

Eng: Chris Pavlina

Gain/Phase Analyzer

WCP52

Sheet: /InputFrontend/Buffer_Filter/

File: Buffer_Filter.sch

Title: Input Buffer and Filter

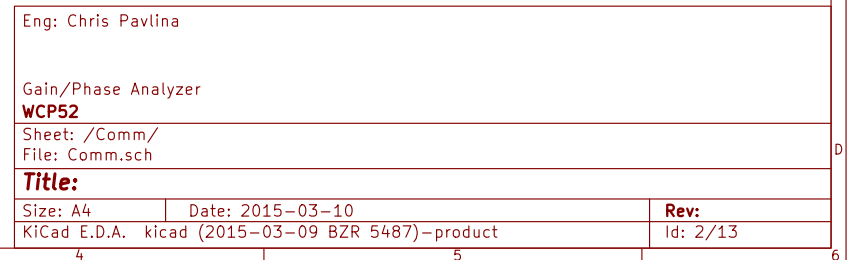
Size: A4

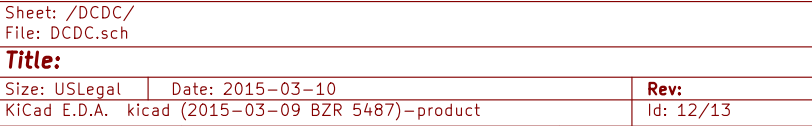
Date: 2015-03-10

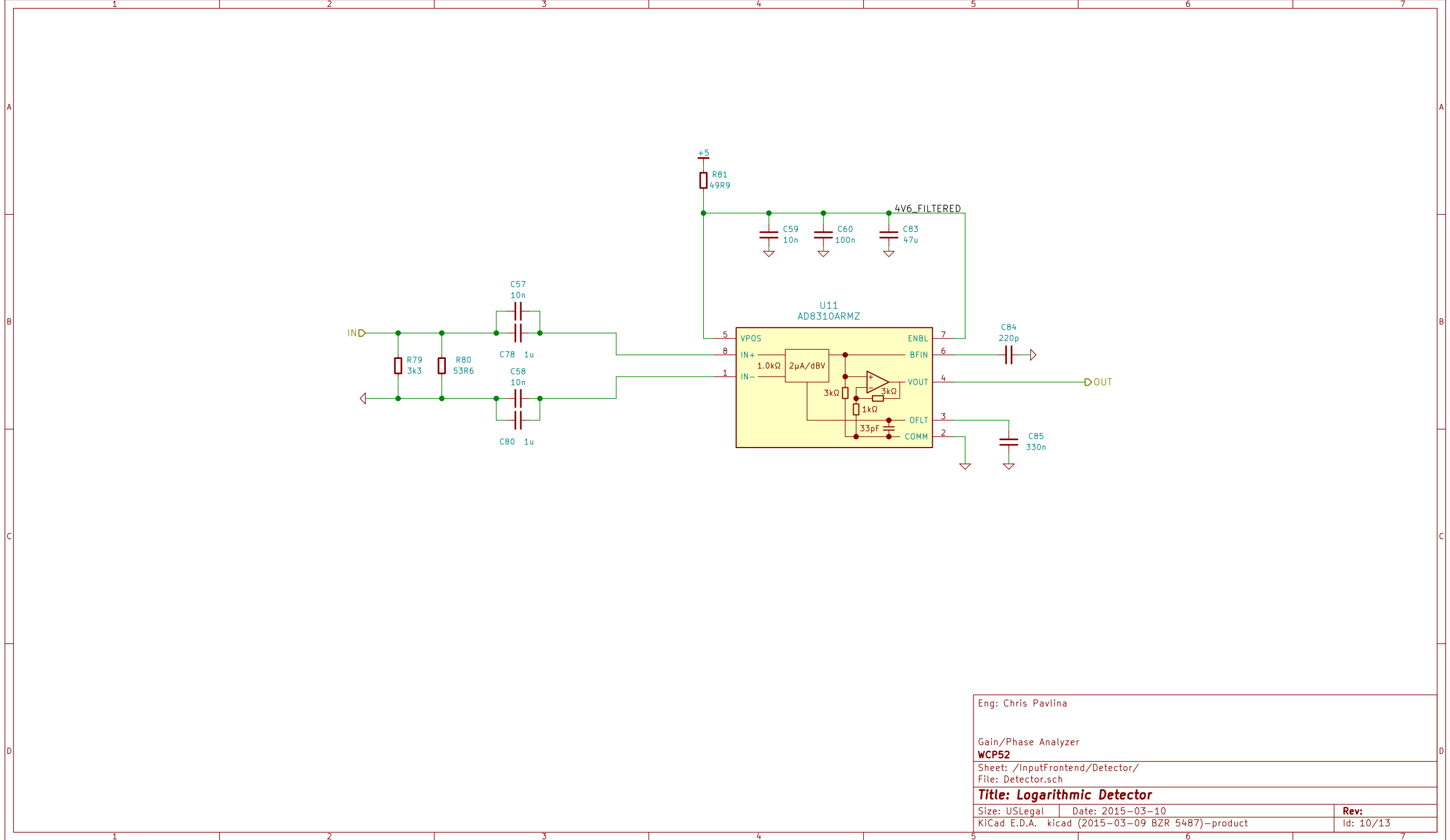
Rev:

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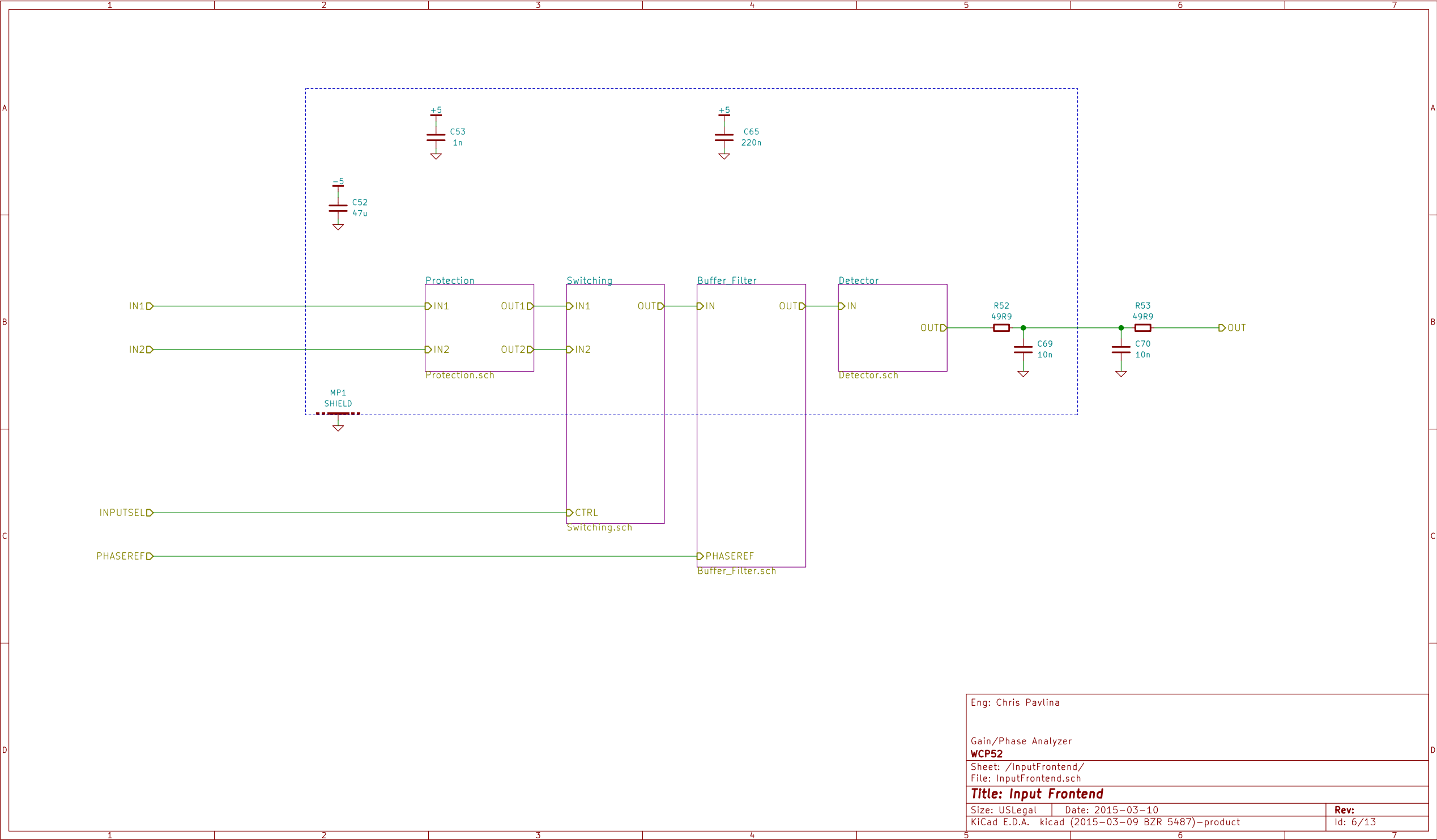
Id: 9/13

