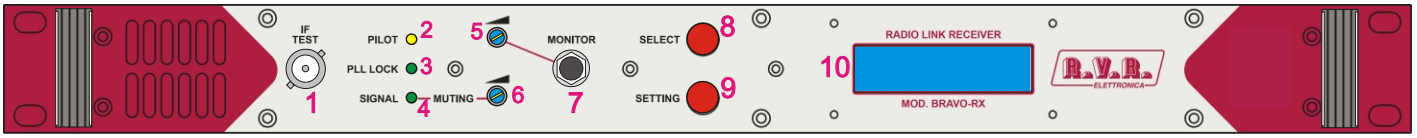
FM STL RECEIVER

FRONT PANEL LAYOUT



1 - IF SAMPLER 10,7MHz OUT 0dBm

2 - POWER SUPPLY CORRECT OPERATION YELLOW INDICATOR

3 - PLL LOCK FREQUENCY CONTROL CORRECT OPERATION CIRCUIT GREEN INDICATOR

4 - PRESENCE OF RF SIGNAL AT PROPER LEVEL AND FREQUENCY AT INPUT RF CONNECTOR GREEN INDICATOR

5 - EARPHONE LEVEL ADJUSTING

6 - MUTING TRESHOLD ADJUSTING

7 - EARPHONE 6,3 mm MONITORING JACK CONNECTOR

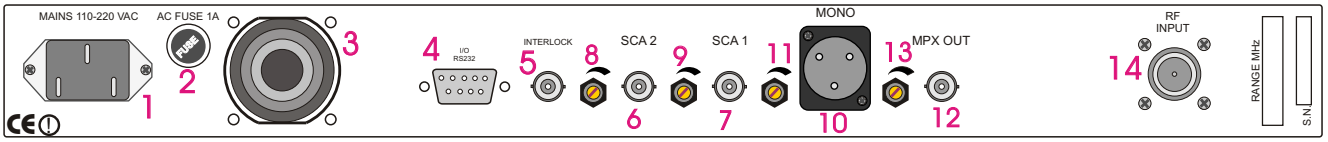
8 - 9 - THESE PUSHBOTTONS ALLOW TO SELECT ON LCD DISPLAY THE FOLLOWING MENU:
- display parameters
- password
- change of receiving frequency

10 - LCD MULTIMETER DISPLAY SHOWING:
- operational frequency
- deviation of receiving signal
- signal strenght

TITLE	FM LINK RECEIVER mod. BRAVO RX front panel layout
DATE 12-2020	DRAWING NO. RVR Link Receiver front layout.cdr

FM LINK RECEIVER

REAR PANEL LAYOUT



1 - MAINS SUPPLY CONNECTOR

2 - AC FUSE 1A

3 - FAN

4 - DB 9 PIN INPUT / OUTPUT CONNECTOR FOR TELEMETRY (opt.01)

5 - BNC FEMALE FOR CONNECTION OF THE INTERLOCK LOOP -
THE CONNECTION GOES TO GROUND WHEN MUTE IS ON

6-7- BNC FEMALES FOR SUBCARRIERS OUTPUTS

8-9- SCA OUTPUT ADJUSTING LEVELS

10 - XLR FEMALE BALANCED MODE MONO AUDIO OUTPUT

11 - MONO OUTPUT ADJUSTING LEVEL

12 - BNC FEMALE FOR THE COMPOSITE MPX OUTPUT

13 - MPXOUTPUT ADJUSTING LEVEL

14 - N FEMALE FOR RF INPUT SIGNAL

TITLE	FM LINK RECEIVER *mod.* BRAVO RX rear panel layout
DATE 12-2020	DRAWING NO. RVR Link Receiver rear side layout.cdr

BRAVO-RX

&

BRAVO-TX

USAGE INSTRUCTION

Connected a 50 Ω load or 50 Ω antenna to the RF output, connect the equipment into a mains supply (100÷240 VAC) with earth point. The transmitter equipment is factory pre-set to 0.0 W.

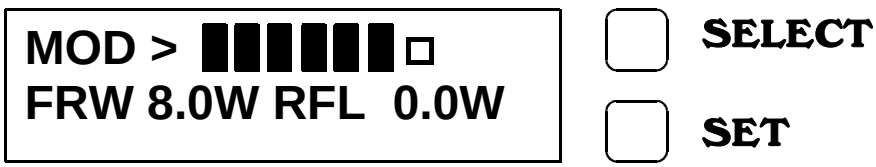
Switch ON the power switch and the yellow V POWER led will light.

The Display will show:

After 3 seconds the green PLL LOCK led will light and the Display will show an increasing bar, after a further 5 seconds the green ON AIR led will light and there will be output power.

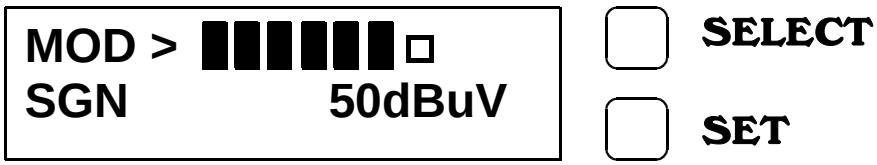
At this point the Display will show the next parameter for the transmitter:

- Level Modulation (MOD >▮▮▮▮▮▫▮▮▮);
- Forward Power (FRW 5.0W);
- Reflected Power (RFL 0.1W);



instead for the receiver:

- Level Modulation (MOD >▮▮▮▮▮▫▮▮▮);
- Level Signal(50dBuV).



To display the frequency push the SET key.
In order to display the parameter push the SELECT key.

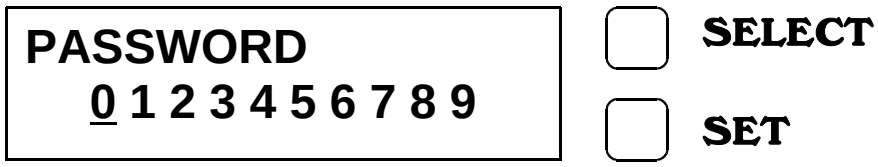
Display Password

The Password mode is factory set to enable, and is not possible change this SET.

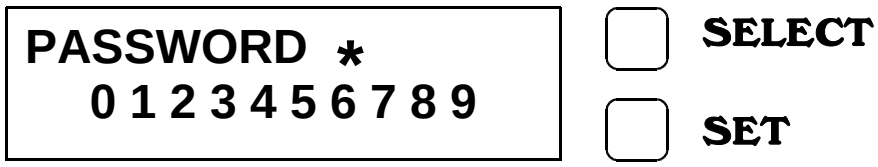
The default password is **1 2 3**.

The WAIT of changing the password is as follows:

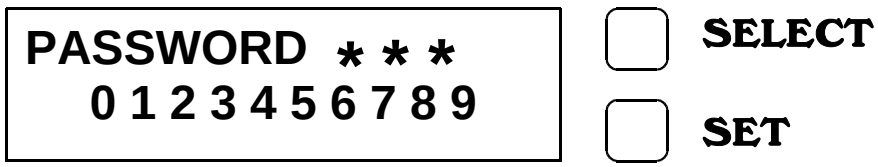
- Press for 3 seconds the SELECT key;



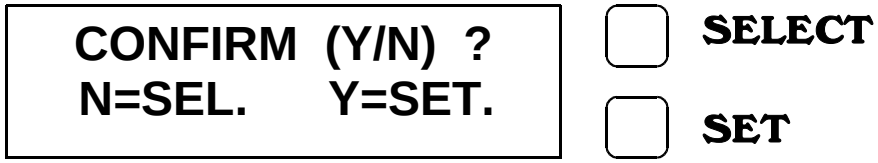
- Press the SELECT key for move the underscore character position at the required digit, and press the SET key to confirm the digit.



Carry out the same operation for the two remaining digits.



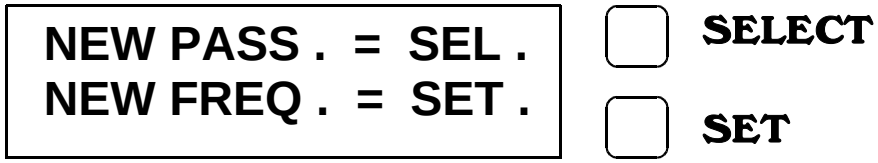
- If the password is corrected press SET key to confirm, otherwise press SELECT key to leave the choice.



If the password is not corrected an error is displayed:

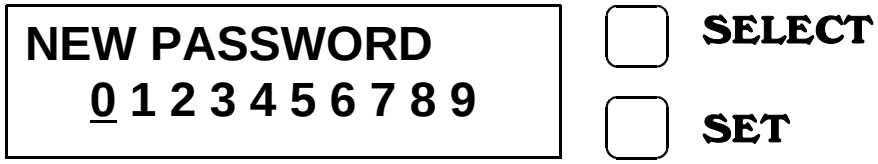
After few seconds display will show again the parameters.

- When the password is corrected the display will show:

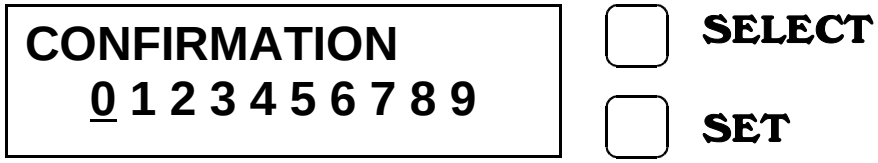


To change the password press the SET key.
To change the frequency press the SELECT key.

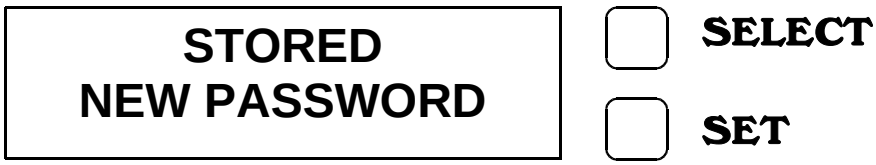
- For changing the password proceed at the same method for the required password:



The confirmation password will be required.



If the password is corrected the display will show:



If the confirmation password is wrong the display will show:

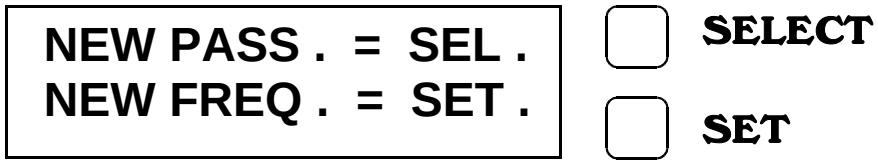
IMPORTANT NOTE

! BE CAREFULLY !

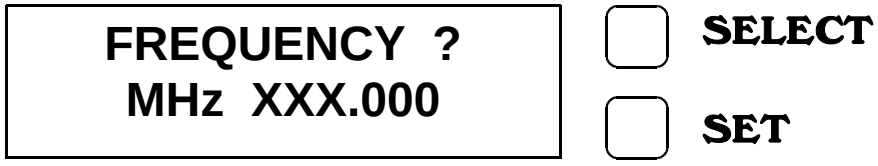
Once the password is set, it must be remembered otherwise neither can the frequency be changed or a new password entered.

Display Change of Frequency.

- Press 3 seconds the SELECT key and put the correct password, at this point press again the SELECT key:



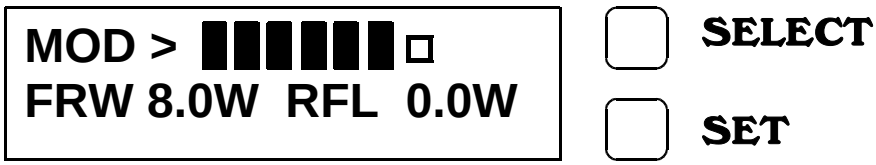
- Press the SELECT key to change the digit and press the SET key to confirm the digit.



The underscore character move the position one place to the left.

When the five digit is changed the further press SET key confirm the new frequency.

At this operation follows the WAIT cycle and after this the display will show the parameters:



After 7 minutes the display light switch off and the display will show:

Environmental conditions for the installation

Each equipment produced by our Company has been carefully designed and tested in compliance with the European normative.

The reported marks placed in the rear panel and in the manual are relevant to the tests realized on the equipment according to rigorous safety criteria advised by the Country where the equipment will operate.

Some tests require that the equipment is able to stand specific very severe environmental conditions for a brief period of time.

Although the equipment is actually able to operate properly even under severe conditions, they haven't to be considered as regular, and therefore cannot be applied neither permanently nor for long periods.

The manufacturer has designed the equipment for lasting duration, provided it operates under correct environmental conditions.

In other words, the equipment can stand extreme environmental conditions for a limited period of time, at the same time operating in compliance with the quality figures advised in the technical data-sheet.

In case the equipment is expected to operate under very critical conditions which have been previously advised by the end user, upon his request the design of the equipment will be then reconsidered, to make it suitable for the severe environmental conditions in order to save the regular technical data.

The ambient where the equipment operates should be dry and with no dust; the ambient temperature is supposed to be within the range advised by the manufacturer.

No material such as a rope, insulating material, or clothing should cover the equipment at any time. Make sure that no kind of materials or objects can somehow reduce the regular cooling air flow through the equipment. Before operating the equipment, make sure that all the advises reported in the manual are fully complied.

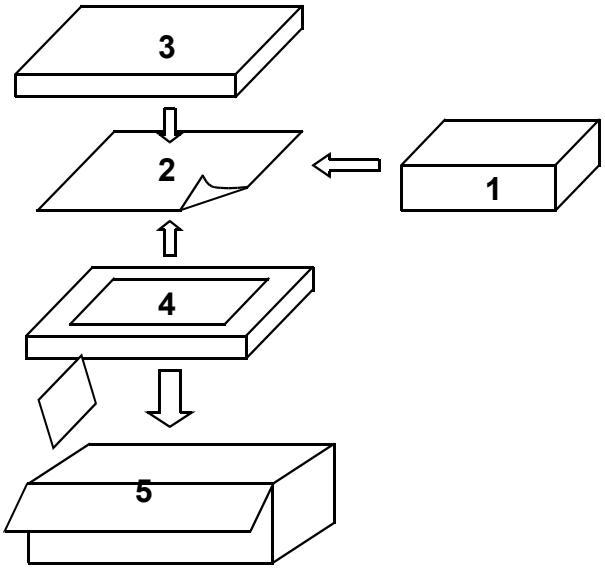
In this section, the data concerning the minimum room where the equipment should operate are intended as minimum figures, sufficient to keep the internal parts of the equipment perfectly cooled.

In case that in the same shelter more equipment are placed, it will be necessary installing an effective air condition system to ensure the recommended operational conditions. It is understood that in case the advised conditions are not complied, the manufacturer will not be liable for any inconveniences or damages that may occur, as the warranty conditions will be void.

Package description

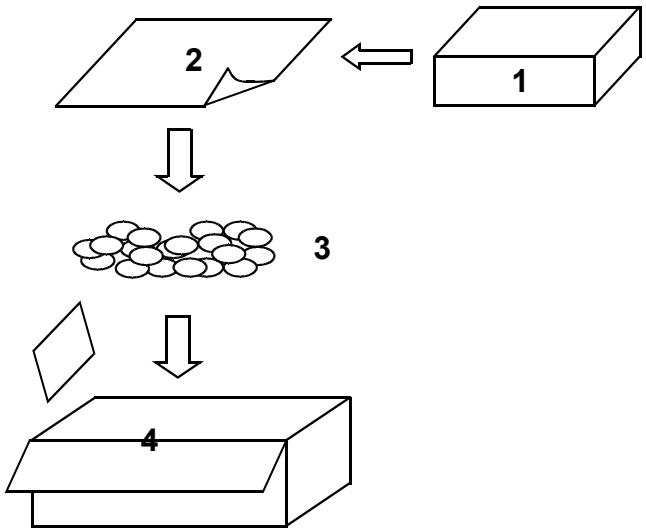
Any equipment is always supplied by us inside a suitable package for a safe freighting, to avoid damages to the equipment due to small shocks.
Basically, the package is a carton box sealed with adhesive tape with the manufacturer brand name, then externally tighten by a wide plastic cord.
In case one or more sides of the box have a different tape with respect to the original one, it means that the box has been opened during the despatch operations; this should be reported in an attached sheet.
At the time of opening the package, if a damage of the equipment or if something is missing, we recommend to fill-up the form which is included in the manual, and accurately describe the inconvenience.
Upon that, the manufacturer will check where the problem may have occurred and will decide to grant the replacement and if due , the correspondent refund.
Besides the equipment, the carton box package should include:

1) Polythene bag
2) Polystyrene bottom and cover



Small equipment or spare modules are usually supplied with the following kind of package:

1) Carton box
2) Polythene bag
3) Polystyrene material to absorb mechanical shocks



Installing operations

⚠ The installation of any electrical equipment should be always made by technical and specifically trained technicians, who are supposed to be aware of the risks related to the connection to an electrical supply.

Before proceeding to the installation, it is mandatory to verify that the general electrical supply is fully in compliance with the normative of the Country where the equipment will operate.

In the rear panel of the equipment, the requested electrical features of mains are reported.

⚠ ⚠ The utmost attention should be devoted to the grounding system of the mains: this grants the personal safety of the technical personnel in case of stray currents due to static voltages accumulated in the equipment.

Before proceeding to any operations, we strongly recommend to make sure that an adequate and certified grounding system has been set.

In case of disregard of the above mentioned recommendations, the manufacturer does not take any responsibilities about damages to persons and materials.

Once the place where the equipment will be situated, it is important to verify the compliance with some specific criteria.

Any materials or objects should be placed at a distance of at least 30cms from the cooling air ducts of the equipment. This will assure the regular cooling conditions of the heat-sink of the equipment.

Disregarding the above mentioned advises and recommendations will bring damages to the internal components and risk of fire

Make sure that the equipment is placed in a stable and secure position, to easily allow the access to the front panel and to the rear panel too.
This will permit in the future a simple and fast inspection of the connections if they are necessary.
First, connect the transmitting antenna cable to the correspondent N type male connector placed in the rear panel; then connect the receiving antenna cable.
Eventually connect the included power cord to the female plug placed on the rear panel and protected by a fuse, and then connect the other end to the mains plug.

Maintenance and cleanness

Routine maintenance and cleanness can be exclusively done when the equipment is not connected to the mains. Disregarding this caution, may have the effect of serious problems to the personal safety.

For no reasons, the equipment should have any contacts with water or other liquids.

To clean the equipment, only use a soft cloth. In case that much dust is accumulated inside the equipment, use a vacuum-cleaner or a dry and soft brush to remove it.

The routine maintenance of the equipment is intended also as the periodical control of the operational parameters, following the instructions written in the chapter “putting in operation”.

Safety

Read this chapter carefully before installation and use of the equipment.

Introduction

The equipment described in this manual, has been designed for use

by properly trained personnel only.

Adjustment, maintenance and repair of the exposed equipment should only be carried out by qualified personnel who are aware of hazards involved.

Safety Precautions

For the correct and safe use of the equipment, it is essential that both operating and servicing personnel follow generally accepted safety procedures in addition to the safety precautions specified in this manual. Specific warning and caution statements, where applicable, are found throughout this manual. Note that warning and caution statements and/or symbols are marked on the equipment as well.
This manual provides technical information important for safe operation of the equipment.
Please refer to the relevant sections of the manual for technical specifications, installation and operating instructions.

Special attention must be paid to the following issues:

- Protective grounding of the instrument is required for the accessible terminals to be safe.
  (IEC 1010-1 Safety class I instrument)
- The actual environmental conditions must be checked against the specification
- Mains voltage must be inside the specified range

The opening of covers or removal of parts, except those to which access can be gained by hand, is liable to expose live parts and terminals.

If adjustment, maintenance, or repair of the opened instrument is unavoidable, it must only be carried out by a skilled person who is aware of the hazards involved.

Caution and Warning Statements

Caution

Used to indicate correct operation or maintenance in order to prevent damage to, or destruction of equipment or other property.

Warning

Used to indicate a potential hazard that requires correct procedures or practices in order to prevent personal injury.

Impaired Safety Protection

Technical Specifications

This manual provides technical information important for safe operation of the equipment.

Please refer to the Chapter **Product Data** for information regarding technical specifications and the Chapter **Installation and Operating Instructions** regarding instructions for use.

The equipment is designed for the following environmental conditions:

- ♦ Indoor use
- ♦ Altitudes up to 2000 m
- ♦ Temperatures between +5°C and +45°C

Maximum relative humidity of 95% for temperatures up to 20°C.
The equipment is equipped with a number of input and output terminals as described in the Chapter **Product Data**.

The terminals are protected from becoming hazardous live by means of basic insulation and protective screening.

Whenever it is likely that safe operation is impaired, the equipment must be made inoperative and secured against unintended operation. The appropriate servicing authority must be informed.

For example, safety is likely to be impaired if the equipment fails to perform the intended measurements or shows visible damage.

WARNING: Protection provided by the equipment may be impaired, if the equipment is used in a manner not specified by this manual.

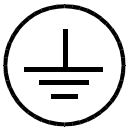
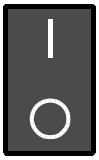
ATTENTION

<u>Electrostatic Sensitive Devices</u>

All ICs and many other semi-conductors are susceptible to electrostatic discharges ESD). Careless handling during repair can reduce lifetime drastically.

When repairing, make sure that you are connected to the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

Symbols

Symbol	Colour:	Explanation:
	Red	High voltage terminal: a terminal at which a voltage, with respect to another terminal or parts exists or may be adjusted to 1000 V or more. (High voltage > 1000 V).
	Black/Yellow	Live part shock risk of electric shock.
	Black/Yellow	To preserve the instrument from damage, the operator must refer to an explanation in the instruction manual.
	White/Black	Protective earth (grounding) terminal.
~	Black	Alternating current (placed on the identification plate).
	White/Green	On (supply - mains switch). Off (supply - mains switch).

General safety recommendations

When connecting the equipment to the power, please follow these important recommendations:

- This product is intended to operate from a power source that will not apply more than 10% of the voltage specified on the rear panel between the supply conductors or between either supply conductor and ground. A protective-ground connection by way of the grounding conductor in the power cord is essential for safe operation.

- This equipment is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired socket before connecting to the product input or output terminals.

- Upon loss of the protective-ground connection, all accessible conductive parts (including parts that may appear to be insulating) can render an electric shock.

- To avoid fire hazard, use only the fuse of correct type, voltage rating, and current rating. Refer fuse replacement to qualified service personnel.

- To avoid explosion, do not operate this equipment in an explosive atmosphere.

- To avoid personal injury, do not remove the product covers or panels. Do not operate the product without the covers and panels properly installed.

Good practices

In maintaining the equipment described in this manual, please keep in mind the following, standard good practices:

- When connecting any instrument (wattmeter, spectrum analyzer, etc.) to a high frequency output, use the appropriate attenuator or dummy load to protect the final amplifiers and the instrument input.

- When inserting or removing printed circuit boards (PCBs), cable connectors, or fuses, always turn off power to the affected portion of the equipment. After power is removed, allow sufficient time for the power supplies to bleed down before reinserting PCBs.

- When troubleshooting, remember that FETs and other metal-oxide semiconductor (MOS) devices may appear defective because of leakage between traces or component leads on the printed circuit board. Clean the printed circuit board and recheck the MOS device before assuming it is defective.

- When replacing MOS devices, follow standard practices to avoid damage caused by static charges and soldering.

- When removing components from PCBs (particularly ICs), use care to avoid damaging PCB traces.

First AID in case of electrical shock

If someone seems unable to free himself while receiving an electric shock, **turn power off** before rendering aid. A muscular spasm or unconsciousness can make a victim unable to free himself from the electrical power.

If power cannot be turned off immediately, **very carefully** loop a length of dry non-conducting material (such as a rope, insulating material, or clothing) around the victim and pull him free of the power. Carefully avoid touching him or his clothing until free of power.

Emergency resuscitation Technique

Step 1

Check the victim for unresponsiveness. If there is no response, **immediately call for medical assistance**, and then return to the person.

Step 2

Position the person flat on their back. Kneel by their side and place one hand on the forehead and the other under the chin. Tilt the head back and lift the chin until teeth almost touch. Look and listen for breathing.

Step 3

If not breathing normally, pinch the nose and cover the mouth with yours. Give two full breaths. The person's chest will rise if you are giving enough air.

Step 4

Put the fingertips of your hand on the Adam's apple, slide them into the groove next to the windpipe. Feel for a pulse. If you can not feel a pulse or are unsure, move on to the next step.

Step 5

Position your hands in the center of the chest between the nipples. Place one hand on top of the other.

