

#### 10.4 Mounting the Sensor at the End of a Cable

The main error due to a long wire is caused by the voltage drop across that wire caused by the reverse current biasing the LM135 on. Table 2 shows the wire AWG and the length of wire that would cause 1°C error.

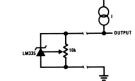
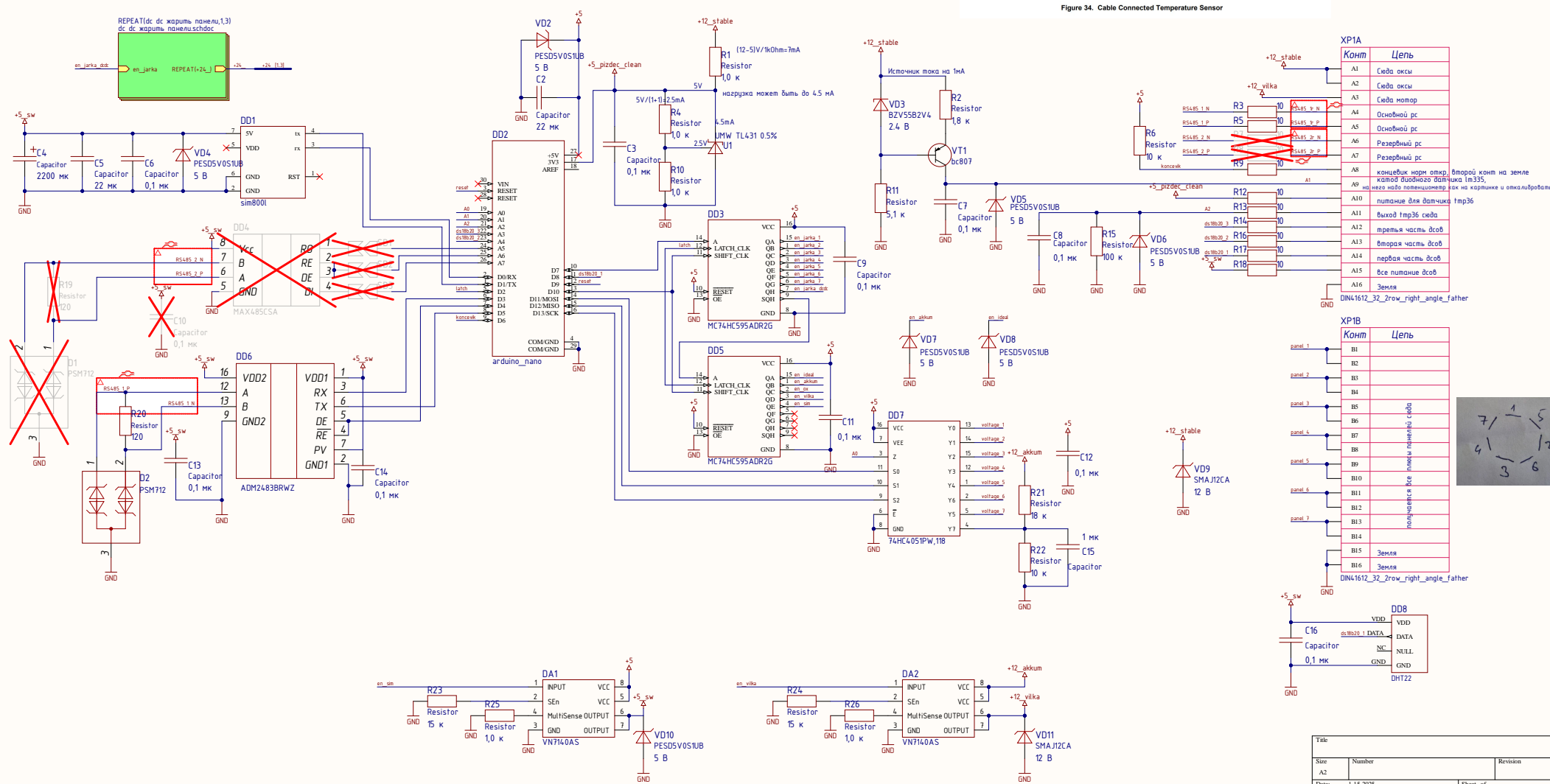
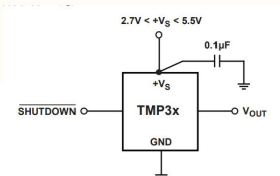
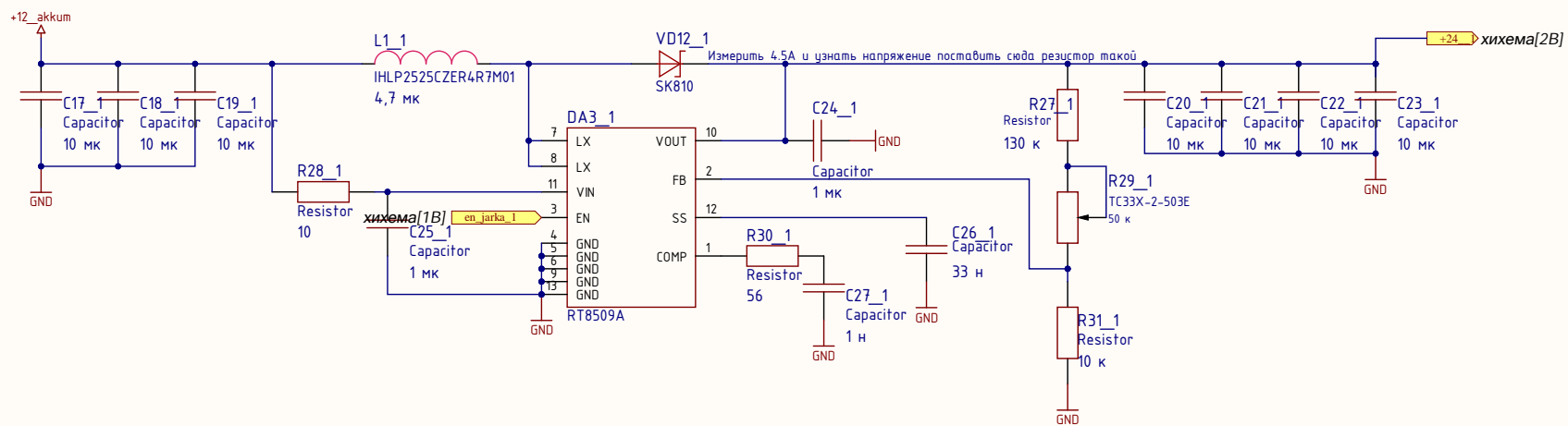


