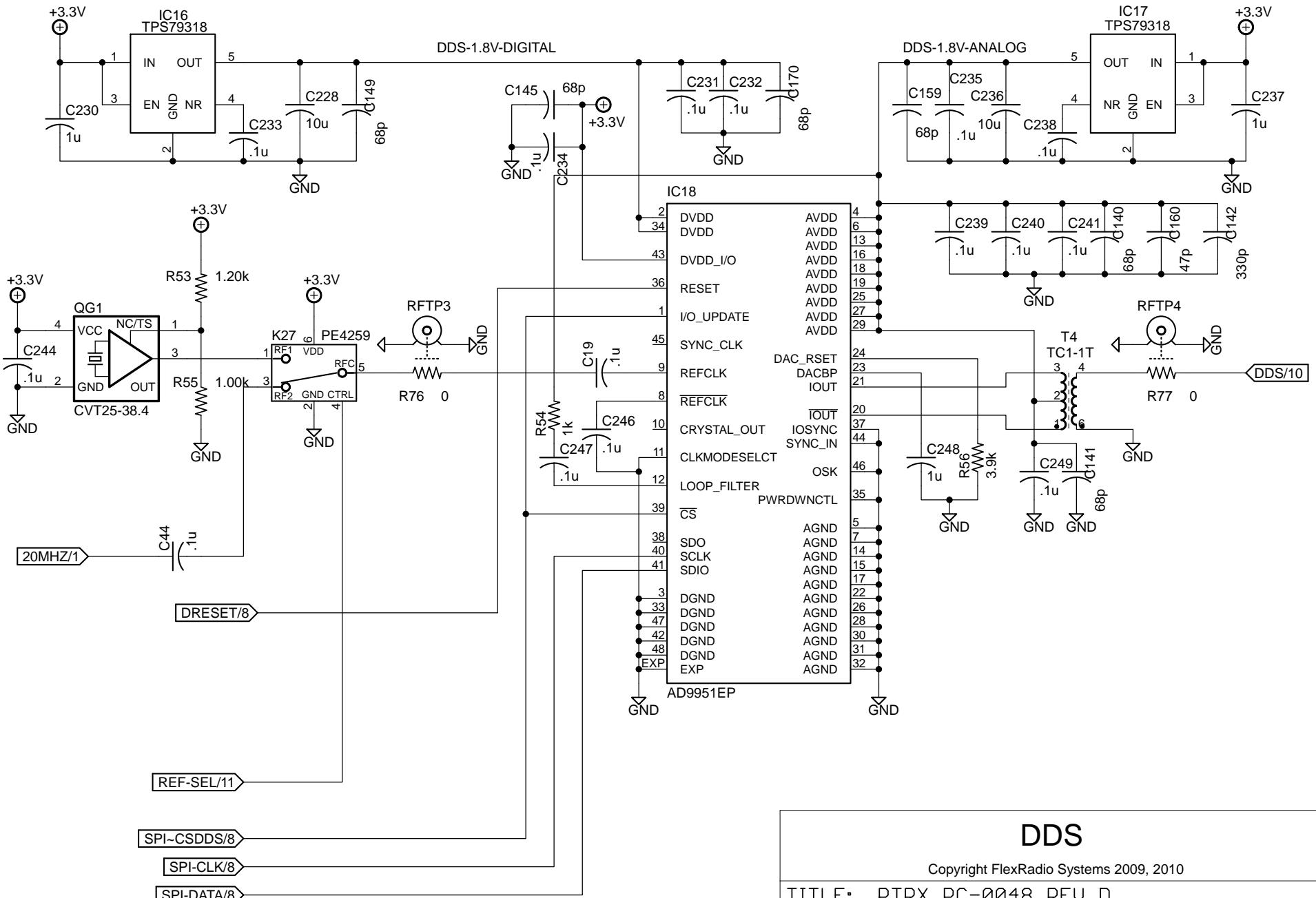
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DDS

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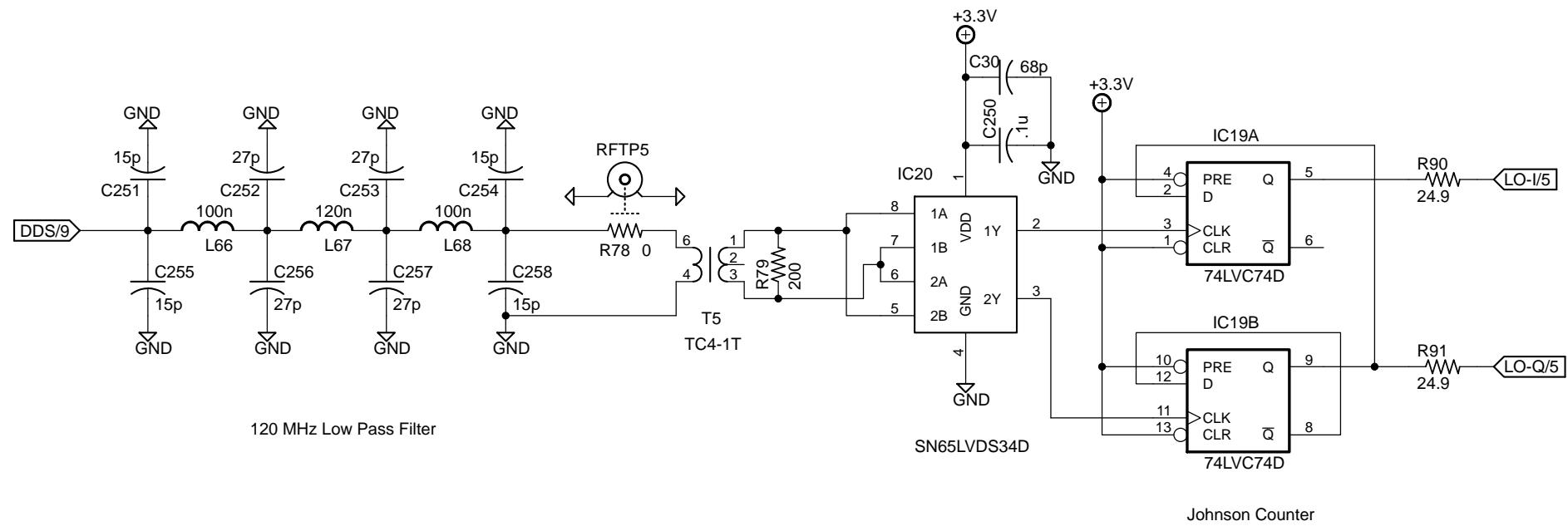
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LO QUADRATURE GENERATOR

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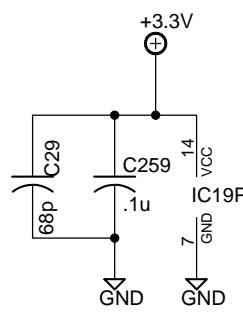
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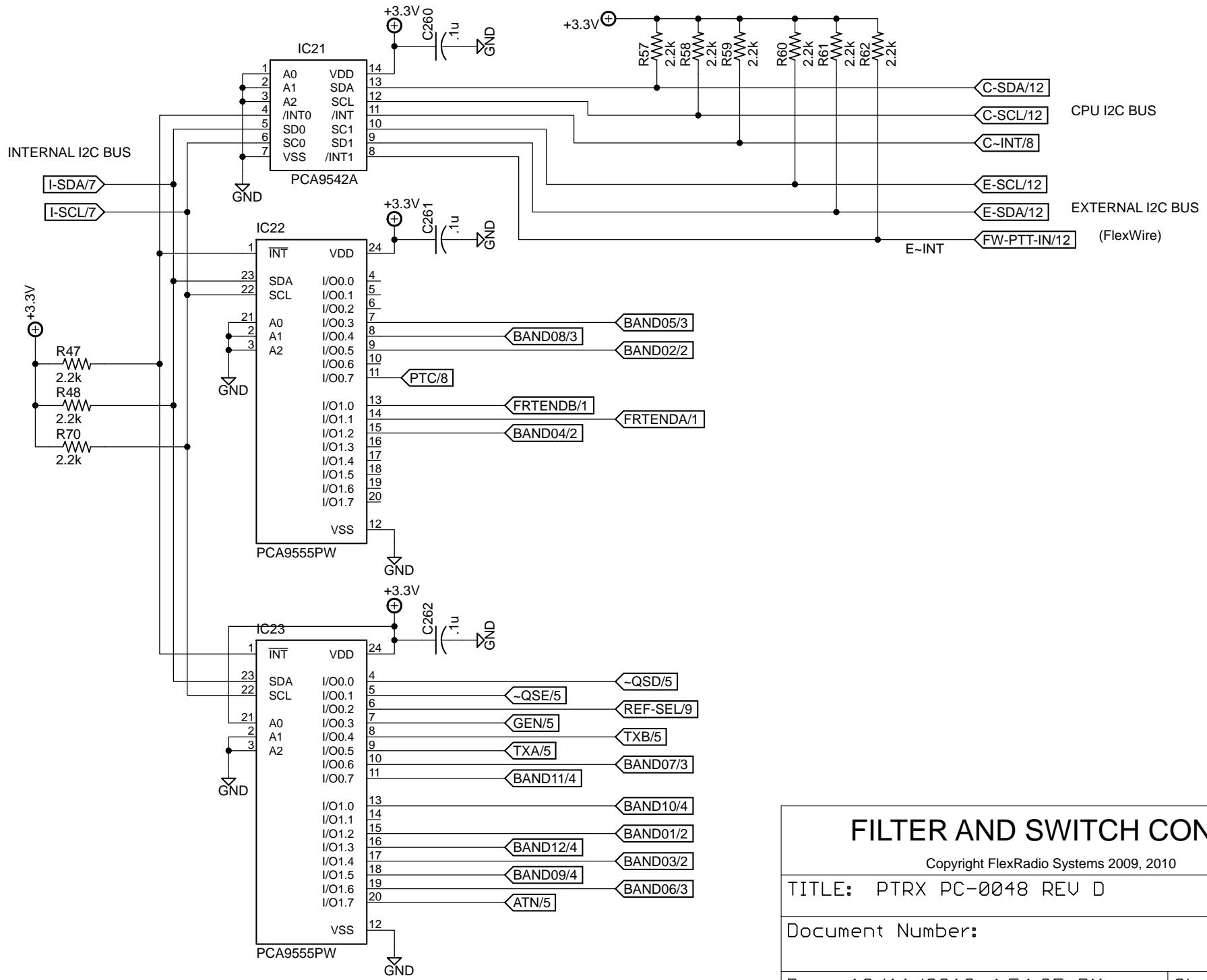
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FILTER AND SWITCH CONTROL

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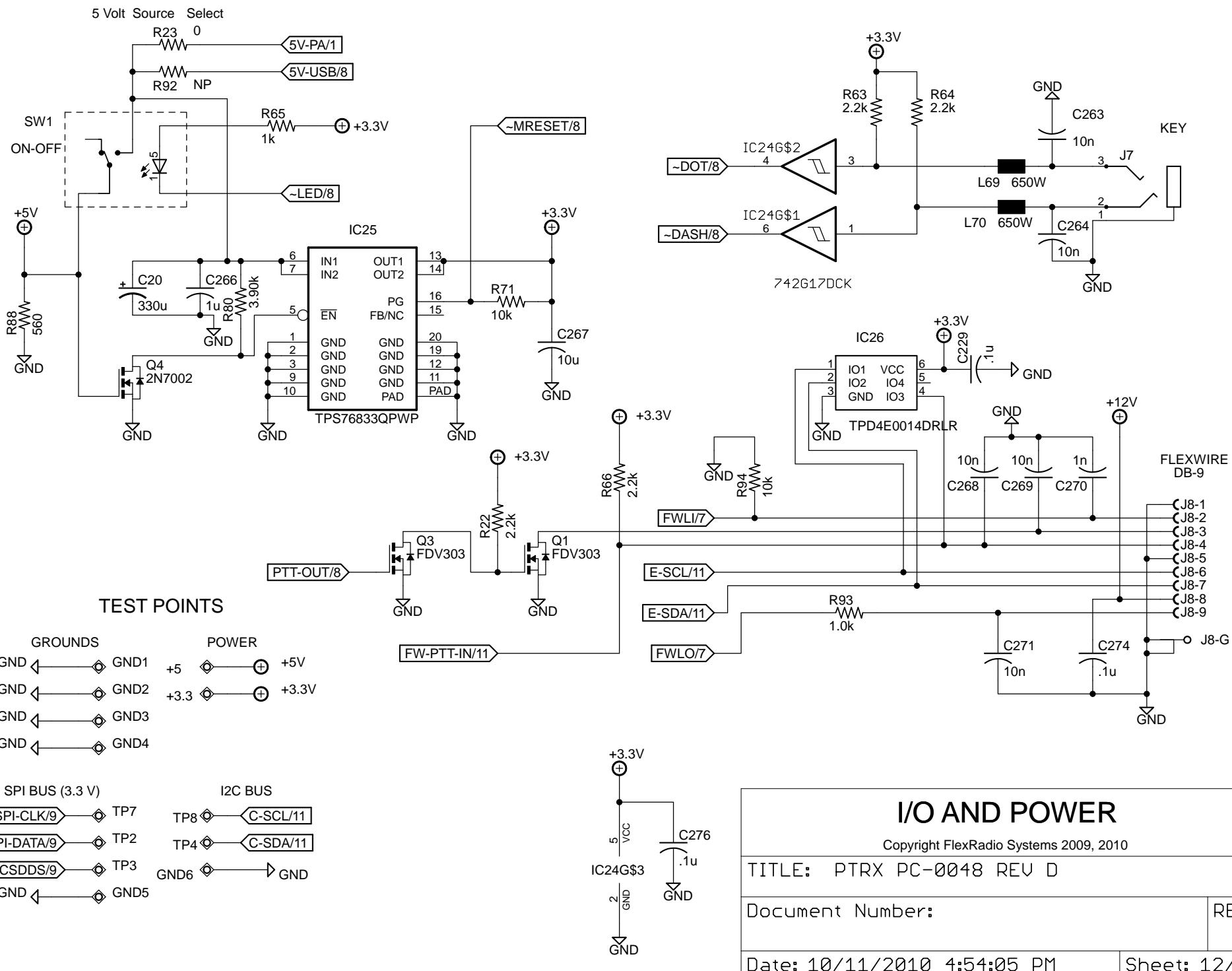
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Flat Cable Assignments

- 1.) SPI5-LOAD
- 2.) Ground
- 3.) SPI5-CLK
- 4.) +12V
- 5.) SPI5-DATA
- 6.) Ground
- 7.) +5
- 8.) +5
- 9.) RF
- 10.) Ground

Mike Connector Assignments

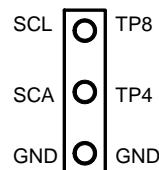
- 1.) N.C.
- 2.) N.C.
- 3.) Mike Bias (+5V)
- 4.) Mike Ground
- 5.) Mike In
- 6.) Mike PTT In
- 7.) Ground
- 8.) N.C.