Step 6

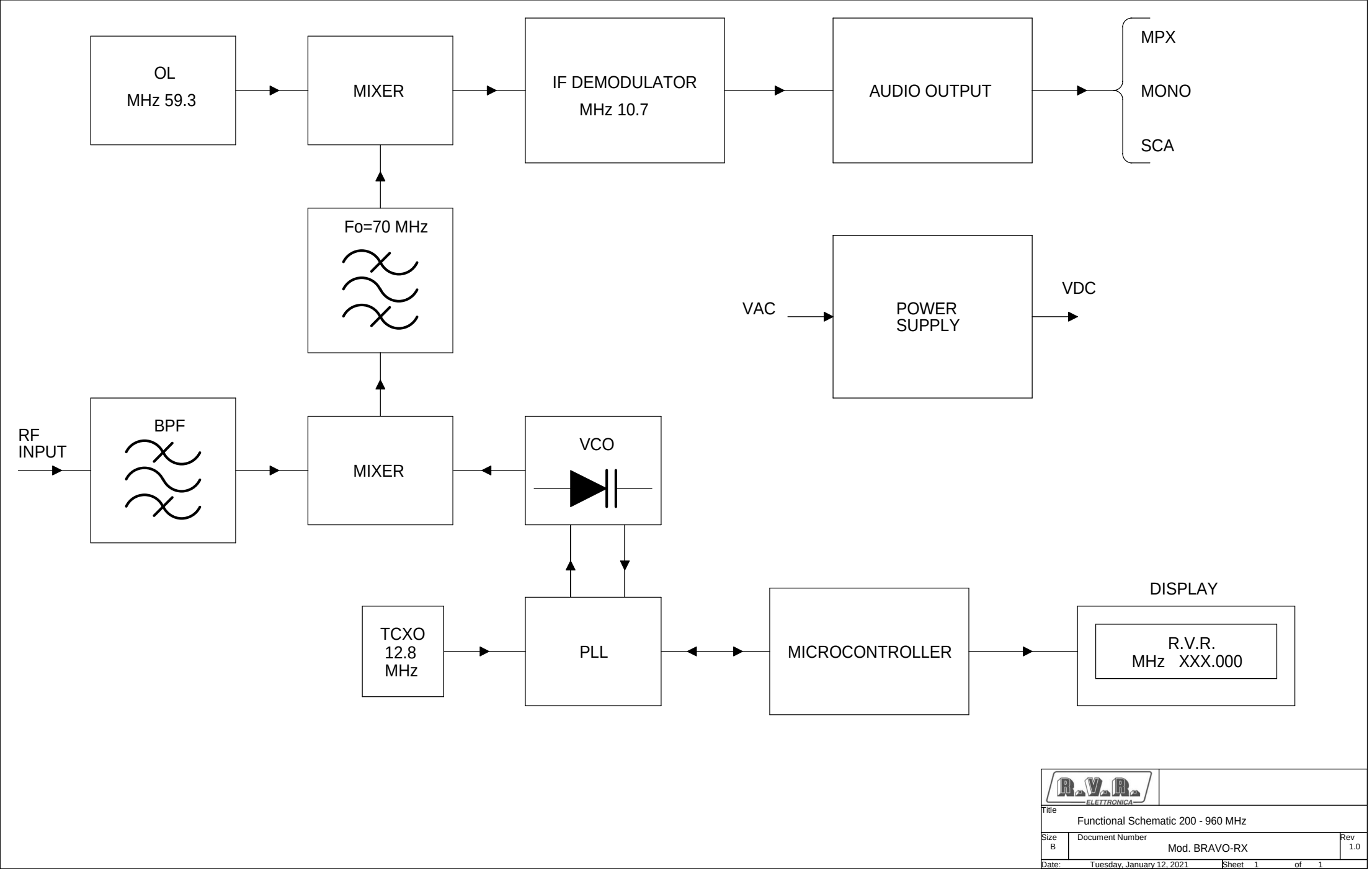
Push down firmly two inches. Push on chest 15 times.

CONTINUE WITH TWO BREATHS AND 15 PUMPS UNTIL HELP ARRIVES.

Treatment for Burns

- Continue treat victim for electrical shock.
- Check for points of entry and exit of current.

- Cover burned surface with a clean dressing.
- Remove all clothing from the injured area, but cut around any clothing that adheres to the skin and leave it in place. Keep the patient covered, except the injured part, since there is a tendency to chill.
- Splint all fractures. (Violent muscle contractions caused by the electricity may result in fractures.)
- Never permit burned surfaces to be in contact with each other, such as: areas between the fingers or toes, the ears and the side of the head, the undersurface of the arm and the chest wall, the folds of the groin, and similar places..
- Transport to a medical facility

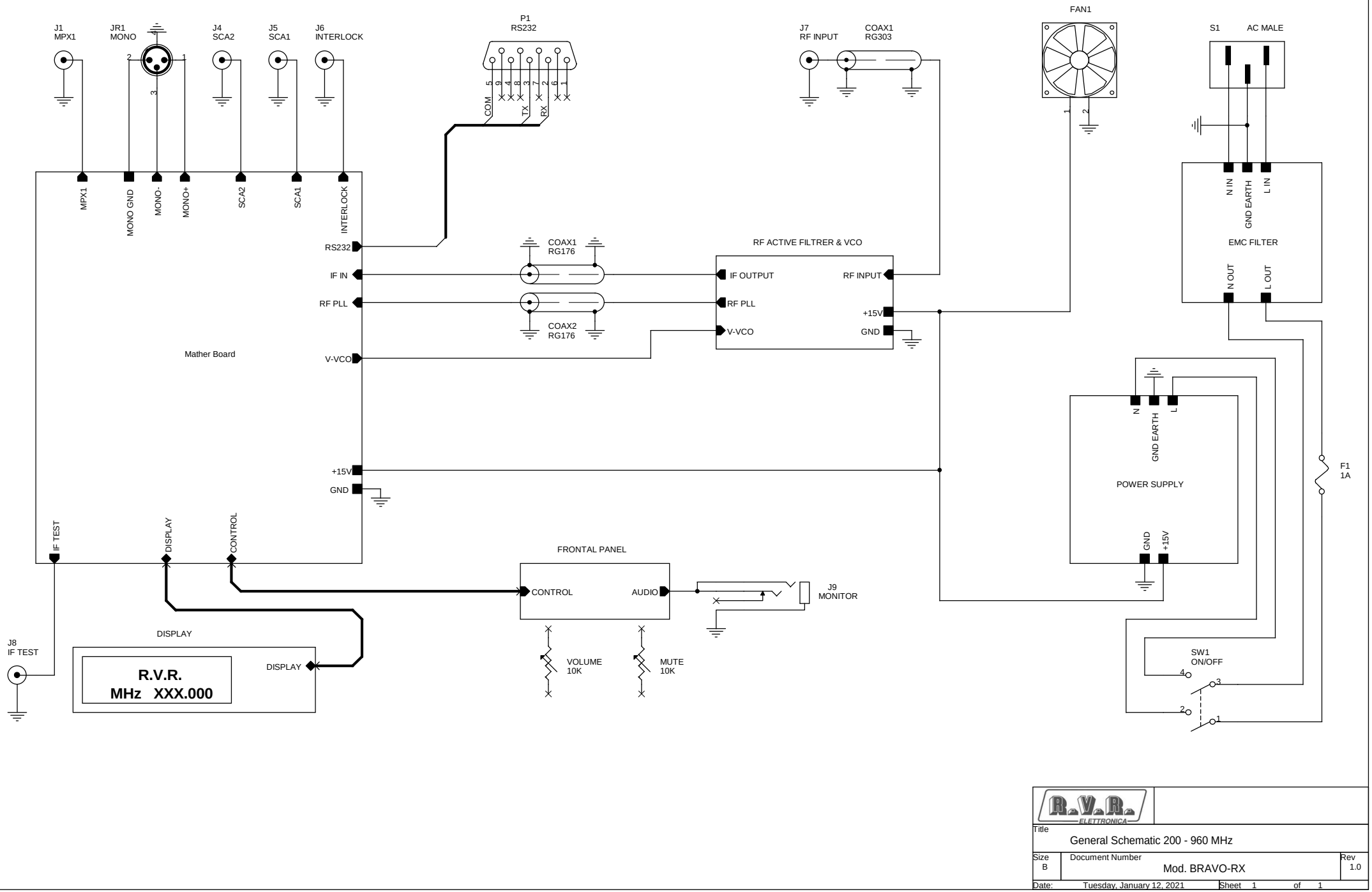


R.V.R. ELETTRONICA

Title: Functional Schematic 200 - 960 MHz

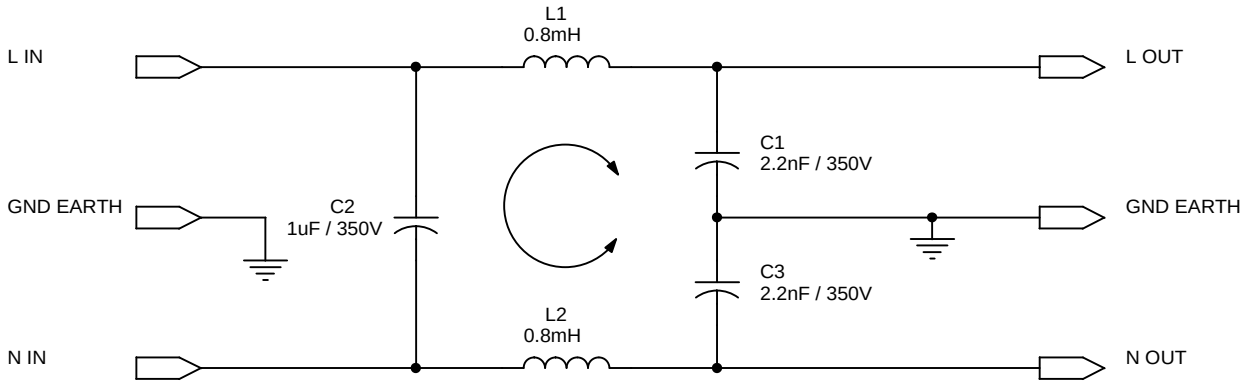
Size	Document Number	Rev
B	Mod. BRAVO-RX	1.0

Date: Tuesday, January 12, 2021 Sheet 1 of 1



R.V.R. ELETTRONICA

Title	General Schematic 200 - 960 MHz	
Size B	Document Number Mod. BRAVO-RX	Rev 1.0
Date: Tuesday, January 12, 2021	Sheet 1 of 1	

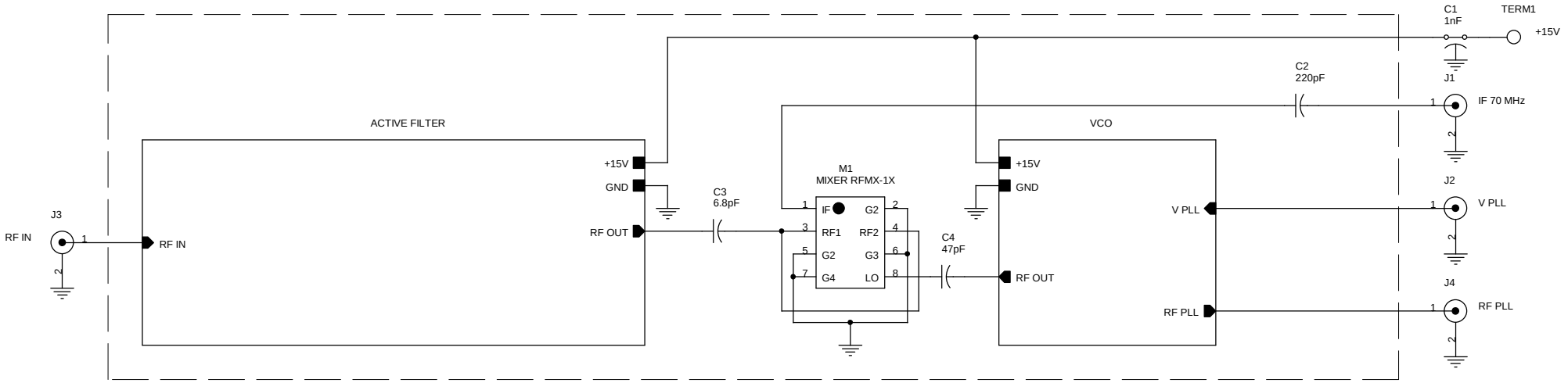


R.V.R. ELETTRONICA

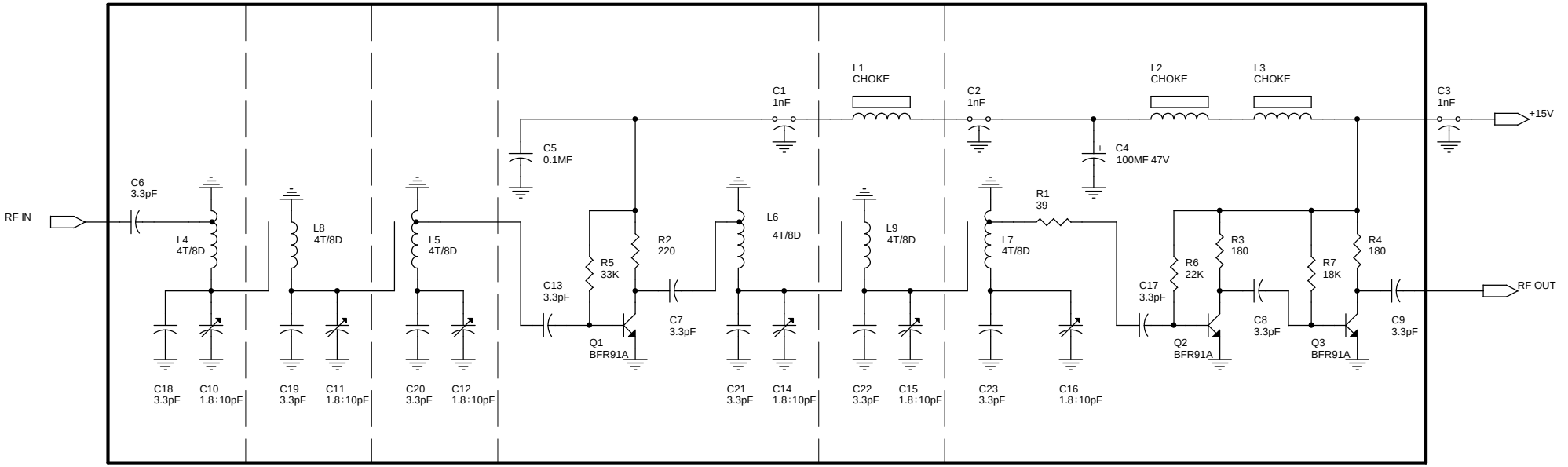
Title
EMC FILTER

Size	Document Number	Rev
A	Mod. EMC-02	1.0

Date: Tuesday, January 12, 2021 Sheet 1 of 1



Title	VCO & ACTIVE FILTER 200 MHz	
Size B	Document Number Mod. VCO & AFILTER	Rev 1.0
Date: Tuesday, January 12, 2021	Sheet 1 of 3	

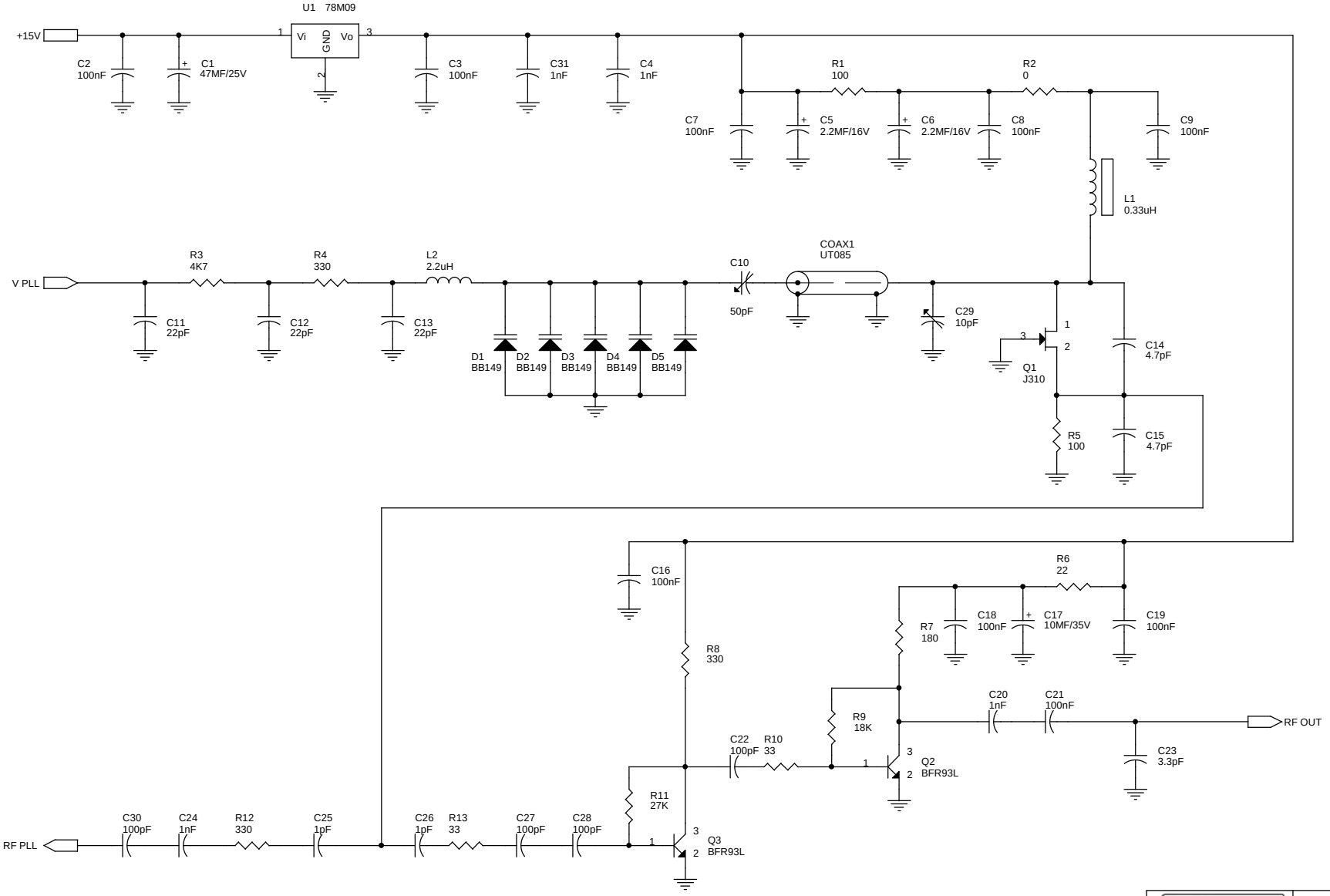


R.V.R. ELETTRONICA

Title: Active Filter 200 MHz

Size: B | Document Number: Mod. VCO & AFILTER | Rev: 1.0

Date: Tuesday, January 12, 2021 | Sheet 2 of 3



R.V.R. ELETTRONICA

Title: Voltage Control Oscillator 200 MHz

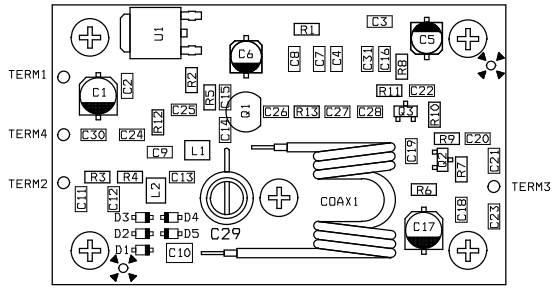
Size	Document Number	Rev
B	Mod. VCO & AFILTER	1.0

Date: Tuesday, January 12, 2021 Sheet 3 of 3

R.V.R. ELETTRONICA

Part List Schematic : Active Filter 200 MHz

Rif.	Value	Remarks	Description	Code
C1	1nF		Ceramic Lead Through Capacitor	
C2	1nF		Ceramic Lead Through Capacitor	
C3	1nF		Ceramic Lead Through Capacitor	
C4	100MF	50V	Aluminium Electrolytic Capacitor	
C5	0.1MF		Multilayer Ceramic Capacitor	
C6	3.3pF		Ceramic Disc Capacitor	
C7	3.3pF		Ceramic Disc Capacitor	
C8	3.3pF		Ceramic Disc Capacitor	
C9	3.3pF		Ceramic Disc Capacitor	
C10	1.8÷10pF		Trimmer Ceramic Capacitor	
C11	1.8÷10pF		Trimmer Ceramic Capacitor	
C12	1.8÷10pF		Trimmer Ceramic Capacitor	
C13	3.3pF		Ceramic Disc Capacitor	
C14	1.8÷10pF		Trimmer Ceramic Capacitor	
C15	1.8÷10pF		Trimmer Ceramic Capacitor	
C16	1.8÷10pF		Trimmer Ceramic Capacitor	
C17	3.3pF		Ceramic Disc Capacitor	
C18	3.3pF		Ceramic Disc Capacitor	
C19	3.3pF		Ceramic Disc Capacitor	
C20	3.3pF		Ceramic Disc Capacitor	
C21	3.3pF		Ceramic Disc Capacitor	
C22	3.3pF		Ceramic Disc Capacitor	
C23	3.3pF		Ceramic Disc Capacitor	
L1	CHOKE		Suppression Choke	
L2	CHOKE		Suppression Choke	
L3	CHOKE		Suppression Choke	
L4	4T/8D		Tinned Copper Wire	
L5	4T/8D		Tinned Copper Wire	
L6	4T/8D		Tinned Copper Wire	
L7	4T/8D		Tinned Copper Wire	
L8	4T/8D		Tinned Copper Wire	
L9	4T/8D		Tinned Copper Wire	
R1	39	1/4W	Carbon Film Resistor	
R2	220	1/4W	Carbon Film Resistor	
R3	180	1/4W	Carbon Film Resistor	
R4	180	1/4W	Carbon Film Resistor	
R5	33K	1/4W	Carbon Film Resistor	
R6	22K	1/4W	Carbon Film Resistor	
R7	18K	1/4W	Carbon Film Resistor	
Q1	BFR91A		RF Bipolar Transistor	
Q2	BFR91A		RF Bipolar Transistor	
Q3	BFR91A		RF Bipolar Transistor	

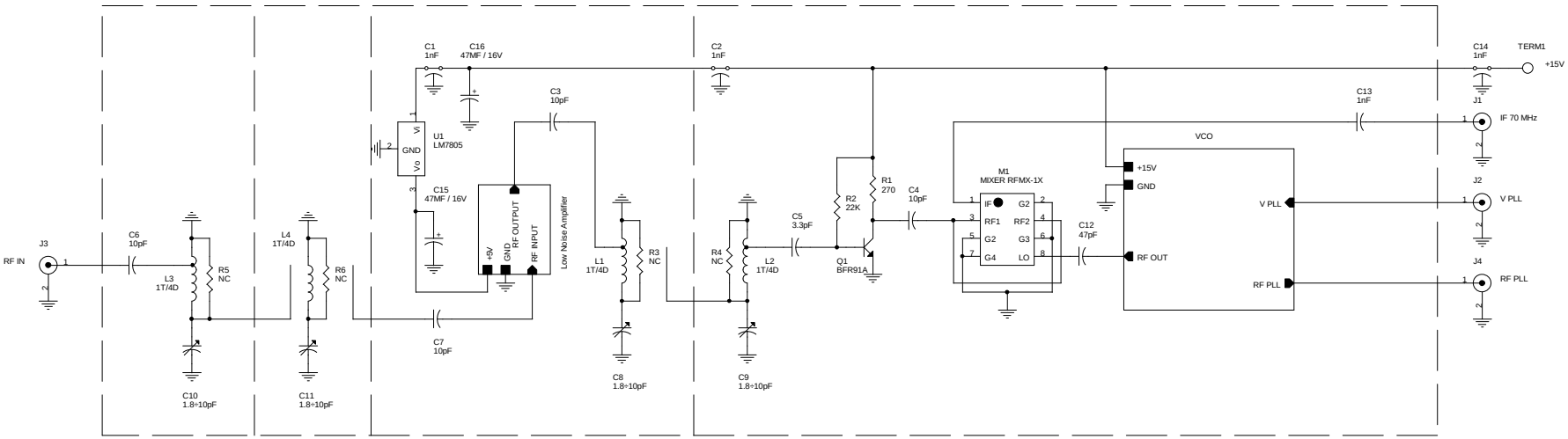

U1
C6
R1
C3
C5
C8
C7
C4
C31
C16
R8
TERM1
C1
C2
R2
R3
C15
Q1
R11
C22
C25
C26
R13
C27
C28
C32
R10
TERM4
C30
C24
R12
C14
R9
C20
C9
L1
C19
C21
TERM2
R3
R4
C13
L2
R7
TERM3
C11
C12
R6
COAX1
C18
C17
C23
D3
D4
D2
D5
C29
D1
C10

R.V.R. ELETTRONICA

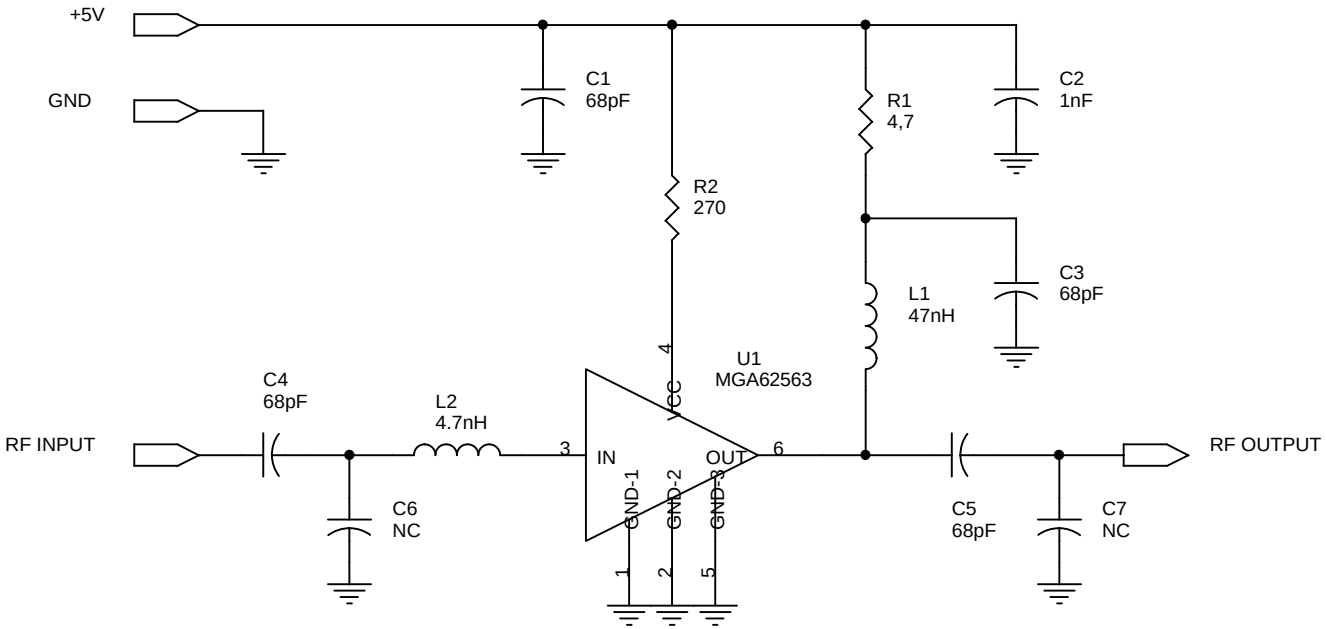
Part List Schematic : VCO 200 MHz

Rif.	Value	Remarks	Description	Code
C1	47MF	35V	Aluminium Electrolytic Capacitor	
C2	100nF		SMD Multilayer Ceramic Capacitor	
C3	100nF		SMD Multilayer Ceramic Capacitor	
C4	1nF		SMD Multilayer Ceramic Capacitor	
C5	2.2MF	50V	SMD Aluminium Electrolytic Capacitor	
C6	2.2MF	50V	SMD Aluminium Electrolytic Capacitor	
C7	100nF		SMD Multilayer Ceramic Capacitor	
C8	100nF		SMD Multilayer Ceramic Capacitor	
C9	100nF		SMD Multilayer Ceramic Capacitor	
C10	50pF		Trimmer Ceramic Capacitor	
C11	22pF		SMD Multilayer Ceramic Capacitor	
C12	22pF		SMD Multilayer Ceramic Capacitor	
C13	22pF		SMD Multilayer Ceramic Capacitor	
C14	4.7pF		SMD Multilayer Ceramic Capacitor	
C15	4.7pF		SMD Multilayer Ceramic Capacitor	
C16	100nF		SMD Multilayer Ceramic Capacitor	
C17	10MF	35V	SMD Aluminium Electrolytic Capacitor	
C18	100nF		SMD Multilayer Ceramic Capacitor	
C19	100nF		SMD Multilayer Ceramic Capacitor	
C20	1nF		SMD Multilayer Ceramic Capacitor	
C21	100nF		SMD Multilayer Ceramic Capacitor	
C22	100pF		SMD Multilayer Ceramic Capacitor	
C23	3.3pF		SMD Multilayer Ceramic Capacitor	
C24	1nF		SMD Multilayer Ceramic Capacitor	
C25	1pF		SMD Multilayer Ceramic Capacitor	
C26	1pF		SMD Multilayer Ceramic Capacitor	
C27	100pF		SMD Multilayer Ceramic Capacitor	
C28	100pF		SMD Multilayer Ceramic Capacitor	
C29	10pF		SMD Multilayer Ceramic Capacitor	
C30	100pF		SMD Multilayer Ceramic Capacitor	
C31	1nF		SMD Multilayer Ceramic Capacitor	
L1	330nH		Ferrite Drum Cored Inductor	
L2	2.2uH		SMD Inductor	
R1	100	1/4W	SMD Thick Film Resistor	
R2	0	1/4W	SMD Thick Film Resistor	
R3	4K7	1/4W	SMD Thick Film Resistor	
R4	330	1/4W	SMD Thick Film Resistor	
R5	100	1/4W	SMD Thick Film Resistor	
R6	22	1/4W	SMD Thick Film Resistor	
R7	180	1/4W	SMD Thick Film Resistor	
R8	330	1/4W	SMD Thick Film Resistor	
R9	18K	1/4W	SMD Thick Film Resistor	
R10	33	1/4W	SMD Thick Film Resistor	
R11	27K	1/4W	SMD Thick Film Resistor	
R12	330	1/4W	SMD Thick Film Resistor	

