

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.

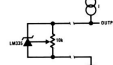
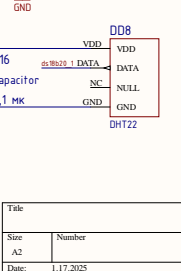
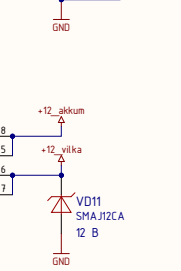
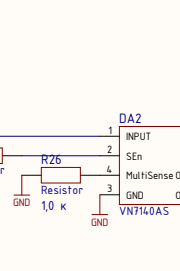
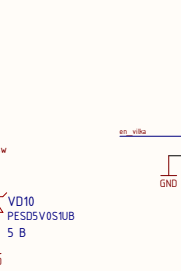
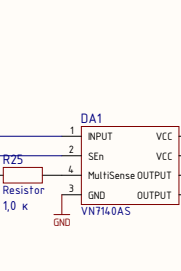
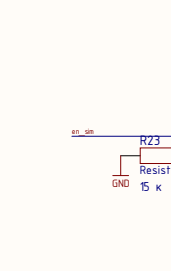
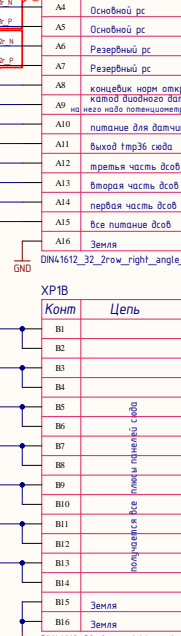
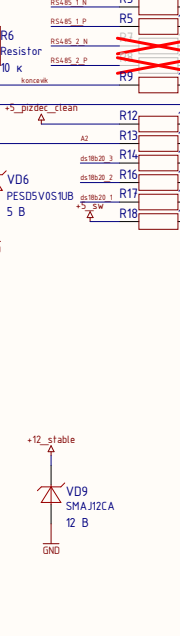
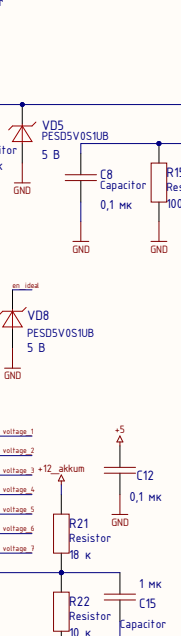
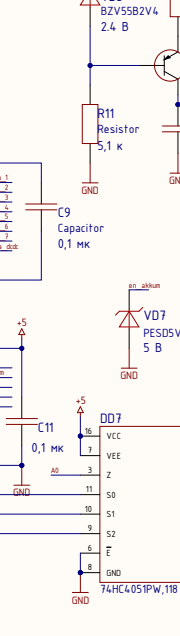
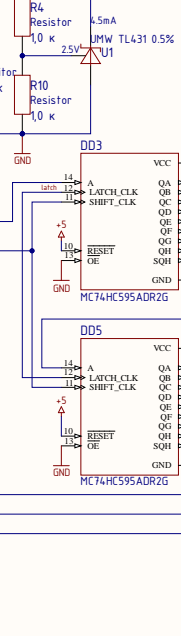
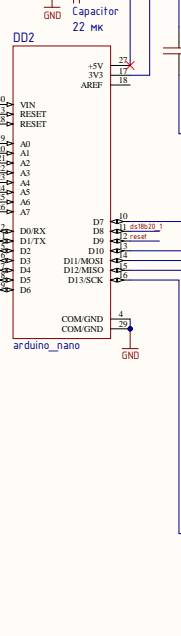
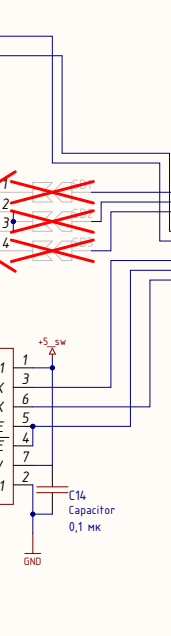
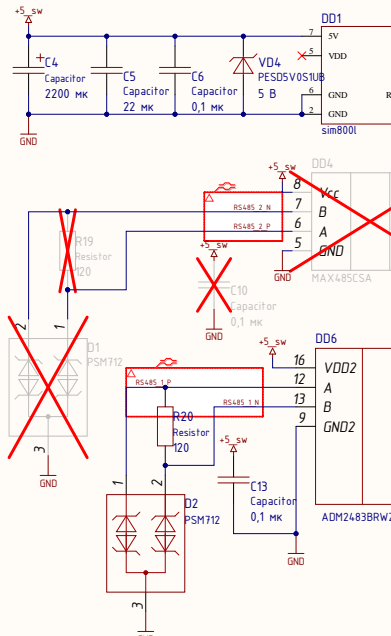
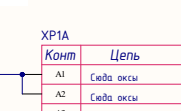
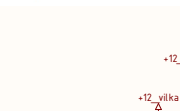
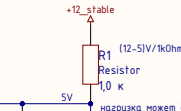
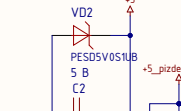
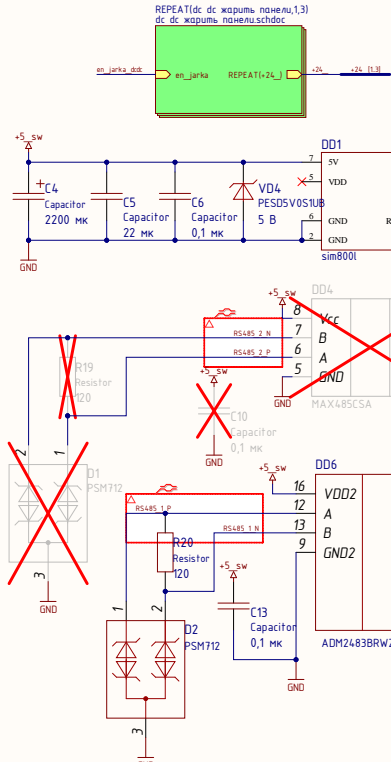
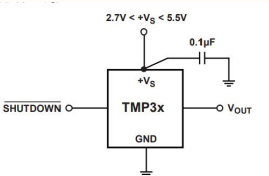
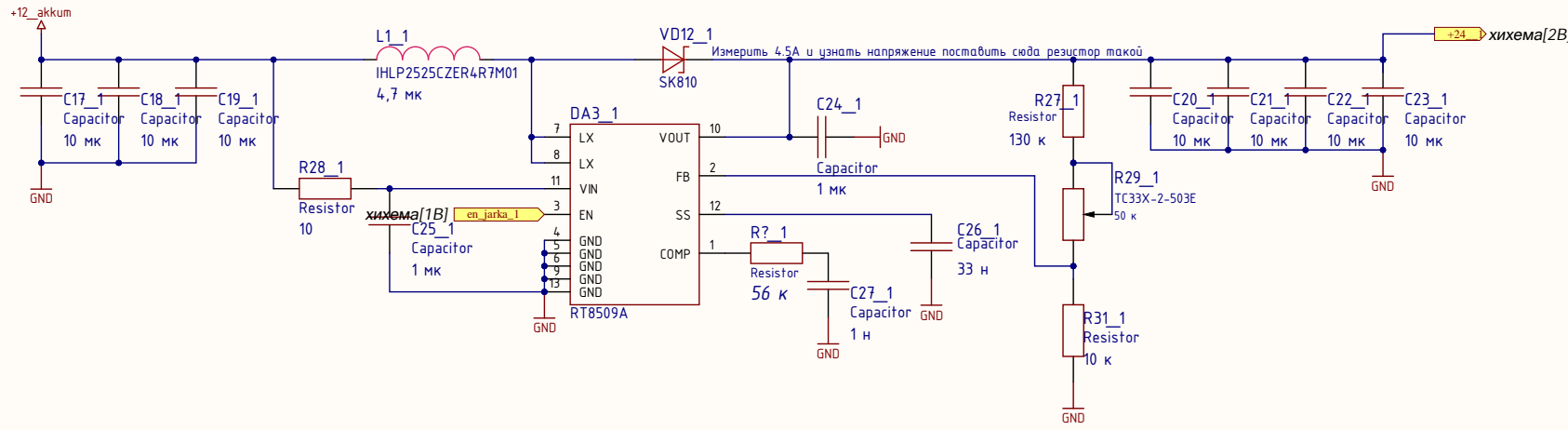


