

Figure 6-101 Different signals around an ADC.

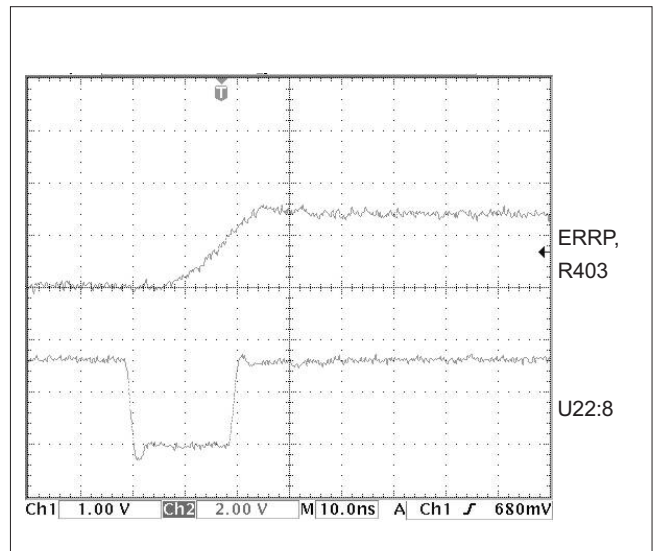


Figure 6-102 Close-up of error pulse and S/H output.

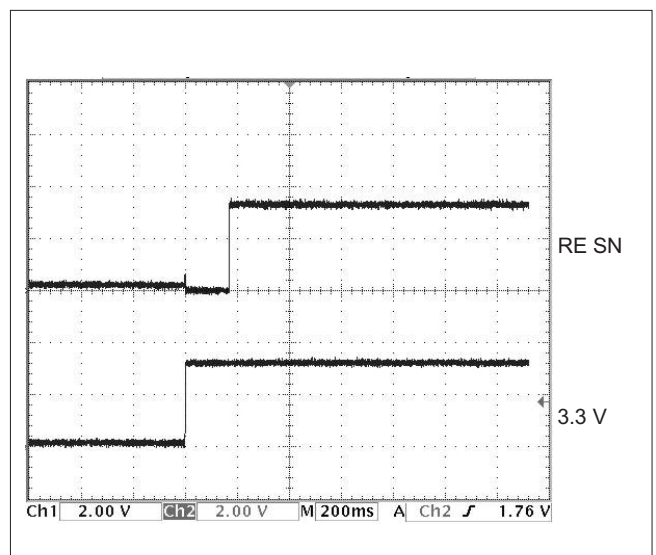


Figure 6-103 Power-up & Reset.

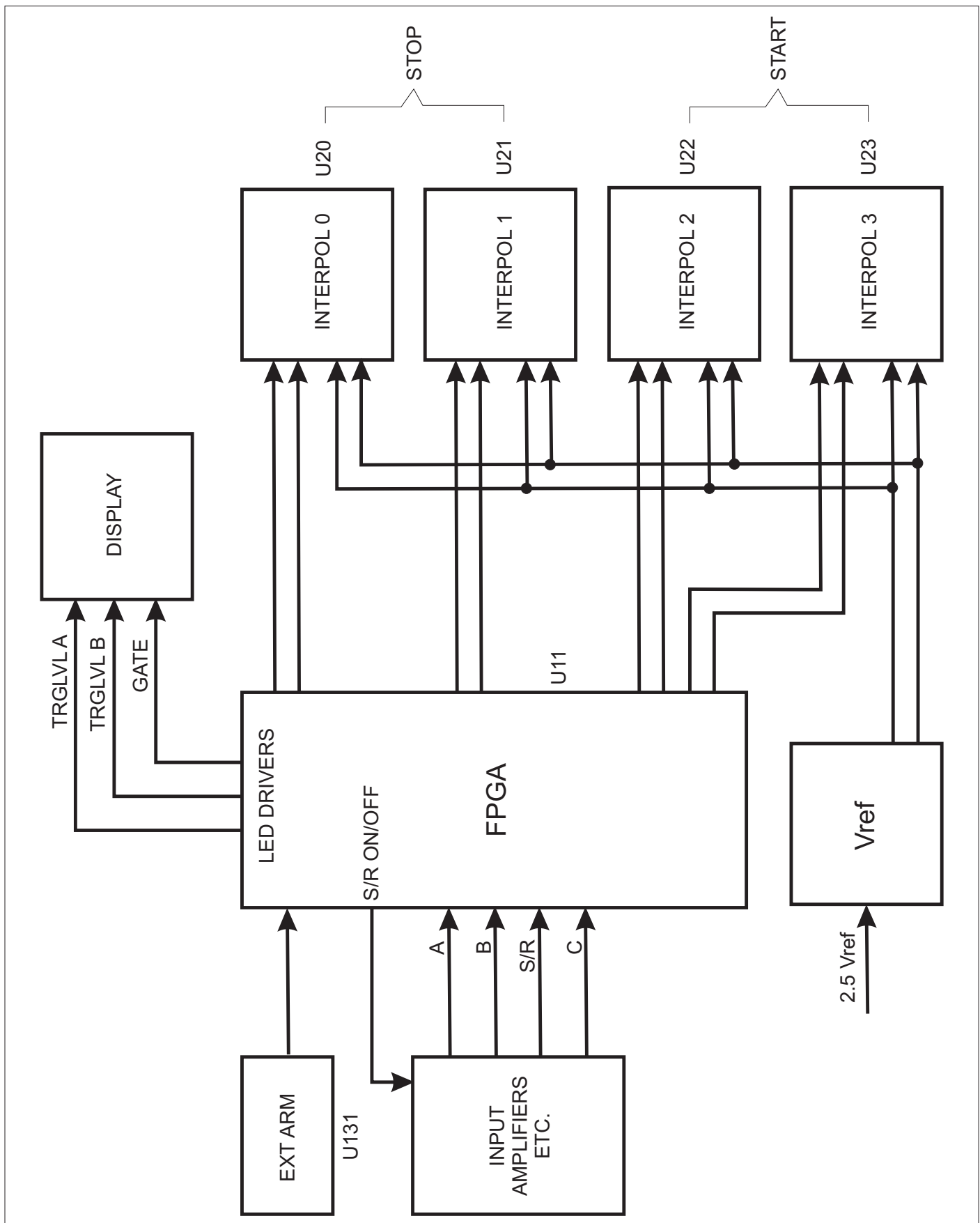


Figure 6-104 Measuring logic, block diagram.

Safety Inspection and Test After Repair

General Directives

After repair in the primary circuits, make sure that you have not reduced the creepage distances and clearances.

Before soldering, component pins must be bent on the solder side of the board. Replace insulating guards and plates.

Safety Components

Components in the primary circuits are important to the safety of the instrument and may only be replaced by components obtained from your local service organization.

Check the Protective Ground Connection

Visually check the correct connection and condition and measure the resistance between the protective lead at the plug and the cabinet. The resistance must not be more than $0.5\ \Omega$. During measurement, the power cord should be moved. Any variations in resistance shows a defect.

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Chapter 7

Calibration Adjustments

Calibration

To maintain the performance of the timer/counter, we recommend that you calibrate the timebase of your instrument every year, or more often if you require greater timebase accuracy.

If your applications utilize the voltage measurement capabilities of this counter series, you should also calibrate the voltage ranges with a good calibrator.

Calibration should be performed with traceable references and instruments at a certified calibration laboratory. Contact your local service center for information on calibration facilities in your neighborhood.

As both timebase and voltage calibration are closed-case menu-controlled procedures that require no manual adjustments on the DUT, you can perform the task on your own without infringing the safety regulations, provided you possess the required skill and have access to the necessary calibration equipment.

To know the present status of your instrument, test your counter from time to time. The test can be made according to the information in Chapter 2, “Performance Check.”

General Principles

The inherent meaning of calibration is to measure and record the deviation of a parameter from a known reference. Data from subsequent calibrations under similar ambient conditions form the calibration history, from which you can draw conclusions regarding aging characteristics.

Consequently calibration does not necessarily include the next natural step in the procedure, i.e. adjustment in order to make the instrument meet the original specifications.

The calibration procedure for these instruments also implies automatic adjustment, so if you want a continuous history record, you should follow the simple rules of thumb below that summarize the basics of all calibration, frequency as well as voltage.

- Place the instrument in its calibration environment, preferably at an ambient temperature of $+23 \pm 2^\circ\text{C}$ and power it up.
- Let the instrument assume its final internal operating temperature. Allow at least a warm-up period of two hours before proceeding.
- Measure the deviation and record the value. Use a reference source whose uncertainty is at least an order of magnitude less than that of the DUT.

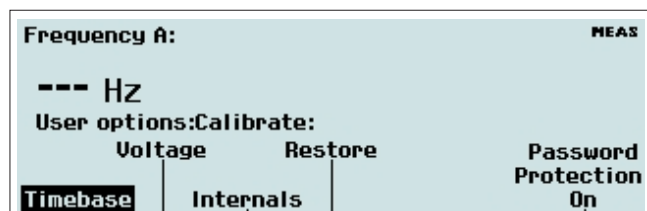
Model	90	90	90
Option	Standard	PM6690/_5_	PM6690/_6_
Timebase type	UCXO	OCXO	OCXO
Total uncertainty, for operating temperature 0°C to 50°C , @ 2σ (95 %) confidence interval:			
-1 month after calibration	$<1.2 \times 10^{-5}$	$<2 \times 10^{-8}$	$<0.7 \times 10^{-8}$
-3 months after calibration	$<1.2 \times 10^{-5}$	$<4 \times 10^{-8}$	$<1.2 \times 10^{-8}$
-1 year after calibration	$<1.2 \times 10^{-5}$	$<6 \times 10^{-8}$	$<1.8 \times 10^{-8}$
-2 years after calibration	$<1.5 \times 10^{-5}$	$<1.2 \times 10^{-7}$	$<3.6 \times 10^{-8}$
Typical total uncertainty, for operating temperature 20°C to 26°C , @ 2σ (95 %) confidence interval:			
-1 month after calibration	$<4 \times 10^{-6}$	$<2 \times 10^{-8}$	$<0.7 \times 10^{-8}$
-3 months after calibration	$<4 \times 10^{-6}$	$<4 \times 10^{-8}$	$<1.2 \times 10^{-8}$
-1 year after calibration	$<7 \times 10^{-6}$	$<6 \times 10^{-8}$	$<1.7 \times 10^{-8}$
-2 years after calibration	$<1.2 \times 10^{-5}$	$<1.2 \times 10^{-7}$	$<3.5 \times 10^{-8}$

For complete specifications see Chapter 8 of the Operators Manual.

Table 7-1 Suitable calibration intervals depend on the total uncertainty of different timebase options and the requirements of your application.

- Start the calibration & adjustment procedure and follow the instructions.
- Measure the deviation and record the value.
- Check that the parameter meets its specification.

The Calibration Submenu



When used for the first time, this submenu can be activated from the **USER OPT** menu after first entering the fixed password 62951413. All calibrations that can be performed manually are controlled from here. Internal delays can be compensated for as well as aging of the timebase and voltage references. All calibration procedures are performed without having to remove the instrument cover. In this way it is easier to keep the calibration environment as close to the operating environment as possible. No special tools are necessary, and live parts are not exposed to the operator, who is guided through the procedures by instructions on the instrument display. The whole concept is known as *Closed-Case Calibration*.

NOTE: The timer/counter must have been switched on for at least one hour before you start any calibration.

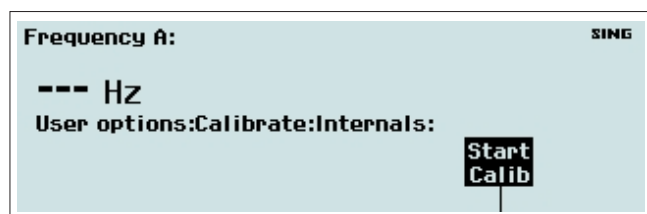
When the instrument leaves the factory, the calibration data is stored as *factory calibration* that cannot be changed by the user.

There is one active set of calibration data. It can be a user set or the factory set. If a user set is active and a new user calibration procedure is initiated, then the older set of data is stored to make it possible to return to the earlier calibration status.

Password Protection ON/OFF

The default setting on delivery for the password protection is **ON** but can be changed to **OFF** after the first-time use if so desired. Activate or deactivate the password with this key.

Internals



Certain internal delays are measured in order to correct the results of real measurements. This is done without applying external signals. This procedure needs only be run after firm-

ware upgrading, or if repair work has been done on the measuring logic or the analog interpolators.

Press **Start Calib** to run the procedure. The new calibration will be the active calibration.

■ Calibration via the GPIB or the USB

The calibration can also be performed by sending commands over one of the interface buses.

Always end the commands with the *Operation Complete Query* *OPC?

Use the following command sequence:

```
:CAL:DEL:INIT;*OPC?
:CAL:DEL:START;*OPC?
:SYST:ERR? -- check for errors --
:CAL:DEL:STOR
```

Timebase

A reference frequency with adequate accuracy must be connected to Channel A. Timebase calibration should be performed regularly at intervals that depend on the timebase itself and the user application. Read more about the procedure under *Frequency Reference* below.

Voltage

A sequence of voltage levels from a dedicated calibrator must be applied to Channel A and Channel B. Voltage calibration should be performed regularly if the user application calls for traceable voltage measurements. Read more about the procedure under *Voltage Reference* below.

Restore

You can make a stored set of calibration data, either a user set or the factory set, the active calibration. If the previous active calibration was a new user calibration, then it will be lost.

Frequency Reference

The frequency of the reference crystal oscillator is the main parameter that influences the accuracy of a counter. External conditions, such as ambient temperature and supply voltage, affect the frequency, but aging is also an important factor. Note that frequency adjustment only compensates for deviation due to aging.

Some important points

The two optional high-stability oscillators, type OCXO, have been built into an oven to keep the oscillator temperature as stable as possible. Continuous operation is also important for optimum stability. Option PM6690/_6_, for example, has an aging/24h that is 1×10^{-10} when operating continuously. After a power interruption, the oscillator drift is higher and the speci-

fication of 1×10^{-10} per 24h is reached only after 48h of continuous operation.


- The frequency uncertainty for standard oscillators is mainly dependent on the ambient temperature. Variations in ambient temperature between 0 °C and +50 °C may cause a frequency change of up to 100 Hz, whereas the aging per month is only 5 Hz. During warm-up the temperature increase inside the counter will affect the oscillator for about two hours.

■ **How often should you calibrate?**

In the table on the preceding page you can see the uncertainty of your time base oscillator for various MTBRC (Mean Time Between Recalibration) intervals.

Compare the requirements of your application with the values in the table, and select the proper MTBRC accordingly.

Please note that the frequency uncertainty when operating in a temperature controlled environment is different from field use. See the two sections in the table.

 *When adjusted, keep in mind that the reference crystal oscillator will be compensated only for frequency deviation caused by aging.*

Timebase Calibration Procedure

■ **Test Equipment**

The instrumentation outlined here is an example of equipment meeting the minimum requirements for calibrating the different timebase options. You are free to choose other equipment as long as its performance is adequate for the purpose.

A suitable reference oscillator can be derived from a number of sources, the specifications of which determine the type of DUT timebase option that can be calibrated.

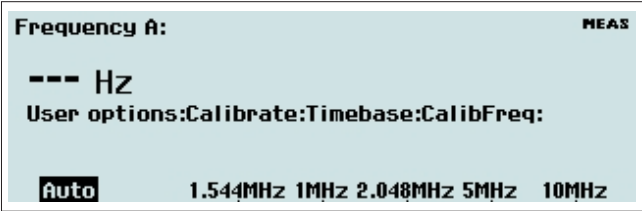
The table suggests a number of possible combinations. Remember this rule of thumb: the reference should be at least five times better than the DUT for a reliable calibration result.

DUT Option	Reference Oscillator
Standard	PM6690/_5_
PM6690/_5_	909
PM6690/_6_	909

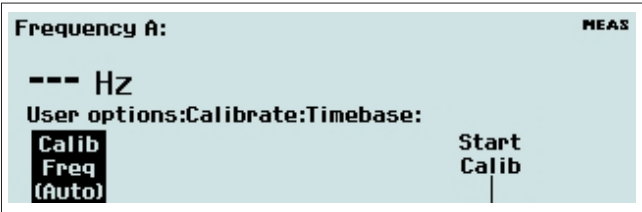
Table 7-2 Reference Oscillator requirements.

■ **Work Instructions**

- Determine the minimum requirements of the reference oscillator and make a signal meeting these requirements available at your test site.
NOTE: You can use a number of different calibration frequencies for the DUT: 1 MHz, 1.544 MHz, 2.048 MHz, 5 MHz and 10 MHz.
- Place the DUT in its calibration environment, preferably at an ambient temperature of $+23 \pm 2$ °C and power it up.



- Recall the default settings by keying in the following sequence:
USER OPT → **Save/Recall** → **Recall Setup** → **Default**
- Let the DUT assume its final internal operating temperature. Allow at least a warm-up period of two hours before proceeding.
- Connect the reference oscillator signal to Input A on the DUT.
- Select 10 s measuring time (under **SETTINGS**) and measure the frequency.
NOTE: Use a measuring time that is long enough to meet the required resolution (see Table 7-1) or use statistics to find the mean value of multiple measurements.
- Calculate the relative deviation of the internal timebase as $\Delta_{rel} = -(f_{meas} - f_{ref})/f_{ref}$.
- Translate this value to an absolute deviation Δ_{abs} of the internal 10 MHz timebase by using the expression:
 $\Delta_{abs} = \Delta_{rel} \times 10^7$ (Hz)
- Note this value as the calibration state before adjustment, and decide if an adjustment is necessary according to the applicable criteria.
- Stop here if an adjustment is not necessary. Otherwise go on.
- Go to the *Calibration Submenu* and select **Timebase**.



- Press **Calib Freq** and select one of the possible frequencies, or let the counter decide on its own by accepting the preselected **Auto** setting.
- Start the calibration procedure by pressing **Start Calib** and follow the instructions on the display.
- You must enter a date at the end of the procedure in order to make the result the active user calibration.
- Measure the external reference frequency once more, and calculate the deviation of the internal timebase in the same way as before the adjustment. Note this value as the calibration state after adjustment.
- Compare the two deviation values, and check that the calibration procedure has been successful.
- Fill out the calibration protocol if required.

■ Timebase Calibration via the GPIB or the USB

The frequency calibration can also be performed by sending commands over one of the interface buses.

Always end the commands with the *Operation Complete Query* *OPC?

Use the following command sequence:

```
:CAL:ROSC:INIT;*OPC?
:CAL:ROSC:FREQ <num. value>;*OPC? -- select and connect reference frequency --
:CAL:ROSC:START;*OPC?
:SYST:ERR? -- check for errors --
:CAL:ROSC:STOR yyyyymmdd --enter calibration date --
```

Voltage Reference

Although a counter/timer is chiefly an instrument for measuring time and frequency related parameters, this instrument also has voltage measurement capabilities that you can benefit from. Under certain circumstances you can do without a DVM in a test system, but then you have to calibrate and adjust the built-in voltage reference regularly to ensure the specified uncertainty.

Voltage Calibration Procedure

■ Test Equipment

You should preferably use a dedicated DC voltage calibrator with an uncertainty at least a magnitude less than the measurement specification (see Chapter 8 of the Operators Manual).

Alternatively you can use a stable laboratory power supply with an external precision voltage divider, for instance a ten-turn potentiometer, in combination with an adequately accurate DVM for verification.

Note: In contrast to a DVM the counter/timer has a wide-bandwidth input, and the voltage calculation principle is based on peak-to-peak measurements rather than mean value or RMS measurements. This means that HF noise that is often present at the output of standard calibrators and power supplies must be filtered out when the test voltages are applied to the counter input. Always use shielded test leads that are as short as possible.

■ Work Instructions

- Arrange your test setup according to the outline given above.

Note: Both Input A and Input B should be calibrated. If you want a traceability record you should apply a number of positive and negative DC voltages covering the dynamic range and write down the deviations. Use the following list:

+50 V, +20 V, +5 V, +2 V, +0.5 V, 0 V, -0.5 V, -2 V, -5 V, -20 V, -50 V

- Key in the following sequence on the DUT.
USER OPT → Calibrate → (Enter Password if enabled) **→ Voltage → Start Calib**
- Follow the step-by-step instructions on the display.
- You must enter a date at the end of the procedure in order to make the result the active user calibration.
- If you want a traceability record, verify the calibration/adjustment procedure by applying the same list of voltages as above and write down the deviations.
- Fill out the calibration protocol if required.

■ Voltage Calibration via the GPIB or the USB

The following DC voltages should be applied to the timer/counter in this order: +50, +20, +5, +2, +0.5, 0, -0.5, -2, -5, -20, -50 V, first to Input A(1) and then to Input B(2).

If you cannot generate the exact voltage, a voltage in the vicinity of the required voltage can be used, but the value must be sent in the bus command; two values between +50 and +5 V, seven values between +5 V and -5 V, and two values between -5 V and -50 V. One value should be near zero.

Always end the commands with the *Operation Complete Query* *OPC?

Use the following command sequence, and apply the correct DC voltage to the specified input before each command:

```
:CAL:VOLT:INIT;*OPC?
:CAL:VOLT:INP1:VAL 50.0000;*OPC?
:CAL:VOLT:INP2:VAL 50.0000;*OPC?
:CAL:VOLT:INP1:VAL 20.0000;*OPC?
:CAL:VOLT:INP2:VAL 20.0000;*OPC?
*
*
:CAL:VOLT:INP1:VAL -50.0000;*OPC?
:CAL:VOLT:INP2:VAL -50.0000;*OPC?
:SYST:ERR? -- check for errors --
:CAL:VOLT:STOR yyyyymmdd -- enter calibration date --
```

Calibration Subsystem Command Reference

:CALibration

DELays

:INITialize

:STARt

:STORe

:ROSCillator

:FREQuency └─ <Numeric Value>

:AUTO└─ <Boolean>

:INITialize

:LOAD

:FACTory

:USER

:STARt

:STORe └─ <YYYYMMDD>

:VOLTage

:INITialize

:INPut1

:VAL└─ <Numeric Value>

:INPut2

:VAL└─ <Numeric Value>

:LOAD

:FACTory

:USER

:STORe └─ <YYYYMMDD>

▮

:CALibration :DELays :INITialize

Calibration of Internal Delays
Initializes the calibration process.

▮

:CALibration :DELays :START

Calibration of Internal Delays
Starts the calibration process.

▮

:CALibration :DELays :STORE

Calibration of Internal Delays
Ends the calibration process and stores the calibration factors.

▮

:CALibration :ROSCillator :FREQuency
↳<Numeric value>

Calibration of Reference Oscillator
Selects the reference frequency used for the timebase calibration. AUTO is automatically set to OFF.

Parameters:
<Numeric value> = (1E+6 | 1.544E+6 | 2.048E+6 | 5E+6 | 10E+6)

Returned format: <Numeric value>↵

***RST condition:** Not affecting this setting

11

11

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11

:CALibration :ROSCillator :START

Start Calibration

Starts the calibration process after an external reference source has been connected to Input A.

:CALibration :ROSCillator :STORE └<YYYYMMDD>

Store User Calibration

Ends the calibration process and stores the calibration factors using the date code YYYYMMDD, that is year (4 digits), month (2 digits), and day (2 digits).

Example:

SEND→ :CAL:ROSC:STOR 20040731

:CALibration :VOLTage :INITialize

Calibration of Reference Voltage

Initializes the voltage calibration process.

:CALibration :VOLTage :INPut«[1]|2» :VAL └<Numeric Value>

DC Voltage Calibration

Calibrates a DC voltage within the range -50 V - +50 V if the corresponding voltage from a voltage reference source is applied to the input that is addressed in the command.

Example for Input A (1):

SEND→ :CAL:VOLT:INP:VAL 5

+5 V is applied to input A before sending the command.

Example for Input B (2):

SEND→ CAL:VOLT:INP2:VAL -20

-20 V is applied to input B before sending the command.

Note: The DC voltages must be sent in a prescribed order. See page 7-5.

:CALibration :VOLTage :LOAD :FACTory

□

Restore Factory Calibration

Recalls the calibration factors stored by the factory before delivery or after service.

:CALibration :VOLTage :LOAD :USER

□

Restore User Calibration

Recalls the calibration factors last stored by the user.

:CALibration :VOLTage :STORe

└<YYYYMMDD>

□

Store User Calibration

Ends the calibration process and stores the calibration factors using the date code YYYYMMDD, that is year (4 digits), month (2 digits), and day (2 digits).

Example:

SEND→ :CAL:VOLT:STOR 20040731

Adjustments

Preparations

Before beginning the adjustments, power up the instrument after removing the cover (see Chapter 3) and leave it on for at least 60 minutes to let it reach normal operating temperature.

WARNING: Live parts and accessible terminals which can be dangerous to life are always exposed inside the unit when it is connected to the line power. Use extreme caution when handling, testing or adjusting the timer/counter.



Figure 7-2 Test points and trimmers for the input amplifiers.

Input Amplifiers

Check the power supply voltages according to the instructions on page 7-13 before proceeding to the next step.

All adjustments on the input amplifiers must be made in the specified order.

The input amplifiers are enclosed in an RF shield consisting of a metal lid that is soldered to two of the shield clips on the main circuit board. Without these solder joints there is a risk of the lid coming off, should the instrument be subjected to heavy bumps.

There are two alternative ways to adjust the input amplifiers. One is to remove the shield to gain access to all trimmers and test points on the top side of the main circuit board. Don't forget to put the shield back and restore the solder joints. The other way is to access the trimmers via the holes in the shield lid and to use the test points on the bottom side of the main circuit board. Place the instrument on end to get access to both sides of the main circuit board.

Step Response X1

■ Setup

- Do as described under *Preparations* above.
- Select default settings by keying in **USER OPT** → **Save/Recall** → **Recall Setup** → **Default**
- Select for Input A of the timer/counter: Manual Trig, DC, 50 Ω , Att x1. Select *Single Period* as measurement function.
- Connect a symmetrical pulse signal with fast rise/fall time, 100 μ s period time and 5 V amplitude from a pulse generator to a power splitter.
- Connect one side of the power splitter to Input A on the timer/counter and connect the other side of the power splitter to Input A on the oscilloscope.
- Connect a 10X 500 Ω probe to Input B on the oscilloscope.
- Set the oscilloscope to 10 μ s/div and Input A to 50 Ω , DC, 0.5 V/div and Input B to 50 Ω , DC, 100 mV/div (including probe).

■ Adjustment

- Connect the probe tip to the center hole of J7. The surrounding holes are suitable ground connections. See Figure 7-2.
- Adjust C106 and C496 until the pulses on the oscilloscope look the same. Use Temex 4192 adjustment tool.

Repeat all steps above for Input B on the timer/counter. Connect the probe tip to J9. Adjust C137 and C497.

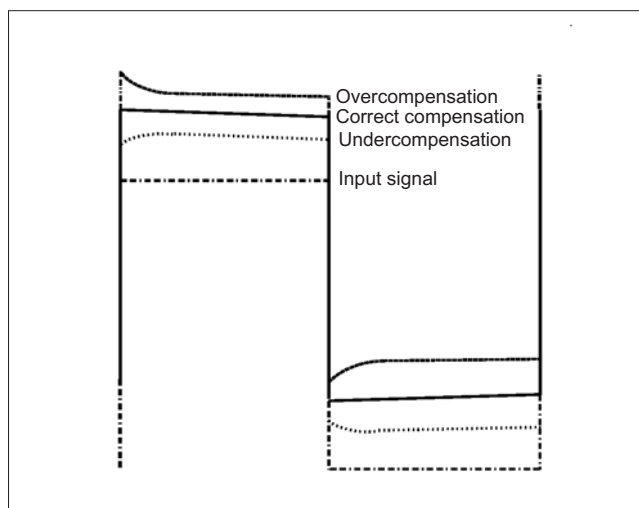


Figure 7-3 Linearity compensation.

Step Response X10

■ Setup

- Keep the settings on the timer/counter and the oscilloscope from *Step Response X1*.
- Select *Att X10* for Input A on the timer/counter.
- Reconnect the signal from the power splitter to Input A on the timer/counter.
- Set Input B on the oscilloscope to 20 mV/div (including probe).

■ Adjustment

- Connect the probe tip to the center hole of J7. The surrounding holes are suitable ground connections. See Figure 7-2.
- Adjust C111 and C116 until the pulses on the oscilloscope look the same. Use a screwdriver type of adjustment tool.

Repeat all steps above for Input B on the timer/counter. Connect the probe tip to J9. Adjust C143 and C148.

Linearity

■ Setup

- Keep the settings on the timer/counter and the oscilloscope from *Step Response X10*.
- Select *Att X1* for Input A on the timer/counter.
- Change the period time of the pulse signal from the pulse generator to 2 ms.
- Reconnect the signal from the power splitter to Input A on the timer/counter.
- Set the oscilloscope to 200 μ s/div and Input B to 100 mV/div (including probe).

■ Adjustment

- Connect the probe tip to the center hole of J7. The surrounding holes are suitable ground connections. See Figure 7-2.
- Adjust R196 until the pulses on the oscilloscope look the same. See Figure 7-3. Use a screwdriver type of adjustment tool.
- Check *Step Response X1*, repeat *Step Response X1* and *Linearity* several times if necessary.

Repeat all steps above for Input B on the timer/counter. Connect the probe tip to J9. Adjust R268.

Sensitivity

■ Setup

- Keep the settings on the counter from *Linearity*.

■ Adjustment

- Connect the DMM to the test points X34 (+) and X35 (-). See Figure 7-2.
- Adjust R197 until the DMM reads $+17 \pm 0.2$ mV. Use a screwdriver type of adjustment tool.

Don't forget to resolder the RF shield.

Power Supply

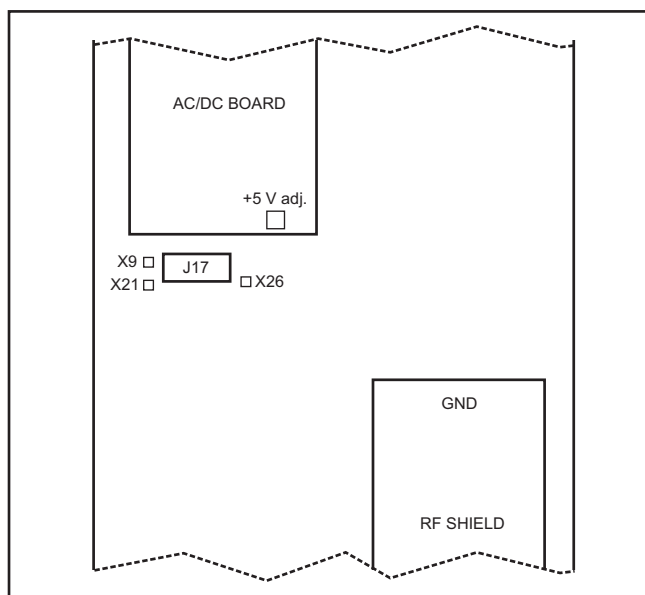


Figure 7-4 Adjusting +5 V and checking +15 V and -15 V.