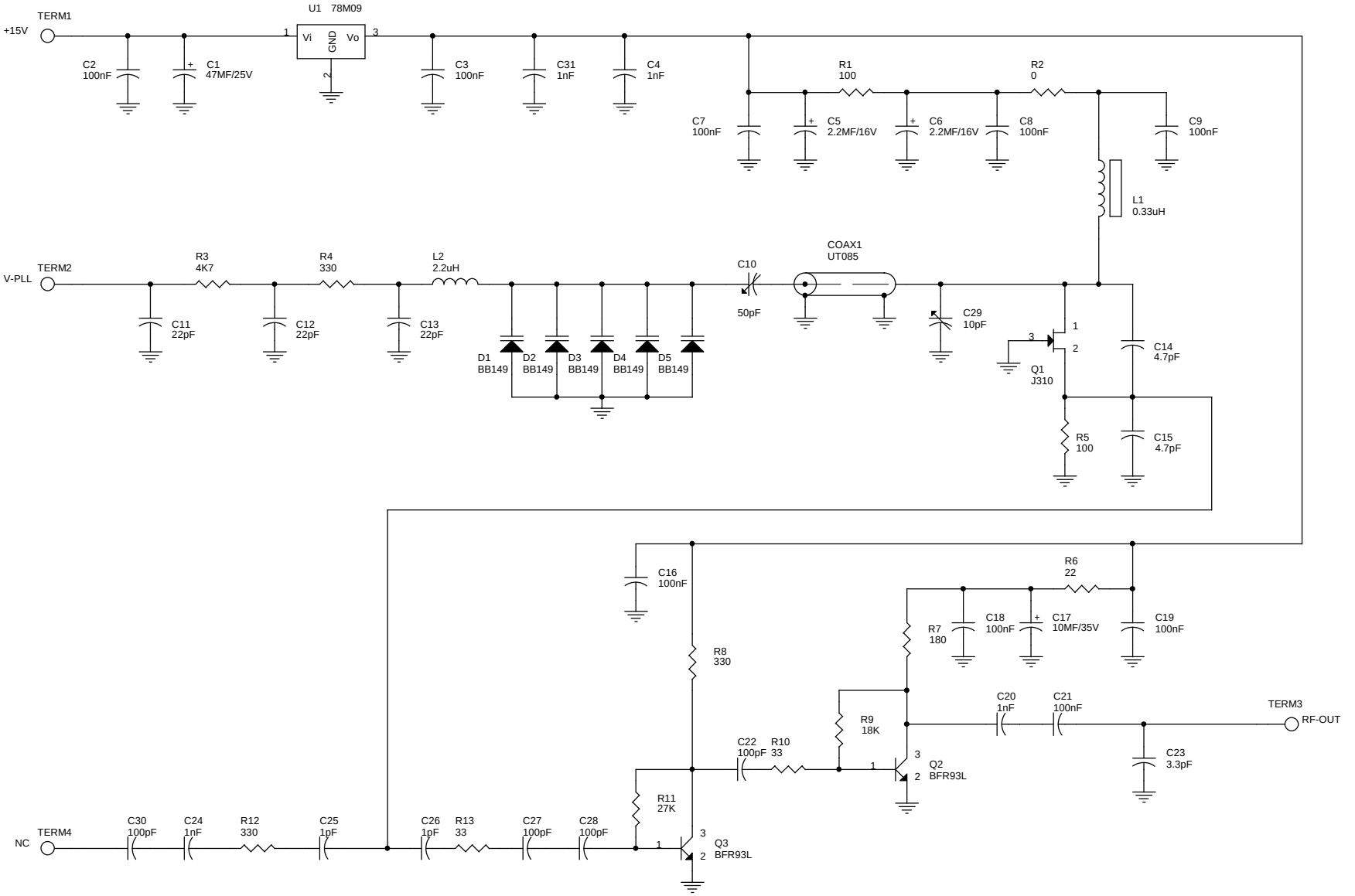
Rif.	Value	Remarks	Description	Code
R13	33	1/4W	SMD Thick Film Resistor	
D1	BB149		SMD Tuning Diode	
D2	BB149		SMD Tuning Diode	
D3	BB149		SMD Tuning Diode	
D4	BB149		SMD Tuning Diode	
D5	BB149		SMD Tuning Diode	
U1	78M09		Fixed Voltage Regulator	
Q1	J310		JFET	
Q2	BFR93L		SMD RF Bipolar Transistor	
Q3	BFR93L		SMD RF Bipolar Transistor	
COAX1	UT085		Resonant coaxial line	



Title	VCO & ACTIVE FILTER 300 MHz	
Size C	Document Number: Mod. VCO & AFILTER	Rev 1.0
Date: Tuesday, January 12, 2021	Sheet 1 of 3	



R.V.R. ELETTRONICA		
Title: RF low noise amplifier		
Size: A	Document Number: Mod. A2G	Rev: 1.0
Date: Tuesday, January 12, 2021	Sheet 2 of 3	

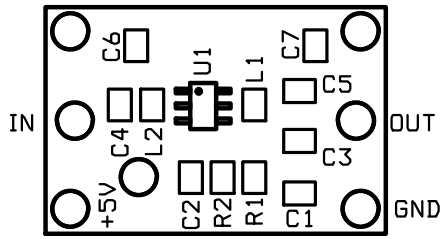


R.V.R. ELETTRONICA

Title: Voltage Control Oscillator 300 MHz		
Size: B	Document Number: Mod. VCOUV03A	Rev: 1.0
Date: Tuesday, January 12, 2021	Sheet 3 of 3	

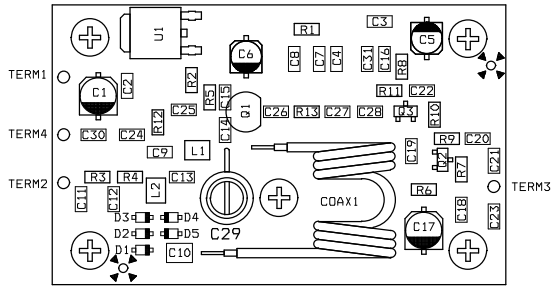
Part List Schematic : Active Filter & Mixer 300 MHz

Rif.	Value	Remarks	Description	Code
C1	1nF		Ceramic Disc Capacitor NPO	
C2	1nF		Ceramic Disc Capacitor NPO	
C3	10pF		Ceramic Disc Capacitor NPO	
C4	10pF		Ceramic Disc Capacitor NPO	
C5	3.3pF		Ceramic Disc Capacitor NPO	
C6	10pF		Ceramic Disc Capacitor NPO	
C7	10pF		Ceramic Disc Capacitor NPO	
C8	1.8÷10pF		Trimmer Ceramic Capacitor	
C9	1.8÷10pF		Trimmer Ceramic Capacitor	
C10	1.8÷10pF		Trimmer Ceramic Capacitor	
C11	1.8÷10pF		Trimmer Ceramic Capacitor	
C12	47pF		Ceramic Disc Capacitor NPO	
C13	1nF		Ceramic Disc Capacitor NPO	
C14	1nF		Ceramic Disc Capacitor NPO	
C15	47MF	16V	Aluminium Electrolytic Capacitor	
C16	47MF	16V	Aluminium Electrolytic Capacitor	
L1	1T/4D		Enamelled Copper Wire	
L2	1T/4D		Enamelled Copper Wire	
L3	1T/4D		Enamelled Copper Wire	
L4	1T/4D		Enamelled Copper Wire	
R1	270	1/4W	Carbon Film Resistor	
R2	22K	1/4W	Carbon Film Resistor	
R3	15K	1/4W	Carbon Film Resistor	
R4	10K	1/4W	Carbon Film Resistor	
R5	15K	1/4W	Carbon Film Resistor	
R6	10K	1/4W	Carbon Film Resistor	
Q1	BFR91A		RF Bipolar Transistor	
U1	LM7805		Fixed Voltage Regulator	
J1	IF 70 MHz		SMB PCB Jack - 50 Ohm	
J2	V PLL		SMB PCB Jack - 50 Ohm	
J3	RF IN		SMB PCB Jack - 50 Ohm	
J4	RF PLL		SMB PCB Jack - 50 Ohm	
M1	MIXER RFMX-1X		RF MIXER	


C6
U1
L1
C7
C5
IN
C4
L2
OUT
C3
+5V
C2
R2
R1
C1
GND

Part List Schematic : A2G

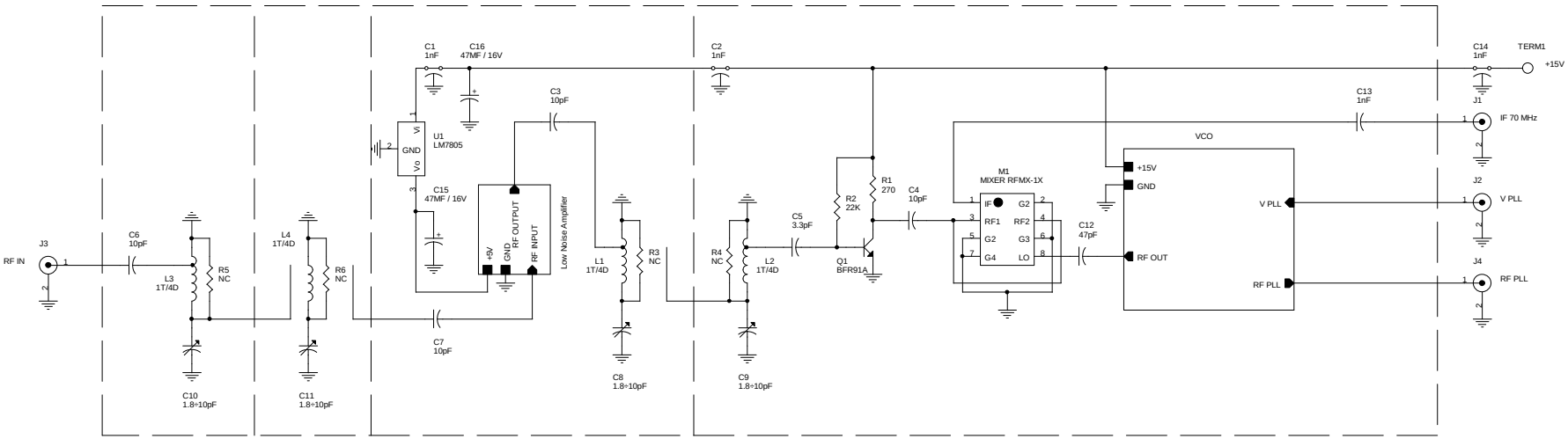
Rif.	Value	Remarks	Description	Code
C1	68pF		SMD Multilayer Ceramic Capacitor	
C2	1nF		SMD Multilayer Ceramic Capacitor	
C3	68pF		SMD Multilayer Ceramic Capacitor	
C4	68pF		SMD Multilayer Ceramic Capacitor	
C5	68pF		SMD Multilayer Ceramic Capacitor	
C6	NC		SMD Multilayer Ceramic Capacitor	
C7	NC		SMD Multilayer Ceramic Capacitor	
L1	47nH		SMD Inductor	
L2	4.7nH		SMD Inductor	
R1	4,7	1/4W	SMD Thick Film Resistor	
R2	270	1/4W	SMD Thick Film Resistor	
U1	MGA62563		RF low noise amplifier	


U1
C6
R1
C3
C5
C8
C7
C4
C31
C16
R8
TERM1
C1
C2
R2
R3
C15
Q1
R11
C22
C25
C26
R13
C27
C28
C32
R10
TERM4
C30
C24
R12
C14
R9
C20
C9
L1
C19
C21
TERM2
R3
R4
C13
L2
R7
TERM3
C11
C12
R6
COAX1
C18
C17
C23
D3
D4
D2
D5
C29
D1
C10

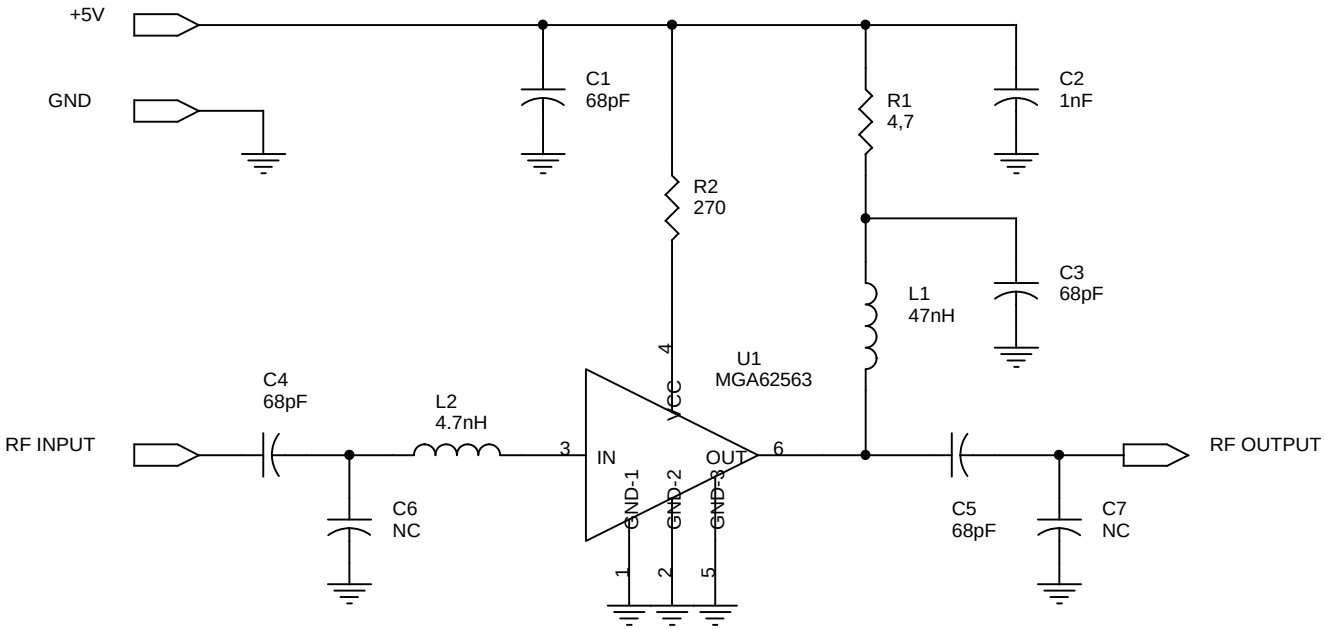
Part List Schematic : VCO 300 MHz

Rif.	Value	Remarks	Description	Code
C1	47MF	35V	Aluminium Electrolytic Capacitor	
C2	100nF		SMD Multilayer Ceramic Capacitor	
C3	100nF		SMD Multilayer Ceramic Capacitor	
C4	1nF		SMD Multilayer Ceramic Capacitor	
C5	2.2MF	50V	SMD Aluminium Electrolytic Capacitor	
C6	2.2MF	50V	SMD Aluminium Electrolytic Capacitor	
C7	100nF		SMD Multilayer Ceramic Capacitor	
C8	100nF		SMD Multilayer Ceramic Capacitor	
C9	100nF		SMD Multilayer Ceramic Capacitor	
C10	50pF		Trimmer Ceramic Capacitor	
C11	22pF		SMD Multilayer Ceramic Capacitor	
C12	22pF		SMD Multilayer Ceramic Capacitor	
C13	22pF		SMD Multilayer Ceramic Capacitor	
C14	4.7pF		SMD Multilayer Ceramic Capacitor	
C15	4.7pF		SMD Multilayer Ceramic Capacitor	
C16	100nF		SMD Multilayer Ceramic Capacitor	
C17	10MF	35V	SMD Aluminium Electrolytic Capacitor	
C18	100nF		SMD Multilayer Ceramic Capacitor	
C19	100nF		SMD Multilayer Ceramic Capacitor	
C20	1nF		SMD Multilayer Ceramic Capacitor	
C21	100nF		SMD Multilayer Ceramic Capacitor	
C22	100pF		SMD Multilayer Ceramic Capacitor	
C23	3.3pF		SMD Multilayer Ceramic Capacitor	
C24	1nF		SMD Multilayer Ceramic Capacitor	
C25	1pF		SMD Multilayer Ceramic Capacitor	
C26	1pF		SMD Multilayer Ceramic Capacitor	
C27	100pF		SMD Multilayer Ceramic Capacitor	
C28	100pF		SMD Multilayer Ceramic Capacitor	
C29	10pF		SMD Multilayer Ceramic Capacitor	
C30	100pF		SMD Multilayer Ceramic Capacitor	
C31	1nF		SMD Multilayer Ceramic Capacitor	
L1	330nH		Ferrite Drum Cored Inductor	
L2	2.2uH		SMD Inductor	
R1	100	1/4W	SMD Thick Film Resistor	
R2	0	1/4W	SMD Thick Film Resistor	
R3	4K7	1/4W	SMD Thick Film Resistor	
R4	330	1/4W	SMD Thick Film Resistor	
R5	100	1/4W	SMD Thick Film Resistor	
R6	22	1/4W	SMD Thick Film Resistor	
R7	180	1/4W	SMD Thick Film Resistor	
R8	330	1/4W	SMD Thick Film Resistor	
R9	18K	1/4W	SMD Thick Film Resistor	
R10	33	1/4W	SMD Thick Film Resistor	
R11	27K	1/4W	SMD Thick Film Resistor	
R12	330	1/4W	SMD Thick Film Resistor	

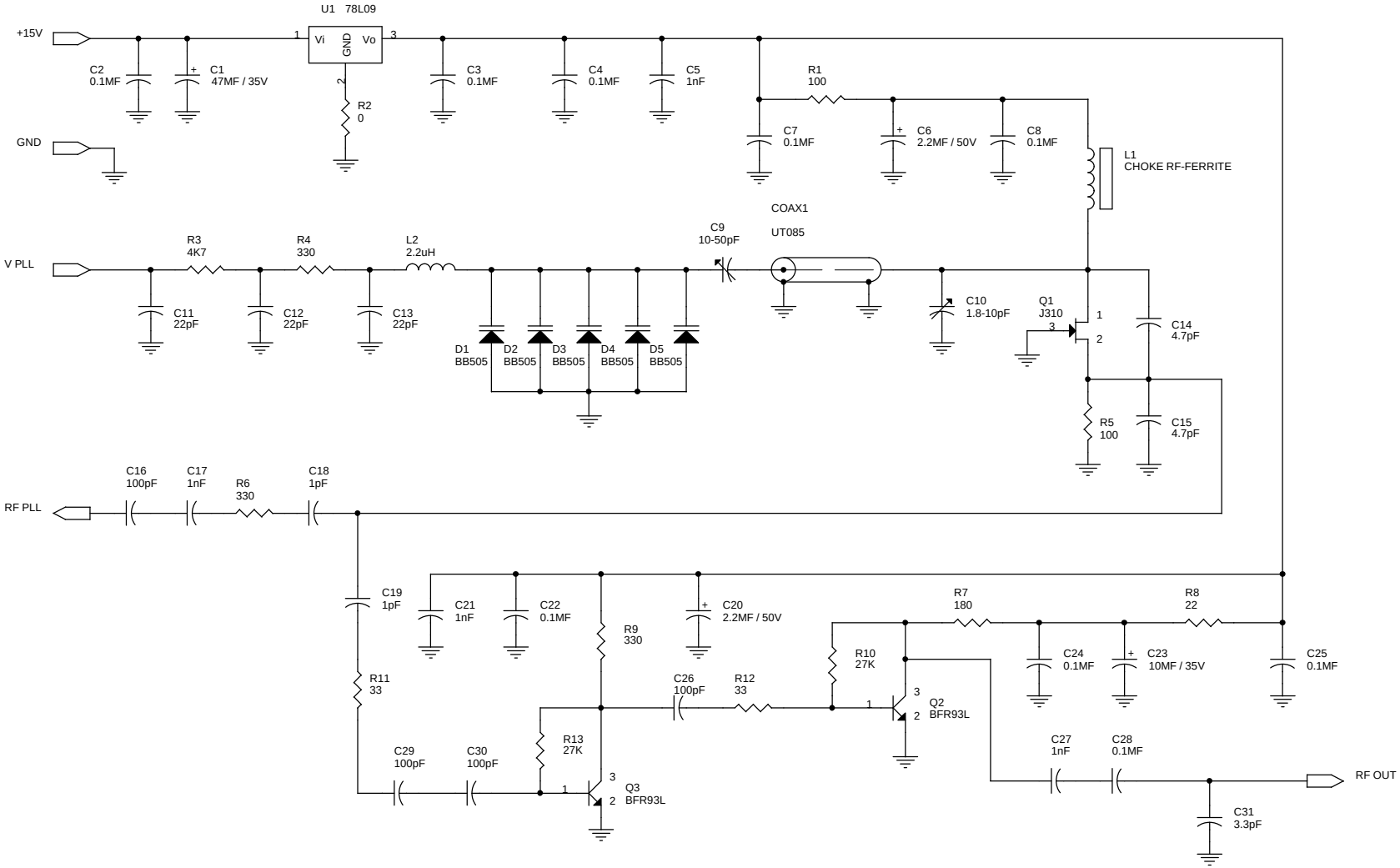
Rif.	Value	Remarks	Description	Code
R13	33	1/4W	SMD Thick Film Resistor	
D1	BB149		SMD Tuning Diode	
D2	BB149		SMD Tuning Diode	
D3	BB149		SMD Tuning Diode	
D4	BB149		SMD Tuning Diode	
D5	BB149		SMD Tuning Diode	
U1	78M09		Fixed Voltage Regulator	
Q1	J310		JFET	
Q2	BFR93L		SMD RF Bipolar Transistor	
Q3	BFR93L		SMD RF Bipolar Transistor	
COAX1	UT085		Resonant coaxial line	



R.V.R. ELETTRONICA			
Title	VCO & ACTIVE FILTER 400 MHz		
Size C	Document Number Mod. VCO & AFILTER		Rev 1.0
Date: Tuesday, January 12, 2021	Sheet 1 of 3		



R.V.R. ELETTRONICA		
Title: RF low noise amplifier		
Size: A	Document Number: Mod. A2G	Rev: 1.0
Date: Tuesday, January 12, 2021	Sheet 2 of 3	



R.V.R. ELETTRONICA

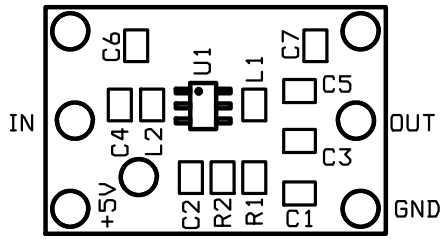
Title: Voltage Control Oscillator 400 MHz

Size	Document Number	Rev
B	Mod. VCOUV03	1.0

Date: Tuesday, January 12, 2021 Sheet 3 of 3

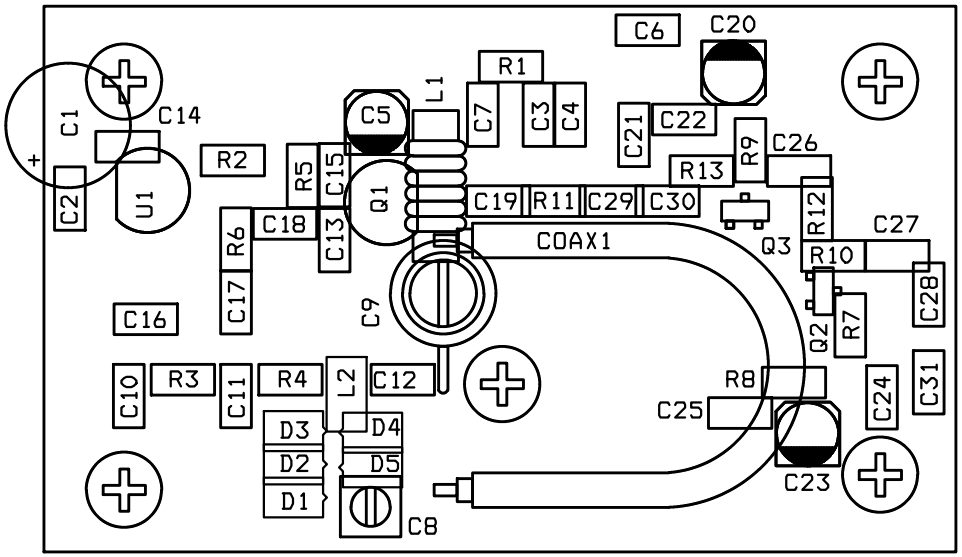
Part List Schematic : Active Filter & Mixer 400 MHz

