

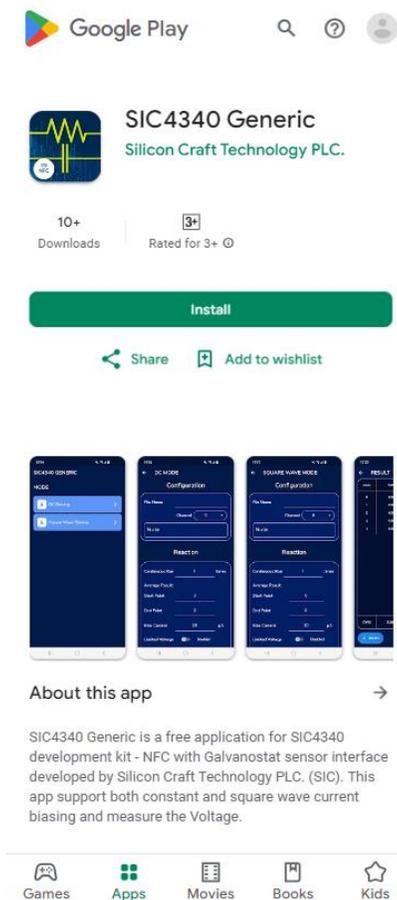
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SIC4340 Generic App: Installation

Android



Google Play

SIC4340 Generic
Silicon Craft Technology PLC.

10+ Downloads

Rated for 3+

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About this app

SIC4340 Generic is a free application for SIC4340 development kit - NFC with Galvanostat sensor interface developed by Silicon Craft Technology PLC. (SIC). This app support both constant and square wave current biasing and measure the Voltage.

Games Apps Movies Books Kids

Google Play download link:
https://play.google.com/store/apps/details?id=th.co.sic.sic4340_generic



iPhone



App Store Preview

Open the Mac App Store to buy and download apps.

SIC4340 Generic ¹⁷⁺
SILICON CRAFT TECHNOLOGY
PUBLIC COMPANY LIMITED
Designed for iPhone

Free

iPhone Screenshots

SIC4340 GENERIC

MODE

- DC Biasing
- Square Wave Biasing

RESULT

MODE	VOLT (V)	AC CUR (uA)
1	1.2777	50.767
2	1.2777	50.767
3	1.2777	50.767
4	1.2777	50.767
5	1.2777	50.767
6	1.2777	50.767
7	1.2777	50.767
8	1.2777	50.767
9	1.2777	50.767
10	1.2777	50.767
11	1.2777	50.767
12	1.2777	50.767
13	1.2777	50.767
14	1.2777	50.767
15	1.2777	50.767
16	1.2777	50.767
17	1.2777	50.767
18	1.2777	50.767
19	1.2777	50.767
AWS	1.2777	Volts

RUN CLEAR

App Store download link:
<https://apps.apple.com/th/app/sic4340-generic/id6478389759>

