pset7

October 21, 2019

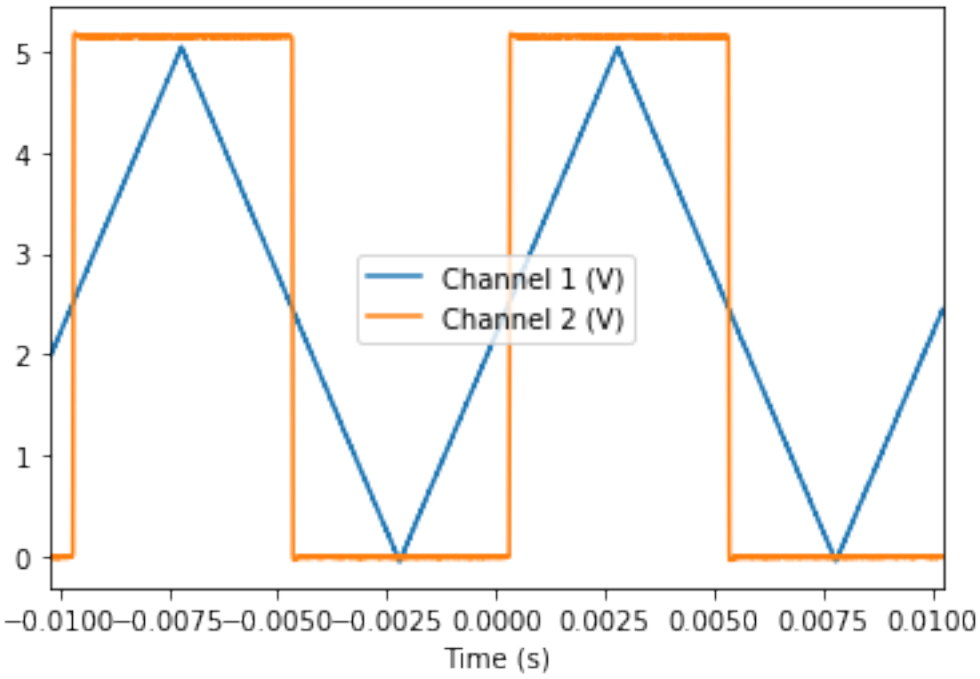
1 PSET 7

[1]:
```
import pandas as pd
%matplotlib inline
```

1.1 Open loop mode

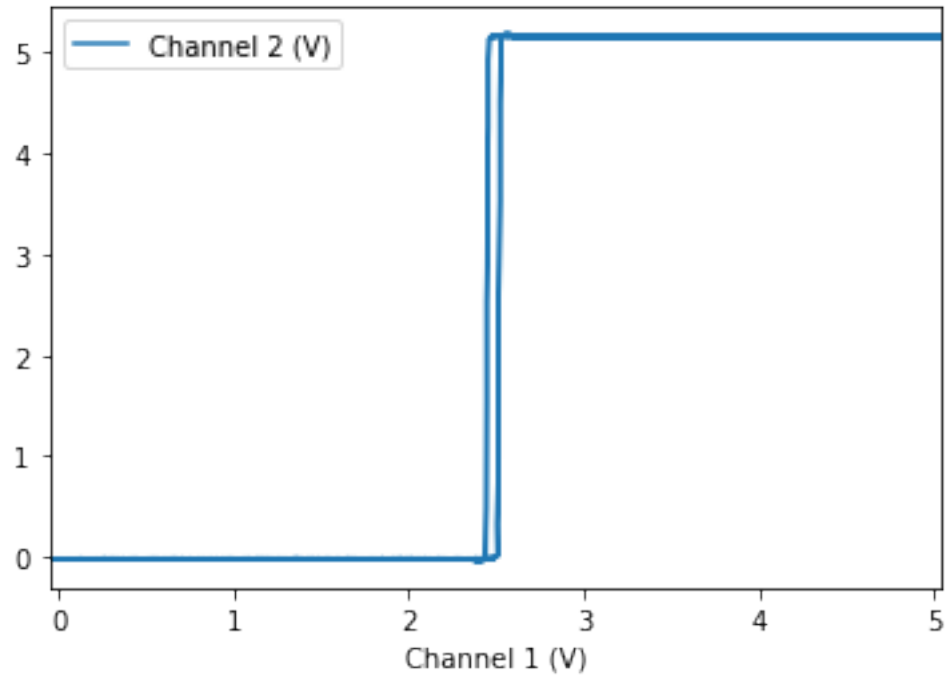
[7]:
```
open_loop_data = pd.read_csv('open_loop_behavior.csv')
open_loop_data.plot(x='Time (s)')
```

[7]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x7f5ba3c19490>
```



[8]:
```
# Generate XY plot
open_loop_data.plot(x='Channel 1 (V)', y='Channel 2 (V)')
```

[8]: <matplotlib.axes._subplots.AxesSubplot at 0x7f5ba3b9a450>



1.2 Op Amp Voltage Follower

3 Does the follower work as expected? > Yes

4 At what point does the follower not operate fast enough to keep up with the voltage input? > 500 kHz

5 Why doesnt the next circuit work as expected? > The op amp cannot drive a voltage outside the bounds provided (0-5V)

6 How long does it take for the circuit to react to a voltage change? > 0.003 ms

7 Why does the next circuit not work as a follower? > The output needs to be connected to the inverted side of the op-amp to make it a negative feedback loop

1.3 Follower as buffer

Circuit A (Voltage Divider): > 1.75V

Circuit B (Voltage divider with op amp): > 2.57V

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