Weekly_MT_20250702

- ASAGI : Test Pulse with various parameters
- E80-TC : Rough Gain
- E80-CDC :
- ToDo

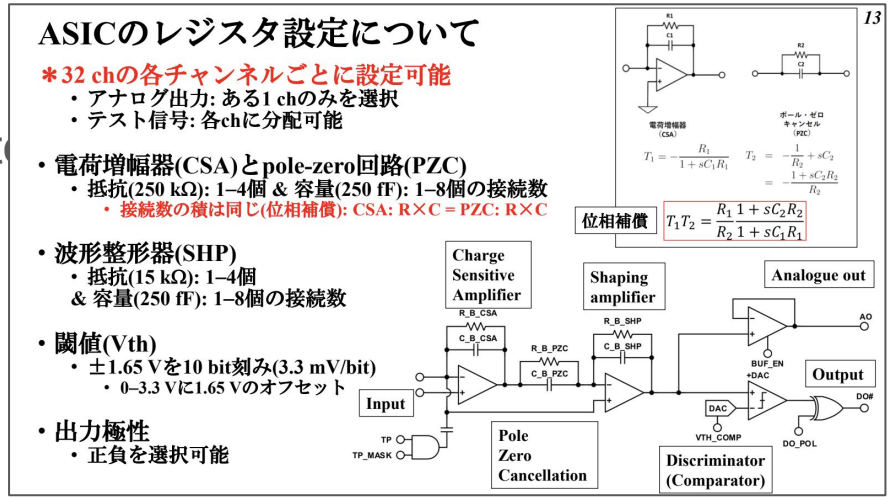
“TC” = “Test Chamber”

Yuto Kimura (Tohoku, D1)

ASAGI

- test pulse: search for the best paramet
  - charge: 1, 2, 3 pC

    (amplitude of square waves: 1, 2, 3V)
  - requirement
    - 位相補償ver. (CSA:R*C=PZC:R*C)



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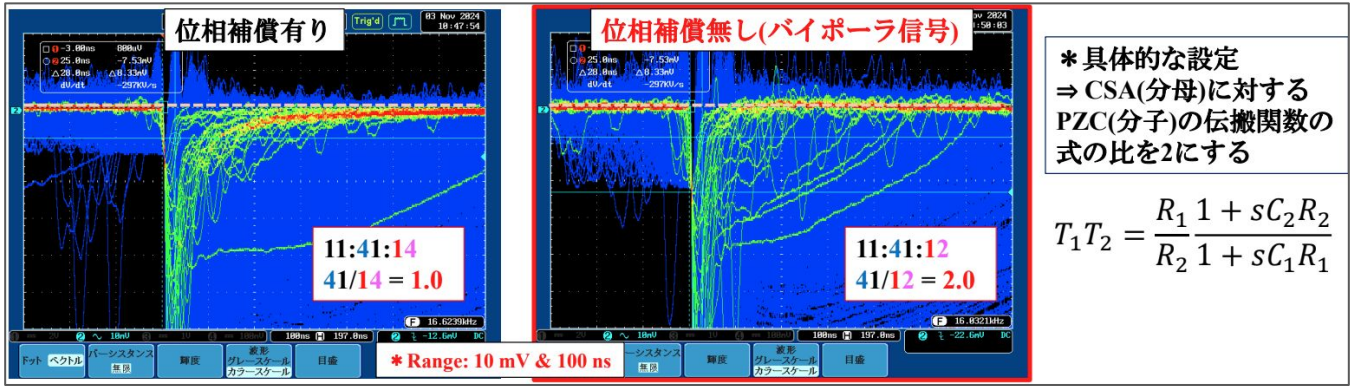
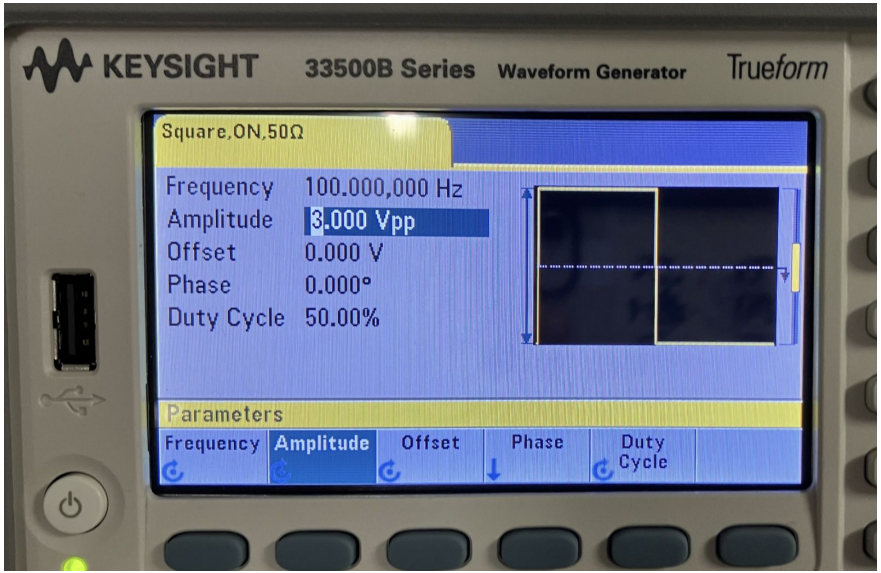
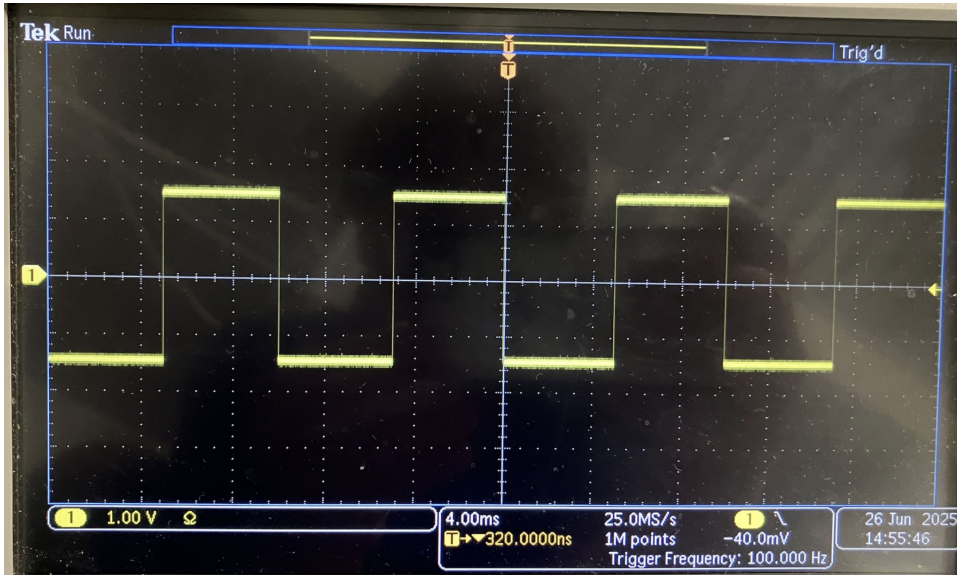


