


CC-218 EQ BOARD
Design


2023/10/01

2025/03/03

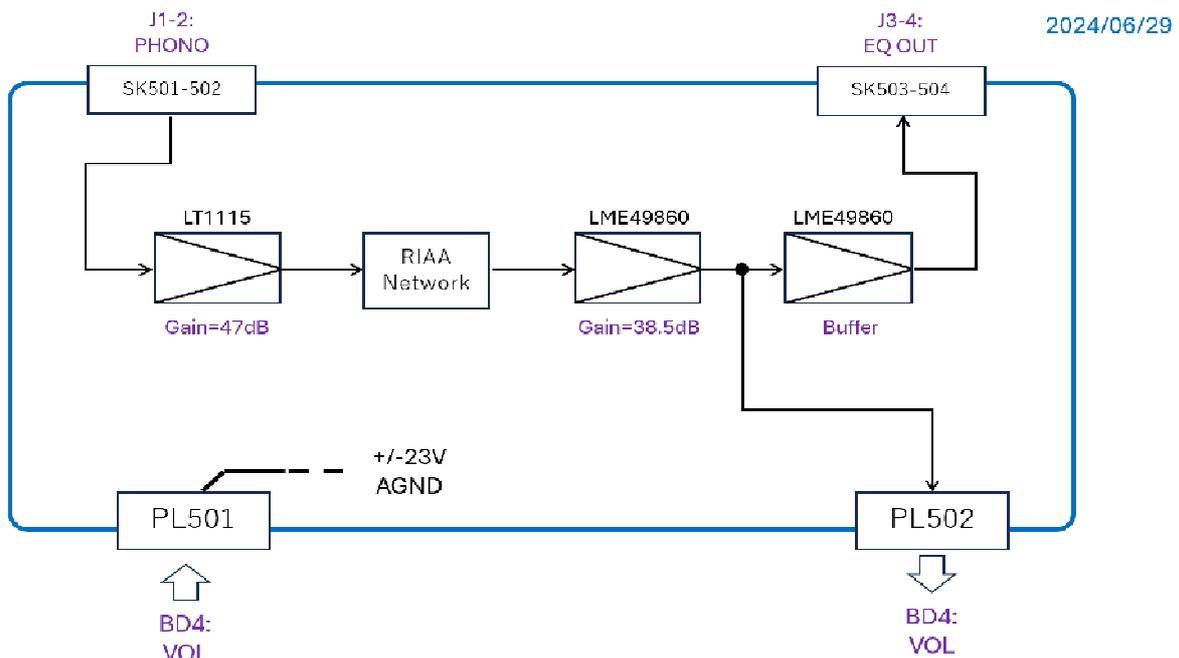
Circuit Design

Rev.A

Contents

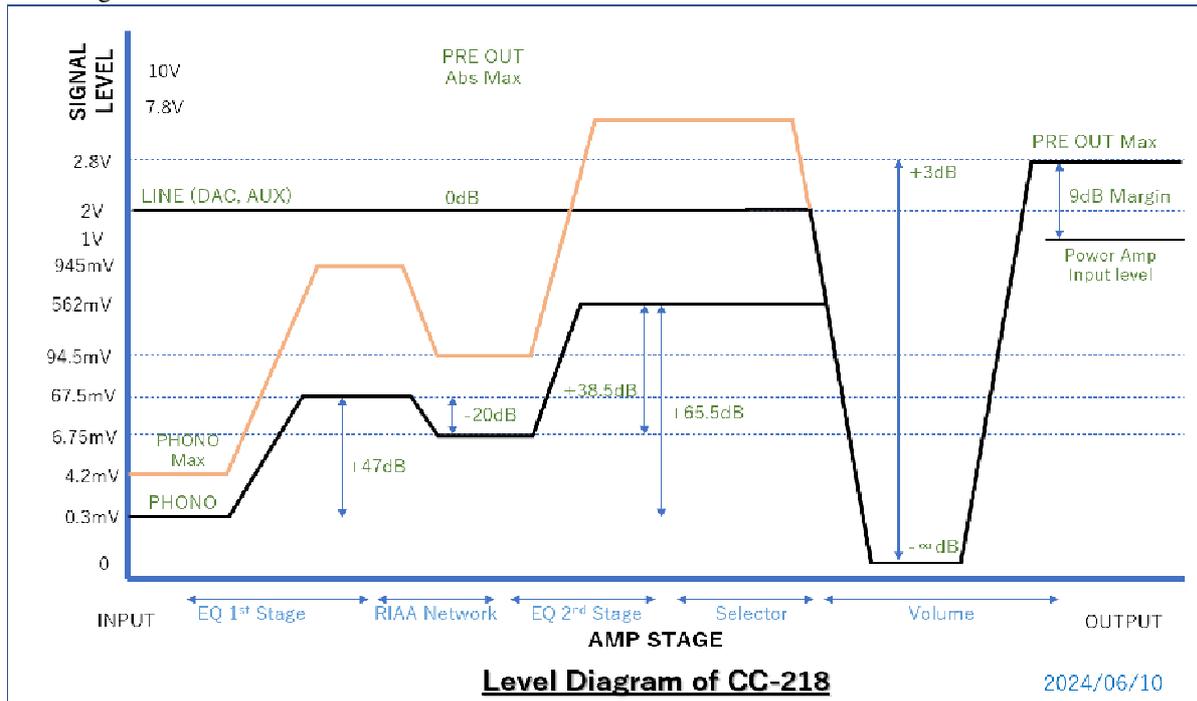
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Block Diagram