■ Setup

- Do as described under *Preparations* above.
- Select default settings by keying in **USER OPT** → **Save/Recall** → **Recall Setup** → **Default**

■ Adjustment

- Connect the DMM to test point X9 and ground (metal shield lid over input amplifiers). See Figure 6-4 and Figure 7-4.
- Adjust the +5 V trimmer on the AC/DC power supply board with a screwdriver type of adjustment tool until the DMM reads $+5.10 \pm 0.005$ V.
- Check that the voltage from the AC/DC power supply at X26 is $+15 \pm 0.7$ V.
- Check that the voltage from the AC/DC power supply at X21 is -15 ± 0.7 V.

Note: Adjusting the +5 V does not affect other settings in the instrument.

External Reference Input

■ Setup

- Do as described under *Preparations* above.
- Select default settings by keying in **USER OPT** → **Save/Recall** → **Recall Setup** → **Default**
- Connect a 1 MHz sinewave signal with amplitude 0.1 V_{rms} (0.28 V_{pp}) into 50 Ω from an LF synthesizer to the external reference input. Use a 50 Ω termination on the input.
- Set an oscilloscope with X10 probe to 10 μs/div, 100 mV/div (including probe) and AC coupling.

■ Adjustment

- Connect the probe to X19. There are two ground pads in the vicinity. See Figure 7-5.
- Adjust C442 to maximum amplitude. Use a screwdriver type of adjustment tool.

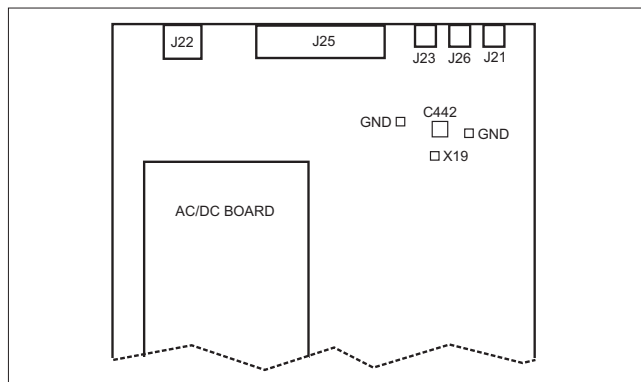


Figure 7-5 Adjusting the external reference input.

Internal Reference Oscillators

Adjustment of the different timebase oscillators is described under *Calibration* earlier in this chapter.

RF Input 3 GHz

Note: The 8 GHz prescaler can not be adjusted.

■ Setup

- Do as described under *Preparations* above.
- Select default settings by keying in **USER OPT** → **Save/Recall** → **Recall Setup** → **Default**
- Select measurement function FREQUENCY C.
- Set the signal generator to 1000 ± 25 MHz with amplitude 5.9 ± 0.5 mV_{rms} (-31.5 ± 0.5 dBm)

■ Adjustment

- Connect the signal to Input C on the timer/counter.
- NOTE: Before beginning any adjustments, the RF input must have been in operation for at least a few minutes to let it reach normal operating temperature.
- Turn the potentiometer on the prescaler board fully counterclockwise. See Figure 7-6.
- Check that the timer/counter stops measuring.
- Turn the potentiometer slowly clockwise until the timer/counter starts measuring.
- Check the display of the timer/counter, it shall show 1000 ± 25 MHz.

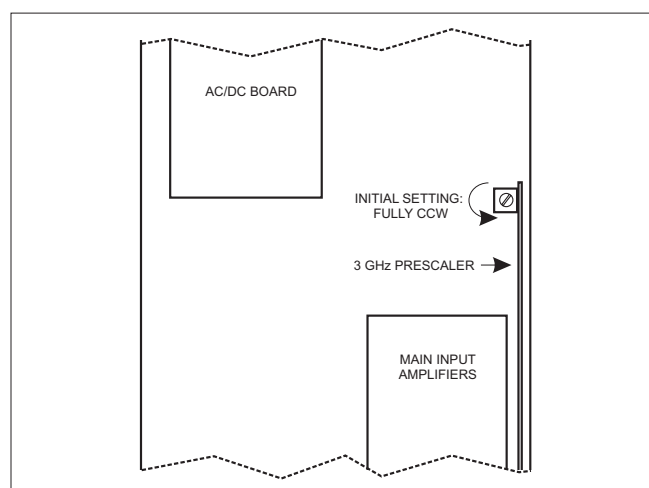


Figure 7-6 Adjusting the 3 GHz RF prescaler.

Replacement Parts

Introduction

Note: There are two variants of the main PCB, Version A and Version B. Refer to page III for closer information.

Standard Parts

Electrical and mechanical replacement parts can be obtained through your local service organization or representative. However, many of the standard components can be obtained from other local suppliers. Before purchasing or ordering replacement parts, check the parts list for value, tolerance, rating, and description.

If the value of the physical component differs from what is described in the parts list, you should always replace the part with the same value as originally mounted.

NOTE: Physical size and shape of a component may affect the performance of the instrument, particularly at high frequencies. Always use direct replacements unless it is known that a substitute will not degrade the performance of the instrument.

Special Parts

In addition to standard electronic components, the following special components are used:

- Components that are manufactured or selected by Fluke to meet specific performance requirements.
- Components that are important for the safety of the instrument.

Both types of components may be replaced only by components obtained through your local service organization.

Timebase reference oscillators, except those based on standard crystals, cannot be repaired in the field but are replaced by means of a factory exchange procedure. The same repair method applies to the prescaler options.

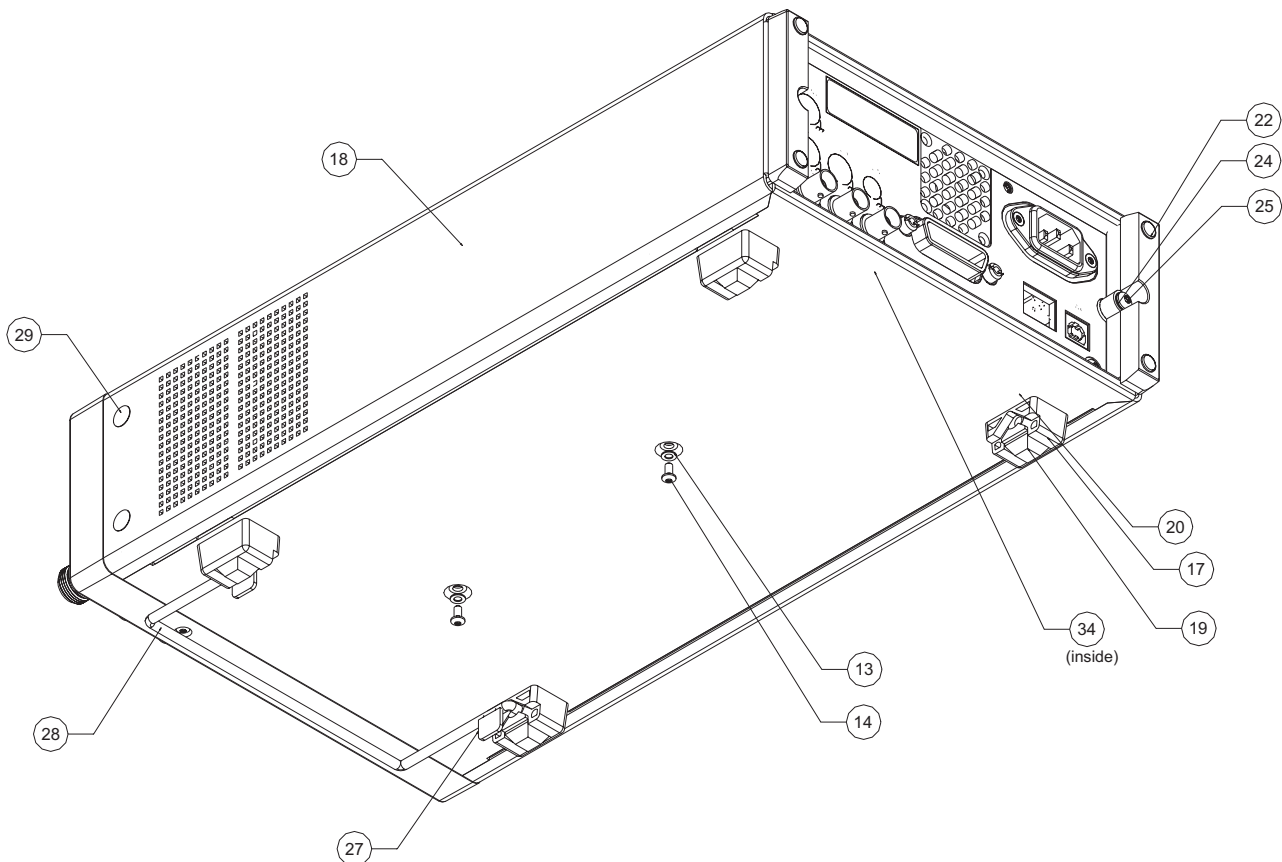


Figure 8-1 Case.

Mechanical Parts

<u>Item</u>	<u>Figure</u>	<u>Description</u>	<u>Part number</u>	<u>Item</u>	<u>Figure</u>	<u>Description</u>	<u>Part number</u>
13	8-1	Washer 3,2 ST FZ	252261024004	65	8-2	Solder lug	403110058390
14	8-1	Screw MRT 3x6	482250211658	70	8-2	Holder BNC	403110065870
17, 19, 20, 27	8-1	Case feet, complete kit	403110066480				
18	8-1	Cover assembly	403110066440	1	8-3	Rear plate 90-ser	403110065890
22	8-1	Rear foot	532246241719	2	8-3	Rear overlay 90-ser	403110066080
24	8-1	Spring washer M4 KBA 4.3	252261024006	3	8-3	Connector BNC	532226710004
25	8-1	Screw MRT 4x16	532250221491	4	8-3	Screw MFT-TT 3x8	482250211713
28	8-1	Stand-up bracket	403110048770	5	8-3	Screw MFT 4x16	252220306037
29	8-1	Plug grey decorative M5	403110502860	6	8-3	Solder lug	403110058390
34	8-1	Shielding strip	403110055450	8	8-3	Lock washer AZ4.3 ST FZ	252262027007
				9	8-3	Spring washer M4 KBA4.3	482253080076
3	8-2	Profile support	403110053200	12	8-3	Nut M4	482250510825
4	8-2	Main board	403110066470	13	8-3	Mains filter	403110066450
5	8-2	Shield main board	403110065990	14	8-3	Fan 12VDC 40x40x15mm	403110502850
6	8-2	Toroid core	532252610545	15	8-3	Screw MFX 3x22	403110503450
9	8-2	Washer 4x10x2 PA6-6	403110049600	16	8-3	Washer 3,2 ST FZ	252261024004
10	8-2	Screw RTK ST3.5x10	252220207024	17	8-3	Nut M3	482250510758
12	8-2	Distance nut M3x12	403110059470	18	8-3	Grounding wire	403110066460
13	8-2	Washer 3,2 ST FZ	252261024004				
14	8-2	Screw MRT 3x6	482250211658	2	8-4	Display	403110065800
15	8-2	Screw MFT-TT 4x12	532250213553	2	8-4	Keypad	403110065980
16	8-2	Power Module	403110066170	7	8-4	Front unit board, complete	403110066160
21	8-2	Screw MRT-TT 4x16	532250213552	8	8-4	Front overlay PM6690	403110066060
23	8-2	Cable assembly, power supply	403110066150	13	8-4	Washer 3,2 ST FZ	252261024004
30	8-2	Distance nut M3x14	403110048880	18	8-4	Cover assembly	403110066440
33	8-2	Shield, power supply	403110066430	26	8-4	Screw MRT-TT 3x8	482250211691
35	8-2	Screw M3x12	532250221642	32	8-4	Gasket, display	403110066120
36	8-2	Profile support	403110053210				
37	8-2	Warning label, high voltage	403111645530				
38	8-2	Shielding strip USB	403110055470				
61	8-2	Connector BNC	532226710004				

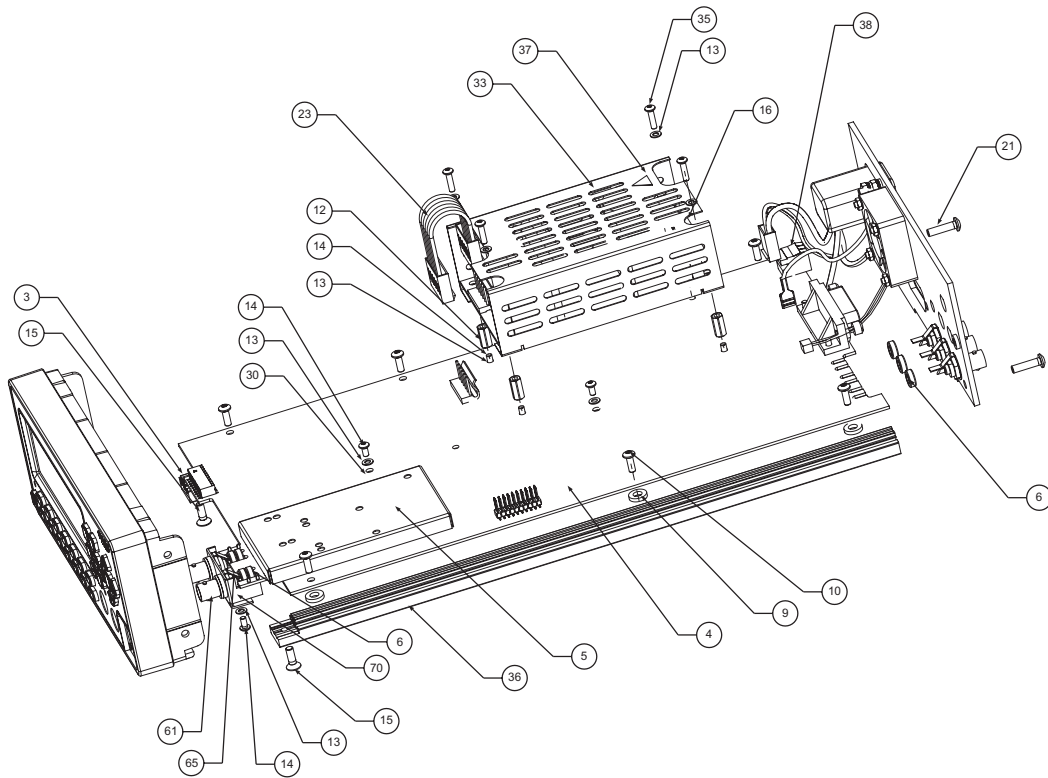


Figure 8-2 Exploded view of chassis.

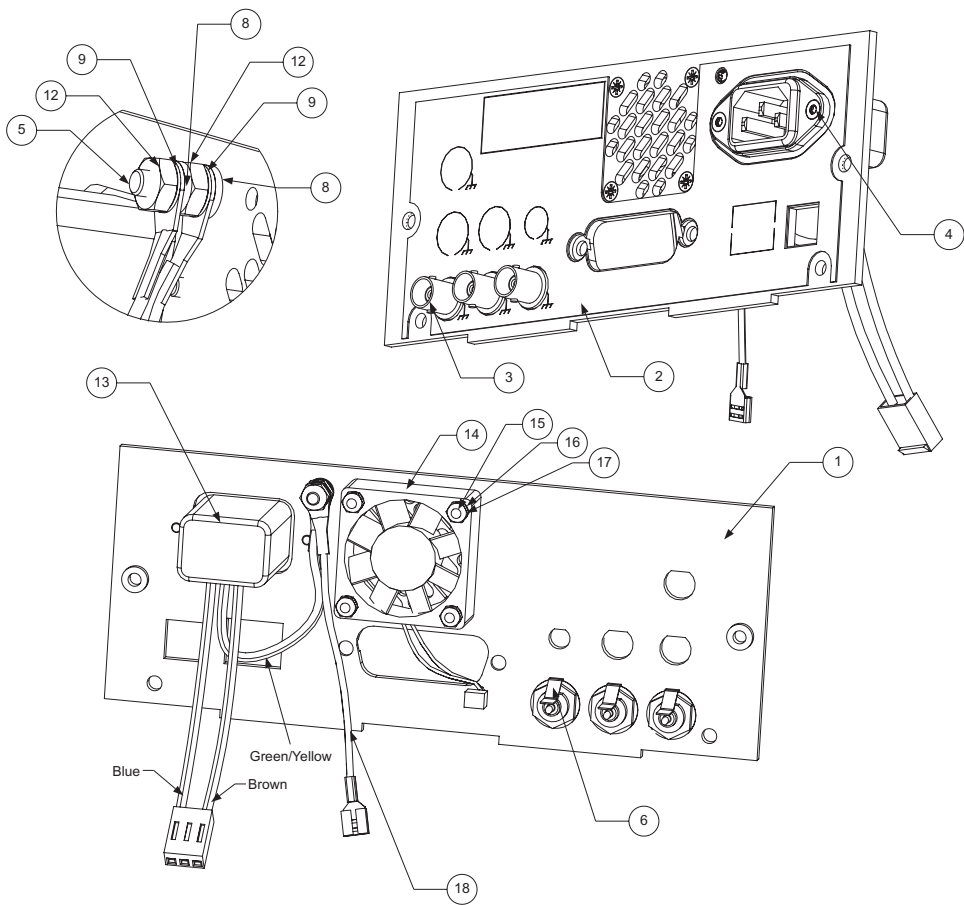


Figure 8-3 Rear panel.

Main Board, Version A

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>	<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
	Main board complete	403110066470	C155	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
B1	OCXO (PM6690/_5_)	403110065330	C156	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
B1	OCXO (PM6690/_6_)	403110065340	C157	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
B3	CRYSTAL 32kHz MC-406	242254301419	C158	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
B4	CRYSTAL 6MHz HC49/USM SMD	403110056520	C159	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
B5	CRYSTAL 40MHz HC49/USM SMD	403110056540	C16	CAPACITOR 22pF 5% 50V NP0 0805	402230160211
B6	CRYSTAL 10MHz HC49/USM SMD	403110056530	C160	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C1	CAPACITOR 47pF 5% 50V NP0 0805	222286115479	C161	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C10	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C162	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C100	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C163	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C101	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C164	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C102	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C165	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C103	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C166	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C104	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685	C168	CAPACITOR 1nF 20% 50V X7R 0805	222286148102
C105	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C169	CAPACITOR 1nF 20% 50V X7R 0805	222286148102
C106	CAPACITOR TRIM 2.5-10pF 500VDC AT2320-2	202280000247	C17	CAPACITOR 100pF 5% 50V NP0 0805	532212232531
C107	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C170	CAPACITOR 100pF 5% 50V NP0 0805	532212232531
C108	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C171	CAPACITOR 100pF 5% 50V NP0 0805	532212232531
C109	CAPACITOR 47pF 5% 50V NP0 0805	222286115479	C172	CAPACITOR 1nF 20% 50V X7R 0805	222286148102
C110	CAPACITOR 22nF 10% 200V X7R 1206	532212614081	C173	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C111	CAPACITOR TRIM 3-10pF TZBX4Z100BB110	532212550306	C174	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C114	CAPACITOR 27pF 5% 50V NP0 0805	402230160221	C175	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C115	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398	C176	CAPACITOR 100pF 5% 50V NP0 0805	532212232531
C116	CAPACITOR TRIM 3-10pF TZBX4Z100BB110	532212550306	C177	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C117	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398	C178	CAPACITOR 22pF 5% 50V NP0 0805	402230160211
C118	CAPACITOR 39pF 5% 50V NP0 0805	222286115399	C179	CAPACITOR 22pF 5% 50V NP0 0805	402230160211
C119	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C180	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C12	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C181	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C120	CAPACITOR 220pF 5% 50V NP0 0805	402230160331	C182	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C122	CAPACITOR 22nF 10% 200V X7R 1206	532212614081	C183	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C123	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685	C184	CAPACITOR 100pF 5% 50V NP0 0805	532212232531
C124	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C185	CAPACITOR 15pF 5% 50V NP0 0805	402230160191
C125	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C186	CAPACITOR 68pF 1% 50V NP0 0805	222286118689
C126	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C187	CAPACITOR 47pF 5% 50V NP0 0805	222286115479
C127	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C188	CAPACITOR 68pF 1% 50V NP0 0805	222286118689
C128	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C189	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C129	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C19	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C13	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C190	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C130	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C191	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C131	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398	C192	CAPACITOR 100µF 6.3V	202202900655
C132	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C193	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C133	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C194	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C134	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685	C195	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C136	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C197	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C137	CAPACITOR TRIM 2.5-10pF 500VDC AT2320-2	202280000247	C2	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C138	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C20	CAPACITOR 27pF 5% 50V NP0 0805	402230160221
C139	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C201	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C14	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C202	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C140	CAPACITOR 47pF 5% 50V NP0 0805	222286115479	C203	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C141	CAPACITOR 22nF 10% 200V X7R 1206	532212614081	C204	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C143	CAPACITOR TRIM 3-10pF TZBX4Z100BB110	532212550306	C205	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C146	CAPACITOR 27pF 5% 50V NP0 0805	402230160221	C206	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C147	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398	C207	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C148	CAPACITOR TRIM 3-10pF TZBX4Z100BB110	532212550306	C208	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C149	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398	C209	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C15	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C21	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398
C150	CAPACITOR 39pF 5% 50V NP0 0805	222286115399	C210	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C151	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C211	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C152	CAPACITOR 220pF 5% 50V NP0 0805	402230160331	C212	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C154	CAPACITOR 22nF 10% 200V X7R 1206	532212614081	C213	CAPACITOR 6.80 µF 20% 16V 6.0X3.2 MOLD	532212410687

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>	<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
C214	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C276	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C215	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C278	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C216	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C279	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C217	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C28	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C218	CAPACITOR 10pF 5% 50V NP0 0805	222286115109	C280	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C219	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C281	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C22	CAPACITOR 27pF 5% 50V NP0 0805	402230160221	C282	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C220	CAPACITOR 10pF 5% 50V NP0 0805	222286115109	C283	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C221	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C284	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C222	CAPACITOR 10pF 5% 50V NP0 0805	222286115109	C285	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C223	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C286	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C224	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C287	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C225	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C288	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C226	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C289	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C227	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C29	CAPACITOR 2.20 μ F 20%6.3V 3.2X1.6 MOLD	532212410685
C228	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C290	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C229	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C291	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C23	CAPACITOR 3.9pF \pm 0.25pF 500V NP0 1206	225201471398	C292	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C230	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C293	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C231	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C294	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C232	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C295	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C235	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C296	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C236	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C297	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C237	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C298	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C238	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C299	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C239	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C3	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C24	CAPACITOR 10pF 5% 500V NP0 1206	532212613643	C30	CAPACITOR 2.20 μ F 20%6.3V 3.2X1.6 MOLD	532212410685
C240	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C300	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C241	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C301	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C242	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C302	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C243	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C303	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C244	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C304	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C245	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C305	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C246	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C306	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C247	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C307	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C248	CAPACITOR 27pF 5% 50V NP0 0805	402230160221	C308	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C249	CAPACITOR 27pF 5% 50V NP0 0805	402230160221	C309	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C25	CAPACITOR 10pF 5% 500V NP0 1206	532212613643	C31	CAPACITOR 2.20 μ F 20%6.3V 3.2X1.6 MOLD	532212410685
C250	CAPACITOR 100 μ F 6.3V	202202900655	C310	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C251	CAPACITOR 22 μ F 6.3V	202202900654	C311	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C252	CAPACITOR 220 μ F 20% 10V 0810 SMD	222215364221	C312	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C253	CAPACITOR 680pF 20% 63V NP0 1206	222286315681	C313	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C254	CAPACITOR 220pF 5% 50V NP0 0805	402230160331	C314	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C255	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C315	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C256	CAPACITOR 220 μ F 20% 10V 0810 SMD	222215364221	C316	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C257	CAPACITOR 100 μ F 6.3V	202202900655	C317	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C258	CAPACITOR 22 μ F 6.3V	202202900654	C318	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C259	CAPACITOR 220 μ F 20% 10V 0810 SMD	222215364221	C319	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C26	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C32	CAPACITOR 2.20 μ F 20%6.3V 3.2X1.6 MOLD	532212410685
C261	CAPACITOR 220 μ F 20% 10V 0810 SMD	222215364221	C320	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C262	CAPACITOR 680pF 20% 63V NP0 1206	222286315681	C321	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C263	CAPACITOR 220pF 5% 50V NP0 0805	402230160331	C322	CAPACITOR 100pF 5% 50V NP0 0805	532212232531
C264	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C323	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C265	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C324	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C266	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C326	CAPACITOR 68pF 1% 50V NP0 0805	222286118689
C267	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C327	CAPACITOR 100pF 5% 50V NP0 0805	532212232531
C268	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C328	CAPACITOR 100pF 5% 50V NP0 0805	532212232531
C269	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C329	CAPACITOR 100pF 5% 50V NP0 0805	532212232531
C270	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C330	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C271	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C331	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C272	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C332	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C273	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C333	CAPACITOR 68pF 1% 50V NP0 0805	222286118689
C274	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C335	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C275	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C337	CAPACITOR 10pF 5% 50V NP0 0805	222286115109

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>	<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
C338	CAPACITOR 100pF 5% 50V NP0 0805	532212232531	C411	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C339	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418	C412	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C340	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C414	CAPACITOR 10pF 5% 50V NP0 0805	222286115109
C341	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C415	CAPACITOR 22pF 5% 50V NP0 0805	402230160211
C342	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C416	CAPACITOR 22pF 5% 50V NP0 0805	402230160211
C344	CAPACITOR 68pF 1% 50V NP0 0805	222286118689	C417	CAPACITOR 10pF 5% 50V NP0 0805	222286115109
C345	CAPACITOR 10pF 5% 50V NP0 0805	222286115109	C421	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C346	CAPACITOR 100pF 5% 50V NP0 0805	532212232531	C422	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229
C347	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418	C424	CAPACITOR 1nF 20% 50V X7R 0805	222286148102
C348	CAPACITOR 100pF 5% 50V NP0 0805	532212232531	C427	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C349	CAPACITOR 100pF 5% 50V NP0 0805	532212232531	C428	CAPACITOR 82pF 5% 50V NP0 0805	222286115829
C350	CAPACITOR 1 µF 20% 16V 3.2X1.6 MOLD	403102151080	C429	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C351	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C430	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C352	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C431	CAPACITOR 220µF 20% 10V 0810 SMD	222215364221
C353	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C432	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C355	CAPACITOR 68pF 1% 50V NP0 0805	222286118689	C433	CAPACITOR 22pF 5% 50V NP0 0805	402230160211
C357	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C434	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229
C358	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418	C435	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C359	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C436	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C360	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C437	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C361	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418	C438	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C362	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C439	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C363	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C440	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C364	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418	C441	CAPACITOR 10pF 5% 50V NP0 0805	222286115109
C365	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C442	CAPACITOR TRIM 3-10pF TZBX4Z100BB110	532212550306
C366	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C443	CAPACITOR 2.2pF±0.25pF 50V NP0 0805	402230160091
C367	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418	C444	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C368	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C445	CAPACITOR 15pF 5% 50V NP0 0805	402230160191
C369	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C446	CAPACITOR 15pF 5% 50V NP0 0805	402230160191
C370	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C447	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C371	CAPACITOR 220µF 20% 10V 0810 SMD	222215364221	C448	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C372	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C449	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C374	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C450	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C375	CAPACITOR 1nF 20% 50V X7R 0805	222286148102	C451	CAPACITOR 100pF 5% 50V NP0 0805	532212232531
C376	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229	C452	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C377	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418	C453	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C378	CAPACITOR 1nF 20% 50V X7R 0805	222286148102	C462	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C380	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C463	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C381	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C464	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229
C382	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C465	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C383	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C466	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C385	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229	C467	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C386	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229	C468	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C387	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229	C469	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C388	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229	C470	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C389	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C471	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C393	CAPACITOR 100µF 6.3V	202202900655	C472	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C394	CAPACITOR 100µF 6.3V	202202900655	C473	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C395	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C474	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C396	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C475	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C397	CAPACITOR 100µF 6.3V	202202900655	C476	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C398	CAPACITOR 100µF 6.3V	202202900655	C477	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C399	CAPACITOR 220µF 20% 10V 0810 SMD	222215364221	C478	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C400	CAPACITOR 1nF 20% 50V X7R 0805	222286148102	C479	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C401	CAPACITOR 100pF 5% 50V NP0 0805	532212232531	C480	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C402	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C481	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C403	CAPACITOR 4.7µF 20% 35V 0405 SMD	222215360478	C483	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C404	CAPACITOR 220µF 20% 35V 1012 SMD	222215360221	C484	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C405	CAPACITOR 10nF 20% 50V X7R 0805	222286148103	C486	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C406	CAPACITOR 4.7µF 20% 35V 0405 SMD	222215360478	C487	CAPACITOR 22pF 5% 50V NP0 0805	402230160211
C407	CAPACITOR 220µF 20% 10V 0810 SMD	222215364221	C488	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229
C408	CAPACITOR 4.7µF 20% 35V 0405 SMD	222215360478	C489	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C409	CAPACITOR 220µF 20% 10V 0810 SMD	222215364221	C490	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229
C410	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C491	CAPACITOR 100nF 20% 25V X7R 0805	532212613638

