

# COFFEE2 signal test

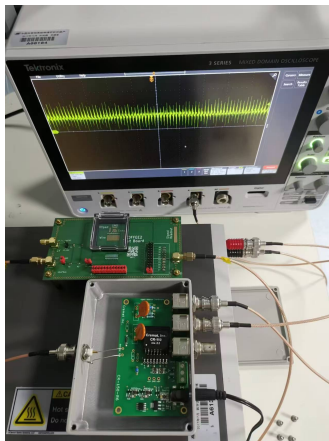
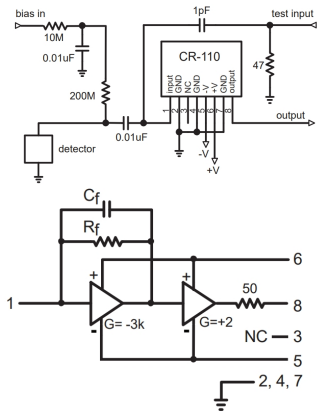
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# Schematic & CSA

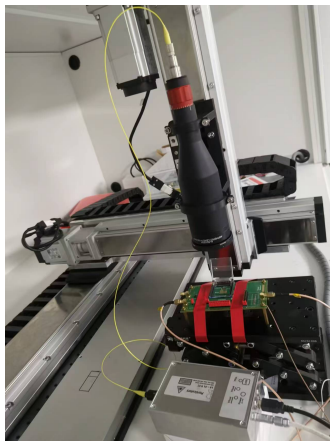
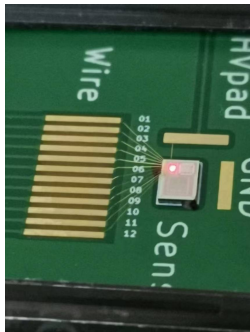
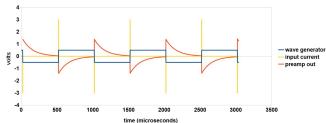
Sensor signal is delivered to the oscilloscope via AC coupling.  
A charge sensitive preamplifier ([link](#)) used in the COFFEE2 signal test.

- Gain:  $1\text{mV/fC}$ ; Decay time constant:  $140\mu\text{s}$ ; ENC RMS: 200 e



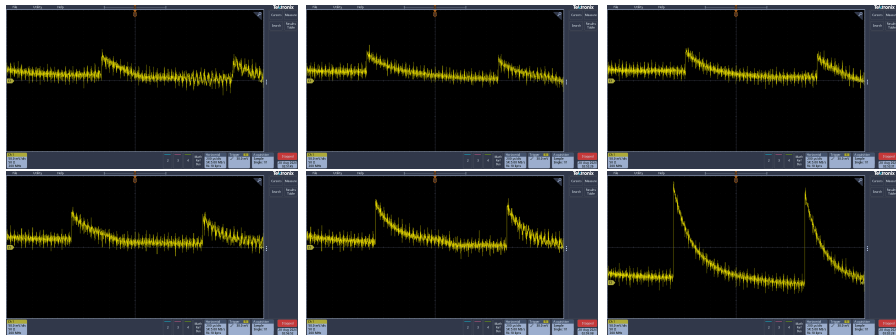
# Laser test

- Positive waveform expected for sensor of N type readout
- Clear laser spot seen and leakage increased significantly (0V, 500kHz)



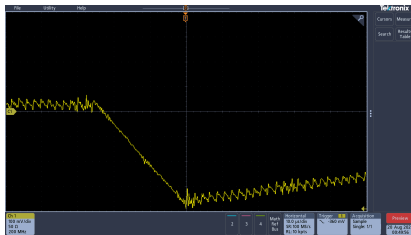
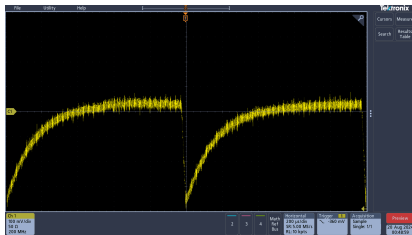
# Laser test result: single pulse

- 54 pixels read out
- CSA bandwidth  $\sim 10\text{kHz}$ . Test with  $1\text{KHz}$ .
- $1\text{kHz}$  laser pulse @ $20\text{V}$ ,  $30\text{V}$ ,  $40\text{V}$ ,  $50\text{V}$ ,  $60\text{V}$ ,  $70\text{V}$
- Under  $70\text{V}$ ,  $250\text{mV}\sim 250\text{fC}$ ,  $5\text{fC}/\text{pixel}$



# Laser test result: Multi-pulse accumulation

- High-frequency @500kHz signals are discharged after accumulation



# Radioactive signal: $\alpha$ source

- Clear  $\alpha$  signal appears
- low event rate  $\sim 1\text{Hz}$ , around 50fC/100fC level under 40V/70V

