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```
clear;  
w = 2 * pi * 3e9;
```

Input side

Resistor

```
Rin = 190.24e-3;  
% Capacitor  
Cin = 20.4359e-12;  
YCin = 1i*w*Cin;  
ZCin = 1/YCin;  
% Transmission line  
Zc1 = 150;  
l1=90;  
YTLin = -1i*Zc1^-1*cotd(l1);
```

Output side

Capacitor

```
Cout = 117.4e-12;  
% Cout=10^6;  
YCout = 1i*w*Cout;  
% Transmission line  
Zc2=35.7967;  
l2=90;  
YTLout = -1i*Zc2^-1*cotd(l2);
```

Za,Zb Calculations

```
Za = Rin + ZCin;  
Zb = 1/YCout;
```

2PN Transformation

```
S11 = .908980*exp(1i*-169.9931*pi/180);  
S12 = .115639*exp(1i*64.090976*pi/180);  
S21 = .8433*exp(1i*67.536394*pi/180);  
S22 = .830629*exp(1i*126.625718*pi/180);
```

```

S2p = [S11 S12; S21 S22];
Y2p = s2y(S2p,50);
Y2p(2,2) = Y2p(2,2)+YTLout;
Y2p(1,1) = Y2p(1,1)+YTLin;
Z2int = y2z(Y2p);
Z2int(1,1) = Z2int(1,1)+Za;
Z2int(2,2) = Z2int(2,2) + Zb;
S = z2s(Z2int,50);
S

```

$S =$

Column 1

$-0.868361095567292 - 0.247096350442258i$
 $0.277064376829324 + 0.791276719522699i$

Column 2

$0.0444445178079627 + 0.106025806379224i$
 $-0.502874866701643 + 0.660357791157135i$

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