Figure 34. Cable Connected Temperature Sensor



$$V_{OUT} = V_{REF} \times \left(1 + \frac{R1}{R2}\right)$$

$v = 1.25 \left(1 + \frac{180}{10}\right)$	$v = 1.25 \left(1 + \frac{130}{10}\right)$
Result	Result
$v = 23.75$	$v = 17.5$



$$V_{OUT} = V_{REF} \times \left(1 + \frac{R1}{R2}\right)$$

$$v = 1.25 \left(1 + \frac{180}{10}\right)$$

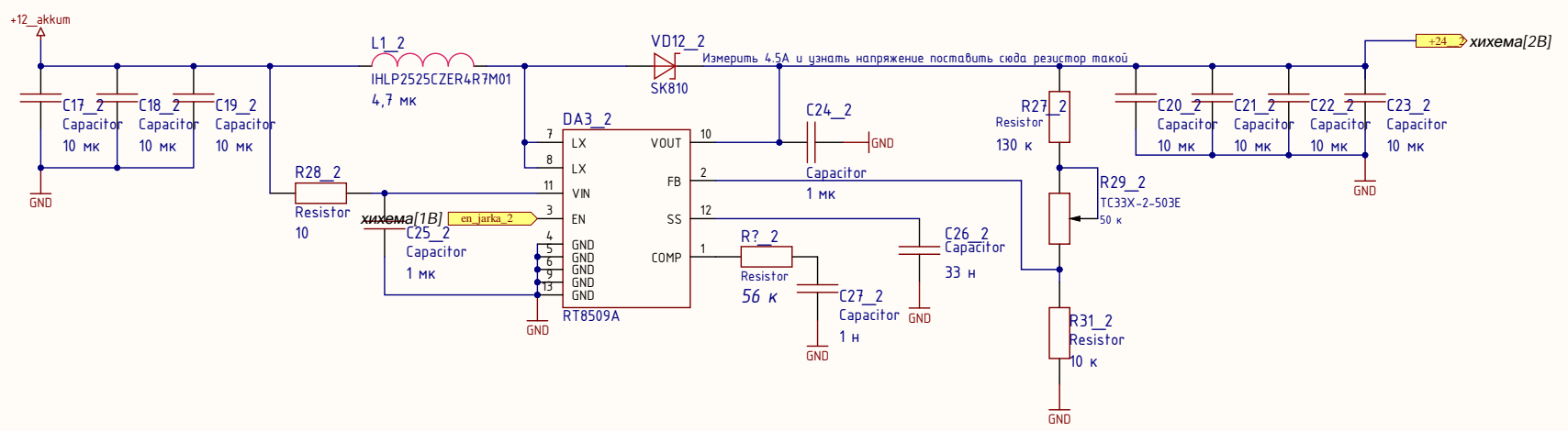
Result

$$v = 23.75$$

$$v = 1.25 \left(1 + \frac{130}{10}\right)$$

Result

$$v = 17.5$$