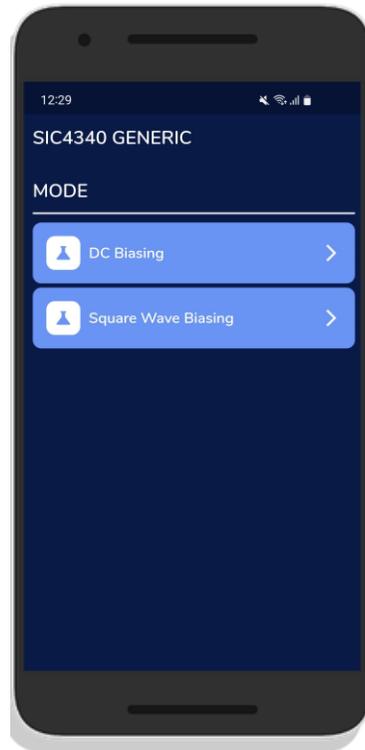


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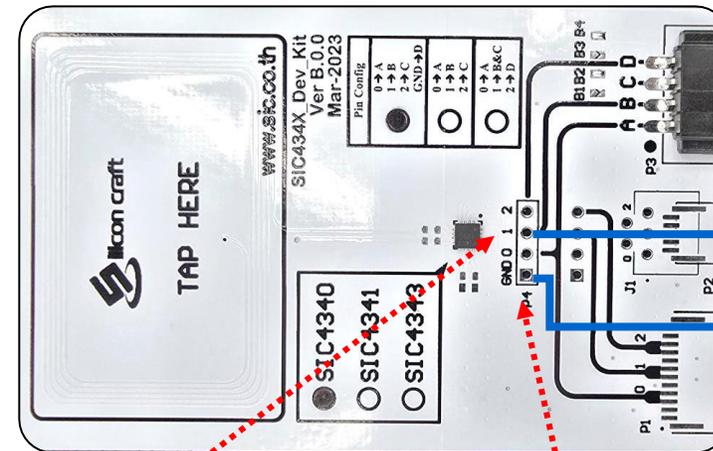
Instruments

1. NFC Smartphone with SIC4343 App
2. SIC4340 Development Kit
3. Sensor

1



2

Input
Channel 0 - 2

GND

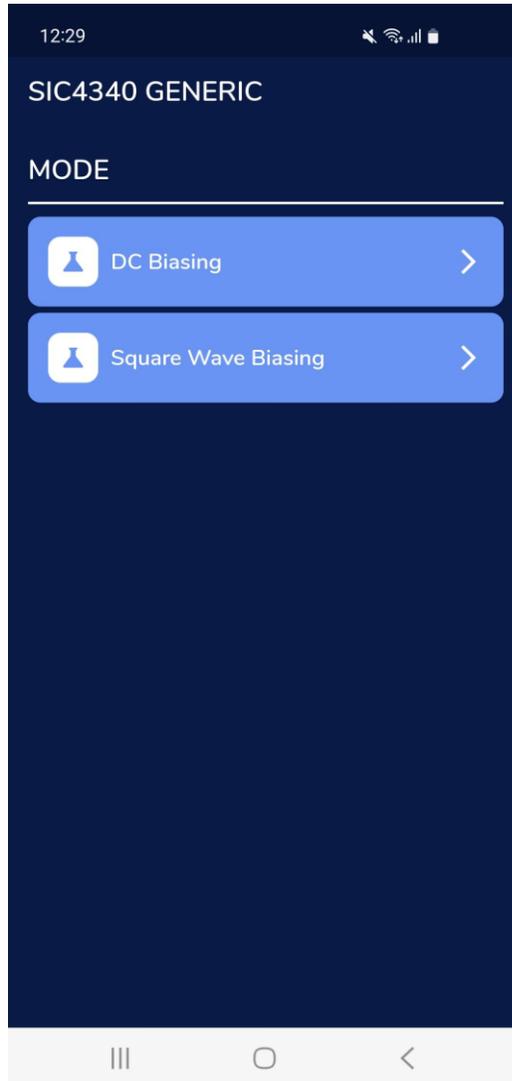
3

Sensor

SIC4340 Generic Application



Main Menu



Select the biasing mode

- DC Biasing
- Square Wave Biasing

Setting [DC Biasing]

Configuration

File Name _____

Channel

Note _____

Set Channel

Reaction

Continuous Run times

Average Result:

