

December 12, 2022

NJG1175KG1

LNA for 5.9GHz with Bypass

S-parameter, noise parameter simulation data Ver. 1

- S-parameter measurement data (LNA Active Mode)
- S-parameter measurement data (Bypass Mode)
- Max gain, NFmin simulation data
- Gain circle simulation data (Source/Load impedance)
- NF circle simulation data
- Simulation circuit
- s2p file (S-parameter, noise parameter)

Spf file : NJG1175_LNA.s2p
NJG1175_Byp.s2p

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Approved by Susumu Takagi

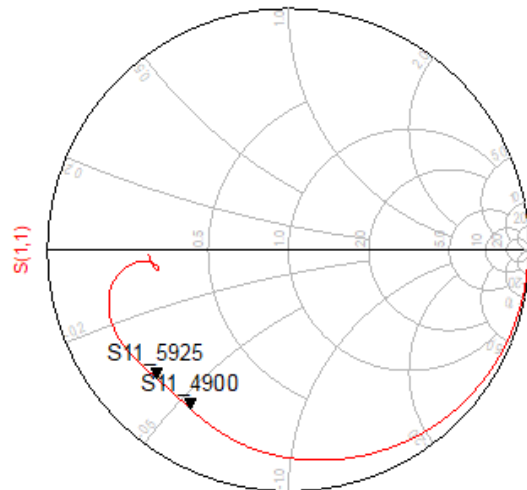
Nisshinbo Micro Devices Inc.

Electronic Devices Business Headquarters
Technology Development Division
RF Product Development Department
RFIC Design Section



■ S-parameter measurement data (LNA Active Mode)

Condition: f=50MHz~10GHz, V_{DD}=3.3V, V_{CTL}=3.3V, Ta=+25°C, Z_s=Z_L=50ohm

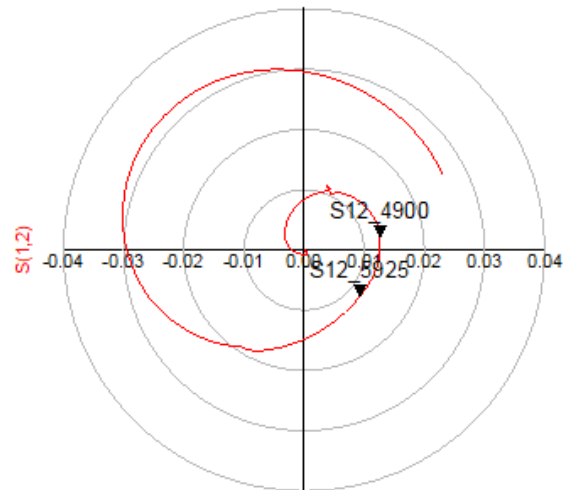


freq (50.00MHz to 10.00GHz)

S11_4900
freq=4.900GHz
S(1,1)=0.773 / -121.775
impedance = 8.332 - j27.251

S11_5925
freq=5.925GHz
S(1,1)=0.763 / -135.863
impedance = 7.809 - j19.845

S11



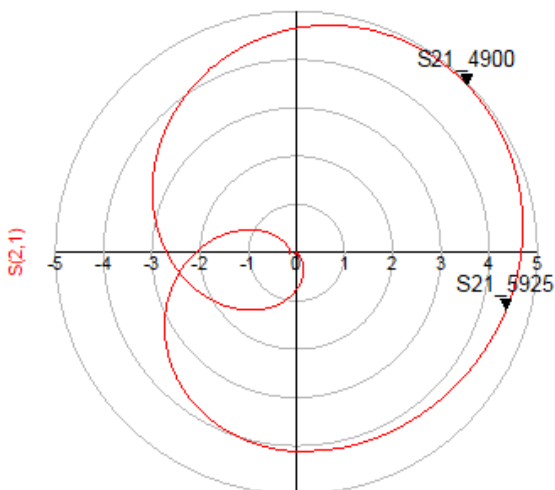
freq (50.00MHz to 10.00GHz)

S12_4900
freq=4.900GHz
S(1,2)=0.013 / 10.148

S12_5925
freq=5.925GHz
S(1,2)=0.012 / -39.096

S12

(Unit:0.04)