テストパルス





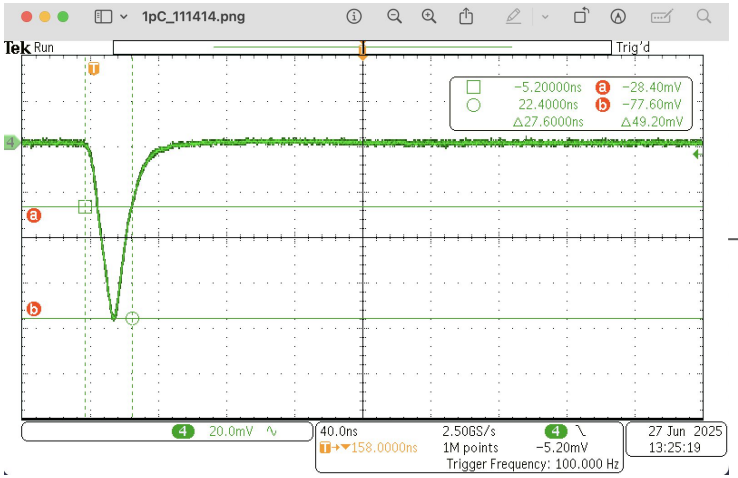
この場合input chargeは3 pC

ASAGI

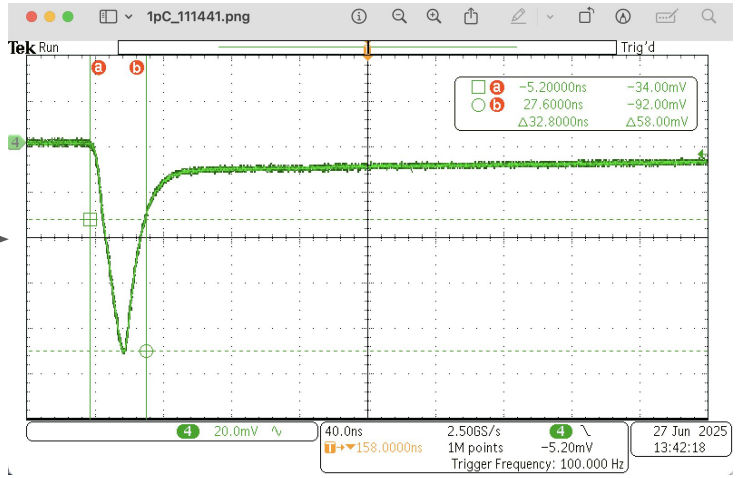
SHP:RC, PZC:RC, CSA:RC: 位相補償 ”R×C of PZC and CSA ==4”