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
C492	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229
C493	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C494	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C496	CAPACITOR TRIM 2.5-10pF 500VDC AT2320-2	202280000247
C497	CAPACITOR TRIM 2.5-10pF 500VDC AT2320-2	202280000247
C498	CAPACITOR 22pF 5% 50V NP0 0805	402230160211
C5	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C503	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C504	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C507	CAPACITOR 6.80 µF 20% 16V 6.0X3.2 MOLD	532212410687
C522	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C523	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C524	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C525	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C526	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C527	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C528	CAPACITOR 6.80 µF 20% 16V 6.0X3.2 MOLD	532212410687
C529	CAPACITOR 6.80 µF 20% 16V 6.0X3.2 MOLD	532212410687
C530	CAPACITOR 6.80 µF 20% 16V 6.0X3.2 MOLD	532212410687
C531	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C532	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C533	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C534	CAPACITOR 10nF 20% 50V X7R 0805	222286148103
C6	CAPACITOR 1.5pF ±0.25pF 500V NP0 1206	225201471158
C7	CAPACITOR 1.5pF ±0.25pF 500V NP0 1206	225201471158
C8	CAPACITOR 1.5pF ±0.25pF 500V NP0 1206	225201471158
C9	CAPACITOR 1.5pF ±0.25pF 500V NP0 1206	225201471158
C99	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398
D10	DIODE 0.10A BAV99 SOT23	532213034337
D11	DIODE 0.10A BAV99 SOT23	532213034337
D12	DIODE 0.10A BAV99 SOT23	532213034337
D13	DIODE 0.10A BAV99 SOT23	532213034337
D14	DIODE 0.10A BAT18 35V 1PF SOT23	532213032076
D15	DIODE 0.10A BAT18 35V 1PF SOT23	532213032076
D17	DIODE 0.10A BAV99 SOT23	532213034337
D18	DIODE 0.10A BAV99 SOT23	532213034337
D19	DIODE 0.10A BAV99 SOT23	532213034337
D20	DIODE 0.10A BAV99 SOT23	532213034337
D21	DIODE 0.10A BAT18 35V 1PF SOT23	532213032076
D22	DIODE 0.10A BAT18 35V 1PF SOT23	532213032076
D23	DIODE VARACTOR SMV1255-073 SC07	403105000001
D24	DIODE VARACTOR SMV1255-073 SC07	403105000001
D25	DIODE 0.10A BAV99 SOT23	532213034337
D26	DIODE 0.10A BAV99 SOT23	532213034337
D27	DIODE 0.10A BAV99 SOT23	532213034337
D28	DIODE 0.10A BAV99 SOT23	532213034337
D29	DIODE 0.10A BAV99 SOT23	532213034337
D30	DIODE 0.10A BAV99 SOT23	532213034337
D31	DIODE 0.10A BAV99 SOT23	532213034337
D32	DIODE 0.10A BAV99 SOT23	532213034337
D33	DIODE 0.10A BAV99 SOT23	532213034337
D34	DIODE 0.10A BAV99 SOT23	532213034337
D35	DIODE 0.10A BAV99 SOT23	532213034337
D36	DIODE 0.10A BAV99 SOT23	532213034337
D37	DIODE 0.10A BAV99 SOT23	532213034337
D46	DIODE 0.10A BAV99 SOT23	532213034337
D48	DIODE 0.10A BAV99 SOT23	532213034337
D50	DIODE BYD17G 400V 1.5A SOD87	933812240701
D51	DIODE BYD17G 400V 1.5A SOD87	933812240701
D52	DIODE 0.10A BAV99 SOT23	532213034337
D53	DIODE-SCH 0.2A BAT54S SOT23 SMD	482213082262
J12	CONNECTOR 20POL HEADER SMD 15-91-0200	242202505569
J13	CONNECTOR 2x10 POL SMD	242202518436
J15	CONNECTOR 20POL HEADER SMD 15-91-0200	242202505569

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
J17	CONNECTOR 6POS 39-28-1065	242202508091
J22	CONNECTOR 4POL USB PCB	242203300291
J25	CONNECTOR 24 POL 57LE-20240-77OOD35G	242202504832
J28	CONNECTOR HEADER 2POS SMD AMP 6-176125-2	403110571100
K1	RELAY SMD UD2 5V	242213207707
K2	RELAY SMD UD2 5V	242213207707
K3	RELAY SMD UD2 5V	242213207707
K4	RELAY SMD UD2 5V	242213207707
K5	RELAY SMD UD2 5V	242213207707
K6	RELAY SMD UD2 5V	242213207707
K7	RELAY SMD UD2 5V	242213207707
K8	RELAY SMD UD2 5V	242213207707
L10	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L11	FILTER-EMI BLM41PF800S	242254900035
L12	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L13	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L14	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L15	CHOKES 4.3µH 1.6A	242253600772
L16	FILTER-EMI BLM41PF800S	242254900035
L17	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L18	FILTER-EMI BLM41PF800S	242254900035
L19	CHOKES 4.3µH 1.6A	242253600772
L20	FILTER-EMI BLM41PF800S	242254900035
L21	FILTER-EMI BLM41PF800S	242254900035
L22	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L23	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L24	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L25	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L26	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L27	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L28	CHOKES 4.3µH 1.6A	242253600772
L29	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L3	CHOKES 100nH SMD	242253600773
L30	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L31	CHOKES 4.70µH 5% LQH1N4R7J	242253594048
L32	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L33	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L34	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L35	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L36	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L37	CHOKES 4.70µH 5% LQH1N4R7J	242253594048
L38	CHOKES 4.70µH 5% LQH1N4R7J	242253594048
L39	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L40	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133
L41	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>	<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
L42	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	M9	SHIELD-CLIP SMD	242201520096
L43	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q1	TRANSISTOR BF513 .03A20V SOT23	482213060686
L44	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q10	TRANSI-HF N SMD BFR93A 35mA 12V SOT23	532213060705
L45	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q11	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647
L46	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q12	TRANSISTOR BFT92 25MA 15V SOT23	933347730701
L47	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q13	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647
L48	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q14	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647
L49	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q15	TRANSISTOR BFT93 35MA 12V SOT23	933347740701
L5	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q16	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647
L50	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q17	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845
L51	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q18	TRANSISTOR BFS17 .05A 15V SOT23	532213040781
L52	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q19	TRANSISTOR BFS17 .05A 15V SOT23	532213040781
L53	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q2	TRANSISTOR HF N SMD BFR93A 35mA 12V SOT23	532213060705
L54	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q20	TRANSISTOR BFS17 .05A 15V SOT23	532213040781
L55	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q21	TRANSISTOR BFS17 .05A 15V SOT23	532213040781
L56	FILTER-EMI BLM41PF800S	242254900035	Q22	TRANSISTOR BFS17 .05A 15V SOT23	532213040781
L57	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q23	TRANSISTOR BFS17 .05A 15V SOT23	532213040781
L59	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q24	TRANSISTOR BSR12 0.1A 15V SOT23	532213044743
L6	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q25	TRANSISTOR BSR12 0.1A 15V SOT23	532213044743
L60	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q26	TRANSISTOR BC847B .1A45V SOT23	482213060511
L61	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q27	TRANSISTOR BC847B .1A45V SOT23	482213060511
L62	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q28	TRANSISTOR BF513 .03A20V SOT23	482213060686
L63	CHOKE 1µH 20% B82412-A1102-M	241254100458	Q29	TRANSISTOR BFT92 25MA 15V SOT23	933347730701
L7	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q3	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647
L8	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q30	TRANSISTOR BF513 .03A20V SOT23	482213060686
L9	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6Ohm	242254943133	Q31	TRANSISTOR BFT92 25MA 15V SOT23	933347730701
M10	SHIELD-CLIP SMD	242201520096	Q32	TRANSISTOR BC847B .1A45V SOT23	482213060511
M11	SHIELD-CLIP SMD	242201520096	Q33	TRANSISTOR BF513 .03A20V SOT23	482213060686
M12	SHIELD-CLIP SMD	242201520096	Q34	TRANSISTOR BFT92 25MA 15V SOT23	933347730701
M13	SHIELD-CLIP SMD	242201520096	Q35	TRANSISTOR BC847B .1A45V SOT23	482213060511
M14	SHIELD-CLIP SMD	242201520096	Q36	TRANSISTOR BF513 .03A20V SOT23	482213060686
M15	SHIELD-CLIP SMD	242201520096	Q37	TRANSISTOR BFT92 25MA 15V SOT23	933347730701
M16	SHIELD-CLIP SMD	242201520096	Q38	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845
M17	SHIELD-CLIP SMD	242201520096	Q39	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845
M18	SHIELD-CLIP SMD	242201520096	Q4	TRANSISTOR BFT92 25MA 15V SOT23	933347730701
M19	SHIELD-CLIP SMD	242201520096	Q40	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845
M2	SHIELD-CLIP SMD	242201520096	Q41	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845
M20	SHIELD-CLIP SMD	242201520096	Q42	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845
M3	SHIELD-CLIP SMD	242201520096	Q43	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845
M4	SHIELD-CLIP SMD	242201520096	Q44	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845
M5	SHIELD-CLIP SMD	242201520096	Q45	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845
M6	SHIELD-CLIP SMD	242201520096	Q46	TRANSISTOR BC847B .1A45V SOT23	482213060511
M7	SHIELD-CLIP SMD	242201520096	Q47	TRANSISTOR BC847B .1A45V SOT23	482213060511
M8	SHIELD-CLIP SMD	242201520096	Q48	TRANSISTOR BCP51 1.5A 45V SOT223	532213062639
			Q49	TRANSISTOR BCP51 1.5A 45V SOT223	532213062639
			Q5	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647
			Q50	TRANSISTOR BC847B .1A45V SOT23	482213060511
			Q51	TRANSISTOR BCP51 1.5A 45V SOT223	532213062639
			Q53	TRANSI-NPN SMD BFG16A SOT223 1.5GHz 1W	934002210701
			Q54	TRANSI-NPN SMD BFG16A SOT223 1.5GHz 1W	934002210701
			Q55	TRANSISTOR BFS17 .05A 15V SOT23	532213040781
			Q56	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845
			Q57	TRANSI-LF N BCP54 1A 45V SOT223 1.33W	933917180115
			Q58	TRANSISTOR BC847B .1A45V SOT23	482213060511
			Q59	TRANSISTOR BFT92 25MA 15V SOT23	933347730701
			Q6	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647
			Q63	TRANSISTOR BFT92 25MA 15V SOT23	933347730701
			Q64	TRANSISTOR BFT92 25MA 15V SOT23	933347730701
			Q65	TRANSISTOR BFT92 25MA 15V SOT23	933347730701
			Q7	TRANSISTOR BFT93 35MA 12V SOT23	933347740701
			Q8	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647
			Q9	TRANSISTOR BF513 .03A20V SOT23	482213060686
			R1	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
R10	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R11	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499
R12	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499
R13	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499
R132	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R133	RESISTOR 470 Ohm 1% .125W 100PPM 1206	482205154701
R134	RESISTOR 470 Ohm 1% .125W 100PPM 1206	482205154701
R135	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R136	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R137	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R138	RESISTOR 000 Ohm 0.1W 100PPM 0805	403100200000
R139	RESISTOR 1kOhm 1% 0.1W 100PPM 0805	532211712498
R14	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499
R140	RESISTOR 47 Ohm 1% .125W 100PPM 1206	532211680448
R141	RESISTOR 470 kOhm 1% .125W 100PPM 1206	482205154704
R142	RESISTOR 120 kOhm 1% .125W 100PPM 1206	482205151204
R143	RESISTOR 680 kOhm 1% .125W 100PPM 1206	532211711787
R144	RESISTOR 220 kOhm 1% .125W 100PPM 1206	482205152204
R145	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R146	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R147	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508
R148	RESISTOR 680 kOhm 1% .125W 100PPM 1206	532211711787
R149	RESISTOR 10 MOhm 10% 0.25W RC-01 1206	482205110105
R150	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R151	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R153	RESISTOR 3.30 Ohm 1% .125W 100PPM 1206	532211711788
R154	RESISTOR 100 kOhm 1% 0.1W 100PPM 0805	532211712501
R155	RESISTOR 47 kOhm 1% 0.1W 100PPM 0805	403100247030
R156	RESISTOR 470 kOhm 1% .125W 100PPM 1206	482205154704
R157	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R158	RESISTOR 1.00 MOhm 1% 0.125W 100PPM 1206	482205110105
R159	RESISTOR 100 kOhm 1% 0.1W 100PPM 0805	532211712501
R16	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R160	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R161	RESISTOR 3.30 Ohm 1% .125W 100PPM 1206	532211711788
R162	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R163	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R164	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R165	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R166	RESISTOR 150 Ohm 1% 0.125W 100PPM 1206	482205151501
R167	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R168	RESISTOR 82 Ohm 1% 0.1W 100PPM 0805	403100282090
R169	RESISTOR 68 Ohm 1% 0.1W 100PPM 0805	403100268090
R170	RESISTOR 68 Ohm 1% 0.1W 100PPM 0805	403100268090
R171	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R172	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R173	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R174	RESISTOR 12.0 kOhm 1% .125W 100PPM 1206	532211710968
R175	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R176	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R177	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R178	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R179	RESISTOR 150 Ohm 1% 0.125W 100PPM 1206	482205151501
R180	RESISTOR 1kOhm 1% 0.1W 100PPM 0805	532211712498
R181	RESISTOR 150 Ohm 1% 0.125W 100PPM 1206	482205151501
R182	RESISTOR 470 kOhm 1% .125W 100PPM 1206	482205154704
R183	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499
R184	RESISTOR 220 Ohm 1% 0.1W 100PPM 0805	403100222010
R185	RESISTOR 1kOhm 1% 0.1W 100PPM 0805	532211712498
R187	RESISTOR 27 Ohm 1% 0.1W 100PPM 0805	403100227090
R188	RESISTOR 470 kOhm 1% .125W 100PPM 1206	482205154704
R189	RESISTOR 470 kOhm 1% .125W 100PPM 1206	482205154704
R190	RESISTOR 1kOhm 1% 0.1W 100PPM 0805	532211712498
R191	RESISTOR 1 MOhm 1% 0.1W 100PPM 0805	403100210050

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
R192	RESISTOR 000 Ohm 0.1W 100PPM 0805	403100200000
R193	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508
R194	RESISTOR 27 Ohm 1% 0.1W 100PPM 0805	403100227090
R195	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499
R196	POTENTIOMETER 100 kOhm 3304X-1-104	212236200842
R197	POTENTIOMETER 2 kOhm 25% 4mm	403101000001
R198	RESISTOR 15 kOhm 1% 0.1W 100PPM 0805	403100215030
R199	RESISTOR 47 kOhm 1% 0.1W 100PPM 0805	403100247030
R2	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499
R200	RESISTOR 470 Ohm 1% .125W 100PPM 1206	482205154701
R201	RESISTOR 470 Ohm 1% .125W 100PPM 1206	482205154701
R202	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R203	RESISTOR 1.5 kOhm 1% 0.1W 100PPM 0805	403100215020
R205	RESISTOR 180 kOhm 1% 0.1W 100PPM 0805	403100218040
R206	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R207	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R208	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R209	RESISTOR 000 Ohm 0.1W 100PPM 0805	403100200000
R210	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R211	RESISTOR 1kOhm 1% 0.1W 100PPM 0805	532211712498
R212	RESISTOR 47 Ohm 1% .125W 100PPM 1206	532211680448
R213	RESISTOR 470 kOhm 1% .125W 100PPM 1206	482205154704
R214	RESISTOR 120 kOhm 1% .125W 100PPM 1206	482205151204
R215	RESISTOR 680 kOhm 1% .125W 100PPM 1206	532211711787
R216	RESISTOR 220 kOhm 1% .125W 100PPM 1206	482205152204
R217	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R218	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R219	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508
R220	RESISTOR 680 kOhm 1% .125W 100PPM 1206	532211711787
R221	RESISTOR 10 MOhm 10% 0.25W RC-01 1206	482205110105
R222	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R223	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R224	SENSOR-TEMP KTY82/120	532213010682
R225	RESISTOR 3.30 Ohm 1% .125W 100PPM 1206	532211711788
R226	RESISTOR 100 kOhm 1% 0.1W 100PPM 0805	532211712501
R227	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R228	RESISTOR 47 kOhm 1% 0.1W 100PPM 0805	403100247030
R229	RESISTOR 470 kOhm 1% .125W 100PPM 1206	482205154704
R230	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R231	RESISTOR 1.00 MOhm 1% 0.125W 100PPM 1206	482205110105
R232	RESISTOR 100 kOhm 1% 0.1W 100PPM 0805	532211712501
R233	RESISTOR 3.30 Ohm 1% .125W 100PPM 1206	532211711788
R234	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R235	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R236	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R237	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R238	RESISTOR 150 Ohm 1% 0.125W 100PPM 1206	482205151501
R239	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R240	RESISTOR 82 Ohm 1% 0.1W 100PPM 0805	403100282090
R241	RESISTOR 68 Ohm 1% 0.1W 100PPM 0805	403100268090
R242	RESISTOR 68 Ohm 1% 0.1W 100PPM 0805	403100268090
R243	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R244	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R245	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R246	RESISTOR 12.0 kOhm 1% .125W 100PPM 1206	532211710968
R247	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R248	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R249	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R250	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R251	RESISTOR 150 Ohm 1% 0.125W 100PPM 1206	482205151501
R252	RESISTOR 1 kOhm 1% 0.1W 100PPM 0805	532211712498
R253	RESISTOR 150 Ohm 1% 0.125W 100PPM 1206	482205151501
R254	RESISTOR 470 kOhm 1% .125W 100PPM 1206	482205154704
R255	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>	<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
R256	RESISTOR 220 Ohm 1% 0.1W 100PPM 0805	403100222010	R326	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R257	RESISTOR 1 kOhm 1% 0.1W 100PPM 0805	532211712498	R327	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R258	RESISTOR 120 kOhm 1% .125W 100PPM 1206	482205151204	R328	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R259	RESISTOR 27 Ohm 1% 0.1W 100PPM 0805	403100227090	R329	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R260	RESISTOR 470 kOhm 1% .125W 100PPM 1206	482205154704	R331	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499
R261	RESISTOR 470 kOhm 1% .125W 100PPM 1206	482205154704	R332	RESISTOR 39 kOhm 1% 0.1W 100PPM 0805	403100239030
R262	RESISTOR 1 MOhm 1% 0.1W 100PPM 0805	403100210050	R333	RESISTOR 270 Ohm 1% 0.1W 100PPM 0805	403100227010
R263	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508	R334	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R264	RESISTOR 27 Ohm 1% 0.1W 100PPM 0805	403100227090	R335	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R265	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497	R337	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R266	RESISTOR 000 Ohm 0.1W 100PPM 0805	403100200000	R338	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R267	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499	R339	RESISTOR 150 Ohm 1% 0.1W 100PPM 0805	403100215010
R268	POTENTIOMETER 100 kOhm 3304X-1-104	212236200842	R340	RESISTOR 270 Ohm 1% 0.1W 100PPM 0805	403100227010
R269	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R341	RESISTOR 22 Ohm 1% 0.1W 100PPM 0805	532211712507
R270	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499	R342	RESISTOR 820 Ohm 1% .125W 100PPM 1206	532211682264
R271	RESISTOR 220 Ohm 1% 0.1W 100PPM 0805	403100222010	R343	RESISTOR 68 Ohm 1% 0.1W 100PPM 0805	403100268090
R272	RESISTOR 3.3 kOhm 1% 0.1W 100PPM 0805	403100233020	R344	RESISTOR 68 Ohm 1% 0.1W 100PPM 0805	403100268090
R273	RESISTOR 120 kOhm 1% .125W 100PPM 1206	482205151204	R346	RESISTOR 680 Ohm 1% 0.1W 100PPM 0805	532211712509
R274	RESISTOR 1 MOhm 1% 0.1W 100PPM 0805	403100210050	R347	RESISTOR 22 Ohm 1% 0.1W 100PPM 0805	532211712507
R275	RESISTOR 10kOhm 1% 0.1W 100PPM 0805	532211712499	R348	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R276	RESISTOR 47 kOhm 1% 0.1W 100PPM 0805	403100247030	R349	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R277	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020	R350	RESISTOR 680 Ohm 1% 0.1W 100PPM 0805	532211712509
R278	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020	R351	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R279	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R352	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R280	RESISTOR 1 MOhm 1% 0.1W 100PPM 0805	403100210050	R353	RESISTOR 3.3 kOhm 1% 0.1W 100PPM 0805	403100233020
R281	RESISTOR 1kOhm 1% 0.1W 100PPM 0805	532211712498	R354	RESISTOR 3.3 kOhm 1% 0.1W 100PPM 0805	403100233020
R282	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R355	RESISTOR 10kOhm 1% 0.1W 100PPM 0805	532211712499
R283	RESISTOR 47 kOhm 1% 0.1W 100PPM 0805	403100247030	R356	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R284	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499	R357	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R285	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499	R358	RESISTOR 1 MOhm 1% 0.1W 100PPM 0805	403100210050
R286	RESISTOR 470 Ohm 1% .125W 100PPM 1206	482205154701	R359	RESISTOR 10kOhm 1% 0.1W 100PPM 0805	532211712499
R287	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R360	RESISTOR 10kOhm 1% 0.1W 100PPM 0805	532211712499
R288	RESISTOR 100 kOhm 1% 0.1W 100PPM 0805	532211712501	R361	RESISTOR 10kOhm 1% 0.1W 100PPM 0805	532211712499
R289	RESISTOR 100 kOhm 1% 0.1W 100PPM 0805	532211712501	R362	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R290	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020	R363	RESISTOR 10kOhm 1% 0.1W 100PPM 0805	532211712499
R291	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020	R364	RESISTOR 22 kOhm 1% 0.1W 100PPM 0805	403100222030
R292	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020	R365	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R293	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499	R367	RESISTOR 22 kOhm 1% 0.1W 100PPM 0805	403100222030
R294	RESISTOR 47 kOhm 1% 0.1W 100PPM 0805	403100247030	R368	RESISTOR 220 kOhm 1% .125W 100PPM 1206	482205152204
R295	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001	R369	RESISTOR 220 kOhm 1% .125W 100PPM 1206	482205152204
R296	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001	R370	RESISTOR 33 kOhm 1% 0.1W 100PPM 0805	403100233030
R3	RESISTOR 10kOhm 1% 0.1W 100PPM 0805	532211712499	R371	RESISTOR 47 kOhm 1% 0.1W 100PPM 0805	403100247030
R303	RESISTOR 47 kOhm 1% 0.1W 100PPM 0805	403100247030	R372	RESISTOR 68 kOhm 1% 0.1W 100PPM 0805	403100268030
R305	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497	R373	RESISTOR 33 kOhm 1% 0.1W 100PPM 0805	403100233030
R306	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497	R374	RESISTOR 47 kOhm 1% 0.1W 100PPM 0805	403100247030
R307	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497	R375	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R308	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497	R376	RESISTOR 82 Ohm 1% 0.1W 100PPM 0805	403100282090
R309	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R377	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R310	RESISTOR 68 Ohm 1% 0.1W 100PPM 0805	403100268090	R378	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R311	RESISTOR 68 Ohm 1% 0.1W 100PPM 0805	403100268090	R379	RESISTOR 1.5 kOhm 1% 0.1W 100PPM 0805	403100215020
R312	RESISTOR 22 Ohm 1% 0.1W 100PPM 0805	532211712507	R380	RESISTOR 10 Ohm 1% 0.1W 100PPM 0805	403100210090
R313	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R381	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R314	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R382	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R315	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R383	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R316	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497	R384	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R317	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497	R385	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R318	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R386	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R319	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R387	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R320	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R389	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R321	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499	R390	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R322	RESISTOR 39 kOhm 1% 0.1W 100PPM 0805	403100239030	R391	RESISTOR 1.5 kOhm 1% 0.1W 100PPM 0805	403100215020
R323	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497	R392	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R324	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497	R393	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R325	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R394	RESISTOR 15 kOhm 1% 0.1W 100PPM 0805	403100215030

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
R395	RESISTOR 33 kOhm 1% 0.1W 100PPM 0805	403100233030
R396	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R397	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R398	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R399	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R4	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499
R400	RESISTOR 47 kOhm 1% 0.1W 100PPM 0805	403100247030
R402	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R403	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R404	RESISTOR 82 Ohm 1% 0.1W 100PPM 0805	403100282090
R405	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R406	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499
R407	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499
R408	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R409	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R410	RESISTOR 82 Ohm 1% 0.1W 100PPM 0805	403100282090
R411	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R413	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R414	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R416	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R417	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R418	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R419	RESISTOR 6.8 kOhm 1% 0.1W 100PPM 0805	403100268020
R421	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R422	RESISTOR 6.8 kOhm 1% 0.1W 100PPM 0805	403100268020
R423	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R424	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R426	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R427	RESISTOR 6.8 kOhm 1% 0.1W 100PPM 0805	403100268020
R430	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R431	RESISTOR 000 Ohm 0.1W 100PPM 0805	403100200000
R432	RESISTOR 6.8 kOhm 1% 0.1W 100PPM 0805	403100268020
R434	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R435	RESISTOR 6.8 kOhm 1% 0.1W 100PPM 0805	403100268020
R437	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R438	RESISTOR 6.8 kOhm 1% 0.1W 100PPM 0805	403100268020
R440	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R441	RESISTOR 6.8 kOhm 1% 0.1W 100PPM 0805	403100268020
R443	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R444	RESISTOR 6.8 kOhm 1% 0.1W 100PPM 0805	403100268020
R445	RESISTOR 1.5 kOhm 1% 0.1W 100PPM 0805	403100215020
R446	RESISTOR 470 Ohm 1% 0.1W 100PPM 0805	403100247010
R447	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R448	RESISTOR 680 Ohm 1% 0.1W 100PPM 0805	532211712509
R449	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499
R450	RESISTOR 1 kOhm 1% 0.1W 100PPM 0805	532211712498
R451	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508
R452	RESISTOR 1 kOhm 1% 0.1W 100PPM 0805	532211712498
R453	RESISTOR 1 kOhm 1% 0.1W 100PPM 0805	532211712498
R454	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R455	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R456	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R457	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R458	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R459	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R460	RESISTOR 3.3 kOhm 1% 0.1W 100PPM 0805	403100233020
R461	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R462	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R463	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R464	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R465	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R466	RESISTOR 1 kOhm 1% 0.1W 100PPM 0805	532211712498
R467	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R468	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
R469	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R470	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R471	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R472	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R473	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R474	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R475	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R476	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R477	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R478	RESISTOR 1 MOhm 1% 0.1W 100PPM 0805	403100210050
R479	RESISTOR 220 Ohm 1% 0.1W 100PPM 0805	403100222010
R480	RESISTOR 470 Ohm 1% 0.1W 100PPM 0805	403100247010
R481	RESISTOR 1kOhm 1% 0.1W 100PPM 0805	532211712498
R482	RESISTOR 3.3 kOhm 1% 0.1W 100PPM 0805	403100233020
R483	RESISTOR 3.3 kOhm 1% 0.1W 100PPM 0805	403100233020
R484	RESISTOR 1kOhm 1% 0.1W 100PPM 0805	532211712498
R485	RESISTOR 1kOhm 1% 0.1W 100PPM 0805	532211712498
R486	RESISTOR 1kOhm 1% 0.1W 100PPM 0805	532211712498
R487	RESISTOR 470 kOhm 1% .125W 100PPM 1206	482205154704
R488	RESISTOR 15 kOhm 1% 0.1W 100PPM 0805	403100215030
R489	RESISTOR 330 kOhm 1% 0.1W 100PPM 0805	403100233040
R490	RESISTOR 150 kOhm 1% 0.1W 100PPM 0805	403100215040
R491	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R492	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499
R493	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R494	RESISTOR 1 MOhm 1% 0.1W 100PPM 0805	403100210050
R495	RESISTOR 33 kOhm 1% 0.1W 100PPM 0805	403100233030
R496	RESISTOR 10kOhm 1% 0.1W 100PPM 0805	532211712499
R497	RESISTOR 1 kOhm 1% 0.1W 100PPM 0805	532211712498
R498	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R499	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R500	RESISTOR 1 kOhm 1% 0.1W 100PPM 0805	532211712498
R501	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R502	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R503	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R504	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R505	RESISTOR 1 kOhm 1% 0.1W 100PPM 0805	532211712498
R506	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R507	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508
R508	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508
R509	RESISTOR 470 Ohm 1% .125W 100PPM 1206	482205154701
R510	RESISTOR 470 Ohm 1% .125W 100PPM 1206	482205154701
R511	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508
R512	RESISTOR 470 Ohm 1% .125W 100PPM 1206	482205154701
R513	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508
R514	RESISTOR 1.5 kOhm 1% 0.1W 100PPM 0805	403100215020
R515	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508
R516	RESISTOR 15 kOhm 1% 0.1W 100PPM 0805	403100215030
R517	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508
R518	RESISTOR 1kOhm 1% 0.1W 100PPM 0805	532211712498
R519	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508
R520	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508
R521	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508
R522	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508
R523	RESISTOR 1 kOhm 1% 0.1W 100PPM 0805	532211712498
R524	RESISTOR 22 Ohm 1% 0.1W 100PPM 0805	532211712507
R525	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R526	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R527	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505
R528	RESISTOR 22 Ohm 1% 0.1W 100PPM 0805	532211712507
R529	RESISTOR 3.3 kOhm 1% 0.1W 100PPM 0805	403100233020
R530	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R531	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001
R532	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>	<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
R533	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001	R602	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R534	RESISTOR 22 Ohm 1% 0.1W 100PPM 0805	532211712507	R603	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R535	RESISTOR 22 Ohm 1% 0.1W 100PPM 0805	532211712507	R604	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R536	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R605	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109
R537	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109	R606	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001
R538	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121	R607	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001
R539	RESISTOR 22 Ohm 1% 0.1W 100PPM 0805	532211712507	R608	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001
R540	RESISTOR 22 Ohm 1% 0.1W 100PPM 0805	532211712507	R609	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001
R543	RESISTOR 1 MOhm 1% 0.1W 100PPM 0805	403100210050	R610	RESISTOR 1.2 MOhm 1% 0.125W 1206	403100112050
R544	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497	R611	RESISTOR 1.2 MOhm 1% 0.125W 1206	403100112050
R545	RESISTOR 1.5 kOhm 1% 0.1W 100PPM 0805	403100215020	R612	RESISTOR 1 kOhm 1% 0.1W 100PPM 0805	532211712498
R546	RESISTOR 1.5 kOhm 1% 0.1W 100PPM 0805	403100215020	R613	RESISTOR 1 kOhm 1% 0.1W 100PPM 0805	532211712498
R547	RESISTOR 470 Ohm 1% .125W 100PPM 1206	482205154701	R614	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R548	RESISTOR 100 kOhm 1% 0.1W 100PPM 0805	532211712501	R615	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497
R549	RESISTOR 1kOhm 1% 0.1W 100PPM 0805	532211712498	R616	RESISTOR 820 Ohm 1% .125W 100PPM 1206	532211682264
R551	RESISTOR 3.3 kOhm 1% 0.1W 100PPM 0805	403100233020	R617	RESISTOR 6.8 kOhm 1% 0.1W 100PPM 0805	403100268020
R552	RESISTOR 1 kOhm 1% 0.1W 100PPM 0805	532211712498	R618	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499
R553	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020	R619	RESISTOR 1 kOhm 1% 0.1W 100PPM 0805	532211712498
R554	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R620	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R555	RESISTOR 470 Ohm 1% .125W 100PPM 1206	482205154701	R621	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R557	RESISTOR 15 Ohm 1% 0.1W 100PPM 0805	403100215090	R622	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R558	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020	R623	RESISTOR 470 Ohm 1% 0.1W 100PPM 0805	403100247010
R559	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R624	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R560	RESISTOR 100 kOhm 1% 0.1W 100PPM 0805	532211712501	R625	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R561	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020	R626	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R562	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499	R627	RESISTOR 120 Ohm 1% 0.125W 100PPM 1206	482205110121
R563	RESISTOR 10 kOhm 1% 0.1W 100PPM 0805	532211712499	R629	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R564	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508	R630	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R565	RESISTOR 330 Ohm 1% 0.1W 100PPM 0805	532211712508	R640	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R566	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497	R641	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R567	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497	R642	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R568	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	R643	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R569	RESISTOR 150 Ohm 1% 0.1W 100PPM 0805	403100215010	R644	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R570	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001	R645	RESISTOR 2.2 kOhm 1% 0.1W 100PPM 0805	403100222020
R571	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001	R652	RESISTOR 82 Ohm 1% 0.1W 100PPM 0805	403100282090
R572	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001	R656	RESISTOR 1.5 kOhm 1% 0.1W 100PPM 0805	403100215020
R573	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001	R657	RESISTOR 1.5 kOhm 1% 0.1W 100PPM 0805	403100215020
R575	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001	R658	RESISTOR 10 Ohm 1% 0.1W 100PPM 0805	403100210090
R576	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001	R659	RESISTOR 10 Ohm 1% 0.1W 100PPM 0805	403100210090
R577	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001	R660	RESISTOR 10 Ohm 1% 0.1W 100PPM 0805	403100210090
R578	RESISTOR 100 Ohm 1% 0.125W 100PPM 1206	482205151001	U1	IC-OPAMP LMC6081	932220497682
R579	RESISTOR 1.5 kOhm 1% 0.1W 100PPM 0805	403100215020	U11	IC-FPGA	932220399682
R580	RESISTOR 3.3 kOhm 1% 0.1W 100PPM 0805	403100233020	U116	IC-ANA MAX6355TWUT-T	932220433682
R581	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	U117	IC-REG MAX1927REUB	932220434682
R582	RESISTOR 10kOhm 1% 0.1W 100PPM 0805	532211712499	U118	IC-REG MAX1927REUB	932220434682
R583	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	U12	IC-DIG ECLIPS MC10E104	932202821682
R584	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	532211712505	U122	IC-REF 2.5V LT1009CD-2.5 2.5V±0.2% 15ppm	932207993701
R585	RESISTOR 150 Ohm 1% 0.125W 100PPM 1206	482205151501	U123	IC-REG LM2991S	932220425682
R586	RESISTOR 150 Ohm 1% 0.125W 100PPM 1206	482205151501	U124	IC-REG LM2991S	932220425682
R587	RESISTOR 150 Ohm 1% 0.125W 100PPM 1206	482205151501	U126	IC-REG LP2951	932207501682
R589	RESISTOR 100 kOhm 1% 0.1W 100PPM 0805	532211712501	U127	IC-SWITCH MIC2505-1BM	932220437682
R590	RESISTOR 150 Ohm 1% 0.125W 100PPM 1206	482205151501	U128	IC-ANA SMPS CTR LTC3412	932220430682
R591	RESISTOR 150 Ohm 1% 0.125W 100PPM 1206	482205151501	U129	IC-REG LM2940CS-12	932211044682
R592	RESISTOR 1kOhm 1% 0.1W 100PPM 0805	532211712498	U13	IC-CPU TA7S20-60QC	932220406682
R593	RESISTOR 1kOhm 1% 0.1W 100PPM 0805	532211712498	U130	IC-REG LM2940CS-12	932211044682
R594	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109	U131	IC-COMP MAX961 SO8 4.5ns	932219434682
R595	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109	U132	IC-ANA ADG719 SPDT-SWITCH MSOP-8	403106000008
R596	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109	U133	IC-ANA ADG719 SPDT-SWITCH MSOP-8	403106000008
R597	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109	U134	IC-ANA ADG719 SPDT-SWITCH MSOP-8	403106000008
R598	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109	U135	IC-ANA ADG719 SPDT-SWITCH MSOP-8	403106000008
R599	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109	U14	IC-CMOS SN74LVC125AD	932220193682
R6	RESISTOR 100 Ohm 1% 0.1W 100PPM 0805	532211712497	U15	IC-SRAM K4S281632D	932220429682
R600	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109	U16	IC-SRAM K4S281632D	932220429682
R601	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	482205110109	U17	IC-PROM Am29LV640MH	932220405682

