

LAB - RC Circuits

OBJECTIVE – To calculate the capacitance of a capacitor by measuring the time-constant τ for charging and discharging a capacitor and compare with the expected measured value using a capacitance meter.

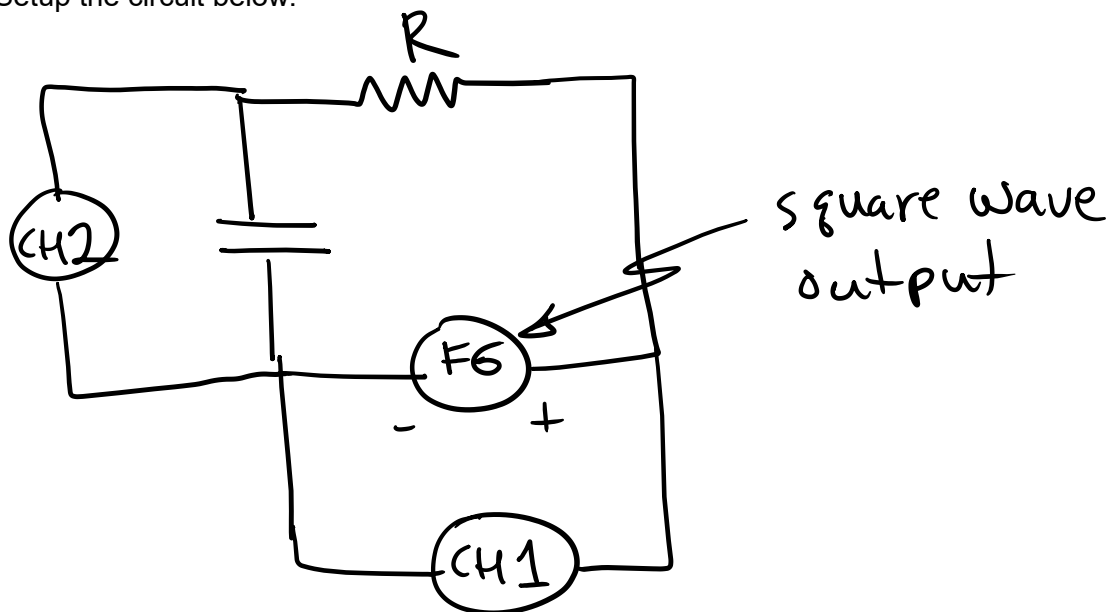
EQUIPMENT:

1. Circuit board
2. Wire jumpers
3. Leads
4. 1 resistor $\approx 1 \text{ k}\Omega$
5. 1 capacitor
6. Capacitance meter
7. DMM
8. 3 BNC cables
9. Oscilloscope
10. Function generator

THEORY – See lecture notes

PROCEDURE

1. Setup the circuit below:



2. Setup FG to $f = 1/(10 RC)$.
3. Measure $\tau_{charging}$ and calculate $C_{charging}$.
4. Measure $\tau_{dis-charging}$ and calculate $C_{dis-charging}$.
5. Measure the capacitance with the capacitance meter.
6. Compare each calculated capacitance with the measured capacitance.