

TOSHIBA Discrete Devices RF Power MOS FET **2SK3079A** Application Note

Contents

- Bias Current / DC Characteristics
Vds = 3.6V, 4.8V, 6.0V
Vgs = 0.5V ~ 1.8V (0.05V Step)
- Input – Output Characteristics / RF Characteristics
Vds = 3.6V, 4.8V, 6.0V
Ibias = 50mA, 150mA, 250mA, 350mA, 450mA, 550mA, 650mA
f = 470MHz
Pi = 0 ~ 25dBm (1dB step)
ZL = 2.10 + j0.28Ω, 1.33 + j0.19Ω

- A lot of characteristic curves are published in this sheets.
- These are only typical curves and devices are not necessarily guaranteed at these curves.

Date 2019/08/08
Rev 2.0

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Condition 1 (ZL = 2.10 + j0.28Ω)

⇒ "Condition 1" is the load impedance setup which gave priority to "Drain Efficiency".

Condition 2 (ZL = 1.33 + j0.19Ω)

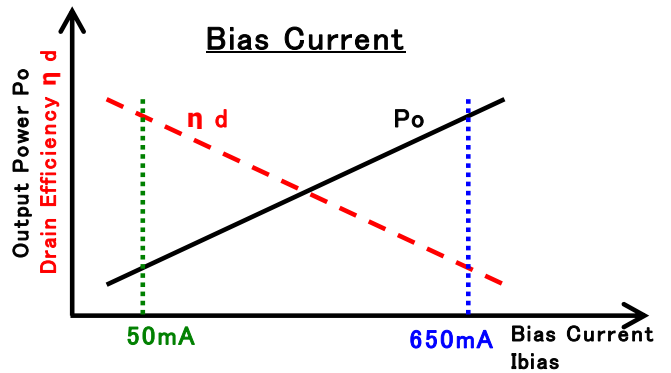
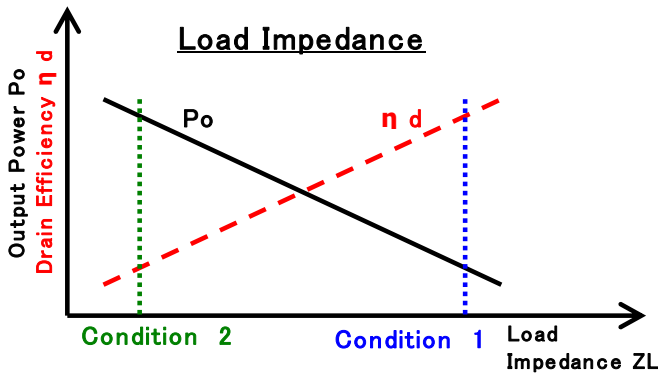
⇒ "Condition 2" is the load impedance setup which gave priority to "Output Power".

Symbol

Characteristics	Symbol
Bias Current	Ibias
frequency	f
Input Power	Pi
Output Power	Po
Drain Efficiency	η d
Power Gain	Gp
Gate-Source Voltage	Vgs
Drain-Source Voltage	Vds
Drain-Source Current	Ids

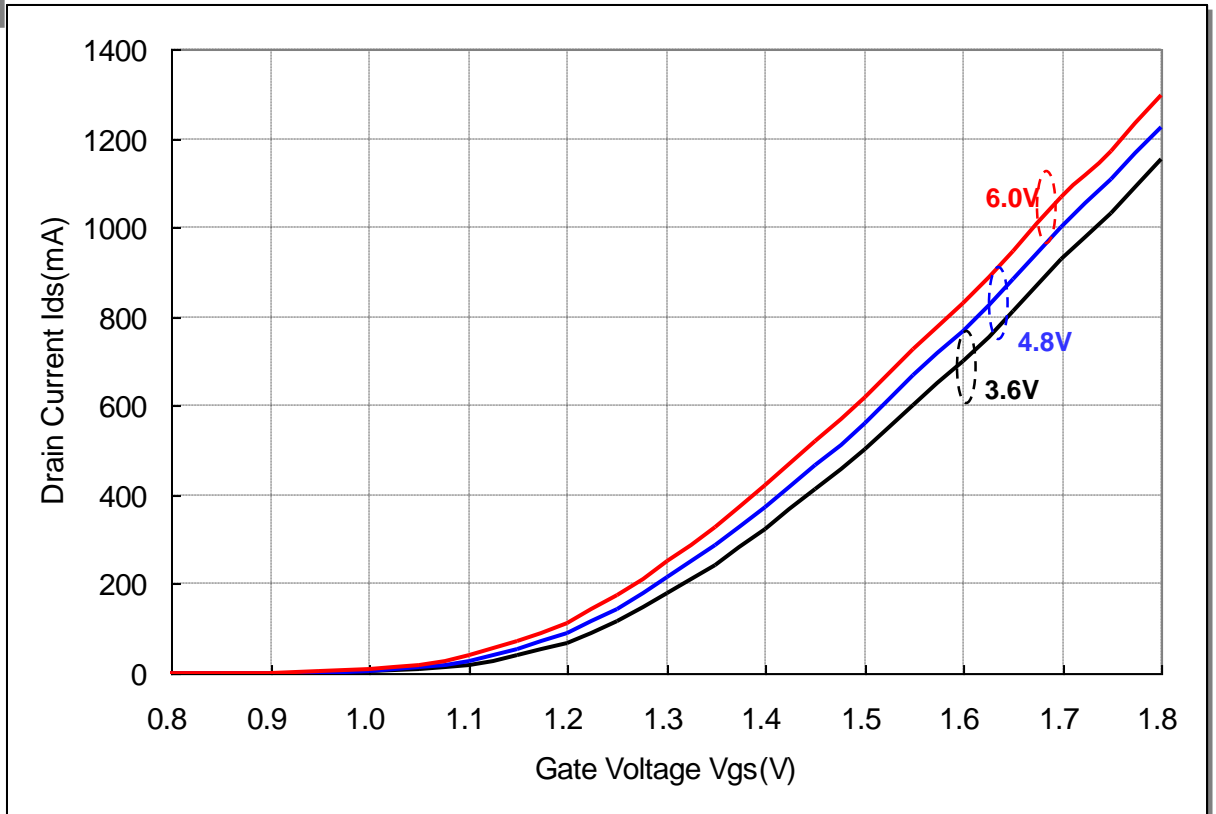
Selection Guide

Load Impedance	Drain-Source Voltage	Bias Current	Contents (Input-Output Characteristics)	Page No	
Priority Performance Drain Efficiency <div style="border: 2px solid blue; border-radius: 15px; padding: 10px; width: fit-content; margin: 10px auto;"> Condition 1 $2.10 + j0.28\Omega$ </div> <i>(Please refer to P5 for details.)</i>	3.6V	50mA~ 650mA Step 100mA	Graph →	6	
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	6.0V	50mA~ 650mA Step 100mA	Graph →	22	
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	Priority Performance Output Power <div style="border: 2px solid green; border-radius: 15px; padding: 10px; width: fit-content; margin: 10px auto;"> Condition 2 $1.33 + j0.19\Omega$ </div> <i>(Please refer to P30 for details.)</i>	3.6V	50mA~ 650mA Step 100mA	Graph →	31
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Bias Current Characteristics

Graph



Data

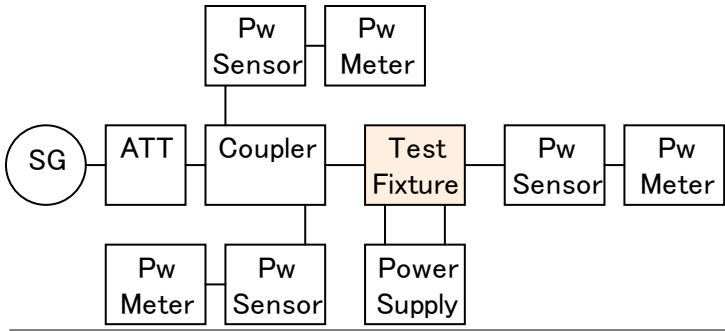
Vgs (V)	Vds (V)	Ids (mA)
0.50	3.6	0.0
0.55	3.6	0.0
0.60	3.6	0.0
0.65	3.6	0.0
0.70	3.6	0.0
0.75	3.6	0.0
0.80	3.6	0.0
0.85	3.6	0.1
0.90	3.6	0.4
0.95	3.6	1.3
1.00	3.6	3.4
1.05	3.6	8.0
1.10	3.6	19.0
1.15	3.6	39.8
1.20	3.6	68.3
1.25	3.6	115.1
1.30	3.6	178.7
1.35	3.6	241.8
1.40	3.6	324.1
1.45	3.6	413.5
1.50	3.6	501.1
1.55	3.6	600.9
1.60	3.6	702.1
1.65	3.6	812.7
1.70	3.6	927.0
1.75	3.6	1030.5
1.80	3.6	1152.0

Vgs (V)	Vds (V)	Ids (mA)
0.50	4.8	0.0
0.55	4.8	0.0
0.60	4.8	0.0
0.65	4.8	0.0
0.70	4.8	0.0
0.75	4.8	0.0
0.80	4.8	0.1
0.85	4.8	0.2
0.90	4.8	0.7
0.95	4.8	1.9
1.00	4.8	5.2
1.05	4.8	12.0
1.10	4.8	27.3
1.15	4.8	53.7
1.20	4.8	90.0
1.25	4.8	145.4
1.30	4.8	213.9
1.35	4.8	286.6
1.40	4.8	374.1
1.45	4.8	467.7
1.50	4.8	562.7
1.55	4.8	667.4
1.60	4.8	769.2
1.65	4.8	882.7
1.70	4.8	1002.3
1.75	4.8	1110.4
1.80	4.8	1225.5

Vgs (V)	Vds (V)	Ids (mA)
0.50	6.0	0.0
0.55	6.0	0.0
0.60	6.0	0.0
0.65	6.0	0.0
0.70	6.0	0.0
0.75	6.0	0.1
0.80	6.0	0.1
0.85	6.0	0.4
0.90	6.0	1.1
0.95	6.0	3.0
1.00	6.0	8.0
1.05	6.0	17.6
1.10	6.0	38.4
1.15	6.0	71.0
1.20	6.0	113.4
1.25	6.0	174.5
1.30	6.0	251.7
1.35	6.0	328.5
1.40	6.0	422.2
1.45	6.0	522.6
1.50	6.0	620.2
1.55	6.0	728.8
1.60	6.0	829.0
1.65	6.0	948.6
1.70	6.0	1066.4
1.75	6.0	1172.9
1.80	6.0	1295.7