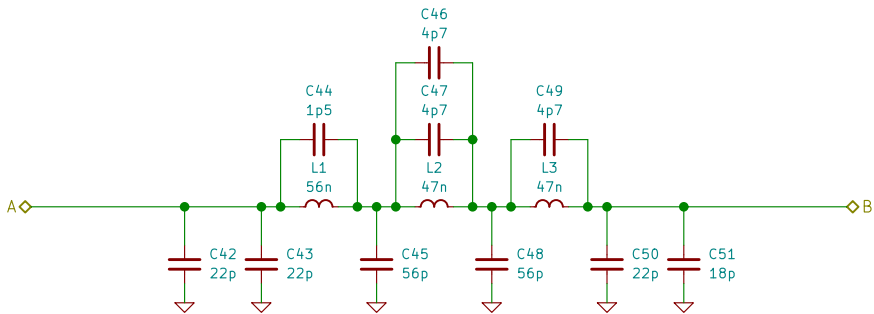




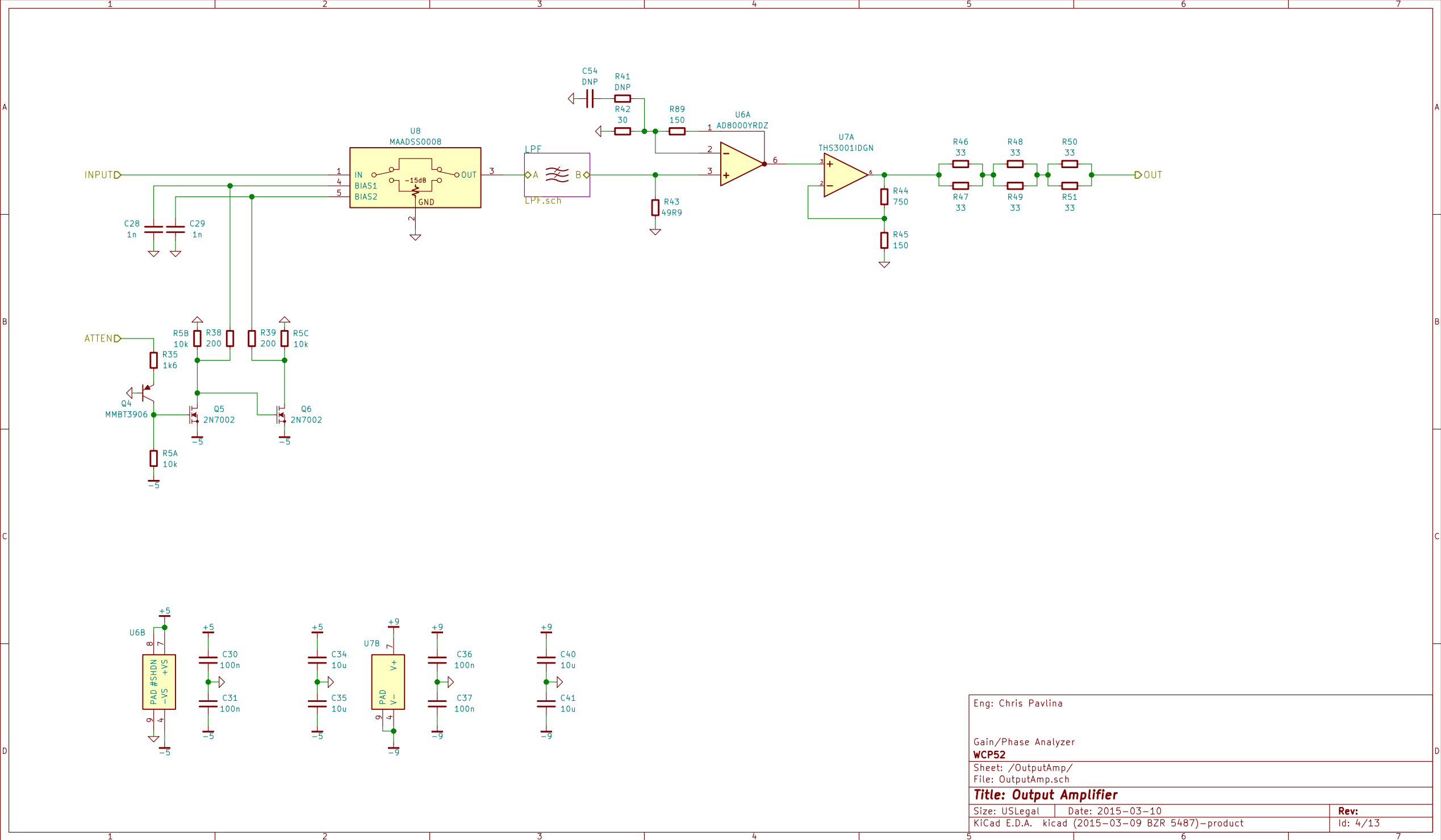


Eng: Chris Pavlina		
Gain/Phase Analyzer		
WCP52		
Sheet: /InputFrontend/Detector/		