Start Point

End Point

Bias Current μA

Limited Voltage Enabled

V

Input Buffer Disabled

T Interval ms

Set measurement round

Set average result period

Set biasing current

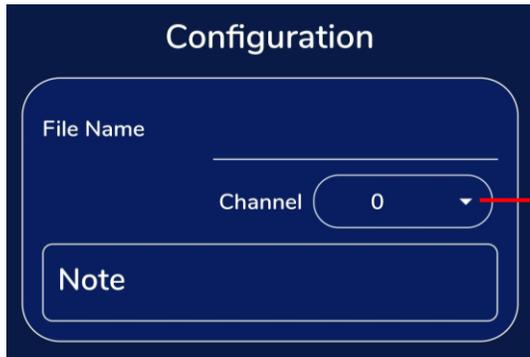
Enable/Disable limited voltage

Set limited voltage value

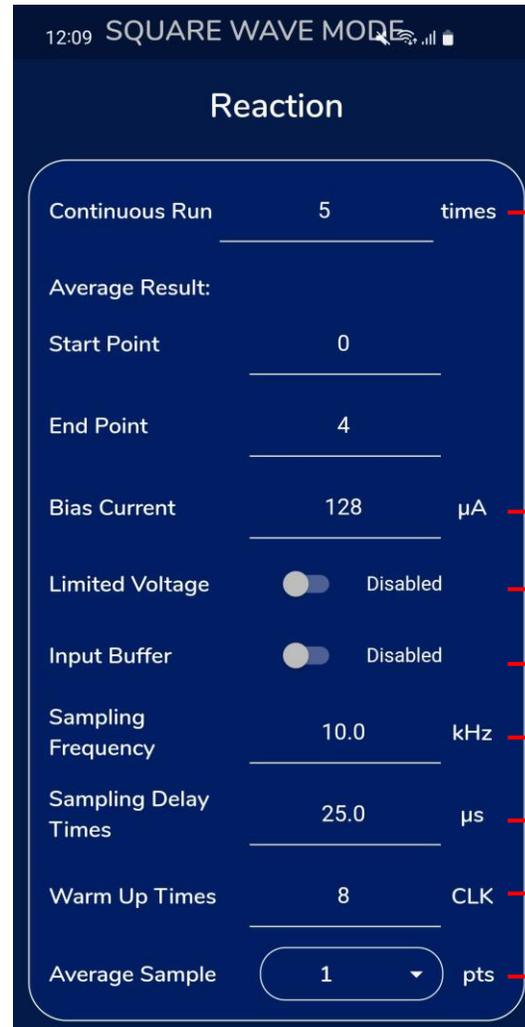
Enable/Disable input buffer

Set interval time

Setting [Square Wave Biasing]



Set Channel



Set measurement round

Set average result period

Set biasing current

Enable/Disable limited voltage

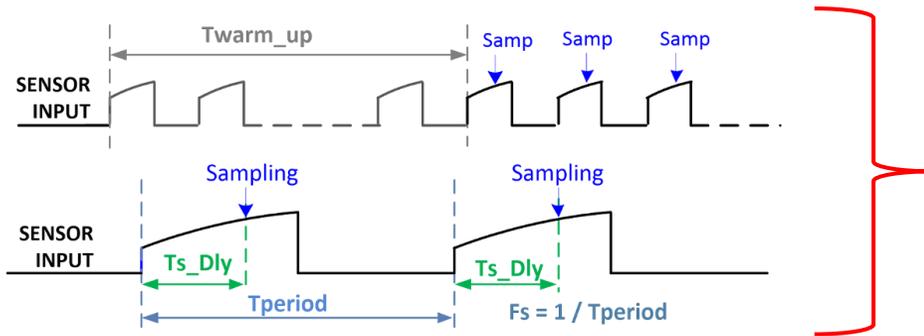
Enable/Disable input buffer

Set sampling frequency (F_s)

Set sampling delay times (T_{s_Dly})

Set warm up times (T_{warm_up})