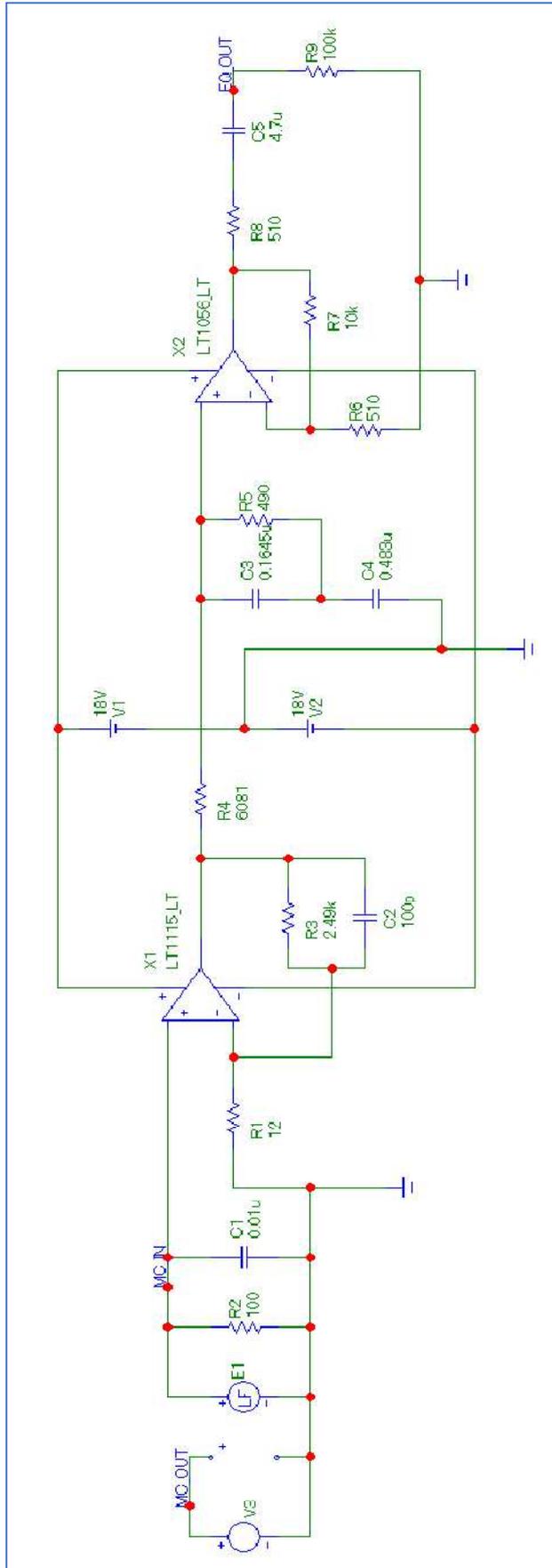
Level Diagram

This diagram covers overall CC-218.