Test System – Condition 1

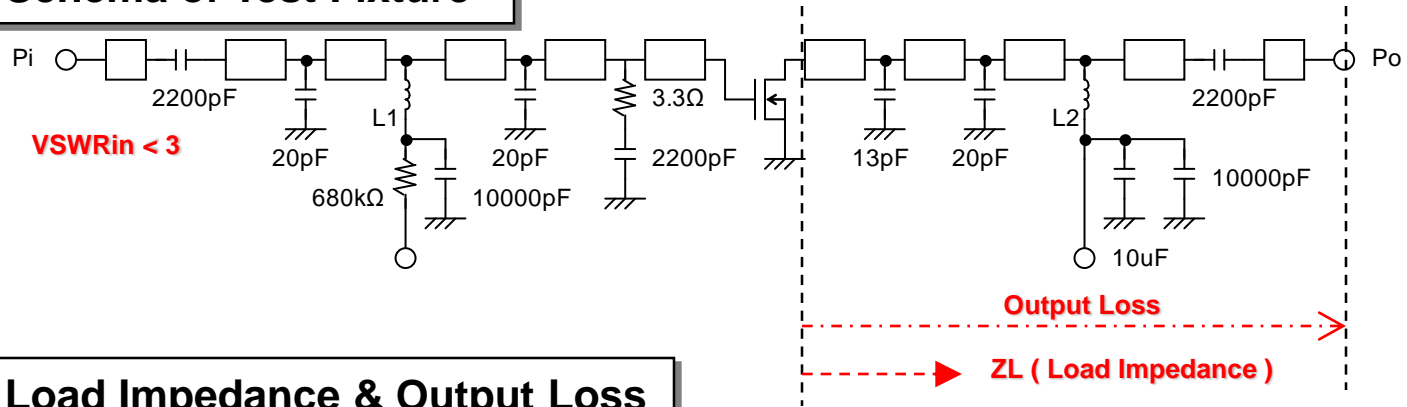
RF Test Block



Test Fixture

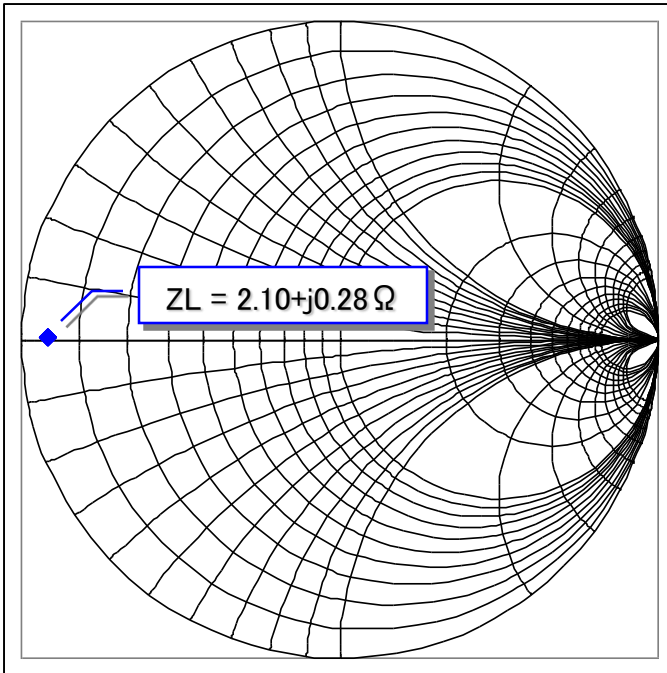


Schema of Test Fixture

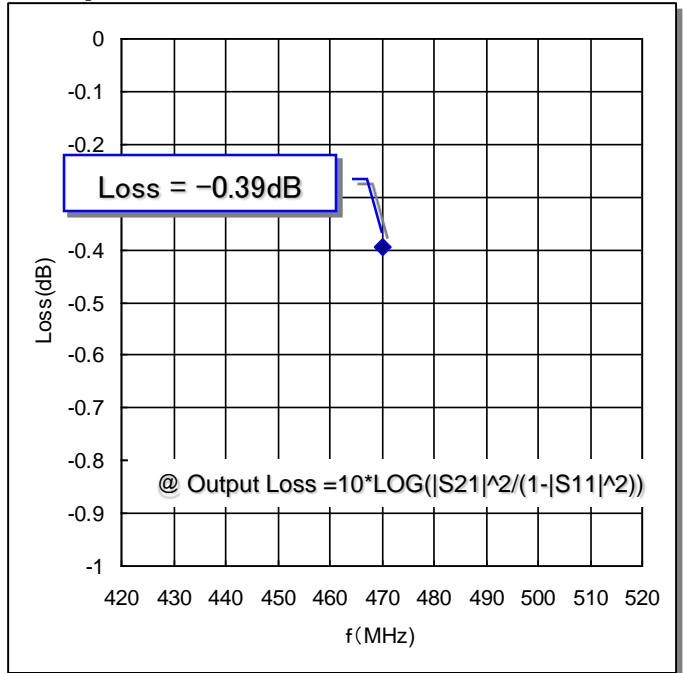


Load Impedance & Output Loss

Smith Chart



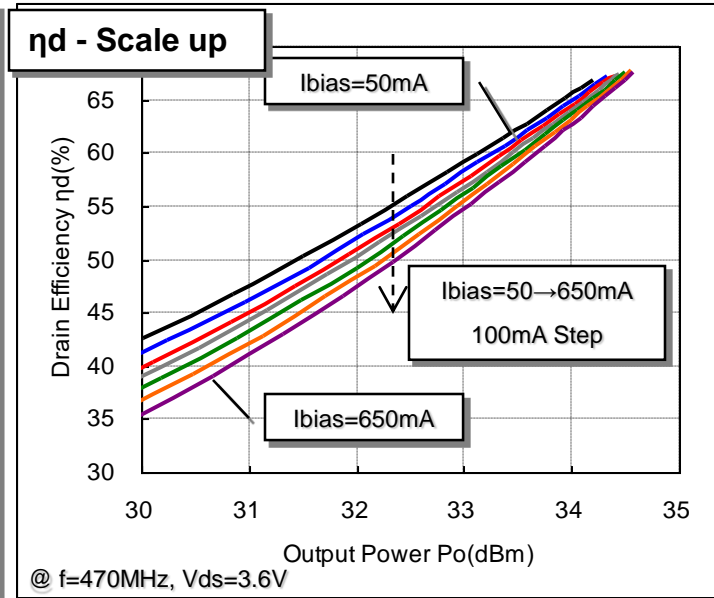
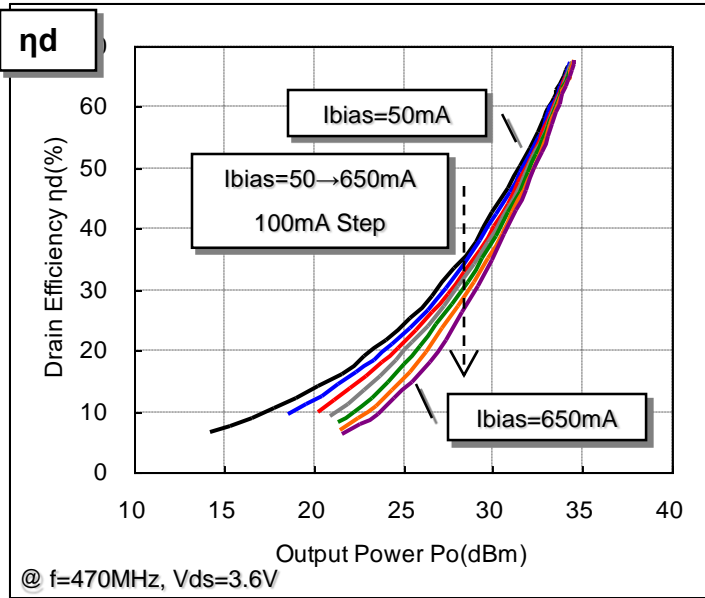
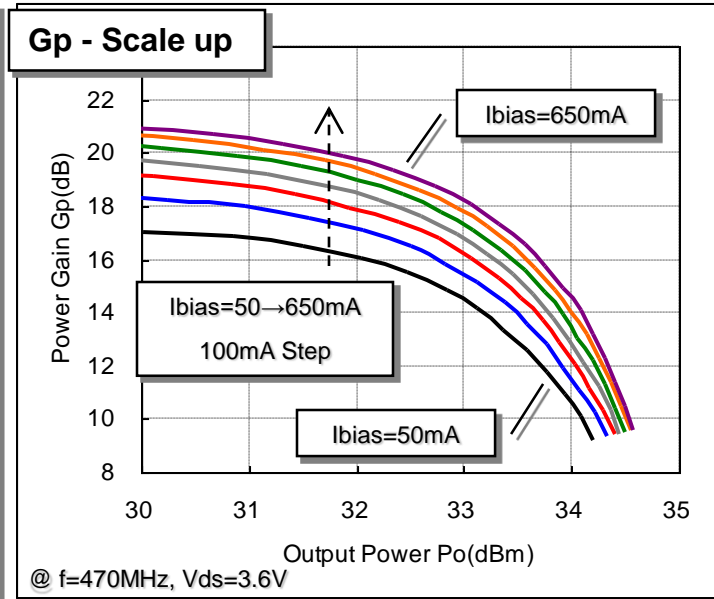
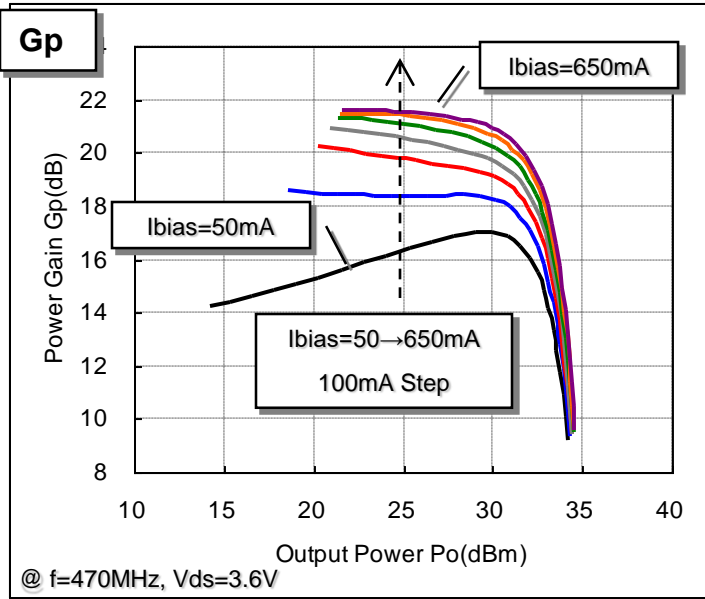
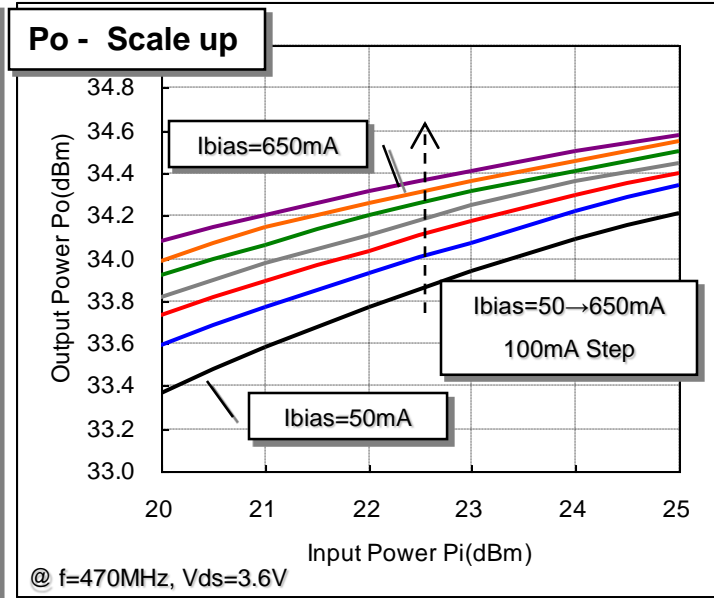
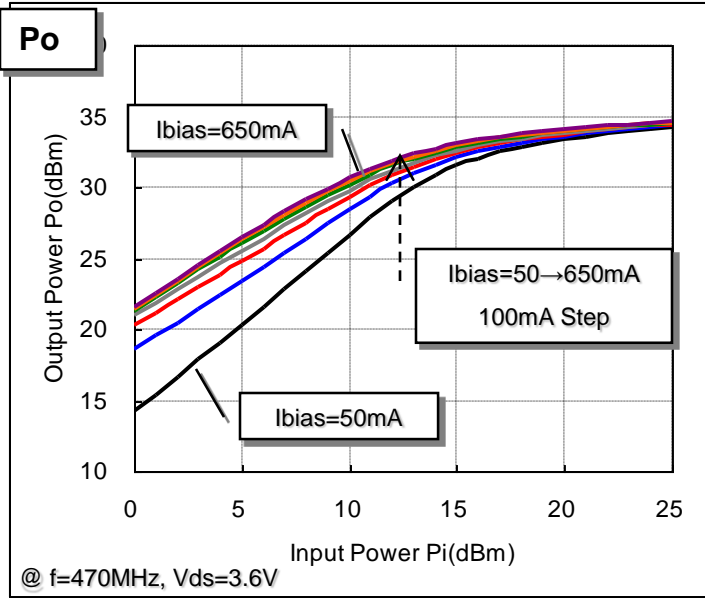
Output Loss



$Z_L = 2.10 + j 0.28 \Omega$, Output Circuit Loss = -0.39dB (@ f=470MHz)

※ The test value in this application note includes the output loss.