Set number of average points per result



Note: Too long conversion time can cause an error in the app

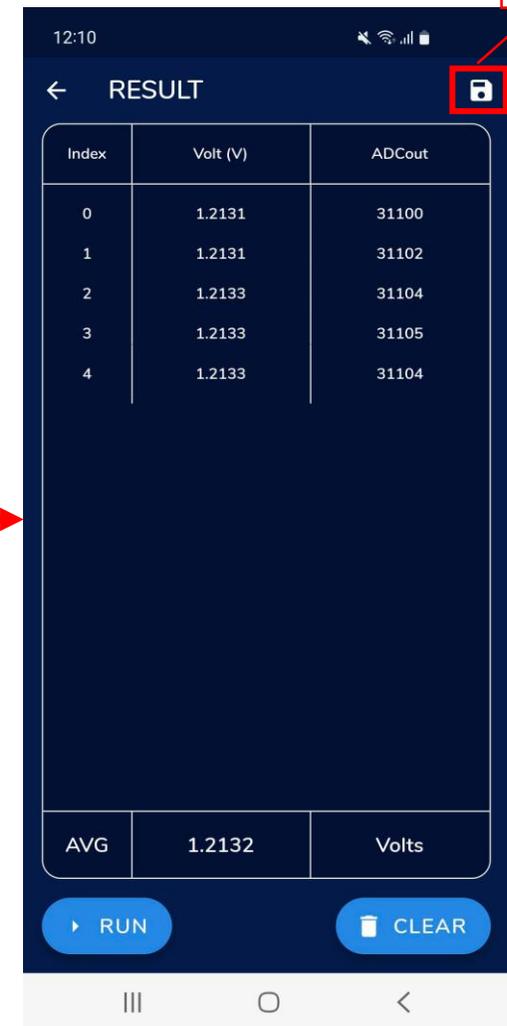
Processing



Connect sensor and Tap mobile on the board



Push 'RUN' and wait for measurement



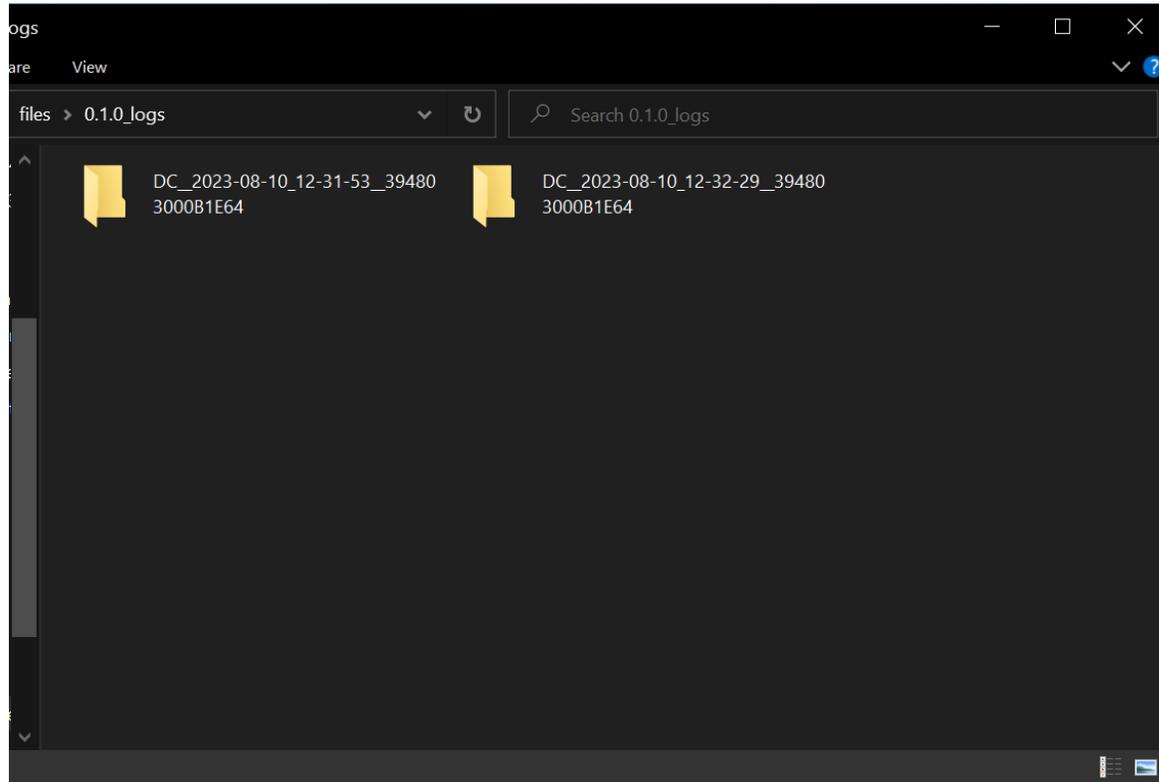
Check the result

Save results

Get log files

Connect phone with PC, the log files can be found in

'Internal storage\Android\data\th.co.sic.sic4340_generic\files\x.x.x_logs'