input charge 1 pC

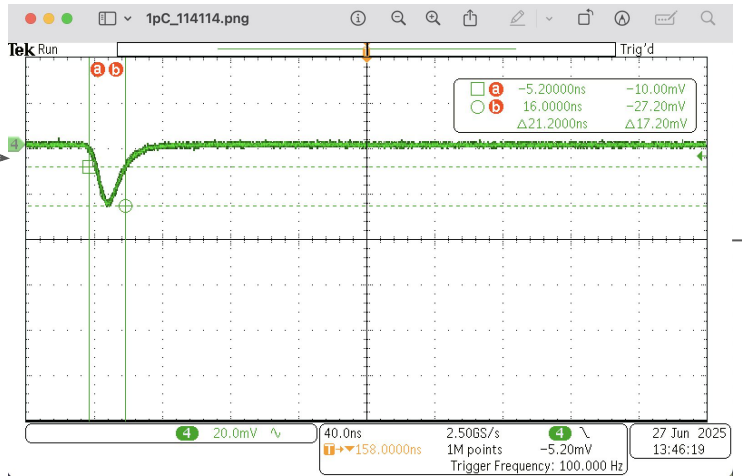
PZC
R→× 4
C→×1/4



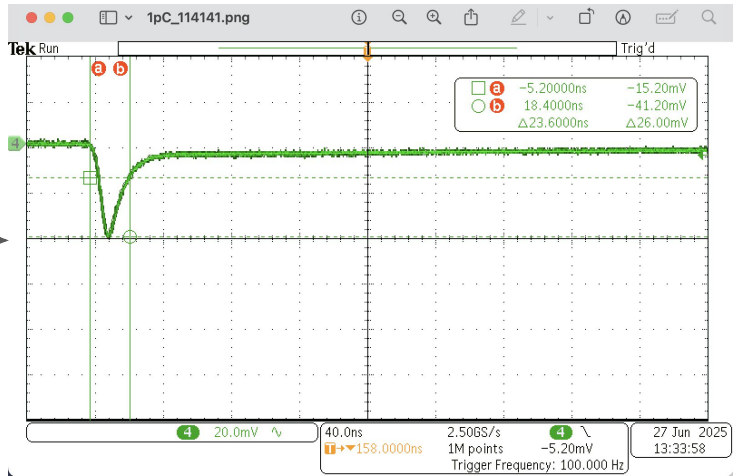
CSA
R→× 4
C→×1/4



PZC
R→× 4
C→×1/4



CSA
R→× 4
C→×1/4

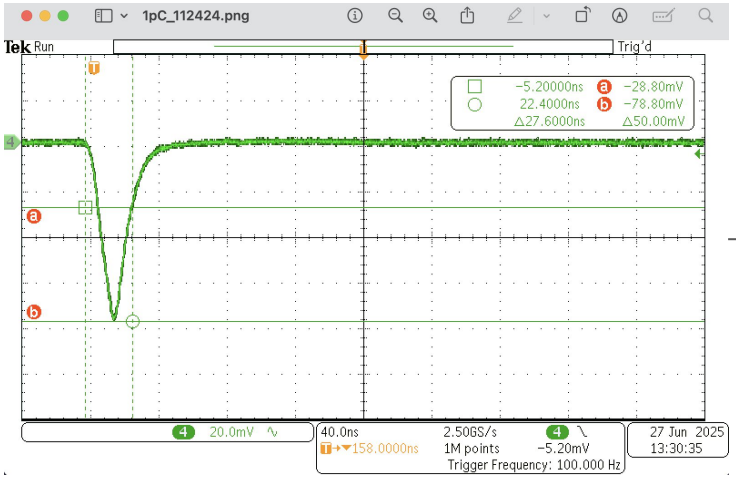


PZC
R→× 4
C→×1/4

ASAGI

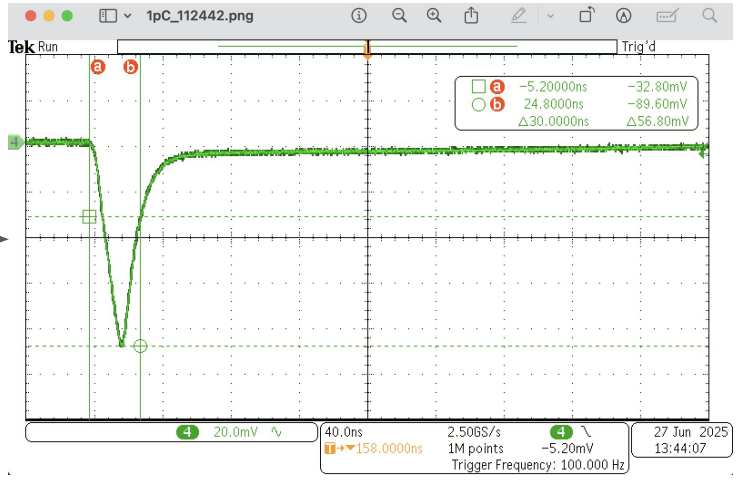
SHP:RC, PZC:RC, CSA:RC: 位相補償 ”R×C of PZC and CSA ==8”