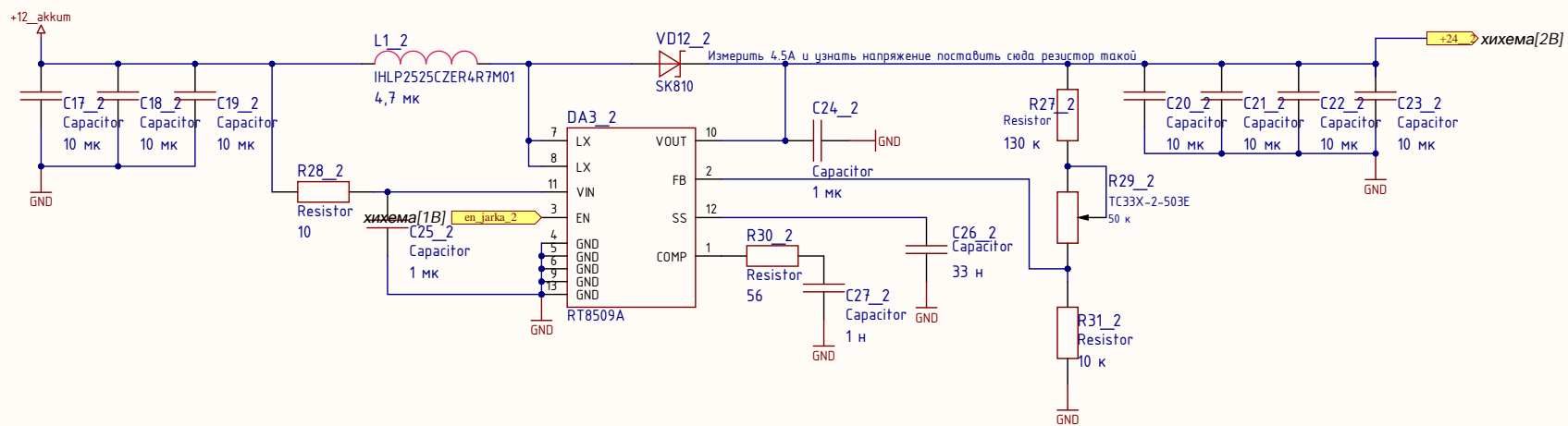
Figure 34. Cable Connected Temperature Sensor



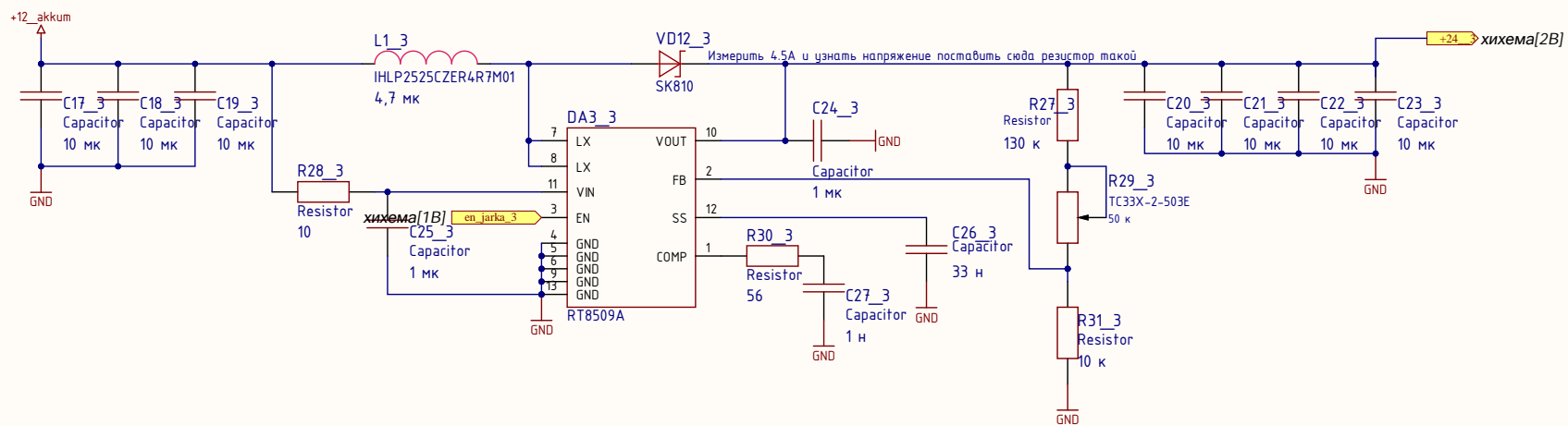
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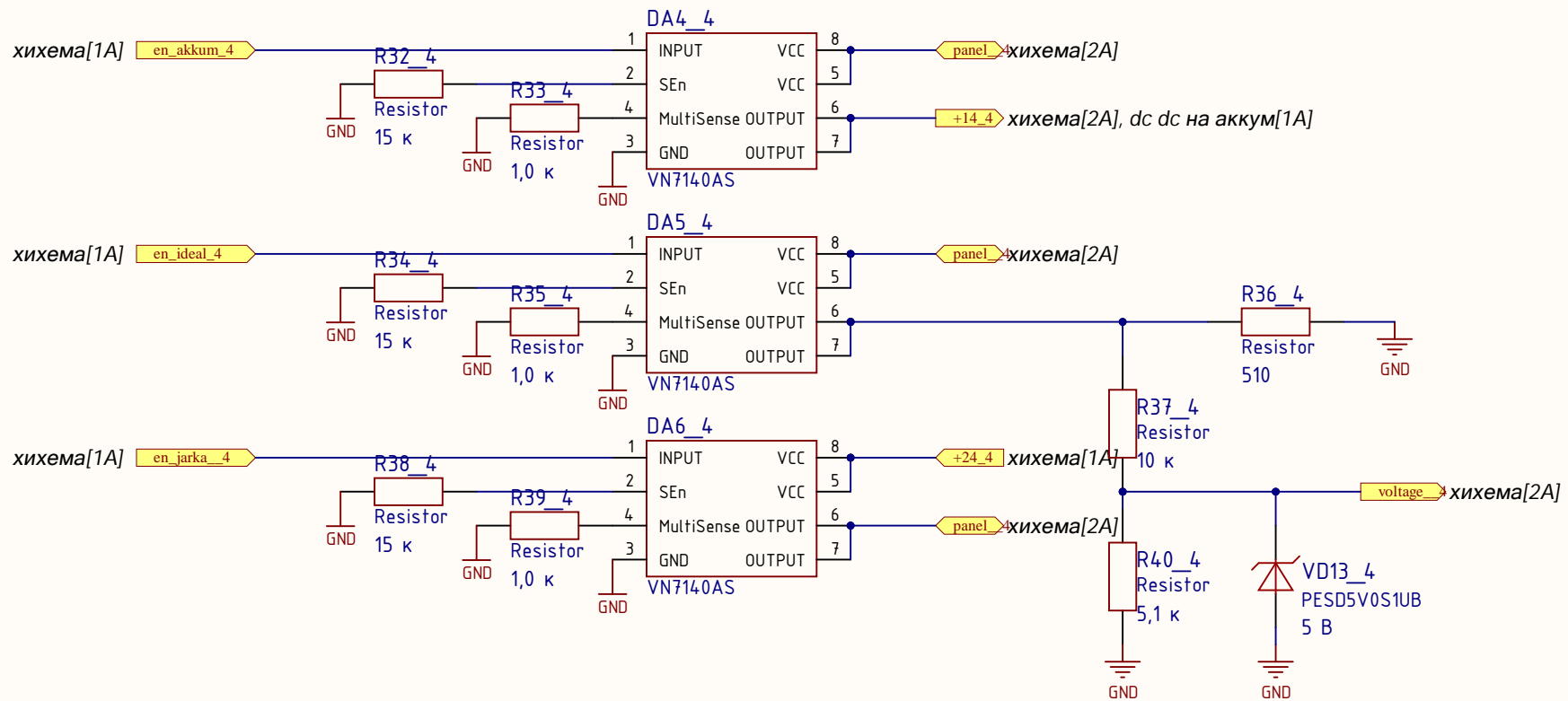