Simulation

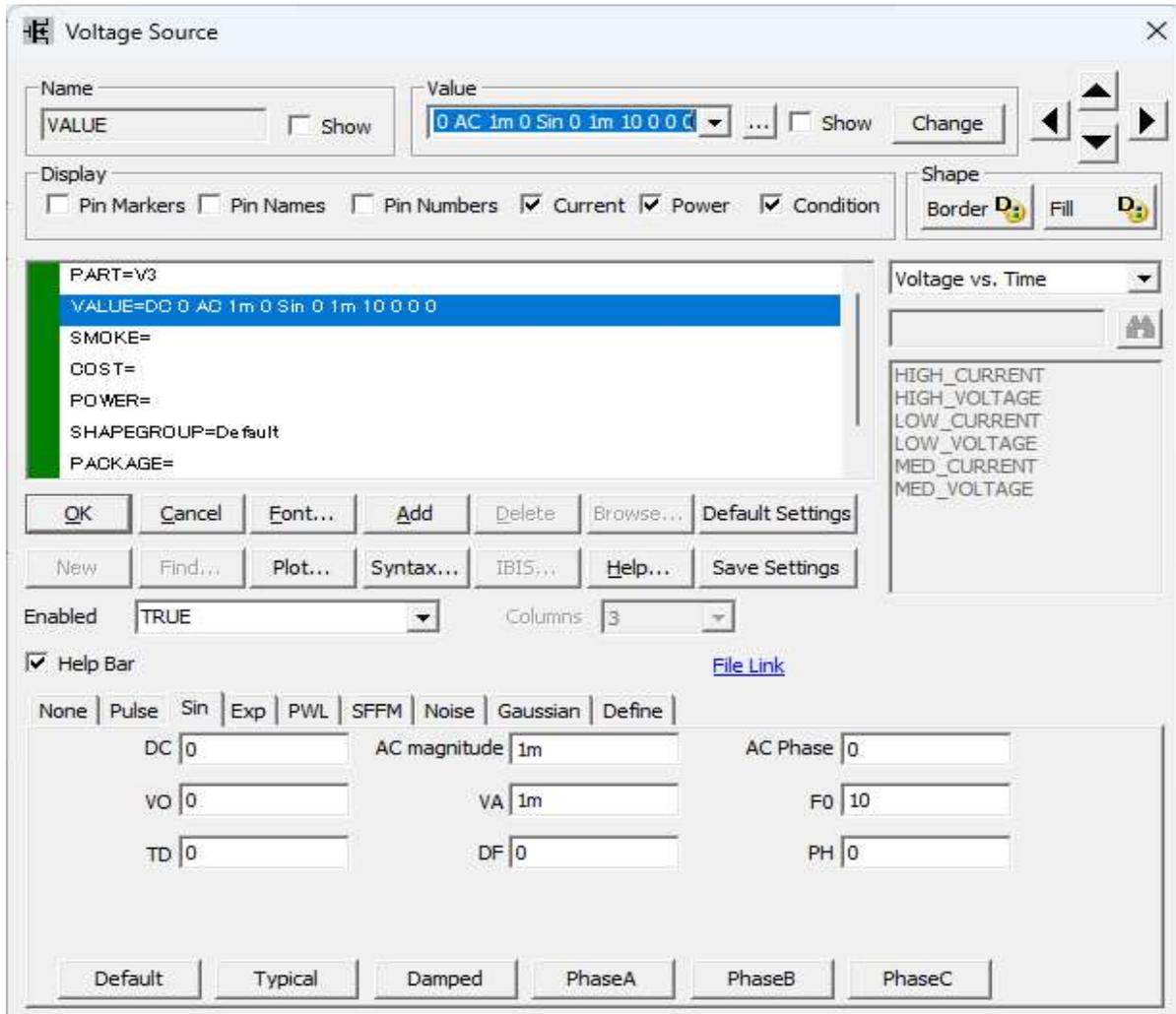
* Schematics



This circuit is quoted from the data sheet of LT1115

* Settings

Oscillator



Laplace formula (V of V)

LFVofV:Laplace formula VofV source (E.g. LAPLACE=1/(1+.0001*S+1e-8*S*S))

Name: LAPLACE Show

Value: $(S*75E-6+1)/((S*318E-6+1))$ Show

Display: Pin Markers Pin Names Pin Numbers Current Power Condition

Shape: Border Fill

Code:

PART=E1
 LAPLACE=((S*3180E-6+1)*(S*75E-6+1))/((S*318E-6+1))
 NUMBER_OF_DATAPOINTS=8192
 TMAX_FOR_CONVOLUTION=
 COST=
 POWER=
 SHAPEGROUP=Default

Enabled: Columns:

Help Bar [File Link](#)

Show Data on Exit

$$\text{LAPLACE} = \frac{(S*3180E-6+1)*(S*75E-6+1)}{(S*318E-6+1)}$$

==> RIAA emphasis

*** AC Analysis**

Setting

AC Analysis Limits

Run Add Delete Expand... Stepping... Properties... Help...