FlexWire Assignments

- 1.) Ground
- 2.) LINE INPUT
- 3.) PTT OUT (New, was GND)
- 4.) PTT IN (New, was interrupt)
- 5.) Ground
- 6.) I2C-SCL
- 7.) I2C-SDA
- 8.) +13.8 Volts Out
- 9.) LINE OUT

I2C (INTERNAL COMPUTER) BRIDGE ASSIGNMENTS

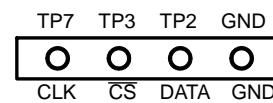
1 x 3 pattern on 0.1 in. grid



NOTE: Jumper SCA to GND to remove EEPROM from address space
to force radio to enumerate as TI-DFU device.

SPI (DDS) BRIDGE ASSIGNMENTS

Individual holes for 0.025 in. square pins
1 x 4 pattern on 0.1 in. grid

**I2C ADDRESS ASSIGNMENTS**

- 1.) USB / CPU - I2C MASTER ONLY
- 2.) CODEC - 0011 0000
- 3.) EEPROM - 1010 0000
- 4.) I2C MUX - 1110 0000
- 5.) EXPANDER 0 - 0100 0000
- 6.) EXPANDER 1 - 0100 0010

PORT AND CONNECTOR DEFINITIONS

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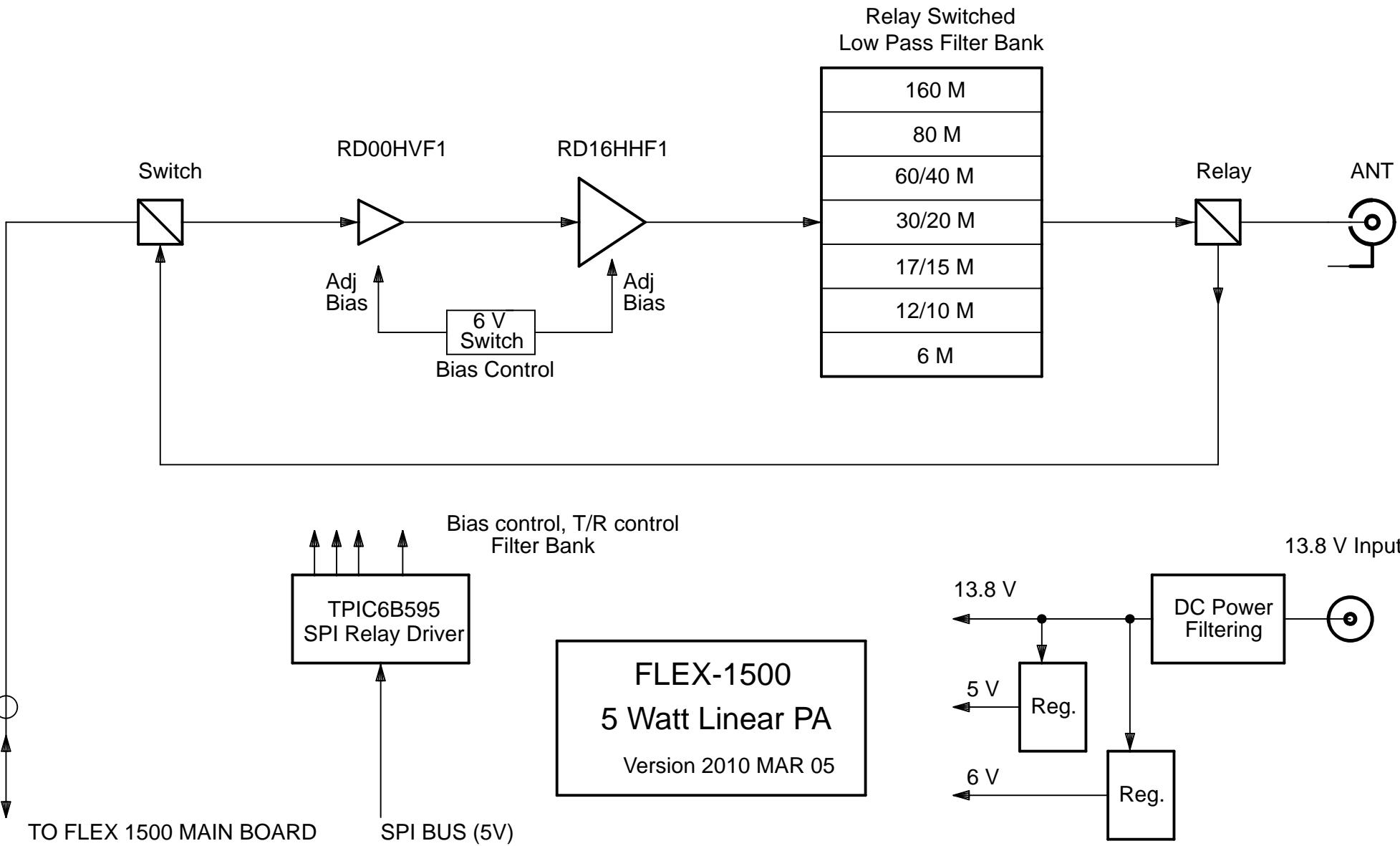
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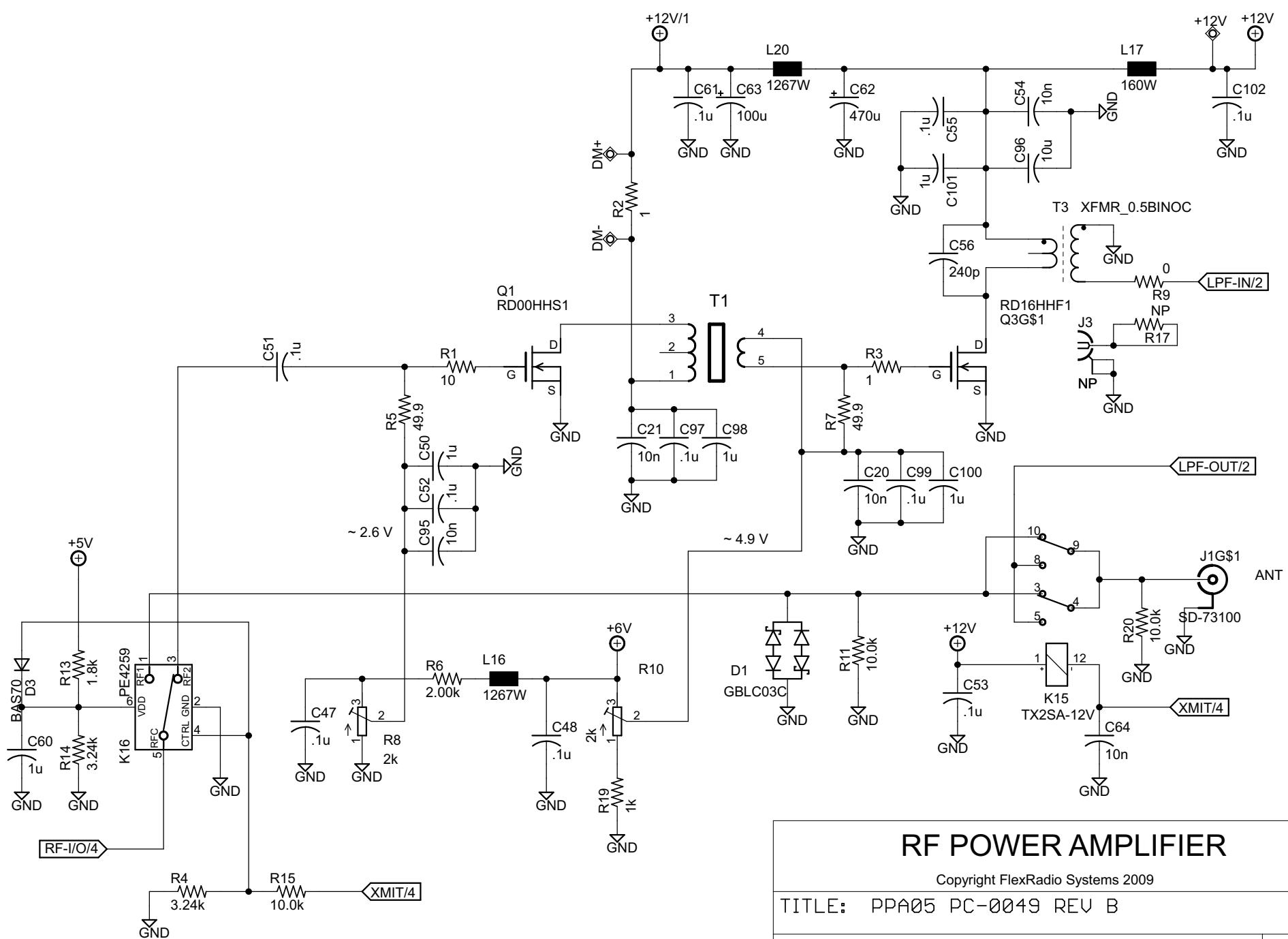
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Appendix "B"

Schematic, PPA05 (RFPA) Board





RF POWER AMPLIFIER

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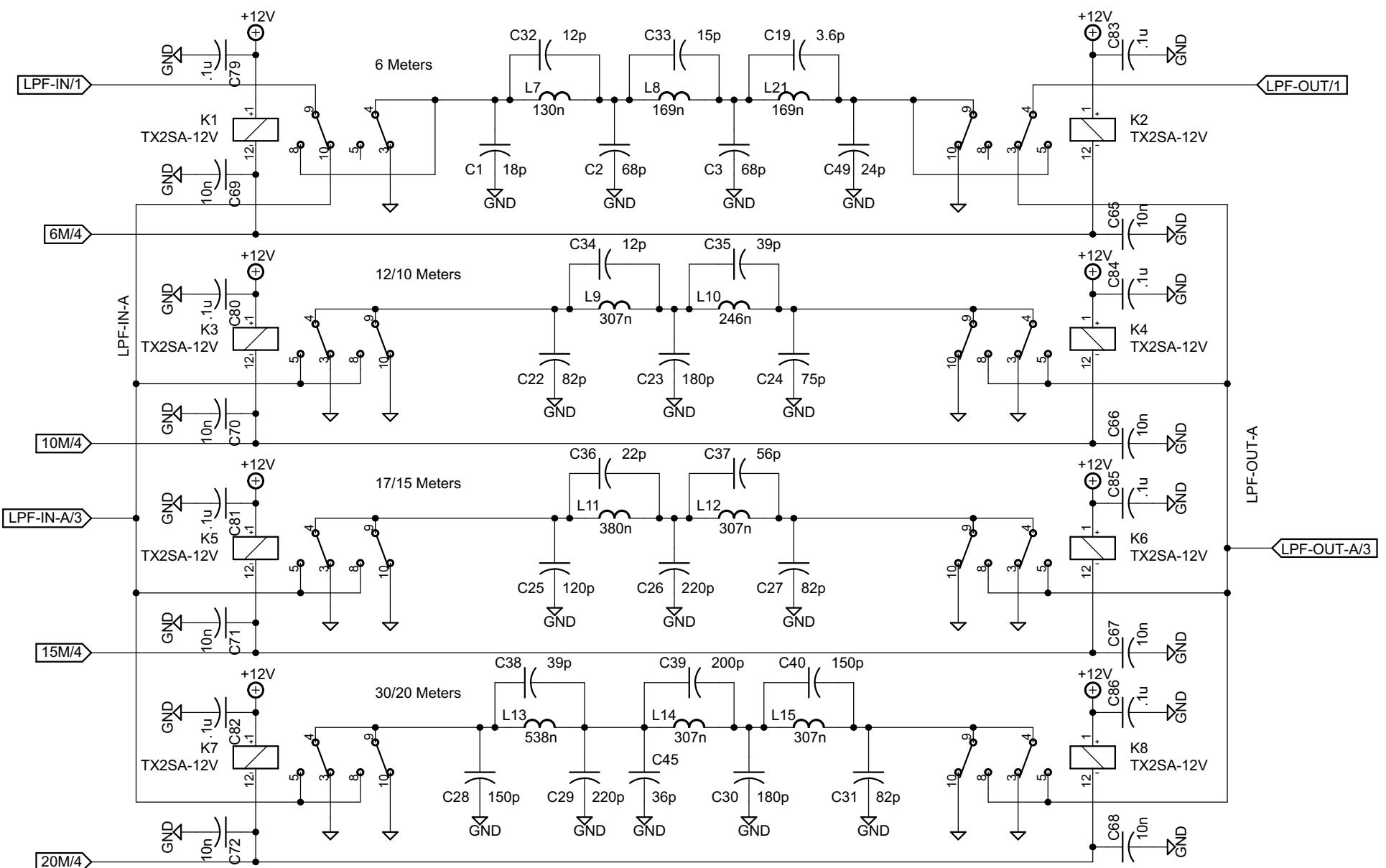
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All coils this page are
CoilCraft MaxiSpring