input charge 1 pC

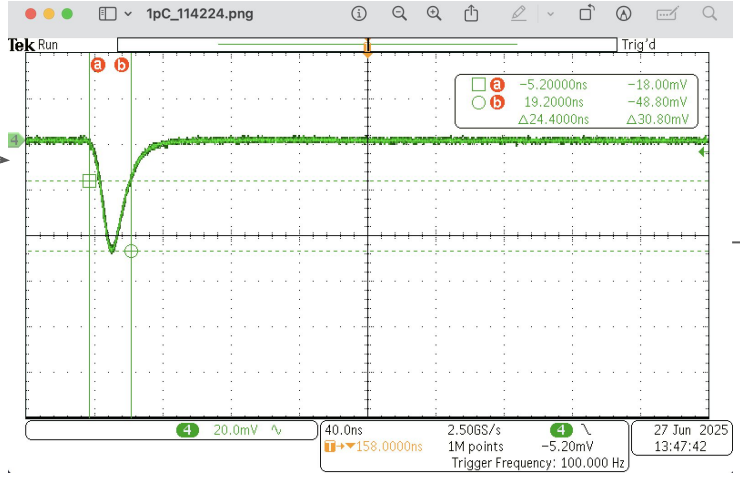


PZC
R→× 2
C→×1/2

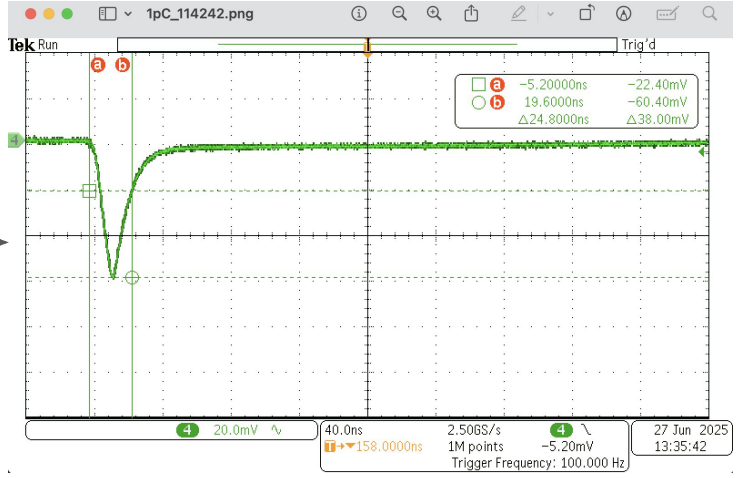
CSA
R→× 2
C→×1/2



PZC
R→× 2
C→×1/2



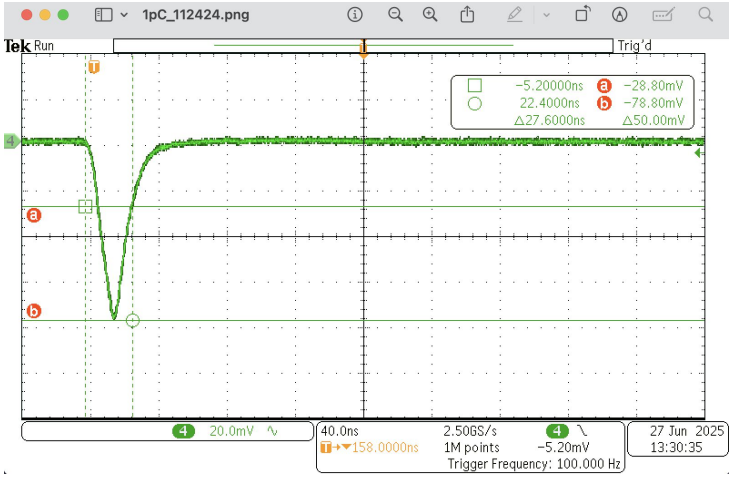
CSA
R→× 2
C→×1/2



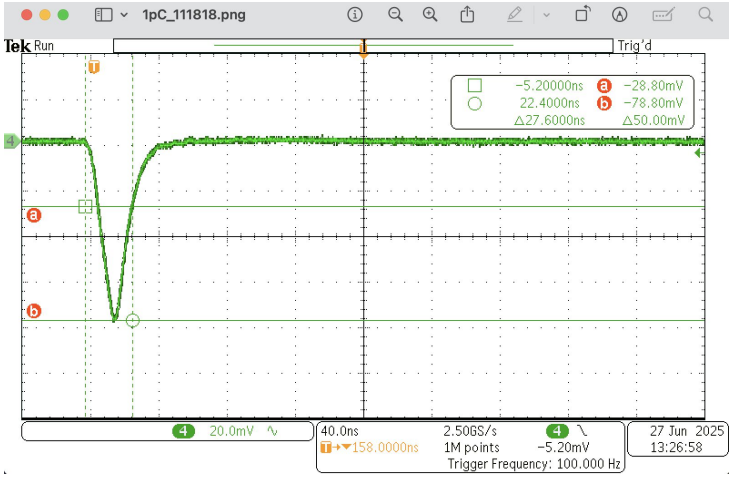
ASAGI

SHP:RC, PZC:RC, CSA:RC: 位相補償 ”R×C of PZC and CSA ==8”