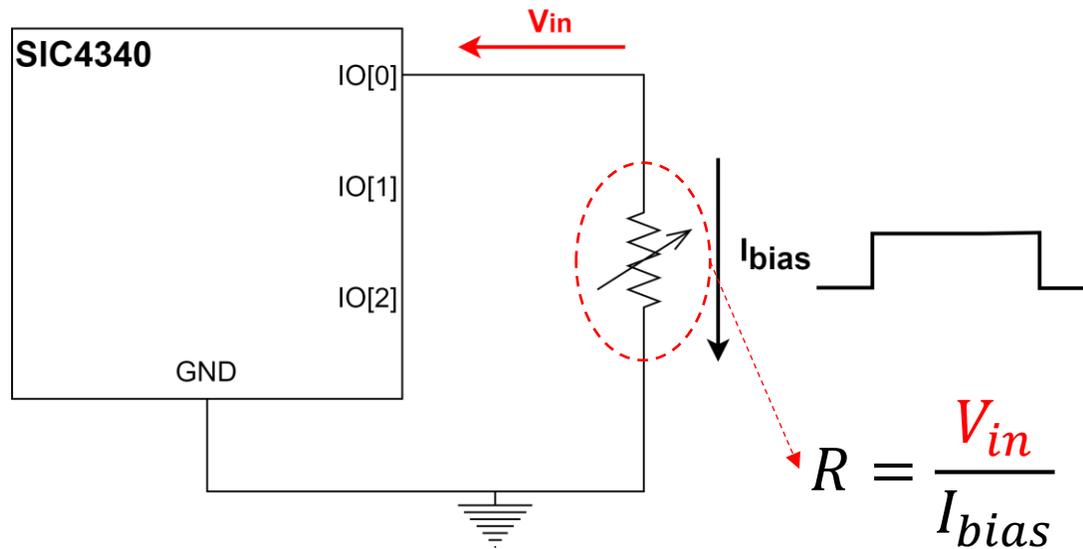


Result Calculation



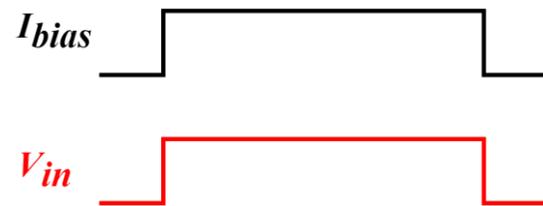
Resistance Calculation

Resistance can be measured by either 'DC Biasing' mode or 'Square Wave Biasing' mode