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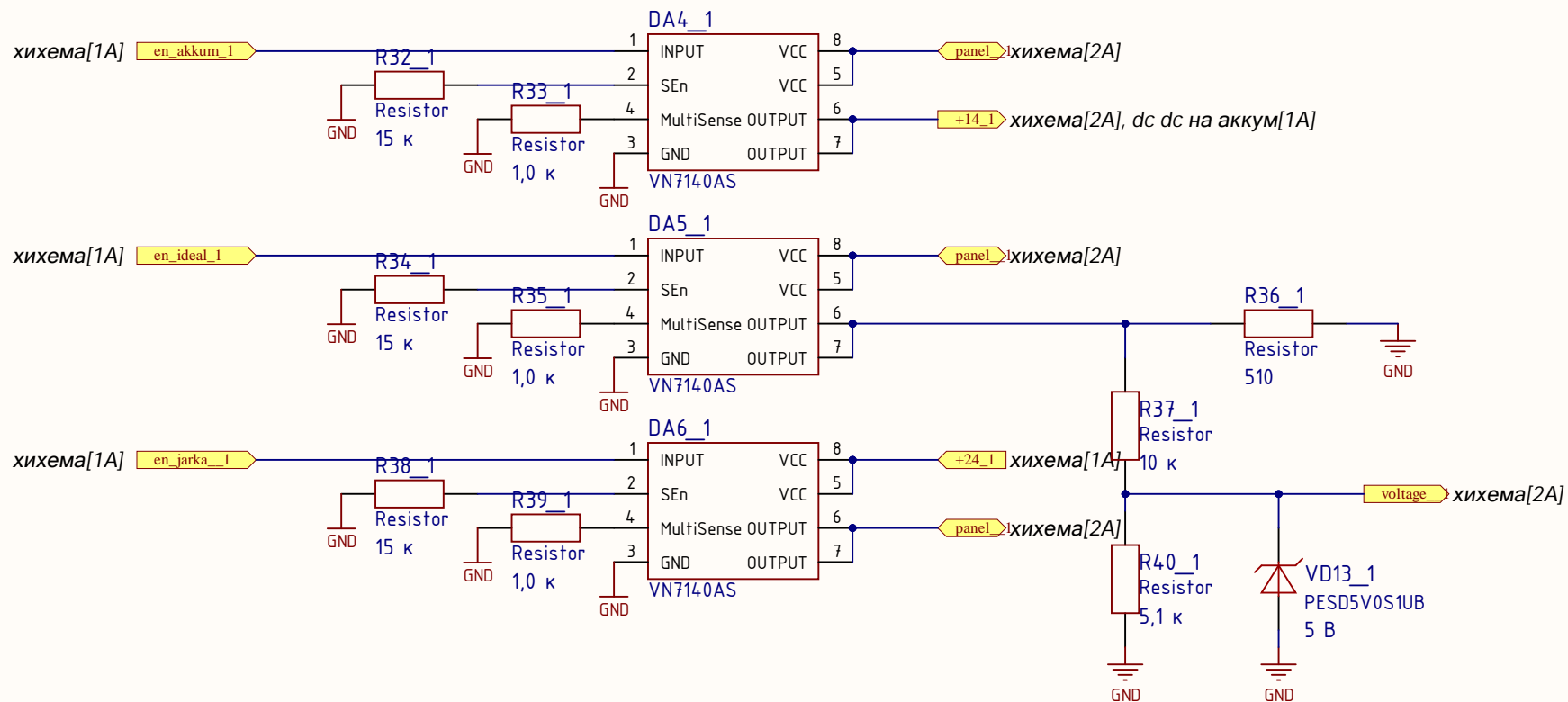
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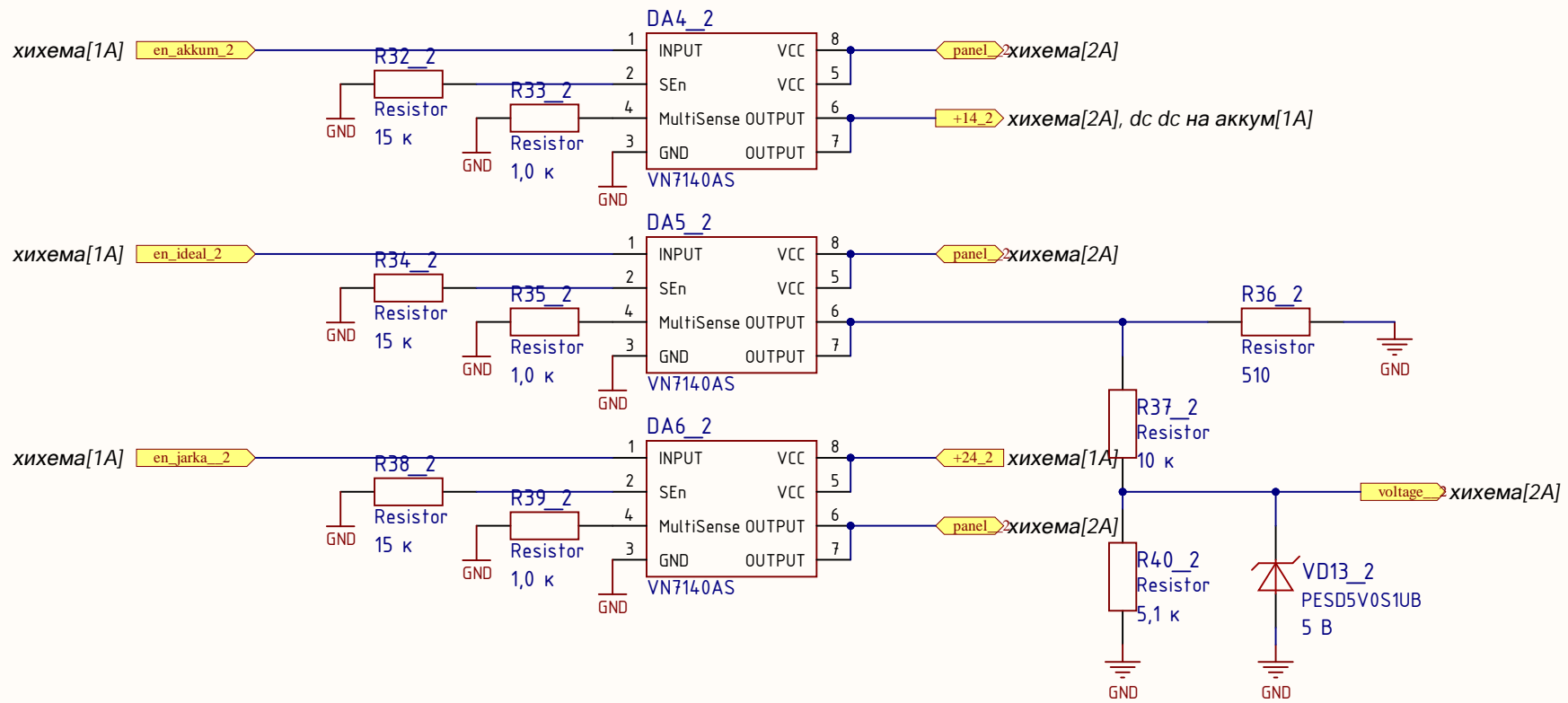
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