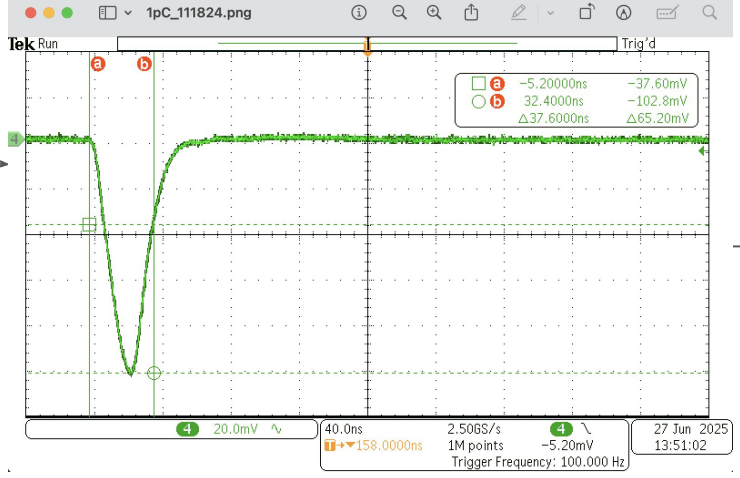
input charge 1 pC



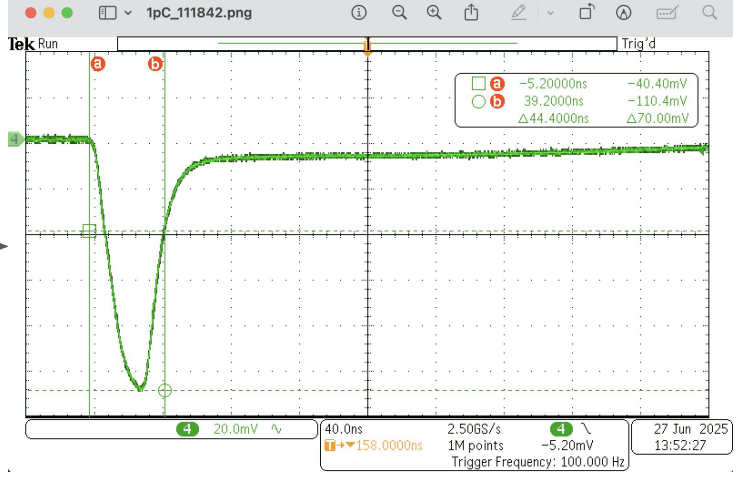
PZC
R→×1/2
C→× 2



CSA
R→×1/4
C→× 4



CSA
R→× 2
C→×1/2

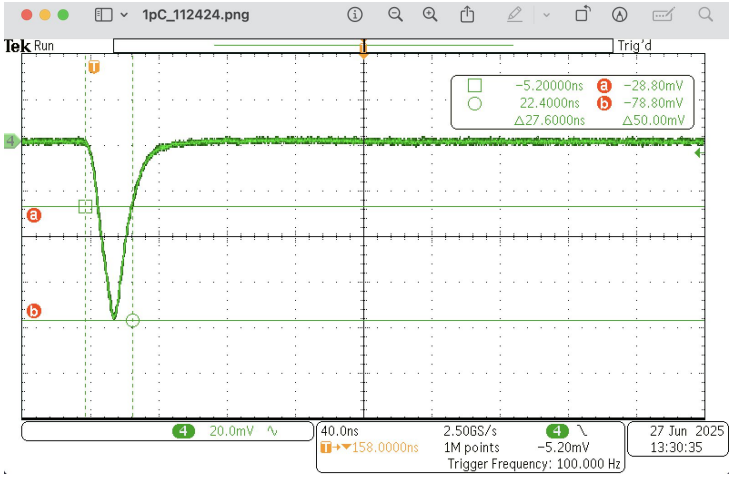


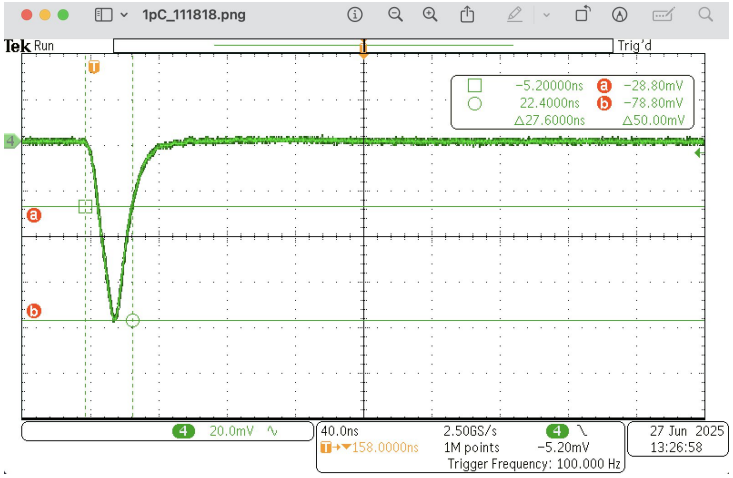
ASAGI

SHP:RC, PZC:RC, CSA:RC: 位相補償 ”R×C of PZC and CSA ==8”