Rif.	Value	Remarks	Description	Code
C1	1nF		Ceramic Disc Capacitor NPO	
C2	1nF		Ceramic Disc Capacitor NPO	
C3	10pF		Ceramic Disc Capacitor NPO	
C4	10pF		Ceramic Disc Capacitor NPO	
C5	3.3pF		Ceramic Disc Capacitor NPO	
C6	10pF		Ceramic Disc Capacitor NPO	
C7	10pF		Ceramic Disc Capacitor NPO	
C8	1.8÷10pF		Trimmer Ceramic Capacitor	
C9	1.8÷10pF		Trimmer Ceramic Capacitor	
C10	1.8÷10pF		Trimmer Ceramic Capacitor	
C11	1.8÷10pF		Trimmer Ceramic Capacitor	
C12	47pF		Ceramic Disc Capacitor NPO	
C13	1nF		Ceramic Disc Capacitor NPO	
C14	1nF		Ceramic Disc Capacitor NPO	
C15	47MF	16V	Aluminium Electrolytic Capacitor	
C16	47MF	16V	Aluminium Electrolytic Capacitor	
L1	1T/4D		Enamelled Copper Wire	
L2	1T/4D		Enamelled Copper Wire	
L3	1T/4D		Enamelled Copper Wire	
L4	1T/4D		Enamelled Copper Wire	
R1	270	1/4W	Carbon Film Resistor	
R2	22K	1/4W	Carbon Film Resistor	
R3	15K	1/4W	Carbon Film Resistor	
R4	10K	1/4W	Carbon Film Resistor	
R5	15K	1/4W	Carbon Film Resistor	
R6	10K	1/4W	Carbon Film Resistor	
Q1	BFR91A		RF Bipolar Transistor	
U1	LM7805		Fixed Voltage Regulator	
J1	IF 70 MHz		SMB PCB Jack - 50 Ohm	
J2	V PLL		SMB PCB Jack - 50 Ohm	
J3	RF IN		SMB PCB Jack - 50 Ohm	
J4	RF PLL		SMB PCB Jack - 50 Ohm	
M1	MIXER RFMX-1X		RF MIXER	


C6
U1
L1
C7
C5
IN
C4
L2
OUT
C3
+5V
C2
R2
R1
C1
GND

Part List Schematic : A2G

Rif.	Value	Remarks	Description	Code
C1	68pF		SMD Multilayer Ceramic Capacitor	
C2	1nF		SMD Multilayer Ceramic Capacitor	
C3	68pF		SMD Multilayer Ceramic Capacitor	
C4	68pF		SMD Multilayer Ceramic Capacitor	
C5	68pF		SMD Multilayer Ceramic Capacitor	
C6	NC		SMD Multilayer Ceramic Capacitor	
C7	NC		SMD Multilayer Ceramic Capacitor	
L1	47nH		SMD Inductor	
L2	4.7nH		SMD Inductor	
R1	4,7	1/4W	SMD Thick Film Resistor	
R2	270	1/4W	SMD Thick Film Resistor	
U1	MGA62563		RF low noise amplifier	

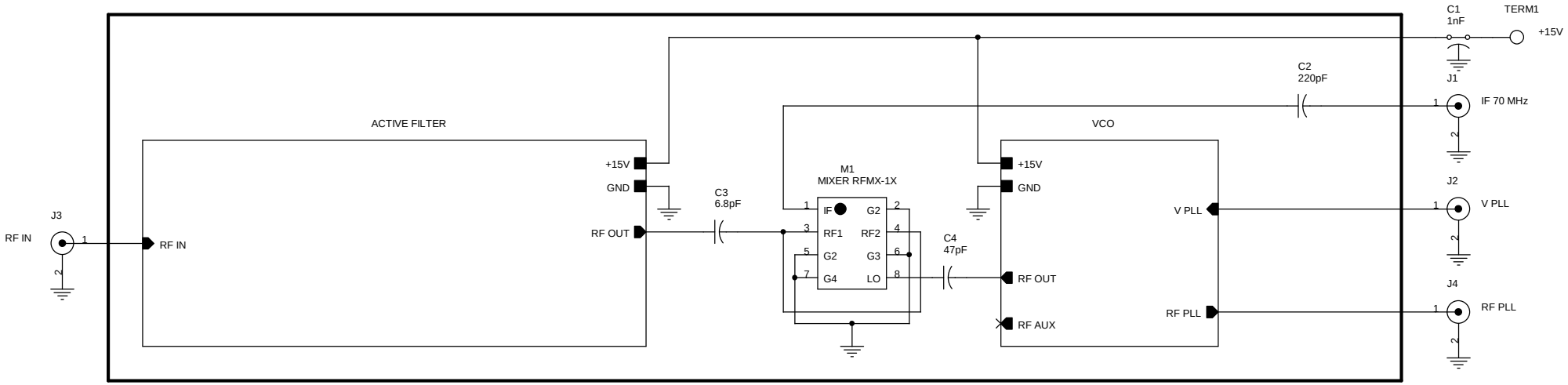

C6
C20
R1
L1
C5
C7
C3
C4
C21
C22
C14
C1
R2
R5
C15
Q1
R9
C26
R13
C19
R11
C29
C30
R12
C27
U1
C2
R6
C18
C13
COAX1
Q3
R10
C28
C17
C16
C9
Q2
R7
C10
R3
C11
R4
L2
C12
R8
C25
C24
C31
D3
D4
D2
D5
D1
C23
C8

R.V.R. ELETTRONICA

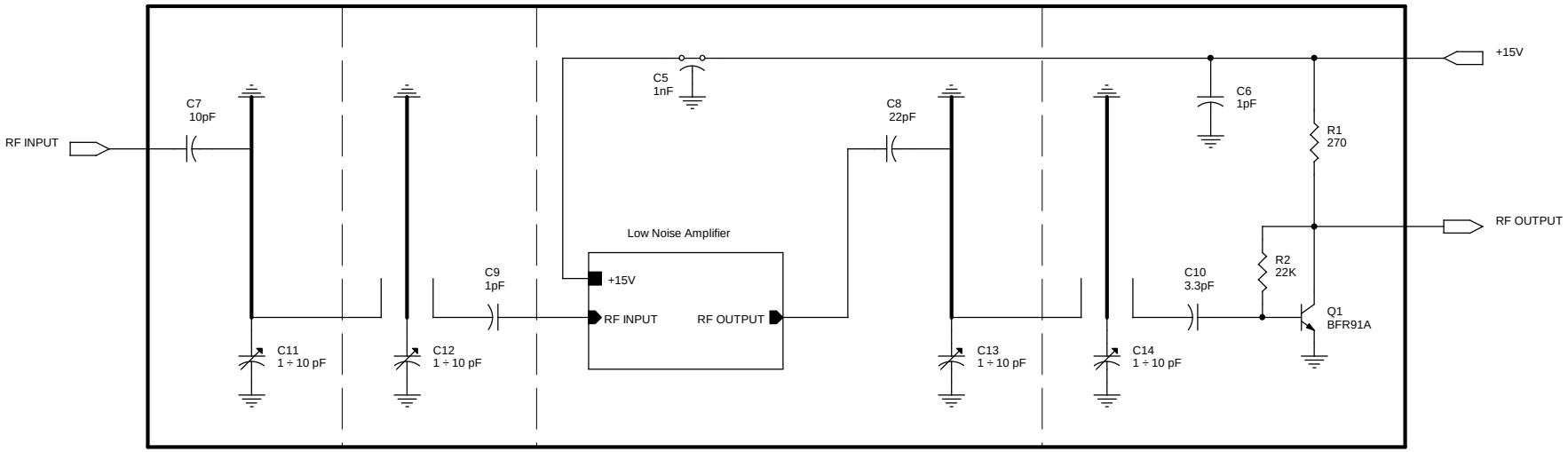
Part List Schematic : VCO 400 MHz

Rif.	Value	Remarks	Description	Code
C1	47MF	35V	Aluminium Electrolytic Capacitor	
C2	0.1MF		SMD Multilayer Ceramic Capacitor	
C3	0.1MF		SMD Multilayer Ceramic Capacitor	
C4	1nF		SMD Multilayer Ceramic Capacitor	
C5	2.2MF	50V	SMD Aluminium Electrolytic Capacitor	
C6	0.1MF		SMD Multilayer Ceramic Capacitor	
C7	0.1MF		SMD Multilayer Ceramic Capacitor	
C8	10-50pF		SMD Multilayer Ceramic Capacitor	
C9	1.8-10pF		SMD Multilayer Ceramic Capacitor	
C10	22pF		SMD Multilayer Ceramic Capacitor	
C11	22pF		SMD Multilayer Ceramic Capacitor	
C12	22pF		SMD Multilayer Ceramic Capacitor	
C13	4.7pF		SMD Multilayer Ceramic Capacitor	
C14	0.1MF		SMD Multilayer Ceramic Capacitor	
C15	4.7pF		SMD Multilayer Ceramic Capacitor	
C16	100pF		SMD Multilayer Ceramic Capacitor	
C17	1nF		SMD Multilayer Ceramic Capacitor	
C18	1pF		SMD Multilayer Ceramic Capacitor	
C19	1pF		SMD Multilayer Ceramic Capacitor	
C20	2.2MF	50V	SMD Aluminium Electrolytic Capacitor	
C21	1nF		SMD Multilayer Ceramic Capacitor	
C22	0.1MF		SMD Multilayer Ceramic Capacitor	
C23	10MF	35V	SMD Aluminium Electrolytic Capacitor	
C24	0.1MF		SMD Multilayer Ceramic Capacitor	
C25	0.1MF		SMD Multilayer Ceramic Capacitor	
C26	100pF		SMD Multilayer Ceramic Capacitor	
C27	1nF		SMD Multilayer Ceramic Capacitor	
C28	0.1MF		SMD Multilayer Ceramic Capacitor	
C29	100pF		SMD Multilayer Ceramic Capacitor	
C30	100pF		SMD Multilayer Ceramic Capacitor	
C31	3.3pF		SMD Multilayer Ceramic Capacitor	
L1	330nH		Ferrite Drum Cored Inductor	
L2	2.2uH		SMD Inductor	
R1	100	1/4W	SMD Thick Film Resistor	
R2	0	1/4W	SMD Thick Film Resistor	
R3	4K7	1/4W	SMD Thick Film Resistor	
R4	330	1/4W	SMD Thick Film Resistor	
R5	100	1/4W	SMD Thick Film Resistor	
R6	330	1/4W	SMD Thick Film Resistor	
R7	180	1/4W	SMD Thick Film Resistor	
R8	22	1/4W	SMD Thick Film Resistor	
R9	330	1/4W	SMD Thick Film Resistor	
R10	27K	1/4W	SMD Thick Film Resistor	
R11	33	1/4W	SMD Thick Film Resistor	
R12	33	1/4W	SMD Thick Film Resistor	
R13	27K	1/4W	SMD Thick Film Resistor	

Rif.	Value	Remarks	Description	Code
D1	BB134		SMD Tuning Diode	
D2	BB134		SMD Tuning Diode	
D3	BB134		SMD Tuning Diode	
D4	BB134		SMD Tuning Diode	
D5	BB134		SMD Tuning Diode	
U1	78L09		Fixed Voltage Regulator	
Q1	J310		JFET	
Q2	BFR93L		SMD RF Bipolar Transistor	
Q3	BFR93L		SMD RF Bipolar Transistor	
COAX1	UT085		Resonant coaxial line	



Title	VCO & ACTIVE FILTER 900 MHz	
Size B	Document Number Mod. VCO & AFILTER	Rev 1.0
Date: Tuesday, January 12, 2021	Sheet 1 of 4	

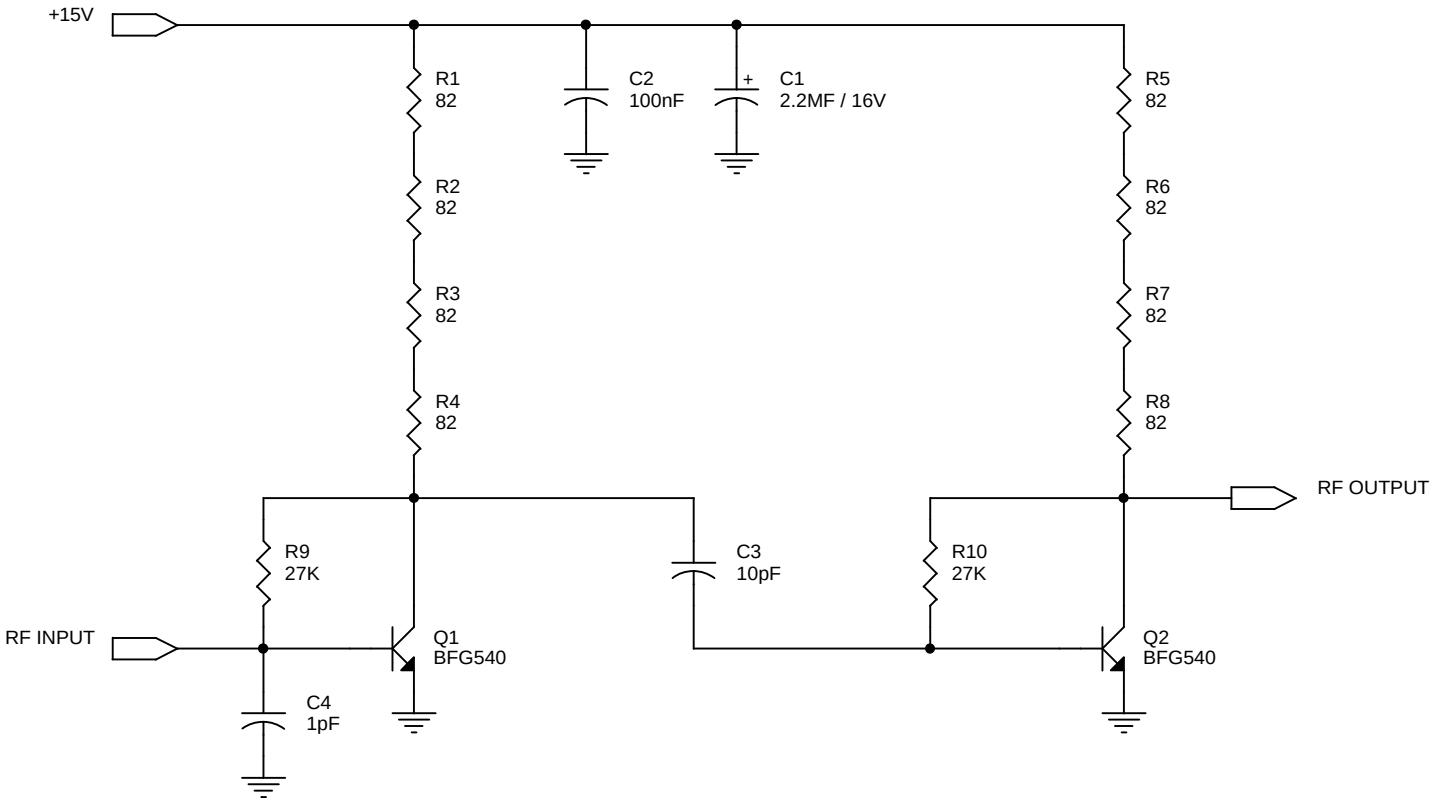


R.V.R. ELETTRONICA

Title: Active Filter

Size: B | Document Number: Mod. AFILT900 | Rev: 1.0

Date: Tuesday, January 12, 2021 | Sheet 2 of 4

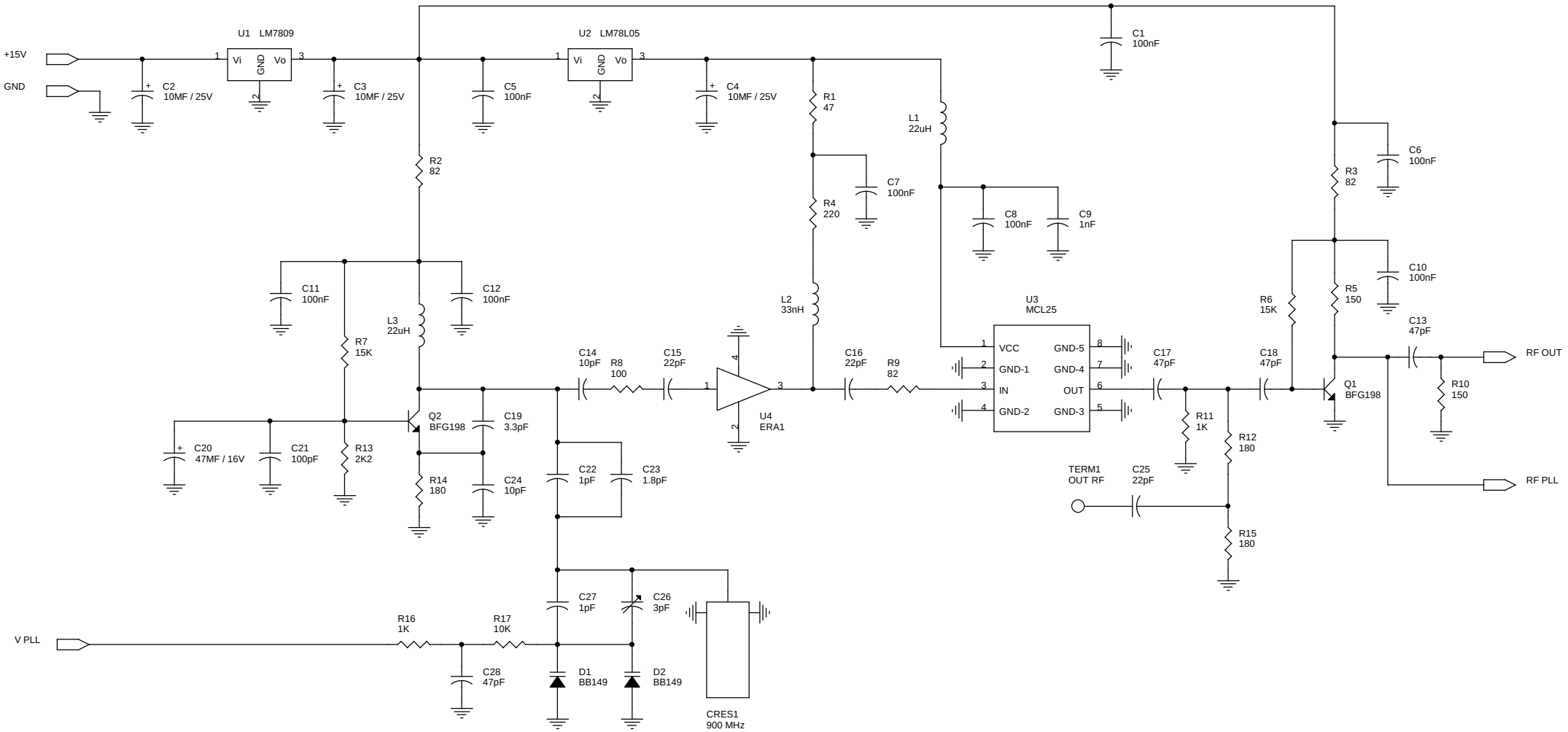


R.V.R. ELETTRONICA

Title
Low Noise Amplifier

Size	Document Number	Rev
A	Mod. AMPLN900	1.0

Date: Tuesday, January 12, 2021 Sheet 3 of 4



R.V.R. ELETTRONICA

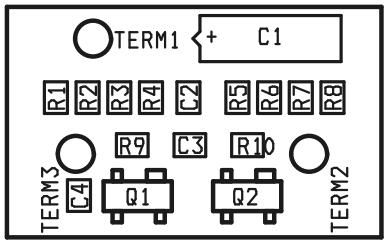
Title: 900 MHz VCO

Size: B | Document Number: Mod. VCO05A900 | Rev: 1.0

Date: Tuesday, January 12, 2021 | Sheet 4 of 4

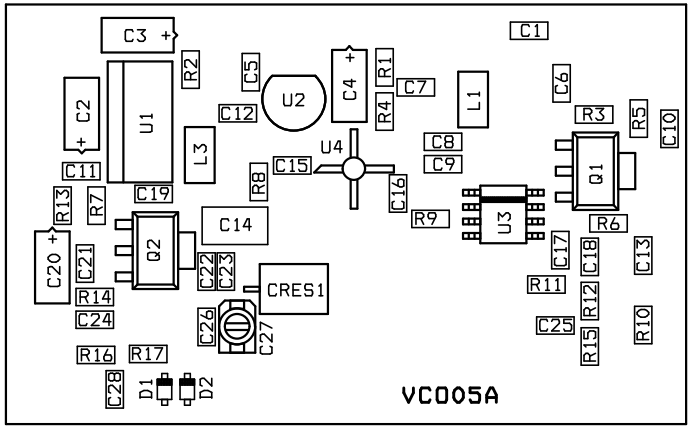
Part List Schematic : Active Filter & Mixer 900

Rif.	Value	Remarks	Description	Code
C1	1nF		Ceramic Lead Through Capacitor	
C2	220pF		Ceramic Disc Capacitor NPO	
C3	6.8pF		Ceramic Disc Capacitor NPO	
C4	47pF		Ceramic Disc Capacitor NPO	
C5	1nF		Ceramic Lead Through Capacitor	
C6	1pF		Ceramic Disc Capacitor NPO	
C7	10pF		Ceramic Disc Capacitor NPO	
C8	22pF		Ceramic Disc Capacitor NPO	
C9	1pF		Ceramic Disc Capacitor NPO	
C10	3.3pF		Ceramic Disc Capacitor NPO	
C11	1 ÷ 10 pF		Trimmer Ceramic Capacitor	
C12	1 ÷ 10 pF		Trimmer Ceramic Capacitor	
C13	1 ÷ 10 pF		Trimmer Ceramic Capacitor	
C14	1 ÷ 10 pF		Trimmer Ceramic Capacitor	
R1	270	1/4W	Carbon Film Resistor	
R2	22K	1/4W	Carbon Film Resistor	
Q1	BFR91A		SMD Low Power Bipolar Transistor	
M1	MIXER RFMX-1X		RF MIXER	
J1	IF 70 MHz		SMB Panel Connector - 50 Ohm	
J2	V PLL		SMB Panel Connector - 50 Ohm	
J3	RF IN		SMB Panel Connector - 50 Ohm	
J4	RF PLL		SMB Panel Connector - 50 Ohm	


TERM1
+
C1
R1
R2
R3
R4
C2
R5
R6
R7
R8
R9
C3
R10
TERM3
C4
Q1
Q2
TERM2

Part List Schematic : Low Noise Amplifier 900 MHz

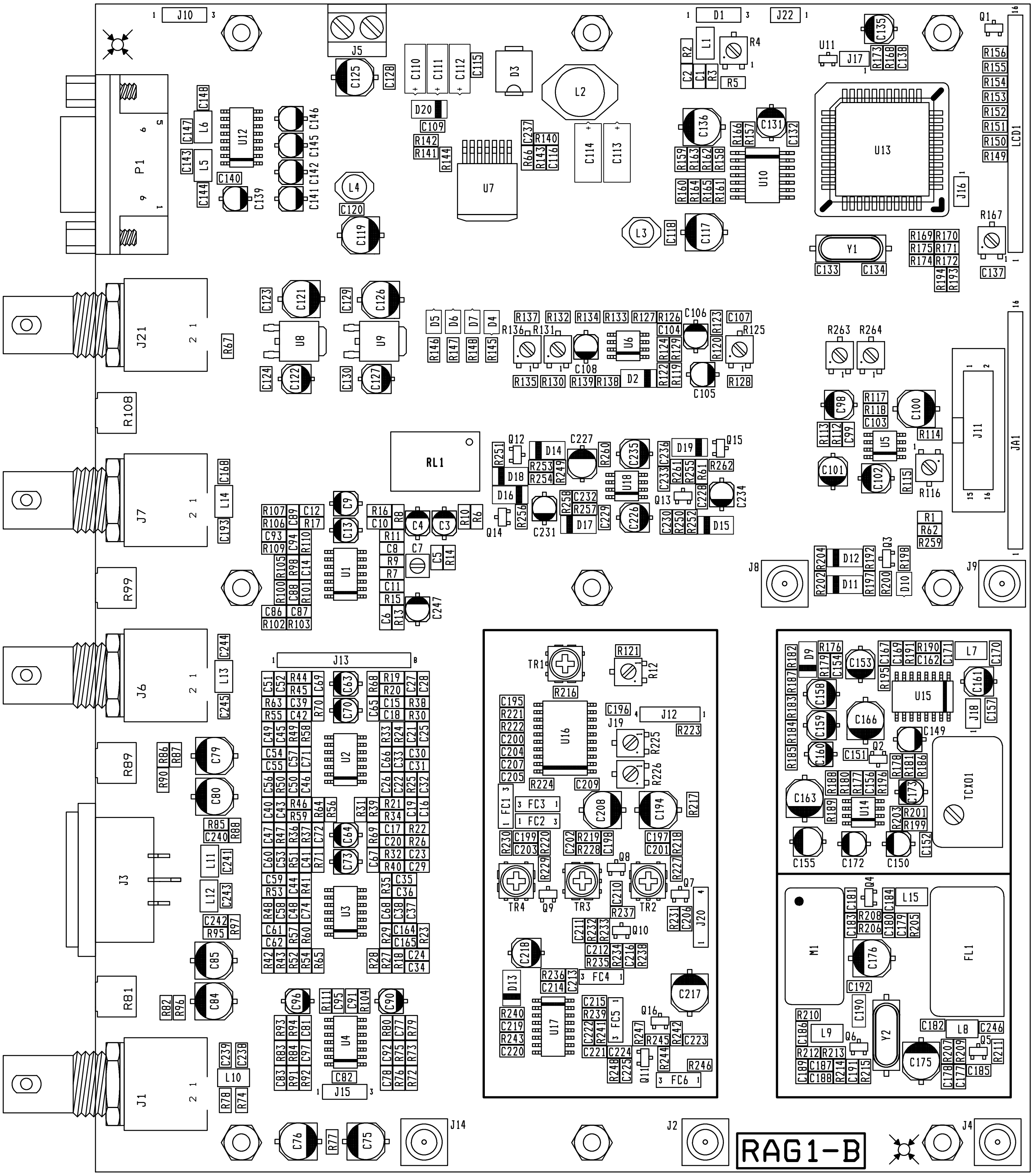
Rif.	Value	Remarks	Description	Code
C1	2.2MF	16V	SMD Tantalum Capacitor	
C2	100nF		SMD Multilayer Ceramic Capacitor	
C3	10pF		SMD Multilayer Ceramic Capacitor	
C4	1pF		SMD Multilayer Ceramic Capacitor	
R1	82	1/8W	SMD Thick Film Resistor	
R2	82	1/8W	SMD Thick Film Resistor	
R3	82	1/8W	SMD Thick Film Resistor	
R4	82	1/8W	SMD Thick Film Resistor	
R5	82	1/8W	SMD Thick Film Resistor	
R6	82	1/8W	SMD Thick Film Resistor	
R7	82	1/8W	SMD Thick Film Resistor	
R8	82	1/8W	SMD Thick Film Resistor	
R9	27K	1/8W	SMD Thick Film Resistor	
R10	27K	1/8W	SMD Thick Film Resistor	
Q1	BFG540		SMD RF Bipolar Transistor	
Q2	BFG540		SMD RF Bipolar Transistor	