File: Detector.sch		
Title: Logarithmic Detector		
Size: USLegal	Date: 2015-03-10	Rev:
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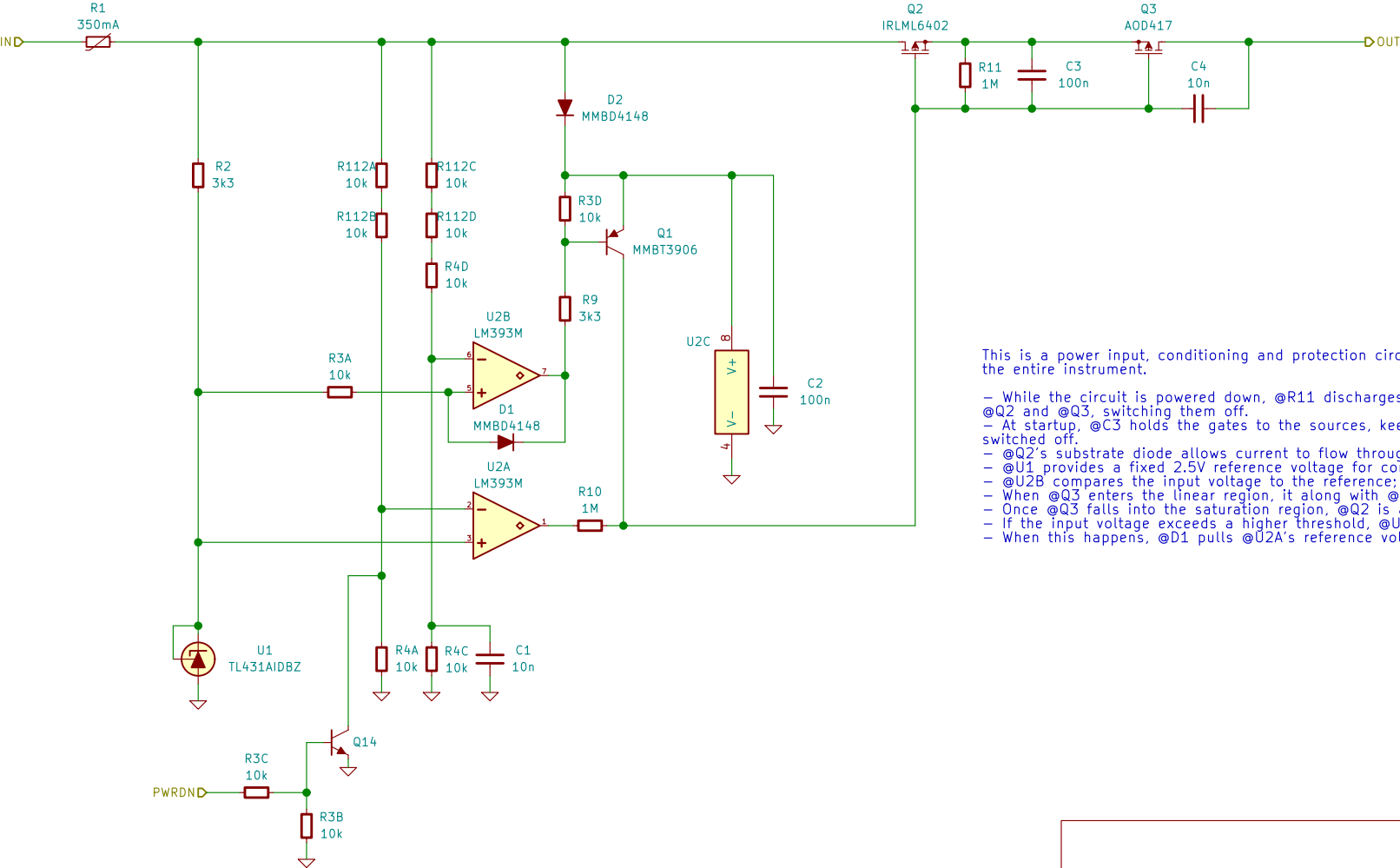