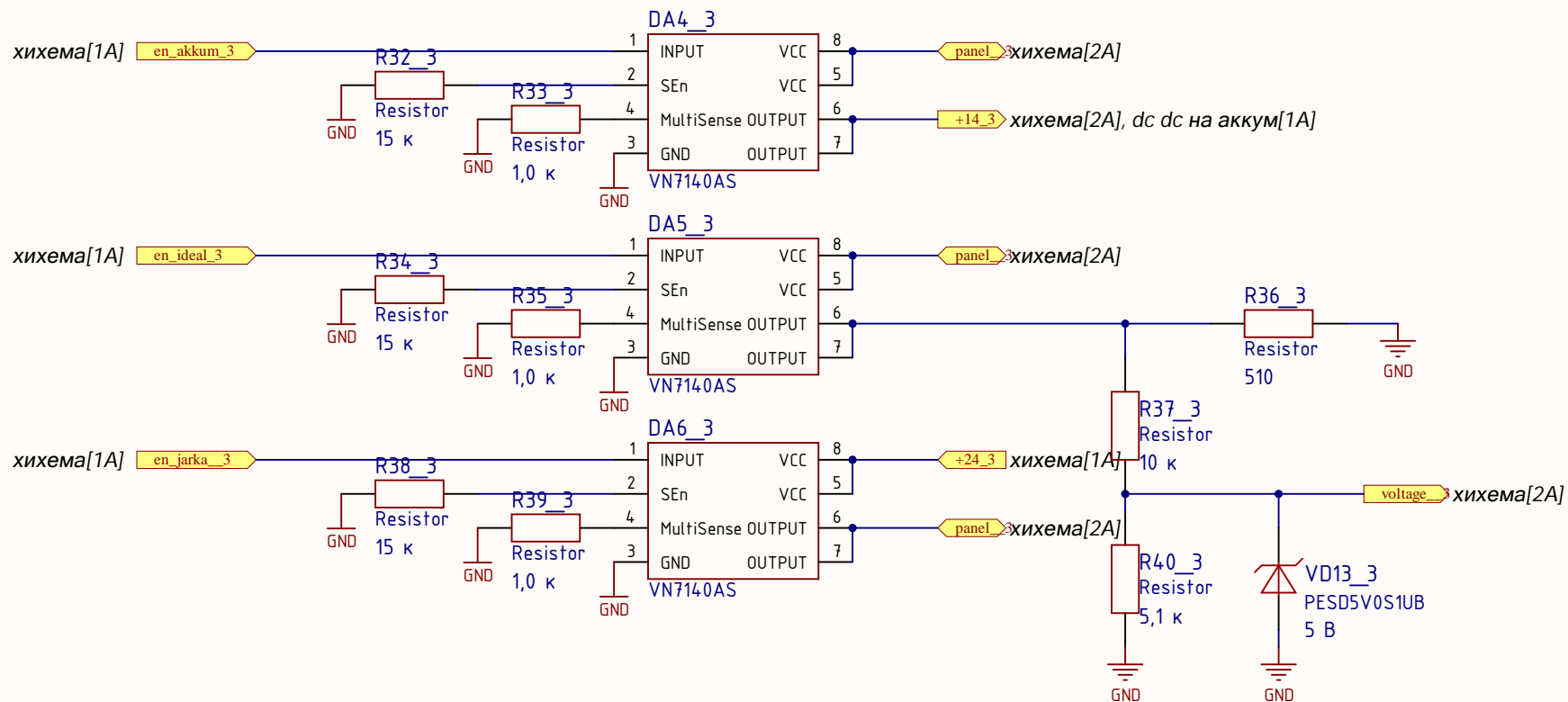
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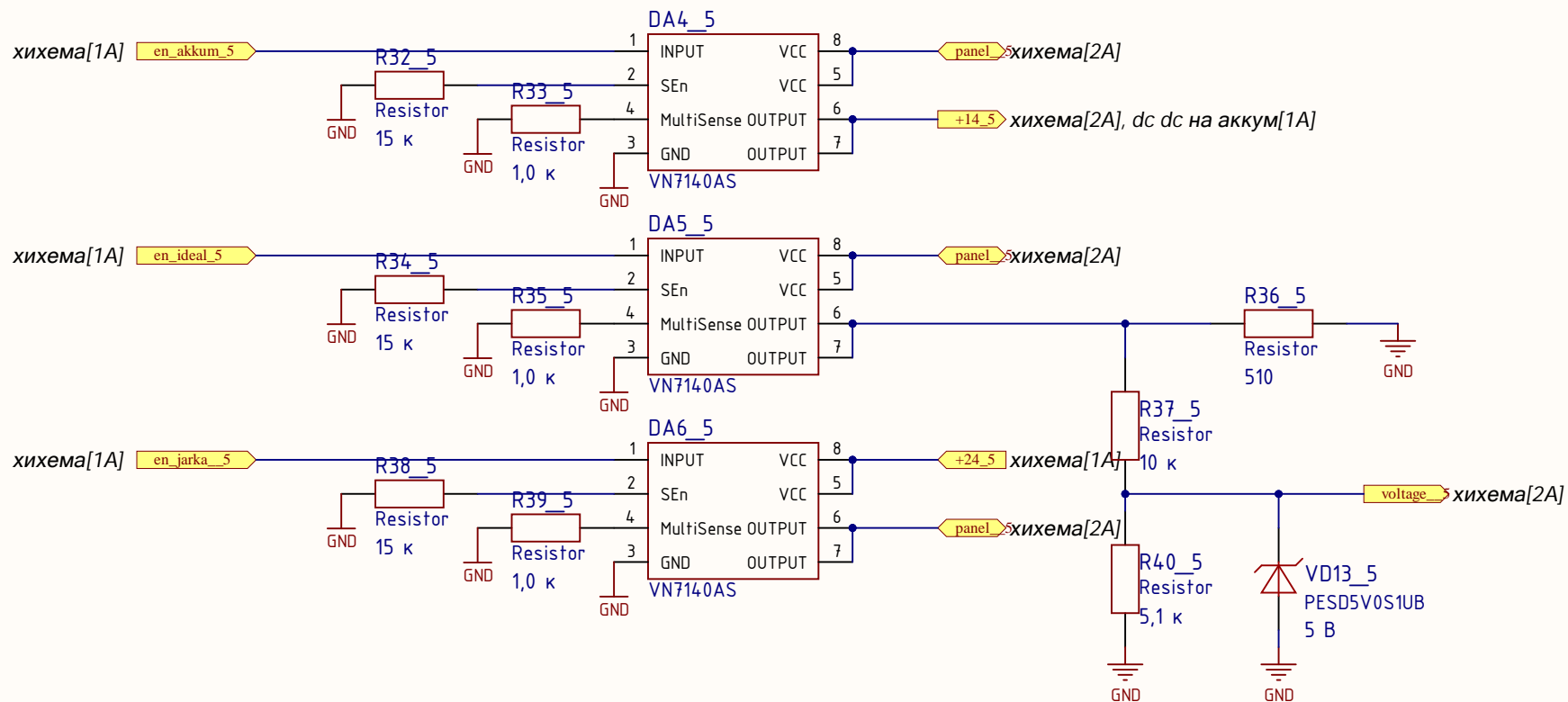
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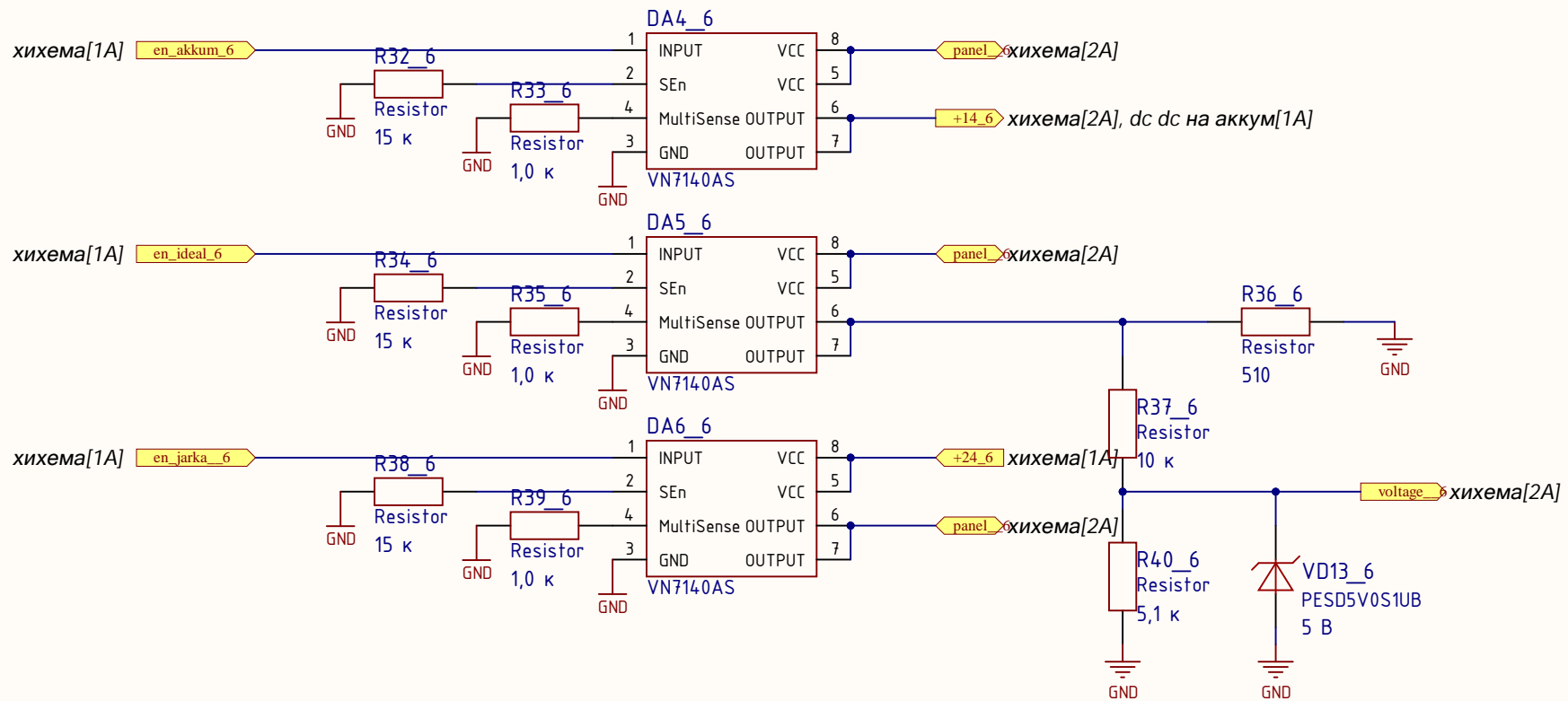