Physical order on board is:
60/40 M
10 M
80 M
17/15 M
160 M
30/20 M
6 M

HIGH FREQUENCY LPF BANK

Copyright FlexRadio Systems 2009

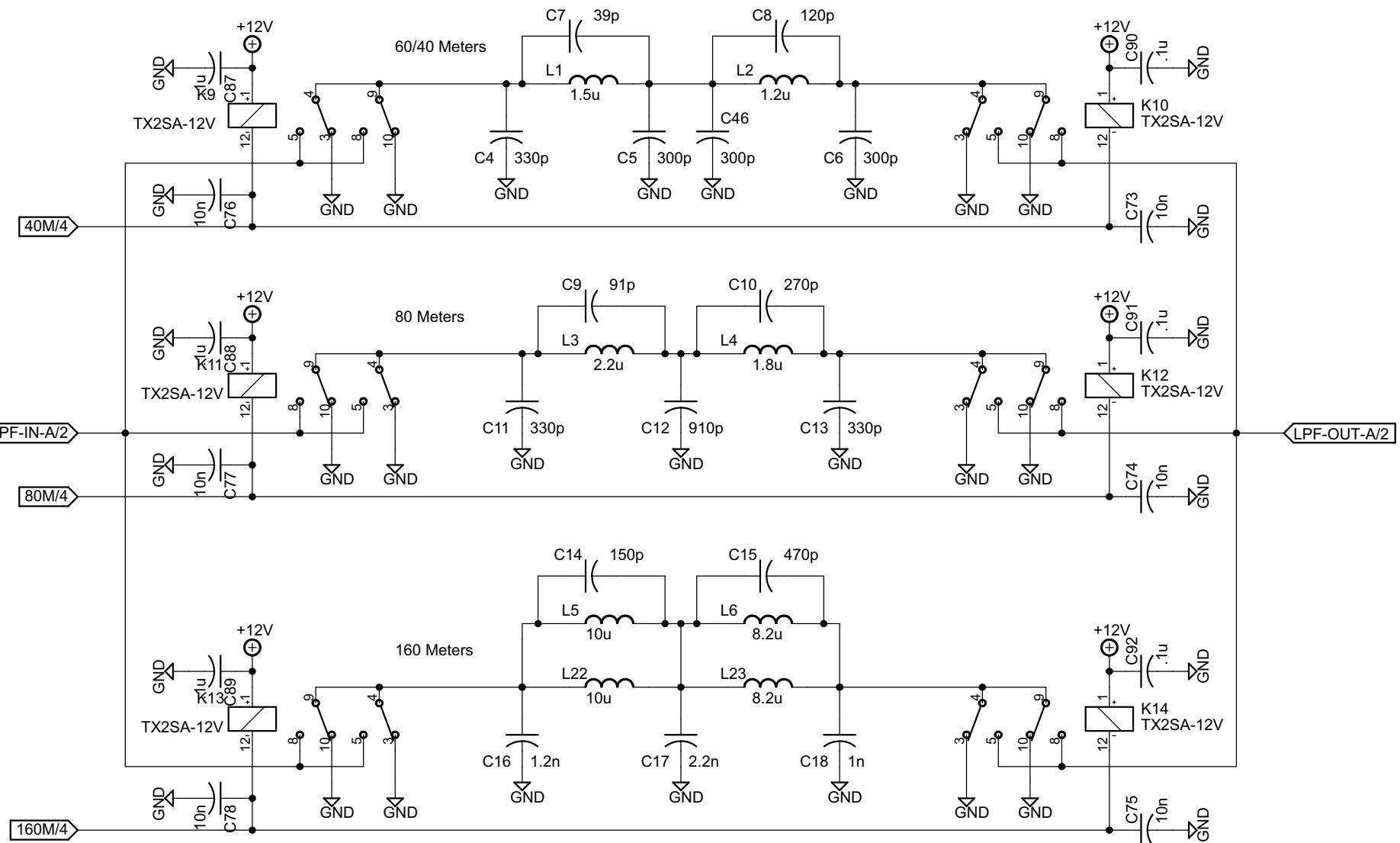
TITLE: PPA05 PC-0049 REV B

Document Number:

REV:

Date: 3/25/2010 10:32:14 AM

Sheet: 2/4



All Coils this page are
CoilCraft 1812 CS Series

Physical order on board is:
60/40 M
10 M
80 M
17/15 M
160 M
30/20 M
6 M

LOW FREQUENCY LPF BANK

Copyright FlexRadio Systems 2009

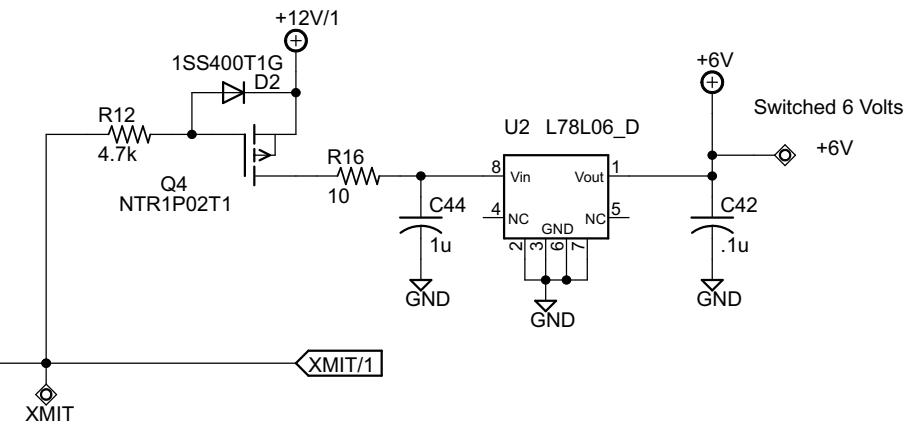
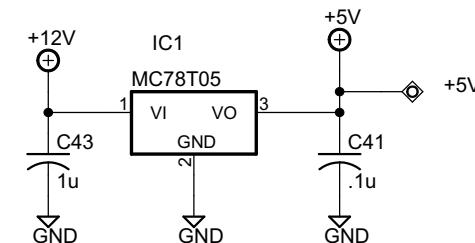
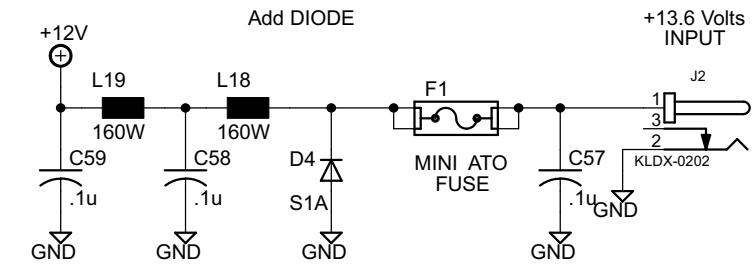
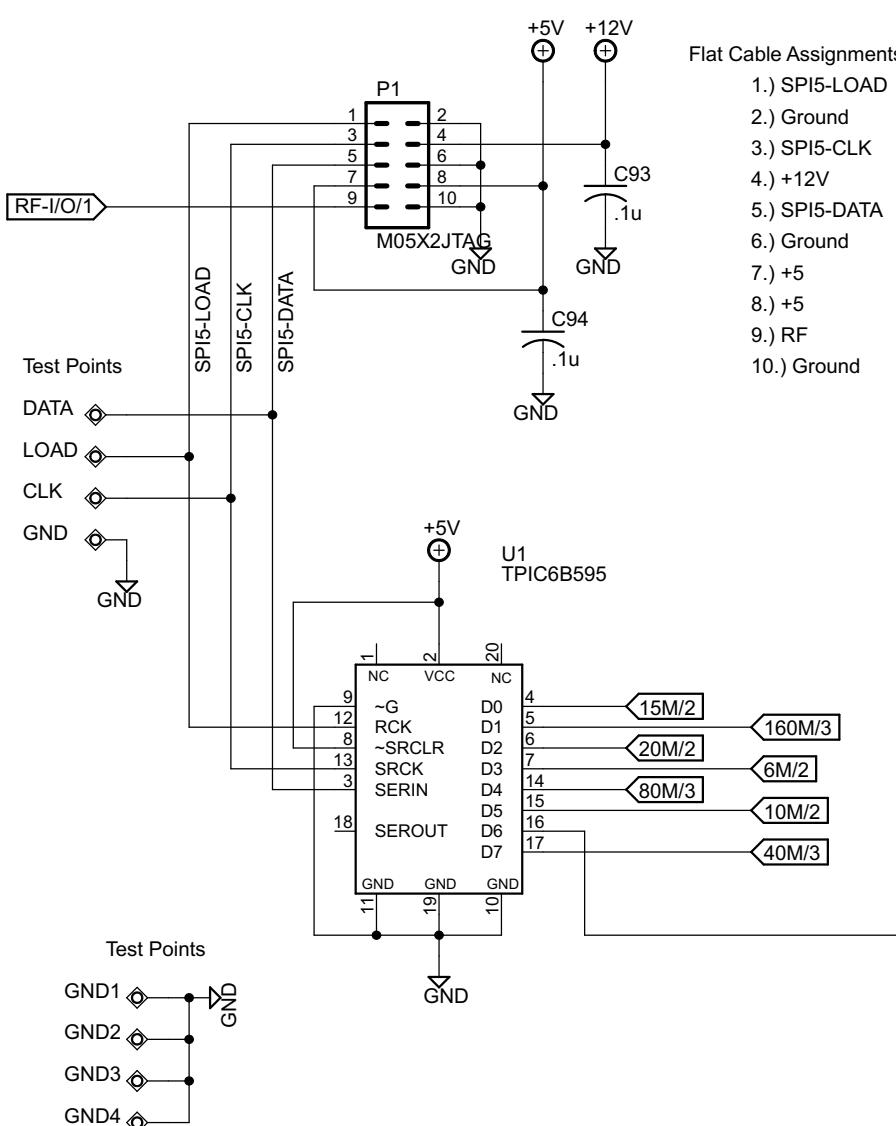
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Sheet: 3/4



INTERCONNECT AND POWER

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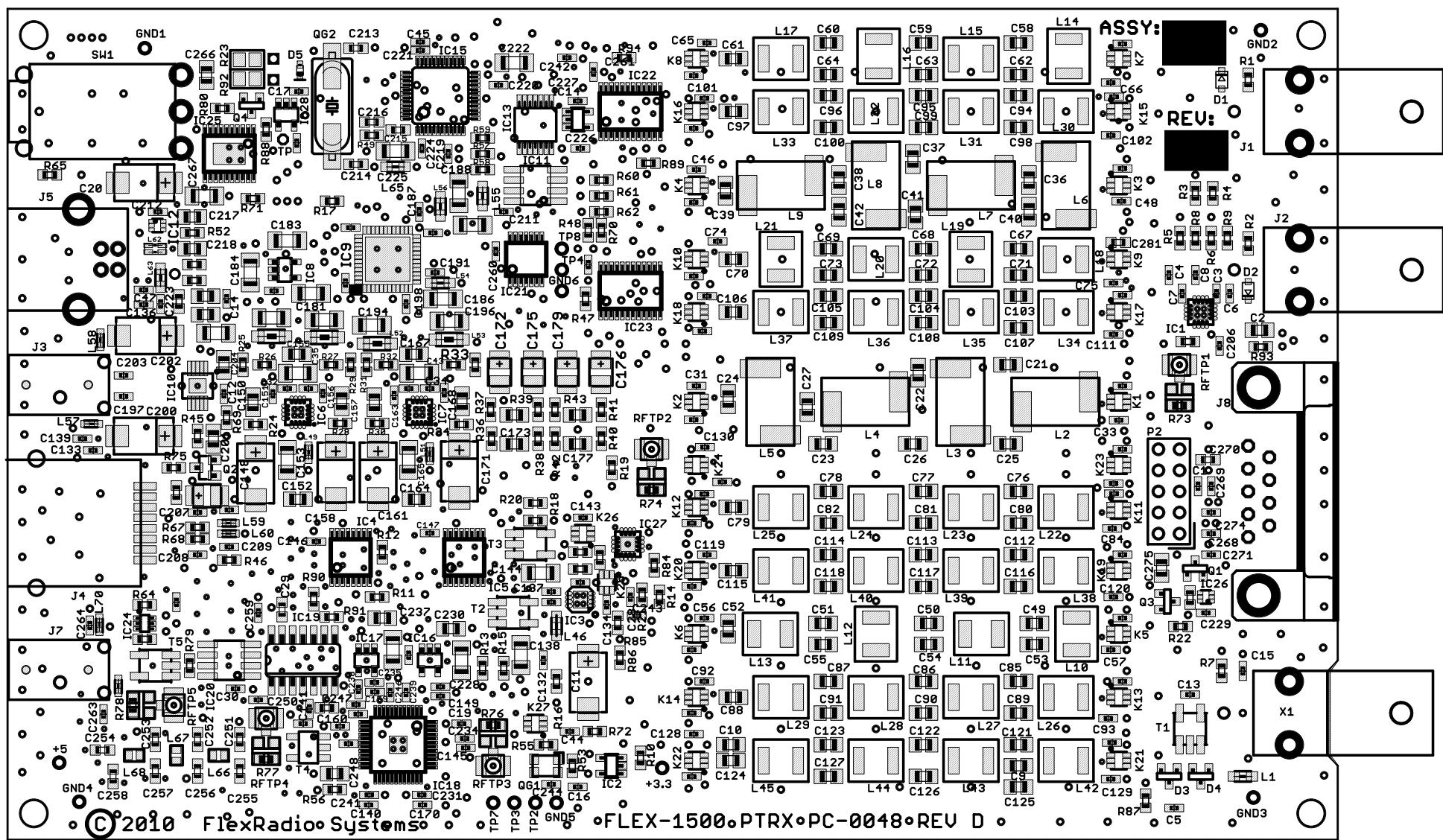
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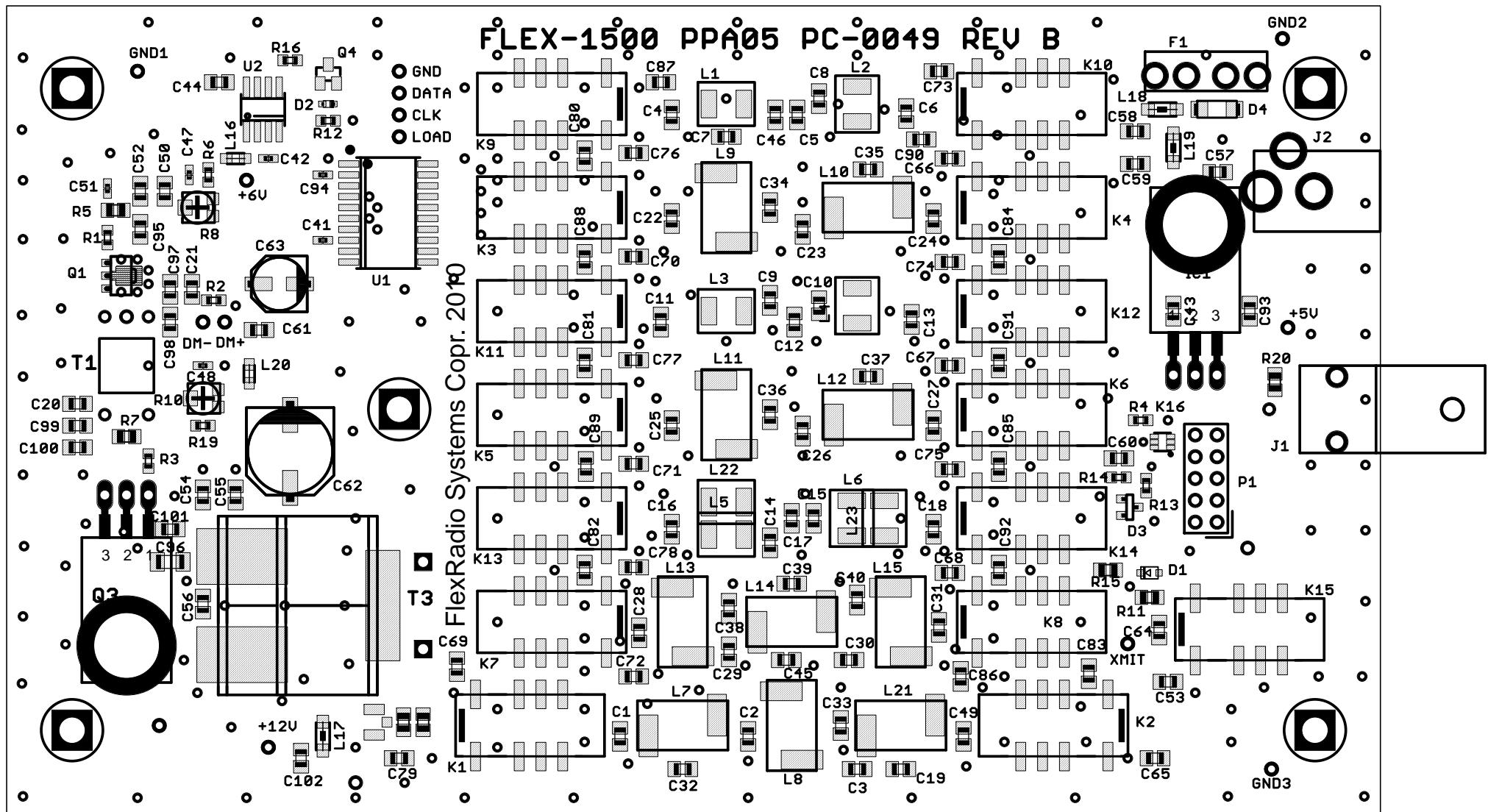
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Appendix "C"