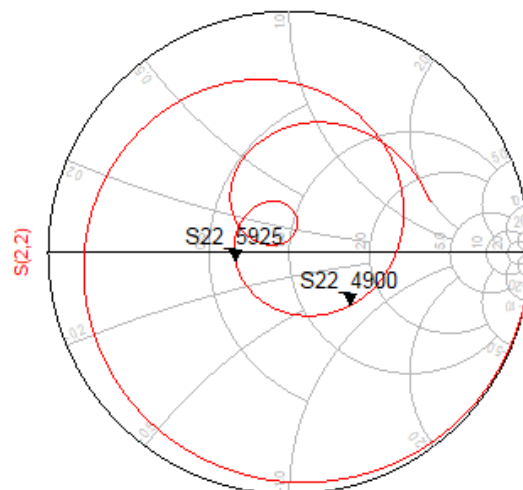
freq (50.00MHz to 10.00GHz)

S21_4900
freq=4.900GHz
S(2,1)=4.959 / 44.563

S21_5925
freq=5.925GHz
S(2,1)=4.504 / -15.087

S21

(Unit:5)



freq (50.00MHz to 10.00GHz)

S22_4900
freq=4.900GHz
S(2,2)=0.333 / -40.660
impedance = 73.420 - j35.892

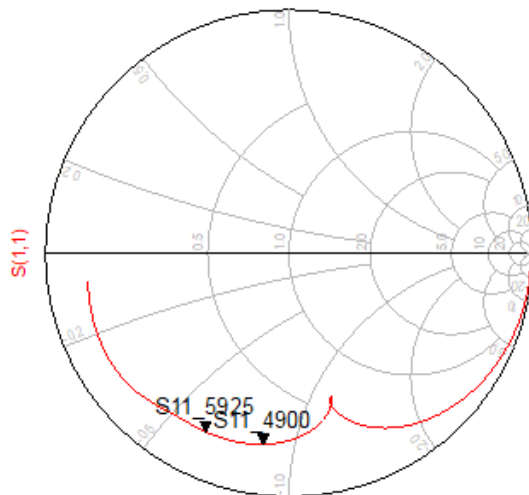
S22_5925
freq=5.925GHz
S(2,2)=0.226 / -171.635
impedance = 31.679 - j2.193

S22



■ S-parameter measurement data (Bypass Mode)

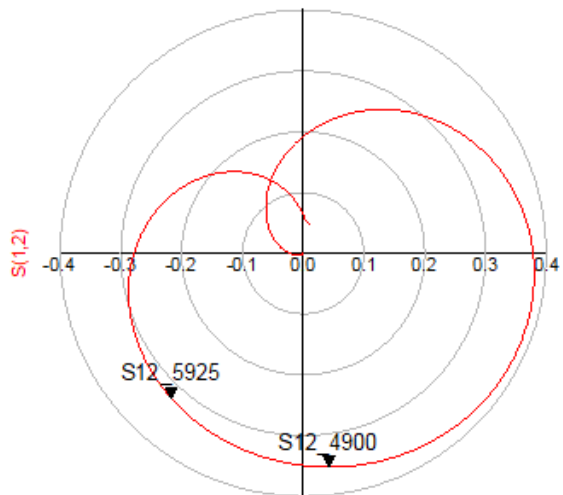
Condition: f=50MHz~10GHz, V_{DD}=3.3V, V_{CTL}=0V, T_a=+25°C, Z_s=Z_l=50ohm



freq (50.00MHz to 10.00GHz)

S11_4900 freq=4.900GHz S(1,1)=0.791 / -97.733 impedance = 10.157 - j42.637	S11_5925 freq=5.925GHz S(1,1)=0.809 / -115.132 impedance = 7.397 - j31.275
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S11

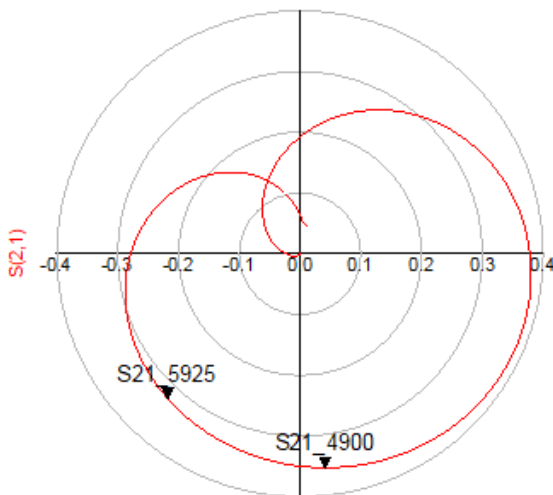


freq (50.00MHz to 10.00GHz)