Frequency Range: Log 1Meg, 1
 Number of Points: 1001
 Temperature: Linear 27
 Maximum Change %: 5
 Noise Input: NONE
 Noise Output: 2

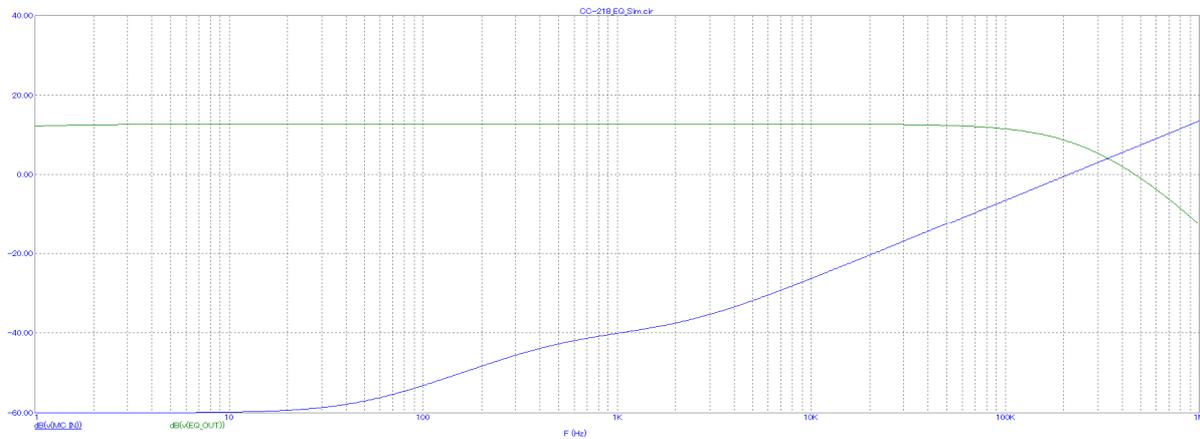
Run Options: Normal
 State Variables: Zero

Operating Point
 Auto Scale Ranges
 Accumulate Plots

Ignore Expression Errors	Page	P	X Expression	Y Expression	X Range	Y Range
		2	F	dB(v(MC_OUT))	1e+6, 1, 200000	100, -150, 50
		1	F	dB(v(MC_IN))	1e+6, 1, 200000	40, -60, 20
		2	F	ph(v(MC_IN))	1e+6, 1, 200000	10, -10, 4
		1	F	dB(v(EQ_OUT))	1e+6, 1, 200000	40, -60, 20

Defines the expression for the Y-axis [Alias], [Comment]. Click the right mouse button for a variable menu.