$$V_{OUT} = V_{REF} \times \left(1 + \frac{R1}{R2}\right)$$

$$v = 1.25 \left(1 + \frac{180}{10}\right)$$

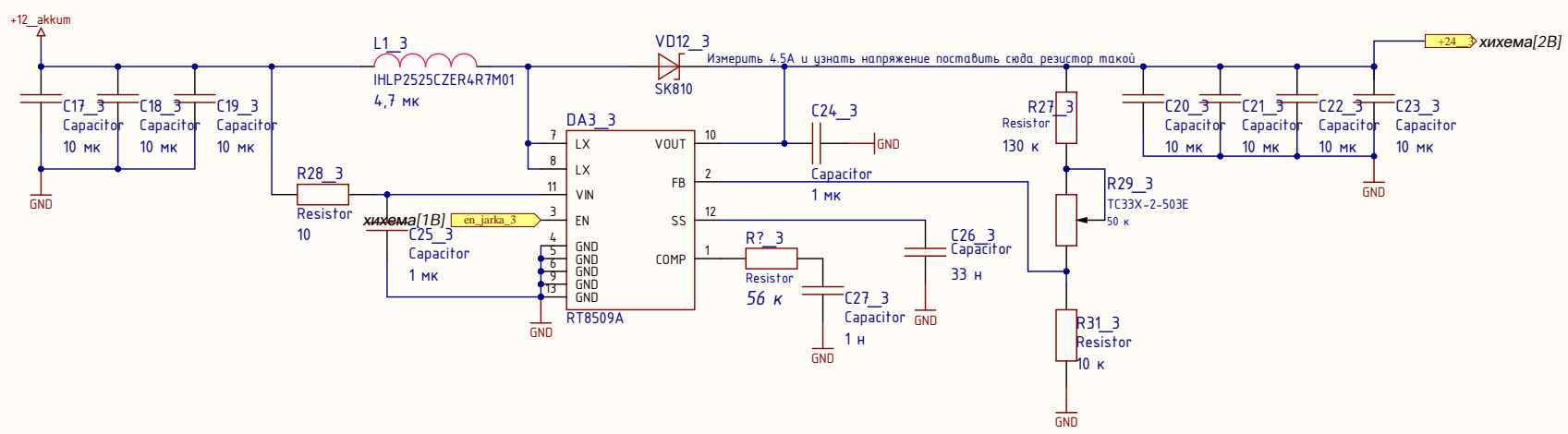
Result

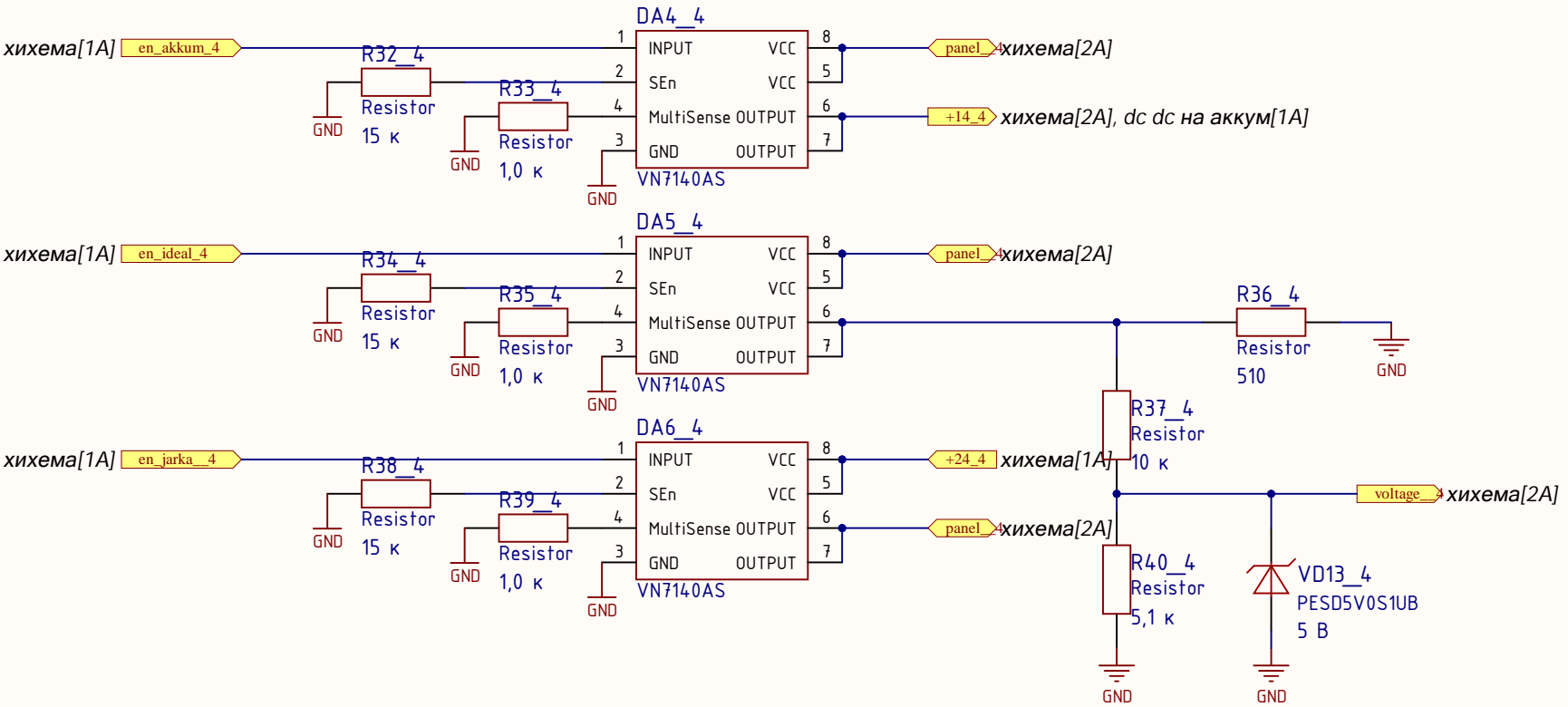
$$v = 23.75$$