S12_4900 freq=4.900GHz S(1,2)=0.354 / -83.218	S12_5925 freq=5.925GHz S(1,2)=0.322 / -132.399
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S12

(Unit:0.4)

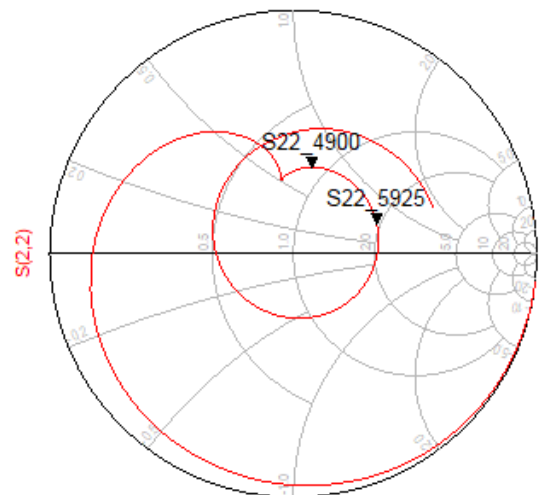


freq (50.00MHz to 10.00GHz)

S21_4900 freq=4.900GHz S(2,1)=0.354 / -83.291	S21_5925 freq=5.925GHz S(2,1)=0.322 / -132.491
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S21

(Unit:0.4)



freq (50.00MHz to 10.00GHz)

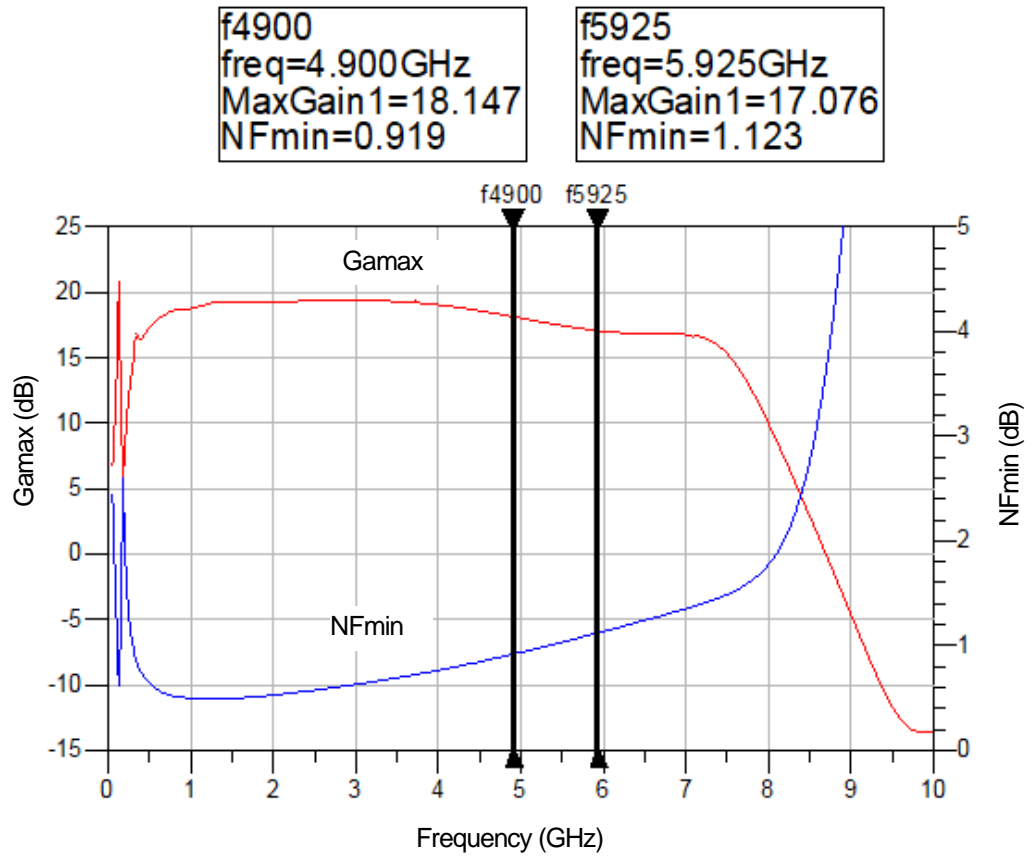
S22_4900 freq=4.900GHz S(2,2)=0.363 / 77.607 impedance = 44.465 + j36.355	S22_5925 freq=5.925GHz S(2,2)=0.364 / 20.021 impedance = 96.776 + j27.843
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S22