PC Board Component View

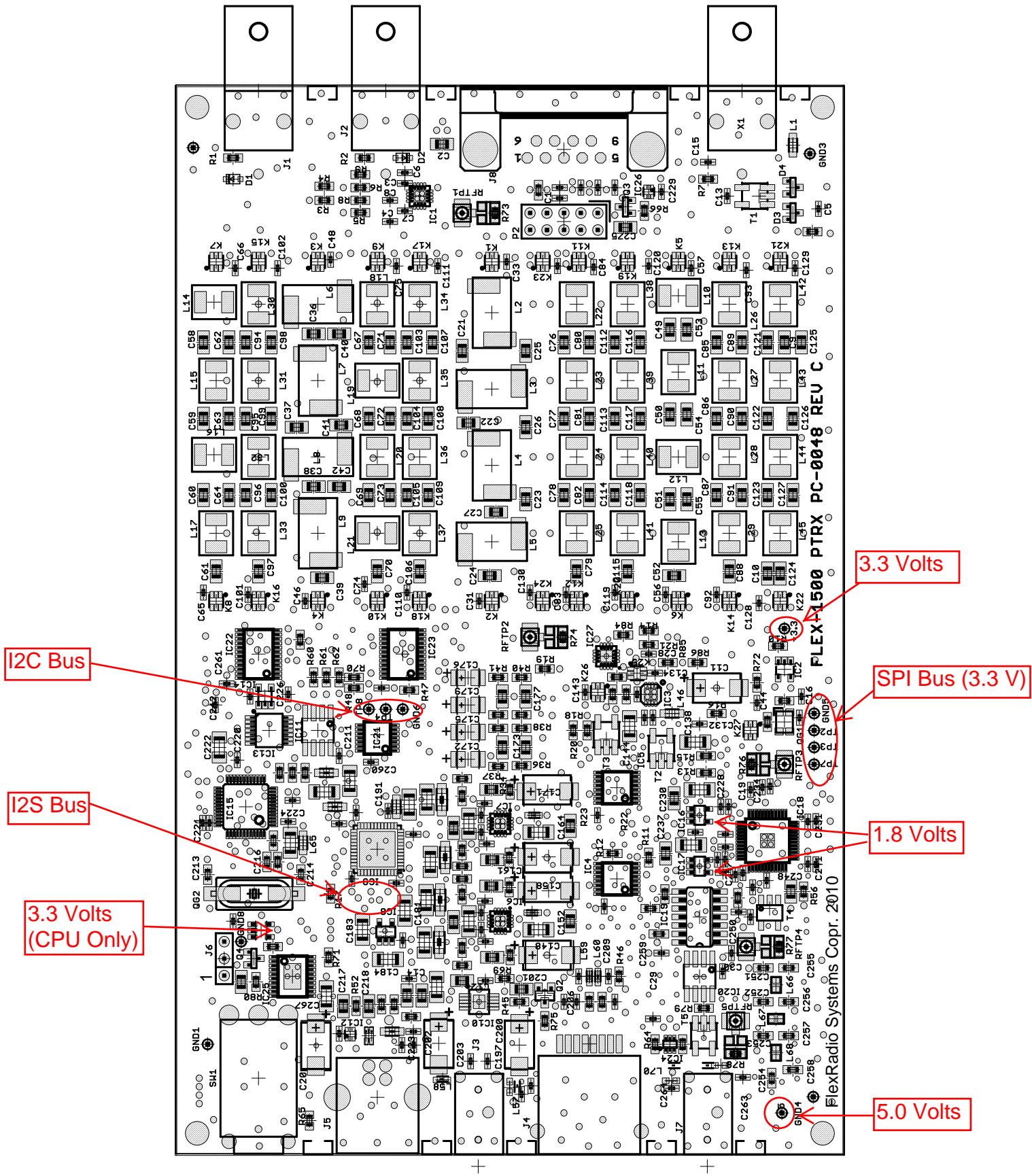


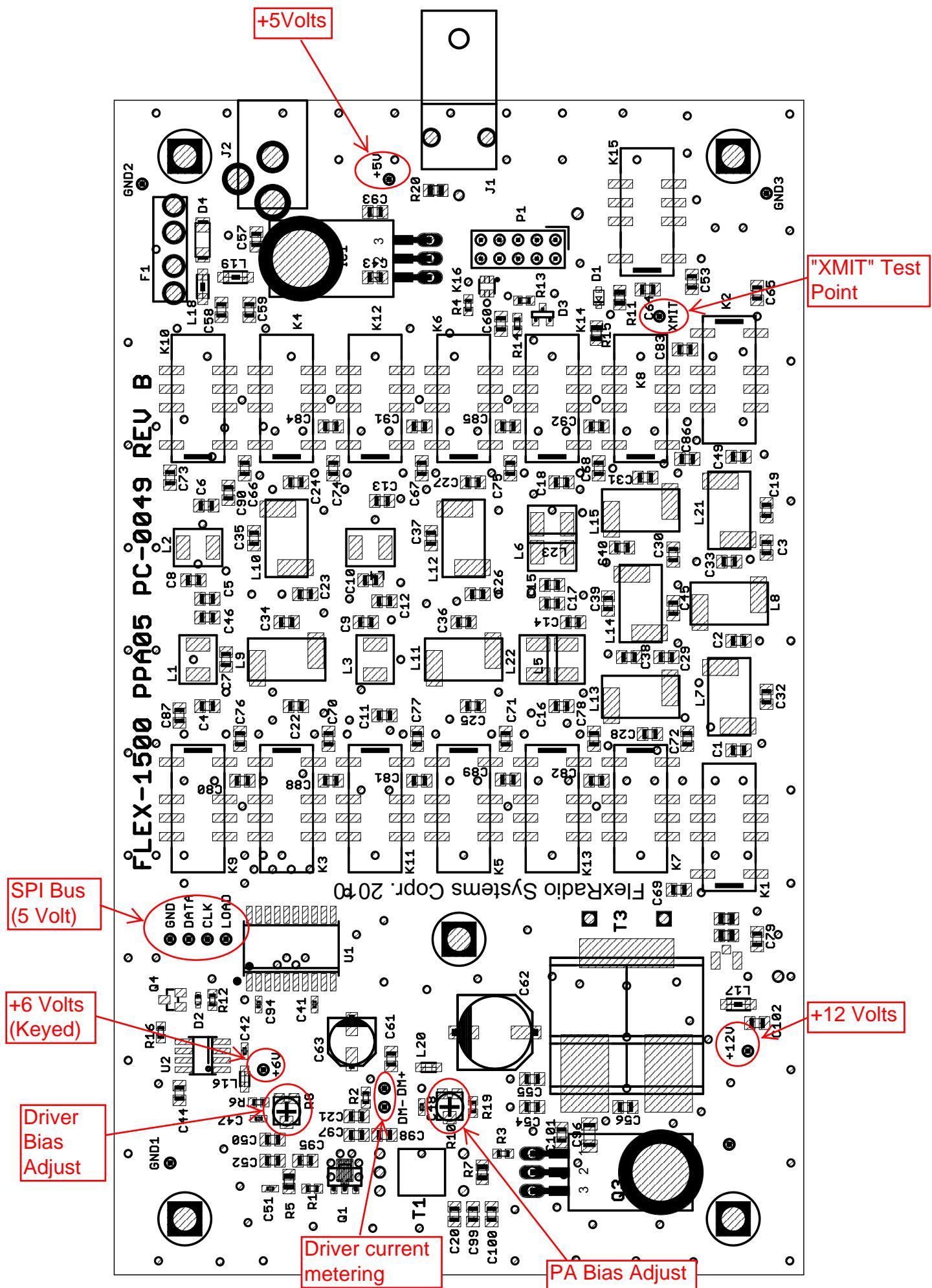


Appendix "D"

Test Points

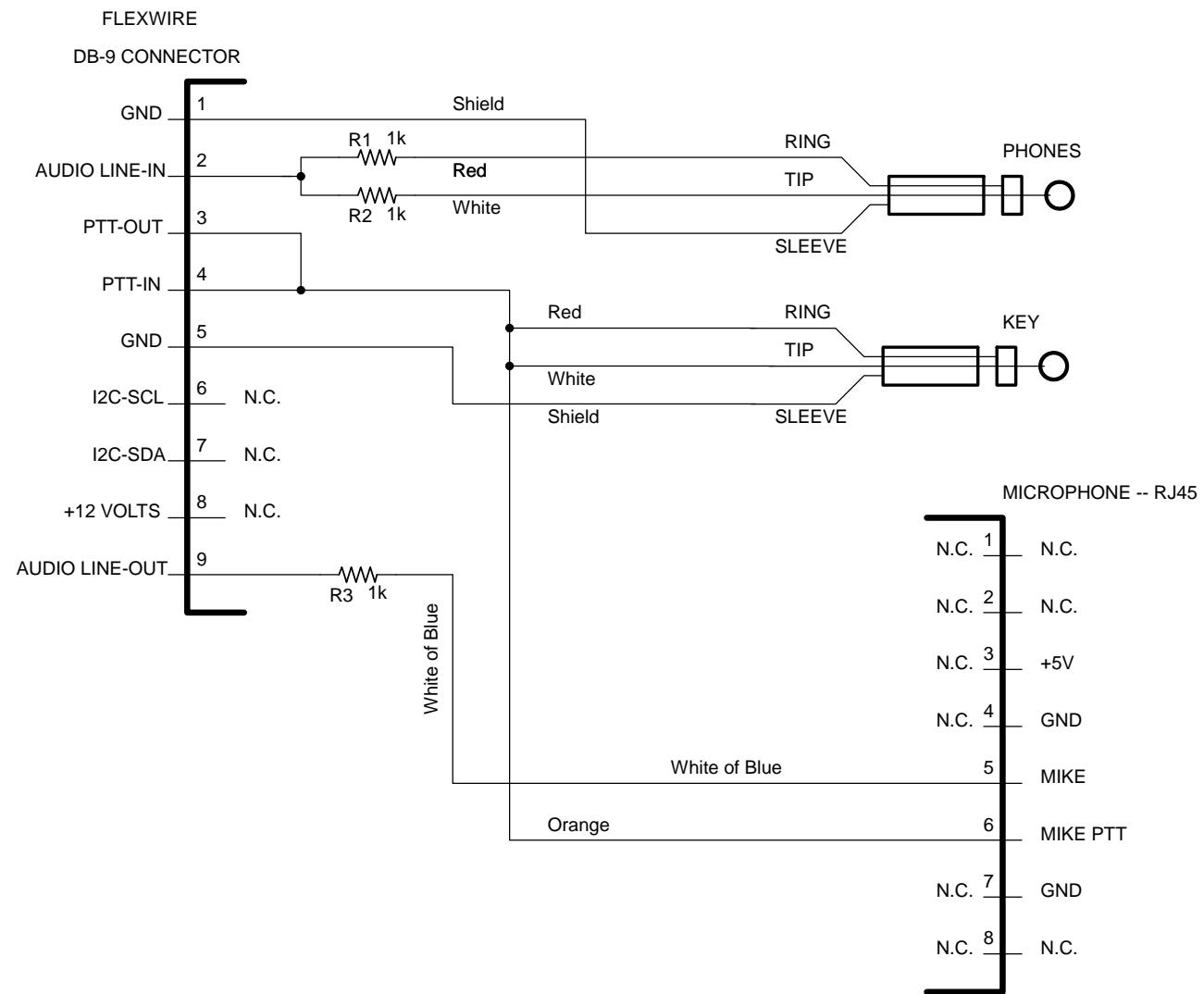
TEST POINTS





Appendix "E"