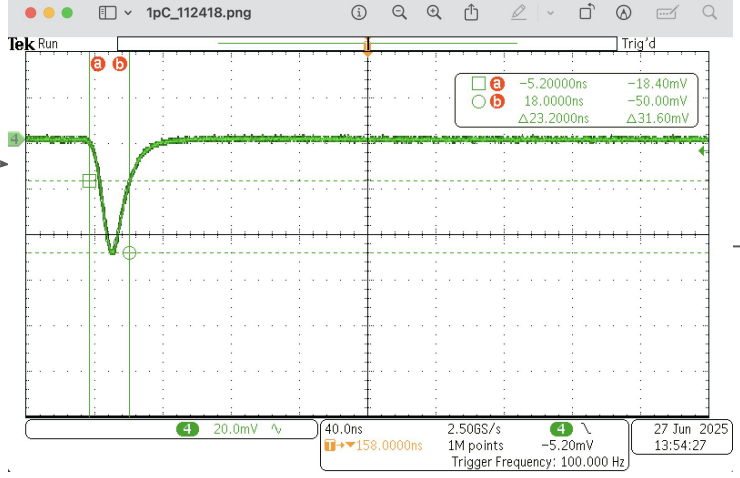
input charge 1 pC

CSA
R→×1/2
C→× 2

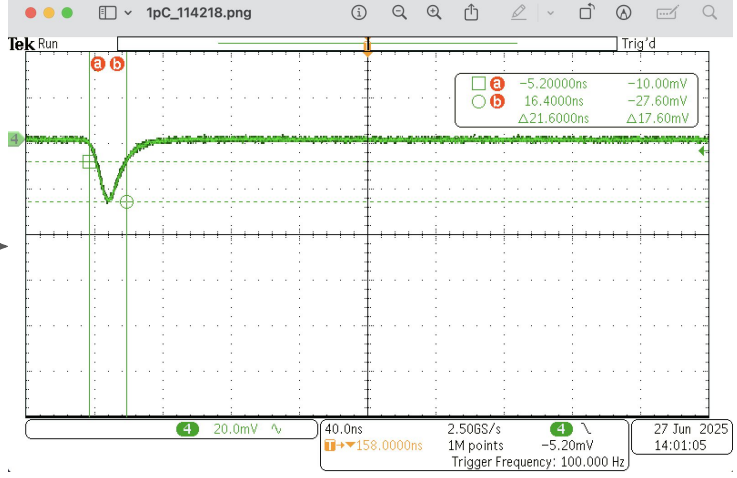




PZC
R→×1/4
C→× 4

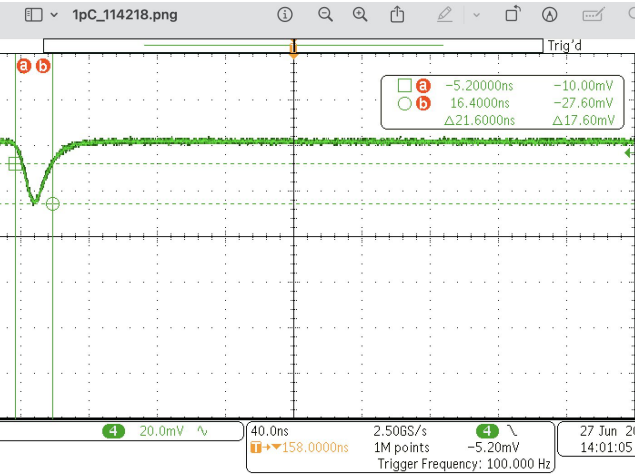


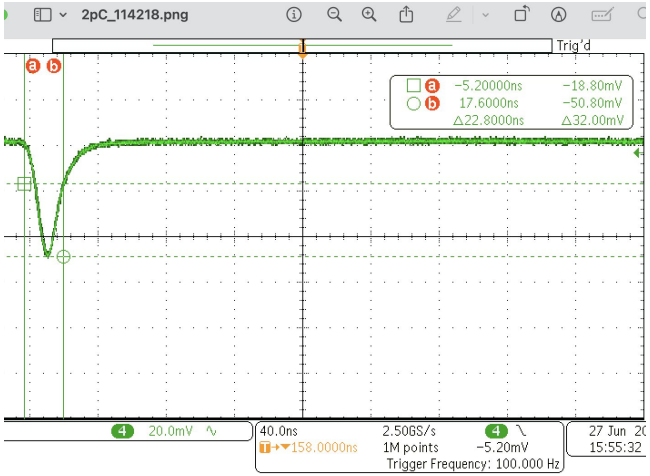
PZC
R→× 2
C→×1/2

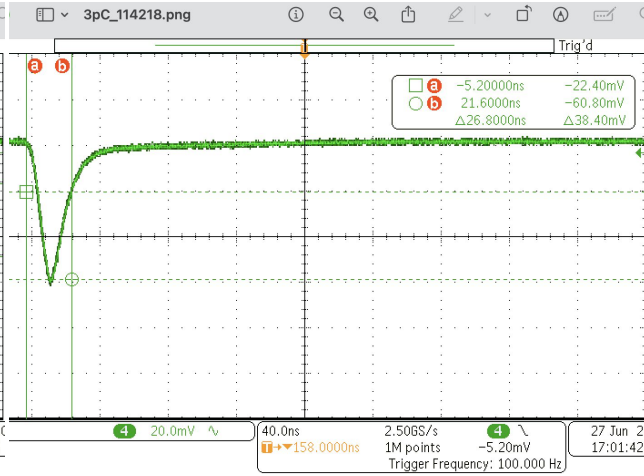


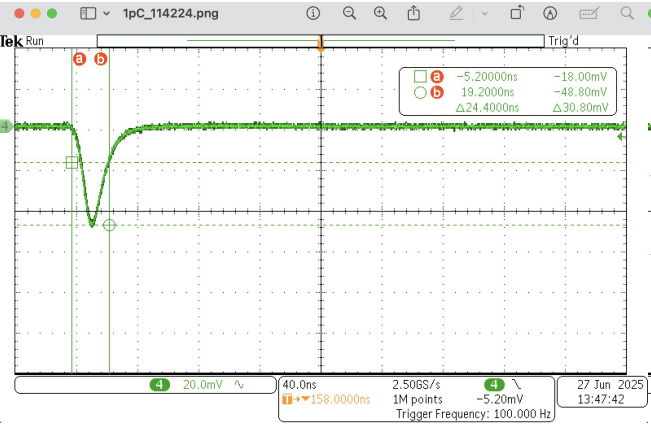
ASAGI

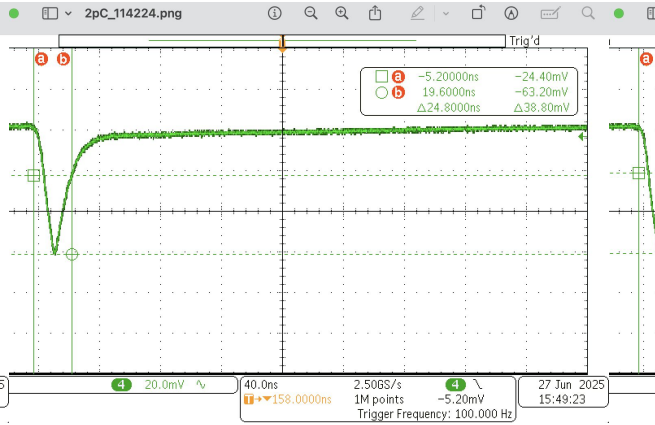
SHP:RC, PZC:RC, CSA:RC: ”114218”