Input - Output Characteristics $V_{ds}=3.6V$ - Condition 1

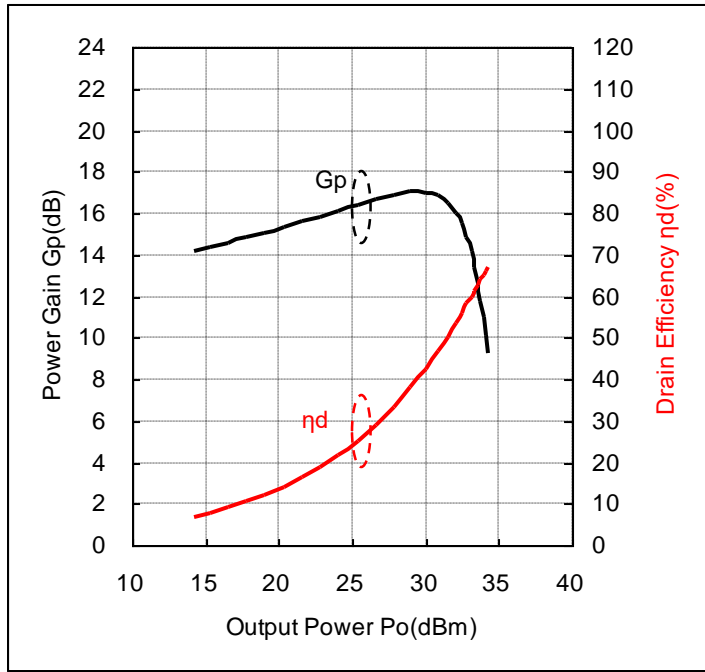
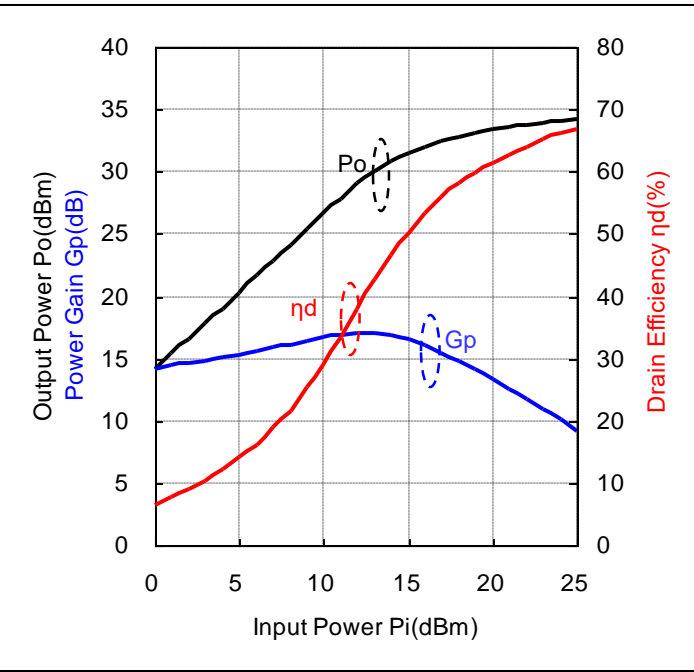


Input-Output Characteristics $V_{ds}=3.6V, I_{bias}=50mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz, V_{ds}=3.6V, I_{bias}=49.2mA$

@ $f=470MHz, V_{ds}=3.6V, I_{bias}=49.2mA$

Data

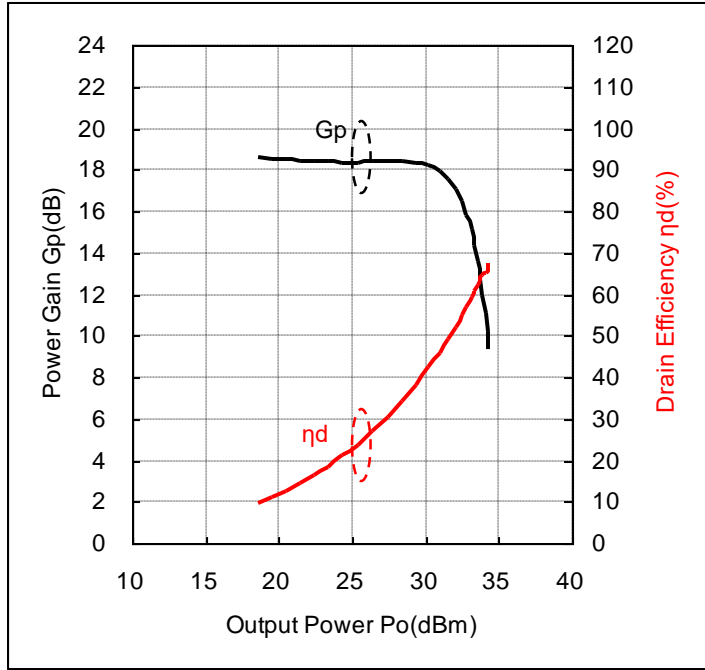
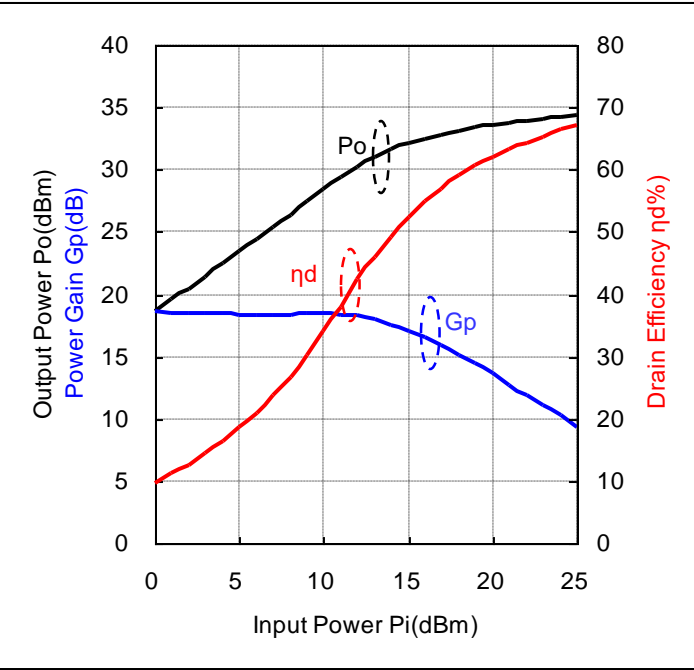
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.17	3.6	49.2	470	0.0	1.0	14.2	0.026	14.2	112	6.6
1.17	3.6	49.2	470	1.0	1.3	15.4	0.035	14.4	125	7.6
1.17	3.6	49.2	470	2.0	1.6	16.6	0.046	14.6	142	8.9
1.17	3.6	49.2	470	3.0	2.0	17.8	0.061	14.8	162	10.4
1.17	3.6	49.2	470	4.0	2.5	19.0	0.080	15.0	184	12.1
1.17	3.6	49.2	470	5.0	3.2	20.3	0.107	15.3	212	14.1
1.17	3.6	49.2	470	6.0	4.0	21.6	0.145	15.6	248	16.2
1.17	3.6	49.2	470	7.0	5.0	22.9	0.193	15.9	282	19.0
1.17	3.6	49.2	470	8.0	6.3	24.1	0.257	16.1	330	21.6
1.17	3.6	49.2	470	9.0	7.9	25.4	0.348	16.4	383	25.3
1.17	3.6	49.2	470	10.0	10.0	26.6	0.460	16.6	441	29.0
1.17	3.6	49.2	470	11.0	12.6	27.9	0.611	16.9	508	33.4
1.17	3.6	49.2	470	12.0	15.8	29.0	0.798	17.0	585	37.9
1.17	3.6	49.2	470	13.0	20.0	30.0	1.002	17.0	654	42.6
1.17	3.6	49.2	470	14.0	25.1	30.9	1.216	16.9	724	46.6
1.17	3.6	49.2	470	15.0	31.6	31.5	1.413	16.5	781	50.2
1.17	3.6	49.2	470	16.0	39.8	32.0	1.600	16.0	834	53.3
1.17	3.6	49.2	470	17.0	50.1	32.5	1.770	15.5	878	56.0
1.17	3.6	49.2	470	18.0	63.1	32.8	1.923	14.8	918	58.2
1.17	3.6	49.2	470	19.0	79.4	33.1	2.056	14.1	953	59.9
1.17	3.6	49.2	470	20.0	100.0	33.4	2.173	13.4	983	61.4
1.17	3.6	49.2	470	21.0	125.9	33.6	2.280	12.6	1010	62.7
1.17	3.6	49.2	470	22.0	158.5	33.8	2.382	11.8	1035	63.9
1.17	3.6	49.2	470	23.0	199.5	33.9	2.477	10.9	1058	65.1
1.17	3.6	49.2	470	24.0	251.2	34.1	2.564	10.1	1078	66.1
1.17	3.6	49.2	470	25.0	316.2	34.2	2.636	9.2	1097	66.8

Input-Output Characteristics $V_{ds}=3.6V$, $I_{bias}=150mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=148.5mA$