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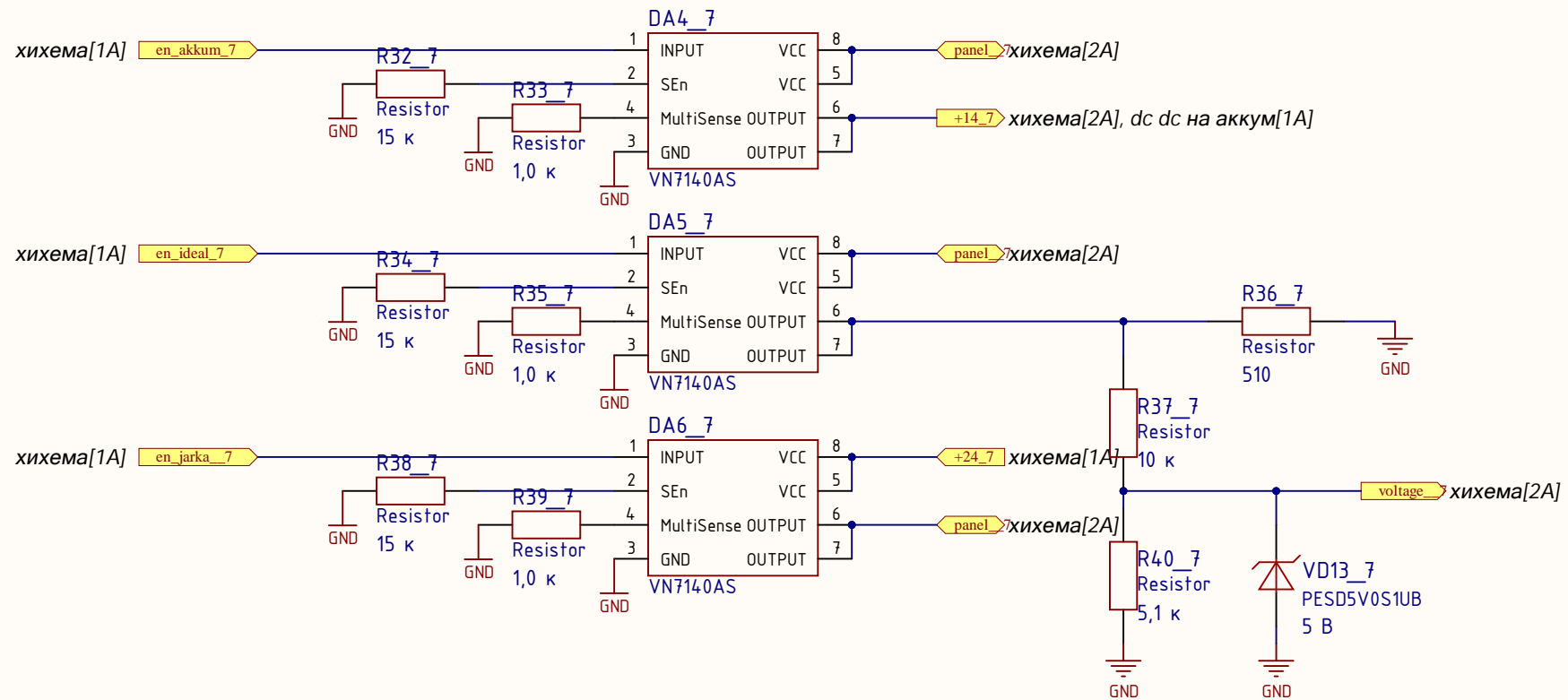
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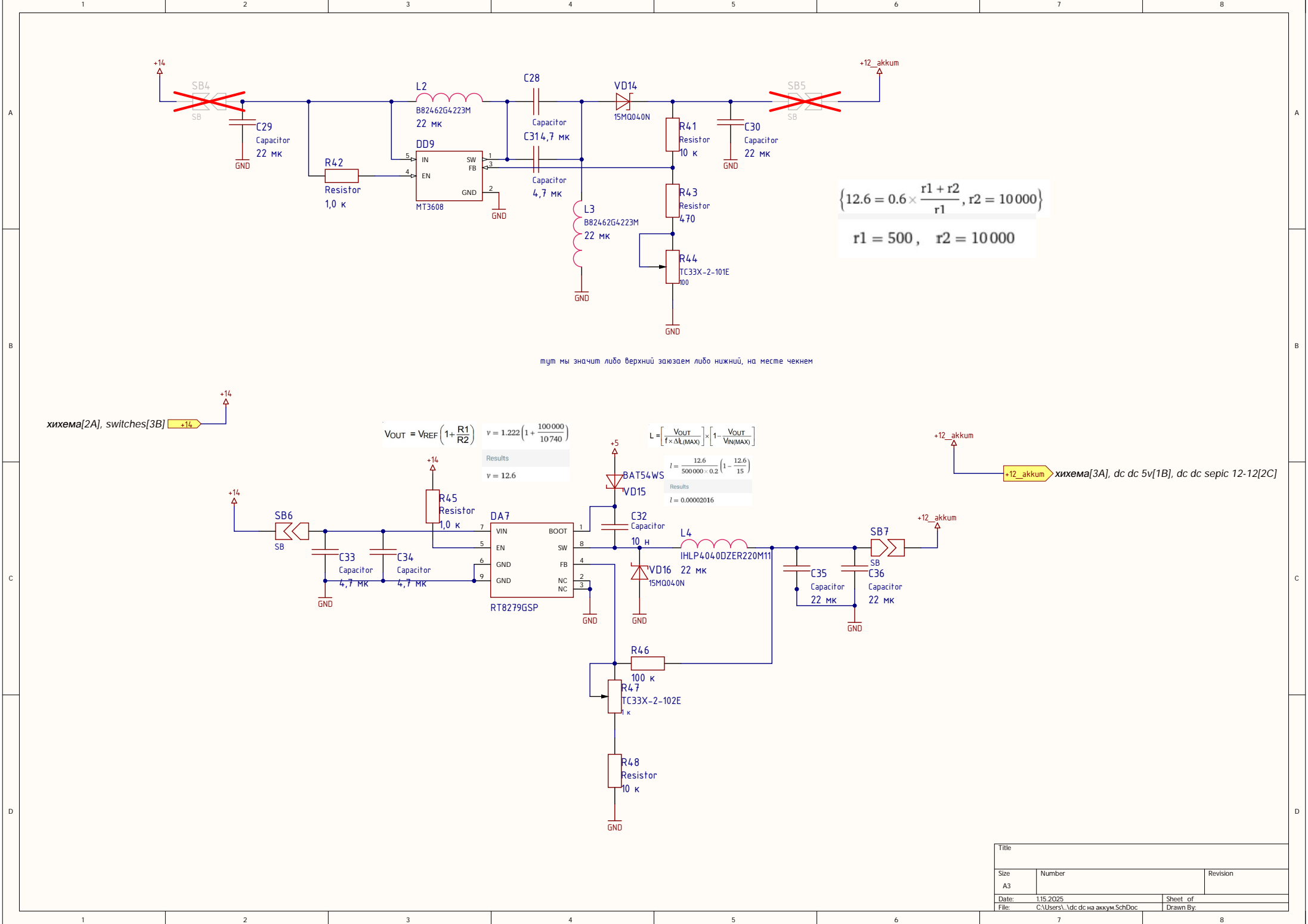
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