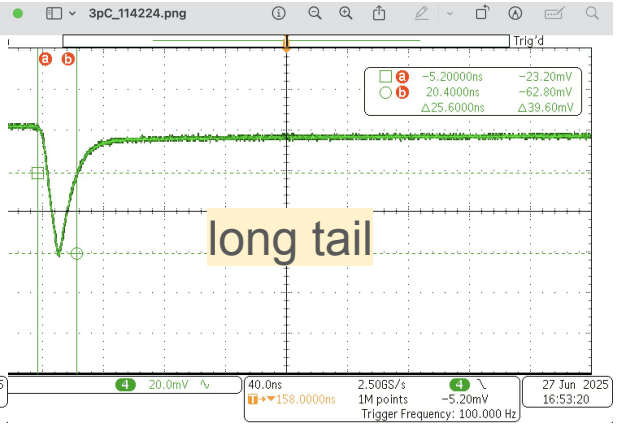








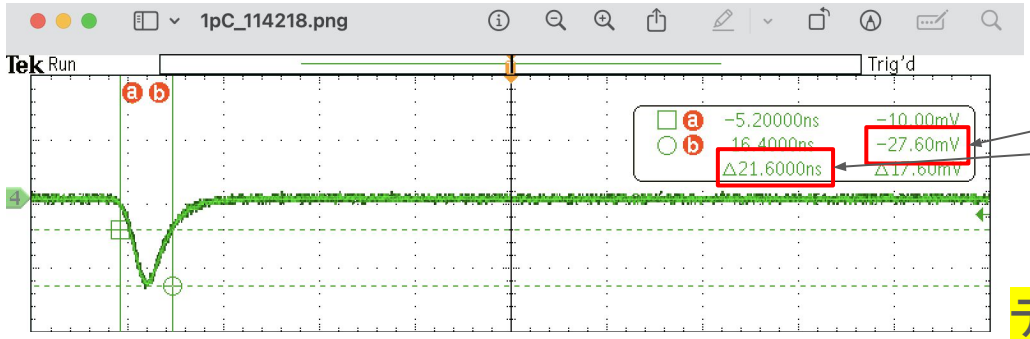




long tail

ASAGI

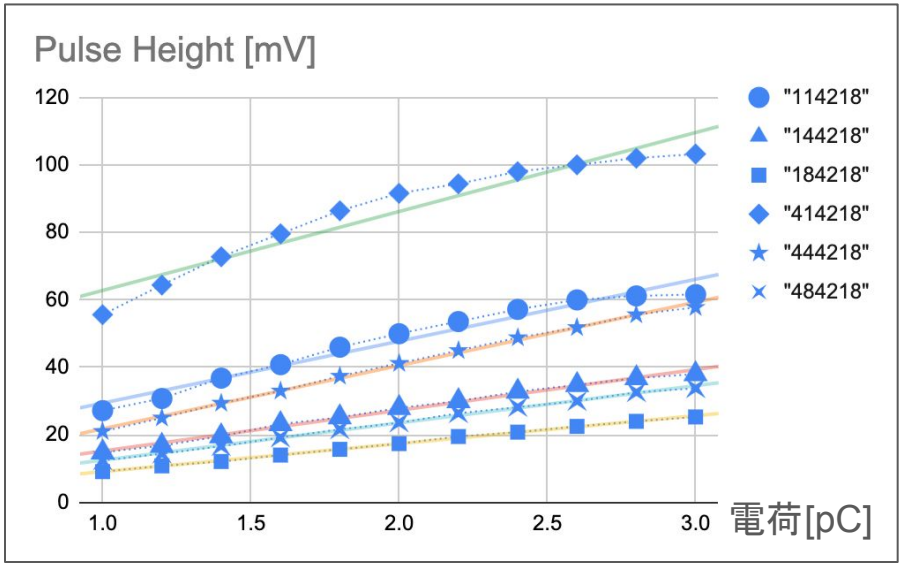
SHP:RC, PZC:RC, CSA:RC: ”XY4218”