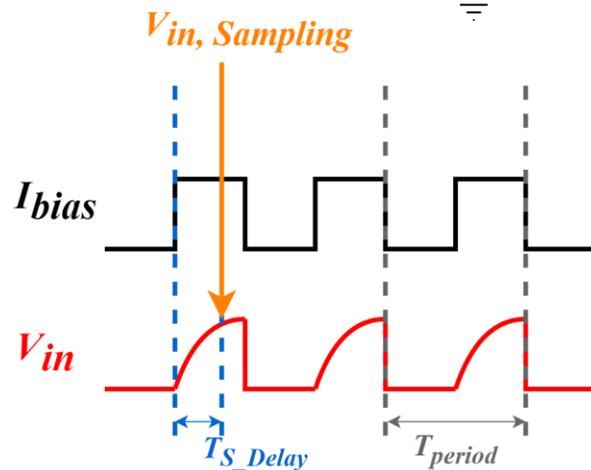
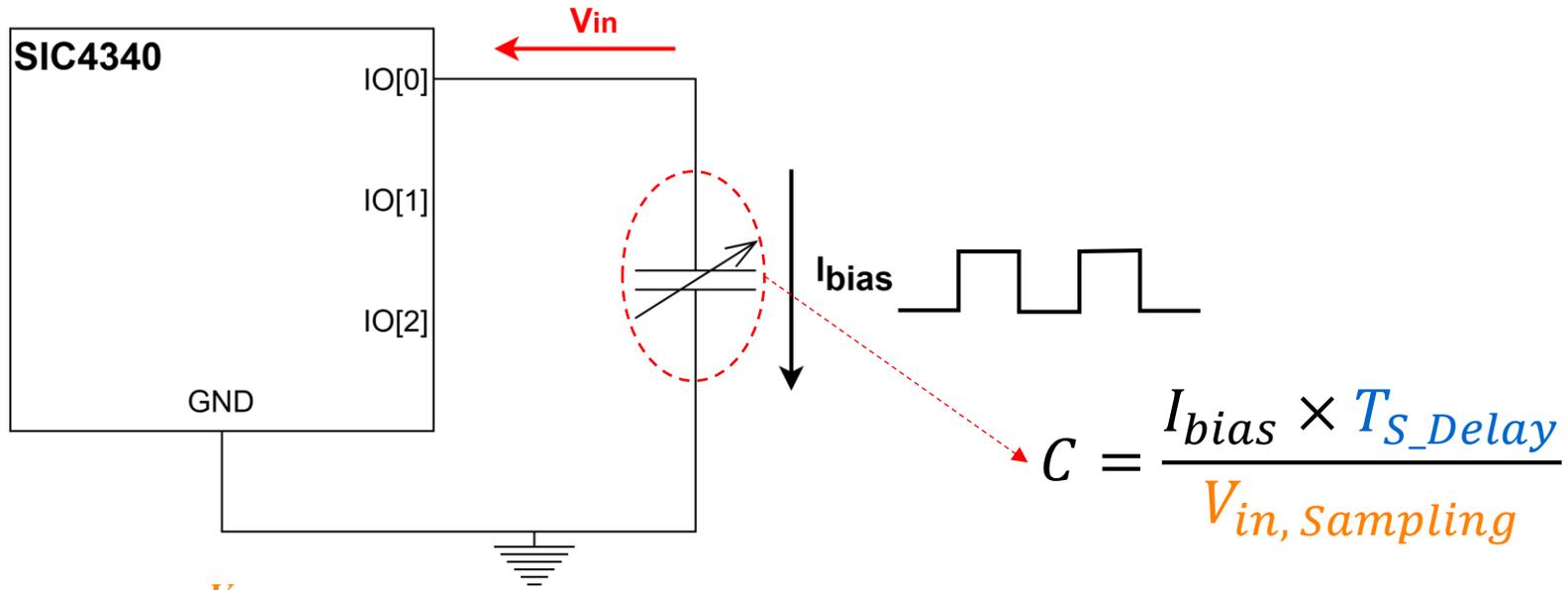
Recommend reliable result when