$$v = 1.25 \left(1 + \frac{130}{10}\right)$$

Result

$$v = 17.5$$





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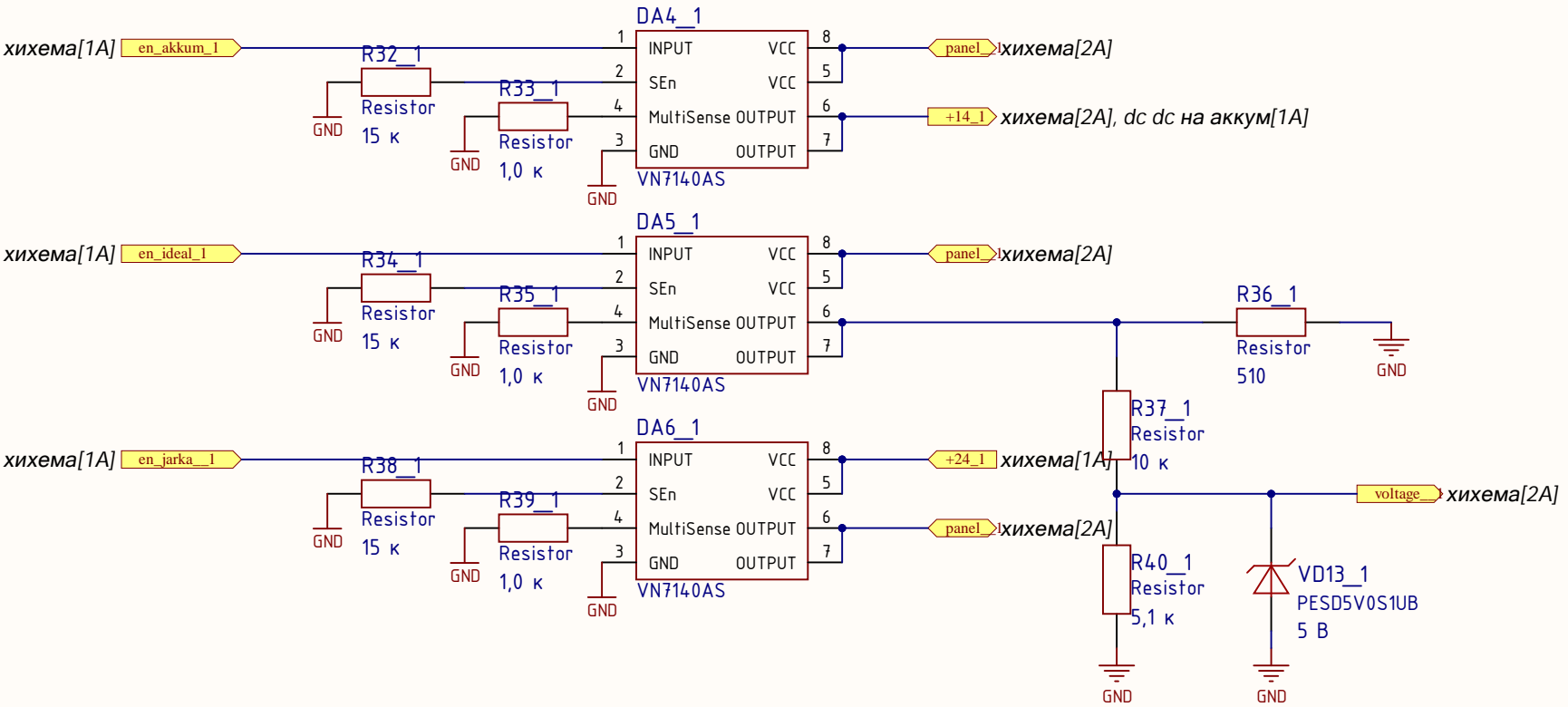
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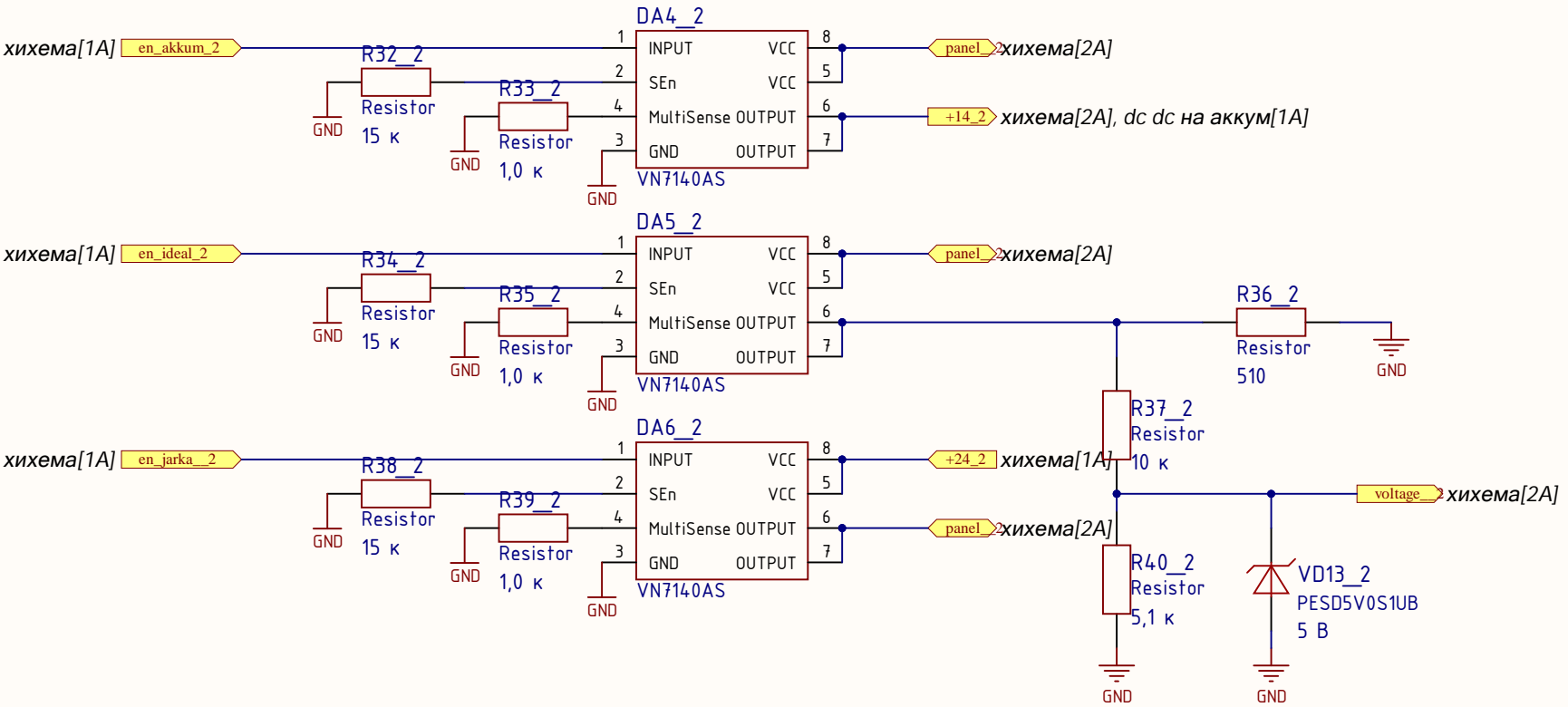