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>	<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
U18	IC-OPAMP OPA277	932214746682	U41	IC-CMOS 74HCT126D SMD SO14	933757050701
U19	IC-OPAMP OPA277	932214746682	U42	IC-OP AMP KM4100IT5 SOT23-5 260MHz	403106000002
U2	IC-OPAMP LMC6081	932220497682	U43	IC-OP AMP KM4100IT5 SOT23-5 260MHz	403106000002
U20	IC-OMV ADC 10BIT ADC1061C1WM SO20	932218755682	U44	IC-OP AMP KM4100IT5 SOT23-5 260MHz	403106000002
U21	IC-OMV ADC 10BIT ADC1061C1WM SO20	932218755682	U45	IC-OP AMP KM4100IT5 SOT23-5 260MHz	403106000002
U22	IC-OMV ADC 10BIT ADC1061C1WM SO20	932218755682	U46	IC-CONV DAC MAX5156BCEE 12bit dual	403106000001
U23	IC-OMV ADC 10BIT ADC1061C1WM SO20	932218755682	U47	IC-CMOS 74LVC1G04GV LOG 1xINV	935271788125
U24	IC-OPAMP OPA277	932214746682	U48	IC-CMOS 74LVC1G04GV LOG 1xINV	935271788125
U26	IC-OPAMP OPA277	932214746682	U5	IC-DAC 12BIT LTC8043	932220498682
U28	IC-OPAMP OPA277	932214746682	U50	IC-OP AMP TLE2022C SMD SO	932207300701
U29	IC-CMOS 74LVC74AD	935260734701	U6	IC-OP AMP OPA277	932214746682
U3	IC-COMP ADCMP565BP	932220403682	U7	IC-OP AMP OPA277	932214746682
U30	IC-OP AMP LM358 x2 SMD SO8	532220982941	U8	IC-OP AMP LM358 x2 SMD SO8	532220982941
U31	IC-OPAMP LMH6624	932220398682	U9	IC-ANALOG-PLL 200MHz ADF4001BRU	932220404682
U32	IC-CMOS 74LVC74AD	935260734701			
U33	IC-CMOS 74ALVC00	932220496682			
U34	IC-DIG BUS ISP1181B	935271360701			
U35	IC-OP AMP LM358 x2 SMD SO8	532220982941			
U37	IC-DIG BUS TNT4882	932220397682			
U38	IC-CMOS TRANSL3-5V 74LVC4245AD	935260749701			
U39	IC-DIG TEMP SENSOR LM75	932212511682			
U4	IC-CMOS 74ALVC00	932220496682			
U40	IC-DIG BUS I2C PCA9555PW	935269569701			

Front Unit

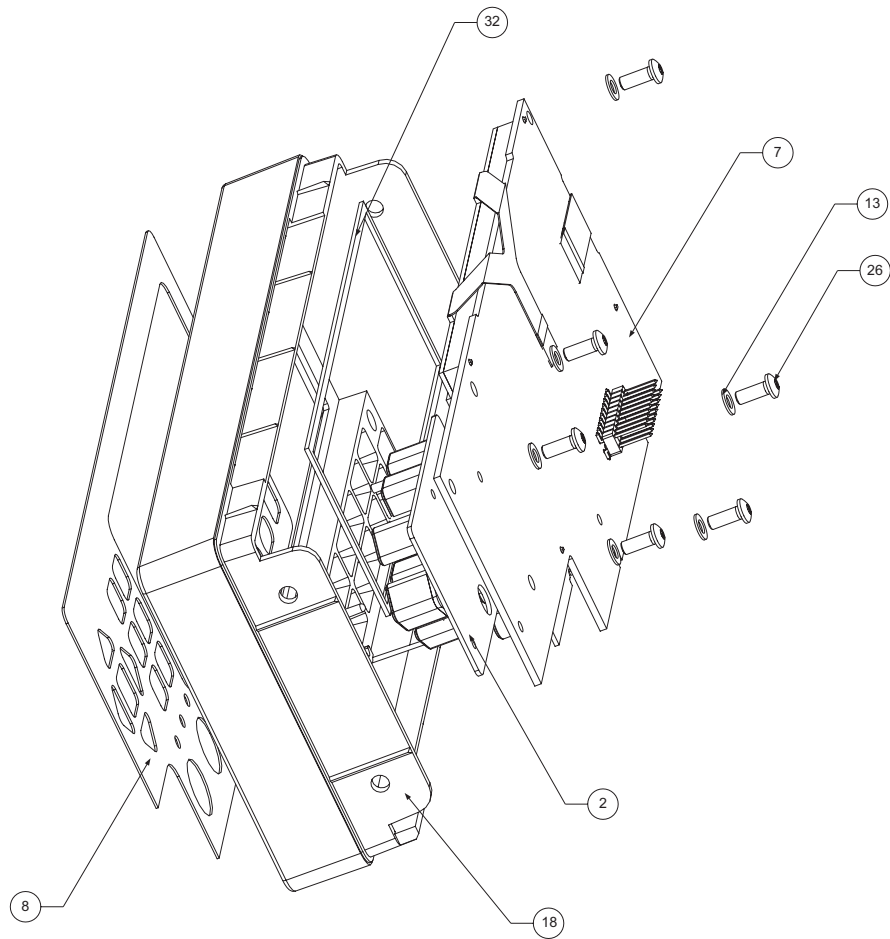


Figure 8-4 Display assembly.

<u>Pos.</u>	<u>Description</u>	<u>Part number</u>
	Display board complete.	403110066160
C1	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C10	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C11	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C12	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C13	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C14	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C15	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C16	CAPACITOR 22µF 6.3V	202202900654
C17	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C18	CAPACITOR 22µF 6.3V	202202900654
C19	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C20	CAPACITOR 2.20 UF 20% 35V 6.0X3.2 MOLD	403102172280
C21	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C22	CAPACITOR 2.20 UF 20% 35V 6.0X3.2 MOLD	403102172280
C23	CAPACITOR 2.20 UF 20% 35V 6.0X3.2 MOLD	403102172280
C24	CAPACITOR 22µF 6.3V	202202900654
C25	CAPACITOR 22µF 6.3V	202202900654
C3	CAPACITOR 4.7µF 20% 35V 0405 SMD	222215360478
C4	CAPACITOR 4.7µF 20% 35V 0405 SMD	222215360478
C5	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C6	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C7	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C8	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C9	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
D1	DIODE 10BQ030	932220426682
D2	LED 3mm RED FLATTOP	932221032682
D3	LED 3mm GREEN FLATTOP	932221031682
D4	LED 3mm GREEN FLATTOP	932221031682
D5	LED 3mm GREEN FLATTOP	932221031682
E1	DISPLAY 90-SER	403110065800
J1	CONNECTOR 20POL FPC SMD	242202518448
J2	CONNECTOR 20POL FPC SMD	242202518448
J3	CONNECTOR 20POL HEADER SMD 15-91-0200	242202505569
L1	CHOKE 10uH SMD	942253600592
L2	FILTER-EMI BLM21A102SPT Z=1KOhm 0.2A R=0.6ohm	242254943133
R1	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	403100247090
R10	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	403100110090
R11	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	403100110090
R13	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	403100110090
R14	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	403100110090
R15	RESISTOR 33 kOhm 1% 0.1W 100PPM 0805	403100233030
R16	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	403100110090
R17	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R18	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	403100110090
R19	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R2	RESISTOR 1 MOhm 1% 0.1W 100PPM 0805	403100210050
R20	RESISTOR 47 Ohm 1% 0.1W 100PPM 0805	403100247090
R3	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R33	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R34	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R4	RESISTOR 470 kOhm 1% 0.1W 100PPM 0805	403100247040
R5	RESISTOR 10.0 Ohm 1% 0.125W 100PPM 1206	403100110090
R7	RESISTOR 4.7 kOhm 1% 0.1W 100PPM 0805	403100247020
R8	RESISTOR 820 Ohm 1% 0.1W 100PPM 0805	403100282040
R9	RESISTOR 100kOhm 1% 0.1W 100PPM 0805	403100210040
U1	IC-OP AMP LM358 x2 SMD SO8	933965740685
U2	IC-OP AMP LM358 x2 SMD SO8	933965740685
U3	IC-DIG BUS I2C PCA9555PW	935269569701
U4	IC-ANA SMPS CTR TPS61045	932220427682

Main Board, Version B

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
B1	OSCILLATOR 10MHZ OCXO P/N 738Y4084	403110061800
B2	CRYSTAL 10MHz HC-49U/13	532224282118
B4	CRYSTAL 6MHz HC49/USM SMD	403110056520
B5	CRYSTAL 40MHz HC49/USM SMD	403110056540
B6	CRYSTAL 10MHz HC49/USM SMD	403110056530
B7	CRYSTAL 11.2896 MHz HC49/USM SMD	403110056560
C1	CAPACITOR 47pF 5% 50V NP0 0805	222286115479
C10	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C100	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C101	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C102	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C103	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C104	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C105	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C106	CAPACITOR-TRIM 2.5-10pF TZBX4Z100BB110	532212550689
C107	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C108	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C109	CAPACITOR 47pF 5% 50V NP0 0805	222286115479
C11	CAPACITOR 22pF 5% 50V NP0 0805	532212232658
C110	CAPACITOR 22nF 10% 200V X7R 1206	532212614081
C111	CAPACITOR-TRIM 3-10pF TZBX4Z100BB110	532212550306
C114	CAPACITOR 27pF 5% 50V NP0 0805	222286115279
C115	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398
C116	CAPACITOR-TRIM 3-10pF TZBX4Z100BB110	532212550306
C117	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398
C118	CAPACITOR 39pF 5% 50V NP0 0805	222286115399
C119	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C12	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C120	CAPACITOR 220pF 5% 50V NP0 0805	482212233575
C122	CAPACITOR 22nF 10% 200V X7R 1206	532212614081
C123	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C124	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C125	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C126	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C127	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C128	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C129	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C13	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C130	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C131	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398
C132	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C133	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C134	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C135	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C136	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C137	CAPACITOR-TRIM 2.5-10pF 500VDC AT2320-2	532212550689
C138	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C139	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C14	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C140	CAPACITOR 47pF 5% 50V NP0 0805	222286115479
C141	CAPACITOR 22nF 10% 200V X7R 1206	532212614081
C143	CAPACITOR-TRIM 3-10pF TZBX4Z100BB110	532212550306
C146	CAPACITOR 27pF 5% 50V NP0 0805	222286115279
C147	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398
C148	CAPACITOR-TRIM 3-10pF TZBX4Z100BB110	532212550306
C149	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398
C15	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C150	CAPACITOR 39pF 5% 50V NP0 0805	222286115399
C151	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C152	CAPACITOR 220pF 5% 50V NP0 0805	482212233575

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
C154	CAPACITOR 22nF 10% 200V X7R 1206	532212614081
C155	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C156	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C157	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C158	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C159	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C16	CAPACITOR 22pF 5% 50V NP0 0805	532212232658
C160	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C161	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C162	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C163	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C164	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C165	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C166	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C167	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C168	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C169	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C17	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C170	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C171	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C172	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C173	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C174	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C175	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C176	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C177	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C178	CAPACITOR 22pF 5% 50V NP0 0805	532212232658
C179	CAPACITOR 22pF 5% 50V NP0 0805	532212232658
C180	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C181	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C182	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C183	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C184	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C185	CAPACITOR 15pF 5% 50V NP0 0805	222286115159
C186	CAPACITOR 68pF 1% 50V NPO 0805	222286118689
C187	CAPACITOR 47pF 5% 50V NP0 0805	222286115479
C188	CAPACITOR 68pF 1% 50V NPO 0805	222286118689
C189	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C19	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C190	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C191	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C192	CAPACITOR 100µF 6.3V	202202900655
C193	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C194	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C195	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C197	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C2	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C20	CAPACITOR 27pF 5% 50V NP0 0805	222286115279
C201	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C202	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C203	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C204	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C205	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C206	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C207	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C208	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C209	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C21	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398
C210	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C211	CAPACITOR 10nF 20% 50V X7R 0805	532212234098

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>	<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
C212	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C281	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C213	CAPACITOR 6.80 µF 20% 16V 6.0X3.2 MOLD	532212410687	C282	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C214	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C283	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C215	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C284	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C216	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C285	CAPACITOR 470pF 10% 50V X7R 0402	403102040471
C217	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C286	CAPACITOR 470pF 10% 50V X7R 0402	403102040471
C218	CAPACITOR 10pF 5% 50V NP0 0805	222286115109	C287	CAPACITOR 470pF 10% 50V X7R 0402	403102040471
C219	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C288	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C22	CAPACITOR 27pF 5% 50V NP0 0805	222286115279	C289	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C220	CAPACITOR 10pF 5% 50V NP0 0805	222286115109	C29	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	403102132280
C221	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C29	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C222	CAPACITOR 10pF 5% 50V NP0 0805	222286115109	C290	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C223	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C291	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C224	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C292	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C225	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C293	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C226	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C294	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C227	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C295	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C228	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C296	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C229	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C297	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C23	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398	C298	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C230	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C299	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C231	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C3	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C232	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C30	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C235	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C300	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C236	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C301	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C237	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C302	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C238	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C303	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C239	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C304	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C24	CAPACITOR 10pF 5% 500V NP0 1206	532212613643	C305	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C240	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C306	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C241	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C309	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C242	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C31	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C243	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C310	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C244	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C311	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C245	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C312	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C246	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C313	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C247	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C314	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C248	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C315	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C249	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C315	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C25	CAPACITOR 10pF 5% 500V NP0 1206	532212613643	C316	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C253	CAPACITOR 220µF 20% 10V 0810 SMD	222215364221	C317	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C257	CAPACITOR 100µF 6.3V	202202900655	C318	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C258	CAPACITOR 22µF 6.3V	202202900654	C319	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C26	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C32	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C261	CAPACITOR 220µF 20% 10V 0810 SMD	222215364221	C320	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C262	CAPACITOR 680pF 20% 63V NP0 1206	482212612075	C321	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C263	CAPACITOR 220pF 5% 50V NP0 0805	482212233575	C322	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C264	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C323	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C265	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C324	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C266	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C326	CAPACITOR 68pF 1% 50V NPO 0805	222286118689
C267	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C327	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C268	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C328	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C269	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C329	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C27	CAPACITOR 27pF 5% 50V NP0 0805	222286115279	C33	CAPACITOR 27pF 5% 50V NP0 0805	222286115279
C270	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C330	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C271	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C331	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C272	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C332	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C273	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C333	CAPACITOR 68pF 1% 50V NPO 0805	222286118689
C274	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C335	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C275	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C337	CAPACITOR 10pF 5% 50V NP0 0805	222286115109
C276	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C338	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C277	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C339	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418
C28	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C34	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C280	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C340	CAPACITOR 100nF 20% 25V X7R 0805	532212613638

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
C341	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C342	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C343	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C344	CAPACITOR 68pF 1% 50V NPO 0805	222286118689
C345	CAPACITOR 10pF 5% 50V NP0 0805	222286115109
C346	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C347	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418
C348	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C349	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C35	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C350	CAPACITOR 1 µF 20% 16V 3.2X1.6 MOLD	532212410686
C351	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C352	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C353	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C354	CAPACITOR 22µF 6.3V	202202900654
C355	CAPACITOR 68pF 1% 50V NPO 0805	222286118689
C357	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C358	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418
C359	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C36	CAPACITOR 22µF 6.3V	202202900654
C360	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C361	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418
C362	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C363	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C364	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418
C365	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C366	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C367	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418
C368	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C369	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C37	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C370	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C371	CAPACITOR 220µF 20% 10V 0810 SMD	222215364221
C372	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C373	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C374	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C375	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C376	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229
C377	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418
C378	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C379	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C380	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C381	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C382	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C383	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C385	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229
C386	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229
C387	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229
C388	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229
C389	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C390	CAPACITOR 100µF 6.3V	202202900655
C391	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C392	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C393	CAPACITOR 100µF 6.3V	202202900655
C394	CAPACITOR 100µF 6.3V	202202900655
C395	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C396	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C397	CAPACITOR 100µF 6.3V	202202900655
C398	CAPACITOR 100µF 6.3V	202202900655
C399	CAPACITOR 220µF 20% 10V 0810 SMD	222215364221
C400	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C401	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C402	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C404	CAPACITOR 220µF 20% 35V 1012 SMD	222215360221

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
C405	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C406	CAPACITOR 4.7µF 20% 35V 0405 SMD	222215360478
C407	CAPACITOR 220µF 20% 10V 0810 SMD	222215364221
C408	CAPACITOR 4.7µF 20% 35V 0405 SMD	222215360478
C409	CAPACITOR 220µF 20% 10V 0810 SMD	222215364221
C410	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C411	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C412	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C413	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C414	CAPACITOR 10pF 5% 50V NP0 0805	222286115109
C415	CAPACITOR 22pF 5% 50V NP0 0805	532212232658
C416	CAPACITOR 22pF 5% 50V NP0 0805	532212232658
C417	CAPACITOR 10pF 5% 50V NP0 0805	222286115109
C418	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C419	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C420	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C421	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C422	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229
C423	CAPACITOR 100µF 6.3V	202202900655
C424	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C425	CAPACITOR 100µF 6.3V	202202900655
C427	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C428	CAPACITOR 82pF 5% 50V NP0 0805	222286115829
C429	CAPACITOR 100nF 20% 25V X7R 0805	222291016749
C429	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C430	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C431	CAPACITOR 15 µF 20%6.3V 6.0X3.2 MOLD	532212411418
C432	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C433	CAPACITOR 22pF 5% 50V NP0 0805	532212232658
C434	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229
C435	CAPACITOR 2.20 µF 20%6.3V 3.2X1.6 MOLD	532212410685
C436	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C437	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C438	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C439	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C440	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C441	CAPACITOR 10pF 5% 50V NP0 0805	222286115109
C442	CAPACITOR-TRIM 3-10pF TZBX4Z100BB110	532212550306
C443	CAPACITOR 2.2pF±0.25pF 50V NP0 0805	222286115228
C444	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C445	CAPACITOR 15pF 5% 50V NP0 0805	222286115159
C446	CAPACITOR 15pF 5% 50V NP0 0805	222286115159
C447	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C448	CAPACITOR 33pF 5% 50V NP0 0805	222286115339
C449	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C450	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C451	CAPACITOR 100pF 5% 50V NP0 0805	222286115101
C452	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C453	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C454	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C462	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C463	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C464	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229
C465	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C466	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C467	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C468	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C469	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C470	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C471	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C472	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C473	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C474	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C475	CAPACITOR 10nF 20% 50V X7R 0805	532212234098

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>	<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
C476	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C562	CAPACITOR 100µF 6.3V	202202900655
C477	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C563	CAPACITOR 100µF 6.3V	202202900655
C478	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C564	CAPACITOR 100µF 6.3V	202202900655
C479	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C565	CAPACITOR 22pF 5% 50V NP0 0805	532212232658
C480	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C566	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C481	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C567	CAPACITOR 100nF 20% 25V X7R 0805	532212613638
C483	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C568	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C484	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C569	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C486	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C570	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C487	CAPACITOR 22pF 5% 50V NP0 0805	532212232658	C571	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C488	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229	C572	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C489	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C573	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C490	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229	C575	CAPACITOR 100µF 6.3V	202202900655
C491	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C576	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C492	CAPACITOR 22µF 20% 35V 0605 SMD	222215360229	C577	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C493	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C578	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C494	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C579	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C496	CAPACITOR-TRIM 2.5-10pF 500VDC AT2320-2	532212550689	C580	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C497	CAPACITOR-TRIM 2.5-10pF 500VDC AT2320-2	532212550689	C581	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C498	CAPACITOR 22pF 5% 50V NP0 0805	532212232658	C582	CAPACITOR 1nF 20% 50V X7R 0805	532212234123
C499	CAPACITOR 22µF 6.3V	202202900654	C6	CAPACITOR 1.5pF ±0.25pF 500V NP0 1206	225201471158
C5	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C7	CAPACITOR 1.5pF ±0.25pF 500V NP0 1206	225201471158
C500	CAPACITOR 100µF 6.3V	202202900655	C8	CAPACITOR 1.5pF ±0.25pF 500V NP0 1206	225201471158
C501	CAPACITOR 470pF 10% 50V X7R 0402	403102040471	C9	CAPACITOR 1.5pF ±0.25pF 500V NP0 1206	225201471158
C503	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C97	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C504	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	C98	CAPACITOR 10nF 20% 50V X7R 0805	532212234098
C505	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	C99	CAPACITOR 3.9pF ±0.25pF 500V NP0 1206	225201471398
C506	CAPACITOR 470pF 10% 50V X7R 0402	403102040471	D10	DIODE 0.10A BAV99 SOT23	532213034337
C507	CAPACITOR 6.80 µF 20% 16V 6.0X3.2 MOLD	532212410687	D11	DIODE 0.10A BAV99 SOT23	532213034337
C508	CAPACITOR 10nF 10% 25V X7R 0402	403102040103	D12	DIODE 0.10A BAV99 SOT23	532213034337
C513	CAPACITOR 10nF 10% 25V X7R 0402	403102040103	D13	DIODE 0.10A BAV99 SOT23	532213034337
C514	CAPACITOR 10nF 10% 25V X7R 0402	403102040103	D14	DIODE 0.10A BAT18 35V 1PF SOT23	532213032076
C515	CAPACITOR 10nF 10% 25V X7R 0402	403102040103	D15	DIODE 0.10A BAT18 35V 1PF SOT23	532213032076
C516	CAPACITOR 10nF 10% 25V X7R 0402	403102040103	D17	DIODE 0.10A BAV99 SOT23	532213034337
C517	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	D18	DIODE 0.10A BAV99 SOT23	532213034337
C522	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	D19	DIODE 0.10A BAV99 SOT23	532213034337
C523	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	D20	DIODE 0.10A BAV99 SOT23	532213034337
C524	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	D21	DIODE 0.10A BAT18 35V 1PF SOT23	532213032076
C525	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	D22	DIODE 0.10A BAT18 35V 1PF SOT23	532213032076
C526	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	D23	DIODE VARACTOR SMV1255-073 SC07	403105000001
C527	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	D24	DIODE VARACTOR SMV1255-073 SC07	403105000001
C528	CAPACITOR 6.80 µF 20% 16V 6.0X3.2 MOLD	532212410687	D25	DIODE 0.10A BAV99 SOT23	933215370701
C529	CAPACITOR 6.80 µF 20% 16V 6.0X3.2 MOLD	532212410687	D25	DIODE 0.10A BAV99 SOT23	532213034337
C530	CAPACITOR 6.80 µF 20% 16V 6.0X3.2 MOLD	532212410687	D26	DIODE 0.10A BAV99 SOT23	532213034337
C531	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	D27	DIODE 0.10A BAV99 SOT23	532213034337
C532	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	D28	DIODE 0.10A BAV99 SOT23	532213034337
C533	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	D29	DIODE 0.10A BAV99 SOT23	532213034337
C534	CAPACITOR 10nF 20% 50V X7R 0805	532212234098	D30	DIODE 0.10A BAV99 SOT23	532213034337
C535	CAPACITOR 100nF 10% 16V X7R 0603	403102030104	D31	DIODE 0.10A BAV99 SOT23	532213034337
C537	CAPACITOR 1nF 20% 50V X7R 0805	532212234123	D32	DIODE 0.10A BAV99 SOT23	532213034337
C538	CAPACITOR 1nF 20% 50V X7R 0805	532212234123	D33	DIODE 0.10A BAV99 SOT23	532213034337
C539	CAPACITOR 100µF 6.3V	202202900655	D34	DIODE 0.10A BAV99 SOT23	532213034337
C540	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	D35	DIODE 0.10A BAV99 SOT23	532213034337
C541	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	D36	DIODE 0.10A BAV99 SOT23	532213034337
C542	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	D37	DIODE 0.10A BAV99 SOT23	532213034337
C543	CAPACITOR 1nF 20% 50V X7R 0805	532212234123	D46	DIODE 0.10A BAV99 SOT23	532213034337
C544	CAPACITOR 1nF 20% 50V X7R 0805	532212234123	D48	DIODE 0.10A BAV99 SOT23	532213034337
C545	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	D50	DIODE BYD17G 400V 1.5A SOD87	933812240701
C546	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	D51	DIODE BYD17G 400V 1.5A SOD87	933812240701
C547	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	D52	DIODE 0.10A BAV99 SOT23	532213034337
C548	CAPACITOR 100nF 20% 25V X7R 0805	532212613638	D53	DIODE-SCH 0.2A BAT54S SOT23 SMD	482213082262
C549	CAPACITOR 1nF 20% 50V X7R 0805	532212234123	J12	CONNECTOR 20POL HEADER SMD 15-91-0200	242202505569
C560	CAPACITOR 1nF 20% 50V X7R 0805	532212234123	J13	CONNECTOR 2x10 POL SMD	242202518436
C561	CAPACITOR 100µF 6.3V	202202900655	J15	CONNECTOR 20POL HEADER SMD 15-91-0200	242202505569

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>	<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
J17	CONNECTOR 6POS 39-28-1065	242202508091	L42	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
J22	CONNECTOR 4POL USB PCB	242203300291	L43	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
J25	CONNECTOR 24 POL 57LE-20240-77OOD35G	532226760148	L44	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
J28	CONNECTOR HEADER 2POS SMD AMP 6-176125-2	403110571100	L45	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
J3	CONNECTOR 2 POL F095 SINGLE ROW	532226544074	L46	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
K1	RELAY SMD UD2 5V	242213207707	L47	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
K2	RELAY SMD UD2 5V	242213207707	L48	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
K3	RELAY SMD UD2 5V	242213207707	L49	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
K4	RELAY SMD UD2 5V	242213207707	L5	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
K5	RELAY SMD UD2 5V	242213207707	L50	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
K6	RELAY SMD UD2 5V	242213207707	L51	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
K7	RELAY SMD UD2 5V	242213207707	L52	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
K8	RELAY SMD UD2 5V	242213207707	L53	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
L10	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	L54	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
L11	FILTER-EMI BLM41PF800S	242254900035	L55	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
L12	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	L56	FILTER-EMI BLM41PF800S	242254900035
L13	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	L57	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
L14	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	L59	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
L16	FILTER-EMI BLM41PF800S	242254900035	L6	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
L17	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	L60	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
L18	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	L61	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
L19	CHOKE 4.3µH 1.6A	242253600772	L62	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
L20	FILTER-EMI BLM41PF800S	242254900035	L63	CHOKE 1µH 20% B82412-A1102-M	241254100458
L21	FILTER-EMI BLM41PF800S	242254900035	L66	FILTER-EMI BLM41PF800S	242254900035
L22	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	L67	FILTER-EMI BLM41PF800S	242254900035
L23	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	L7	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
L24	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	L8	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
L25	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	L9	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133
L26	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	M10	SHIELD-CLIP SMD	242201520096
L27	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	M11	SHIELD-CLIP SMD	242201520096
L28	CHOKE 4.3µH 1.6A	242253600772	M12	SHIELD-CLIP SMD	242201520096
L29	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	M13	SHIELD-CLIP SMD	242201520096
L3	CHOKE 100nH SMD	242253600773	M14	SHIELD-CLIP SMD	242201520096
L30	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	M15	SHIELD-CLIP SMD	242201520096
L31	CHOKE 4.70µH 5% LQH1N4R7J	242253594048	M16	SHIELD-CLIP SMD	242201520096
L32	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	M17	SHIELD-CLIP SMD	242201520096
L33	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	M18	SHIELD-CLIP SMD	242201520096
L34	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	M19	SHIELD-CLIP SMD	242201520096
L35	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	M2	SHIELD-CLIP SMD	242201520096
L36	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	M20	SHIELD-CLIP SMD	242201520096
L37	CHOKE 4.70µH 5% LQH1N4R7J	242253594048	M3	SHIELD-CLIP SMD	242201520096
L38	CHOKE 4.70µH 5% LQH1N4R7J	242253594048	M4	SHIELD-CLIP SMD	242201520096
L39	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	M5	SHIELD-CLIP SMD	242201520096
L40	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133	M6	SHIELD-CLIP SMD	242201520096
L41	FILTER-EMI BLM21A102SPT Z=1Kohm 0.2A R=0.6ohm	242254943133			

