

```
clear; clc; clearvars;
syms s c r w ri ro Rin Rf positive
```

Definindo as equações:

```
s = 1i*w;
r = 1/(w*c)
```

$$r = \frac{1}{c w}$$

```
zinRC = simplify(subs(paraleloSym(r, 1/(s*c)) + r + 1/(s*c)))
```

$$\text{zinRC} = \frac{\frac{3}{2} - \frac{3}{2}i}{c w}$$

```
zoutRC = simplify(subs(paraleloSym(r + 1/(s*c), r, 1/(s*c))))
```

$$\text{zoutRC} = \frac{\frac{1}{3} - \frac{1}{3}i}{c w}$$

```
ZinAmp = ri
```

```
ZinAmp = ri
```

```
ZoutAmp = paraleloSym(Rf, ro)
```

$$\text{ZoutAmp} = \frac{1}{\frac{1}{Rf} + \frac{1}{ro}}$$

F = 65kHz

Antes de tudo definamos os parâmetros do ampop. Nesse caso o ampop utilizado foi o LF351.

```
riDatasheet65k = 10e12;
roDatasheet65k = 300;
Rin65k = 100e3;
Rf65k = Rin65k * 3;
```

Definindo a frequencia de projeto e o capacitor:

```
w65k = 2*pi*65e3;  
c65k = 820e-12
```

```
c65k = 8.2000e-10
```

Assim, obtemos o resistor:

```
r65k = subs(r, {c,w}, {c65k, w65k});  
r65k = double(r65k)
```

```
r65k = 2.9860e+03
```

Agora vamos calcular as impedancias dos blocos com esses valores. Começando pelo bloco B temos:

```
zoutRC65k = subs(zoutRC, {c,w}, {c65k,w65k});  
zoutRC65k = abs(double(zoutRC65k))
```

```
zoutRC65k = 1.4076e+03
```

```
zinRC65k = subs(zinRC, {c,w}, {c65k,w65k});  
zinRC65k = abs(double(zinRC65k))
```

```
zinRC65k = 6.3343e+03
```

Feito isso vamos ao bloco A:

```
ZinAmp65k = subs(ZinAmp, ri, riDatasheet65k);  
ZinAmp65k = double(ZinAmp65k)
```

```
ZinAmp65k = 1.0000e+13
```

```
ZoutAmp65k = subs(ZoutAmp, {ro, Rf}, {roDatasheet65k, Rf65k});  
ZoutAmp65k = double(ZoutAmp65k)
```

```
ZoutAmp65k = 299.7003
```