Result



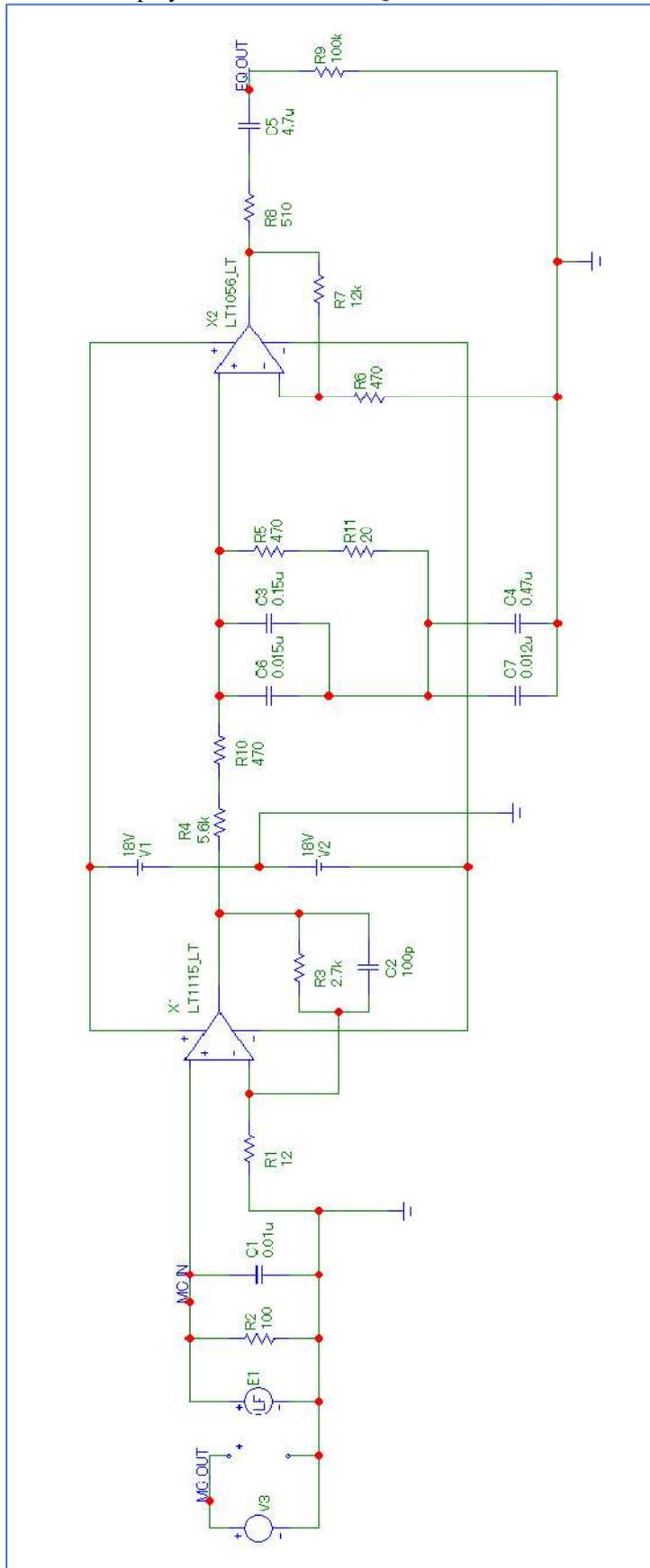
Perfect!