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>	<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
M7	SHIELD-CLIP SMD	242201520096	R1	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
M8	SHIELD-CLIP SMD	242201520096	R10	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
M9	SHIELD-CLIP SMD	242201520096	R11	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
Q1	TRANSISTOR BF513 .03A20V SOT23	482213060686	R12	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
Q10	TRANSI-HF N SMD BFR93A 35mA 12V SOT23	532213060705	R13	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
Q11	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647	R132	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
Q12	TRANSISTOR BFT92 25MA 15V SOT23	532213044711	R133	RESISTOR 470 ohm 1% .125W 100PPM 1206	482205154701
Q13	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647	R134	RESISTOR 470 ohm 1% .125W 100PPM 1206	482205154701
Q14	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647	R135	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
Q15	TRANSISTOR BFT93 35MA 12V SOT23	532213044824	R136	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
Q16	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647	R137	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
Q17	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845	R138	RESISTOR 000 ohm 0.1W 100PPM 0805	403100200000
Q18	TRANSISTOR BFS17 .05A 15V SOT23	532213040781	R139	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
Q19	TRANSISTOR BFS17 .05A 15V SOT23	532213040781	R14	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
Q2	TRANSI-HF N SMD BFR93A 35mA 12V SOT23	532213060705	R140	RESISTOR 47 ohm 1% .125W 100PPM 1206	532211680448
Q20	TRANSISTOR BFS17 .05A 15V SOT23	532213040781	R141	RESISTOR 470 kohm 1% .125W 100PPM 1206	532211680447
Q21	TRANSISTOR BFS17 .05A 15V SOT23	532213040781	R142	RESISTOR 120 Kohm 1% .125W 100PPM 1206	482205151204
Q22	TRANSISTOR BFS17 .05A 15V SOT23	532213040781	R143	RESISTOR 680 kohm 1% .125W 100PPM 1206	532211711787
Q23	TRANSISTOR BFS17 .05A 15V SOT23	532213040781	R144	RESISTOR 220 kohm 1% .125W 100PPM 1206	482205152204
Q24	TRANSISTOR BSR12 0.1A 15V SOT23	532213044743	R145	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
Q25	TRANSISTOR BSR12 0.1A 15V SOT23	532213044743	R146	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
Q26	TRANSISTOR BC847B .1A45V SOT23	482213060511	R147	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
Q27	TRANSISTOR BC847B .1A45V SOT23	482213060511	R148	RESISTOR 680 kohm 1% .125W 100PPM 1206	532211711787
Q28	TRANSISTOR BF513 .03A20V SOT23	482213060686	R149	RESISTOR 10 MOHM 10% 0.25W RC-01 1206	482205110106
Q29	TRANSISTOR BFT92 25MA 15V SOT23	532213044711	R150	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
Q3	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647	R151	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
Q30	TRANSISTOR BF513 .03A20V SOT23	482213060686	R153	RESISTOR 3.30 ohm 1% .125W 100PPM 1206	532211711788
Q31	TRANSISTOR BFT92 25MA 15V SOT23	532213044711	R154	RESISTOR 100kohm 1% 0.1W 100PPM 0805	532211712501
Q32	TRANSISTOR BC847B .1A45V SOT23	482213060511	R155	RESISTOR 47 KOHM 1% 0.1W 100PPM 0805	403100247030
Q33	TRANSISTOR BF513 .03A20V SOT23	482213060686	R156	RESISTOR 470 kohm 1% .125W 100PPM 1206	532211680447
Q34	TRANSISTOR BFT92 25MA 15V SOT23	532213044711	R157	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
Q35	TRANSISTOR BC847B .1A45V SOT23	482213060511	R158	RESISTOR 1.00Mohm 1% 0.125W 100PPM 1206	482205110105
Q36	TRANSISTOR BF513 .03A20V SOT23	482213060686	R159	RESISTOR 100kohm 1% 0.1W 100PPM 0805	532211712501
Q37	TRANSISTOR BFT92 25MA 15V SOT23	532213044711	R16	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
Q38	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845	R160	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
Q4	TRANSISTOR BFT92 25MA 15V SOT23	532213044711	R161	RESISTOR 3.30 ohm 1% .125W 100PPM 1206	532211711788
Q40	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845	R162	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
Q41	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845	R163	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
Q42	TRANSISTOR 0.5A BC807-25 45V SOT23	933628570701	R164	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
Q42	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845	R165	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
Q43	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845	R166	RESISTOR 150 ohm 1% 0.125W 100PPM 1206	482205151501
Q44	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845	R167	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
Q45	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845	R168	RESISTOR 68 OHM 1% 0.1W 100PPM 0805	403100268090
Q46	TRANSISTOR BC847B .1A45V SOT23	482213060511	R170	RESISTOR 68 OHM 1% 0.1W 100PPM 0805	403100268090
Q47	TRANSISTOR BC847B .1A45V SOT23	482213060511	R171	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
Q48	TRANSISTOR BCP51 1.5A 45V SOT223	532213062639	R172	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
Q49	TRANSISTOR BCP51 1.5A 45V SOT223	532213062639	R173	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
Q5	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647	R174	RESISTOR 12.0kohm 1% .125W 100PPM 1206	532211710968
Q50	TRANSISTOR BC847B .1A45V SOT23	482213060511	R175	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
Q51	TRANSISTOR BCP51 1.5A 45V SOT223	532213062639	R176	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
Q53	TRANSI-NPN SMD BFG16A SOT223 1.5GHz 1W	934002210701	R177	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
Q54	TRANSI-NPN SMD BFG16A SOT223 1.5GHz 1W	934002210701	R178	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
Q55	TRANSISTOR BFS17 .05A 15V SOT23	532213040781	R179	RESISTOR 150 ohm 1% 0.125W 100PPM 1206	482205151501
Q56	TRANSISTOR 0.5A BC807-25 45V SOT23	532213060845	R180	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
Q57	TRANSI-LF N BCP54 1A 45V SOT223 1.33W	933917180115	R181	RESISTOR 150 ohm 1% 0.125W 100PPM 1206	482205151501
Q58	TRANSISTOR BC847B .1A45V SOT23	482213060511	R182	RESISTOR 470 kohm 1% .125W 100PPM 1206	532211680447
Q59	TRANSISTOR BFT92 25MA 15V SOT23	532213044711	R183	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
Q6	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647	R184	RESISTOR 220 ohm 1% 0.1W 100PPM 0805	403100222010
Q63	TRANSISTOR BFT92 25MA 15V SOT23	532213044711	R185	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
Q64	TRANSISTOR BFT92 25MA 15V SOT23	532213044711	R187	RESISTOR 27 ohm 1% 0.1W 100PPM 0805	403100227090
Q65	TRANSISTOR BFT92 25MA 15V SOT23	532213044711	R188	RESISTOR 470 kohm 1% .125W 100PPM 1206	532211680447
Q7	TRANSISTOR BFT93 35MA 12V SOT23	532213044824	R189	RESISTOR 470 kohm 1% .125W 100PPM 1206	532211680447
Q8	TRANSISTOR 25 MA BFR92A 20V SOT23	532213060647	R190	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
Q9	TRANSISTOR BF513 .03A20V SOT23	482213060686	R191	RESISTOR 1 MOHM 1% 0.1W 100PPM 0805	403100210050

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
R192	RESISTOR 000 ohm 0.1W 100PPM 0805	403100200000
R193	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R194	RESISTOR 27 ohm 1% 0.1W 100PPM 0805	403100227090
R195	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R196	POTENTIOMETER 100kohm 3304X-1-104	532210110841
R197	POTENTIOMETER 2 KOHM 25% 4mm	403101000001
R198	RESISTOR 15 KOHM 1% 0.1W 100PPM 0805	403100215030
R199	RESISTOR 47 KOHM 1% 0.1W 100PPM 0805	403100247030
R2	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R20	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R200	RESISTOR 470 ohm 1% .125W 100PPM 1206	482205154701
R201	RESISTOR 470 ohm 1% .125W 100PPM 1206	482205154701
R202	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R203	RESISTOR 1.5 KOHM 1% 0.1W 100PPM 0805	403100215020
R205	RESISTOR 180kohm 1% 0.1W 100PPM 0805	403100218040
R206	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R207	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R208	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R209	RESISTOR 000 ohm 0.1W 100PPM 0805	403100200000
R21	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R210	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R211	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R212	RESISTOR 47 ohm 1% .125W 100PPM 1206	532211680448
R213	RESISTOR 470 kohm 1% .125W 100PPM 1206	532211680447
R214	RESISTOR 120 Kohm 1% .125W 100PPM 1206	482205151204
R215	RESISTOR 680 kohm 1% .125W 100PPM 1206	532211711787
R216	RESISTOR 220 kohm 1% .125W 100PPM 1206	482205152204
R217	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R218	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R219	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R22	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R220	RESISTOR 680 kohm 1% .125W 100PPM 1206	532211711787
R221	RESISTOR 10 MOHM 10% 0.25W RC-01 1206	482205110106
R222	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R223	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R224	SENSOR-TEMP KTY82/120	532213010682
R225	RESISTOR 3.30 ohm 1% .125W 100PPM 1206	532211711788
R226	RESISTOR 100kohm 1% 0.1W 100PPM 0805	532211712501
R227	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R228	RESISTOR 47 KOHM 1% 0.1W 100PPM 0805	403100247030
R229	RESISTOR 470 kohm 1% .125W 100PPM 1206	532211680447
R23	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R230	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R231	RESISTOR 1.00Mohm 1% 0.125W 100PPM 1206	482205110105
R232	RESISTOR 100kohm 1% 0.1W 100PPM 0805	532211712501
R233	RESISTOR 3.30 ohm 1% .125W 100PPM 1206	532211711788
R234	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
R235	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
R236	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
R237	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
R238	RESISTOR 150 ohm 1% 0.125W 100PPM 1206	482205151501
R239	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R240	RESISTOR 82 OHM 1% 0.1W 100PPM 0805	403100282090
R241	RESISTOR 68 OHM 1% 0.1W 100PPM 0805	403100268090
R242	RESISTOR 68 OHM 1% 0.1W 100PPM 0805	403100268090
R243	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
R244	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R245	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R246	RESISTOR 12.0kohm 1% .125W 100PPM 1206	532211710968
R247	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
R248	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
R249	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
R250	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
R251	RESISTOR 150 ohm 1% 0.125W 100PPM 1206	482205151501

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
R252	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R253	RESISTOR 150 ohm 1% 0.125W 100PPM 1206	482205151501
R254	RESISTOR 470 kohm 1% .125W 100PPM 1206	532211680447
R255	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R256	RESISTOR 220 ohm 1% 0.1W 100PPM 0805	403100222010
R257	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R258	RESISTOR 120 Kohm 1% .125W 100PPM 1206	482205151204
R259	RESISTOR 27 ohm 1% 0.1W 100PPM 0805	403100227090
R260	RESISTOR 470 kohm 1% .125W 100PPM 1206	532211680447
R261	RESISTOR 470 kohm 1% .125W 100PPM 1206	532211680447
R263	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R264	RESISTOR 27 ohm 1% 0.1W 100PPM 0805	403100227090
R265	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R266	RESISTOR 000 ohm 0.1W 100PPM 0805	403100200000
R267	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R268	POTENTIOMETER 100kohm 3304X-1-104	532210110841
R269	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R270	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R271	RESISTOR 220 ohm 1% 0.1W 100PPM 0805	403100222010
R272	RESISTOR 3.3 KOHM 1% 0.1W 100PPM 0805	403100233020
R273	RESISTOR 120 Kohm 1% .125W 100PPM 1206	482205151204
R274	RESISTOR 1 MOHM 1% 0.1W 100PPM 0805	403100210050
R275	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R277	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
R278	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R279	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	403100247090
R279	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R280	RESISTOR 1 MOHM 1% 0.1W 100PPM 0805	403100210050
R281	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R282	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R283	RESISTOR 47 KOHM 1% 0.1W 100PPM 0805	403100247030
R284	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R285	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R286	RESISTOR 470 ohm 1% .125W 100PPM 1206	482205154701
R287	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R288	RESISTOR 100kohm 1% 0.1W 100PPM 0805	532211712501
R289	RESISTOR 100kohm 1% 0.1W 100PPM 0805	532211712501
R290	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
R291	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
R292	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
R293	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R294	RESISTOR 47 KOHM 1% 0.1W 100PPM 0805	403100247030
R295	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001
R296	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001
R3	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R303	RESISTOR 47 KOHM 1% 0.1W 100PPM 0805	403100247030
R305	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R306	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R307	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R308	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R309	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R310	RESISTOR 68 OHM 1% 0.1W 100PPM 0805	403100268090
R311	RESISTOR 68 OHM 1% 0.1W 100PPM 0805	403100268090
R312	RESISTOR 22 ohm 1% 0.1W 100PPM 0805	532211712507
R313	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R314	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R315	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R316	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R317	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R318	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R319	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R320	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R321	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R322	RESISTOR 39 KOHM 1% 0.1W 100PPM 0805	403100239030

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>	<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
R323	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	R400	RESISTOR 47 KOHM 1% 0.1W 100PPM 0805	403100247030
R324	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	R402	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R325	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505	R403	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R326	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	R404	RESISTOR 82 OHM 1% 0.1W 100PPM 0805	403100282090
R327	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505	R405	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R328	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121	R406	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R329	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020	R407	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R331	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	R408	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
R332	RESISTOR 39 KOHM 1% 0.1W 100PPM 0805	403100239030	R409	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R333	RESISTOR 270 OHM 1% 0.1W 100PPM 0805	403100227010	R410	RESISTOR 82 OHM 1% 0.1W 100PPM 0805	403100282090
R334	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	R411	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R335	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505	R413	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R337	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	R414	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R338	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	R416	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R339	RESISTOR 150 ohm 1% 0.1W 100PPM 0805	403100215010	R417	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R340	RESISTOR 270 OHM 1% 0.1W 100PPM 0805	403100227010	R418	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R341	RESISTOR 22 ohm 1% 0.1W 100PPM 0805	532211712507	R419	RESISTOR 6.8 KOHM 1% 0.1W 100PPM 0805	403100268020
R342	RESISTOR 820 ohm 1% .125W 100PPM 1206	532211682264	R421	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R343	RESISTOR 68 OHM 1% 0.1W 100PPM 0805	403100268090	R422	RESISTOR 6.8 KOHM 1% 0.1W 100PPM 0805	403100268020
R344	RESISTOR 68 OHM 1% 0.1W 100PPM 0805	403100268090	R423	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
R346	RESISTOR 680 ohm 1% 0.1W 100PPM 0805	532211712509	R424	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
R347	RESISTOR 22 ohm 1% 0.1W 100PPM 0805	532211712507	R425	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R348	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	R426	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R349	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	R427	RESISTOR 6.8 KOHM 1% 0.1W 100PPM 0805	403100268020
R350	RESISTOR 680 ohm 1% 0.1W 100PPM 0805	532211712509	R430	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R351	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109	R431	RESISTOR 000 ohm 0.1W 100PPM 0805	403100200000
R352	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020	R432	RESISTOR 6.8 KOHM 1% 0.1W 100PPM 0805	403100268020
R353	RESISTOR 3.3 KOHM 1% 0.1W 100PPM 0805	403100233020	R434	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R354	RESISTOR 3.3 KOHM 1% 0.1W 100PPM 0805	403100233020	R435	RESISTOR 6.8 KOHM 1% 0.1W 100PPM 0805	403100268020
R355	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	R437	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R358	RESISTOR 1 MOHM 1% 0.1W 100PPM 0805	403100210050	R438	RESISTOR 6.8 KOHM 1% 0.1W 100PPM 0805	403100268020
R359	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	R440	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R360	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	R441	RESISTOR 6.8 KOHM 1% 0.1W 100PPM 0805	403100268020
R361	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	R443	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R362	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	R444	RESISTOR 6.8 KOHM 1% 0.1W 100PPM 0805	403100268020
R363	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	R445	RESISTOR 1.5 KOHM 1% 0.1W 100PPM 0805	403100215020
R372	RESISTOR 68 KOHM 1% 0.1W 100PPM 0805	403100268030	R446	RESISTOR 470 OHM 1% 0.1W 100PPM 0805	403100247010
R373	RESISTOR 33 KOHM 1% 0.1W 100PPM 0805	403100233030	R447	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R374	RESISTOR 47 KOHM 1% 0.1W 100PPM 0805	403100247030	R448	RESISTOR 680 ohm 1% 0.1W 100PPM 0805	532211712509
R375	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020	R449	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R376	RESISTOR 82 OHM 1% 0.1W 100PPM 0805	403100282090	R450	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R377	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020	R451	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R378	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505	R452	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R379	RESISTOR 1.5 KOHM 1% 0.1W 100PPM 0805	403100215020	R453	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R380	RESISTOR 10 ohm 1% 0.1W 100PPM 0805	532211712502	R454	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R381	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	R455	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R382	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	R456	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R383	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505	R457	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R384	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020	R458	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R385	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505	R459	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R386	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	R460	RESISTOR 3.3 KOHM 1% 0.1W 100PPM 0805	403100233020
R387	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020	R461	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R389	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505	R462	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R390	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	R463	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R391	RESISTOR 1.5 KOHM 1% 0.1W 100PPM 0805	403100215020	R464	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R392	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020	R465	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R393	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505	R466	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R394	RESISTOR 15 KOHM 1% 0.1W 100PPM 0805	403100215030	R467	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R395	RESISTOR 33 KOHM 1% 0.1W 100PPM 0805	403100233030	R468	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R396	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020	R469	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R397	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505	R470	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R398	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	R471	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R399	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020	R472	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R4	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	R473	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
R474	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R475	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R476	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R477	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R478	RESISTOR 1 MOHM 1% 0.1W 100PPM 0805	403100210050
R479	RESISTOR 220 ohm 1% 0.1W 100PPM 0805	403100222010
R480	RESISTOR 470 OHM 1% 0.1W 100PPM 0805	403100247010
R481	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R482	RESISTOR 3.3 KOHM 1% 0.1W 100PPM 0805	403100233020
R483	RESISTOR 3.3 KOHM 1% 0.1W 100PPM 0805	403100233020
R484	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R485	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R486	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R487	RESISTOR 470 kohm 1% .125W 100PPM 1206	532211680447
R488	RESISTOR 15 KOHM 1% 0.1W 100PPM 0805	403100215030
R489	RESISTOR 330 KOHM 1% 0.1W 100PPM 0805	403100233040
R490	RESISTOR 150 KOHM 1% 0.1W 100PPM 0805	403100215040
R491	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R492	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R493	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R494	RESISTOR 1 MOHM 1% 0.1W 100PPM 0805	403100210050
R495	RESISTOR 33 KOHM 1% 0.1W 100PPM 0805	403100233030
R496	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R497	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R498	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R499	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R5	RESISTOR 150 ohm 1% 0.1W 100PPM 0805	403100215010
R500	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R501	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R502	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R503	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R504	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R505	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R506	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
R507	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R508	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R509	RESISTOR 470 ohm 1% .125W 100PPM 1206	482205154701
R510	RESISTOR 470 ohm 1% .125W 100PPM 1206	482205154701
R511	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R512	RESISTOR 470 ohm 1% .125W 100PPM 1206	482205154701
R513	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R514	RESISTOR 1.5 KOHM 1% 0.1W 100PPM 0805	403100215020
R515	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R516	RESISTOR 15 KOHM 1% 0.1W 100PPM 0805	403100215030
R517	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R518	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R519	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R520	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R521	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R522	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R523	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
R524	RESISTOR 22 ohm 1% 0.1W 100PPM 0805	532211712507
R525	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
R526	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R527	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R528	RESISTOR 22 ohm 1% 0.1W 100PPM 0805	532211712507
R529	RESISTOR 3.3 KOHM 1% 0.1W 100PPM 0805	403100233020
R530	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
R531	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001
R532	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R533	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001
R534	RESISTOR 22 ohm 1% 0.1W 100PPM 0805	532211712507
R535	RESISTOR 22 ohm 1% 0.1W 100PPM 0805	532211712507
R536	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
R537	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R538	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121
R539	RESISTOR 22 ohm 1% 0.1W 100PPM 0805	532211712507
R540	RESISTOR 22 ohm 1% 0.1W 100PPM 0805	532211712507
R541	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R543	RESISTOR 1 MOHM 1% 0.1W 100PPM 0805	403100210050
R544	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R545	RESISTOR 1.5 KOHM 1% 0.1W 100PPM 0805	403100215020
R546	RESISTOR 1.5 KOHM 1% 0.1W 100PPM 0805	403100215020
R547	RESISTOR 470 ohm 1% .125W 100PPM 1206	482205154701
R548	RESISTOR 91kohm 1% 0.1W 100PPM 0805	403100291030
R549	RESISTOR 470 ohm 1% .125W 100PPM 1206	482205154701
R551	RESISTOR 3.3 KOHM 1% 0.1W 100PPM 0805	403100233020
R552	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R553	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R554	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R555	RESISTOR 470 ohm 1% .125W 100PPM 1206	482205154701
R557	RESISTOR 15 OHM 1% 0.1W 100PPM 0805	403100215090
R558	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020
R559	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R560	RESISTOR 100kohm 1% 0.1W 100PPM 0805	532211712501
R561	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020
R562	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R563	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R564	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R565	RESISTOR 330 OHM 1% 0.1W 100PPM 0805	403100233010
R566	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R567	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R568	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R569	RESISTOR 150 ohm 1% 0.1W 100PPM 0805	403100215010
R570	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001
R571	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001
R572	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001
R573	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001
R575	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001
R576	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001
R577	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001
R578	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001
R579	RESISTOR 1.5 KOHM 1% 0.1W 100PPM 0805	403100215020
R580	RESISTOR 3.3 KOHM 1% 0.1W 100PPM 0805	403100233020
R581	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R582	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499
R583	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R584	RESISTOR 47 ohm 1% 0.1W 100PPM 0805	532211712505
R585	RESISTOR 470 OHM 1% 0.1W 100PPM 0805	403100247010
R586	RESISTOR 470 OHM 1% 0.1W 100PPM 0805	403100247010
R587	RESISTOR 470 OHM 1% 0.1W 100PPM 0805	403100247010
R589	RESISTOR 100kohm 1% 0.1W 100PPM 0805	532211712501
R590	RESISTOR 150 ohm 1% 0.1W 100PPM 0805	403100215010
R591	RESISTOR 150 ohm 1% 0.1W 100PPM 0805	403100215010
R592	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R593	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498
R594	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R595	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R596	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R597	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R598	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R599	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R6	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497
R600	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R601	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R602	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R603	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109
R604	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109

<u>Pos</u>	<u>Description</u>	<u>Part Number</u>	<u>Pos</u>	<u>Description</u>	<u>Part Number</u>
R605	RESISTOR 10.0 ohm 1% 0.125W 100PPM 1206	482205110109	R669	RESISTOR 22 ohm 1% 0.1W 100PPM 0805	532211712507
R606	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001	U1	IC-OPAMP LMC6081	932220497682
R607	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001	U11	IC-FPGA	932220399682
R608	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001	U116	IC-ANA MAX6355TWUT-T	932220433682
R609	RESISTOR 100 ohm 1% 0.125W 100PPM 1206	482205151001	U118	IC-REG MAX1927REUB	932220434682
R610	RESISTOR 1.2 Mohm 1% 0.125W 1206	403100112050	U12	IC-DIG ECLIPS MC10E104	482220931775
R611	RESISTOR 1.2 Mohm 1% 0.125W 1206	403100112050	U122	IC-REF 2.5V LT1009CD-2.5 2.5Vñ0.2% 15ppm	532220990434
R612	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498	U123	IC-REG LM2991S	932220425682
R613	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498	U124	IC-REG LM2991S	932220425682
R614	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U126	IC-REG LP2951	932207501682
R615	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U127	IC-SWITCH MIC2505-1BM	932220437682
R616	RESISTOR 820 ohm 1% .125W 100PPM 1206	532211682264	U128	IC-ANA SMPS CTR LTC3412	932220430682
R617	RESISTOR 6.8 KOHM 1% 0.1W 100PPM 0805	403100268020	U129	IC-REG LM2940CS-12	932211044682
R618	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	U13	IC-CPU LH79524	403106000012
R619	RESISTOR 1kohm 1% 0.1W 100PPM 0805	532211712498	U130	IC-REG LM2940CS-12	932211044682
R620	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121	U131	IC-COMP MAX961 SO8 4.5ns	932219434682
R621	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121	U132	IC-ANA ADG719 SPDT-SWITCH MSOP-8	403106000008
R622	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121	U133	IC-ANA ADG719 SPDT-SWITCH MSOP-8	403106000008
R623	RESISTOR 470 OHM 1% 0.1W 100PPM 0805	403100247010	U134	IC-ANA ADG719 SPDT-SWITCH MSOP-8	403106000008
R624	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020	U135	IC-ANA ADG719 SPDT-SWITCH MSOP-8	403106000008
R625	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121	U15	IC-SRAM K4S281632D	932220429682
R626	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121	U16	IC-SRAM K4S281632D	932220429682
R627	RESISTOR 120 ohm 1% 0.125W 100PPM 1206	482205110121	U17	IC-PROM Am29LV640MH	932220405682
R628	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020	U18	IC-OPAMP OPA277	932214746682
R629	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	U19	IC-OPAMP OPA277	932214746682
R630	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	U2	IC-OPAMP LMC6081	932220497682
R631	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	U20	IC-OMV ADC 10BIT ADC1061C1WM SO20	932218755682
R632	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	U21	IC-OMV ADC 10BIT ADC1061C1WM SO20	932218755682
R633	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020	U22	IC-OMV ADC 10BIT ADC1061C1WM SO20	932218755682
R634	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020	U23	IC-OMV ADC 10BIT ADC1061C1WM SO20	932218755682
R635	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020	U24	IC-OPAMP OPA277	932214746682
R636	RESISTOR 4.7 KOHM 1% 0.1W 100PPM 0805	403100247020	U25	IC-CMOS 74HCT126D SMD SO14	933757050701
R637	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U26	IC-OPAMP OPA277	932214746682
R638	RESISTOR 10 ohm 1% 0.1W 100PPM 0805	532211712502	U28	IC-OPAMP OPA277	932214746682
R639	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U29	IC-CMOS 74LVC74AD	935260734701
R640	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020	U3	IC-COMP ADCMP565BP	932220403682
R641	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020	U30	IC-OP AMP LM358 x2 SMD SO8	482220960175
R642	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020	U31	IC-OPAMP LMH6624	932220398682
R643	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020	U32	IC-CMOS 74LVC74AD	935260734701
R644	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020	U33	IC-CMOS 74ALVC00	932220496682
R645	RESISTOR 2.2 KOHM 1% 0.1W 100PPM 0805	403100222020	U34	IC-DIG BUS ISP1181B	935271360701
R646	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U35	IC-OP AMP LM358 x2 SMD SO8	933965740685
R647	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U35	IC-OP AMP LM358 x2 SMD SO8	482220960175
R648	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U37	IC-DIG BUS TNT4882	932220397682
R649	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U38	IC-CMOS TRANSL3-5V 74LVC4245AD	935260749701
R650	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U39	IC-DIG TEMP SENSOR LM75	932212511682
R651	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U4	IC-CMOS 74ALVC00	932220496682
R652	RESISTOR 82 OHM 1% 0.1W 100PPM 0805	403100282090	U40	IC-DIG BUS I2C PCA9555PW	935269569701
R653	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U41	IC-CMOS 74HCT126D SMD SO14	933757050701
R654	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U42	IC-OP AMP KM4100IT5 SOT23-5 260MHz	403106000002
R655	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U43	IC-OP AMP KM4100IT5 SOT23-5 260MHz	403106000002
R656	RESISTOR 1.5 KOHM 1% 0.1W 100PPM 0805	403100215020	U44	IC-OP AMP KM4100IT5 SOT23-5 260MHz	403106000002
R657	RESISTOR 1.5 KOHM 1% 0.1W 100PPM 0805	403100215020	U45	IC-OP AMP KM4100IT5 SOT23-5 260MHz	403106000002
R658	RESISTOR 10 ohm 1% 0.1W 100PPM 0805	532211712502	U46	IC-CONV DAC MAX5156BCEE 12bit dual	403106000001
R659	RESISTOR 10 ohm 1% 0.1W 100PPM 0805	532211712502	U47	IC-CMOS 74LVC1G04GV LOG 1xiINV	935271788125
R66	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	U48	IC-CMOS 74LVC1G04GV LOG 1xiINV	935271788125
R660	RESISTOR 10 ohm 1% 0.1W 100PPM 0805	532211712502	U5	IC-DAC 12BIT LTC8043	932220498682
R661	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U50	IC-OP AMP TLE2022C SMD SO	532220990433
R662	RESISTOR 470 ohm 1% .125W 100PPM 1206	482205154701	U52	IC-CMOS 74LVC162245ADGG TSSOP48	403106000010
R664	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	U53	IC-CMOS 74LVC162245ADGG TSSOP48	403106000010
R665	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	U54	IC-CMOS 74LVC162245ADGG TSSOP48	403106000010
R666	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	U56	IC-CMOS 74LVC08AD SO14	403106000009
R667	RESISTOR 100 ohm 1% 0.1W 100PPM 0805	532211712497	U57	IC-CMOS 74LVC1G02GV NOR SOT753	403106000011
R668	RESISTOR 10kohm 1% 0.1W 100PPM 0805	532211712499	U6	IC-OPAMP OPA277	932214746682

Pos	Description	Part Number
U7	IC-OPAMP OPA277	932214746682
U8	IC-OP AMP LM358 x2 SMD SO8	933965740685
U8	IC-OP AMP LM358 x2 SMD SO8	482220960175
U9	IC-ANALOG-PLL 200MHz ADF4001BRU	932220404682

NOTE: The preceding parts lists for the two versions of the main PCB are both complete for the sake of simplicity. Consequently there is redundant information.