Eng: Chris Pavlina		
Gain/Phase Analyzer		
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Sheet: /OutputAmp/LPF/		
File: LPF.sch		
Title: LPF for Output Amplifier		
Size: USLegal	Date: 2015-03-10	Rev:
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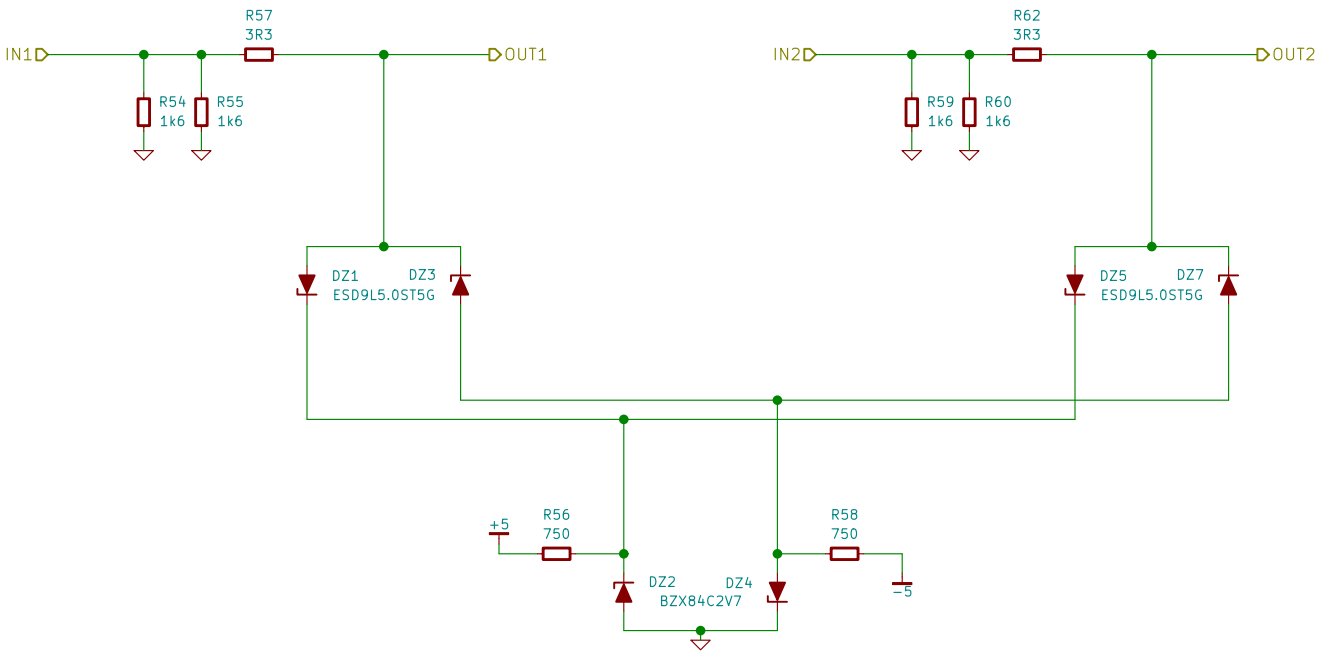
Eng: Chris Pavlina		
Gain/Phase Analyzer		
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Sheet: /OutputAmp/		
File: OutputAmp.sch		
Title: Output Amplifier		
Size: USLegal	Date: 2015-03-10	Rev:
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This is a power input, conditioning and protection circuit for the entire instrument.

- While the circuit is powered down, @R11 discharges the gates of @Q2 and @Q3, switching them off.
- At startup, @C3 holds the gates to the sources, keeping them switched off.
- @Q2's substrate diode allows current to flow through despite the FET being switched off, but @Q3's diode faces the opposite direction.
- @U1 provides a fixed 2.5V reference voltage for comparison.
- @U2B compares the input voltage to the reference; when it exceeds a threshold, the output falls to 0V and @Q1 is switched on.
- When @Q3 enters the linear region, it along with @C4 forms a circuit known as a Miller integrator, integrating the input voltage.
- Once @Q3 falls into the saturation region, @Q2 is also in this region, bypassing its substrate diode and providing a path to ground.
- If the input voltage exceeds a higher threshold, @U2A switches on. This saturates @Q1, yanking the gates of @Q2 and @Q3 to ground.
- When this happens, @D1 pulls @U2A's reference voltage down, latching the circuit in this position. It will not return to normal operation until the input voltage is brought back below the threshold.