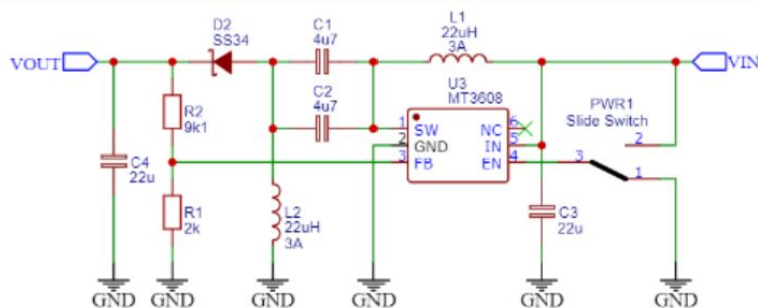
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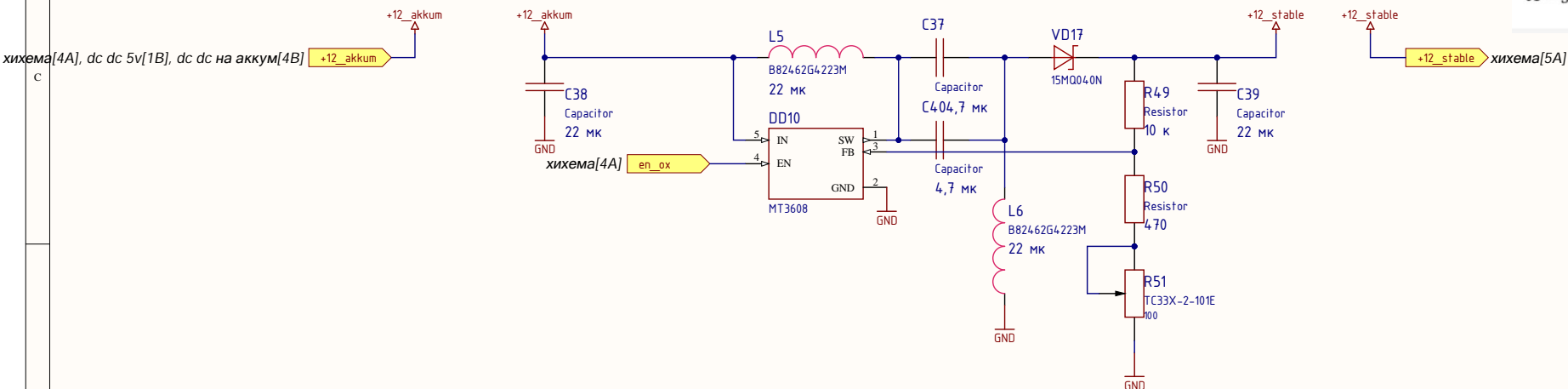
$$VOUT = 0.6 \cdot \frac{R1 + R2}{R1}$$

Input

