Quiz

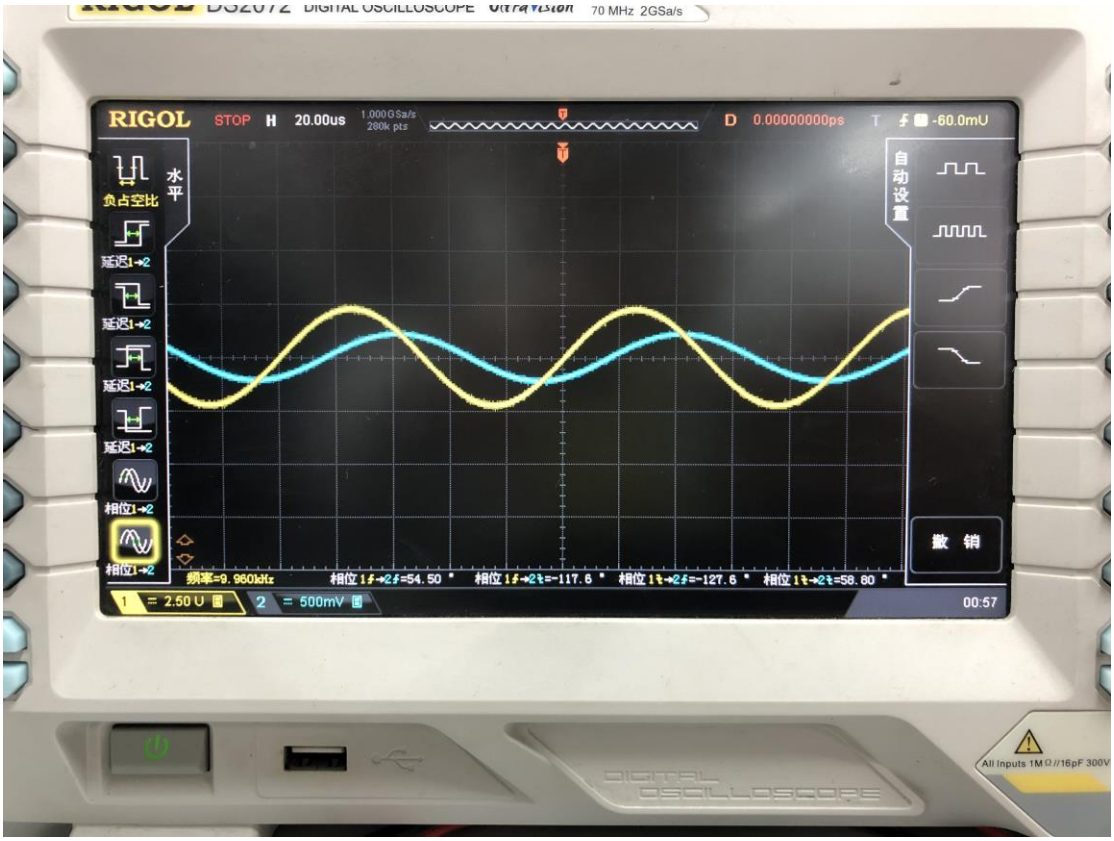
易弘睿 20186103

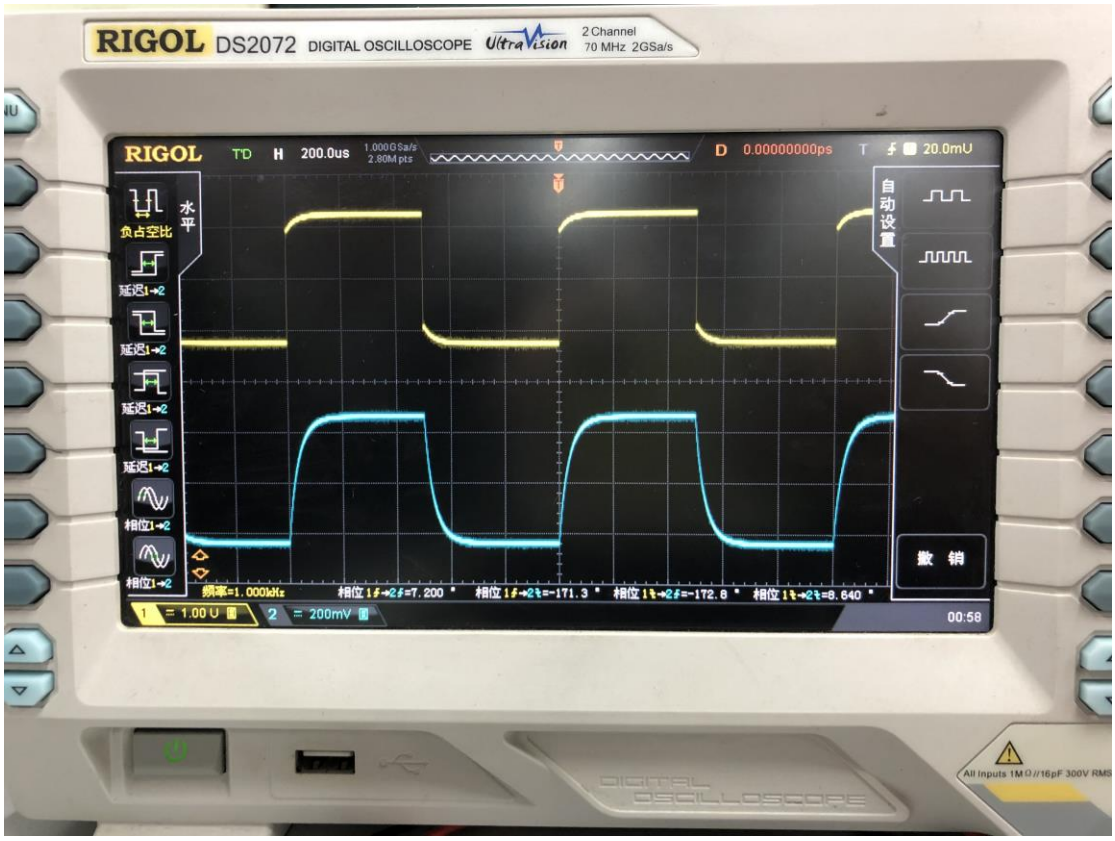
庄研 20186105

1. Firstly, we use the Multimeter to measure the box , and we get a readable data: 150.2 kΩ, which means the box is a RC parallel connection of capacitor and resistor, and the resistance of the resistor is 150.2kΩ.

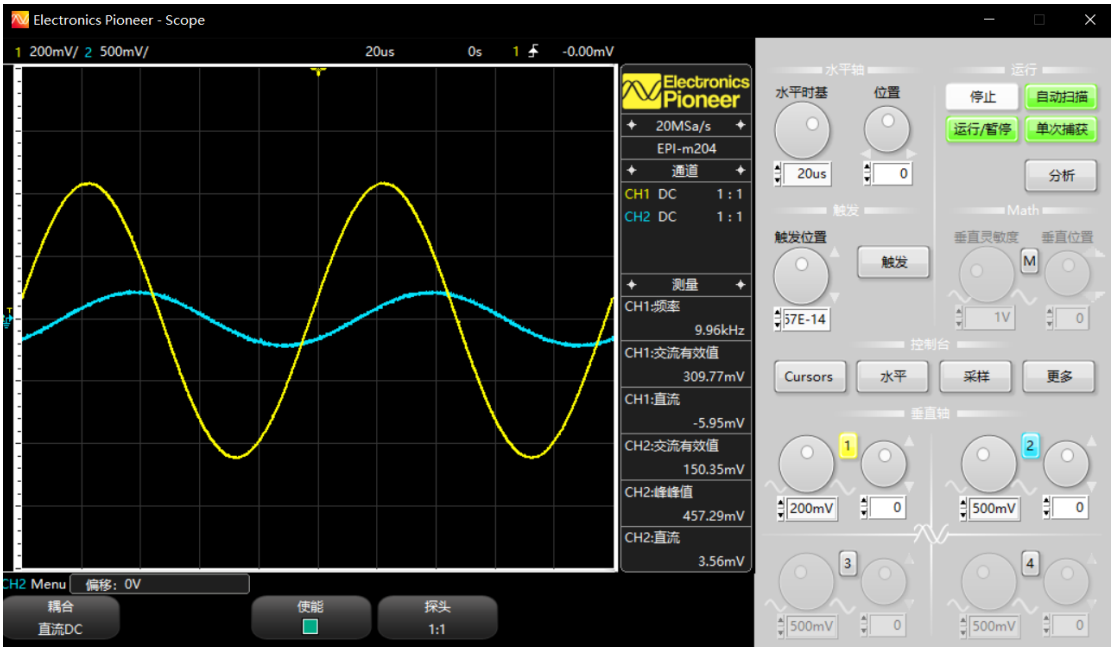
2. Secondly, we observe the waveform with an oscilloscope. We choose a resistor whose resistance is 270.2kΩ, and make a series of it with the box. Then we give a HSS whose frequency is 10.000k Hz and the amplitude is 1.0k mVPP. The phase of voltage and current have phase difference, which is 58.8° so it is the RC parallel circuit.


Electronics Pioneer - DMM
Electronics Pioneer
Device: EPI-m204
270.2
Ω
Multi
V
V
A
A
mA
mA
Ω
uA
uA


RIGOL
STOP
H 20.00us
1.000GSa/s
280k pts
D 0.00000000ps
T -60.0mU
水平
负占空比
延迟1→2
延迟1→2
延迟1→2
延迟1→2
相位1→2
相位1→2
自动设置
撤销
频率=9.960kHz
相位1f→2f=54.50°
相位1f→2τ=-117.6°
相位1τ→2f=-127.6°
相位1τ→2τ=58.80°
1 2.50 U
2 500mV
00:57
DIGITAL OSCILLOSCOPE



3. Thirdly, we use the equation to calculate the capacitance, and it is 0.1 uF.



4. Finally, we use Multisim to check if our result is correct. The phase difference is 1/6 cycle, so it is approximately, 60°. This demonstrate our calculation is right.