- V_{in} : 0.12V to 1.2V
- I_{bias} : 3 μ A to 504 μ A



Capacitance Calculation

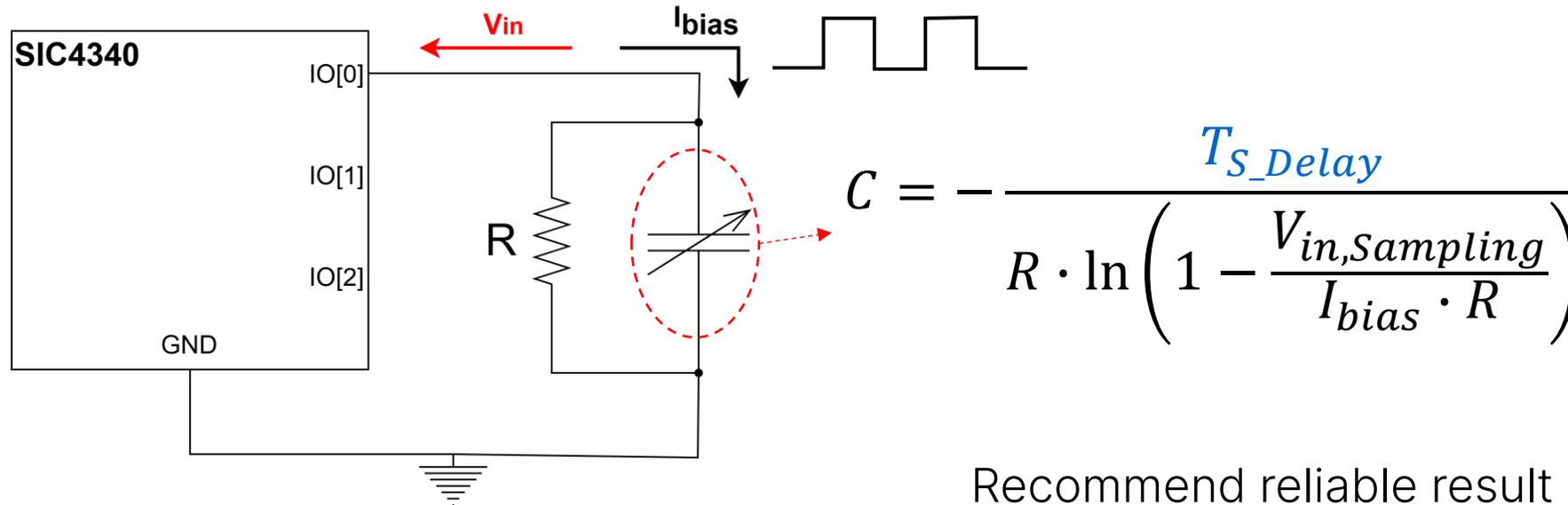
Capacitance measurement requires 'Square Wave Biasing' mode



Recommend reliable result when

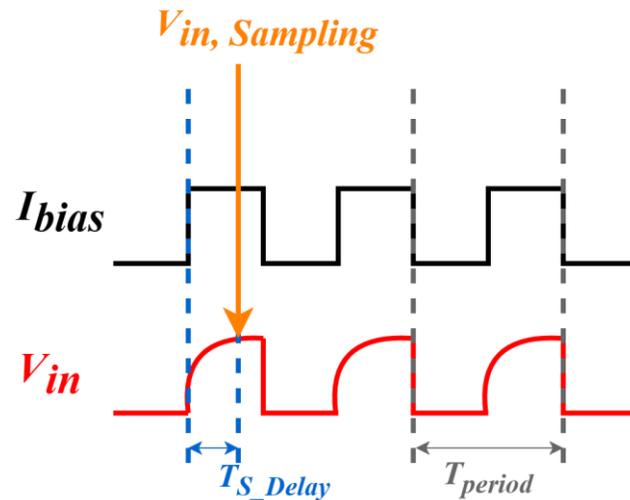
- $V_{in,Sampling}$: 0.12V to 1.2V
- I_{bias} : 3 μ A to 504 μ A
- T_{S_Delay} : >5 μ s