Parts Unique to Version A

Pos	Description	Part Number
B3	CRYSTAL 32kHz MC-406	242254301419
R364	RESISTOR 22 kOhm 1% 0.1W 100PPM 0805	403100222030
R367	RESISTOR 22 kOhm 1% 0.1W 100PPM 0805	403100222030
R549	RESISTOR 1 kOhm 1% 0.125W 1206	403100110020
U13	IC-CPU TA7S20-60QC	932220406682
U14	IC-CMOS SN74LVC125AD	932220193682

Parts Unique to Version B

Pos	Description	Part Number
B7	CRYSTAL 11.2896 MHz HC49/USM SMD	403110056560
C281	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C282	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C283	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C284	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C285	CAPACITOR 470pF 10% 50V X7R 0402	403102040471
C286	CAPACITOR 470pF 10% 50V X7R 0402	403102040471
C287	CAPACITOR 470pF 10% 50V X7R 0402	403102040471
C288	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C304	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C305	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C306	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C309	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C501	CAPACITOR 470pF 10% 50V X7R 0402	403102040471
C506	CAPACITOR 470pF 10% 50V X7R 0402	403102040471
C508	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C513	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C514	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C515	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C516	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C535	CAPACITOR 100nF 10% 16V X7R 0603	403102030104
C568	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C569	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C570	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C571	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
C572	CAPACITOR 10nF 10% 25V X7R 0402	403102040103
R548	RESISTOR 91 kohm 1% 0.1W 100PPM 0805	403100291030
U13	IC-CPU LH79524	403106000012

Pos	Description	Part Number
U52	IC-CMOS 74LVC162245ADGG TSSOP48	403106000010
U53	IC-CMOS 74LVC162245ADGG TSSOP48	403106000010
U54	IC-CMOS 74LVC162245ADGG TSSOP48	403106000010
U56	IC-CMOS 74LVC08AD SO14	403106000009
U57	IC-CMOS 74LVC1G02GV NOR SOT753	403106000011

NOTE: The two tables above are meant to pinpoint the parts that are unique to the respective version. Consequently they are excerpts from the complete lists.

Parts Common to Version A and Version B

NOTE 1: Only parts with changed quantities are shown.

NOTE 2: + means that the part has been added.
- means that the part has been deleted.
Changes refer to Version A.

+ Pos	- Pos	Part Number
C36,C354,C499	C251	202202900654
C384,C390,C423,C425,C500,C539,C561,C562,C563,C564,C575	C250	202202900655
C253	C252,C256,C259,C431	222215364221
	C254	222286115221
C565		222286115229
C33,C27	C248,C249	222286115279
C302,C343,C373,C379,C391,C392,C413,C418,C419,C420,C502,C537,C538,C543,C544,C549,C560,C566,C573,C576,C577,C578,C579,C580,C582		222286148102
C34,C35,C37,C38,C248,C249,C301,C320,C581	C535	222286148103
	C253	222286115681
C277,C505,C517,C540,C541,C542,C545,C546,C547,C548,C567	C255,C278,C281,C282,C283,C284,C285,C286,C287,C288,C301,C302,C304,C305,C306,C307,C308,C309,C320	222291016749
	L15	242253600772
L66,L67	L18	242254900035
L18		242254943133
	R585,R586,R587,R590,R591	403100115010
	R368,R369	403100122040
R549,R662		403100147010
R637,R639,R644,R647,R648,R649,R650,R651,R653,R654,R655,R661,R667		403100210010
	R523	403100210020
R20,R21,R22,R23,R425,R541,R629,R630,R631,R632,R663,R664,R665,R666,R668		403100210030
R638		403100210090
R590,R591		403100215010
R633,R634	R356,R357,R365,R629,R630	403100222020
R669		403100222090
	R370	403100233030

<u>+ Pos</u>	<u>- Pos</u>	<u>Part Number</u>
R585,R586,R587		403100247010
R523,R628,R635,R636		403100247020
	R371	403100247030
C431		403102131590
	U117	932220434682
U25		933757050701

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Schematic Diagrams

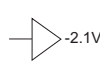
How to Read the Diagrams

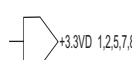
This chapter contains circuit diagrams and component layout information.


Signals

The signal designations reflect the functions. ADCDATA0, for instance, means DATA BIT 0 from the ADC (Analog/Digital Converter).

Three different types of graphic symbols are used to mark references for continued connection somewhere else in the diagram.

 This arrow is used if the reference to a supply voltage is directed to a point located on the same sheet. The example means that the supply voltage -2.1V can also be found elsewhere on the same sheet.

 This arrow is used if the reference to a supply voltage or a signal is directed to a point located on another sheet. The example means that the supply voltage +3.3VD goes to sheet 1, 2, 5, 7 and 8.

 A broken line with a signal designation label means that this particular signal can also be found elsewhere on the same sheet.

Circuit Symbols

The diagrams are computer-drawn. The symbols conform to IEC standards. These symbols are designed to be logical and easy to read.

The component number is written above the symbol. The type number is written below the symbol

Inside the symbol there is sometimes an abbreviated description of the circuit's function.

Pin numbers are written outside the symbol and, if the circuit is complex, the pin functions are written inside.

A small circle on a pin indicates that the input/output inverts the signal.

The signal flow through the circuit is normally from left to right.

Resistors, Capacitors, Diodes, Transistors and Other Components.

These components are similar to the old-fashioned, hand-drawn symbols. They have their component numbers above or beside the symbol and their value or type number below the component number.

Component Numbers

Letters	Components
B	Crystals and crystal filters
C	Capacitors
D	Diodes
F	Fuses
J	Jumpers and connectors
K	Relays
L	Coils
P	Connectors
Q	Transistors
R	Resistors
U	ICs
X	Test points

The numbers that follow are sequential and serve as schematic diagram and layout identifiers together with the leading character.

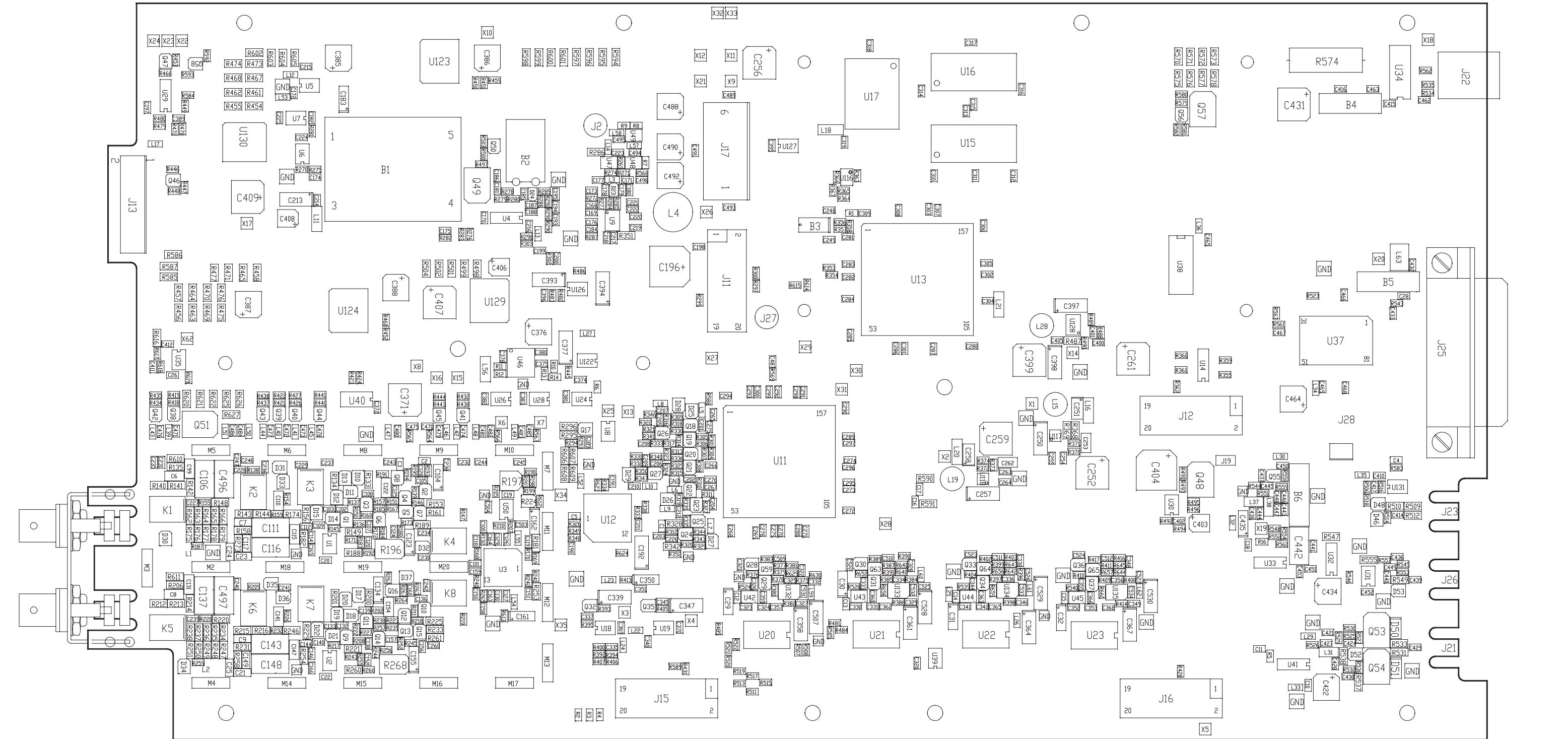
Version A

The descriptions in this section apply to instruments having a Triscend microprocessor.

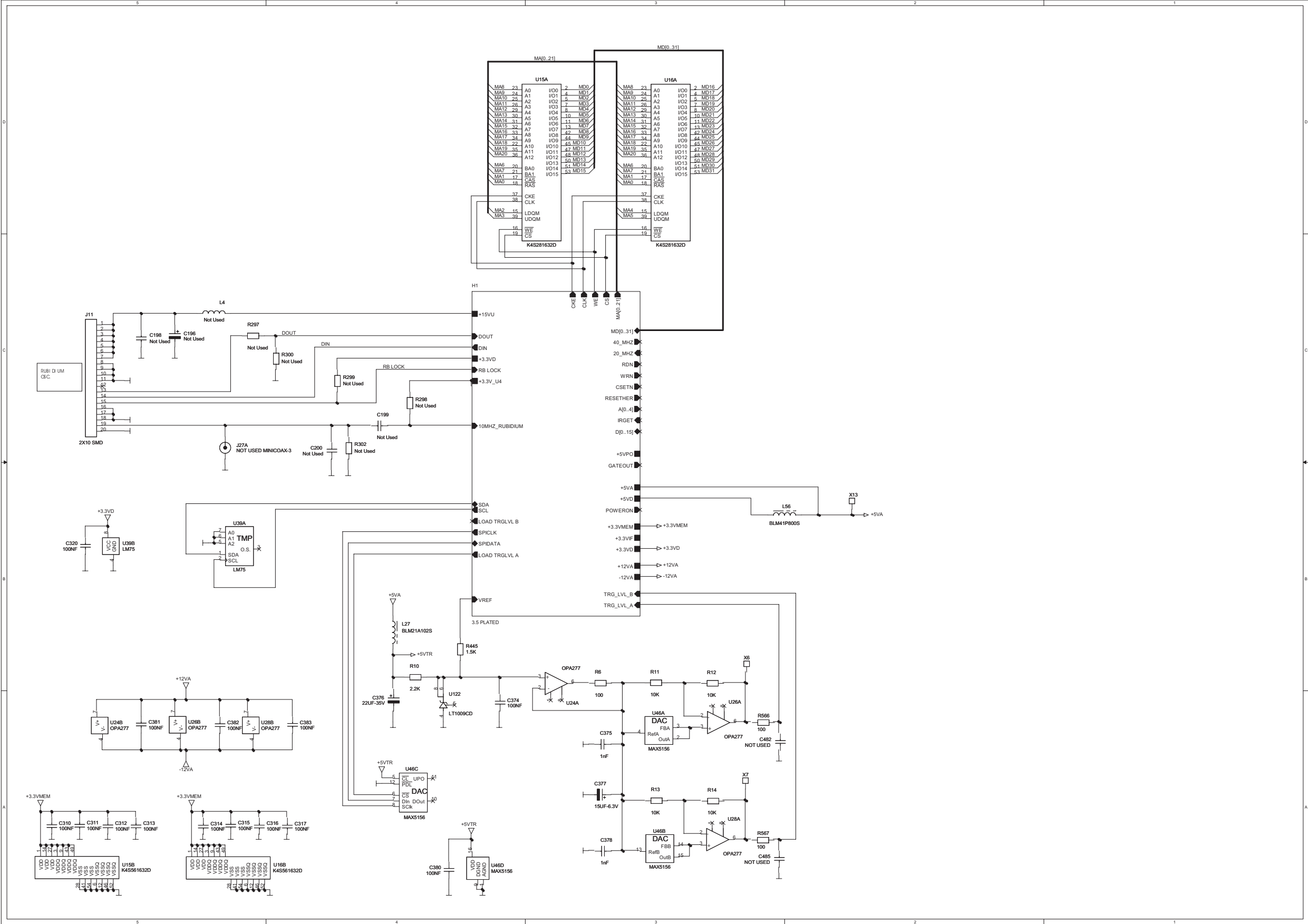
See General Information on page III for details on relevant serial numbers etc.

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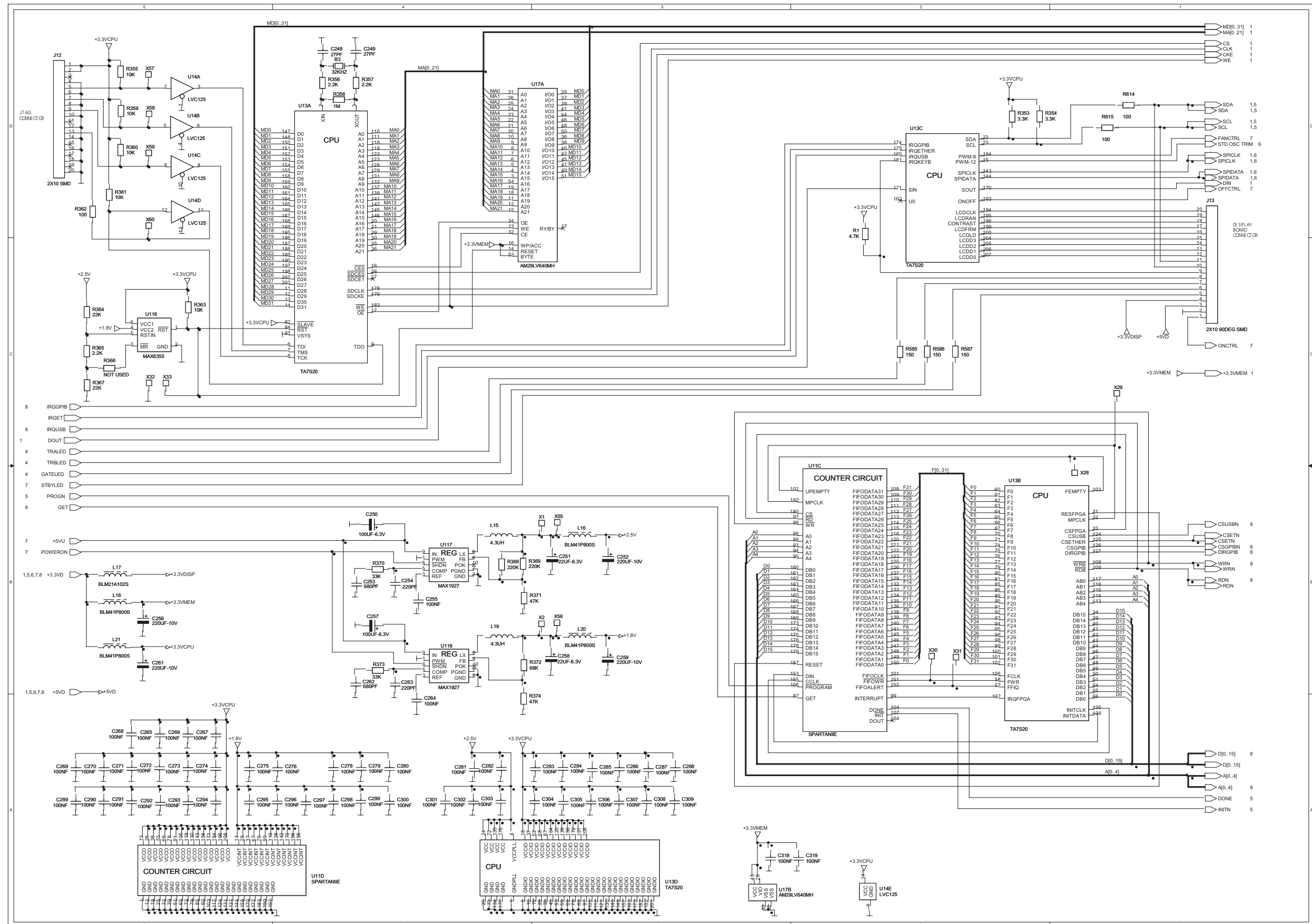


Main Schematic



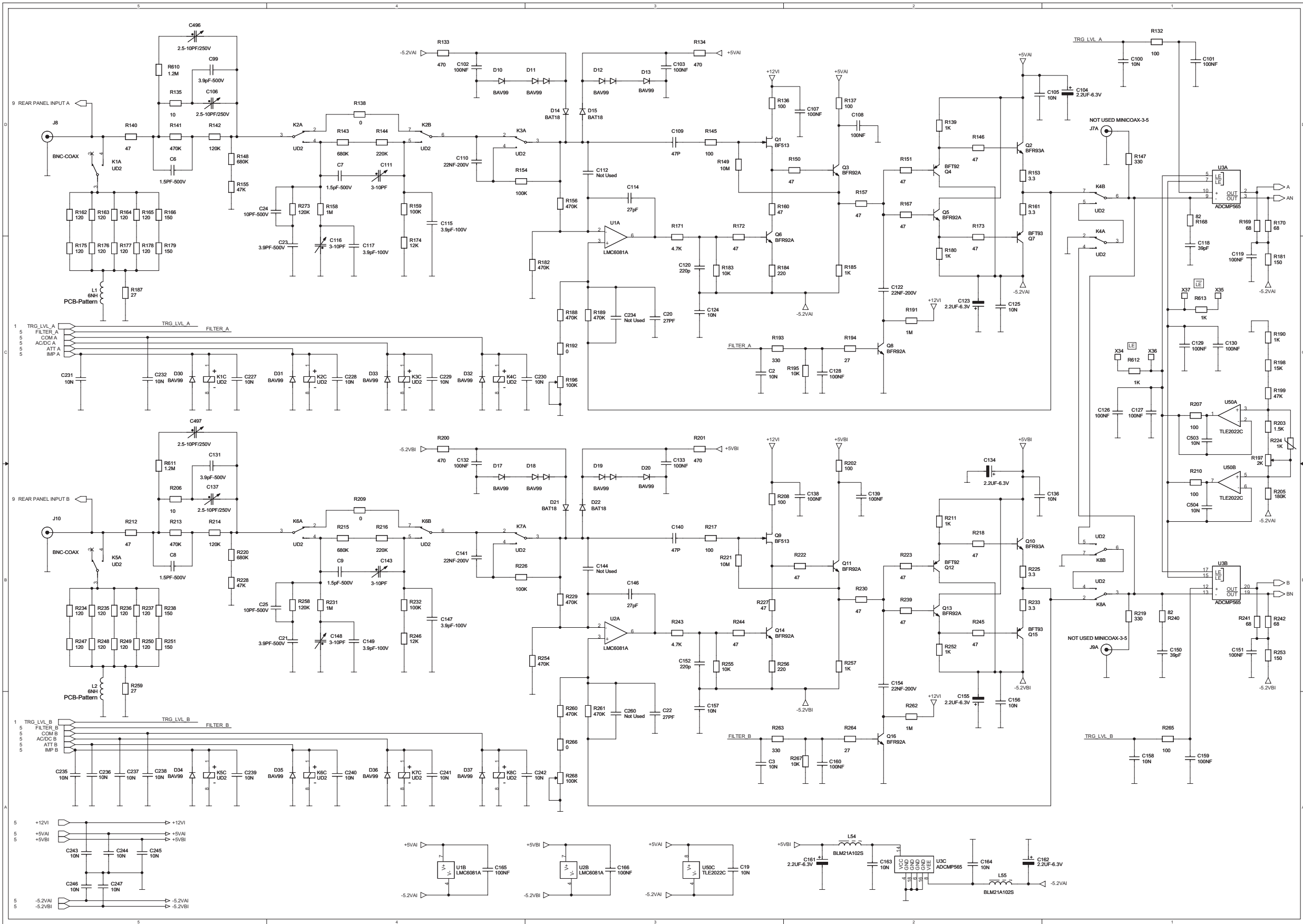
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CPU, Memories and Parts of the Counter Circuit, PCB 1, sheet 1(7)

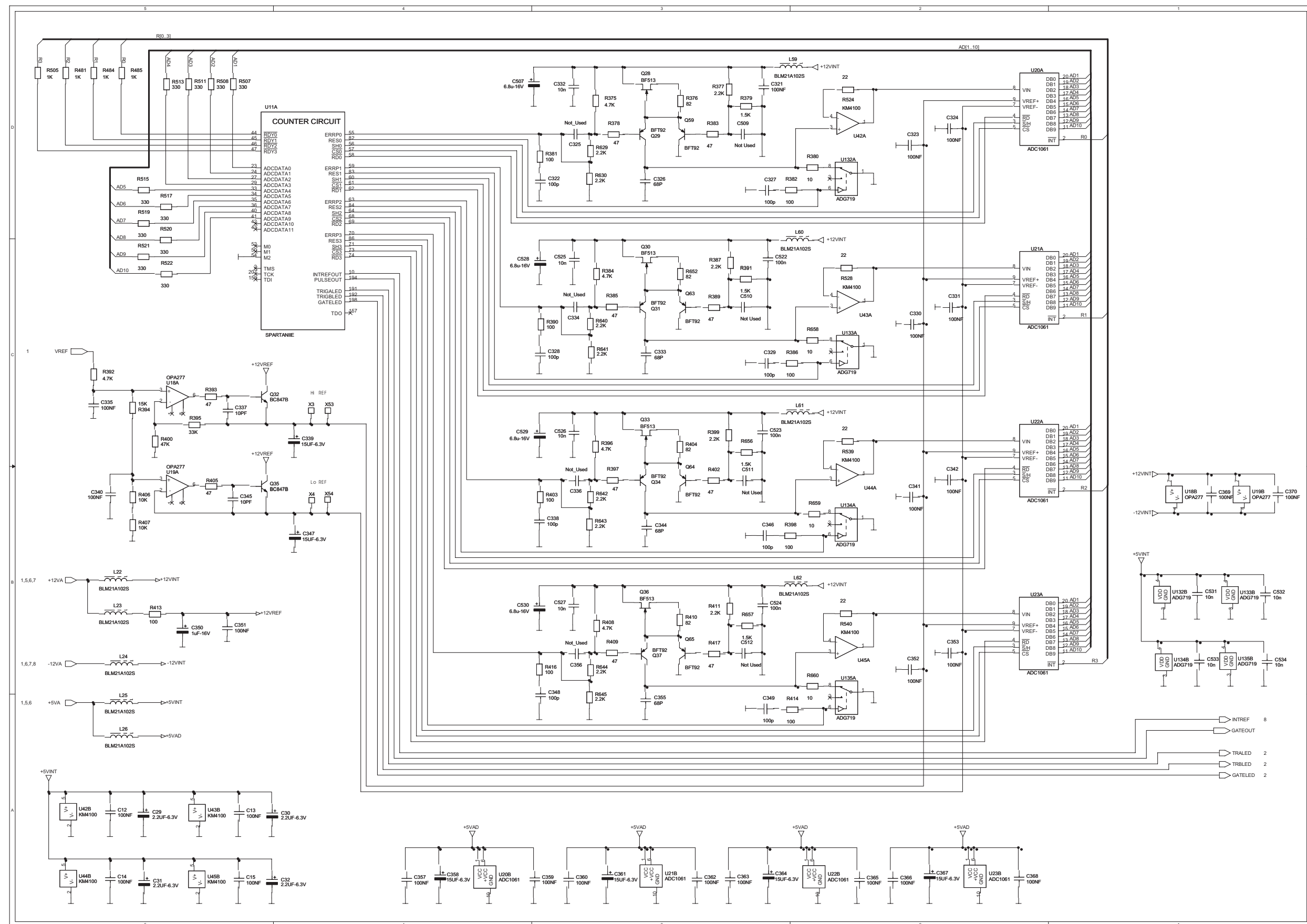


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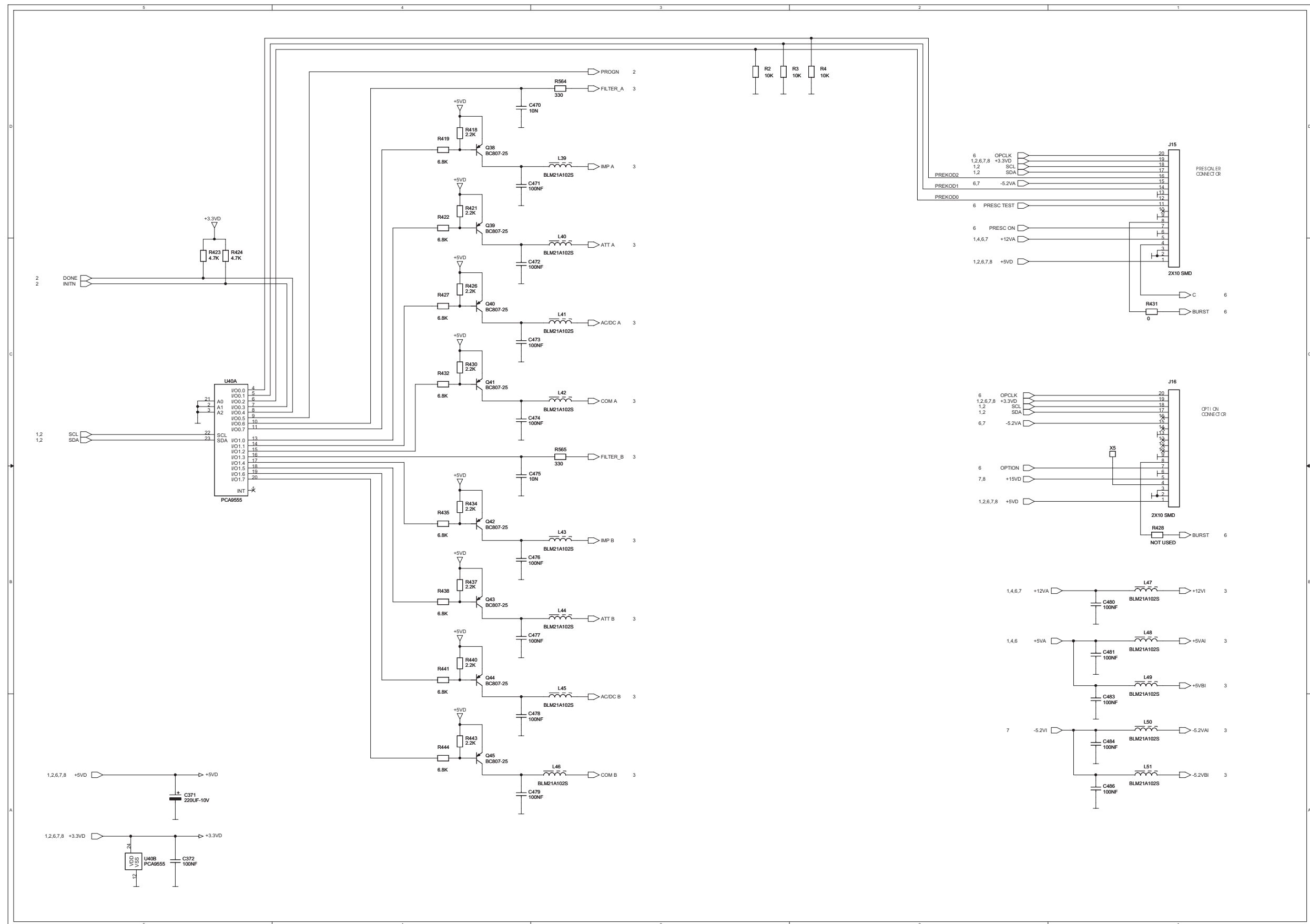
Input Amplifiers, PCB 1, sheet 2(7)



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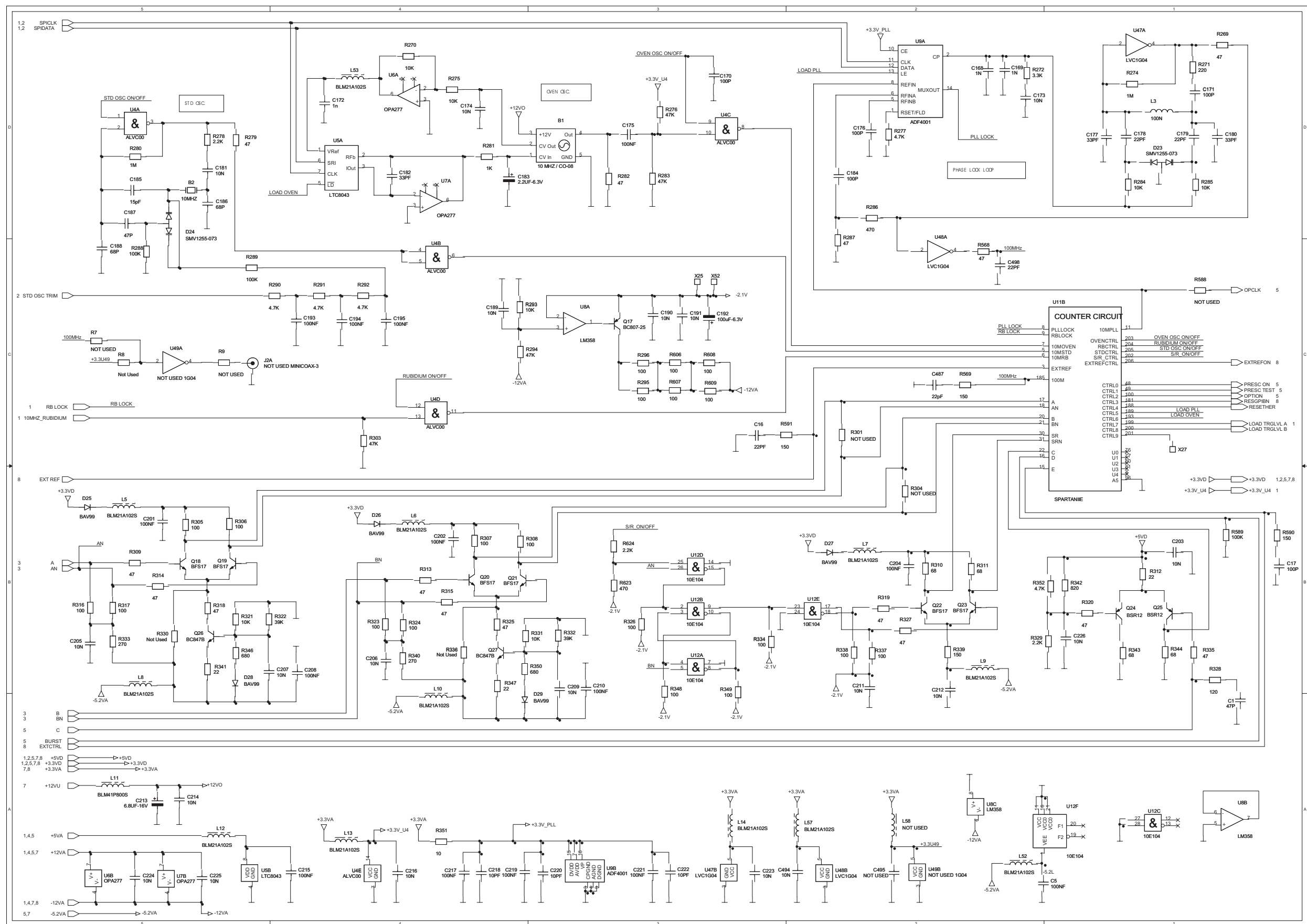