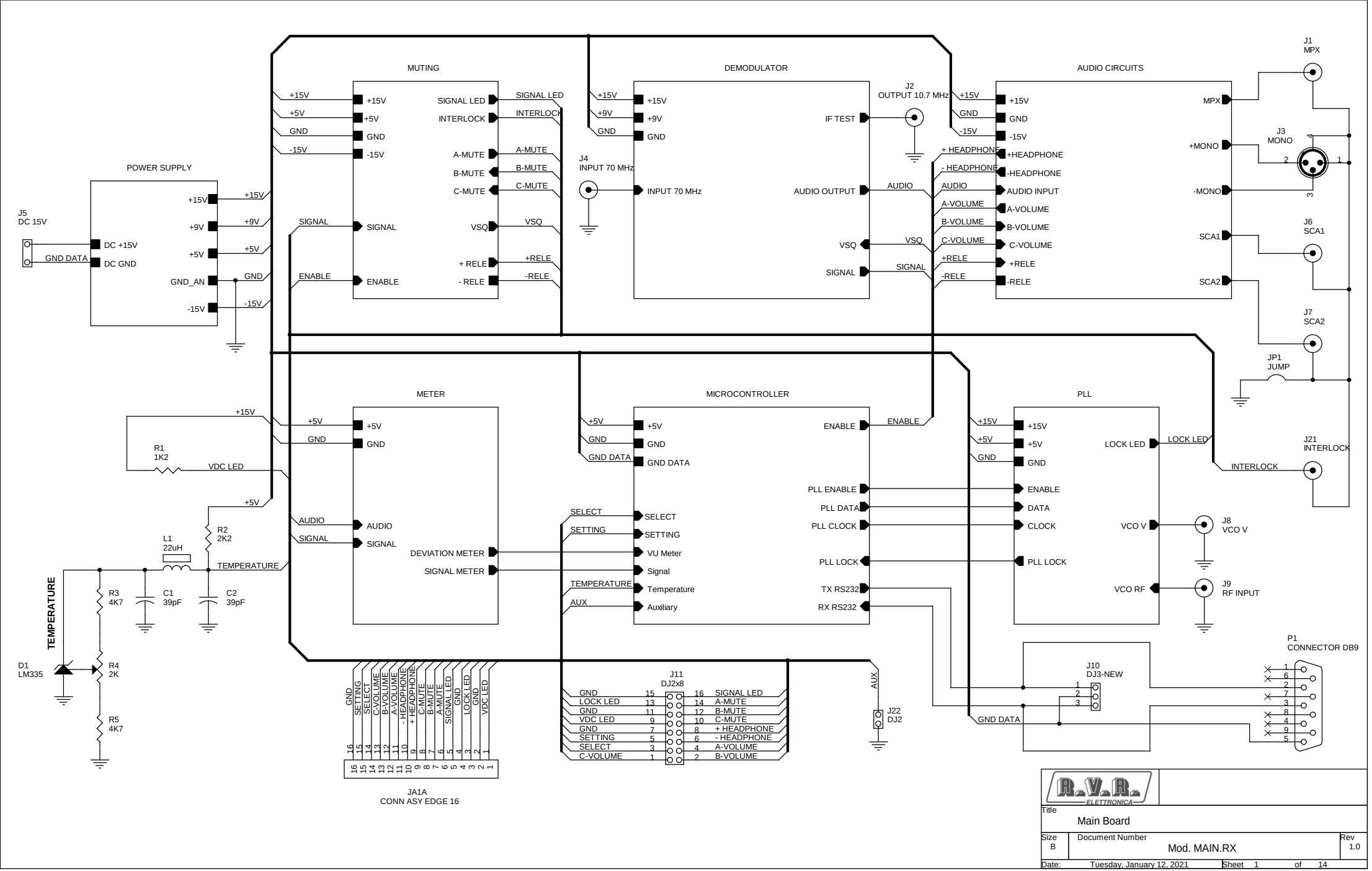

C3 +
C1
R2
C5
U2
C4 +
R1
C7
L1
C6
C2
U1
C12
R4
R3
R5
C10
L3
U4
C8
C9
Q1
C11
C15
R8
C16
C19
R13
R7
C14
R9
U3
R6
C20 +
Q2
C17
C18
C13
C21
C22
C23
CRES1
R11
R14
R12
C24
C26
C27
C25
R10
R16
R17
R15
C28
D1
D2
VC005A

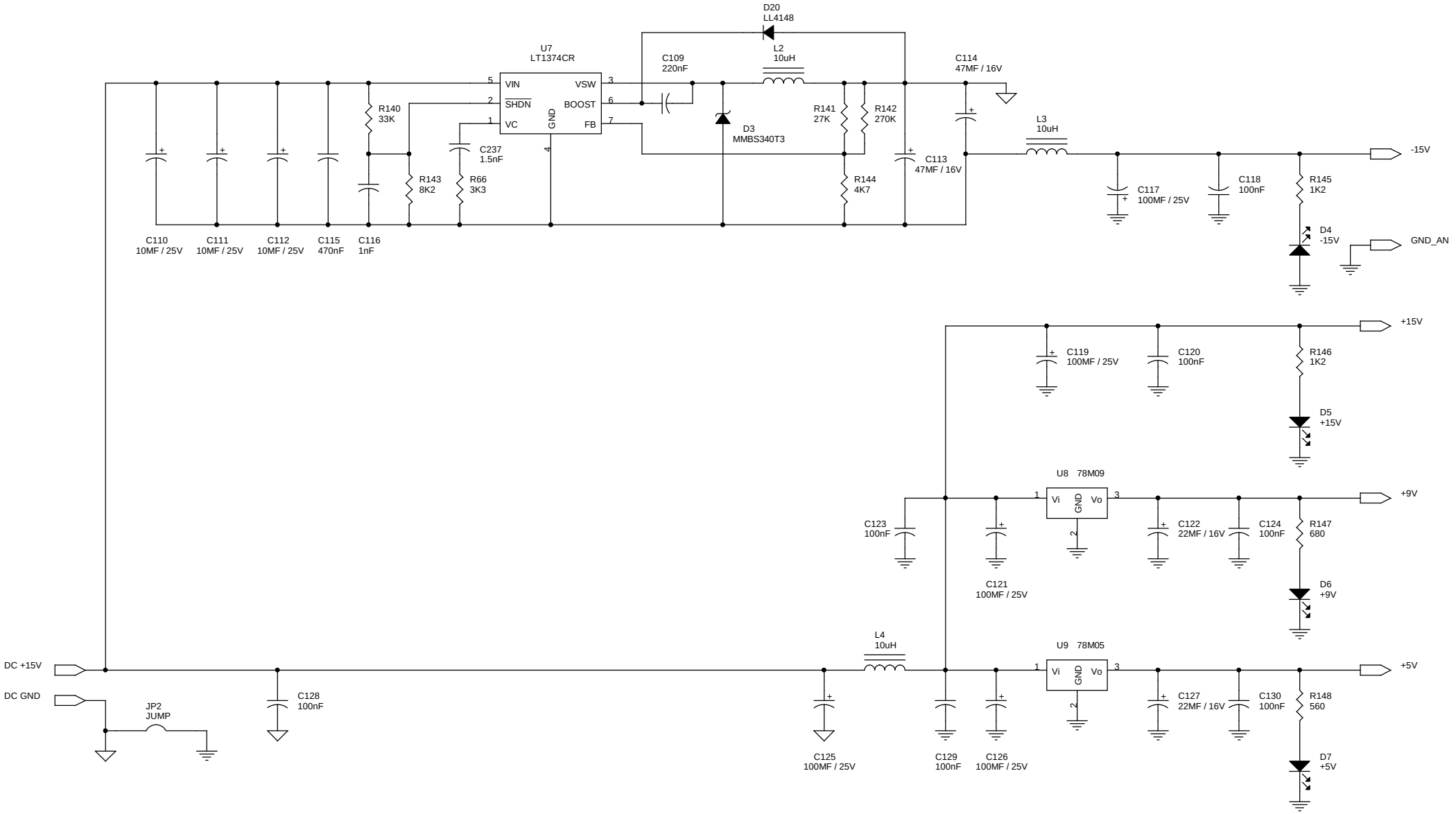
Part List Schematic : VCO 900 MHz

Rif.	Value	Remarks	Description	Code
C1	100nF		SMD Multilayer Ceramic Capacitor	
C2	10MF	25V	SMD Tantalum Capacitor	
C3	10MF	25V	SMD Tantalum Capacitor	
C4	10MF	25V	SMD Tantalum Capacitor	
C5	100nF		SMD Multilayer Ceramic Capacitor	
C6	100nF		SMD Multilayer Ceramic Capacitor	
C7	100nF		SMD Multilayer Ceramic Capacitor	
C8	100nF		SMD Multilayer Ceramic Capacitor	
C9	1nF		SMD Multilayer Ceramic Capacitor	
C10	100nF		SMD Multilayer Ceramic Capacitor	
C11	100nF		SMD Multilayer Ceramic Capacitor	
C12	100nF		SMD Multilayer Ceramic Capacitor	
C13	47pF		SMD Multilayer Ceramic Capacitor	
C14	10pF		SMD Multilayer Ceramic Capacitor	
C15	22pF		SMD Multilayer Ceramic Capacitor	
C16	22pF		SMD Multilayer Ceramic Capacitor	
C17	47pF		SMD Multilayer Ceramic Capacitor	
C18	47pF		SMD Multilayer Ceramic Capacitor	
C19	3.3pF		SMD Multilayer Ceramic Capacitor	
C20	47MF	16V	SMD Tantalum Capacitor	
C21	100pF		SMD Multilayer Ceramic Capacitor	
C22	1pF		SMD Multilayer Ceramic Capacitor	
C23	1.8pF		SMD Multilayer Ceramic Capacitor	
C24	10pF		SMD Multilayer Ceramic Capacitor	
C25	22pF		SMD Multilayer Ceramic Capacitor	
C26	3pF		SMD Trimmer Capacitor	
C27	1pF		SMD Multilayer Ceramic Capacitor	
C28	47pF		SMD Multilayer Ceramic Capacitor	
L1	22uH		SMD Inductor	
L2	33nH		SMD Inductor	
L3	22uH		SMD Inductor	
R1	47		SMD Thick Film Resistor	
R2	82		SMD Thick Film Resistor	
R3	82		SMD Thick Film Resistor	
R4	220		SMD Thick Film Resistor	
R5	150		SMD Thick Film Resistor	
R6	15K		SMD Thick Film Resistor	
R7	15K		SMD Thick Film Resistor	
R8	100		SMD Thick Film Resistor	
R9	82		SMD Thick Film Resistor	
R10	150		SMD Thick Film Resistor	
R11	1K		SMD Thick Film Resistor	
R12	180		SMD Thick Film Resistor	
R13	2K2		SMD Thick Film Resistor	
R14	180		SMD Thick Film Resistor	
R15	180		SMD Thick Film Resistor	
R16	1K		SMD Thick Film Resistor	

Rif.	Value	Remarks	Description	Code
R17	10K		SMD Thick Film Resistor	
D1	BB149		SMD Tuning Diode	
D2	BB149		SMD Tuning Diode	
Q1	BFG198		SMD RF Bipolar Transistor	
Q2	BFG198		SMD RF Bipolar Transistor	
U1	LM7809		Fixed Voltage Regulator	
U2	LM78L05		Fixed Voltage Regulator	
U3	MCL25		RF low power amplifier	
U4	ERA1		RF low power amplifier	
CRES1	900 MHz		Ceramic Resonator	


RAG1-B


MUTING
DEMODULATOR
AUDIO CIRCUITS
POWER SUPPLY
METER
MICROCONTROLLER
PLL
J1
MPX
J2
OUTPUT 10.7 MHz
J3
MONO
J4
INPUT 70 MHz
J5
DC 15V
J6
SCA1
J7
SCA2
JP1
JUMP
J21
INTERLOCK
J8
VCO V
J9
RF INPUT
P1
CONNECTOR DB9
J10
DJ3-NEW
J11
DJ2x8
J22
DJ2
JA1A
CONN ASY EDGE 16
R1
1K2
R2
2K2
R3
4K7
R4
2K
R5
4K7
C1
39pF
C2
39pF
L1
22uH
D1
LM335
TEMPERATURE
VDC LED
+15V
+5V
+9V
GND
-15V
GND DATA
GND_AN
DC +15V
DC GND
SIGNAL
ENABLE
SIGNAL LED
INTERLOCK
A-MUTE
B-MUTE
C-MUTE
VSQ
+ RELE
- RELE
+RELE
-RELE
IF TEST
INPUT 70 MHz
AUDIO OUTPUT
AUDIO
+ HEADPHONE
- HEADPHONE
+HEADPHONE
-HEADPHONE
AUDIO INPUT
A-VOLUME
B-VOLUME
C-VOLUME
MPX
+MONO
-MONO
SCA1
SCA2
DEVIATION METER
SIGNAL METER
SELECT
SETTING
VU Meter
Signal
Temperature
Auxiliary
AUX
ENABLE
GND DATA
PLL ENABLE
PLL DATA
PLL CLOCK
PLL LOCK
TX RS232
RX RS232
DATA
CLOCK
LOCK LED
VCO V
VCO RF
GND SETTING SELECT C-VOLUME B-VOLUME A-VOLUME - HEADPHONE + HEADPHONE C-MUTE B-MUTE A-MUTE SIGNAL LED GND LOCK LED GND VDC LED
GND 15 LOCK LED 13 GND 11 VDC LED 9 GND 7 SETTING 5 SELECT 3 C-VOLUME 1
16 SIGNAL LED 14 A-MUTE 12 B-MUTE 10 C-MUTE 8 + HEADPHONE 6 - HEADPHONE 4 A-VOLUME 2 B-VOLUME
R.V.R. ELETTRONICA
Title
Main Board
Size B
Document Number
Mod. MAIN.RX
Rev 1.0
Date: Tuesday, January 12, 2021
Sheet 1 of 14