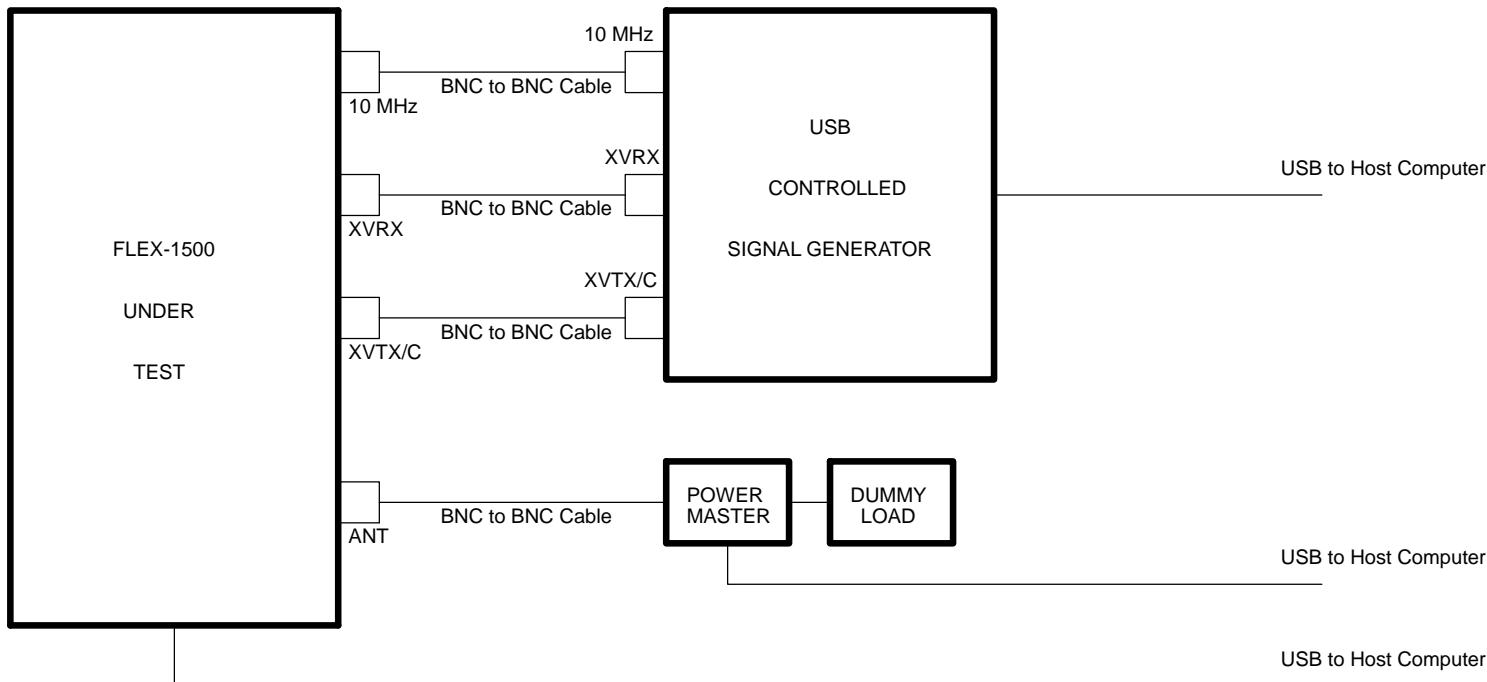
Test Fixture



NOTES:

1. FlexWire Line-Out drives Microphone In
2. Speaker/Phones drive FlexWire Line-In
3. PTT-OUT from FlexWire drives FW-PTT-IN, MPTT, DOT, & DASH

FLEX-1500 TEST FIXTURE Audio And Switching Test Cable	
TITLE:	FLEX-1500 Test Fixture
Document Number:	REV:
Date: 6/29/2010 10:42:40 PM	Sheet: 1/3



NOTES:

1. DDS SigGen drives 10 MHz input at 0 dBm
2. DDS SigGen drives XVRX, XVTX/C at -70 dBm through splitter
3. PowerMaster verifies RF power output

**FLEX-1500 TEST FIXTURE
RF Connections**

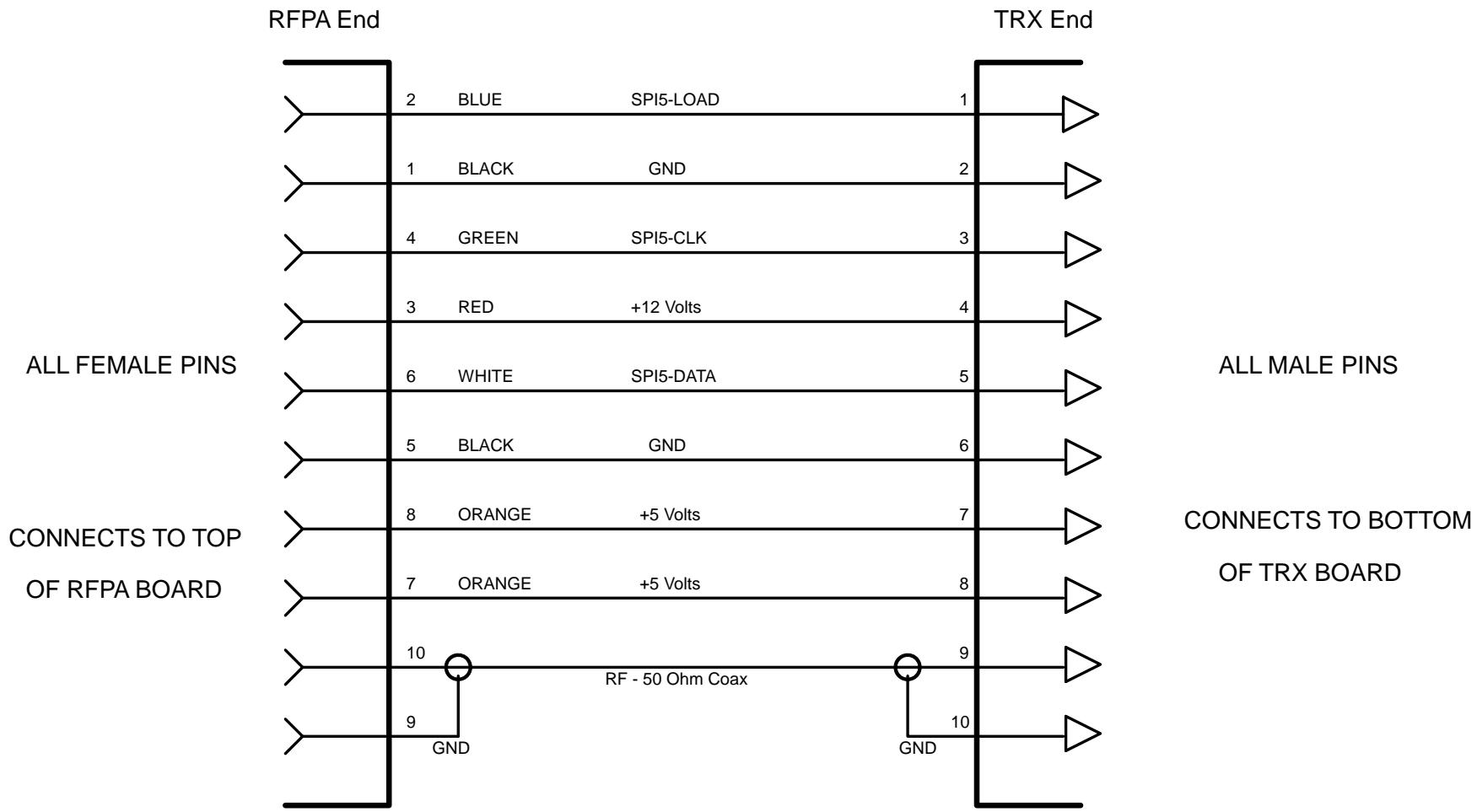
TITLE: FLEX-1500 Test Fixture

Document Number:

REV:

Date: 6/29/2010 10:42:40 PM

Sheet: 2/3



FLEX-1500 TEST FIXTURE Board to Board Jumper Cable	
TITLE: FLEX-1500 Test Fixture	
Document Number:	REV:
Date: 6/29/2010 10:42:40 PM	Sheet: 3/3

Appendix "F"

Bill of Materials

PTRX - FLEX1500 RECEIVER / EXCITER BOARD -- B-0050 ASSEMBLY

Sch.	Description	Detail	FlexRadio P/N
C001	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C002	CAP CER 1UF 25V X5R	0805 SMD	C-0117
C003	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C004	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C005	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C006	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C007	CAP CER 10000PF 10% 16V X7R	0402 SMD	C-0109
C008	CAP CER 10000PF 10% 16V X7R	0402 SMD	C-0109
C009	CAP NO POPULATE	NP	C-NP
C010	CAP NO POPULATE	NP	C-NP
C011	CAP TANT 330UF 6.3V 20%	SMD	C-0160
C012	CAP CER .047UF 10V X7R	0402 SMD	C-0407
C013	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C014	CAP CERAMIC .047UF 10V X7R	0402 SMD	C-0407
C015	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C016	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C017	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C018	CAP CER 10000PF 10% 16V X7R	0402 SMD	C-0109
C019	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C020	CAP TANT 330UF 6.3V 20%	SMD	C-0160
C021	CAP CER 51PF 50V 5% C0G	0805 SMD	C-0352
C022	CAP CER 82PF 50V NPO	0805 SMD	C-0167
C023	CAP CER 82PF 50V NPO	0805 SMD	C-0167
C024	CAP CER 51PF 50V 5% C0G	0805 SMD	C-0352
C025	CAP CER 91PF 100V 5% C0G	0805 SMD	C-0243
C026	CAP CER 130PF 100V 5% C0G	0805 SMD	C-0221
C027	CAP CER 91PF 100V 5% C0G	0805 SMD	C-0243
C028	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C029	CAP CER 68PF 50V 5% C0G	0402 SMD	C-0416
C030	CAP CER 68PF 50V 5% C0G	0402 SMD	C-0416
C031	CAP CER 10000PF 10% 16V X7R	0402 SMD	C-0109
C032	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C033	CAP CER 10000PF 10% 16V X7R	0402 SMD	C-0109
C034	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C035	CAP CER 10UF 25V X5R	1206 SMD	C-0192
C036	CAP CER 75PF 100V 5% C0G	0805 SMD	C-0169
C037	CAP CER 110PF 100V 5% C0G	0805 SMD	C-0344
C038	CAP CER 110PF 100V 5% C0G	0805 SMD	C-0344
C039	CAP CER 75PF 100V 5% C0G	0805 SMD	C-0169
C040	CAP CER 150PF 100V 5% C0G	0805 SMD	C-0218
C041	CAP CER 200PF 100V 5% C0G	0805 SMD	C-0345
C042	CAP CER 150PF 100V 5% C0G	0805 SMD	C-0218
C043	CAP CER 10UF 25V X5R	1206 SMD	C-0192
C044	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C045	CAP CER 47PF 50V 5% C0G	0402 SMD	C-0158
C046	CAP CER 10000PF 10% 16V X7R	0402 SMD	C-0109
C047	CAP CER 27PF 50V 5% C0G	0402 SMD	C-0410
C048	CAP CER 10000PF 10% 16V X7R	0402 SMD	C-0109
C049	CAP CER 110PF 100V 5% C0G	0805 SMD	C-0344

C050	CAP 180PF 50V CERM CHIP	0805	SMD	C-0224
C051	CAP 180PF 50V CERM CHIP	0805	SMD	C-0224
C052	CAP CER 110PF 100V 5% COG	0805	SMD	C-0344
C053	CAP 220PF 50V CERM CHIP	0805	SMD	C-0231
C054	CAP CERM 300pF 50V 5% COG	0805	SMD	C-0268
C055	CAP 220PF 50V CERM CHIP	0805	SMD	C-0231
C056	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C057	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C058	CAP CER 150PF 100V 5% COG	0805	SMD	C-0218
C059	CAP 220PF 50V CERM CHIP	0805	SMD	C-0231
C060	CAP 220PF 50V CERM CHIP	0805	SMD	C-0231
C061	CAP CER 150PF 100V 5% COG	0805	SMD	C-0218
C062	CAP CERM 300pF 50V 5% COG	0805	SMD	C-0268
C063	CAP CER 390PF 50V	0805	SMD	C-0170
C064	CAP CERM 300pF 50V 5% COG	0805	SMD	C-0268
C065	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C066	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C067	CAP 220PF 50V CERM CHIP	0805	SMD	C-0231
C068	CAP 330PF 50V CERM CHIP	0805	SMD	C-0237
C069	CAP 330PF 50V CERM CHIP	0805	SMD	C-0237
C070	CAP 220PF 50V CERM CHIP	0805	SMD	C-0231
C071	CAP CER 430PF 50V NP0	0805	SMD	C-0391
C072	CAP CER 620PF 50V 5% COG	0805	SMD	C-0241
C073	CAP CER 430PF 50V NP0	0805	SMD	C-0391
C074	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C075	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C076	CAP CER 360pF 50V 5% COG	0805	SMD	C-0269
C077	CAP 560PF 50V CERM CHIP COG	0805	SMD	C-0178
C078	CAP 560PF 50V CERM CHIP COG	0805	SMD	C-0178
C079	CAP CER 360pF 50V 5% COG	0805	SMD	C-0269
C080	CAP CER 680PF 50V NP0	0805	SMD	C-0172
C081	CAP CER 1000PF 50V NP0	0805	SMD	C-0002
C082	CAP CER 680PF 50V NP0	0805	SMD	C-0172
C083	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C084	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C085	CAP 470PF 50V COG CERM CHIP	0805	SMD	C-0177
C086	CAP CER 750PF 50V 5% COG	0805	SMD	C-0165
C087	CAP CER 750PF 50V 5% COG	0805	SMD	C-0165
C088	CAP 470PF 50V COG CERM CHIP	0805	SMD	C-0177
C089	CAP CER 910PF 50V 5% COG	0805	SMD	C-0242
C090	CAP CER 1300PF 50V 5% COG	0805	SMD	C-0348
C091	CAP CER 910PF 50V 5% COG	0805	SMD	C-0242
C092	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C093	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C094	CAP CER 750PF 50V 5% COG	0805	SMD	C-0165
C095	CAP CER 1300PF 50V 5% COG	0805	SMD	C-0348
C096	CAP CER 1300PF 50V 5% COG	0805	SMD	C-0348
C097	CAP CER 750PF 50V 5% COG	0805	SMD	C-0165
C098	CAP CER 1300PF 50V 5% COG	0805	SMD	C-0348
C099	CAP CER 2000PF 50V 5% COG	0805	SMD	C-0347
C100	CAP CER 1300PF 50V 5% COG	0805	SMD	C-0348
C101	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C102	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C103	CAP CER 910PF 50V 5% COG	0805	SMD	C-0242
C104	CAP CER 1300PF 50V 5% COG	0805	SMD	C-0348