R//C Calculation

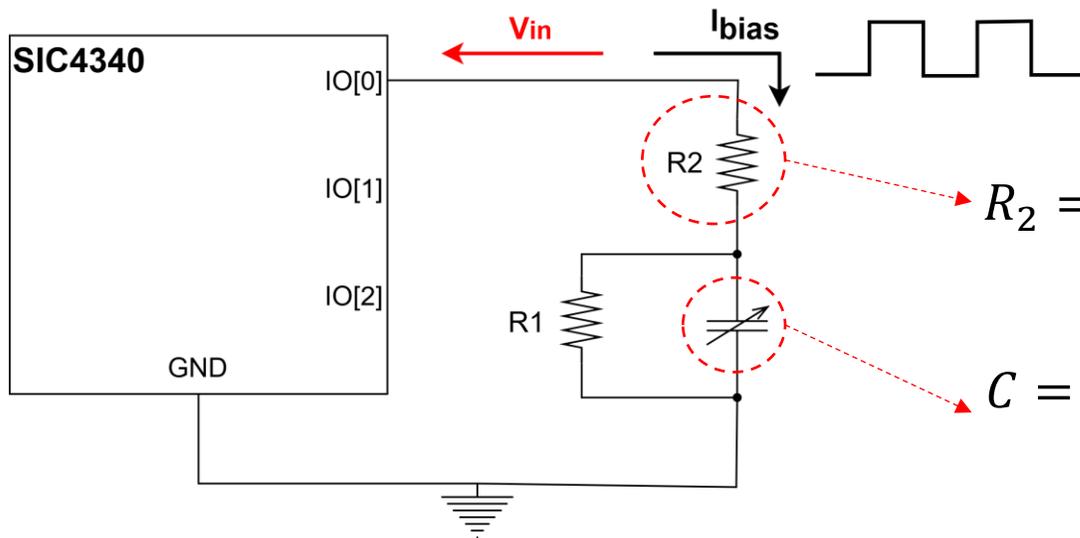


Recommend reliable result when

- $V_{in, Sampling}$: 0.12V to 1.2V
- I_{bias} : 3 μ A to 504 μ A
- T_{S_Delay} : >5 μ s

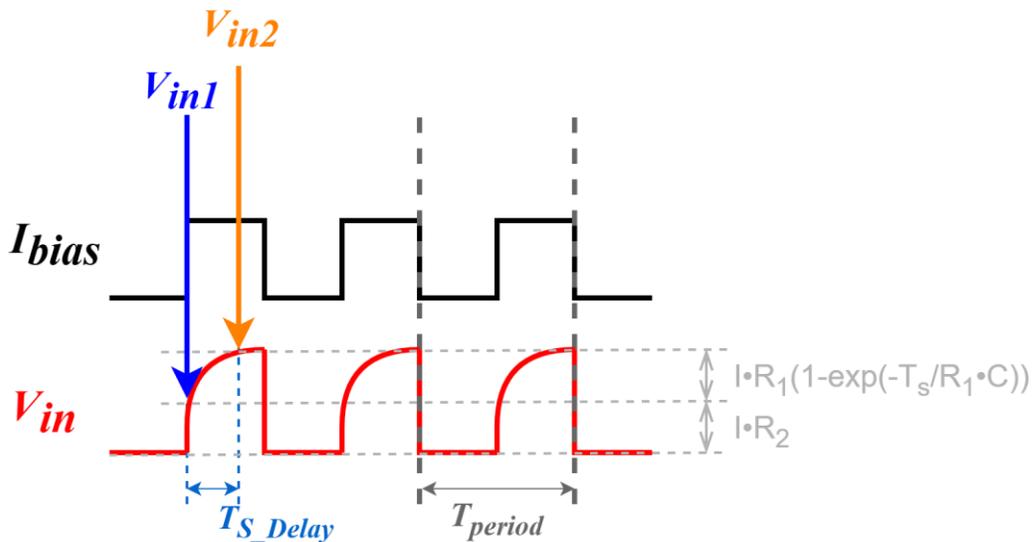


R + R//C Calculation



$$R_2 = \frac{V_{in1}}{I_{bias}} : \text{When } T_{S_Delay} = 0 \text{ s}$$

$$C = -\frac{T_{S_Delay}}{R_1 \cdot \ln\left(1 - \frac{(V_{in2} - V_{in1})}{I_{bias} \cdot R_1}\right)} : \text{When } T_{S_Delay} > 5\mu\text{s}$$



Recommend reliable result when

- V_{in1} : 0.12V to 1.2V
- V_{in2} : 0.12V to 1.2V
- I_{bias} : 3 μ A to 504 μ A



THANK YOU



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