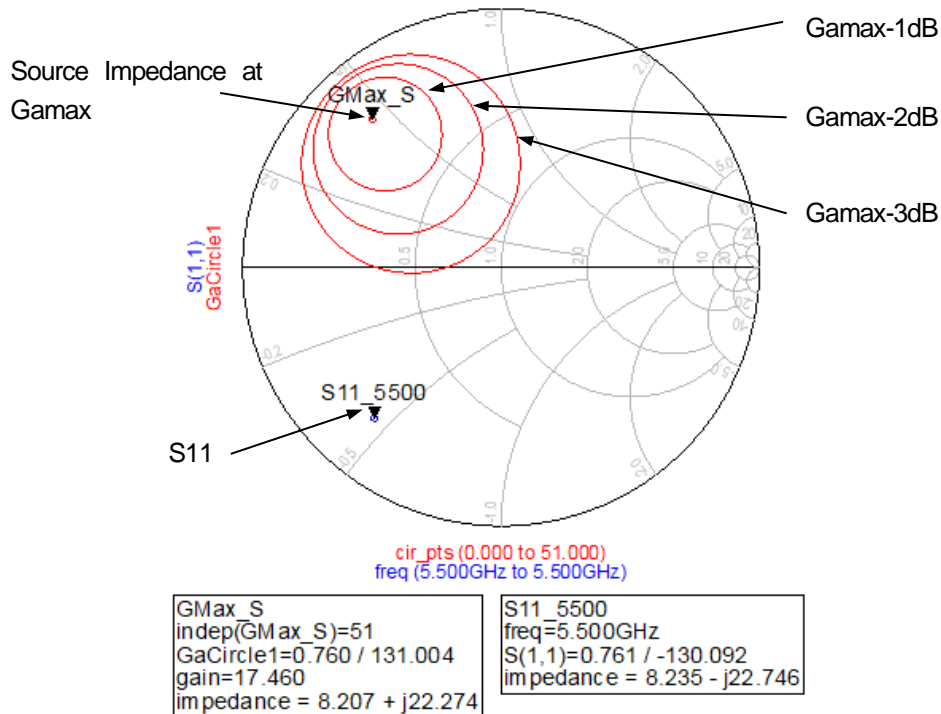
■ Max gain, NFmin simulation data

Condition: $f=50\text{MHz}\sim 10\text{GHz}$, $V_{DD}=3.3\text{V}$, $V_{CTL}=3.3\text{V}$, $T_a=+25^\circ\text{C}$, $Z_s=Z_l=50\text{ohm}$