Sheet: /PowerInput/ File: PowerInput.sch		
Title:		
Size: USLegal	Date: 2015-03-10	Rev:
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Gain/Phase Analyzer

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Sheet: /InputFrontend/Protection/

File: Protection.sch

Title: Input Protection

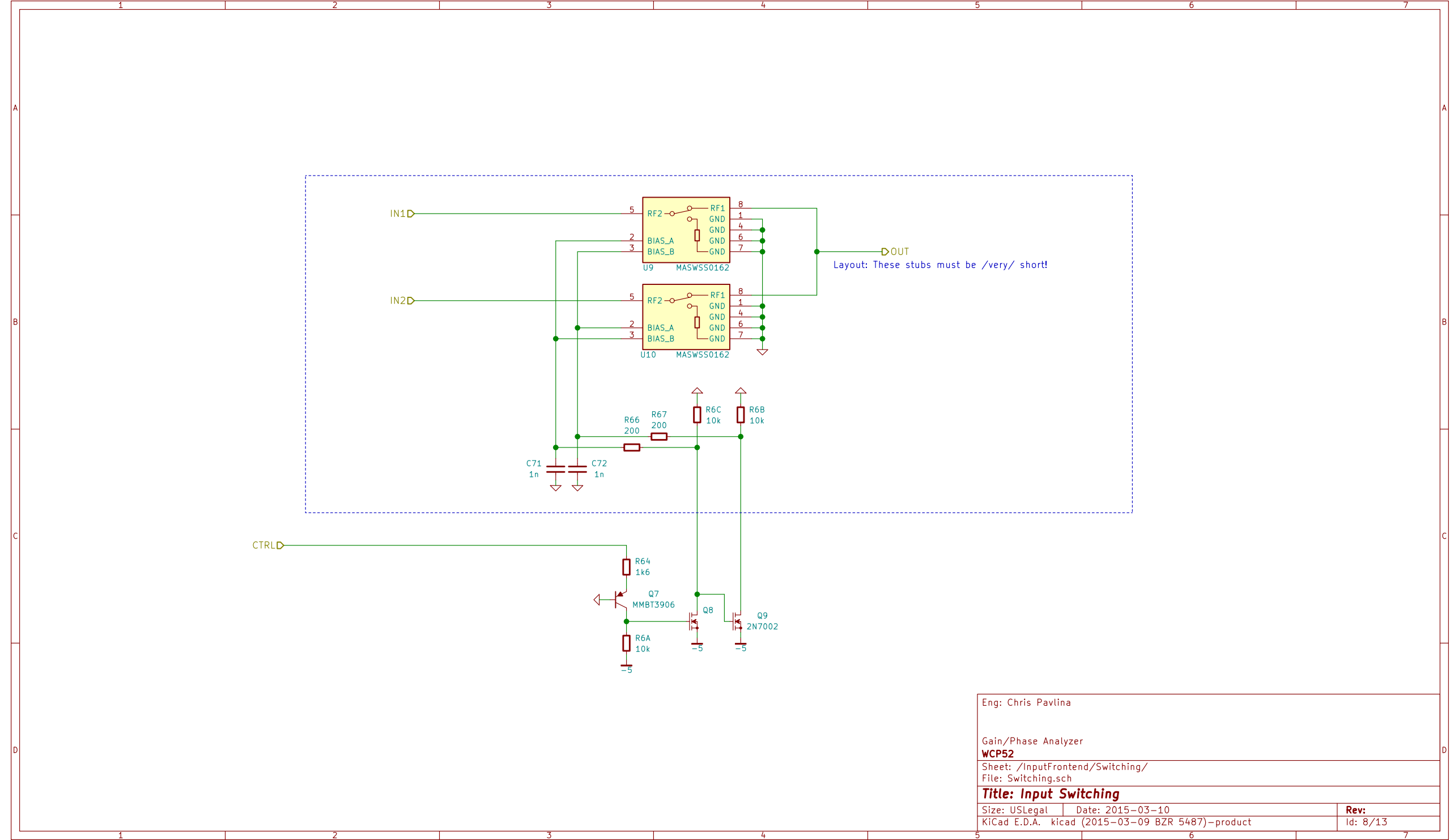
Size: USLegal

Date: 2015-03-10

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Eng: Chris Pavlina		
Gain/Phase Analyzer		
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Sheet: /InputFrontend/Switching/		
File: Switching.sch		
Title: Input Switching		
Size: USLegal	Date: 2015-03-10	Rev:
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