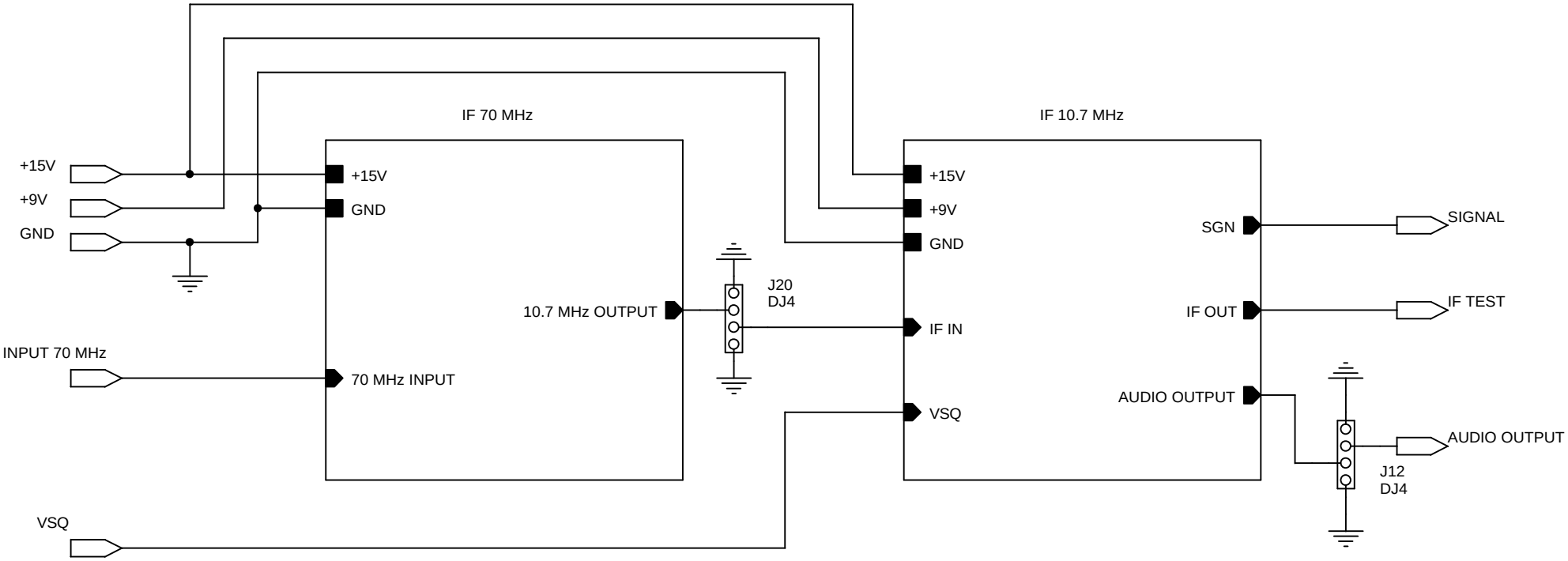


R.V.R. ELETTRONICA

Title: Power Supply

Size	Document Number	Rev
B	Mod. MAIN.RX	1.0

Date: Tuesday, January 12, 2021 Sheet 2 of 14

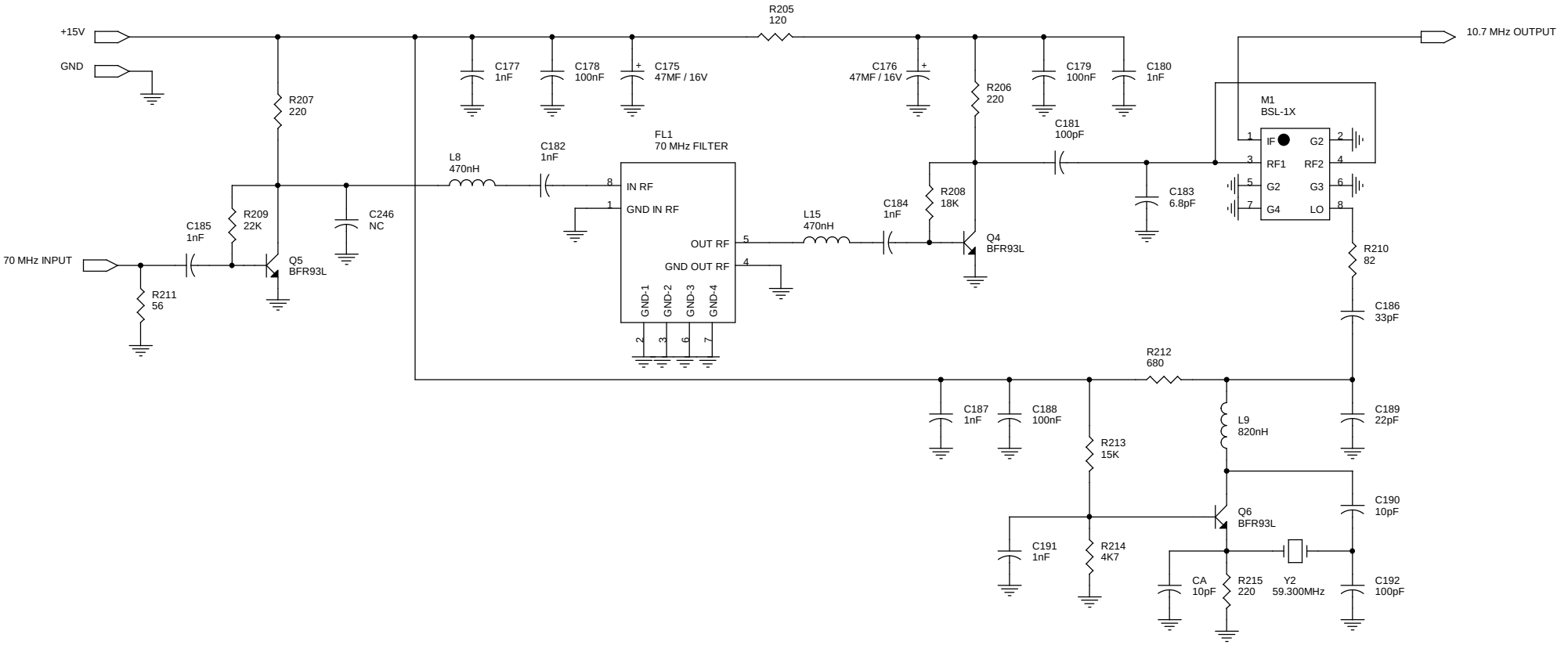


R.V.R. ELETTRONICA

Title: DEMODULATOR

Size	Document Number	Rev
A	Mod. MAIN.RX	1.0

Date: Tuesday, January 12, 2021 Sheet 3 of 14

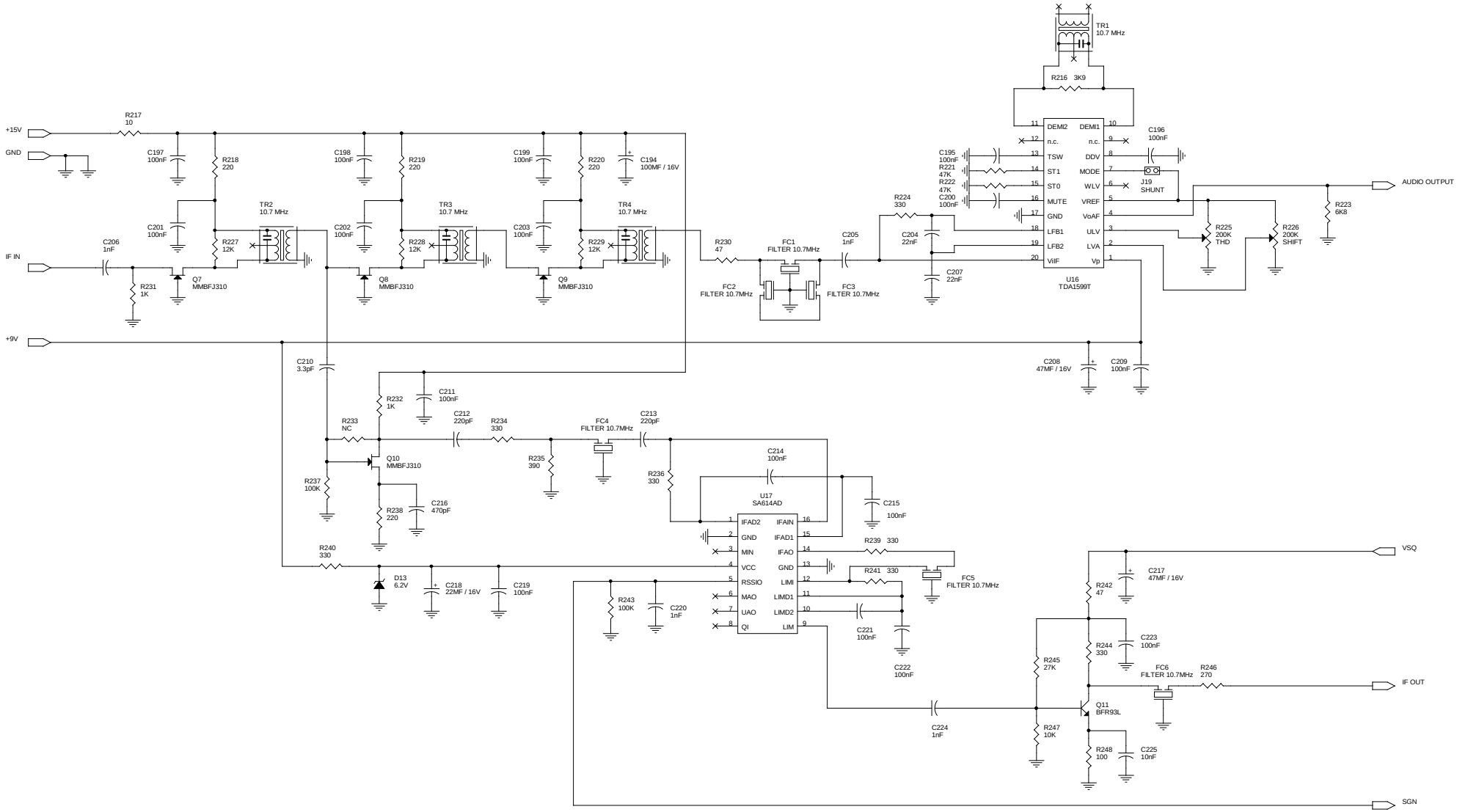


R.V.R. ELETTRONICA

Title: IF 70 MHz

Size	Document Number	Rev
B	Mod. MAIN.RX	1.0

Date: Tuesday, January 12, 2021 Sheet 4 of 14

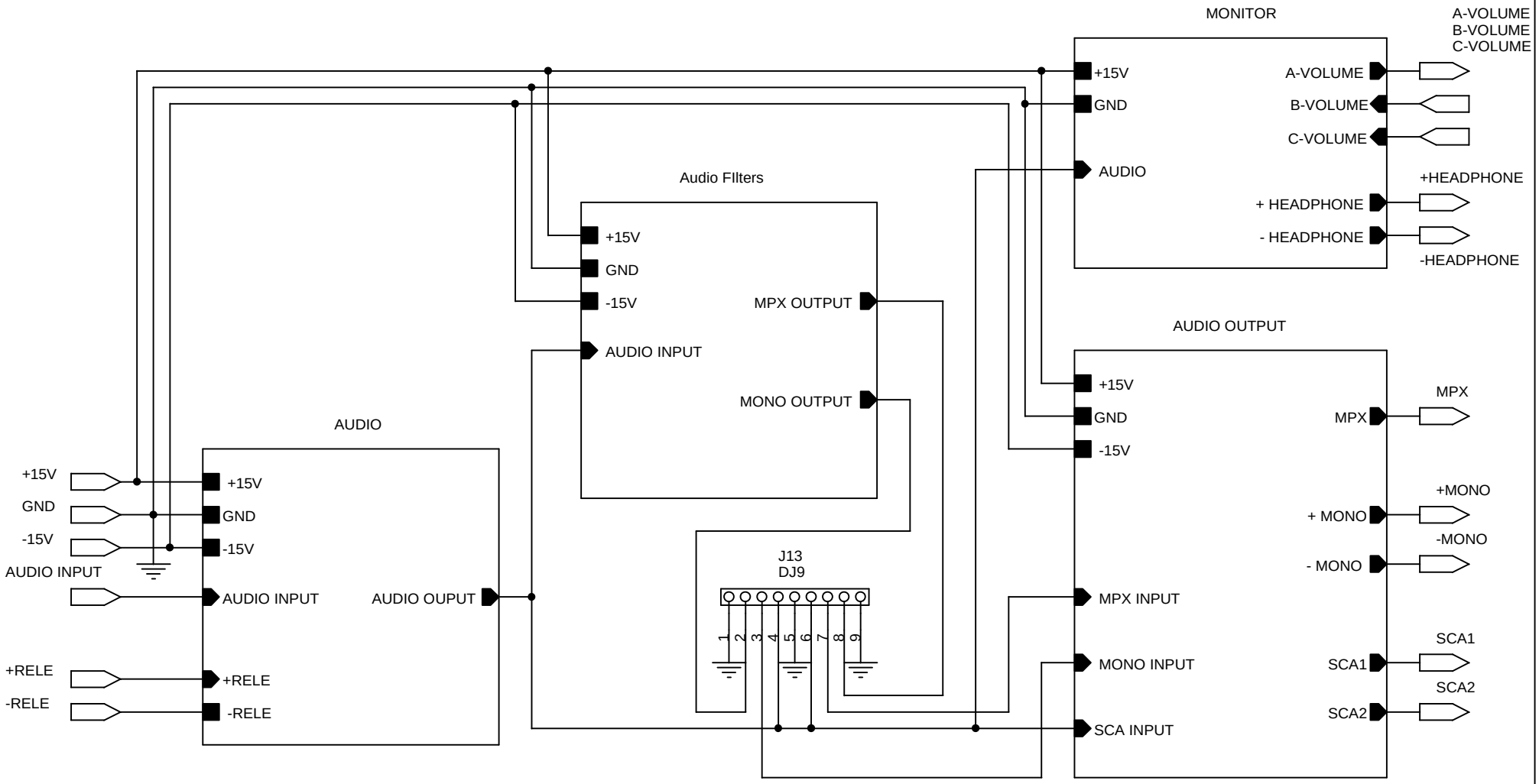


R.V.R. ELETTRONICA

Title: IF 10.7 MHz

Size	Document Number	Rev
C	Mod. MAIN.RX	1.0

Date: Tuesday, January 12, 2021 Sheet 5 of 14

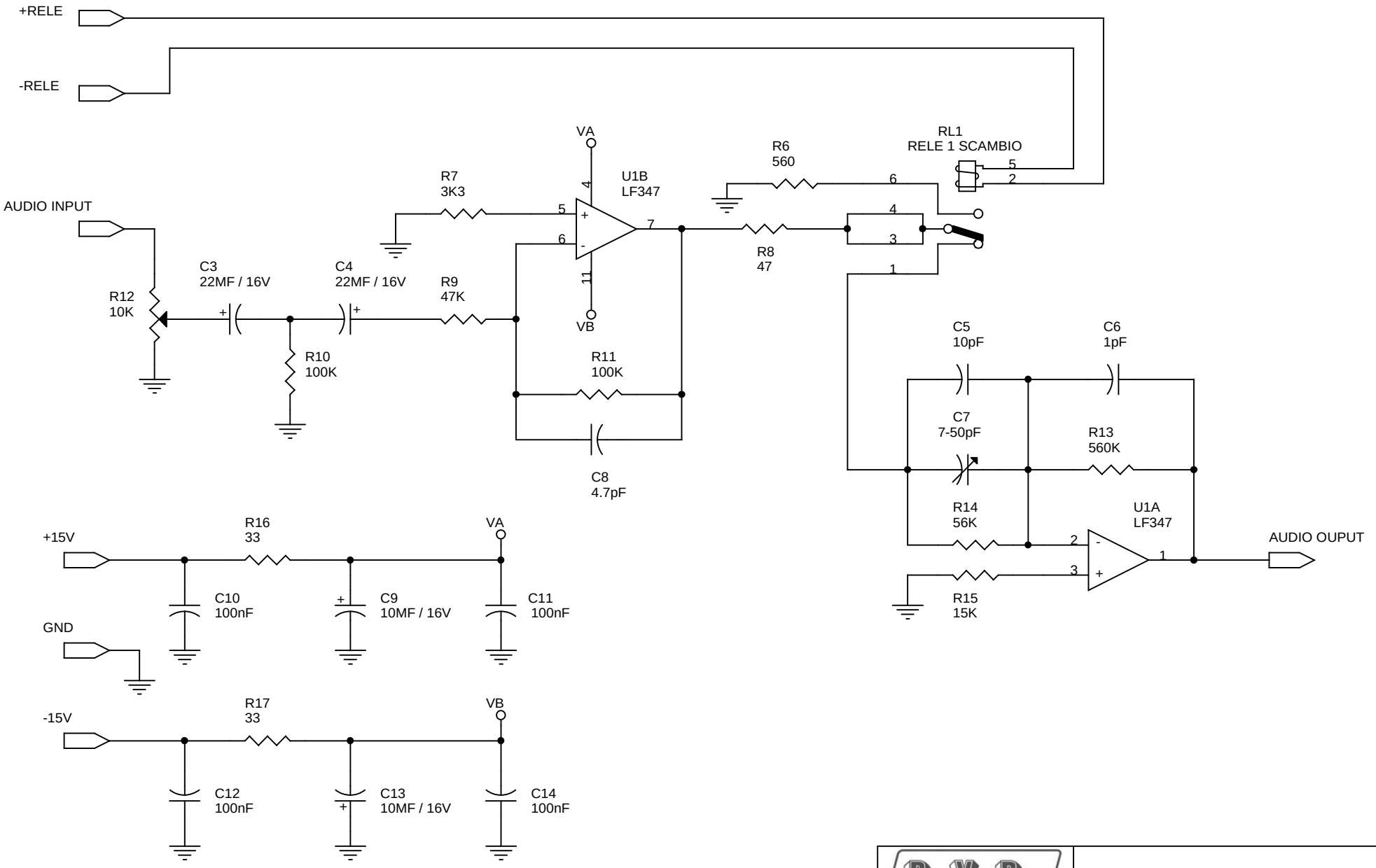


R.V.R. ELETTRONICA

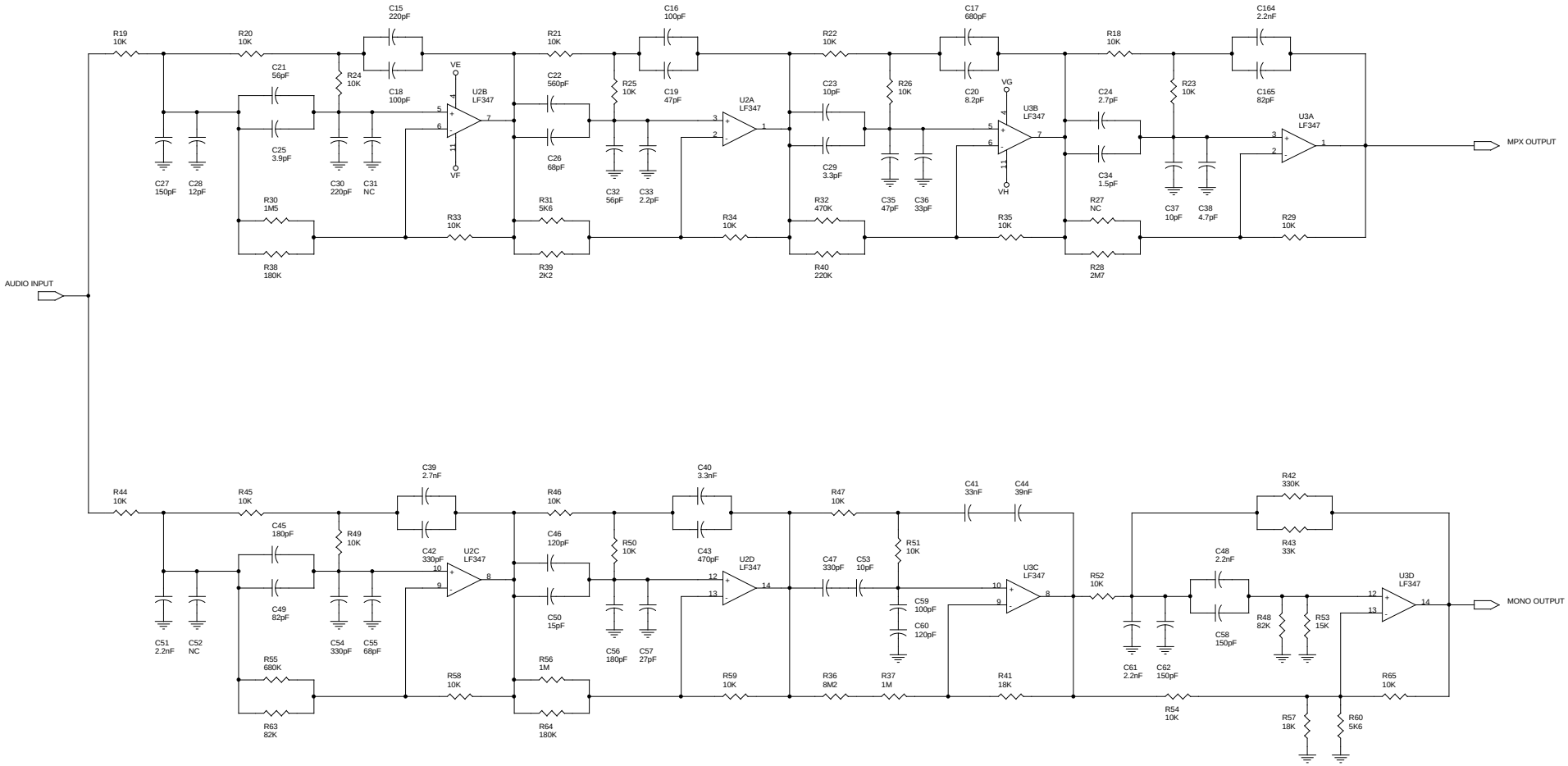
Title
AUDIO GENERAL

Size	Document Number	Rev
A	Mod. MAIN.RX	1.0

Date: Tuesday, January 12, 2021 Sheet 6 of 14

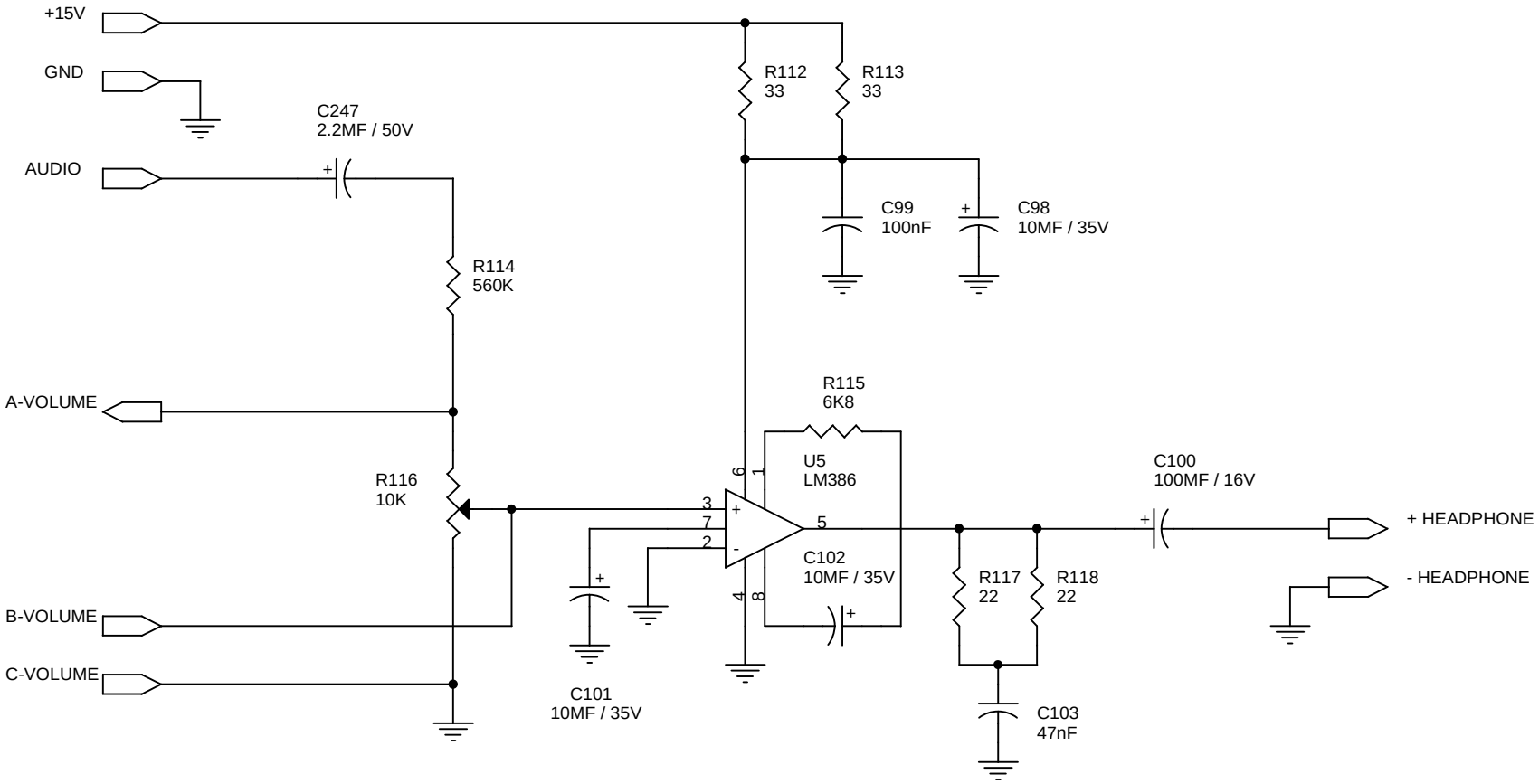


R.V.R. ELETTRONICA		
Title: AUDIO		
Size: A	Document Number: Mod. MAIN.RX	Rev: 1.0
Date: Tuesday, January 12, 2021	Sheet 7 of 14	



R.V.R. ELETTRONICA

Title	MPX & MONO FILTERS	
Size C	Document Number Mod. MAIN.RX	Rev 1.0
Date: Tuesday, January 12, 2021	Sheet 8 of 14	

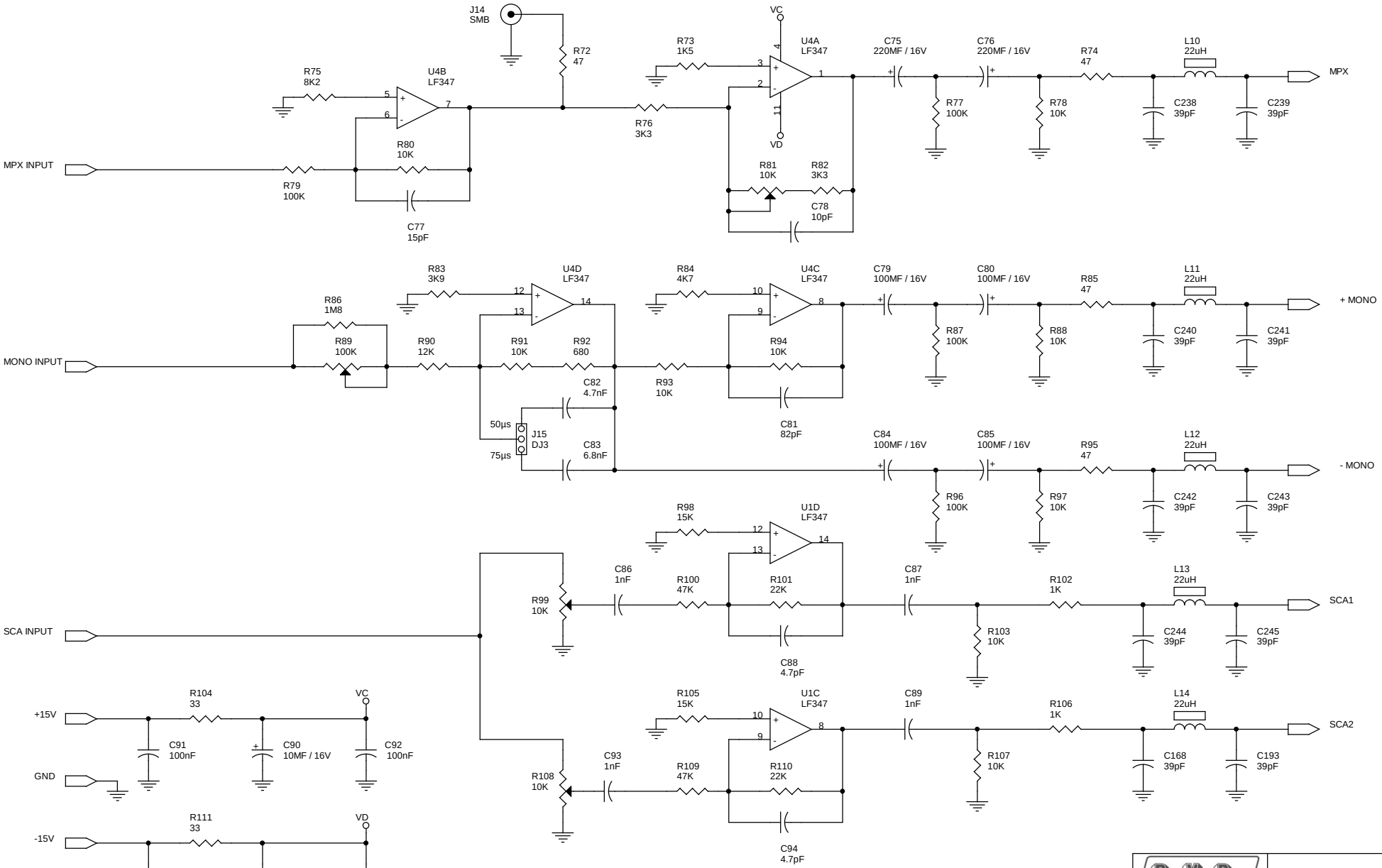


R.V.R. ELETTRONICA

Title
MONITOR

Size	Document Number	Rev
A	Mod. MAIN.RX	1.0

Date: Tuesday, January 12, 2021 Sheet 9 of 14

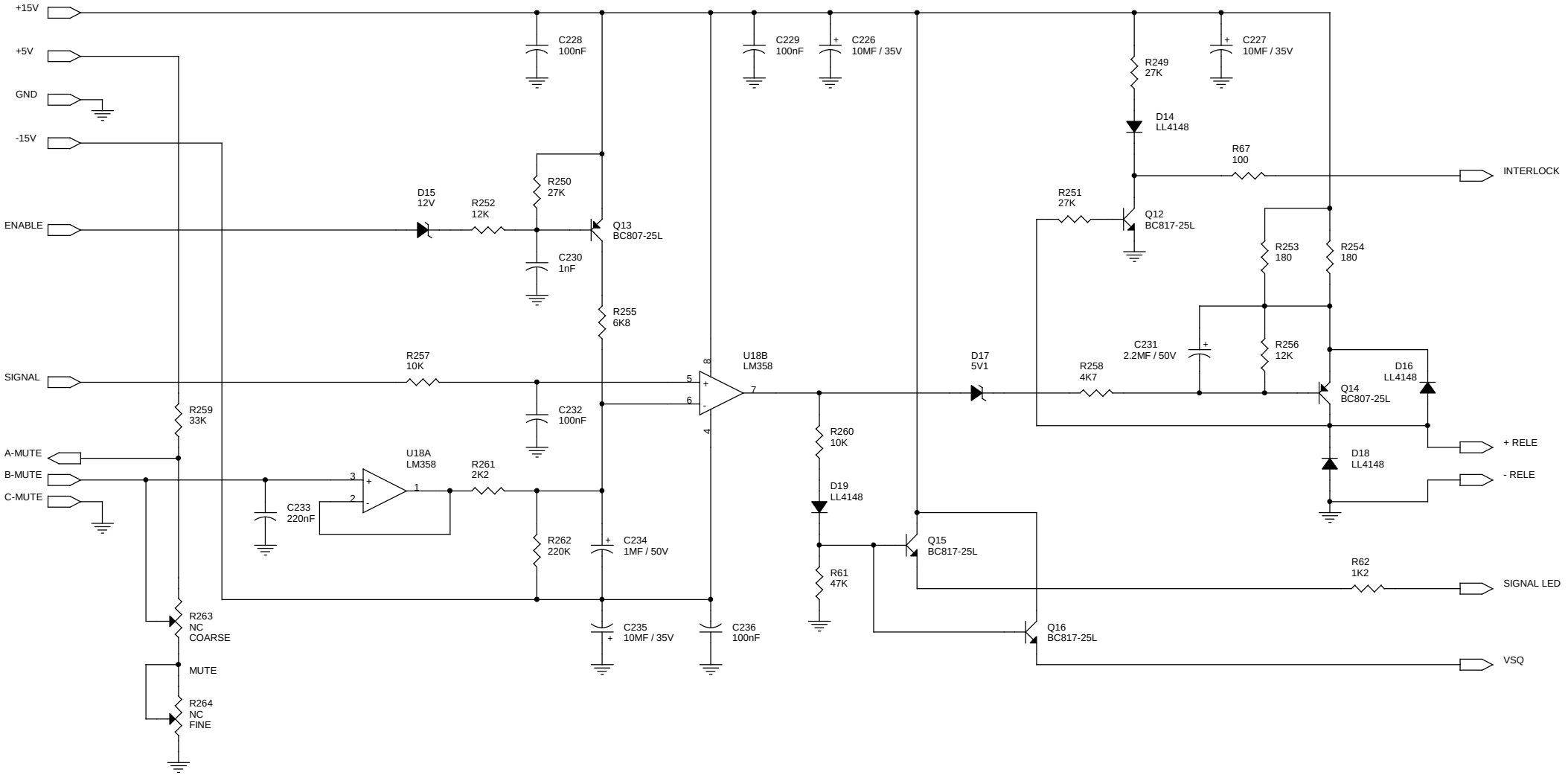


R.V.R. ELETTRONICA

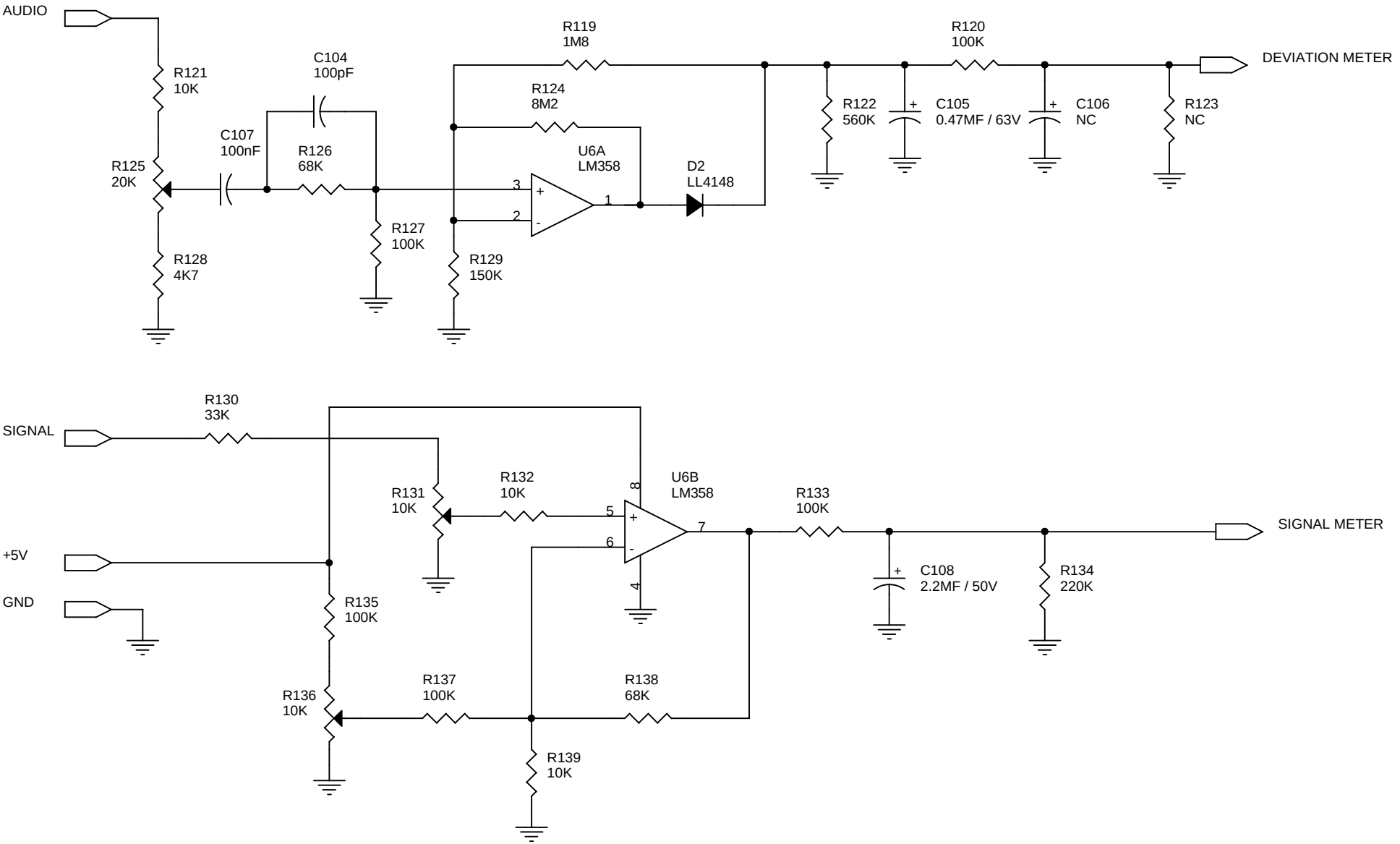
Title: AUDIO OUTPUT

Size: B | Document Number: Mod. MAIN.RX | Rev: 1.0

Date: Tuesday, January 12, 2021 | Sheet 10 of 14



R.V.R. ELETTRONICA		
Title	MUTING	
Size B	Document Number Mod. MAIN.RX	Rev 1.0
Date: Tuesday, January 12, 2021	Sheet 11 of 14	