@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=148.5mA$

Data

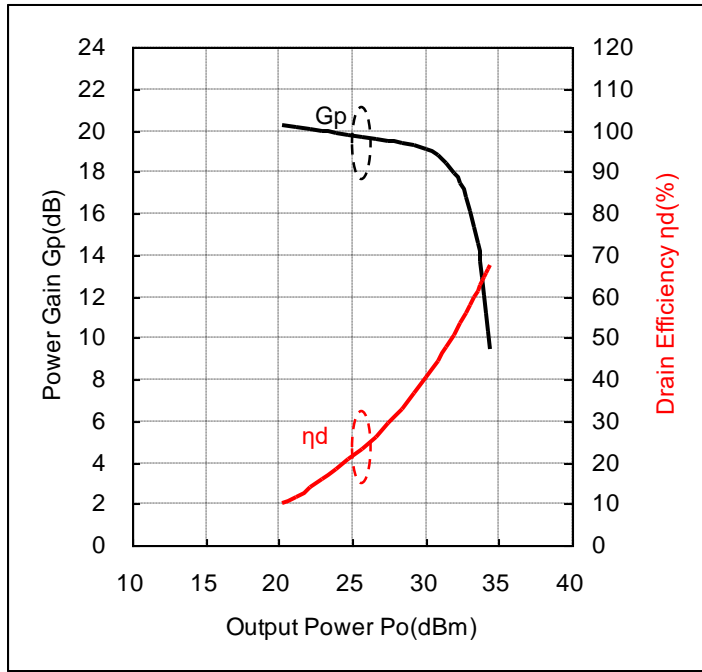
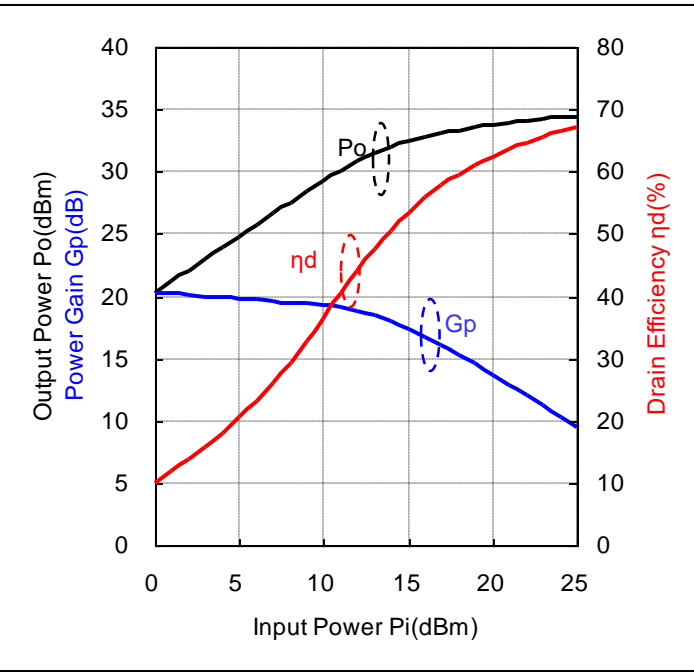
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.27	3.6	148.5	470	0.0	1.0	18.6	0.073	18.6	211	9.6
1.27	3.6	148.5	470	1.0	1.3	19.5	0.090	18.5	226	11.1
1.27	3.6	148.5	470	2.0	1.6	20.5	0.111	18.5	245	12.6
1.27	3.6	148.5	470	3.0	2.0	21.4	0.138	18.4	268	14.3
1.27	3.6	148.5	470	4.0	2.5	22.4	0.174	18.4	295	16.4
1.27	3.6	148.5	470	5.0	3.2	23.4	0.218	18.4	326	18.5
1.27	3.6	148.5	470	6.0	4.0	24.4	0.273	18.4	361	21.0
1.27	3.6	148.5	470	7.0	5.0	25.4	0.344	18.4	403	23.7
1.27	3.6	148.5	470	8.0	6.3	26.4	0.435	18.4	451	26.8
1.27	3.6	148.5	470	9.0	7.9	27.4	0.550	18.4	504	30.3
1.27	3.6	148.5	470	10.0	10.0	28.4	0.695	18.4	566	34.1
1.27	3.6	148.5	470	11.0	12.6	29.3	0.859	18.3	628	38.0
1.27	3.6	148.5	470	12.0	15.8	30.2	1.057	18.2	693	42.3
1.27	3.6	148.5	470	13.0	20.0	31.0	1.247	18.0	754	46.0
1.27	3.6	148.5	470	14.0	25.1	31.6	1.435	17.6	810	49.2
1.27	3.6	148.5	470	15.0	31.6	32.1	1.611	17.1	856	52.3
1.27	3.6	148.5	470	16.0	39.8	32.5	1.778	16.5	899	55.0
1.27	3.6	148.5	470	17.0	50.1	32.8	1.919	15.8	935	57.0
1.27	3.6	148.5	470	18.0	63.1	33.1	2.056	15.1	967	59.1
1.27	3.6	148.5	470	19.0	79.4	33.4	2.178	14.4	997	60.7
1.27	3.6	148.5	470	20.0	100.0	33.6	2.286	13.6	1022	62.1
1.27	3.6	148.5	470	21.0	125.9	33.8	2.382	12.8	1045	63.3
1.27	3.6	148.5	470	22.0	158.5	33.9	2.472	11.9	1066	64.4
1.27	3.6	148.5	470	23.0	199.5	34.1	2.553	11.1	1087	65.3
1.27	3.6	148.5	470	24.0	251.2	34.2	2.642	10.2	1106	66.3
1.27	3.6	148.5	470	25.0	316.2	34.3	2.716	9.3	1122	67.3

Input-Output Characteristics $V_{ds}=3.6V$, $I_{bias}=250mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=251.2mA$

@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=251.2mA$

Data

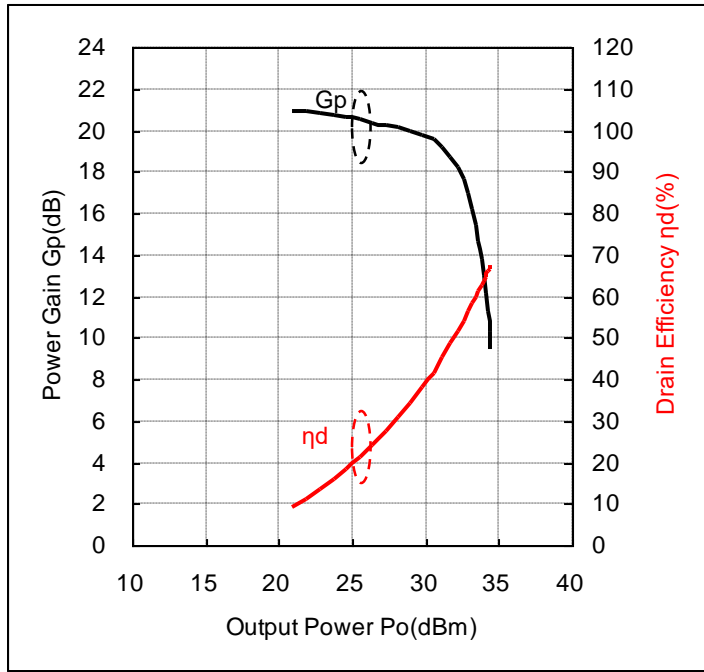
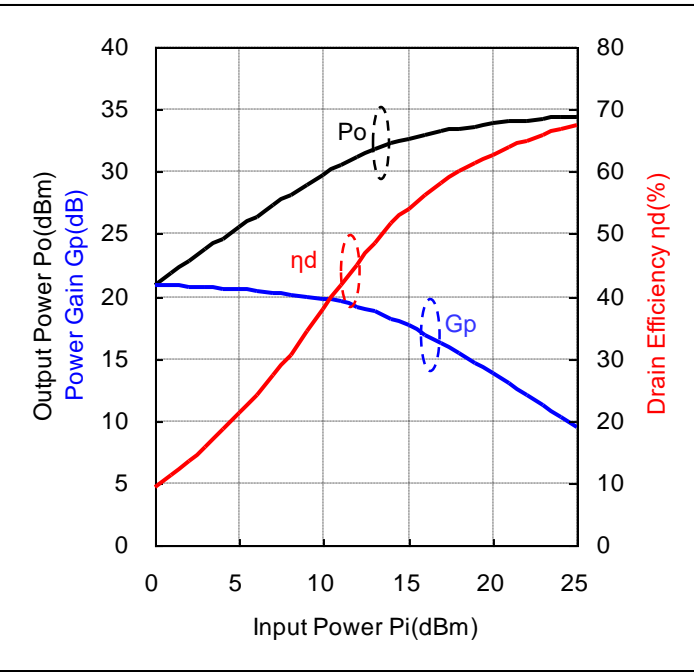
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.35	3.6	251.2	470	0.0	1.0	20.3	0.107	20.3	297	10.0
1.35	3.6	251.2	470	1.0	1.3	21.2	0.131	20.2	310	11.7
1.35	3.6	251.2	470	2.0	1.6	22.1	0.161	20.1	324	13.8
1.35	3.6	251.2	470	3.0	2.0	23.0	0.199	20.0	348	15.9
1.35	3.6	251.2	470	4.0	2.5	23.9	0.243	19.9	373	18.1
1.35	3.6	251.2	470	5.0	3.2	24.8	0.299	19.8	405	20.5
1.35	3.6	251.2	470	6.0	4.0	25.7	0.371	19.7	443	23.3
1.35	3.6	251.2	470	7.0	5.0	26.6	0.456	19.6	484	26.2
1.35	3.6	251.2	470	8.0	6.3	27.5	0.562	19.5	534	29.3
1.35	3.6	251.2	470	9.0	7.9	28.4	0.692	19.4	585	32.9
1.35	3.6	251.2	470	10.0	10.0	29.3	0.845	19.3	644	36.4
1.35	3.6	251.2	470	11.0	12.6	30.1	1.026	19.1	706	40.4
1.35	3.6	251.2	470	12.0	15.8	30.8	1.211	18.8	762	44.1
1.35	3.6	251.2	470	13.0	20.0	31.4	1.393	18.4	814	47.5
1.35	3.6	251.2	470	14.0	25.1	31.9	1.563	17.9	860	50.5
1.35	3.6	251.2	470	15.0	31.6	32.4	1.738	17.4	905	53.4
1.35	3.6	251.2	470	16.0	39.8	32.8	1.892	16.8	940	55.9
1.35	3.6	251.2	470	17.0	50.1	33.1	2.023	16.1	973	57.8
1.35	3.6	251.2	470	18.0	63.1	33.3	2.148	15.3	1001	59.6
1.35	3.6	251.2	470	19.0	79.4	33.5	2.259	14.5	1026	61.1
1.35	3.6	251.2	470	20.0	100.0	33.7	2.360	13.7	1049	62.5
1.35	3.6	251.2	470	21.0	125.9	33.9	2.449	12.9	1070	63.6
1.35	3.6	251.2	470	22.0	158.5	34.0	2.529	12.0	1088	64.6
1.35	3.6	251.2	470	23.0	199.5	34.2	2.612	11.2	1106	65.6
1.35	3.6	251.2	470	24.0	251.2	34.3	2.692	10.3	1124	66.5
1.35	3.6	251.2	470	25.0	316.2	34.4	2.754	9.4	1137	67.3

Input-Output Characteristics $V_{ds}=3.6V$, $I_{bias}=350mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=343.8mA$