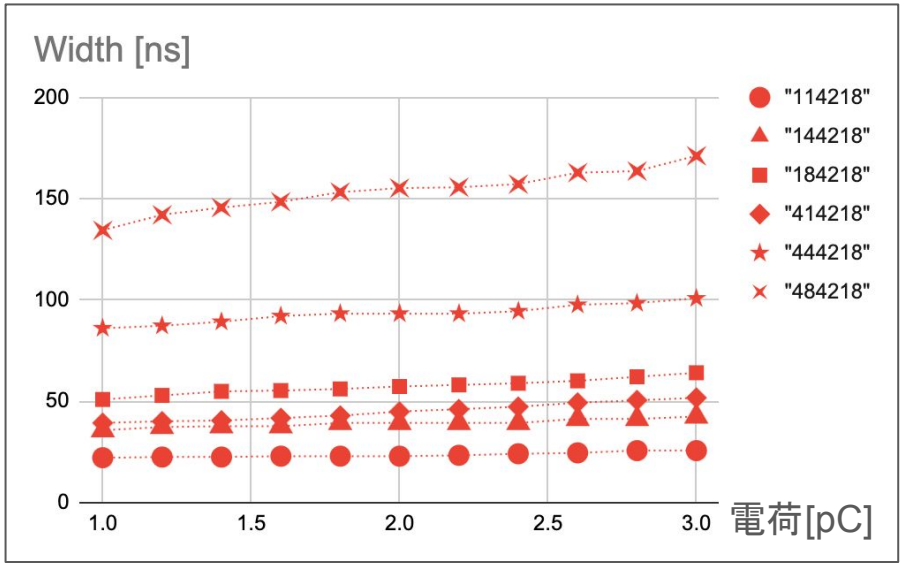


Definition:
Pulse Height
Width

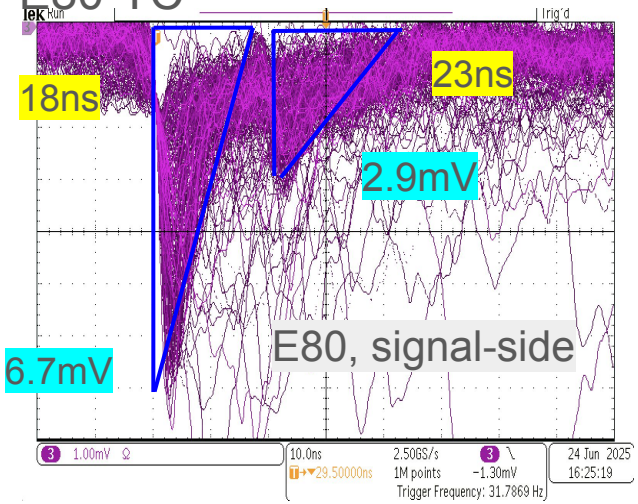
*** -27.6 mV /e ~ -10 mV

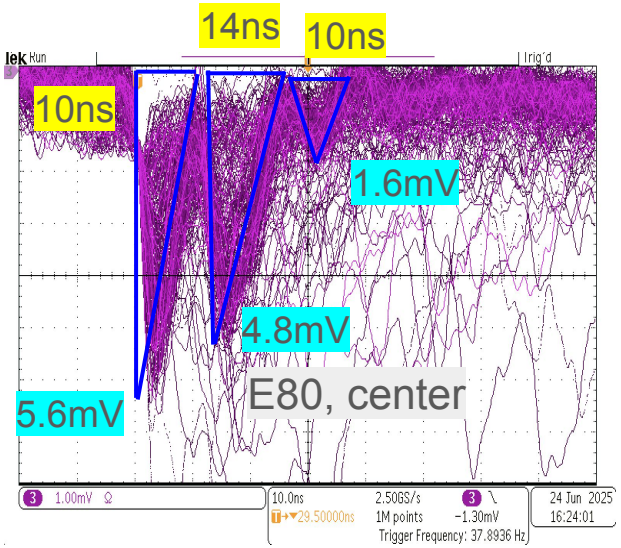
テストパルスの形を色々変えてみよ。

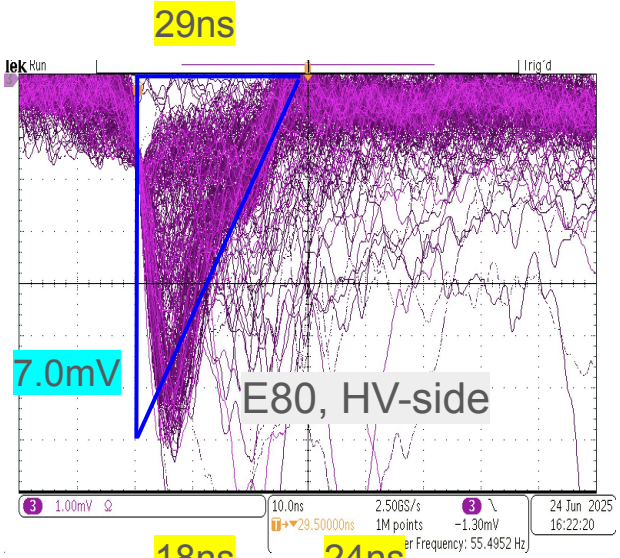




E80-TC







Charge of raw signals with Ar-C2H6(50:50), 2800V:
Position Dependence (test chamber, 55Fe)

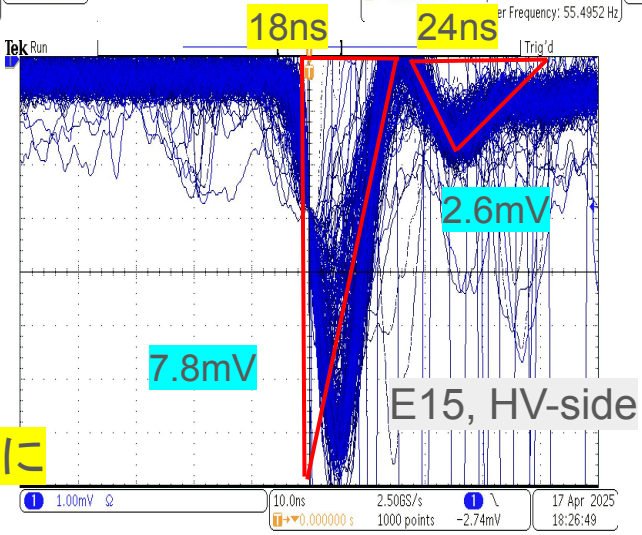
Q_sig_e80 = (6.7 mV ×18 ns / 2 + 2.9 mV × 23ns / 2) / 50Ω
= 1.9 pC

Q_center_e80 = (5.6 ×10 /2 + 4.8 × 14 / 2 + 1.6×10 / 2) / 50
= 1.4 pC

Q_hv_e80 = (7.0 × 29 / 2) / 50
= 2.0 pC

Q_hv_e15 = (7.8 × 18 / 2 + 2.6 × 24 / 2) / 50
= 2.0 pC

高さ方向の減衰率
幅が広くなる？定量的に



E80-CDC

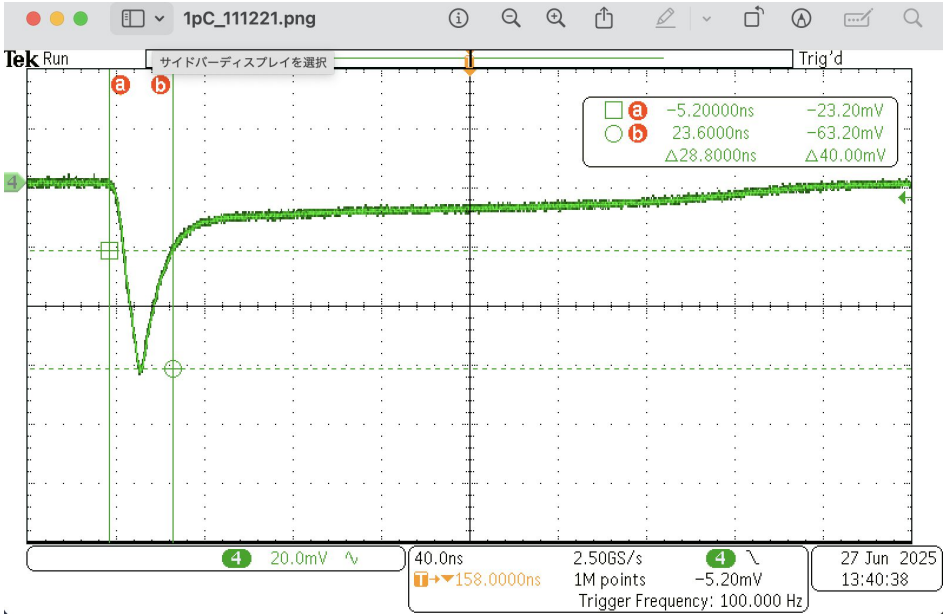
- Plan
  - July 1~3 (J-PARC on-site)
    - start to flow Ar-C2H6 (50:50) and prepare HV moduals ← Today
    - construct the HV monitoring system ← Tomorrow
  - After the power outage in J-PARC
    - HV conditioning(ある程度ガス変わってからの方がいいかな)
  - Obon Ake~?
    - Try to observe the raw signals and the pre-amp output signals.

ToDo

- HYP2025 abstract : E80-CDS, ~ June 30
  - ver.0 → ver.1 shared → ver.3 submitted
- JPS application : (検出器セッション), ~ July 3
  - ver.0 shared
  - title: …長すぎる...けど別に良い
  - CDC: Ar-C2H6 で見えてます。
  - CNC:最低限の性能はでてます。製作に入ってます。
  - Mag: 磁場測定までできてます。
  - summary: 来年のインストールに向けて着々と進んでます。
- Summary of the gas study
  - ver. 0 → shared in Discord

Back up

long tail



long tail and saturation