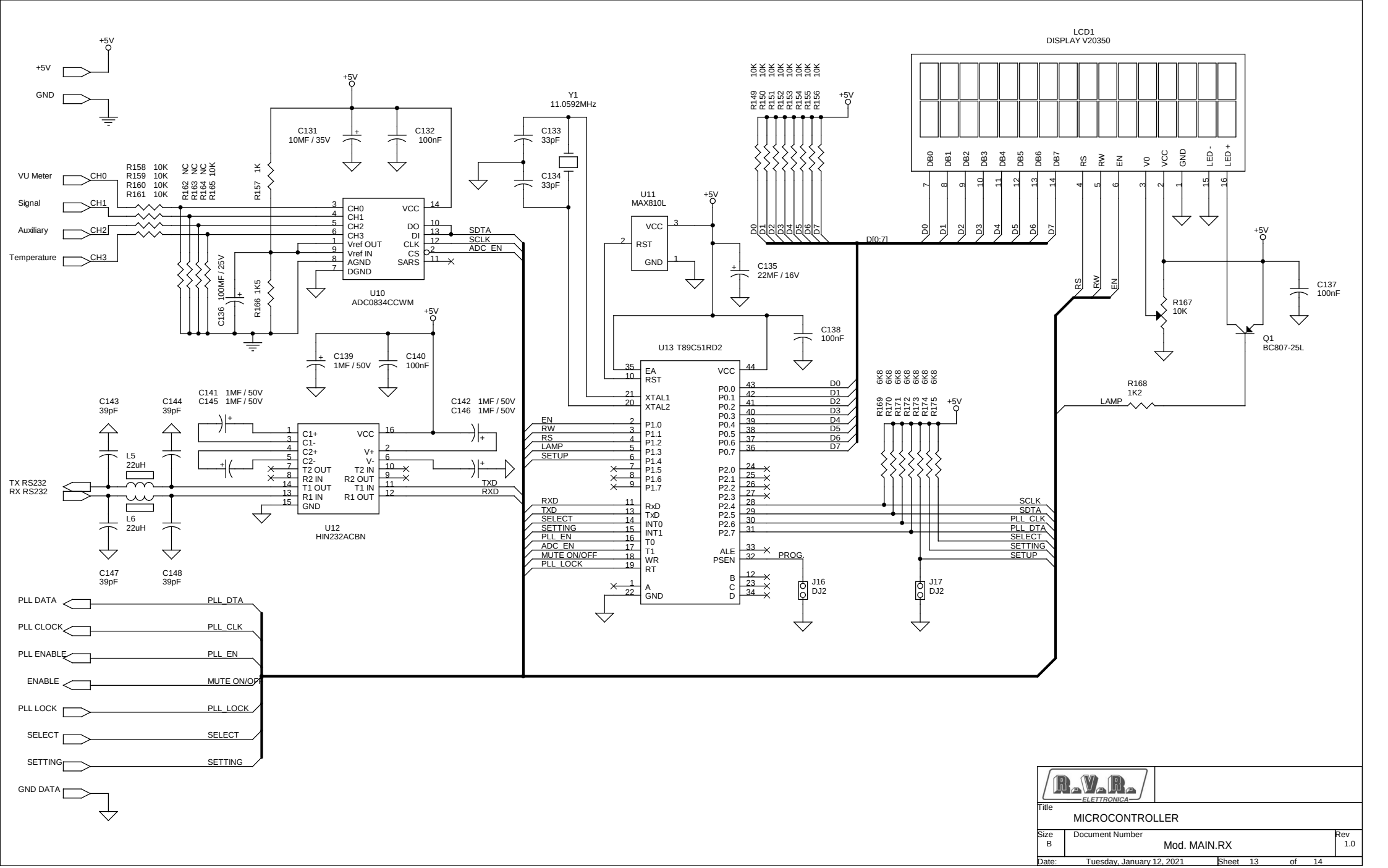


R.V.R. ELETTRONICA

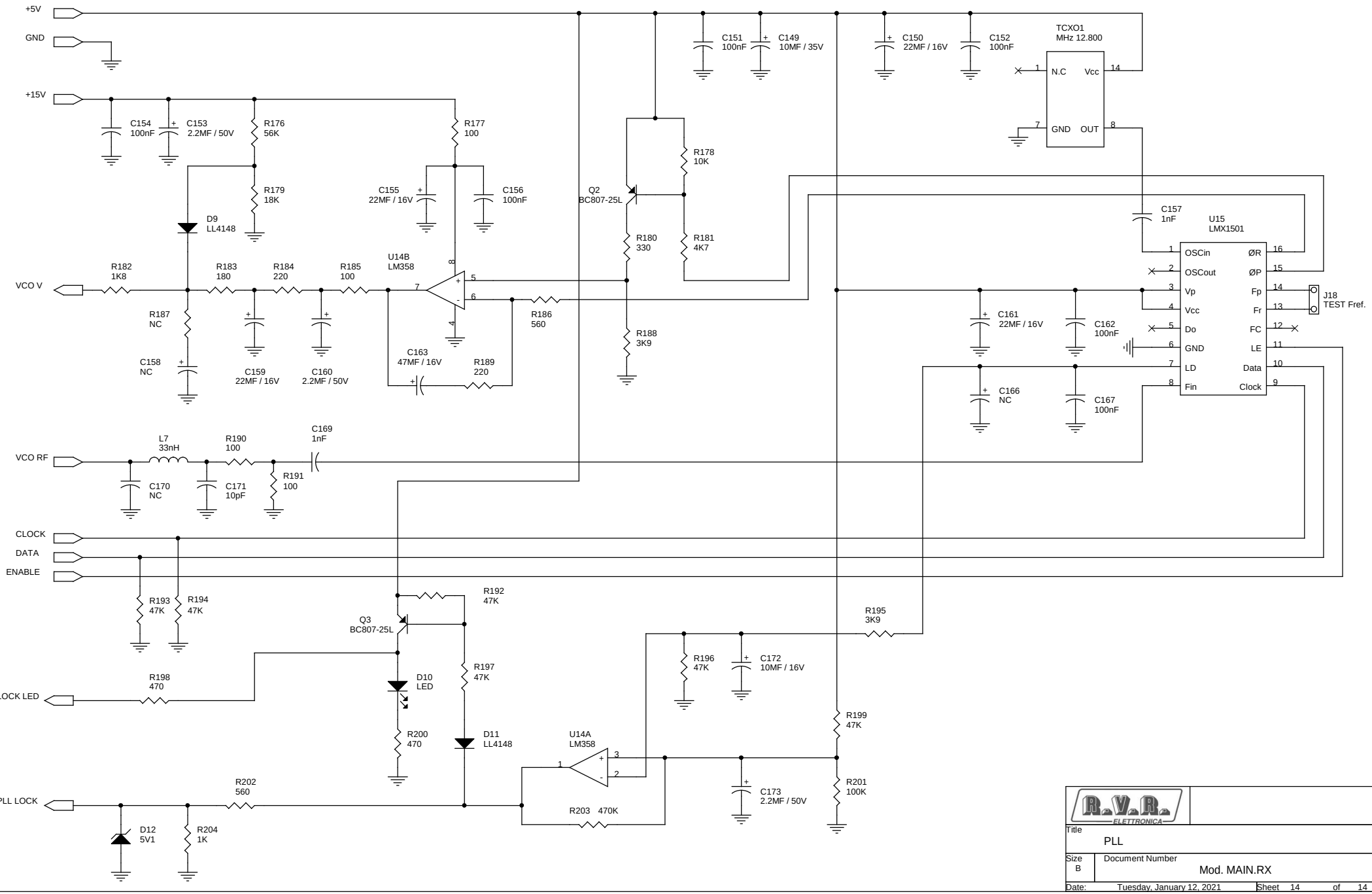
Title
METER

Size	Document Number	Rev
A	Mod. MAIN.RX	1.0

Date: Tuesday, January 12, 2021 Sheet 12 of 14



Title	MICROCONTROLLER	
Size B	Document Number Mod. MAIN.RX	Rev 1.0
Date: Tuesday, January 12, 2021	Sheet 13 of 14	



R.V.R. ELETTRONICA

Title	PLL	
Size B	Document Number Mod. MAIN.RX	Rev 1.0
Date: Tuesday, January 12, 2021	Sheet 14 of 14	

Part List Schematic : RAG-1B

Rif.	Value	Remarks	Description	Code
C1	39pF		SMD Multilayer Ceramic Capacitor	
C2	39pF		SMD Multilayer Ceramic Capacitor	
C3	22MF	16V	SMD Aluminium Electrolytic Capacitor	
C4	22MF	16V	SMD Aluminium Electrolytic Capacitor	
C5	10pF		SMD Multilayer Ceramic Capacitor	
C6	1pF		SMD Multilayer Ceramic Capacitor	
C7	7-50pF		SMD Trimmer Capacitor	
C8	4.7pF		SMD Multilayer Ceramic Capacitor	
C9	10MF	16V	SMD Aluminium Electrolytic Capacitor	
C10	100nF		SMD Multilayer Ceramic Capacitor	
C11	100nF		SMD Multilayer Ceramic Capacitor	
C12	100nF		SMD Multilayer Ceramic Capacitor	
C14	100nF		SMD Multilayer Ceramic Capacitor	
C15	220pF		SMD Multilayer Ceramic Capacitor	
C16	100pF		SMD Multilayer Ceramic Capacitor	
C17	680pF		SMD Multilayer Ceramic Capacitor	
C18	100pF		SMD Multilayer Ceramic Capacitor	
C19	47pF		SMD Multilayer Ceramic Capacitor	
C20	8.2pF		SMD Multilayer Ceramic Capacitor	
C21	56pF		SMD Multilayer Ceramic Capacitor	
C22	560pF		SMD Multilayer Ceramic Capacitor	
C23	10pF		SMD Multilayer Ceramic Capacitor	
C24	2.7pF		SMD Multilayer Ceramic Capacitor	
C25	3.9pF		SMD Multilayer Ceramic Capacitor	
C26	68pF		SMD Multilayer Ceramic Capacitor	
C27	150pF		SMD Multilayer Ceramic Capacitor	
C28	12pF		SMD Multilayer Ceramic Capacitor	
C29	3.3pF		SMD Multilayer Ceramic Capacitor	
C30	220pF		SMD Multilayer Ceramic Capacitor	
C31	NC			
C32	56pF		SMD Multilayer Ceramic Capacitor	
C33	2.2pF		SMD Multilayer Ceramic Capacitor	
C34	1.5pF		SMD Multilayer Ceramic Capacitor	
C35	47pF		SMD Multilayer Ceramic Capacitor	
C36	33pF		SMD Multilayer Ceramic Capacitor	
C37	10pF		SMD Multilayer Ceramic Capacitor	
C38	4.7pF		SMD Multilayer Ceramic Capacitor	
C39	2.7nF		SMD Multilayer Ceramic Capacitor	
C40	3.3nF		SMD Multilayer Ceramic Capacitor	
C41	33nF		SMD Multilayer Ceramic Capacitor	
C42	330pF		SMD Multilayer Ceramic Capacitor	
C43	470pF		SMD Multilayer Ceramic Capacitor	
C44	39nF		SMD Multilayer Ceramic Capacitor	
C45	180pF		SMD Multilayer Ceramic Capacitor	
C46	120pF		SMD Multilayer Ceramic Capacitor	
C47	330pF		SMD Multilayer Ceramic Capacitor	
C48	2.2nF		SMD Multilayer Ceramic Capacitor	

Rif.	Value	Remarks	Description	Code
C51	2.2nF		SMD Multilayer Ceramic Capacitor	
C52	NC			
C53	10pF		SMD Multilayer Ceramic Capacitor	
C54	330pF		SMD Multilayer Ceramic Capacitor	
C55	68pF		SMD Multilayer Ceramic Capacitor	
C56	180pF		SMD Multilayer Ceramic Capacitor	
C57	27pF		SMD Multilayer Ceramic Capacitor	
C58	150pF		SMD Multilayer Ceramic Capacitor	
C59	100pF		SMD Multilayer Ceramic Capacitor	
C60	120pF		SMD Multilayer Ceramic Capacitor	
C61	2.2nF		SMD Multilayer Ceramic Capacitor	
C62	150pF		SMD Multilayer Ceramic Capacitor	
C63	10MF	16V	SMD Aluminium Electrolytic Capacitor	
C64	10MF	16V	SMD Aluminium Electrolytic Capacitor	
C65	100nF		SMD Multilayer Ceramic Capacitor	
C66	100nF		SMD Multilayer Ceramic Capacitor	
C67	100nF		SMD Multilayer Ceramic Capacitor	
C68	100nF		SMD Multilayer Ceramic Capacitor	
C69	100nF		SMD Multilayer Ceramic Capacitor	
C70	10MF	16V	SMD Aluminium Electrolytic Capacitor	
C71	100nF		SMD Multilayer Ceramic Capacitor	
C72	100nF		SMD Multilayer Ceramic Capacitor	
C73	10MF	16V	SMD Aluminium Electrolytic Capacitor	
C74	100nF		SMD Multilayer Ceramic Capacitor	
C75	100MF	16V	SMD Aluminium Electrolytic Capacitor	
C76	100MF	16V	SMD Aluminium Electrolytic Capacitor	
C77	15pF		SMD Multilayer Ceramic Capacitor	
C78	10pF		SMD Multilayer Ceramic Capacitor	
C79	100MF	16V	SMD Aluminium Electrolytic Capacitor	
C80	100MF	16V	SMD Aluminium Electrolytic Capacitor	
C81	82pF		SMD Multilayer Ceramic Capacitor	
C82	4.7nF		SMD Multilayer Ceramic Capacitor	
C83	6.8nF		SMD Multilayer Ceramic Capacitor	
C84	100MF	16V	SMD Aluminium Electrolytic Capacitor	
C85	100MF	16V	SMD Aluminium Electrolytic Capacitor	
C86	1nF		SMD Multilayer Ceramic Capacitor	
C87	1nF		SMD Multilayer Ceramic Capacitor	
C88	4.7pF		SMD Multilayer Ceramic Capacitor	
C89	1nF		SMD Multilayer Ceramic Capacitor	
C90	10MF	16V	SMD Aluminium Electrolytic Capacitor	
C91	100nF		SMD Multilayer Ceramic Capacitor	
C92	100nF		SMD Multilayer Ceramic Capacitor	
C93	1nF		SMD Multilayer Ceramic Capacitor	
C94	4.7pF		SMD Multilayer Ceramic Capacitor	
C95	100nF		SMD Multilayer Ceramic Capacitor	
C96	10MF	16V	SMD Aluminium Electrolytic Capacitor	
C97	100nF		SMD Multilayer Ceramic Capacitor	
C98	10MF	35V	SMD Aluminium Electrolytic Capacitor	
C99	100nF		SMD Multilayer Ceramic Capacitor	
C100	100MF	16V	SMD Aluminium Electrolytic Capacitor	

Rif.	Value	Remarks	Description	Code
C103	47nF		SMD Multilayer Ceramic Capacitor	
C104	100pF		SMD Multilayer Ceramic Capacitor	
C105	0.47MF	63V	SMD Aluminium Electrolytic Capacitor	
C106	2.2MF	50V	SMD Multilayer Ceramic Capacitor	
C107	100nF		SMD Multilayer Ceramic Capacitor	
C108	2.2MF	50V	SMD Aluminium Electrolytic Capacitor	
C109	220nF		SMD Multilayer Ceramic Capacitor	
C110	10MF	25V	SMD Tantalum Capacitor	
C111	10MF	25V	SMD Tantalum Capacitor	
C112	10MF	25V	SMD Tantalum Capacitor	
C113	47MF	16V	SMD Tantalum Capacitor	
C114	47MF	16V	SMD Tantalum Capacitor	
C115	470nF		SMD Multilayer Ceramic Capacitor	
C116	1nF		SMD Multilayer Ceramic Capacitor	
C117	100MF	25V	SMD Aluminium Electrolytic Capacitor	
C118	100nF		SMD Multilayer Ceramic Capacitor	
C119	100MF	25V	SMD Aluminium Electrolytic Capacitor	
C120	100nF		SMD Multilayer Ceramic Capacitor	
C121	100MF	25V	SMD Aluminium Electrolytic Capacitor	
C122	22MF	16V	SMD Aluminium Electrolytic Capacitor	
C123	100nF		SMD Multilayer Ceramic Capacitor	
C124	100nF		SMD Multilayer Ceramic Capacitor	
C125	100MF	25V	SMD Aluminium Electrolytic Capacitor	
C126	100MF	25V	SMD Aluminium Electrolytic Capacitor	
C127	22MF	16V	SMD Aluminium Electrolytic Capacitor	
C128	100nF		SMD Multilayer Ceramic Capacitor	
C129	100nF		SMD Multilayer Ceramic Capacitor	
C130	100nF		SMD Multilayer Ceramic Capacitor	
C131	10MF	35V	SMD Aluminium Electrolytic Capacitor	
C132	100nF		SMD Multilayer Ceramic Capacitor	
C133	33pF		SMD Multilayer Ceramic Capacitor	
C134	33pF		SMD Multilayer Ceramic Capacitor	
C135	22MF	16V	SMD Aluminium Electrolytic Capacitor	
C136	100MF	25V	SMD Aluminium Electrolytic Capacitor	
C137	100nF		SMD Multilayer Ceramic Capacitor	
C138	100nF		SMD Multilayer Ceramic Capacitor	
C139	1MF	50V	SMD Aluminium Electrolytic Capacitor	
C140	100nF		SMD Multilayer Ceramic Capacitor	
C141	1MF	50V	SMD Aluminium Electrolytic Capacitor	
C142	1MF	50V	SMD Aluminium Electrolytic Capacitor	
C143	39pF		SMD Multilayer Ceramic Capacitor	
C144	39pF		SMD Multilayer Ceramic Capacitor	
C145	1MF	50V	SMD Aluminium Electrolytic Capacitor	
C146	1MF	50V	SMD Aluminium Electrolytic Capacitor	
C147	39pF		SMD Multilayer Ceramic Capacitor	
C148	39pF		SMD Multilayer Ceramic Capacitor	
C149	2.2MF	50V	SMD Aluminium Electrolytic Capacitor	
C150	2.2MF	50V	SMD Aluminium Electrolytic Capacitor	
C151	100nF		SMD Multilayer Ceramic Capacitor	
C152	100nF		SMD Multilayer Ceramic Capacitor	

Rif.	Value	Remarks	Description	Code
C155	22MF	16V	SMD Aluminium Electrolytic Capacitor	
C156	100nF		SMD Multilayer Ceramic Capacitor	
C157	1nF		SMD Multilayer Ceramic Capacitor	
C158	NC			
C159	22MF	16V	SMD Aluminium Electrolytic Capacitor	
C160	2.2MF	50V	SMD Aluminium Electrolytic Capacitor	
C161	22MF	16V	SMD Aluminium Electrolytic Capacitor	
C162	100nF		SMD Multilayer Ceramic Capacitor	
C163	47MF	16V	SMD Aluminium Electrolytic Capacitor	
C164	2.2nF		SMD Multilayer Ceramic Capacitor	
C165	82pF		SMD Multilayer Ceramic Capacitor	
C166	NC			
C167	100nF		SMD Multilayer Ceramic Capacitor	
C168	39pF		SMD Multilayer Ceramic Capacitor	
C169	1nF		SMD Multilayer Ceramic Capacitor	
C170	NC			
C171	10pF		SMD Multilayer Ceramic Capacitor	
C172	10MF	16V	SMD Aluminium Electrolytic Capacitor	
C173	2.2MF	50V	SMD Aluminium Electrolytic Capacitor	
C175	47MF	16V	SMD Aluminium Electrolytic Capacitor	
C176	47MF	16V	SMD Aluminium Electrolytic Capacitor	
C177	1nF		SMD Multilayer Ceramic Capacitor	
C178	100nF		SMD Multilayer Ceramic Capacitor	
C179	100nF		SMD Multilayer Ceramic Capacitor	
C180	1nF		SMD Multilayer Ceramic Capacitor	
C181	100pF		SMD Multilayer Ceramic Capacitor	
C182	1nF		SMD Multilayer Ceramic Capacitor	
C183	6.8pF		SMD Multilayer Ceramic Capacitor	
C184	1nF		SMD Multilayer Ceramic Capacitor	
C185	1nF		SMD Multilayer Ceramic Capacitor	
C186	33pF		SMD Multilayer Ceramic Capacitor	
C187	1nF		SMD Multilayer Ceramic Capacitor	
C188	100nF		SMD Multilayer Ceramic Capacitor	
C189	22pF		SMD Multilayer Ceramic Capacitor	
C190	10pF		SMD Multilayer Ceramic Capacitor	
C191	1nF		SMD Multilayer Ceramic Capacitor	
C192	100pF		SMD Multilayer Ceramic Capacitor	
C193	39pF		SMD Multilayer Ceramic Capacitor	
C194	100MF	16V	SMD Aluminium Electrolytic Capacitor	
C195	100nF		SMD Multilayer Ceramic Capacitor	
C196	100nF		SMD Multilayer Ceramic Capacitor	
C197	100nF		SMD Multilayer Ceramic Capacitor	
C198	100nF		SMD Multilayer Ceramic Capacitor	
C199	100nF		SMD Multilayer Ceramic Capacitor	
C200	100nF		SMD Multilayer Ceramic Capacitor	
C201	100nF		SMD Multilayer Ceramic Capacitor	
C202	100nF		SMD Multilayer Ceramic Capacitor	
C203	100nF		SMD Multilayer Ceramic Capacitor	
C204	22nF		SMD Multilayer Ceramic Capacitor	
C205	1nF		SMD Multilayer Ceramic Capacitor	

Rif.	Value	Remarks	Description	Code
C208	47MF	16V	SMD Aluminium Electrolytic Capacitor	
C209	100nF		SMD Multilayer Ceramic Capacitor	
C210	3.3pF		SMD Multilayer Ceramic Capacitor	
C211	100nF		SMD Multilayer Ceramic Capacitor	
C212	220pF		SMD Multilayer Ceramic Capacitor	
C213	220pF		SMD Multilayer Ceramic Capacitor	
C214	100nF		SMD Multilayer Ceramic Capacitor	
C215	100nF		SMD Multilayer Ceramic Capacitor	
C216	470pF		SMD Multilayer Ceramic Capacitor	
C217	47MF	16V	SMD Aluminium Electrolytic Capacitor	
C218	22MF	16V	SMD Aluminium Electrolytic Capacitor	
C219	100nF		SMD Multilayer Ceramic Capacitor	
C220	1nF		SMD Multilayer Ceramic Capacitor	
C221	100nF		SMD Multilayer Ceramic Capacitor	
C222	100nF		SMD Multilayer Ceramic Capacitor	
C223	100nF		SMD Multilayer Ceramic Capacitor	
C224	1nF		SMD Multilayer Ceramic Capacitor	
C225	10nF		SMD Multilayer Ceramic Capacitor	
C226	10MF	35V	SMD Aluminium Electrolytic Capacitor	
C227	10MF	35V	SMD Aluminium Electrolytic Capacitor	
C228	100nF		SMD Multilayer Ceramic Capacitor	
C229	100nF		SMD Multilayer Ceramic Capacitor	
C230	1nF		SMD Multilayer Ceramic Capacitor	
C231	2.2MF	50V	SMD Aluminium Electrolytic Capacitor	
C232	100nF		SMD Multilayer Ceramic Capacitor	
C233	220nF		SMD Multilayer Ceramic Capacitor	
C234	1MF	50V	SMD Aluminium Electrolytic Capacitor	
C235	10MF	35V	SMD Aluminium Electrolytic Capacitor	
C236	100nF		SMD Multilayer Ceramic Capacitor	
C237	1.5nF		SMD Multilayer Ceramic Capacitor	
C238	39pF		SMD Multilayer Ceramic Capacitor	
C239	39pF		SMD Multilayer Ceramic Capacitor	
C240	39pF		SMD Multilayer Ceramic Capacitor	
C241	39pF		SMD Multilayer Ceramic Capacitor	
C242	39pF		SMD Multilayer Ceramic Capacitor	
C243	39pF		SMD Multilayer Ceramic Capacitor	
C244	39pF		SMD Multilayer Ceramic Capacitor	
C245	39pF		SMD Multilayer Ceramic Capacitor	
C246	NC			
C247	2.2MF	50V	SMD Aluminium Electrolytic Capacitor	
L1	22uH		SMD Inductor	
L2	10uH		SMD Power Inductor	
L3	10uH		SMD Power Inductor	
L4	10uH		SMD Power Inductor	
L5	22uH		SMD Inductor	
L6	22uH		SMD Inductor	
L7	33nH		SMD Inductor	
L8	470nH		SMD Inductor	
L9	820nH		SMD Inductor	