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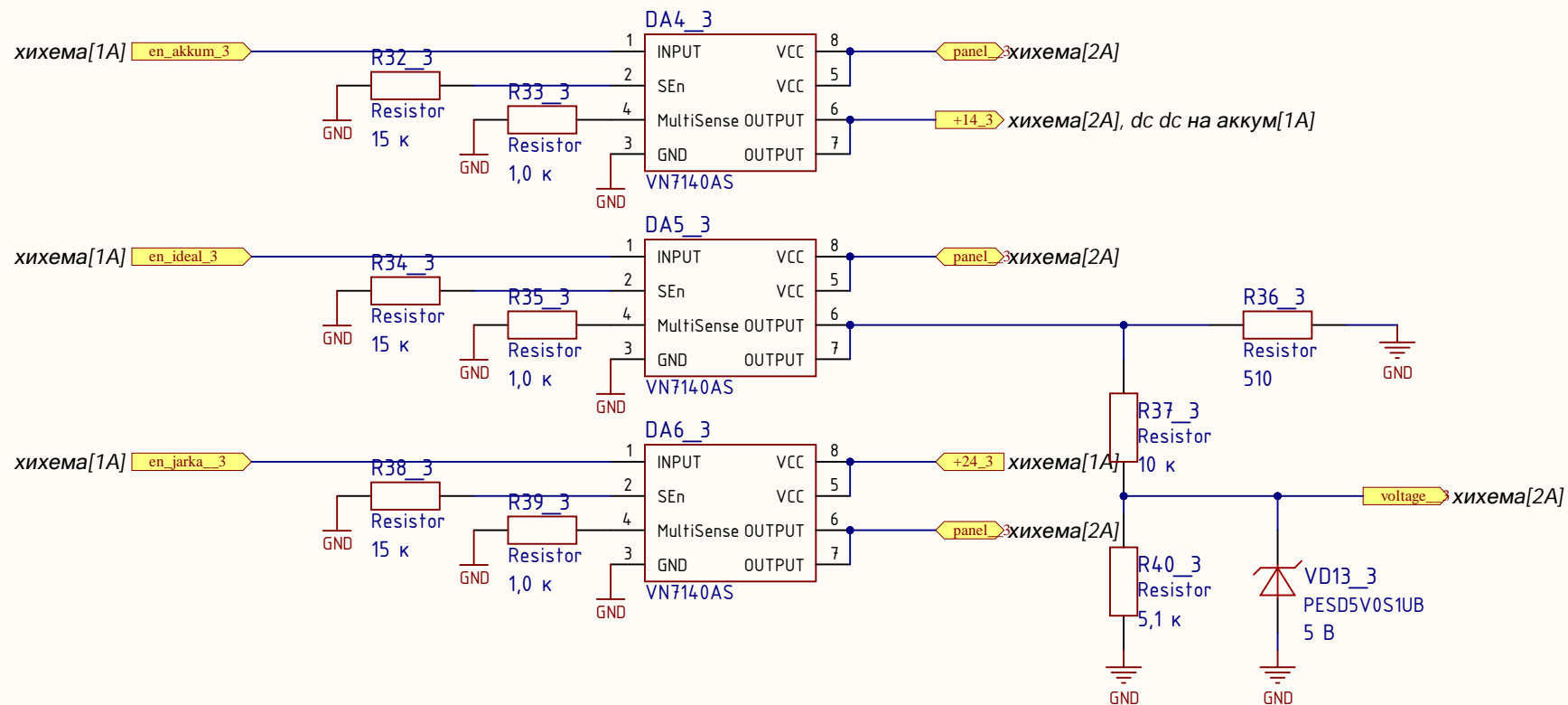
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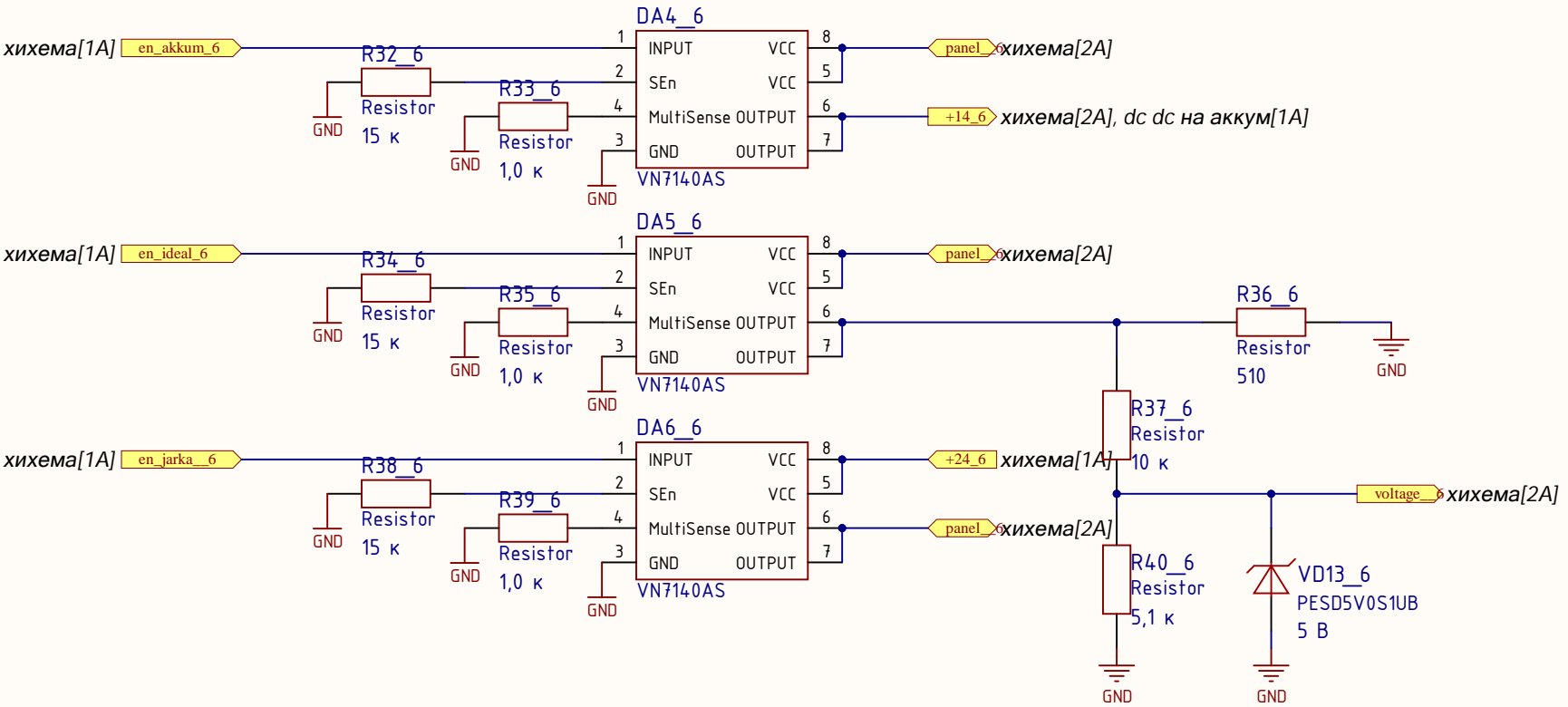
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