@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=343.8mA$

Data

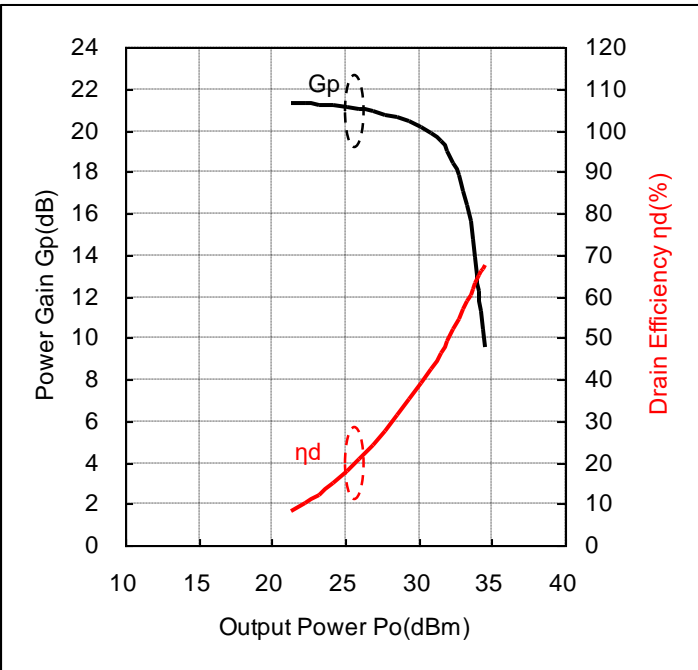
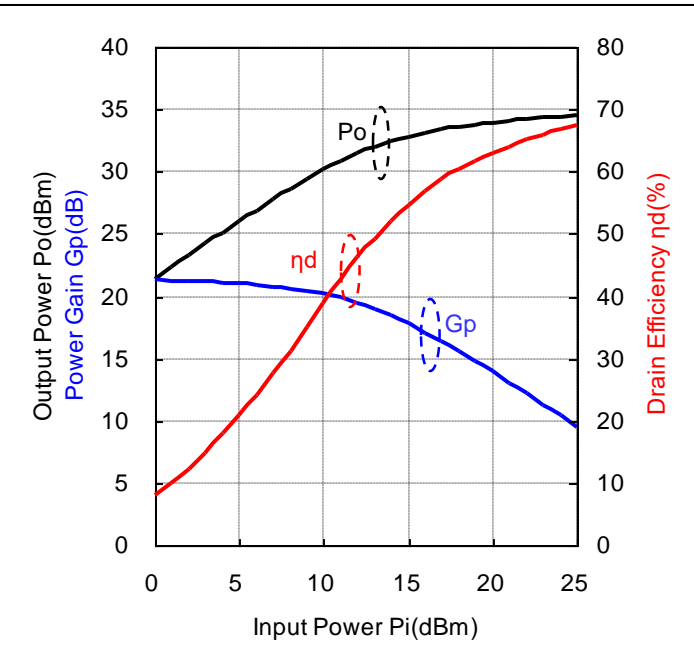
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.41	3.6	343.8	470	0.0	1.0	20.9	0.124	20.9	371	9.3
1.41	3.6	343.8	470	1.0	1.3	21.9	0.154	20.9	381	11.2
1.41	3.6	343.8	470	2.0	1.6	22.8	0.191	20.8	395	13.4
1.41	3.6	343.8	470	3.0	2.0	23.7	0.235	20.7	411	15.9
1.41	3.6	343.8	470	4.0	2.5	24.6	0.288	20.6	432	18.5
1.41	3.6	343.8	470	5.0	3.2	25.5	0.354	20.5	462	21.3
1.41	3.6	343.8	470	6.0	4.0	26.4	0.433	20.4	499	24.1
1.41	3.6	343.8	470	7.0	5.0	27.3	0.532	20.3	540	27.4
1.41	3.6	343.8	470	8.0	6.3	28.1	0.647	20.1	586	30.7
1.41	3.6	343.8	470	9.0	7.9	29.0	0.789	20.0	639	34.3
1.41	3.6	343.8	470	10.0	10.0	29.8	0.951	19.8	698	37.9
1.41	3.6	343.8	470	11.0	12.6	30.5	1.130	19.5	753	41.7
1.41	3.6	343.8	470	12.0	15.8	31.2	1.312	19.2	808	45.1
1.41	3.6	343.8	470	13.0	20.0	31.7	1.489	18.7	853	48.5
1.41	3.6	343.8	470	14.0	25.1	32.2	1.667	18.2	898	51.6
1.41	3.6	343.8	470	15.0	31.6	32.6	1.820	17.6	936	54.0
1.41	3.6	343.8	470	16.0	39.8	32.9	1.963	16.9	970	56.2
1.41	3.6	343.8	470	17.0	50.1	33.2	2.094	16.2	1000	58.2
1.41	3.6	343.8	470	18.0	63.1	33.5	2.213	15.5	1025	60.0
1.41	3.6	343.8	470	19.0	79.4	33.7	2.317	14.7	1048	61.4
1.41	3.6	343.8	470	20.0	100.0	33.8	2.410	13.8	1068	62.7
1.41	3.6	343.8	470	21.0	125.9	34.0	2.500	13.0	1088	63.8
1.41	3.6	343.8	470	22.0	158.5	34.1	2.576	12.1	1105	64.8
1.41	3.6	343.8	470	23.0	199.5	34.3	2.661	11.3	1122	65.9
1.41	3.6	343.8	470	24.0	251.2	34.4	2.729	10.4	1136	66.7
1.41	3.6	343.8	470	25.0	316.2	34.5	2.786	9.5	1149	67.3

Input-Output Characteristics $V_{ds}=3.6V$, $I_{bias}=450mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=447.2mA$

@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=447.2mA$

Data

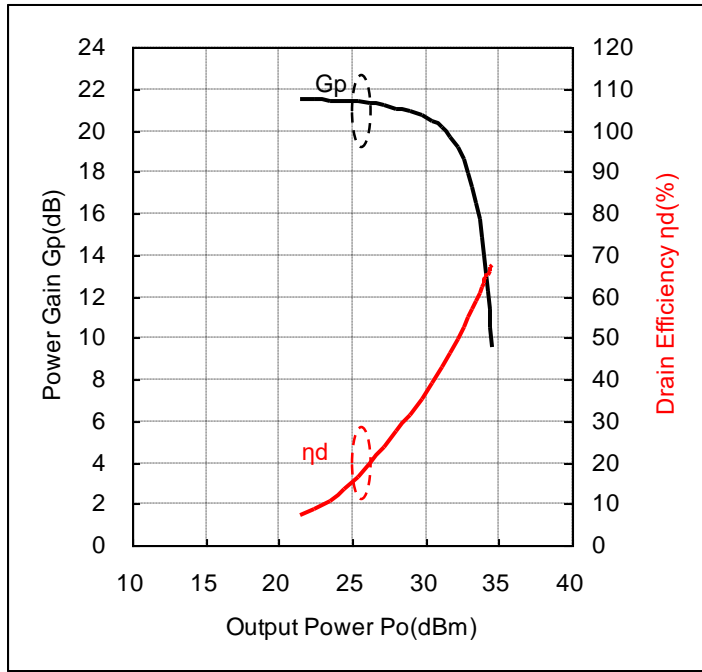
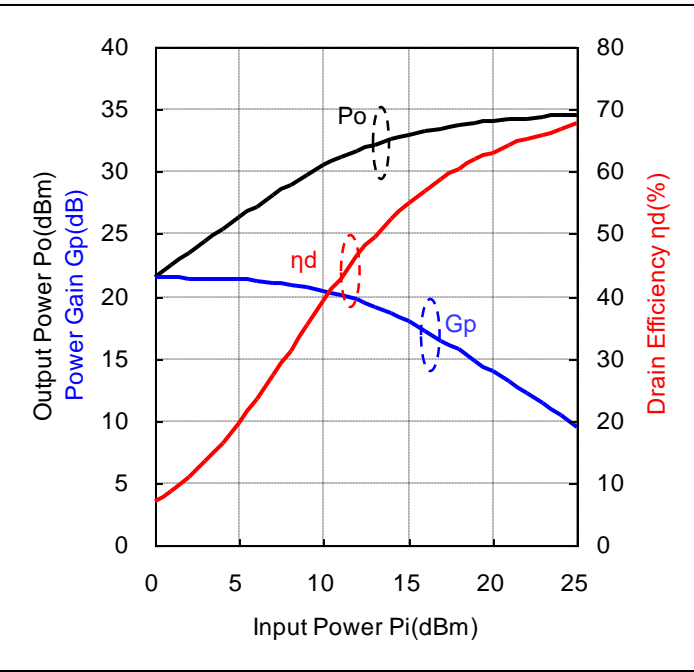
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.47	3.6	447.2	470	0.0	1.0	21.3	0.136	21.3	462	8.1
1.47	3.6	447.2	470	1.0	1.3	22.3	0.169	21.3	471	10.0
1.47	3.6	447.2	470	2.0	1.6	23.2	0.210	21.2	479	12.2
1.47	3.6	447.2	470	3.0	2.0	24.2	0.262	21.2	493	14.8
1.47	3.6	447.2	470	4.0	2.5	25.1	0.324	21.1	504	17.8
1.47	3.6	447.2	470	5.0	3.2	26.0	0.398	21.0	530	20.9
1.47	3.6	447.2	470	6.0	4.0	26.9	0.488	20.9	558	24.3
1.47	3.6	447.2	470	7.0	5.0	27.8	0.596	20.8	598	27.7
1.47	3.6	447.2	470	8.0	6.3	28.6	0.724	20.6	643	31.3
1.47	3.6	447.2	470	9.0	7.9	29.4	0.875	20.4	693	35.1
1.47	3.6	447.2	470	10.0	10.0	30.2	1.045	20.2	746	38.9
1.47	3.6	447.2	470	11.0	12.6	30.9	1.227	19.9	801	42.6
1.47	3.6	447.2	470	12.0	15.8	31.5	1.409	19.5	849	46.1
1.47	3.6	447.2	470	13.0	20.0	32.0	1.585	19.0	894	49.2
1.47	3.6	447.2	470	14.0	25.1	32.4	1.750	18.4	931	52.2
1.47	3.6	447.2	470	15.0	31.6	32.8	1.901	17.8	967	54.6
1.47	3.6	447.2	470	16.0	39.8	33.1	2.037	17.1	997	56.7
1.47	3.6	447.2	470	17.0	50.1	33.3	2.163	16.3	1024	58.7
1.47	3.6	447.2	470	18.0	63.1	33.6	2.275	15.6	1049	60.3
1.47	3.6	447.2	470	19.0	79.4	33.8	2.377	14.8	1069	61.8
1.47	3.6	447.2	470	20.0	100.0	33.9	2.466	13.9	1087	63.0
1.47	3.6	447.2	470	21.0	125.9	34.1	2.547	13.1	1105	64.1
1.47	3.6	447.2	470	22.0	158.5	34.2	2.630	12.2	1123	65.1
1.47	3.6	447.2	470	23.0	199.5	34.3	2.698	11.3	1136	65.9
1.47	3.6	447.2	470	24.0	251.2	34.4	2.761	10.4	1149	66.7
1.47	3.6	447.2	470	25.0	316.2	34.5	2.818	9.5	1160	67.5

Input-Output Characteristics $V_{ds}=3.6V$, $I_{bias}=550mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=544.5mA$