Rif.	Value	Remarks	Description	Code
L12	22uH		SMD Inductor	
L13	22uH		SMD Inductor	
L14	22uH		SMD Inductor	
L15	470nH		SMD Inductor	
R1	1K2	1/4W	SMD Thick Film Resistor	
R2	2K2	1/4W	SMD Thick Film Resistor	
R3	4K7	1/4W	SMD Thick Film Resistor	
R4	2K	1/4W	SMD Thick Film Resistor	
R5	4K7	1/4W	SMD Thick Film Resistor	
R6	560	1/4W	SMD Thick Film Resistor	
R7	3K3	1/4W	SMD Thick Film Resistor	
R8	47	1/4W	SMD Thick Film Resistor	
R9	47K	1/4W	SMD Thick Film Resistor	
R10	100K	1/4W	SMD Thick Film Resistor	
R11	100K	1/4W	SMD Thick Film Resistor	
R12	10K	1/4W	SMD Cermet Skeleton Trimmer Resistor	
R13	560K	1/4W	SMD Thick Film Resistor	
R14	56K	1/4W	SMD Thick Film Resistor	
R15	10K	1/4W	SMD Thick Film Resistor	
R16	33	1/4W	SMD Thick Film Resistor	
R17	33	1/4W	SMD Thick Film Resistor	
R18	10K	1/4W	SMD Thick Film Resistor	
R19	10K	1/4W	SMD Thick Film Resistor	
R20	10K	1/4W	SMD Thick Film Resistor	
R21	10K	1/4W	SMD Thick Film Resistor	
R22	10K	1/4W	SMD Thick Film Resistor	
R23	10K	1/4W	SMD Thick Film Resistor	
R24	10K	1/4W	SMD Thick Film Resistor	
R25	10K	1/4W	SMD Thick Film Resistor	
R26	10K	1/4W	SMD Thick Film Resistor	
R27	NC	1/4W	SMD Thick Film Resistor	
R28	2M7	1/4W	SMD Thick Film Resistor	
R29	10K	1/4W	SMD Thick Film Resistor	
R30	1M5	1/4W	SMD Thick Film Resistor	
R31	5K6	1/4W	SMD Thick Film Resistor	
R32	470K	1/4W	SMD Thick Film Resistor	
R33	10K	1/4W	SMD Thick Film Resistor	
R34	10K	1/4W	SMD Thick Film Resistor	
R35	10K	1/4W	SMD Thick Film Resistor	
R36	8M2	1/4W	SMD Thick Film Resistor	
R37	1M	1/4W	SMD Thick Film Resistor	
R38	180K	1/4W	SMD Thick Film Resistor	
R39	2K2	1/4W	SMD Thick Film Resistor	
R40	220K	1/4W	SMD Thick Film Resistor	
R41	18K	1/4W	SMD Thick Film Resistor	
R42	330K	1/4W	SMD Thick Film Resistor	
R43	33K	1/4W	SMD Thick Film Resistor	
R44	10K	1/4W	SMD Thick Film Resistor	
R45	10K	1/4W	SMD Thick Film Resistor	

Rif.	Value	Remarks	Description	Code
R48	82K	1/4W	SMD Thick Film Resistor	
R49	10K	1/4W	SMD Thick Film Resistor	
R50	10K	1/4W	SMD Thick Film Resistor	
R51	10K	1/4W	SMD Thick Film Resistor	
R52	10K	1/4W	SMD Thick Film Resistor	
R53	15K	1/4W	SMD Thick Film Resistor	
R54	10K	1/4W	SMD Thick Film Resistor	
R55	680K	1/4W	SMD Thick Film Resistor	
R56	1M	1/4W	SMD Thick Film Resistor	
R57	18K	1/4W	SMD Thick Film Resistor	
R58	10K	1/4W	SMD Thick Film Resistor	
R59	10K	1/4W	SMD Thick Film Resistor	
R60	5K6	1/4W	SMD Thick Film Resistor	
R61	47K	1/4W	SMD Thick Film Resistor	
R62	1K2	1/4W	SMD Thick Film Resistor	
R63	82K	1/4W	SMD Thick Film Resistor	
R64	180K	1/4W	SMD Thick Film Resistor	
R65	10K	1/4W	SMD Thick Film Resistor	
R66	3K3	1/4W	SMD Thick Film Resistor	
R67	100	1/4W	SMD Thick Film Resistor	
R68	33	1/4W	SMD Thick Film Resistor	
R69	33	1/4W	SMD Thick Film Resistor	
R70	33	1/4W	SMD Thick Film Resistor	
R71	33	1/4W	SMD Thick Film Resistor	
R72	47	1/4W	SMD Thick Film Resistor	
R73	1K5	1/4W	SMD Thick Film Resistor	
R74	47	1/4W	SMD Thick Film Resistor	
R75	8K2	1/4W	SMD Thick Film Resistor	
R76	3K3	1/4W	SMD Thick Film Resistor	
R77	100K	1/4W	SMD Thick Film Resistor	
R78	10K	1/4W	SMD Thick Film Resistor	
R79	100K	1/4W	SMD Thick Film Resistor	
R80	10K	1/4W	SMD Thick Film Resistor	
R81	10K	1/4W	Carbon Skeleton Trimmer Resistor	
R82	3K3	1/4W	SMD Thick Film Resistor	
R83	3K9	1/4W	SMD Thick Film Resistor	
R84	4K7	1/4W	SMD Thick Film Resistor	
R85	47	1/4W	SMD Thick Film Resistor	
R86	1M8	1/4W	SMD Thick Film Resistor	
R87	100K	1/4W	SMD Thick Film Resistor	
R88	10K	1/4W	SMD Thick Film Resistor	
R89	100K	1/4W	Carbon Skeleton Trimmer Resistor	
R90	12K	1/4W	SMD Thick Film Resistor	
R91	10K	1/4W	SMD Thick Film Resistor	
R92	680	1/4W	SMD Thick Film Resistor	
R93	10K	1/4W	SMD Thick Film Resistor	
R94	10K	1/4W	SMD Thick Film Resistor	
R95	47	1/4W	SMD Thick Film Resistor	
R96	100K	1/4W	SMD Thick Film Resistor	
R97	10K	1/4W	SMD Thick Film Resistor	

Rif.	Value	Remarks	Description	Code
R100	47K	1/4W	SMD Thick Film Resistor	
R101	22K	1/4W	SMD Thick Film Resistor	
R102	1K	1/4W	SMD Thick Film Resistor	
R103	10K	1/4W	SMD Thick Film Resistor	
R104	33	1/4W	SMD Thick Film Resistor	
R105	15K	1/4W	SMD Thick Film Resistor	
R106	1K	1/4W	SMD Thick Film Resistor	
R107	10K	1/4W	SMD Thick Film Resistor	
R108	10K	1/4W	Carbon Skeleton Trimmer Resistor	
R109	47K	1/4W	SMD Thick Film Resistor	
R110	22K	1/4W	SMD Thick Film Resistor	
R111	33	1/4W	SMD Thick Film Resistor	
R112	33	1/4W	SMD Thick Film Resistor	
R113	33	1/4W	SMD Thick Film Resistor	
R114	560K	1/4W	SMD Thick Film Resistor	
R115	6K8	1/4W	SMD Thick Film Resistor	
R116	10K	1/4W	SMD Cermet Skeleton Trimmer Resistor	
R117	22	1/4W	SMD Thick Film Resistor	
R118	22	1/4W	SMD Thick Film Resistor	
R119	1M8	1/4W	SMD Thick Film Resistor	
R120	100K	1/4W	SMD Thick Film Resistor	
R121	10K	1/4W	SMD Thick Film Resistor	
R122	560K	1/4W	SMD Thick Film Resistor	
R123	220K	1/4W	SMD Thick Film Resistor	
R124	8M2	1/4W	SMD Thick Film Resistor	
R125	20K	1/4W	SMD Cermet Skeleton Trimmer Resistor	
R126	68K	1/4W	SMD Thick Film Resistor	
R127	100K	1/4W	SMD Thick Film Resistor	
R128	4K7	1/4W	SMD Thick Film Resistor	
R129	150K	1/4W	SMD Thick Film Resistor	
R130	33K	1/4W	SMD Thick Film Resistor	
R131	10K	1/4W	SMD Cermet Skeleton Trimmer Resistor	
R132	10K	1/4W	SMD Thick Film Resistor	
R133	100K	1/4W	SMD Thick Film Resistor	
R134	220K	1/4W	SMD Thick Film Resistor	
R135	470K	1/4W	SMD Thick Film Resistor	
R136	2K	1/4W	SMD Cermet Skeleton Trimmer Resistor	
R137	100K	1/4W	SMD Thick Film Resistor	
R138	10K	1/4W	SMD Thick Film Resistor	
R139	10K	1/4W	SMD Thick Film Resistor	
R140	33K	1/4W	SMD Thick Film Resistor	
R141	27K	1/4W	SMD Thick Film Resistor	
R142	270K	1/4W	SMD Thick Film Resistor	
R143	8K2	1/4W	SMD Thick Film Resistor	
R144	4K7	1/4W	SMD Thick Film Resistor	
R145	1K2	1/4W	SMD Thick Film Resistor	
R146	1K2	1/4W	SMD Thick Film Resistor	
R147	680	1/4W	SMD Thick Film Resistor	
R148	560	1/4W	SMD Thick Film Resistor	
R149	10K	1/4W	SMD Thick Film Resistor	

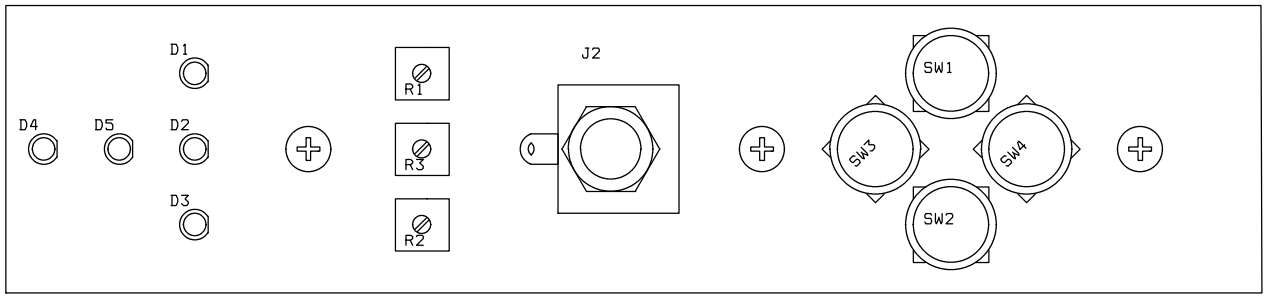
Rif.	Value	Remarks	Description	Code
R152	10K	1/4W	SMD Thick Film Resistor	
R153	10K	1/4W	SMD Thick Film Resistor	
R154	10K	1/4W	SMD Thick Film Resistor	
R155	10K	1/4W	SMD Thick Film Resistor	
R156	10K	1/4W	SMD Thick Film Resistor	
R157	1K	1/4W	SMD Thick Film Resistor	
R158	10K	1/4W	SMD Thick Film Resistor	
R159	10K	1/4W	SMD Thick Film Resistor	
R160	10K	1/4W	SMD Thick Film Resistor	
R161	10K	1/4W	SMD Thick Film Resistor	
R162	NC			
R163	NC			
R164	NC			
R165	10K	1/4W	SMD Thick Film Resistor	
R166	1K5	1/4W	SMD Thick Film Resistor	
R167	10K	1/4W	SMD Cermet Skeleton Trimmer Resistor	
R168	1K2	1/4W	SMD Thick Film Resistor	
R169	6K8	1/4W	SMD Thick Film Resistor	
R170	6K8	1/4W	SMD Thick Film Resistor	
R171	6K8	1/4W	SMD Thick Film Resistor	
R172	6K8	1/4W	SMD Thick Film Resistor	
R173	6K8	1/4W	SMD Thick Film Resistor	
R174	6K8	1/4W	SMD Thick Film Resistor	
R175	6K8	1/4W	SMD Thick Film Resistor	
R176	56K	1/4W	SMD Thick Film Resistor	
R177	100	1/4W	SMD Thick Film Resistor	
R178	10K	1/4W	SMD Thick Film Resistor	
R179	18K	1/4W	SMD Thick Film Resistor	
R180	330	1/4W	SMD Thick Film Resistor	
R181	4K7	1/4W	SMD Thick Film Resistor	
R182	1K8	1/4W	SMD Thick Film Resistor	
R183	180	1/4W	SMD Thick Film Resistor	
R184	220	1/4W	SMD Thick Film Resistor	
R185	100	1/4W	SMD Thick Film Resistor	
R186	560	1/4W	SMD Thick Film Resistor	
R187	NC	1/4W	SMD Thick Film Resistor	
R188	3K9	1/4W	SMD Thick Film Resistor	
R189	220	1/4W	SMD Thick Film Resistor	
R190	100	1/4W	SMD Thick Film Resistor	
R191	100	1/4W	SMD Thick Film Resistor	
R192	47K	1/4W	SMD Thick Film Resistor	
R193	47K	1/4W	SMD Thick Film Resistor	
R194	47K	1/4W	SMD Thick Film Resistor	
R195	3K9	1/4W	SMD Thick Film Resistor	
R196	47K	1/4W	SMD Thick Film Resistor	
R197	47K	1/4W	SMD Thick Film Resistor	
R198	470	1/4W	SMD Thick Film Resistor	
R199	47K	1/4W	SMD Thick Film Resistor	
R200	470	1/4W	SMD Thick Film Resistor	
R201	100K	1/4W	SMD Thick Film Resistor	

Rif.	Value	Remarks	Description	Code
R204	1K	1/4W	SMD Thick Film Resistor	
R205	120	1/4W	SMD Thick Film Resistor	
R206	220	1/4W	SMD Thick Film Resistor	
R207	220	1/4W	SMD Thick Film Resistor	
R208	18K	1/4W	SMD Thick Film Resistor	
R209	22K	1/4W	SMD Thick Film Resistor	
R210	82	1/4W	SMD Thick Film Resistor	
R211	56	1/4W	SMD Thick Film Resistor	
R212	680	1/4W	SMD Thick Film Resistor	
R213	15K	1/4W	SMD Thick Film Resistor	
R214	4K7	1/4W	SMD Thick Film Resistor	
R215	220	1/4W	SMD Thick Film Resistor	
R216	3K9	1/4W	SMD Thick Film Resistor	
R217	10	1/4W	SMD Thick Film Resistor	
R218	220	1/4W	SMD Thick Film Resistor	
R219	220	1/4W	SMD Thick Film Resistor	
R220	220	1/4W	SMD Thick Film Resistor	
R221	47K	1/4W	SMD Thick Film Resistor	
R222	47K	1/4W	SMD Thick Film Resistor	
R223	6K8	1/4W	SMD Thick Film Resistor	
R224	330	1/4W	SMD Thick Film Resistor	
R225	200K	1/4W	SMD Cermet Skeleton Trimmer Resistor	
R226	200K	1/4W	SMD Cermet Skeleton Trimmer Resistor	
R227	12K	1/4W	SMD Thick Film Resistor	
R228	12K	1/4W	SMD Thick Film Resistor	
R229	12K	1/4W	SMD Thick Film Resistor	
R230	47	1/4W	SMD Thick Film Resistor	
R231	1K	1/4W	SMD Thick Film Resistor	
R232	1K	1/4W	SMD Thick Film Resistor	
R233	NC	1/4W	SMD Thick Film Resistor	
R234	330	1/4W	SMD Thick Film Resistor	
R235	390	1/4W	SMD Thick Film Resistor	
R236	330	1/4W	SMD Thick Film Resistor	
R237	100K	1/4W	SMD Thick Film Resistor	
R238	220	1/4W	SMD Thick Film Resistor	
R239	330	1/4W	SMD Thick Film Resistor	
R240	330	1/4W	SMD Thick Film Resistor	
R241	330	1/4W	SMD Thick Film Resistor	
R242	47	1/4W	SMD Thick Film Resistor	
R243	100K	1/4W	SMD Thick Film Resistor	
R244	330	1/4W	SMD Thick Film Resistor	
R245	27K	1/4W	SMD Thick Film Resistor	
R246	270	1/4W	SMD Thick Film Resistor	
R247	10K	1/4W	SMD Thick Film Resistor	
R248	100	1/4W	SMD Thick Film Resistor	
R249	27K	1/4W	SMD Thick Film Resistor	
R250	27K	1/4W	SMD Thick Film Resistor	
R251	27K	1/4W	SMD Thick Film Resistor	
R252	12K	1/4W	SMD Thick Film Resistor	
R253	180	1/4W	SMD Thick Film Resistor	

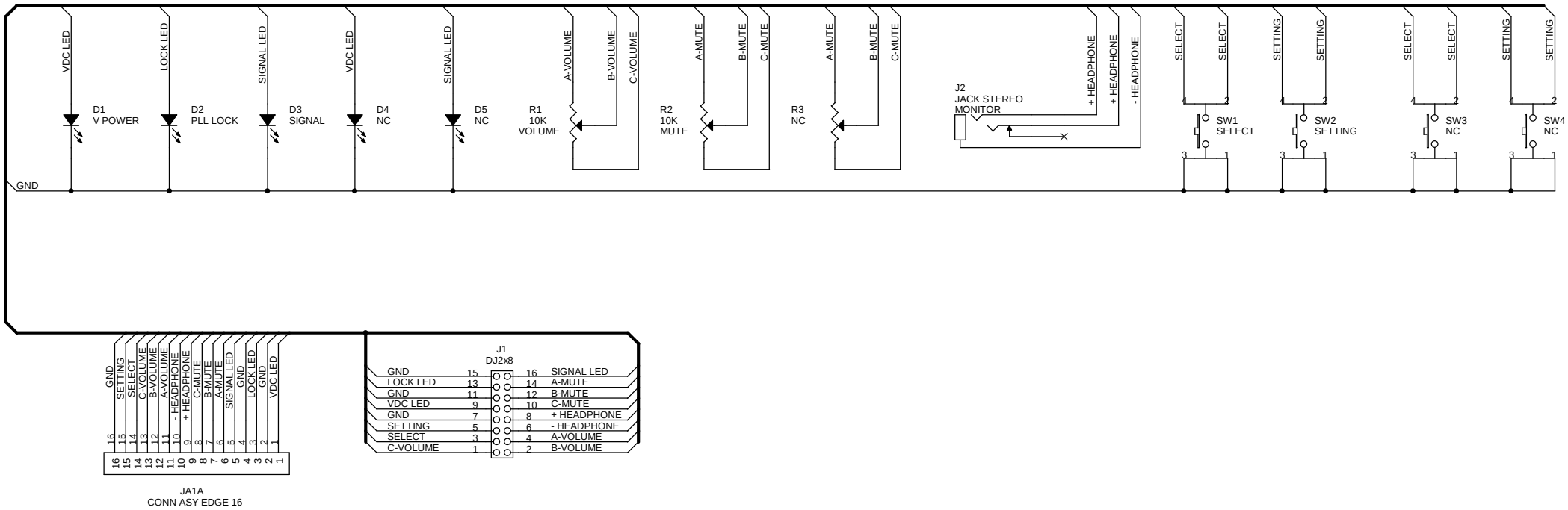
Rif.	Value	Remarks	Description	Code
R256	12K	1/4W	SMD Thick Film Resistor	
R257	10K	1/4W	SMD Thick Film Resistor	
R258	4K7	1/4W	SMD Thick Film Resistor	
R259	1K	1/4W	SMD Thick Film Resistor	
R260	10K	1/4W	SMD Thick Film Resistor	
R261	2K2	1/4W	SMD Thick Film Resistor	
R262	220K	1/4W	SMD Thick Film Resistor	
R263	2K	1/4W	SMD Cermet Skeleton Trimmer Resistor	
R264	200	1/4W	SMD Cermet Skeleton Trimmer Resistor	
D1	LM335		Special Function Integrated Circuit	
D2	LL4148		SMD Low Power Signal Diode	
D3	MMBS340T3		SMD Switching High Speed Diode	
D4	-15V		SMD Light Emitting Diode	
D5	+15V		SMD Light Emitting Diode	
D6	+9V		SMD Light Emitting Diode	
D7	+5V		SMD Light Emitting Diode	
D9	LL4148		SMD Low Power Signal Diode	
D10	LED		SMD Light Emitting Diode	
D11	LL4148		SMD Low Power Signal Diode	
D12	5V1		SMD Diode Zener	
D13	6.2V		SMD Diode Zener	
D14	LL4148		SMD Low Power Signal Diode	
D15	12V		SMD Diode Zener	
D16	LL4148		SMD Low Power Signal Diode	
D17	5V1		SMD Diode Zener	
D18	LL4148		SMD Low Power Signal Diode	
D19	LL4148		SMD Low Power Signal Diode	
D20	LL4148		SMD Low Power Signal Diode	
Q1	BC807-25L		SMD Low Power Bipolar Transistor	
Q2	BC807-25L		SMD Low Power Bipolar Transistor	
Q3	BC807-25L		SMD Low Power Bipolar Transistor	
Q4	BFR93L		SMD RF Bipolar Transistor	
Q5	BFR93L		SMD RF Bipolar Transistor	
Q6	BFR93L		SMD RF Bipolar Transistor	
Q7	MMBFJ310		SMD JFET	
Q8	MMBFJ310		SMD JFET	
Q9	MMBFJ310		SMD JFET	
Q10	MMBFJ310		SMD JFET	
Q11	BFR93L		SMD RF Bipolar Transistor	
Q12	BC817-25L		SMD Low Power Bipolar Transistor	
Q13	BC807-25L		SMD Low Power Bipolar Transistor	
Q14	BC807-25L		SMD Low Power Bipolar Transistor	
Q15	BC817-25L		SMD Low Power Bipolar Transistor	
Q16	BC817-25L		SMD Low Power Bipolar Transistor	
U1	LF347		SMD FET Operational Amplifier	
U2	LF347		SMD FET Operational Amplifier	
U3	LF347		SMD FET Operational Amplifier	

Rif.	Value	Remarks	Description	Code
U6	LM358		SMD Operational Amplifier	
U7	LT1374CR		Special Function Integrated Circuit	
U8	78M09		Fixed Voltage Regulator	
U9	78M05		Fixed Voltage Regulator	
U10	ADC0834CCWM		Special Function Integrated Circuit	
U11	MAX810L		Special Function Integrated Circuit	
U12	HIN232ACBN		Special Function Integrated Circuit	
U13	T89C51RD2		Special Function Integrated Circuit	
U14	LM358		SMD Operational Amplifier	
U15	LMX1501		Special Function Integrated Circuit	
U16	TDA1599T		Special Function Integrated Circuit	
U17	SA614AD		Special Function Integrated Circuit	
U18	LM358		SMD Operational Amplifier	
Y1	11.0592MHz		SMD Quartz Crystal	
Y2	59.300MHz		SMD Quartz Crystal	
TCXO1	MHz 12.800		SMD Crystal Oscillator Module	
RL1	VGH B 001 12		Relay	
TR1	10.7 MHz		RF Transformer	
TR2	10.7 MHz		RF Transformer	
TR3	10.7 MHz		RF Transformer	
TR4	10.7 MHz		RF Transformer	
LCD1	DISPLAY V20350		Male PCB Mounting Header	
M1	BSL-1X		RF Mixer	
P1	DB9		Male Connector DB9	
FL1	70 MHz FILTER		RF Filter	
FC1	FILTER 10.7MHz		Ceramic Filter	
FC2	FILTER 10.7MHz		Ceramic Filter	
FC3	FILTER 10.7MHz		Ceramic Filter	
FC4	FILTER 10.7MHz		Ceramic Filter	
FC5	FILTER 10.7MHz		Ceramic Filter	
FC6	FILTER 10.7MHz		Ceramic Filter	
J1	MPX		BNC Panel Connector - 50 Ohm	
J2	OUT 10.7 MHz		SMB PCB Jack - 50 Ohm	
J3	MONO		Audio Connector - XLR Style Palastic	
J4	INPUT 70 MHz		SMB PCB Jack - 50 Ohm	
J5	DC 15V			
J6	SCA1		BNC Panel Connector - 50 Ohm	
J7	SCA2		BNC Panel Connector - 50 Ohm	
J8	VCO V		SMB PCB Jack - 50 Ohm	
J9	RF INPUT		SMB PCB Jack - 50 Ohm	

Rif.	Value	Remarks	Description	Code
J12	AUDIO		PCB Pin Strip Header	
J13	FILTERS		PCB Pin Strip Header	
J14	OUT MPX		PCB Pin Strip Header	
J15	50/75 uS		PCB Pin Strip Header	
J16	SETUP		PCB Pin Strip Header	
J17	PROG		PCB Pin Strip Header	
J18	TEST Freq.		PCB Pin Strip Header	
J19	FM MODE		PCB Pin Strip Header	
J20	IF		PCB Pin Strip Header	
J21	INTERLOCK		BNC Panel Connector - 50 Ohm	
J22	AUX		PCB Pin Strip Header	
JA1	FP		PCB Pin Strip Header	


D1
D4
D5
D2
D3
R1
R3
R2
J2
SW1
SW3
SW4
SW2

J1
1
16
J1
2
1
16
15
18
17
16



R.V.R. ELETTRONICA

Title: FRONTAL PANEL

Size	Document Number	Rev
B	Mod. FP.RX	1.0

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Part List Schematic : FP-RX

Rif.	Value	Remarks	Description	Code
R1	10K		Cermet Skeleton Trimmer Resistor	
R2	10K		Cermet Skeleton Trimmer Resistor	
R3	NC			
D1	V POWER		Light Emitting Diode	
D2	PLL LOCK		Light Emitting Diode	
D3	SIGNAL		Light Emitting Diode	
D4	NC			
D5	NC			
J1	DJ2x8		Male PCB Mounting Header	
J2	JACK STEREO		Jack Connector	
JA1	FP		PCB Pin Strip Header	
SW1	SELECT		Push Button Switcher	
SW2	SETTING		Push Button Switcher	
SW3	NC			
SW4	NC			