$$\left\{ 12 = 0.6 \times \frac{r1 + r2}{r1}, r2 = 10\,000 \right\}$$

Solution

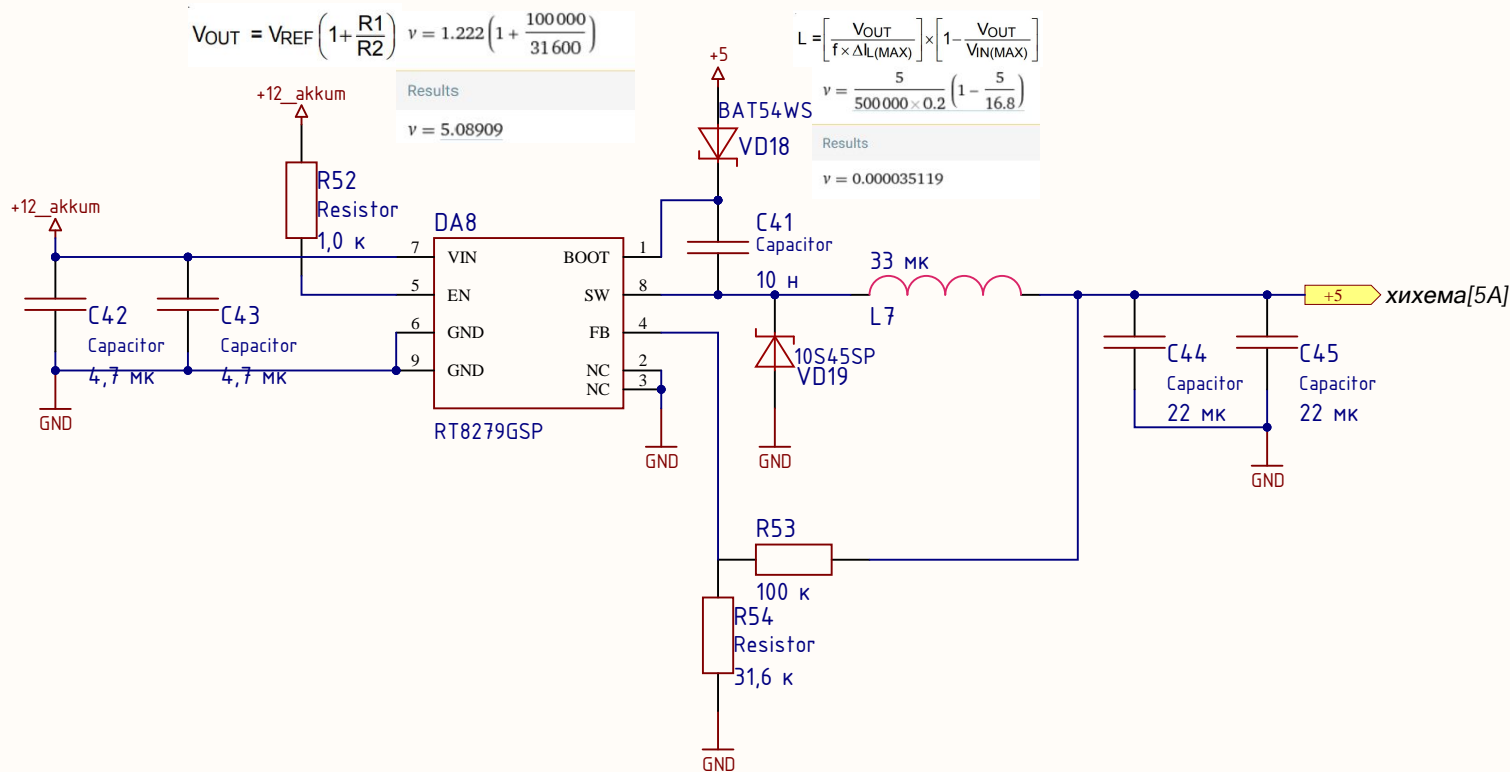
$$r1 = 526.315, \quad r2 = 10\,000$$



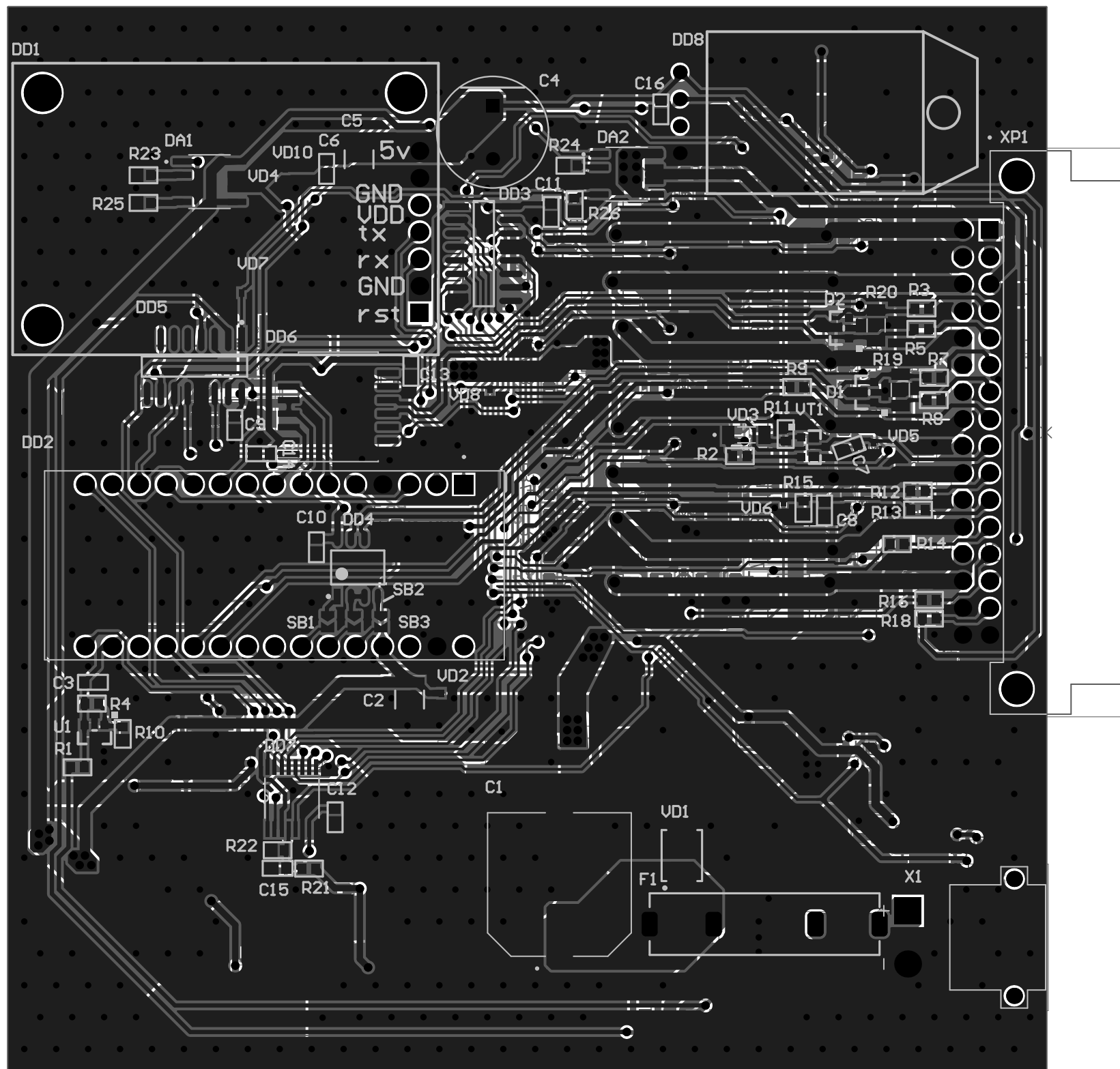
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