@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=544.5mA$

Data

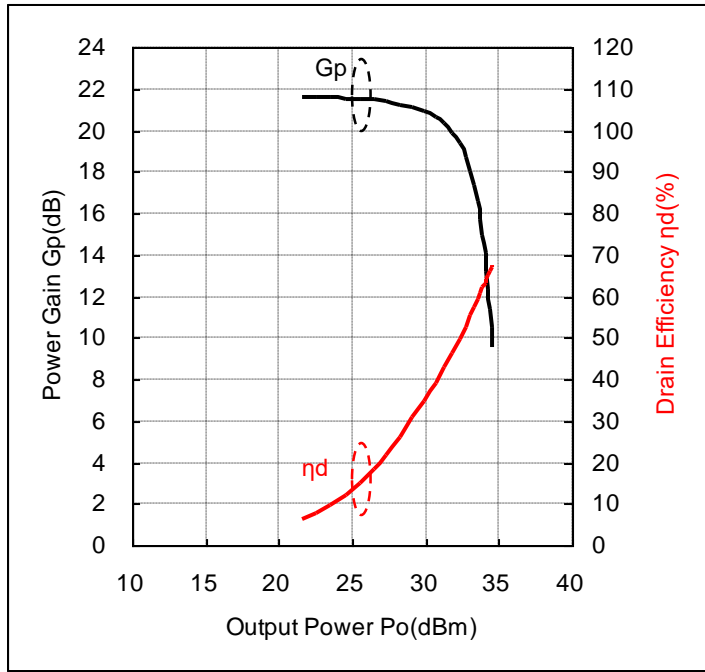
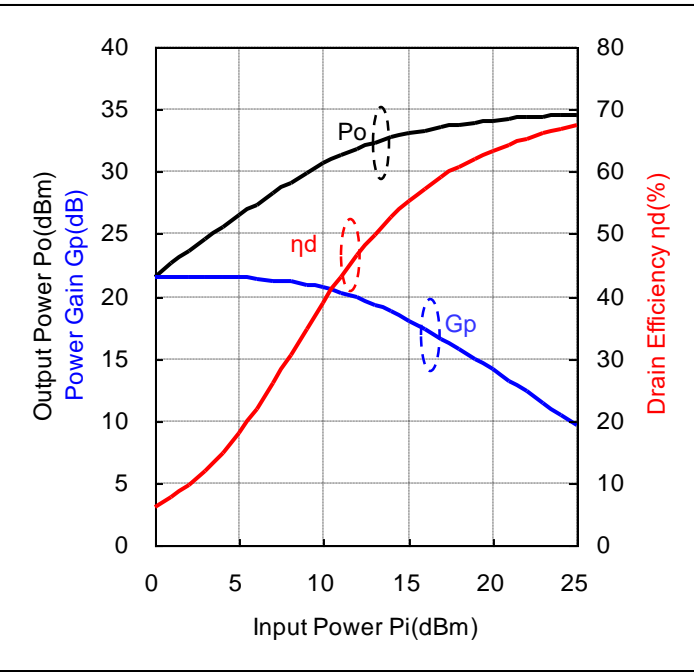
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.52	3.6	544.5	470	0.0	1.0	21.5	0.140	21.5	557	7.0
1.52	3.6	544.5	470	1.0	1.3	22.5	0.176	21.5	561	8.7
1.52	3.6	544.5	470	2.0	1.6	23.4	0.221	21.4	568	10.8
1.52	3.6	544.5	470	3.0	2.0	24.4	0.276	21.4	575	13.3
1.52	3.6	544.5	470	4.0	2.5	25.4	0.344	21.4	584	16.3
1.52	3.6	544.5	470	5.0	3.2	26.3	0.426	21.3	602	19.6
1.52	3.6	544.5	470	6.0	4.0	27.2	0.525	21.2	619	23.5
1.52	3.6	544.5	470	7.0	5.0	28.0	0.637	21.0	649	27.2
1.52	3.6	544.5	470	8.0	6.3	28.9	0.778	20.9	692	31.3
1.52	3.6	544.5	470	9.0	7.9	29.7	0.940	20.7	741	35.2
1.52	3.6	544.5	470	10.0	10.0	30.5	1.117	20.5	792	39.2
1.52	3.6	544.5	470	11.0	12.6	31.1	1.297	20.1	842	42.8
1.52	3.6	544.5	470	12.0	15.8	31.7	1.483	19.7	886	46.5
1.52	3.6	544.5	470	13.0	20.0	32.2	1.652	19.2	929	49.4
1.52	3.6	544.5	470	14.0	25.1	32.6	1.816	18.6	964	52.3
1.52	3.6	544.5	470	15.0	31.6	32.9	1.963	17.9	994	54.9
1.52	3.6	544.5	470	16.0	39.8	33.2	2.099	17.2	1022	57.0
1.52	3.6	544.5	470	17.0	50.1	33.5	2.218	16.5	1047	58.9
1.52	3.6	544.5	470	18.0	63.1	33.7	2.328	15.7	1068	60.5
1.52	3.6	544.5	470	19.0	79.4	33.8	2.427	14.8	1087	62.0
1.52	3.6	544.5	470	20.0	100.0	34.0	2.506	14.0	1104	63.0
1.52	3.6	544.5	470	21.0	125.9	34.2	2.600	13.2	1123	64.3
1.52	3.6	544.5	470	22.0	158.5	34.3	2.667	12.3	1137	65.2
1.52	3.6	544.5	470	23.0	199.5	34.4	2.729	11.4	1149	66.0
1.52	3.6	544.5	470	24.0	251.2	34.5	2.793	10.5	1160	66.9
1.52	3.6	544.5	470	25.0	316.2	34.5	2.851	9.5	1170	67.7

Input-Output Characteristics $V_{ds}=3.6V$, $I_{bias}=650mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



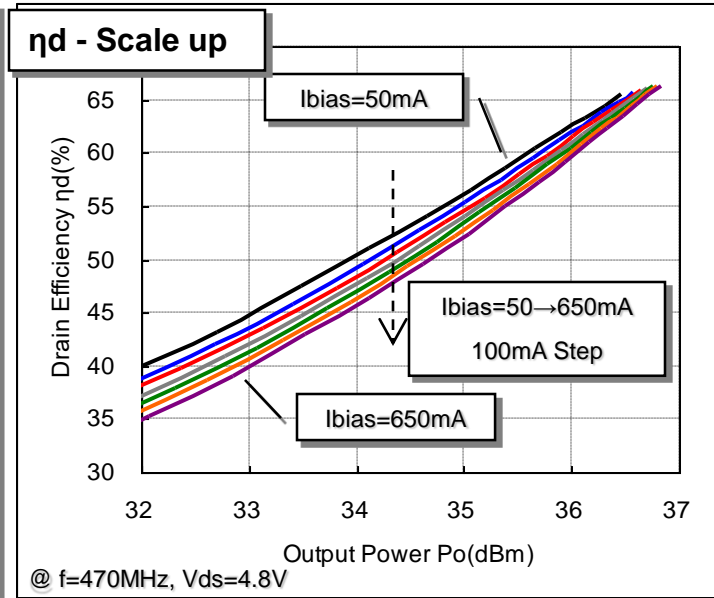
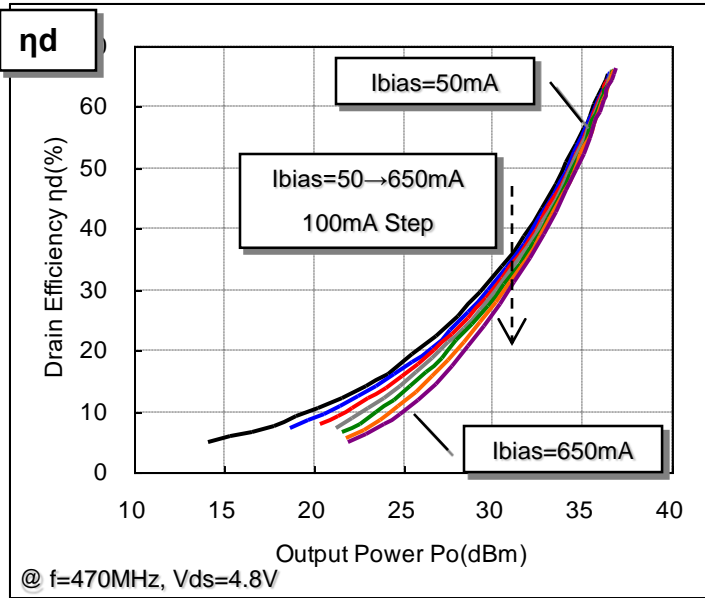
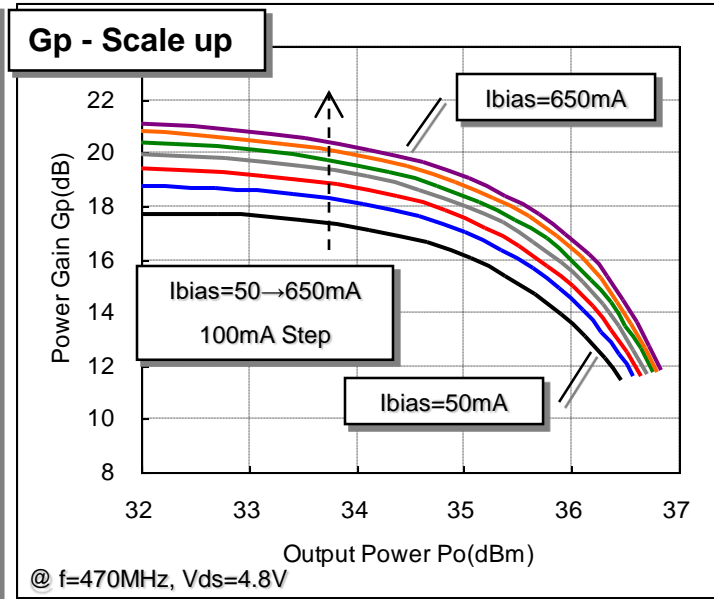
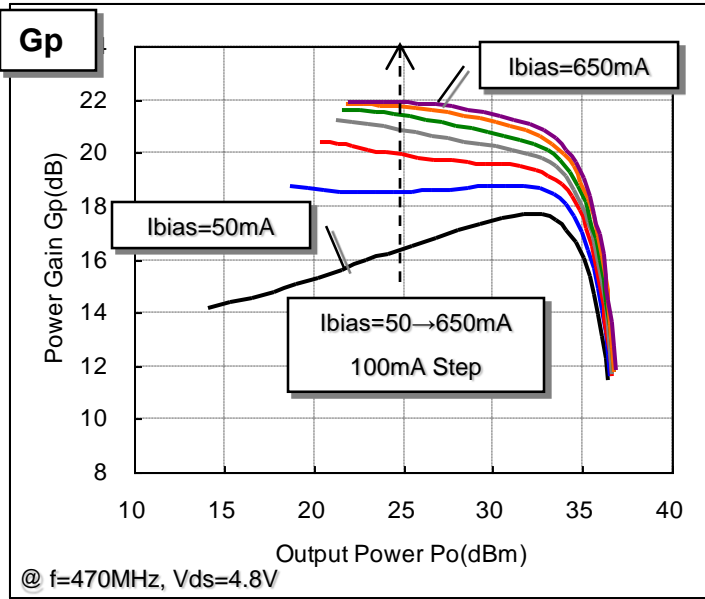
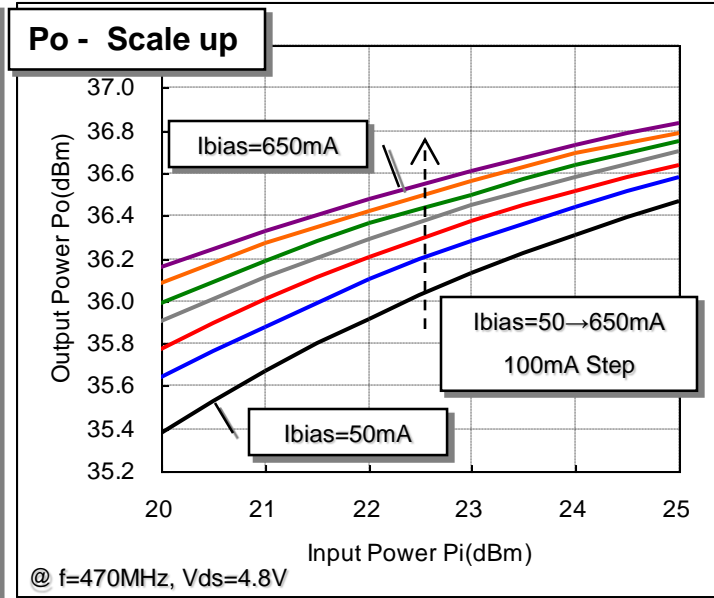
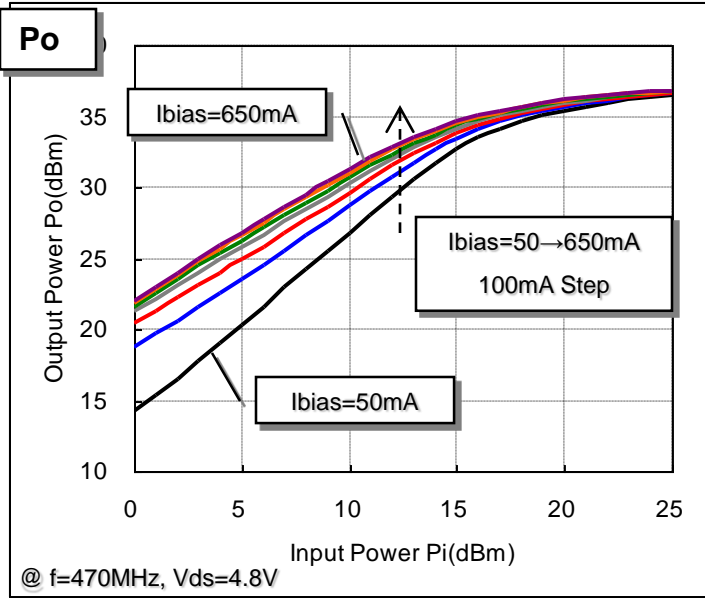
@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=641.6mA$