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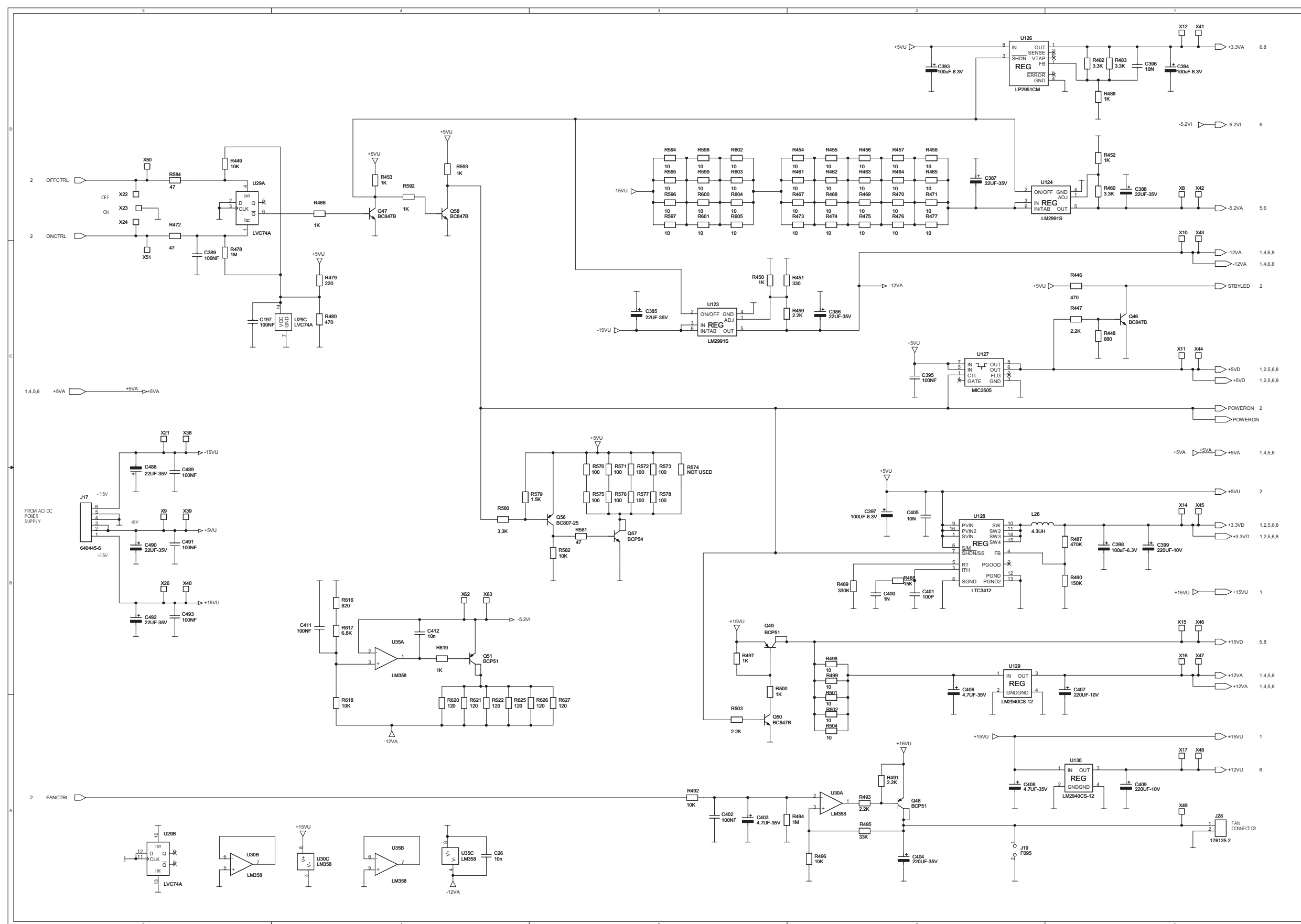
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Oscillator Circuits, PCB 1, sheet 5(7)



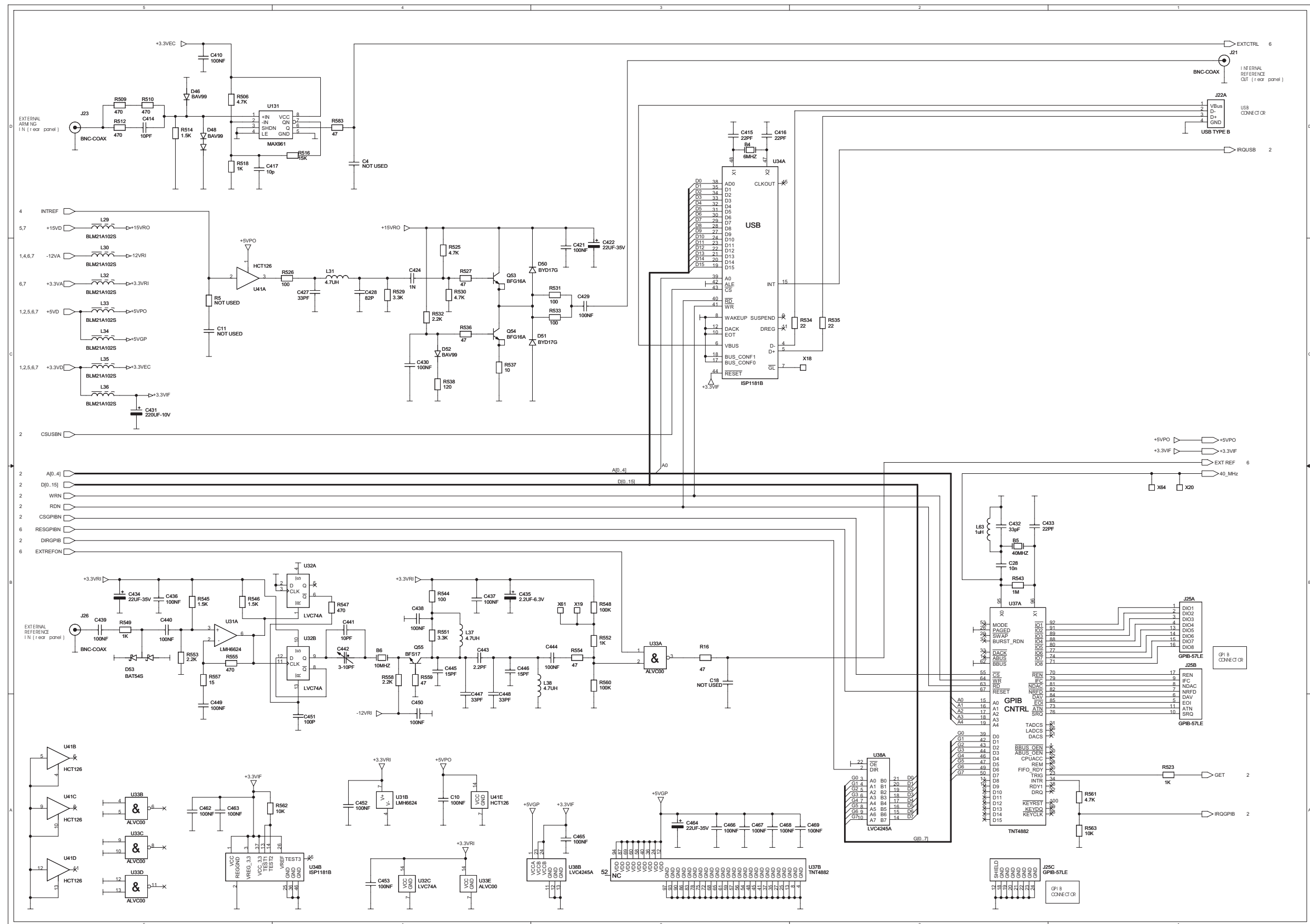
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Supply Voltages, PCB 1, sheet 6(7)

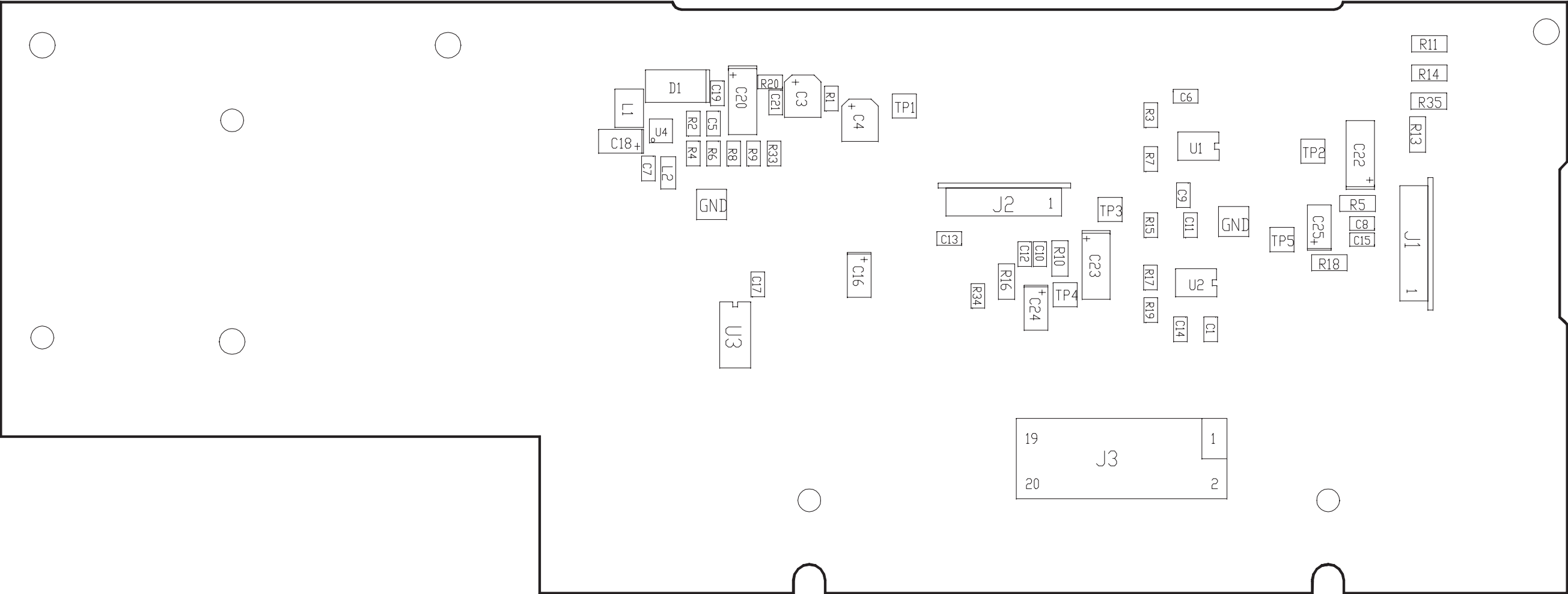


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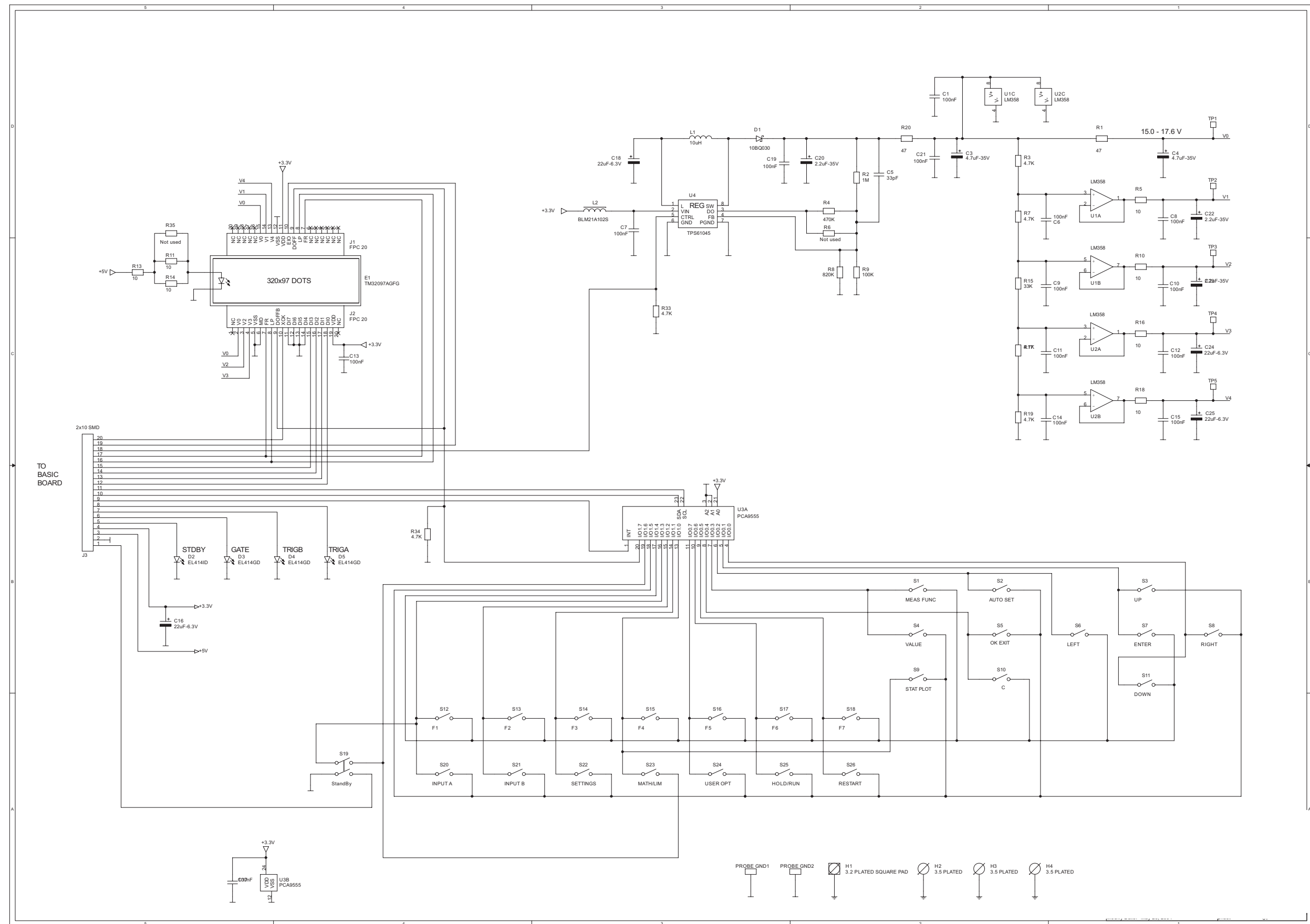
Rear Panel, Interfaces and I/O, PCB 1, sheet 7/7



Display & Keyboard, PCB 2, Component Layout



Display & Keyboard, PCB 2



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Version B

The descriptions in this section apply to instruments having a Sharp microprocessor.

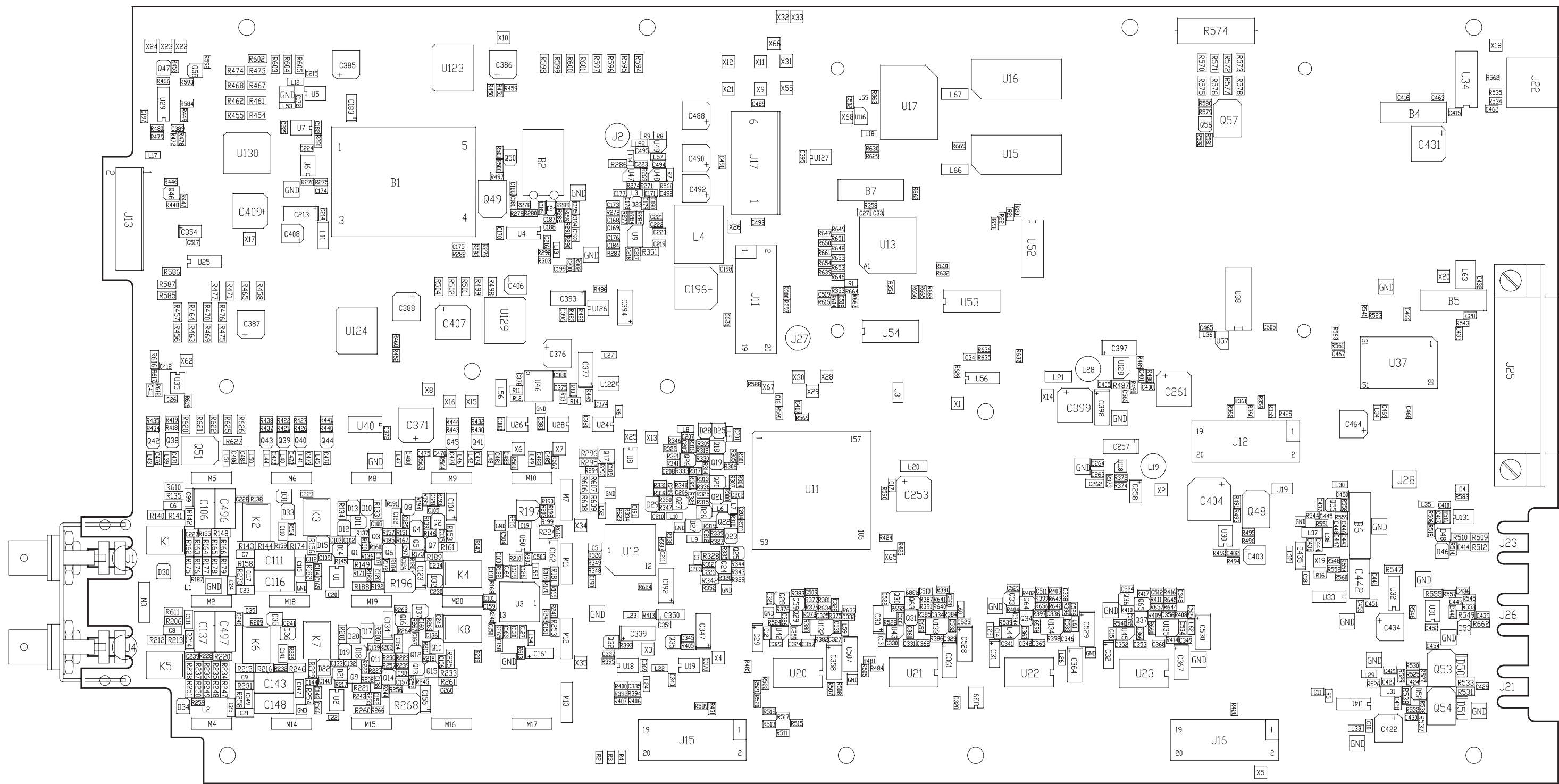
See General Information on page III for details on relevant serial numbers etc.

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Main Board, PCB 1, Component Layout, Bottom Side



Main Board, PCB 1, Component Layout, Top Side

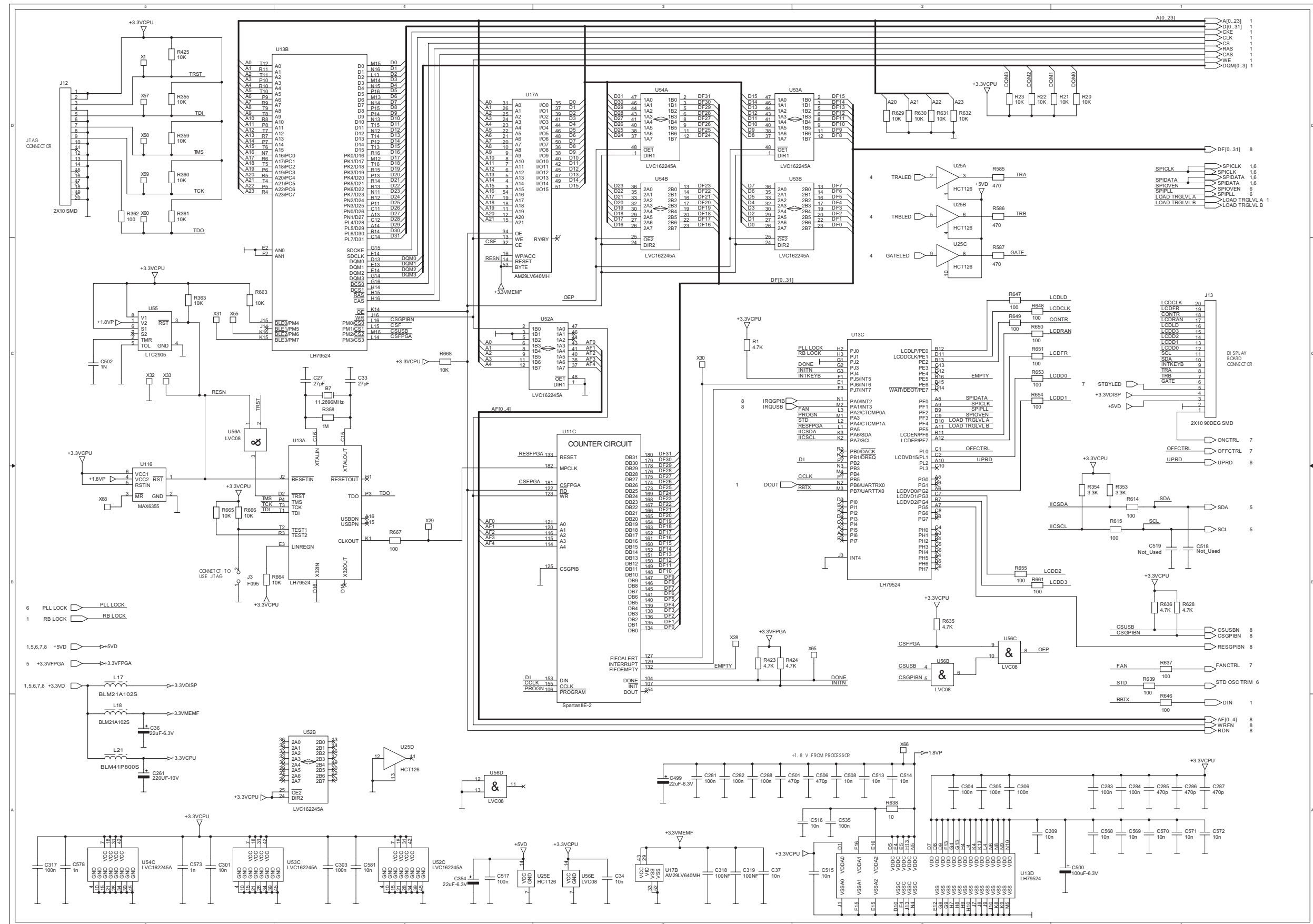


Schematic Diagrams 9-29

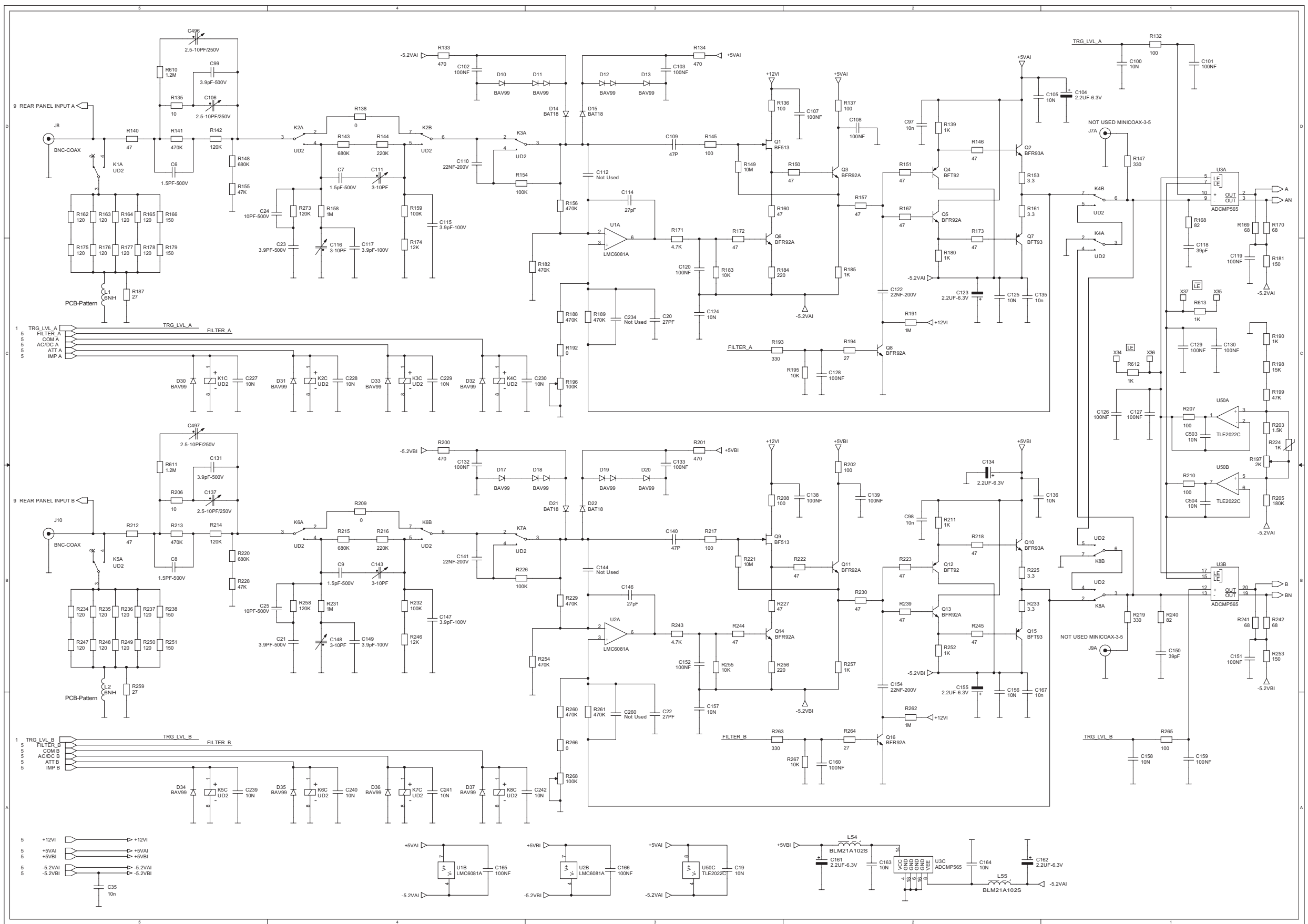


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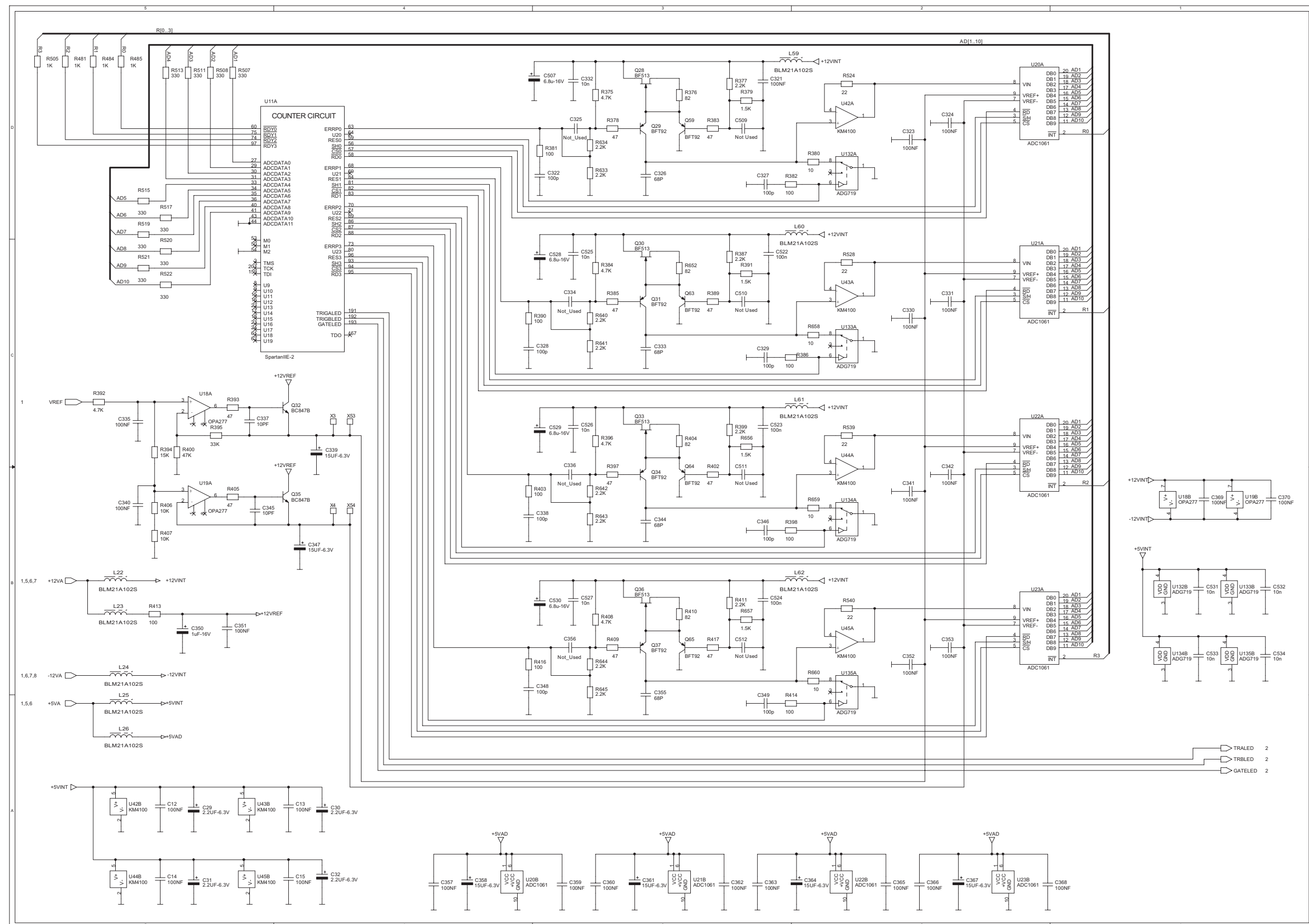
CPU, Memories and Parts of the Counter Circuit, PCB 1, sheet 1(7)