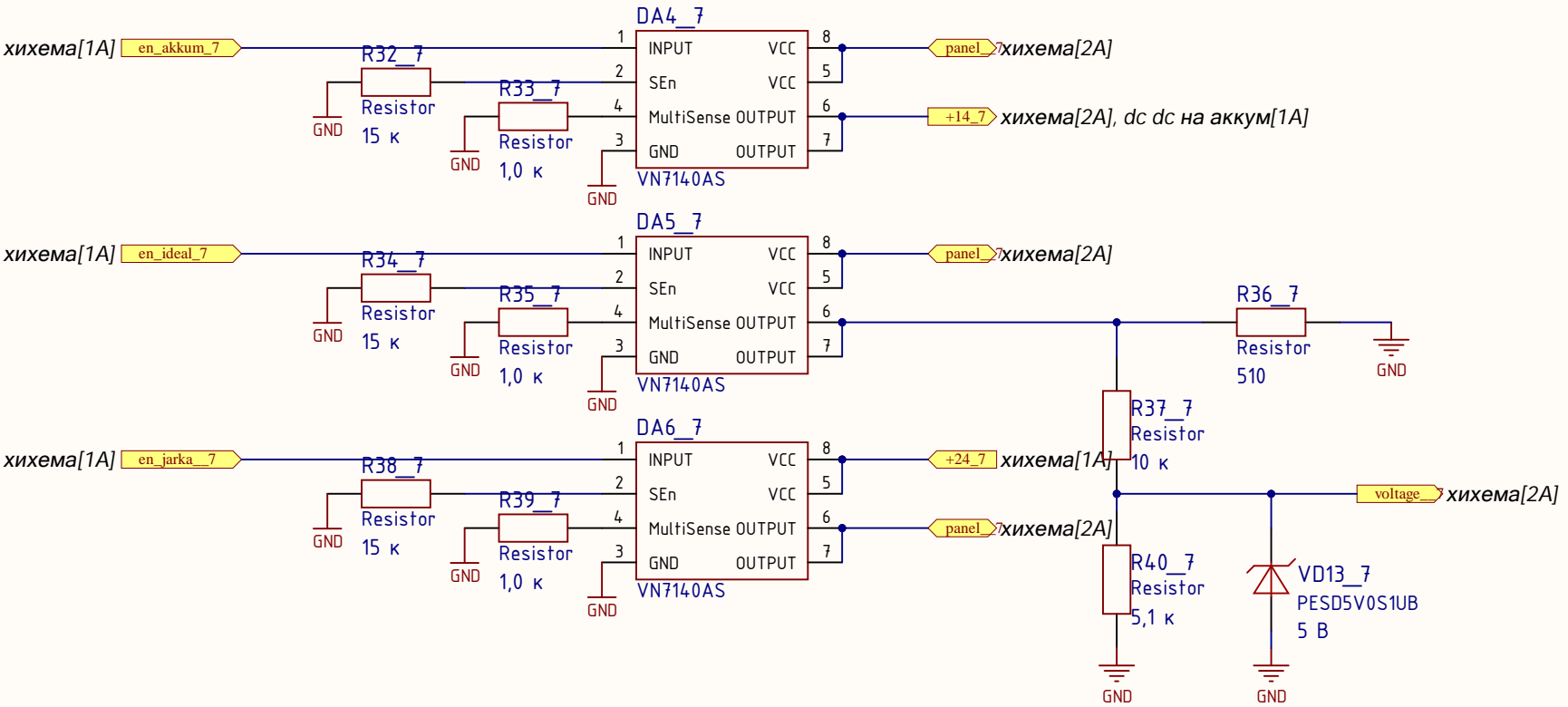
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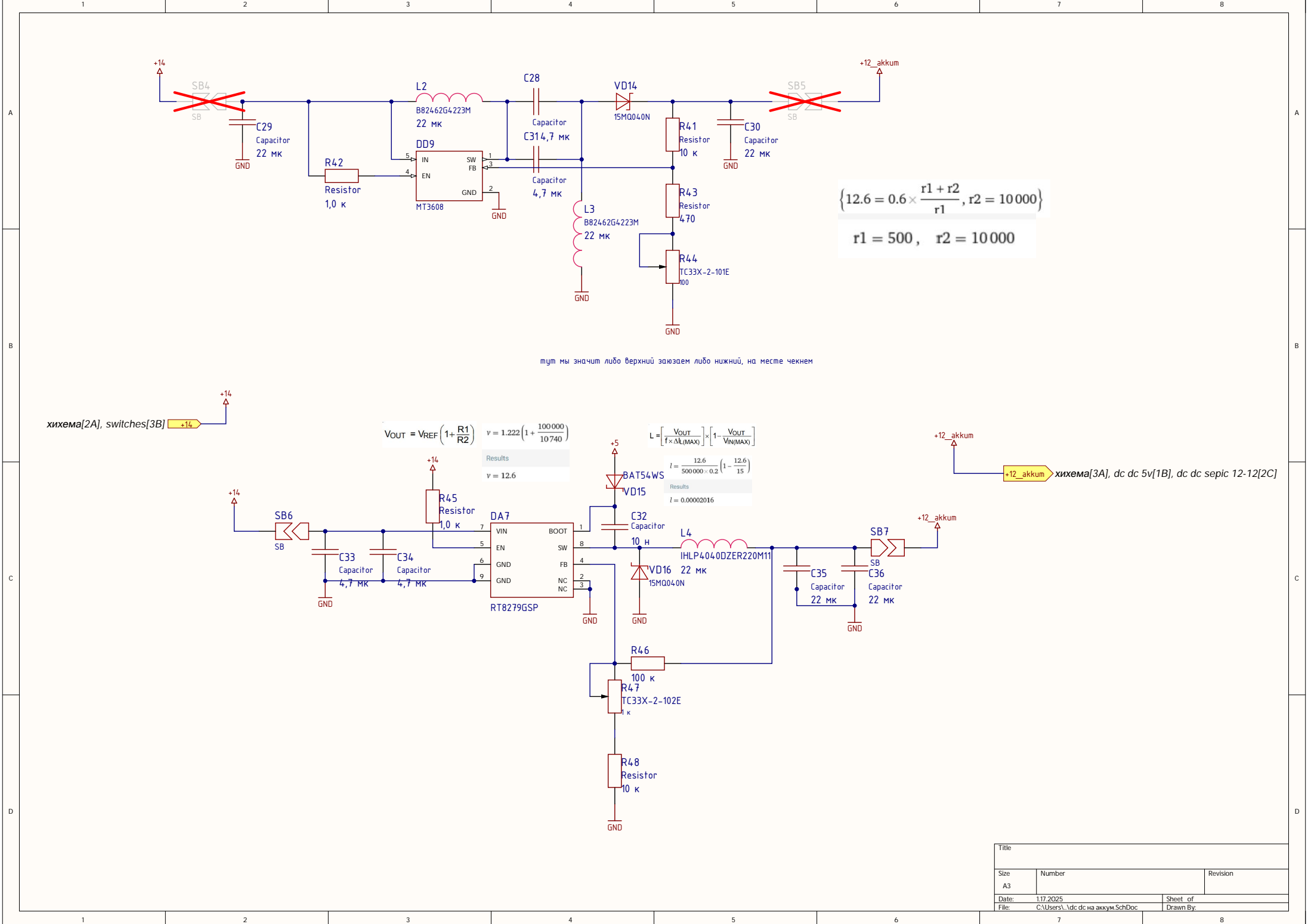
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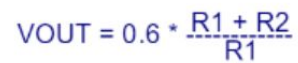