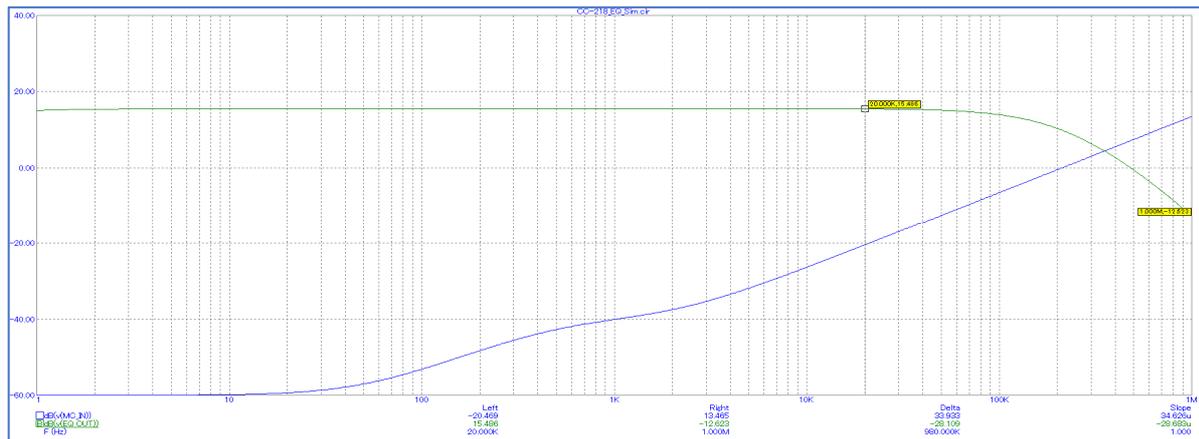
Deviation: -0.003dB~+0.035dB

*** Revised schematics**

C: polypropylene, tolerance=5%, except 0.47uF: Toshin UPZ

0.47uF: metalized polyester: Panasonic ECQE2 250V/0.47uF, 10%



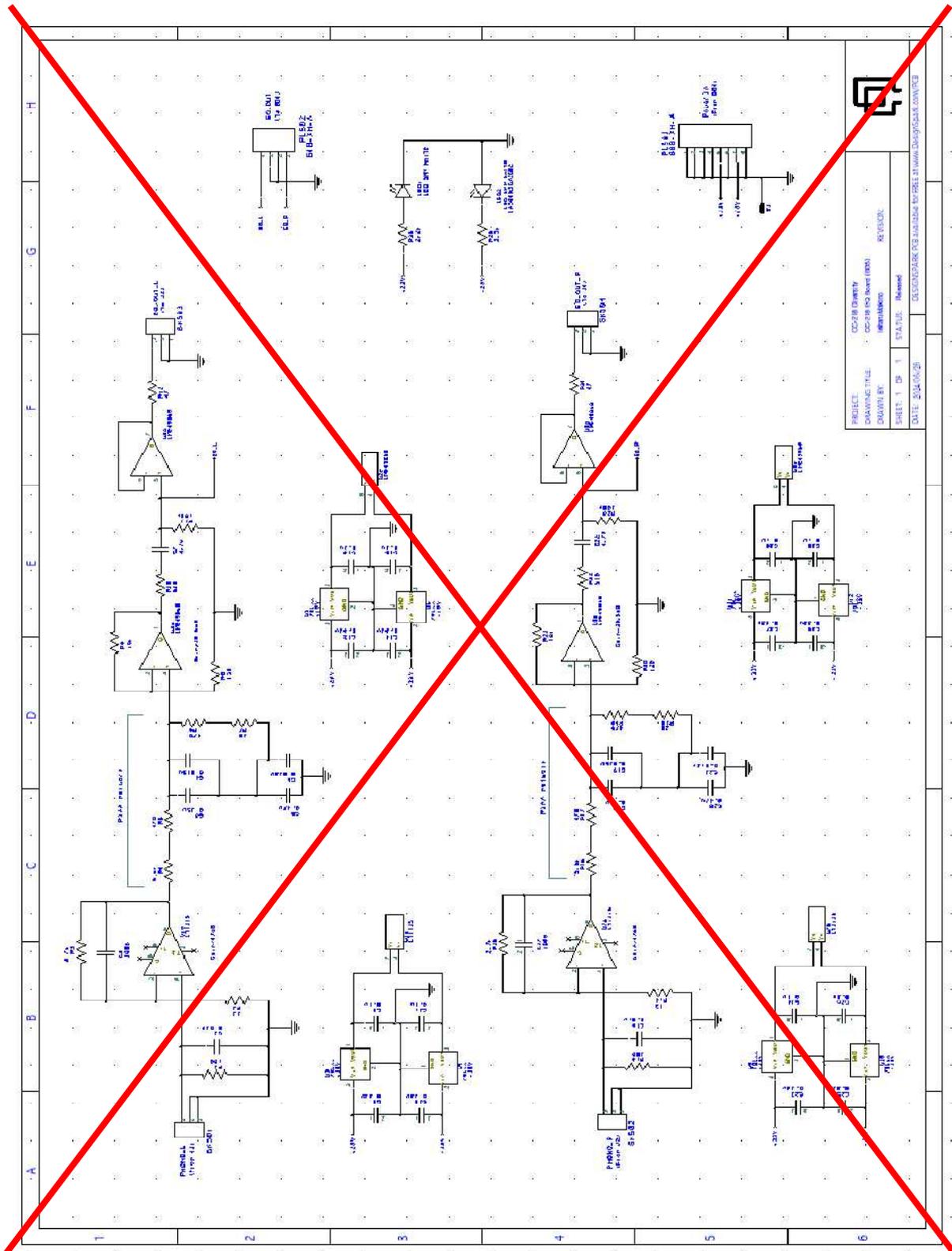


Still good!

Deviation: -0.045dB~+0.023dB

Schematic

For details, see CC-218_EQ_Schematic.pdf.