@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=641.6mA$

Data

V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.57	3.6	641.6	470	0.0	1.0	21.6	0.144	21.6	648	6.2
1.57	3.6	641.6	470	1.0	1.3	22.6	0.181	21.6	650	7.7
1.57	3.6	641.6	470	2.0	1.6	23.6	0.227	21.6	654	9.6
1.57	3.6	641.6	470	3.0	2.0	24.5	0.284	21.5	657	12.0
1.57	3.6	641.6	470	4.0	2.5	25.5	0.356	21.5	665	14.8
1.57	3.6	641.6	470	5.0	3.2	26.5	0.443	21.5	678	18.1
1.57	3.6	641.6	470	6.0	4.0	27.4	0.543	21.4	693	21.8
1.57	3.6	641.6	470	7.0	5.0	28.3	0.668	21.3	710	26.2
1.57	3.6	641.6	470	8.0	6.3	29.1	0.818	21.1	742	30.7
1.57	3.6	641.6	470	9.0	7.9	29.9	0.979	20.9	782	34.8
1.57	3.6	641.6	470	10.0	10.0	30.7	1.164	20.7	830	39.0
1.57	3.6	641.6	470	11.0	12.6	31.3	1.355	20.3	875	43.0
1.57	3.6	641.6	470	12.0	15.8	31.9	1.538	19.9	920	46.5
1.57	3.6	641.6	470	13.0	20.0	32.3	1.714	19.3	956	49.8
1.57	3.6	641.6	470	14.0	25.1	32.7	1.875	18.7	989	52.6
1.57	3.6	641.6	470	15.0	31.6	33.1	2.023	18.1	1018	55.2
1.57	3.6	641.6	470	16.0	39.8	33.3	2.153	17.3	1044	57.3
1.57	3.6	641.6	470	17.0	50.1	33.6	2.270	16.6	1067	59.1
1.57	3.6	641.6	470	18.0	63.1	33.8	2.371	15.8	1087	60.6
1.57	3.6	641.6	470	19.0	79.4	33.9	2.466	14.9	1104	62.1
1.57	3.6	641.6	470	20.0	100.0	34.1	2.559	14.1	1123	63.3
1.57	3.6	641.6	470	21.0	125.9	34.2	2.630	13.2	1136	64.3
1.57	3.6	641.6	470	22.0	158.5	34.3	2.698	12.3	1149	65.2
1.57	3.6	641.6	470	23.0	199.5	34.4	2.761	11.4	1160	66.1
1.57	3.6	641.6	470	24.0	251.2	34.5	2.818	10.5	1170	66.9
1.57	3.6	641.6	470	25.0	316.2	34.6	2.871	9.6	1179	67.6

Input - Output Characteristics $V_{ds}=4.8V$ - Condition 1

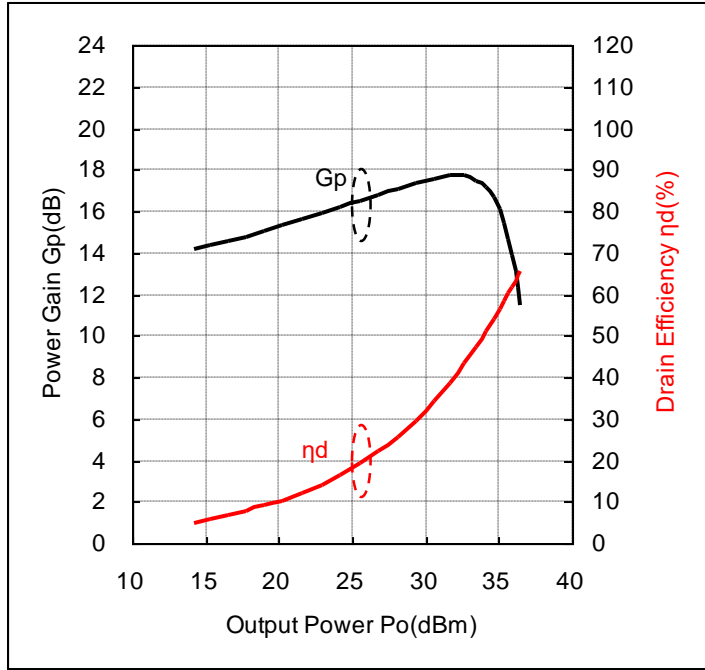
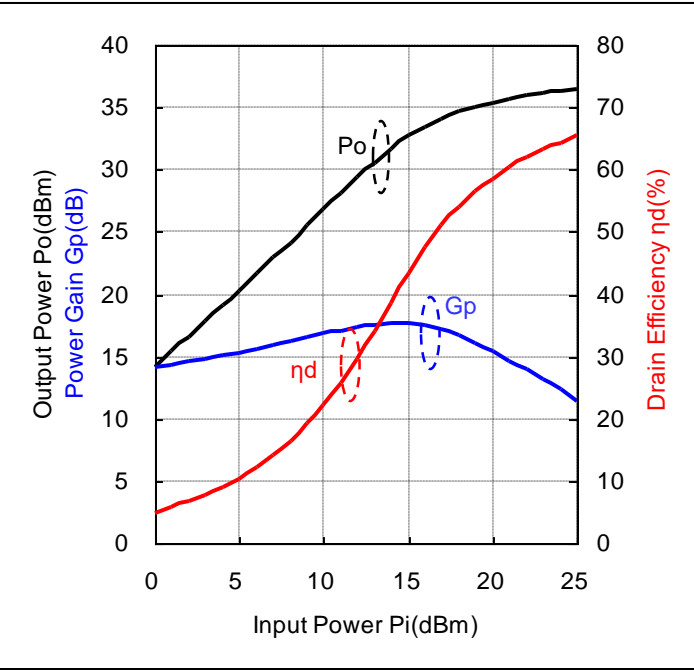


Input-Output Characteristics $V_{ds}=4.8V, I_{bias}=50mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz, V_{ds}=4.8V, I_{bias}=49.3mA$

@ $f=470MHz, V_{ds}=4.8V, I_{bias}=49.3mA$

Data

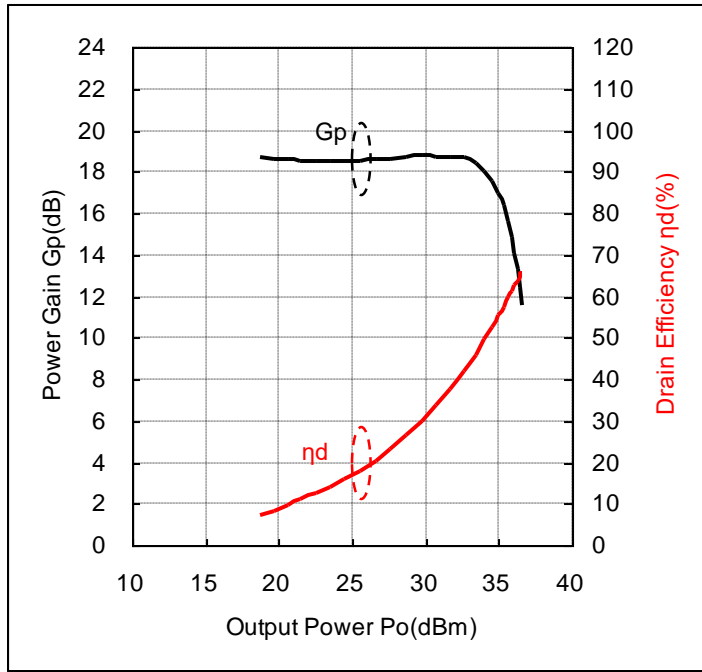
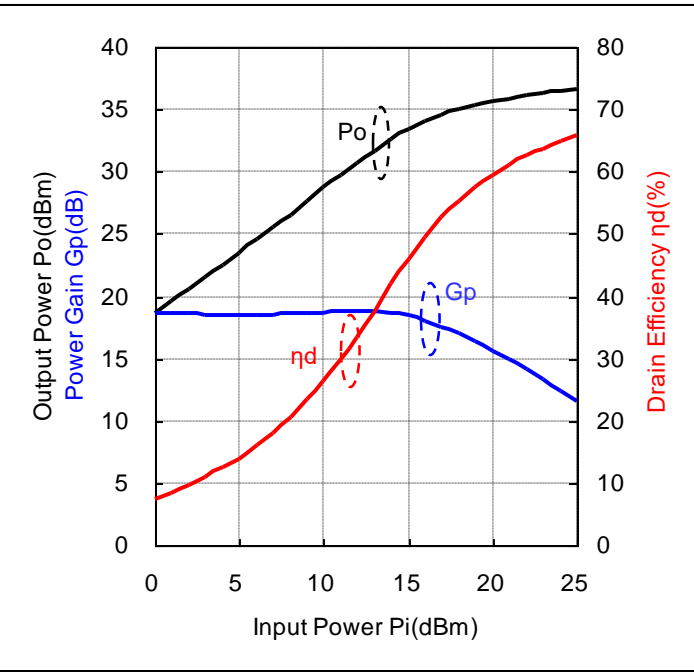
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.14	4.8	49.3	470	0.0	1.0	14.2	0.026	14.2	111	4.9
1.14	4.8	49.3	470	1.0	1.3	15.4	0.034	14.4	124	5.8
1.14	4.8	49.3	470	2.0	1.6	16.5	0.045	14.5	141	6.7
1.14	4.8	49.3	470	3.0	2.0	17.8	0.060	14.8	163	7.7
1.14	4.8	49.3	470	4.0	2.5	19.0	0.080	15.0	184	9.1
1.14	4.8	49.3	470	5.0	3.2	20.3	0.107	15.3	215	10.4
1.14	4.8	49.3	470	6.0	4.0	21.6	0.145	15.6	250	12.1
1.14	4.8	49.3	470	7.0	5.0	23.0	0.197	16.0	291	14.1
1.14	4.8	49.3	470	8.0	6.3	24.2	0.261	16.2	334	16.2
1.14	4.8	49.3	470	9.0	7.9	25.5	0.356	16.5	386	19.3
1.14	4.8	49.3	470	10.0	10.0	26.8	0.480	16.8	449	22.3
1.14	4.8	49.3	470	11.0	12.6	28.1	0.644	17.1	523	25.7
1.14	4.8	49.3	470	12.0	15.8	29.3	0.857	17.3	607	29.4
1.14	4.8	49.3	470	13.0	20.0	30.6	1.138	17.6	697	34.0
1.14	4.8	49.3	470	14.0	25.1	31.7	1.479	17.7	798	38.6
1.14	4.8	49.3	470	15.0	31.6	32.7	1.862	17.7	897	43.2
1.14	4.8	49.3	470	16.0	39.8	33.5	2.234	17.5	981	47.4
1.14	4.8	49.3	470	17.0	50.1	34.1	2.582	17.1	1056	50.9
1.14	4.8	49.3	470	18.0	63.1	34.7	2.917	16.7	1125	54.0
1.14	4.8	49.3	470	19.0	79.4	35.1	3.206	16.1	1182	56.5
1.14	4.8	49.3	470	20.0	100.0	35.4	3.451	15.4	1229	58.5
1.14	4.8	49.3	470	21.0	125.9	35.7	3.690	14.7	1274	60.3
1.14	4.8	49.3	470	22.0	158.5	35.9	3.899	13.9	1313	61.9
1.14	4.8	49.3	470	23.0	199.5	36.1	4.102	13.1	1351	63.3
1.14	4.8	49.3	470	24.0	251.2	36.3	4.276	12.3	1383	64.4
1.14	4.8	49.3	470	25.0	316.2	36.5	4.436	11.5	1412	65.4