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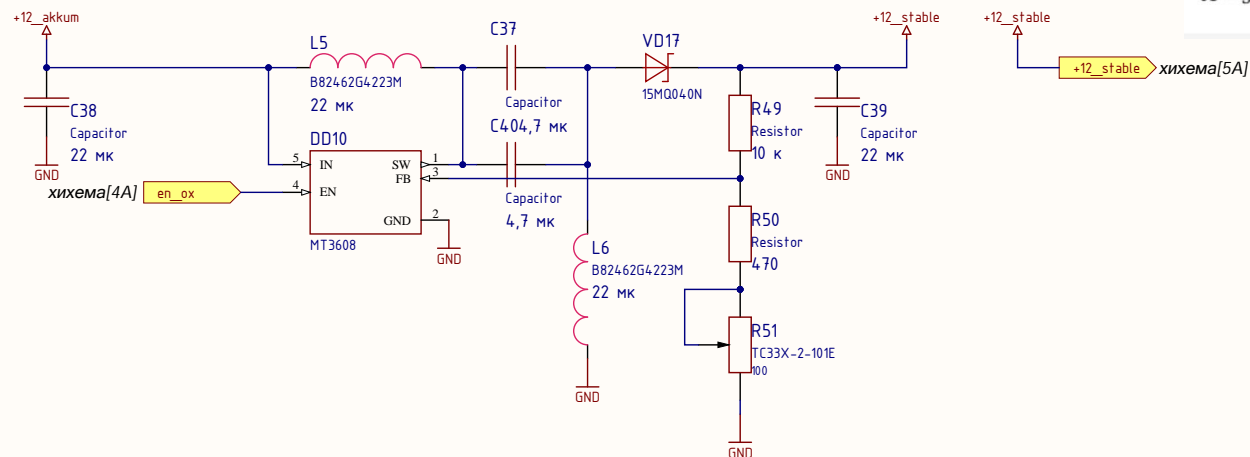
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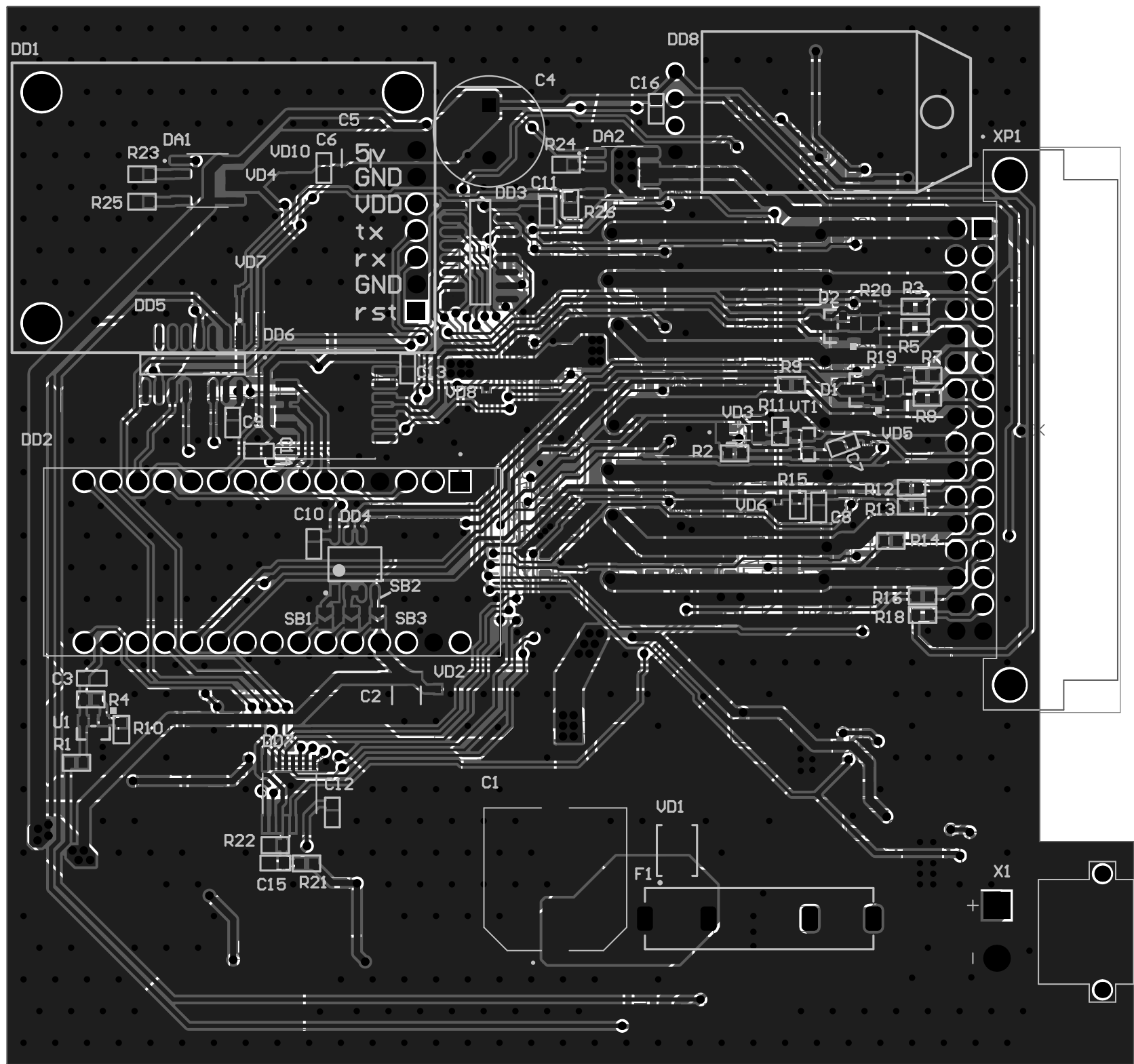
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