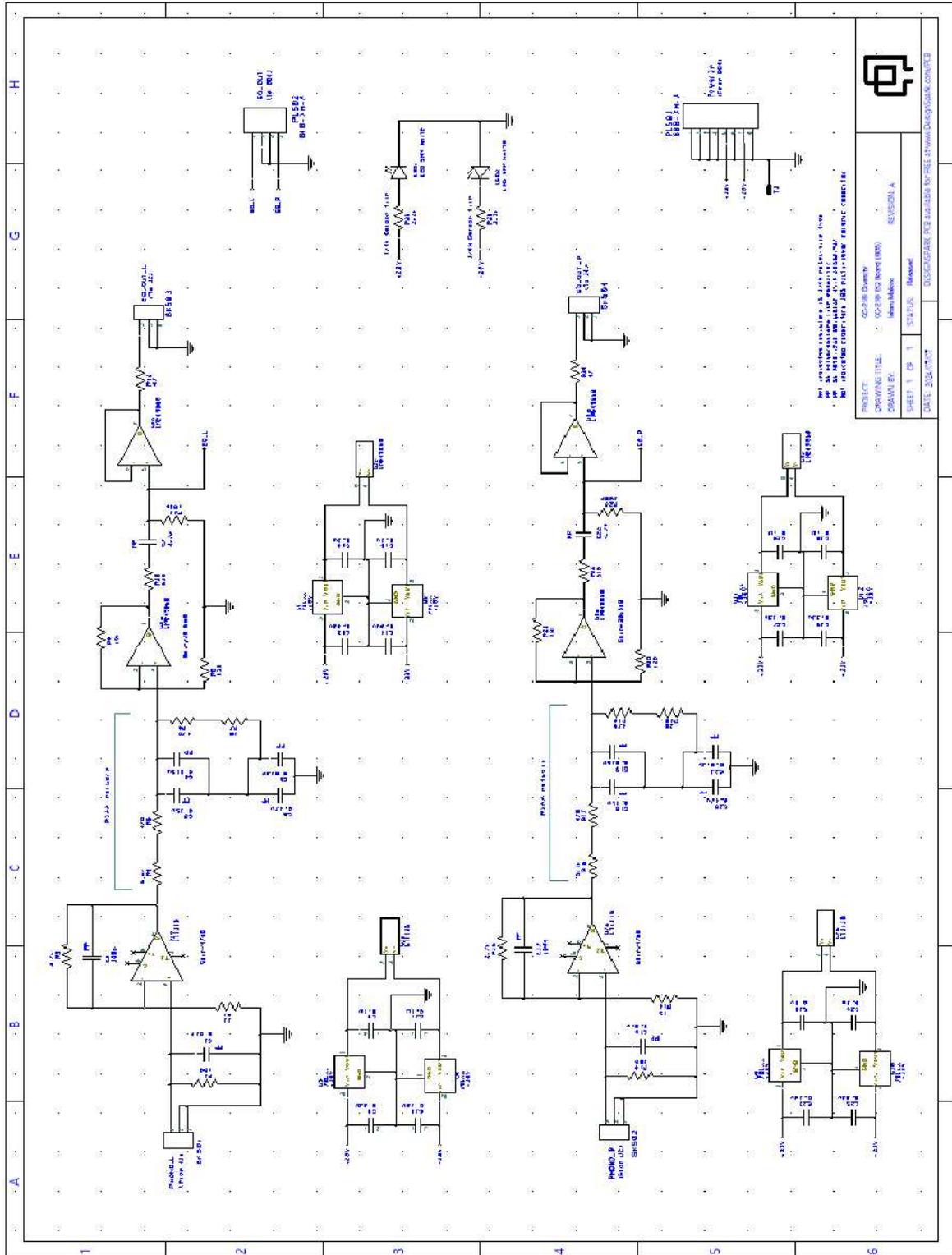
*** Rev. A**

The package of ECQE2475JB (4.7uF, C7,22) was wrongly defined. The lead pitch was 10mm.

The correct lead pitch is 17.5mm. ==> Corrected.

The schematic itself is unchanged.

For details, see CC-218_EQ_A_Schematic.pdf.



Power Dissipation

2024/12/20

*** Current dissipation estimate**

Device	Qty	Current dissipation		Total current dissipation	
		V+	V-	+23V	-23V
LT1115	2	11.5mA	11.5mA	23.0mA	23.0mA
LME49860	2	10.0mA	10.0mA	20.0mA	20.0mA
LED	1	11.0mA	11.0mA	11.0mA	11.0mA
Total				54.0mA	54.0mA

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