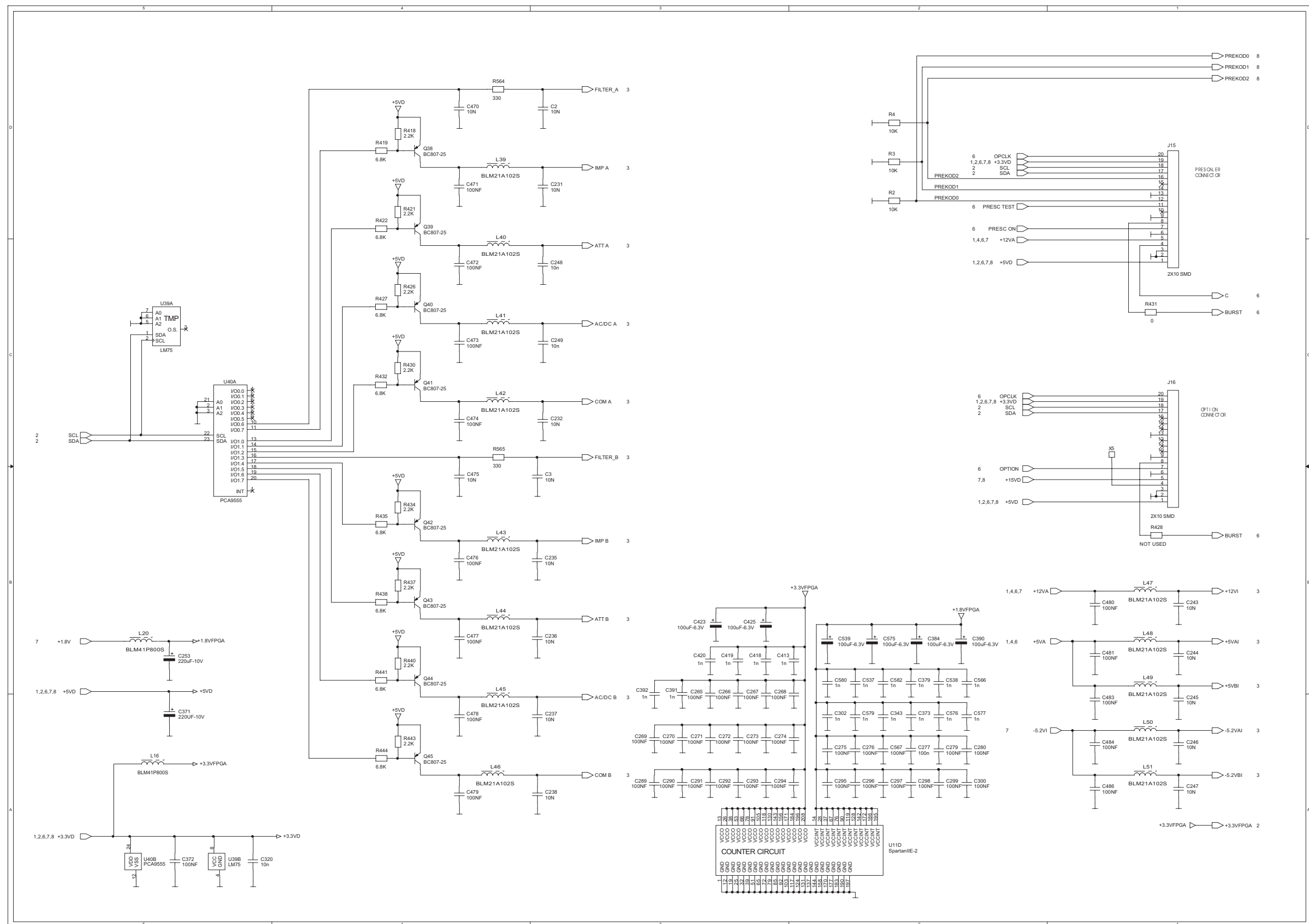
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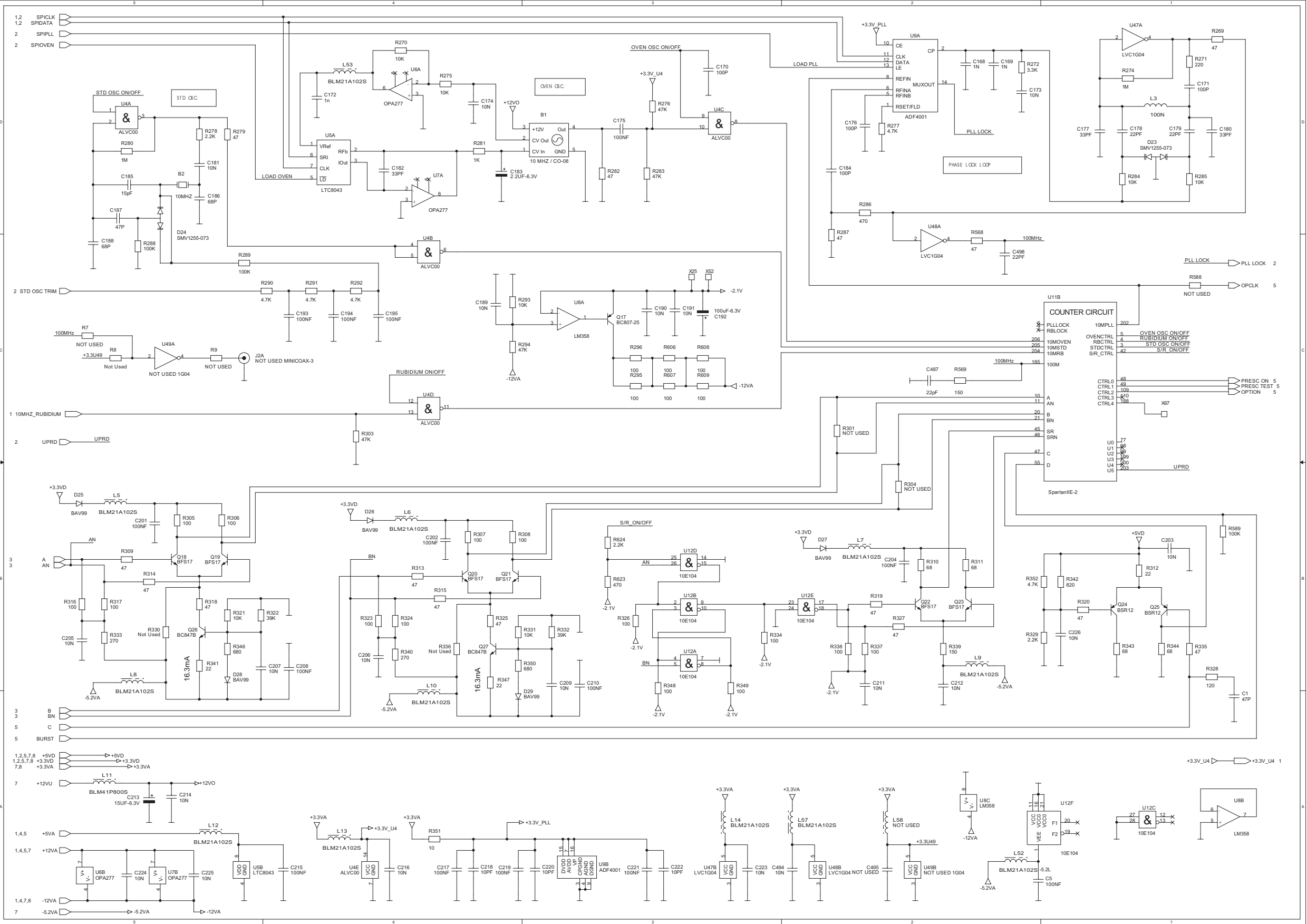


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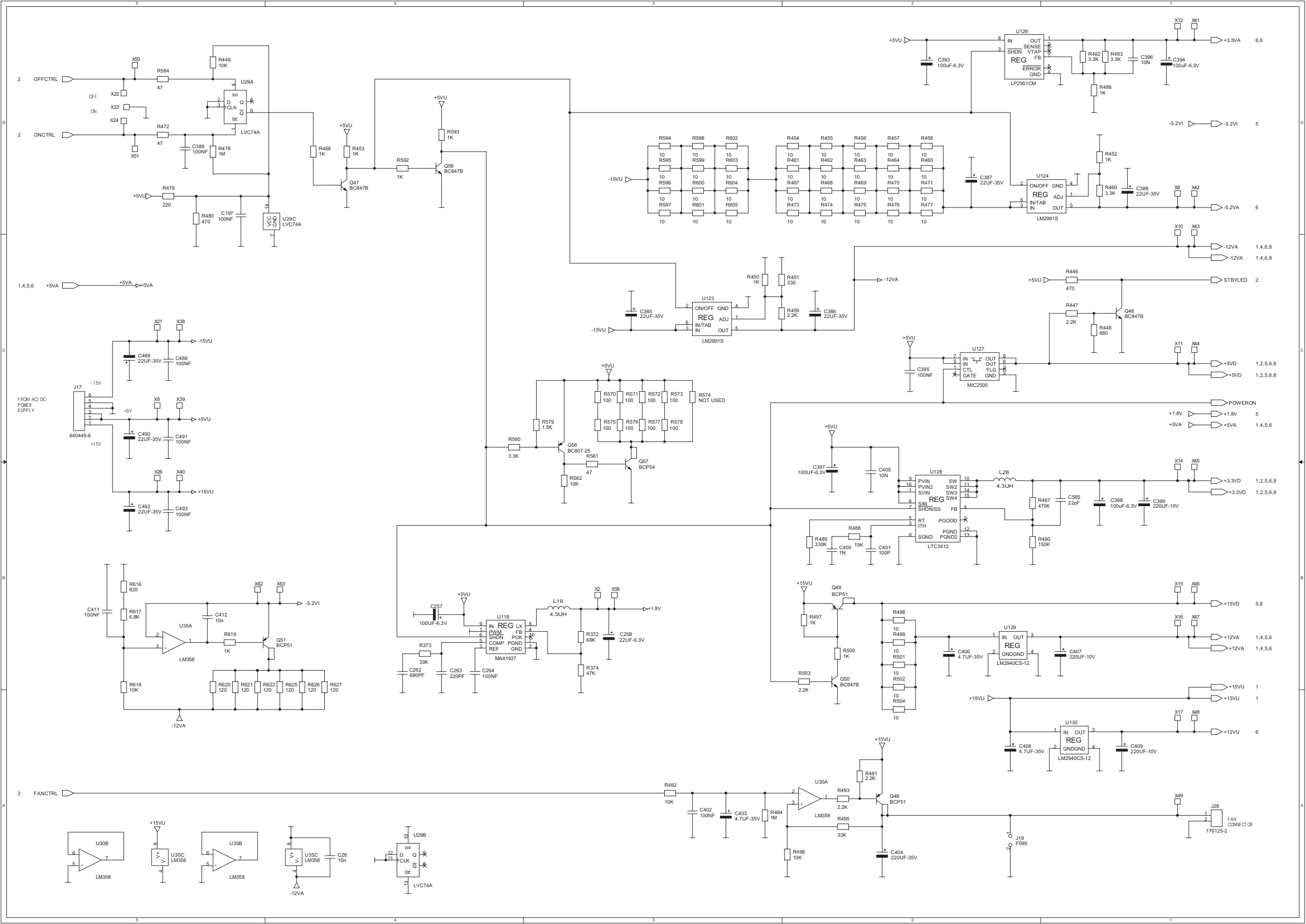
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Oscillator Circuits, PCB 1, sheet 5(7)



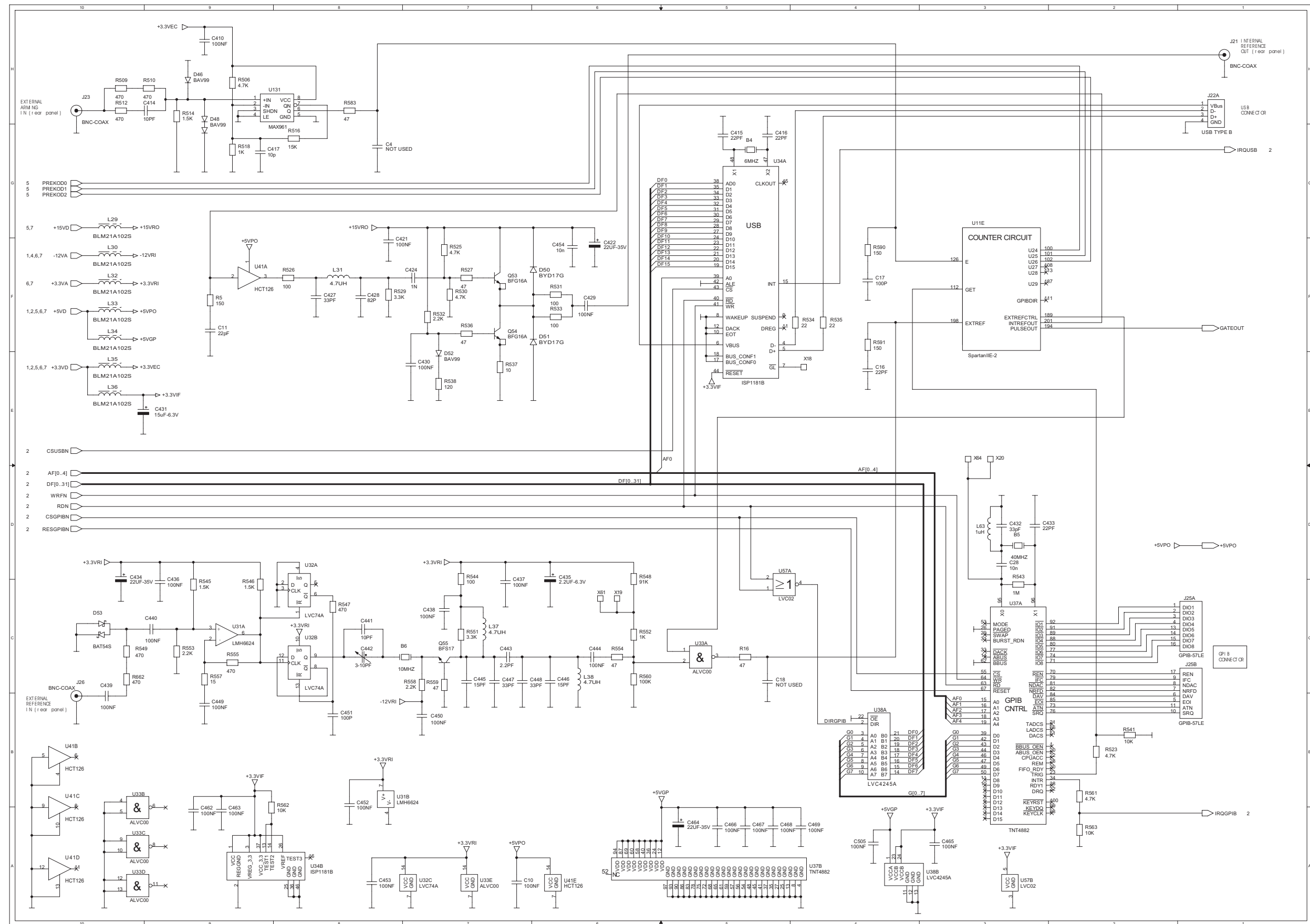
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Supply Voltages, PCB 1, sheet 6(7)

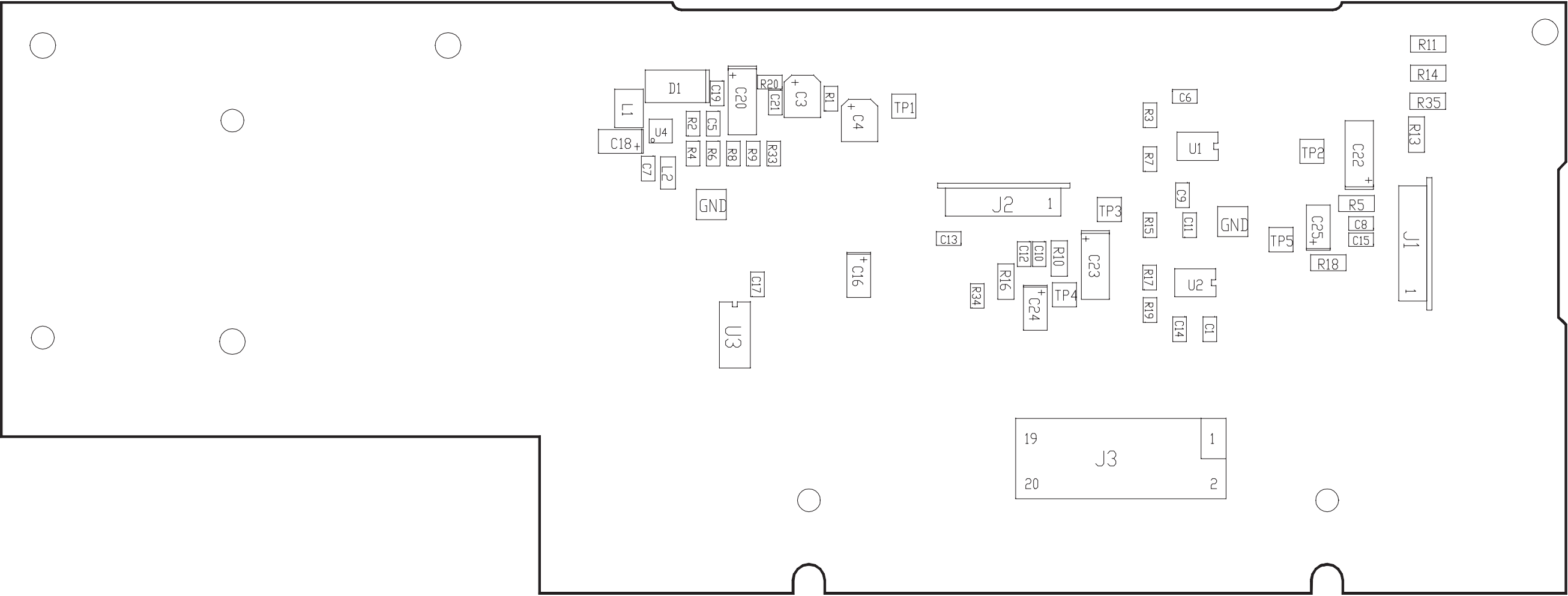


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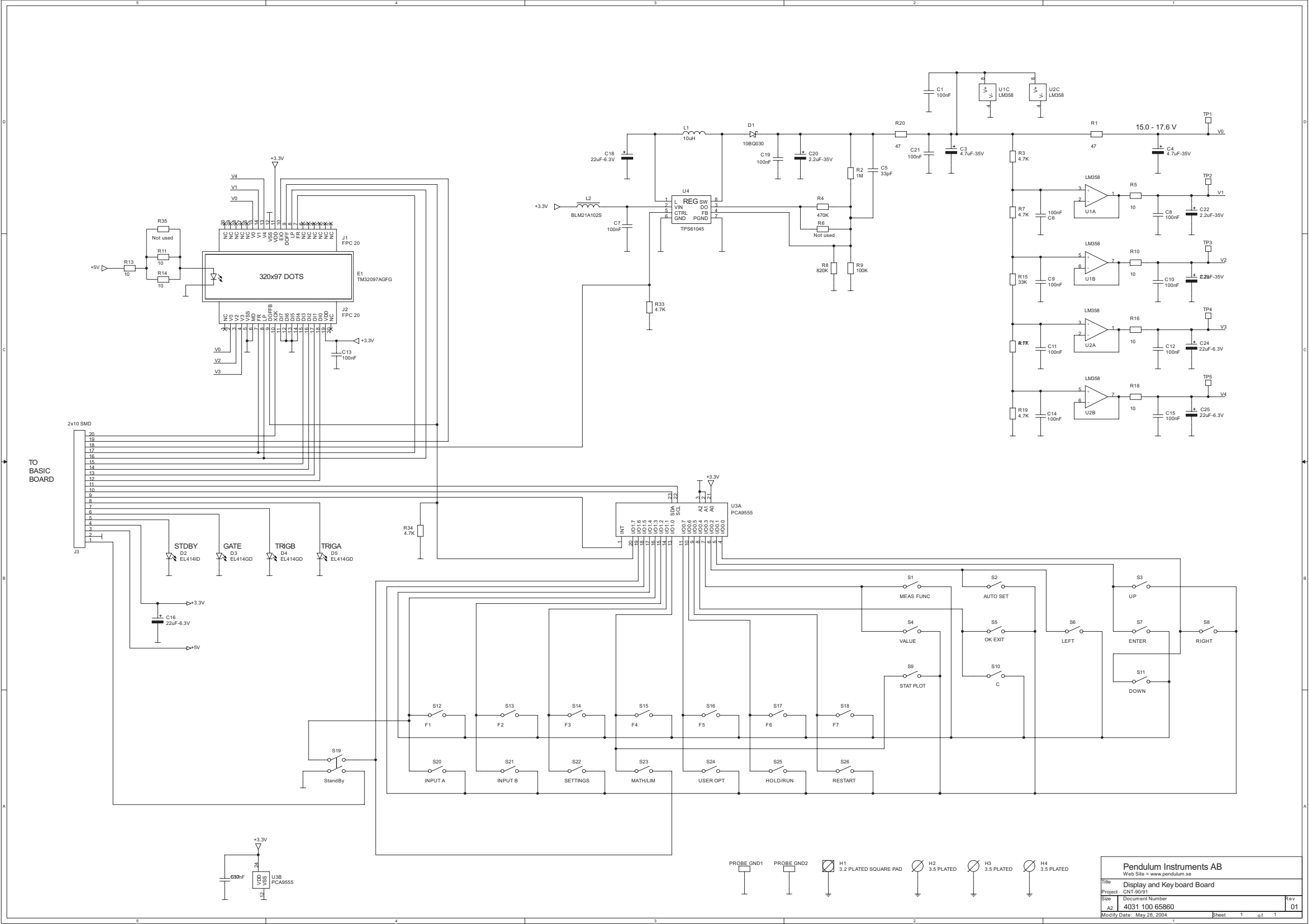
Rear Panel, Interfaces and I/O, PCB 1, sheet 7/7



Display & Keyboard, PCB 2, Component Layout



Display & Keyboard, PCB 2



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Chapter 10

Appendix

How to Replace Surface Mounted Devices

Most of the components in this instrument are mounted on the surface of the board instead of through holes in the board. These components are not hard to replace but they require another technique. If you do not have special SMD desoldering equipment, follow the instructions below:

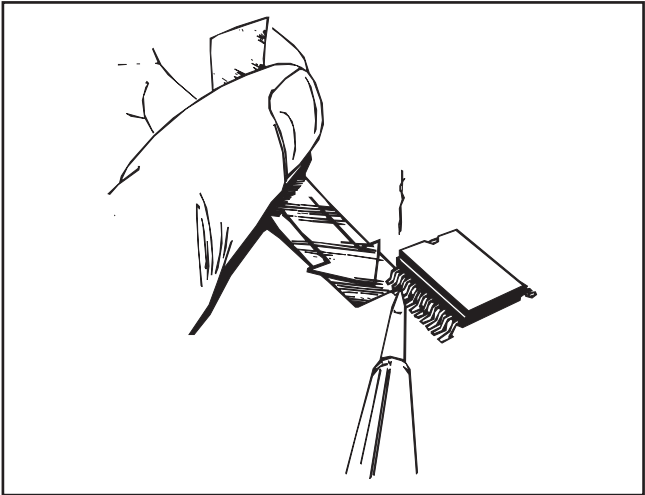


Figure 10-1 Heat the leads and push a thin aluminum sheet between the leads and the pca.

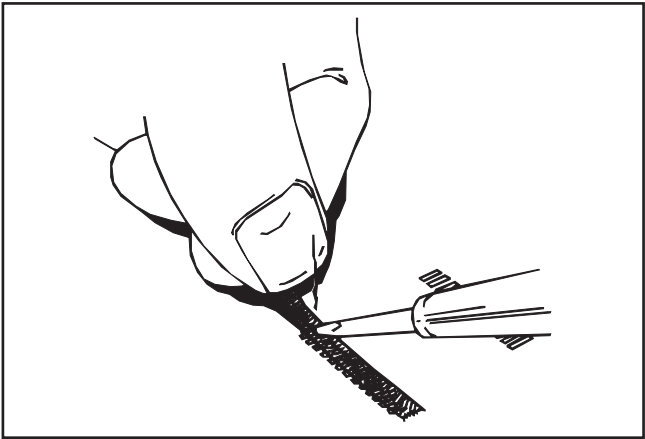


Figure 10-2 When removed, clean the pads with desoldering braid.

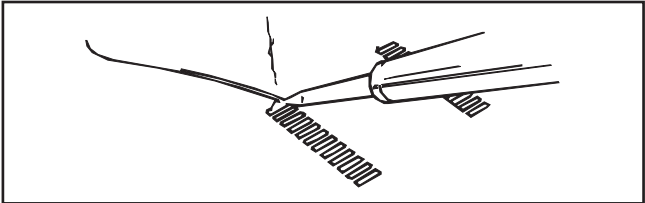


Figure 10-3 Place solder on the pad.

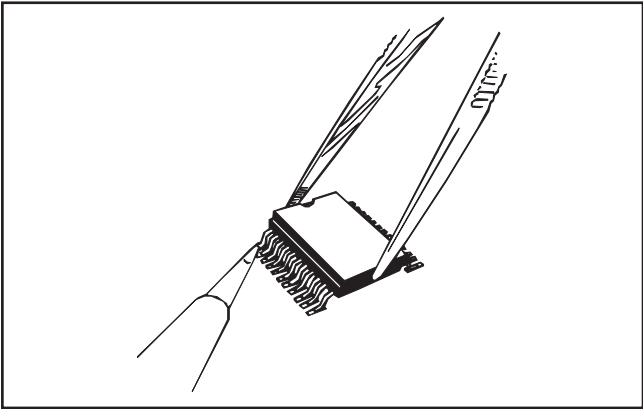


Figure 10-7 Attach the IC to the pad with solder.

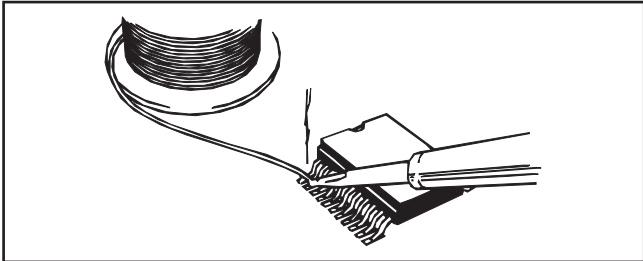


Figure 10-4 Solder all leads with plenty of solder, don't worry about short-circuits at this stage.

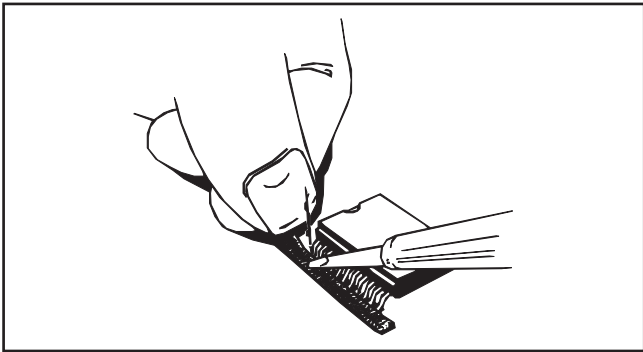


Figure 10-5 Remove excessive solder with desoldering braid..

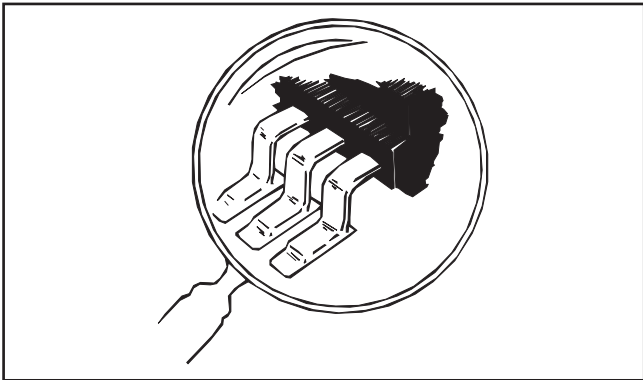


Figure 10-6 Use a strong magnifying glas to make sure there are no short/circuits or unsoldered leads.

Electrostatic Discharge



Almost all modern components have extremely thin conductors and metal oxide layers. If these layers are exposed to electrostatic discharge they will break down or perhaps even worse, be damaged in a way that inevitably will cause a breakdown later on. The Electro-Static Discharge sensitivity of MOS and CMOS semiconductors have been known quite a while, but nowadays bipolar semiconductors and even precision resistors are ESD sensitive. Consider therefore all components, pc-boards and sub-assemblies as sensitive to electrostatic discharge. The text below explains how you can minimize the risk of damage or destroying these devices by being aware of the problems, and learning how to handle these components.

ESD sensitive options are packed in conductive containers marked with this symbol.

- *Never open the container unless you are at an ESD protected work station.*
- *Use a wrist strap grounded via a high resistance.*
- *Use a grounded work mat on your workbench.*
- *Never let your clothes come in contact with ESD sensitive equipment even when you are wearing a grounded wrist strap.*
- *Never touch the component leads.*
- *Never touch open connectors.*
- *Use ESD-safe packing materials.*
- *Use the packing material only once.*
- *Keep paper and nonconductive plastics etc. away from your workbench. These may block the discharge path to ground.*

Glossary

C	
Calibration Adjustments	How to restore an instrument to perform in agreement with its specifications.
CSA	Canadian Standards Association
E	
EN 61010-1	International safety standard
F	
FLASH PROM	Electrically erasable and reprogrammable non-volatile semiconductor memory.
FPGA	Field Programmable Gate Array
G	
GPIB	General Purpose Instrumentation Bus used for interconnecting several measuring instruments to a common controller.
I	
I ² C-bus	An internal address and data bus for communication between microcontroller, measuring logic, and options.
IEC	International Electrical Commission
L	
LCD	Liquid Crystal Display
O	
OCXO	Oven-Controlled X-tal Oscillator
P	
PCA	Printed Circuit Assembly
PCB	Printed Circuit Board
Performance Check	A procedure to check that the instrument is functionally operational and performs to its specification. Must not require opening of cabinet. If the instrument passes the check it is considered calibrated.
PLL	Phase-Locked Loop
Prescaler	RF frequency divider
PWM	Pulse Width Modulation
U	
UCXO	Un-Compensated X-tal Oscillator
USB	The Universal Serial Bus is a simpler alternative to GPIB.

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Chapter 11

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