C105	CAP CER 1300PF 50V 5% C0G	0805	SMD	C-0348
C106	CAP CER 910PF 50V 5% C0G	0805	SMD	C-0242
C107	CAP CER 2000PF 50V 5% C0G	0805	SMD	C-0347
C108	CAP CER 3000PF 50V 5% C0G	0805	SMD	C-0181
C109	CAP CER 2000PF 50V 5% C0G	0805	SMD	C-0347
C110	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C111	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C112	CAP CER 2700PF 50V 5% C0G	0805	SMD	C-0229
C113	CAP CER 5600PF 50V 5% C0G	0805	SMD	C-0392
C114	CAP CER 5600PF 50V 5% C0G	0805	SMD	C-0392
C115	CAP CER 2700PF 50V 5% C0G	0805	SMD	C-0229
C116	CAP CER 3300PF 50V 5%	0805	SMD	C-0097
C117	CAP CER 4700PF 50V 5% C0G	0805	SMD	C-0166
C118	CAP CER 3300PF 50V 5%	0805	SMD	C-0097
C119	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C120	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C121	CAP CER 5100PF 50V 5% C0G	0805	SMD	C-0401
C122	CAP CER 12000PF 50V C0G	0805	SMD	C-0394
C123	CAP CER 12000PF 50V C0G	0805	SMD	C-0394
C124	CAP CER 5100PF 50V 5% C0G	0805	SMD	C-0401
C125	CAP CER 6800PF 50V 5% C0G	0805	SMD	C-0080
C126	CAP CER 9100PF 50V 5% C0G	0805	SMD	C-0393
C127	CAP CER 6800PF 50V 5% C0G	0805	SMD	C-0080
C128	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C129	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C130	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C131	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C132	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C133	CAP CER 27PF 50V 5% C0G	0402	SMD	C-0410
C134	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C135	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C136	CAP CER 27PF 50V 5% C0G	0402	SMD	C-0410
C137	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C138	CAP CER 10UF 25V X5R	1206	SMD	C-0192
C139	CAP CER 27PF 50V 5% C0G	0402	SMD	C-0410
C140	CAP CER 68PF 50V 5% C0G	0402	SMD	C-0416
C141	CAP CER 68PF 50V 5% C0G	0402	SMD	C-0416
C142	CAP CER 330PF 50V 5% C0G	0402	SMD	C-0341
C143	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C144	CAP CER 10UF 25V X5R	1206	SMD	C-0192
C145	CAP CER 68PF 50V 5% C0G	0402	SMD	C-0416
C146	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C147	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C148	CAP TANT 330UF 6.3V 20%	SMD		C-0160
C149	CAP CER 68PF 50V 5% C0G	0402	SMD	C-0416
C150	CAP CER 2700PF 50V 5% C0G	0805	SMD	C-0229
C151	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C152	CAP CER 4700PF 50V 5% C0G	0805	SMD	C-0166
C153	CAP CER 10UF 25V X5R	1206	SMD	C-0192
C154	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C155	CAP CER 12000PF 50V C0G	0805	SMD	C-0394
C156	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C157	CAP CER 2700PF 50V 5% C0G	0805	SMD	C-0229
C158	CAP TANT 330UF 6.3V 20%	SMD		C-0160
C159	CAP CER 68PF 50V 5% C0G	0402	SMD	C-0416

C160	CAP CER 47PF 50V 5% C0G	0402	SMD	C-0158
C161	CAP TANT 330UF 6.3V 20%		SMD	C-0160
C162	CAP CER 2700PF 50V 5% C0G	0805	SMD	C-0229
C163	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C164	CAP CER 4700PF 50V 5% C0G	0805	SMD	C-0166
C165	CAP CER 10UF 25V X5R	1206	SMD	C-0192
C166	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C167	CAP CER 12000PF 50V C0G	0805	SMD	C-0394
C168	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C169	CAP CER 2700PF 50V 5% C0G	0805	SMD	C-0229
C170	CAP CER 68PF 50V 5% C0G	0402	SMD	C-0416
C171	CAP TANT 330UF 6.3V 20%		SMD	C-0160
C172	CAP TANT 47UF 6.3V 10%	3528	SMD	C-0400
C173	CAP CER 0.15UF 16V X7R 10%	0805	SMD	C-0395
C174	CAP CER 0.15UF 16V X7R 10%	0805	SMD	C-0395
C175	CAP TANT 47UF 6.3V 10%	3528	SMD	C-0400
C176	CAP TANT 47UF 6.3V 10%	3528	SMD	C-0400
C177	CAP CER 0.15UF 16V X7R 10%	0805	SMD	C-0395
C178	CAP CER 0.15UF 16V X7R 10%	0805	SMD	C-0395
C179	CAP TANT 47UF 6.3V 10%	3528	SMD	C-0400
C180	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C181	CAP CER 10UF 25V X5R	1206	SMD	C-0192
C182	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C183	CAP CER 10UF 25V X5R	1206	SMD	C-0192
C184	CAP CER 10UF 25V X5R	1206	SMD	C-0192
C185	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C186	CAP CER 10UF 25V X5R	1206	SMD	C-0192
C187	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C188	CAP CER 10UF 25V X5R	1206	SMD	C-0192
C189	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C190	CAP CER 10UF 25V X5R	1206	SMD	C-0192
C191	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C192	RES 0.0 OHM 1/4W 5%	1206	SMD	R-0010
C193	RES 0.0 OHM 1/4W 5%	1206	SMD	R-0010
C194	RES 0.0 OHM 1/4W 5%	1206	SMD	R-0010
C195	CAP CER 10UF 25V X5R	1206	SMD	C-0192
C196	RES 0.0 OHM 1/4W 5%	1206	SMD	R-0010
C197	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C198	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C199	CAP CER 1UF 25V X5R	0805	SMD	C-0117
C200	CAP TANT 330UF 6.3V 20%		SMD	C-0160
C201	CAP CER 1UF 25V X5R	0805	SMD	C-0117
C202	CAP TANT 330UF 6.3V 20%		SMD	C-0160
C203	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C204	CAP CER 1UF 25V X5R	0805	SMD	C-0117
C205	CAP CER 1UF 25V X5R	0805	SMD	C-0117
C206	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C207	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C208	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C209	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C210	CAP CER 10000PF 10% 16V X7R	0402	SMD	C-0109
C211	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C212	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C213	CAP CER 33PF 50V COG	0603	SMD	C-0213
C214	CAP CER 33PF 50V COG	0603	SMD	C-0213

C215	CAP CER 100PF 50V NPO	0603 SMD	C-0398
C216	CAP CER 1000PF 50V NPO	0603 SMD	C-0399
C217	CAP CER 47PF 50V NPO	0805 SMD	C-0031
C218	CAP CER 47PF 50V NPO	0805 SMD	C-0031
C219	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C220	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C221	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C222	CAP CER 10UF 25V X5R	1206 SMD	C-0192
C223	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C224	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C225	CAP CER 10UF 25V X5R	1206 SMD	C-0192
C226	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C227	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C228	CAP CER 10UF 25V X5R	1206 SMD	C-0192
C229	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C230	CAP CER 1UF 25V X5R	0805 SMD	C-0117
C231	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C232	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C233	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C234	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C235	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C236	CAP CER 10UF 25V X5R	1206 SMD	C-0192
C237	CAP CER 1UF 25V X5R	0805 SMD	C-0117
C238	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C239	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C240	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C241	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C242	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C244	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C246	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C247	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C248	CAP CER 1UF 25V X5R	0805 SMD	C-0117
C249	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C250	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C251	CAP CER 15PF 50V NPO	0805 SMD	C-0222
C252	CAP CER 27PF 50V NPO	0603 SMD	C-0397
C253	CAP CER 27PF 50V NPO	0603 SMD	C-0397
C254	CAP CER 15PF 50V NPO	0805 SMD	C-0222
C255	CAP CER 15PF 50V NPO	0805 SMD	C-0222
C256	CAP CER 27PF 50V NPO	0603 SMD	C-0397
C257	CAP CER 27PF 50V NPO	0603 SMD	C-0397
C258	CAP CER 15PF 50V NPO	0805 SMD	C-0222
C259	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C260	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C261	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C262	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C263	CAP CER 10000PF 10% 16V X7R	0402 SMD	C-0109
C264	CAP CER 10000PF 10% 16V X7R	0402 SMD	C-0109
C266	CAP CER 1UF 25V X5R	0805 SMD	C-0117
C267	CAP CER 10UF 25V X5R	1206 SMD	C-0192
C268	CAP CER 10000PF 10% 16V X7R	0402 SMD	C-0109
C269	CAP CER 10000PF 10% 16V X7R	0402 SMD	C-0109
C270	CAP CERAMIC 1000PF 50V NPO	0603 SMD	C-0399
C271	CAP NO POPULATE	NP	C-NP
C274	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102

C275	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C276	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C500	CAP CER 270PF 50V 5% COG	0603 SMD	C-0432
C501	CAP CERM .1UF 16V X7R	0603 SMD	C-0135
D1	DIODE 3.3V TVS ARRAY	GBLC03C	D-0020
D2	DIODE 3.3V TVS ARRAY	GBLC03C	D-0020
D3	DIODE SCHOTTKY 100MA 70V	BAS70-00-V-GS08	D-0024
D4	DIODE SCHOTTKY 100MA 70V	BAS70-00-V-GS08	D-0024
IC01	SP4T RF SWITCH CMOS	PE42641MLIBB	K-0015
IC02	IC SINGLE INVERTER GATE	SN74AHC1G04DBVR	U-0195
IC03	IC IF GAIN BLOCK 500MHZ	ADL5531ACPZ-R7	U-0200
IC04	IC DUAL 1OF4 MUX/DEMUX	SN74CBT3253PWR	U-0118
IC05	IC DUAL 1OF4 MUX/DEMUX	SN74CBT3253PWR	U-0118
IC06	IC FULLY-DIFF AMP R-R OUT	THS4520RGTT SMD	U-0103
IC07	IC FULLY-DIFF AMP R-R OUT	THS4520RGTT SMD	U-0103
IC08	IC 200MA LDO LINEAR REG	TPS79318DBVR	U-0052
IC09	IC STEREO AUDIO CODEC	TLV320AIC33IRGZTG4	U-0199
IC10	IC AMP AUDIO PWR 2W MONO	TPA0233DGQ	U-0202
IC11	IC EEPROM 128KBIT 1MHZ	AT24C128BN-SH-B	U-0213
IC12	IC ESD-PROT ARRAY 4CH	TPD4E001DRRLR	U-0135
IC13	IC QUAD 2-IN AND GATE	MM74HCT08MTCX	U-0203
IC14	IC SINGLE INVERTER GATE	SN74AHC1G04DBVR	U-0195
IC15	IC STEREO USB AUD INTRFCE	TAS1020BPFB	U-0198
IC16	IC 200MA LDO LINEAR REG	TPS79318DBVR	U-0052
IC17	IC 200MA LDO LINEAR REG	TPS79318DBVR	U-0052
IC18	IC DDS DAC 14BIT 1.8V	AD9951YSVZ	U-0197
IC19	IC DUAL D-TYPE FLIP-FLOP	74LVC74AD ,118	U-0210
IC20	IC DIFF RECEIVER DUAL HS	SN65LVDS34D	U-0211
IC21	IC I2C MUX 2CH	PCA9542AD-T	U-0048
IC22	IC I2C I/O EXPANDER GP	PCA9555PW SMD	U-0047
IC23	IC I2C I/O EXPANDER GP	PCA9555PW SMD	U-0047
IC24	IS BUFF DL SCHMIT TRIG	SN74LVC2G17DCRG4	U-0201
IC25	IC FAST-TR 1A LDO REG	TPS76833QPWPRQ1	U-0106
IC26	IC ESD-PROT ARRAY 4CH	TPD4E001DRRLR	U-0135
IC27	SP4T RF SWITCH CMOS	PE42641MLIBB	K-0015
IC28	IC LDO REG 3.3V 200MA	TPS79333DBVR	U-0053
J1	CONN JACK BNC R/A 50 OHM	NOT SHIELDED	J-0158
J2	CONN JACK BNC R/A 50 OHM	NOT SHIELDED	J-0158
J3	CONN PHONE 1/8 STEREO	STX-3000	J-0145
J4	CONN RJ45 MOD JACK	SHIELDED R/A	J-0177
J5	CONN USB TYPE B HIGH RETENTION		J-0170
J6	CONN HEADER VERT 3POS .100 TIN		J-0172
J6	CONN SHUNT 2POS .100 LOPRO GOLD		J-0173
J7	CONN PHONE 1/8 STEREO PCB MNT	STX-3000	J-0145
J8	CONN D-SUB FILTERED 9P RECPT R/A		J-0104
K01	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K02	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K03	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K04	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K05	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K06	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K07	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K08	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K09	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K10	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007