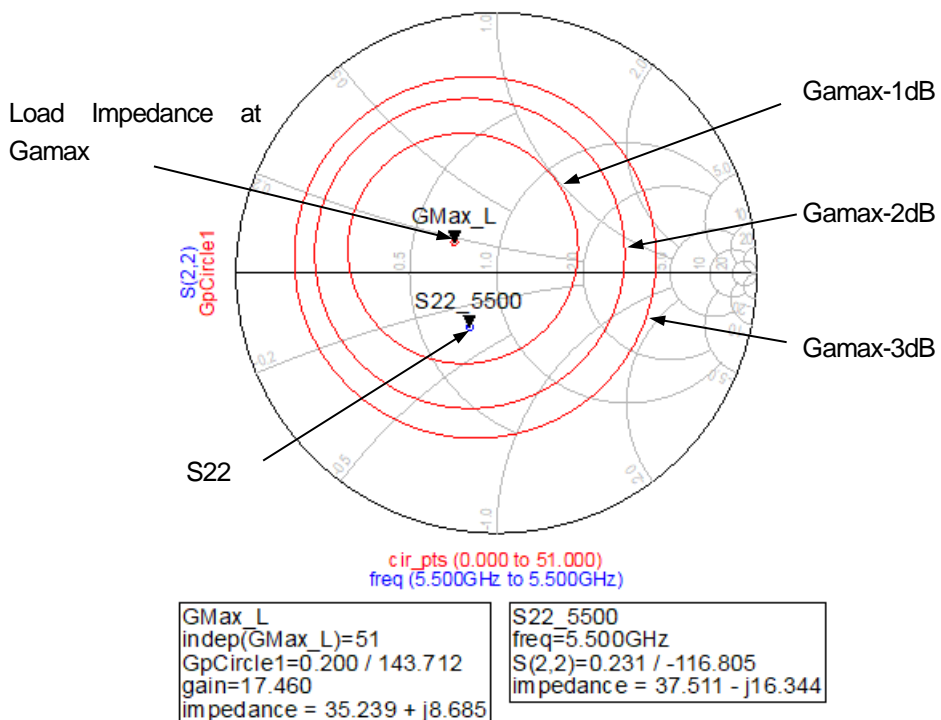
■ **Gain circle simulation data (Source impedance)**

Condition: $f=5500\text{MHz}$, $V_{DD}=3.3\text{V}$, $V_{CTL}=3.3\text{V}$, $T_a=+25^\circ\text{C}$, $Z_s=Z_l=50\text{ohm}$



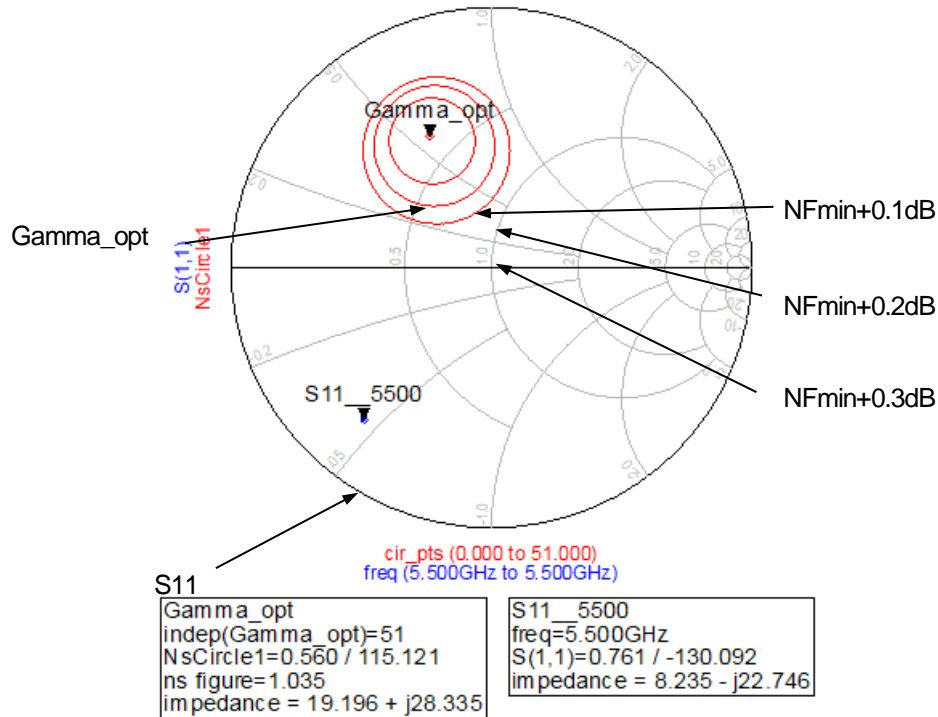
■ **Gain circle measurement data (Load impedance)**

Condition: $f=5500\text{MHz}$, $V_{DD}=3.3\text{V}$, $V_{CTL}=3.3\text{V}$, $T_a=+25^\circ\text{C}$, $Z_s=Z_l=50\text{ohm}$



■ NF circle simulation data

Condition: $f=5500\text{MHz}$, $V_{DD}=3.3\text{V}$, $V_{CTL}=3.3\text{V}$, $T_a=+25^\circ\text{C}$, $Z_s=Z_l=50\text{ohm}$



■ Simulation circuit