K11	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K12	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K13	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K14	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K15	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K16	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K17	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K18	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K19	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K20	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K21	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K22	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K23	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K24	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K25	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K26	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
K27	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
L01	FERRITE CHIP 1267OHMS 100MA	0805 SMD	FB-0013
L02	INDUCTOR FIXED 307nH 5%	SMD	L-0193
L03	INDUCTOR FIXED 307nH 5%	SMD	L-0193
L04	INDUCTOR FIXED 307nH 5%	SMD	L-0193
L05	INDUCTOR FIXED 307nH 5%	SMD	L-0193
L06	INDUCTOR FIXED 491nH 5%	SMD	L-0230
L07	INDUCTOR FIXED 491nH 5%	SMD	L-0230
L08	INDUCTOR FIXED 491nH 5%	SMD	L-0230
L09	INDUCTOR FIXED 491nH 5%	SMD	L-0230
L10	COIL .68UH UNSHIELDED	1812 SMD	L-0231
L11	COIL .68UH UNSHIELDED	1812 SMD	L-0231
L12	COIL .68UH UNSHIELDED	1812 SMD	L-0231
L13	COIL .68UH UNSHIELDED	1812 SMD	L-0231
L14	INDUCTOR FIXED 1.2uH 5%	1812 SMD	L-0143
L15	INDUCTOR FIXED 1.2uH 5%	1812 SMD	L-0143
L16	INDUCTOR FIXED 1.2uH 5%	1812 SMD	L-0143
L17	INDUCTOR FIXED 1.2uH 5%	1812 SMD	L-0143
L18	INDUCTOR FIXED 1.8uH 5%	1812 SMD	L-0145
L19	INDUCTOR FIXED 1.8uH 5%	1812 SMD	L-0145
L20	INDUCTOR FIXED 1.8uH 5%	1812 SMD	L-0145
L21	INDUCTOR FIXED 1.8uH 5%	1812 SMD	L-0145
L22	IND FIXED SHIELDED 2.4uH 10%	1812 SMD	L-0232
L23	IND FIXED SHIELDED 2.4uH 10%	1812 SMD	L-0232
L24	IND FIXED SHIELDED 2.4uH 10%	1812 SMD	L-0232
L25	IND FIXED SHIELDED 2.4uH 10%	1812 SMD	L-0232
L26	IND FIXED SHIELDED 3 .9uH 10%	1812 SMD	L-0233
L27	IND FIXED SHIELDED 3 .9uH 10%	1812 SMD	L-0233
L28	IND FIXED SHIELDED 3 .9uH 10%	1812 SMD	L-0233
L29	IND FIXED SHIELDED 3 .9uH 10%	1812 SMD	L-0233
L30	IND FIXED SHIELDED 5 .6uH 10%	1812 SMD	L-0234
L31	IND FIXED SHIELDED 5 .6uH 10%	1812 SMD	L-0234
L32	IND FIXED SHIELDED 5 .6uH 10%	1812 SMD	L-0234
L33	IND FIXED SHIELDED 5 .6uH 10%	1812 SMD	L-0234
L34	IND FIXED SHIELDED 10uH 10%	1812 SMD	L-0235
L35	IND FIXED SHIELDED 10uH 10%	1812 SMD	L-0235
L36	IND FIXED SHIELDED 10uH 10%	1812 SMD	L-0235
L37	IND FIXED SHIELDED 10uH 10%	1812 SMD	L-0235
L38	IND FIXED SHIELDED 10uH 10%	1812 SMD	L-0235

L39	IND FIXED SHIELDED 10uH 10%	1812 SMD	L-0235
L40	IND FIXED SHIELDED 10uH 10%	1812 SMD	L-0235
L41	IND FIXED SHIELDED 10uH 10%	1812 SMD	L-0235
L42	IND FIXED SHIELDED 15uH 10%	1812 SMD	L-0236
L43	IND FIXED SHIELDED 15uH 10%	1812 SMD	L-0236
L44	IND FIXED SHIELDED 15uH 10%	1812 SMD	L-0236
L45	IND FIXED SHIELDED 15uH 10%	1812 SMD	L-0236
L46	FERRITE CHIP 1267OHMS 100MA	0805 SMD	FB-0013
L48	FERRITE CHIP 915 OHMS 100MA	1206 SMD	FB-0012
L49	FERRITE 200MA 1000 OHM	0603 SMD	FB-0009
L50	FERRITE CHIP 915 OHMS 100MA	1206 SMD	FB-0012
L51	FERRITE 200MA 1000 OHM	0603 SMD	FB-0009
L52	FERRITE CHIP 915 OHMS 100MA	1206 SMD	FB-0012
L53	FERRITE CHIP 915 OHMS 100MA	1206 SMD	FB-0012
L54	FERRITE CHIP 1267OHMS 100MA	0805 SMD	FB-0013
L55	FERRITE CHIP 1267OHMS 100MA	0805 SMD	FB-0013
L56	FERRITE CHIP 1267OHMS 100MA	0805 SMD	FB-0013
L57	FERRITE 200MA 1000 OHM	0603 SMD	FB-0009
L58	FERRITE 200MA 1000 OHM	0603 SMD	FB-0009
L59	FERRITE 200MA 1000 OHM	0603 SMD	FB-0009
L60	FERRITE 200MA 1000 OHM	0603 SMD	FB-0009
L62	CHOKE 90 OHM COIL COMMON MODE	SMD	FB-0014
L63	FERRITE CHIP POWER 120 OHM	SMD	FB-0007
L65	FERRITE CHIP 1267OHMS 100MA	0805 SMD	FB-0013
L66	IND FIXED 100nH 5%	0603 SMD	L-0242
L67	IND FIXED 120nH 5%	0603 SMD	L-0241
L68	IND FIXED 100nH 5%	0603 SMD	L-0242
L69	FERRITE 200MA 1000 OHM	0603 SMD	FB-0009
L70	FERRITE 200MA 1000 OHM	0603 SMD	FB-0009
P2	CONN SOCKET STRIP 10POS		J-0171
PCB	PCB FLEX-1500 PTRX BOARD	PCB	PC-0048
Q2	TRANSISTOR MOSFET N-CH 25V	FDV303N	Q-0008
Q3	TRANSISTOR MOSFET N-CH 25V	FDV303N	Q-0008
Q4	MOSFET N-CH 60V 200MA	2N7002	Q-0020
QG1	OSC 38.4 MHZ TCXO	CVT25-38.400	Y-0013
QG2	CRYSTAL 6.0 MHZ 20PF	SMD	Y-0018
R01	RES 5.10K OHM 1/10W 1%	0603 SMD	R-0133
R02	RES 5.10K OHM 1/10W 1%	0603 SMD	R-0133
R03	RES 619 OHM 1/10W 1%	0603 SMD	R-0146
R04	RES 3.32K OHM 1/10W 1%	0603 SMD	R-0109
R05	RES 619 OHM 1/10W 1%	0603 SMD	R-0146
R06	RES 619 OHM 1/10W 1%	0603 SMD	R-0146
R07	RES 10.0K OHM 1/10W 1%	0603 SMD	R-0122
R08	RES 3.32K OHM 1/10W 1%	0603 SMD	R-0109
R09	RES 3.32K OHM 1/10W 1%	0603 SMD	R-0109
R10	RES 1.0M OHM 1/10W 5%	0603 SMD	R-0129
R11	RES 95.3 OHM 1/10W 1%	0603 SMD	R-0125
R12	RES 95.3 OHM 1/10W 1%	0603 SMD	R-0125
R13	RES 2.87K OHM 1/10W 1%	0603 SMD	R-0229
R14	RES 619 OHM 1/10W 1%	0603 SMD	R-0146
R15	RES 1.20K OHM 1/10W 1%	0603 SMD	R-0111
R16	RES 3.30 OHM 1/10W 1%	0603 SMD	R-0288
R17	RES 511 OHM 1/10W 1%	0603 SMD	R-0120
R18	RES 2.00K OHM 1/10W 1%	0603 SMD	R-0271
R19	RES 619 OHM 1/10W 1%	0603 SMD	R-0146

R20	RES 1.20K OHM 1/10W 1%	0603 SMD	R-0111
R21	RES 3.32K OHM 1/10W 1%	0603 SMD	R-0109
R24	RES 100 OHM 1/10W 1%	0603 SMD	R-0186
R25	RES 1.60K OHM 1/10W 1%	0603 SMD	R-0295
R26	RES 120 OHM 1/10W 1%	0603 SMD	R-0284
R27	RES 120 OHM 1/10W 1%	0603 SMD	R-0284
R28	RES 100 OHM 1/10W 1%	0603 SMD	R-0186
R29	RES 1.60K OHM 1/10W 1%	0603 SMD	R-0295
R30	RES 100 OHM 1/10W 1%	0603 SMD	R-0186
R31	RES 1.60K OHM 1/10W 1%	0603 SMD	R-0295
R32	RES 120 OHM 1/10W 1%	0603 SMD	R-0284
R33	RES 120 OHM 1/10W 1%	0603 SMD	R-0284
R34	RES 100 OHM 1/10W 1%	0603 SMD	R-0186
R35	RES 1.60K OHM 1/10W 1%	0603 SMD	R-0295
R36	RES 12.7 OHM 1/10W 1%	0603 SMD	R-0278
R37	RES 12.7 OHM 1/10W 1%	0603 SMD	R-0278
R38	RES 12.7 OHM 1/10W 1%	0603 SMD	R-0278
R39	RES 12.7 OHM 1/10W 1%	0603 SMD	R-0278
R40	RES 12.7 OHM 1/10W 1%	0603 SMD	R-0278
R41	RES 12.7 OHM 1/10W 1%	0603 SMD	R-0278
R42	RES 12.7 OHM 1/10W 1%	0603 SMD	R-0278
R43	RES 12.7 OHM 1/10W 1%	0603 SMD	R-0278
R44	RES 10.0K OHM 1/10W 1%	0603 SMD	R-0122
R45	RES 10.0K OHM 1/10W 1%	0603 SMD	R-0122
R46	RES 2.2K OHM 1/10W 5%	0603 SMD	R-0106
R47	RES 2.2K OHM 1/10W 5%	0603 SMD	R-0106
R48	RES 2.2K OHM 1/10W 5%	0603 SMD	R-0106
R49	RES 3.09K OHM 1/10W 1%	0603 SMD	R-0279
R50	RES 1.47K OHM 1/10W 1%	0603 SMD	R-0247
R51	RES 24.9 OHM 1/10W 1%	0603 SMD	R-0147
R52	RES 24.9 OHM 1/10W 1%	0603 SMD	R-0147
R53	RES 1.20K OHM 1/10W 1%	0603 SMD	R-0111
R54	RES 1.00K OHM 1/10W 1%	0603 SMD	R-0119
R55	RES 1.00K OHM 1/10W 1%	0603 SMD	R-0119
R56	RES 3.90K OHM 1/10W 1%	0603 SMD	R-0208
R57	RES 2.2K OHM 1/10W 5%	0603 SMD	R-0106
R58	RES 2.2K OHM 1/10W 5%	0603 SMD	R-0106
R59	RES 2.2K OHM 1/10W 5%	0603 SMD	R-0106
R60	RES 2.2K OHM 1/10W 5%	0603 SMD	R-0106
R61	RES 2.2K OHM 1/10W 5%	0603 SMD	R-0106
R62	RES 2.2K OHM 1/10W 5%	0603 SMD	R-0106
R63	RES 2.2K OHM 1/10W 5%	0603 SMD	R-0106
R64	RES 2.2K OHM 1/10W 5%	0603 SMD	R-0106
R65	RES 1.00K OHM 1/10W 1%	0603 SMD	R-0119
R66	RES 2.2K OHM 1/10W 5%	0603 SMD	R-0106
R67	RES 100 OHM 1/10W 1%	0603 SMD	R-0186
R68	RES 100 OHM 1/10W 1%	0603 SMD	R-0186
R69	RES 511 OHM 1/10W 1%	0603 SMD	R-0120
R70	RES 2.2K OHM 1/10W 5%	0603 SMD	R-0106
R71	RES 10.0K OHM 1/10W 1%	0603 SMD	R-0122
R72	RES 100 OHM 1/10W 1%	0603 SMD	R-0186
R73	RES 0.0 OHM 1/10W 5%	0603 SMD	R-0128
R74	RES 0.0 OHM 1/10W 5%	0603 SMD	R-0128
R75	RES 10.0K OHM 1/10W 1%	0603 SMD	R-0122
R76	RES 0.0 OHM 1/10W 5%	0603 SMD	R-0128

R77	RES 0.0 OHM 1/10W 5%	0603 SMD	R-0128
R78	RES 0.0 OHM 1/10W 5%	0603 SMD	R-0128
R79	RES 200 OHM 1/10W 1%	0603 SMD	R-0235
R80	RES 3.90K OHM 1/10W 1%	0603 SMD	R-0208
R81	RES 61.9 OHM 1/10W 1%	0603 SMD	R-0244
R82	RES 61.9 OHM 1/10W 1%	0603 SMD	R-0244
R83	RES 240 OHM 1/10W 1%	0603 SMD	R-0110
R84	RES 3.32K OHM 1/10W 1%	0603 SMD	R-0109
R85	RES 619 OHM 1/10W 1%	0603 SMD	R-0146
R86	RES 3.32K OHM 1/10W 1%	0603 SMD	R-0109
R87	RES 1.0M OHM 1/10W 5%	0603 SMD	R-0129
R88	RES 511 OHM 1/10W 1%	0603 SMD	R-0120
R89	RES 10.0K OHM 1/10W 1%	0603 SMD	R-0122
R90	RES 24.9 OHM 1/10W 1%	0603 SMD	R-0147
R91	RES 24.9 OHM 1/10W 1%	0603 SMD	R-0147
SW1	SWITCH PB ILL BLU LATCH RA		S-0005
T1	TRANSFORMER TC 1:4	TC4-1T+	T-0002
T2	TRANSFORMER TC 1:4	TC4-1T+	T-0002
T3	TRANSFORMER TC 1:1	TC1-1T+	T-0011
T4	TRANSFORMER TC 1:1	TC1-1T+	T-0011
T5	TRANSFORMER TC 1:4	TC4-1T+	T-0002
X1	CONN JACK BNC R/A 50 OHM	NOT SHIELDED	J-0158
H-0311	EMI GASKET RECT RFI SHIELDING		H-0311

PPA05 - FLEX1500 RF POWER AMPLIFIER-FILTER BOARD -- B-0051 ASSEMBLY

Sch.	Ref.	Description	Detail	FlexRadio P/N
C001	C001	CAP CER 18PF 50V NPO	0805 SMD	C-0225
C002	C002	CAP 68PF 50V CERM CHIP COG	0805 SMD	C-0171
C003	C003	CAP 68PF 50V CERM CHIP COG	0805 SMD	C-0171
C004	C004	CAP 330PF 50V CERM	0805 SMD	C-0237
C005	C005	CAP CERM 300pF 50V 5% COG	0805 SMD	C-0268
C006	C006	CAP CERM 300pF 50V 5% COG	0805 SMD	C-0268
C007	C007	CAP 39PF 50V CERM CHIP	0805 SMD	C-0238
C008	C008	CAP 120PF 50V C0G CERM CHIP	0805 SMD	C-0219
C009	C009	CAP CER 91PF 100V 5% C0G	0805 SMD	C-0243
C010	C010	CAP 270PF 50V CERM CHIP	0805 SMD	C-0234
C011	C011	CAP 330PF 50V CERM CHIP	0805 SMD	C-0237
C012	C012	CAP CER 910PF 50V 5% C0G	0805 SMD	C-0242
C013	C013	CAP 330PF 50V CERM CHIP	0805 SMD	C-0237
C014	C014	CAP CER 150PF 100V 5% C0G	0805 SMD	C-0218
C015	C015	CAP 470PF 50V C0G CERM CHIP	0805 SMD	C-0177
C016	C016	CAP CER 1200PF 100V C0G	0805 SMD	C-0214
C017	C017	CAP CER 2200PF 50V 5% C0G	0805 SMD	C-0227
C018	C018	CAP CER 1000PF 50V NPO	0805 SMD	C-0002
C019	C019	CAP CER 3.6PF 50V +/- .25pF C0G	0805 SMD	C-0409
C020	C020	CAP CER 10000PF 100V X7R 20%	0805 SMD	C-0402
C021	C021	CAP CER 10000PF 100V X7R 20%	0805 SMD	C-0402
C022	C022	CAP CER 82PF 50V NPO	0805 SMD	C-0167
C023	C023	CAP 180PF 50V CERM CHIP	0805 SMD	C-0224
C024	C024	CAP CER 75PF 100V 5% C0G	0805 SMD	C-0169

C025	CAP 120PF 50V C0G CERM CHIP	0805	SMD	C-0219
C026	CAP 220PF 50V CERM CHIP	0805	SMD	C-0231
C027	CAP CER 82PF 50V NP0	0805	SMD	C-0167
C028	CAP CER 150PF 100V 5% C0G	0805	SMD	C-0218
C029	CAP 220PF 50V CERM CHIP	0805	SMD	C-0231
C030	CAP 180PF 50V CERM CHIP	0805	SMD	C-0224
C031	CAP CER 82PF 50V NP0	0805	SMD	C-0167
C032	CAP CERAMIC 12PF 50V NP0	0805	SMD	C-0220
C033	CAP CERAMIC 15PF 50V NP0	0805	SMD	C-0222
C034	CAP CERAMIC 12PF 50V NP0	0805	SMD	C-0220
C035	CAP 39PF 50V CERM CHIP	0805	SMD	C-0238
C036	CAP CERAMIC 22PF 50V NP0	0805	SMD	C-0232
C037	CAP CERM 56PF 50V NP0 COG	0805	SMD	C-0098
C038	CAP 39PF 50V CERM CHIP	0805	SMD	C-0238
C039	CAP CER 200PF 100V 5% C0G	0805	SMD	C-0345
C040	CAP CER 150PF 100V 5% C0G	0805	SMD	C-0218
C041	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C042	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C043	CAP CER 1UF 25V X5R	0805	SMD	C-0117
C044	CAP CER 1UF 25V X5R	0805	SMD	C-0117
C045	CAP CER 36PF 50V 5% C0G	0805	SMD	C-0406
C046	CAP CERM 300pF 50V 5% COG	0805	SMD	C-0268
C047	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C048	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C049	CAP CER 24PF 50V 5% C0G	0805	SMD	C-0351
C050	CAP CER 1UF 25V X5R	0805	SMD	C-0117
C051	CAP CER .1UF 16V 10% X7R	0402	SMD	C-0102
C052	CAP .1UF 50V CERAMIC X7R	0805	SMD	C-0408
C053	CAP .1UF 50V CERAMIC X7R	0805	SMD	C-0408
C054	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C055	CAP .1UF 50V CERAMIC X7R	0805	SMD	C-0408
C056	CAP CER 240PF 100V 5% C0G	0805	SMD	C-0233
C057	CAP .1UF 50V CERAMIC X7R	0805	SMD	C-0408
C058	CAP .1UF 50V CERAMIC X7R	0805	SMD	C-0408
C059	CAP .1UF 50V CERAMIC X7R	0805	SMD	C-0408
C060	CAP CER 1UF 25V X5R	0805	SMD	C-0117
C061	CAP .1UF 50V CERAMIC X7R	0805	SMD	C-0408
C062	CAP ELECT 470uf 25V FC	SMD		C-0027
C063	CAP ELECT 1000UF 25V VS	SMD		C-0370
C064	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C065	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C066	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C067	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C068	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C069	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C070	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C071	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C072	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C073	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C074	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C075	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C076	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C077	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C078	CAP CER 10000PF 100V X7R 20%	0805	SMD	C-0402
C079	CAP .1UF 50V CERAMIC X7R	0805	SMD	C-0408

C080	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C081	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C082	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C083	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C084	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C085	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C086	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C087	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C088	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C089	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C090	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C091	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C092	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C093	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C094	CAP CER .1UF 16V 10% X7R	0402 SMD	C-0102
C095	CAP CER 10000PF 100V X7R 20%	0805 SMD	C-0402
C096	CAP CER 10UF 25V X5R	1206 SMD	C-0192
C097	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C098	CAP CER 1UF 25V X5R	0805 SMD	C-0117
C099	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
C100	CAP CER 1UF 25V X5R	0805 SMD	C-0117
C101	CAP CER 1UF 25V X5R	0805 SMD	C-0117
C102	CAP .1UF 50V CERAMIC X7R	0805 SMD	C-0408
D1	DIODE 3.3V TVS ARRAY	GBLC03C	D-0020
D2	DIODE SWITCH 200MA 100V	1SS400T1G	D-0023
D3	DIODE SCHOTTKY 100MA 70V	BAS70-00-V-GS08	D-0024
D4	DIODE GEN PURPOSE 50V 1A	S1A	D-0025
F1	FUSE AUTO 3A, 32VDC MINI BLADE TERMINAL		F-0016
F1	FUSEHOLDER MINI AUTO .025	TH	H-0119
IC1	REGULATOR POS 5V 3A 4% TO220	MC78T05CT	U-0113
J1	CONN JACK BNC R/A 50 OHM		J-0158
J2	CONN JACK DC PWR 2.5MM		J-0167
J3	CONNECTOR NO POPULATE	NP	J-NP
K01	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K02	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K03	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K04	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K05	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K06	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K07	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K08	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K09	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K10	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K11	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K12	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K13	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K14	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K15	RELAY LOW SIG DPDT 12VDC NL	SMD	K-0010
K16	SPDT RF SWITCH MOSFET	PE4259 SMD	K-0007
L01	INDUCTOR FIXED 1.5uH 5%	1812 SMD	L-0144
L02	INDUCTOR FIXED 1.2uH 5%	1812 SMD	L-0143
L03	INDUCTOR FIXED 2.2uH 5%	1812 SMD	L-0189
L04	INDUCTOR FIXED 1.8uH 5%	1812 SMD	L-0145
L05	INDUCTOR FIXED 10uH 5%	1812 SMD	L-0148
L06	INDUCTOR FIXED 8.2uH 5%	1812 SMD	L-0219

L07	INDUCTOR FIXED 130nH 5%	SMD	L-0220
L08	INDUCTOR FIXED 169nH 5%	SMD	L-0221
L09	INDUCTOR FIXED 307nH 5%	SMD	L-0193
L10	INDUCTOR FIXED 246nH 5%	SMD	L-0191
L11	INDUCTOR FIXED 380nH 5%	SMD	L-0214
L12	INDUCTOR FIXED 307nH 5%	SMD	L-0193
L13	INDUCTOR FIXED 538nH 5%	SMD	L-0194
L14	INDUCTOR FIXED 307nH 5%	SMD	L-0193
L15	INDUCTOR FIXED 307nH 5%	SMD	L-0193
L16	FERRITE CHIP 1267OHMS 100MA	0805 SMD	FB-0013
L17	FERRITE CHIP POWER 160 OHM		FB-0018
L18	FERRITE CHIP POWER 160 OHM		FB-0018
L19	FERRITE CHIP POWER 160 OHM		FB-0018
L20	FERRITE CHIP 1267OHMS 100MA	0805 SMD	FB-0013
L21	INDUCTOR FIXED 169nH 5%	SMD	L-0221
L22	INDUCTOR FIXED 10uH 5%	1812 SMD	L-0148
L23	INDUCTOR FIXED 8.2uH 5%	1812 SMD	L-0219
P1	CONN .025" SQUARE POST HEADER		J-0168
PCB	PCB FLEX-1500 PPA05 BOARD		PC-0049
Q1	TRANSISTOR RF POWER MOSFET 0.5W RD00HVS1		Q-0019
Q3	TRANSISTOR RF POWER MOSFET 16W RD16HHF1		Q-0014
Q4	MOSFET PWR P-CHAN 1A 20V	NTR1P02T1G	Q-0015
R01	RES 10.0 OHM 1/10W 1%	0603 SMD	R-0113
R02	RES 1.00 OHM 1/10W 1%	0603 SMD	R-0272
R03	RES 1.00 OHM 1/10W 1%	0603 SMD	R-0272
R04	RES 3.24K OHM 1/10W 1%	0603 SMD	R-0203
R05	RES 49.9 OHM 1/8W 1%	0805 SMD	R-0059
R06	RES 2.00K OHM 1/10W 1%	0603 SMD	R-0271
R07	RES 49.9 OHM 1/8W 1%	0805 SMD	R-0059
R08	TRIMPOT 2K OHM 3MM CERMET	SMD	R-0274
R09	RES 0.0 OHM 1/10W 5%	0603 SMD	R-0128
R10	TRIMPOT 2K OHM 3MM CERMET	SMD	R-0274
R11	RES 10.0K OHM 1/8W 1%	0805 SMD	R-0273
R12	RES 4.70K OHM 1/10W 1%	0603 SMD	R-0206
R13	RES 1.8K OHM 1/10W 1%	0603 SMD	R-0198
R14	RES 3.24K OHM 1/10W 1%	0603 SMD	R-0203
R15	RES 10.0K OHM 1/8W 1%	0805 SMD	R-0273
R16	RES 10.0 OHM 1/10W 1%	0603 SMD	R-0113
R17	CONNECTOR NO POPULATE	NP	J-NP
R17	RES NO POPULATE	NP	R-NP
R19	RES 1.00K OHM 1/10W 1%	0603 SMD	R-0119
R20	RES 10.0K OHM 1/8W 1%	0805 SMD	R-0273
T1	TRANSFORMER 1:4 BIFILAR BINOCULAR ASSY		T-0032
T3	TRANSFORMER BINOCULAR 0.6" CORE 1:4 RATIO		T-0029
U1	IC PWR 8-BIT SHIFT REGIS	TPIC6B595DWG4	U-0189
U2	IC REGULATOR POS 6V	L78L06ACD13TR	U-0190
H-0311	EMI GASKET RECT RFI SHIELDING		H-0311

FLEX-1500 TOP LEVEL ASSEMBLY ITEMS

Sch.	Ref.	Description	Detail	FlexRadio P/N
--		WASHER FLAT #4 SS		H-0036
--		WASHER LOCK #4 INTERNAL TOOTH 18-8 SS		H-0095
--		JACK SCREW W/HDWR 3/16" CHROME		H-0141
--		FOOT RUBBER #4 SCREW HOLE	FEET	H-0238
--		SCREW 6-32 X 3/16" SS CAP SCREW	TRANSISTOR MTG	H-0249
--		CASE 4.0" X 6.3" X 2.06"	CASE	H-0296
--		PANEL FLEX-1500 FRONT	FRONT PANEL	H-0297
--		PANEL FLEX-1500 REAR	REAR PANEL	H-0298
--		HEAT SPREADER	HEAT SPREADER	H-0301
--		STANDOFF 1/4 X 3/16 X 4-40 AL		H-0305
--		SCREW 4-40 x 3/16 SS PAN HEAD PHILLIPS		H-0307
--		WASHER FLAT #6 .27" OD SS		H-0308
--		WASHER INTERNAL-TOOTH #6 0.3" OD		H-0309
--		SCREW 4-40 x 5/16 SS PAN HEAD PHILLIPS		H-0310
--		CABLE USB A-B DBL SHIELD 2M	USB CABLE	CBL-0067
--		CABLE ASSY STR 2.5MM 6' 18 AWG	POWER CABLE	CBL-0068
--		FILTER FERRITE SNAP-ON	FOR USB CABLE	FL-0003
--		ADAPTER BNC TO UHF PL-259		H-0250