Input-Output Characteristics $V_{ds}=4.8V$, $I_{bias}=150mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=147.3mA$

@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=147.3mA$

Data

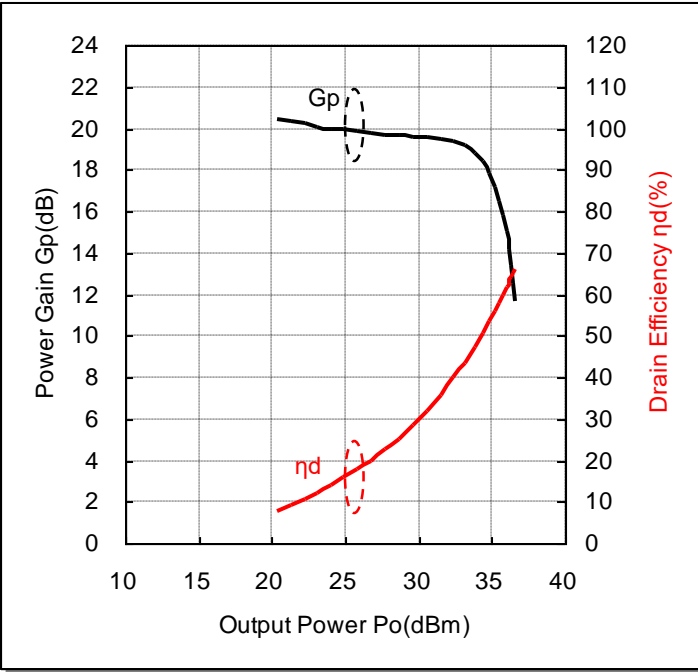
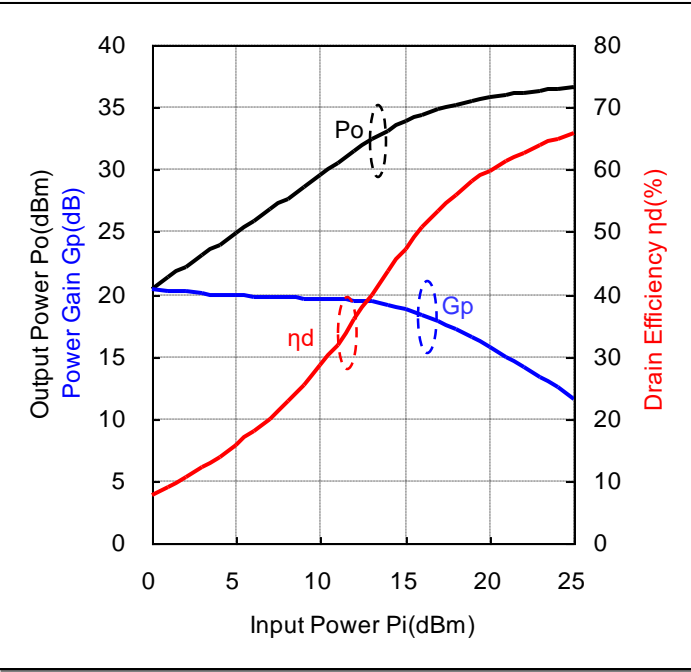
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.25	4.8	147.3	470	0.0	1.0	18.7	0.074	18.7	213	7.3
1.25	4.8	147.3	470	1.0	1.3	19.6	0.092	18.6	229	8.4
1.25	4.8	147.3	470	2.0	1.6	20.6	0.114	18.6	249	9.6
1.25	4.8	147.3	470	3.0	2.0	21.5	0.142	18.5	272	10.9
1.25	4.8	147.3	470	4.0	2.5	22.5	0.178	18.5	299	12.4
1.25	4.8	147.3	470	5.0	3.2	23.5	0.224	18.5	334	14.0
1.25	4.8	147.3	470	6.0	4.0	24.5	0.282	18.5	369	16.0
1.25	4.8	147.3	470	7.0	5.0	25.5	0.356	18.5	414	18.0
1.25	4.8	147.3	470	8.0	6.3	26.6	0.454	18.6	462	20.5
1.25	4.8	147.3	470	9.0	7.9	27.6	0.578	18.6	517	23.3
1.25	4.8	147.3	470	10.0	10.0	28.7	0.738	18.7	581	26.5
1.25	4.8	147.3	470	11.0	12.6	29.8	0.946	18.8	660	29.9
1.25	4.8	147.3	470	12.0	15.8	30.7	1.183	18.7	736	33.5
1.25	4.8	147.3	470	13.0	20.0	31.7	1.486	18.7	824	37.6
1.25	4.8	147.3	470	14.0	25.1	32.7	1.854	18.7	918	42.1
1.25	4.8	147.3	470	15.0	31.6	33.4	2.198	18.4	999	45.8
1.25	4.8	147.3	470	16.0	39.8	34.1	2.547	18.1	1073	49.4
1.25	4.8	147.3	470	17.0	50.1	34.6	2.877	17.6	1137	52.7
1.25	4.8	147.3	470	18.0	63.1	35.0	3.170	17.0	1193	55.4
1.25	4.8	147.3	470	19.0	79.4	35.3	3.428	16.3	1242	57.5
1.25	4.8	147.3	470	20.0	100.0	35.6	3.664	15.6	1283	59.5
1.25	4.8	147.3	470	21.0	125.9	35.9	3.873	14.9	1320	61.1
1.25	4.8	147.3	470	22.0	158.5	36.1	4.074	14.1	1356	62.6
1.25	4.8	147.3	470	23.0	199.5	36.3	4.246	13.3	1388	63.8
1.25	4.8	147.3	470	24.0	251.2	36.4	4.406	12.4	1416	64.8
1.25	4.8	147.3	470	25.0	316.2	36.6	4.550	11.6	1442	65.8

Input-Output Characteristics $V_{ds}=4.8V$, $I_{bias}=250mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=247.3mA$,

@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=247.3mA$

Data

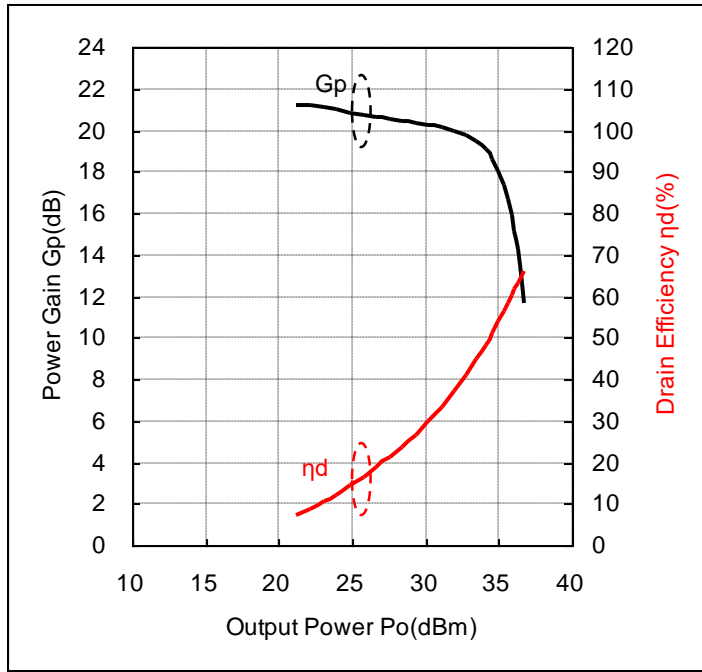
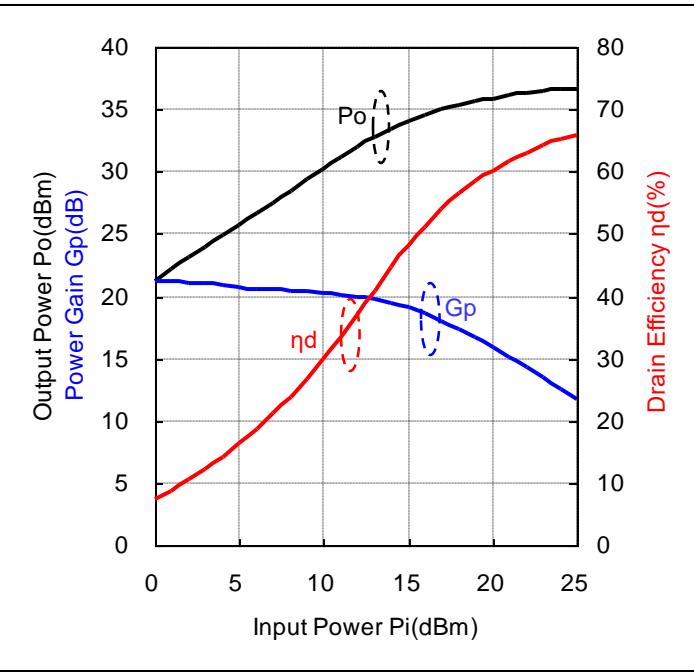
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.32	4.8	247.3	470	0.0	1.0	20.4	0.110	20.4	295	7.8
1.32	4.8	247.3	470	1.0	1.3	21.3	0.136	20.3	309	9.1
1.32	4.8	247.3	470	2.0	1.6	22.2	0.166	20.2	327	10.6
1.32	4.8	247.3	470	3.0	2.0	23.1	0.204	20.1	349	12.2
1.32	4.8	247.3	470	4.0	2.5	24.0	0.251	20.0	379	13.8
1.32	4.8	247.3	470	5.0	3.2	24.9	0.310	19.9	409	15.8
1.32	4.8	247.3	470	6.0	4.0	25.8	0.383	19.8	447	17.8
1.32	4.8	247.3	470	7.0	5.0	26.8	0.473	19.8	495	19.9
1.32	4.8	247.3	470	8.0	6.3	27.7	0.589	19.7	542	22.7
1.32	4.8	247.3	470	9.0	7.9	28.6	0.729	19.6	602	25.2
1.32	4.8	247.3	470	10.0	10.0	29.6	0.912	19.6	668	28.4
1.32	4.8	247.3	470	11.0	12.6	30.5	1.135	19.5	740	32.0
1.32	4.8	247.3	470	12.0	15.8	31.5	1.409	19.5	819	35.9
1.32	4.8	247.3	470	13.0	20.0	32.4	1.730	19.4	906	39.8
1.32	4.8	247.3	470	14.0	25.1	33.1	2.061	19.1	985	43.6
1.32	4.8	247.3	470	15.0	31.6	33.8	2.410	18.8	1063	47.2
1.32	4.8	247.3	470	16.0	39.8	34.4	2.742	18.4	1128	50.6
1.32	4.8	247.3	470	17.0	50.1	34.8	3.041	17.8	1185	53.5
1.32	4.8	247.3	470	18.0	63.1	35.2	3.304	17.2	1234	55.8
1.32	4.8	247.3	470	19.0	79.4	35.5	3.556	16.5	1277	58.0
1.32	4.8	247.3	470	20.0	100.0	35.8	3.776	15.8	1316	59.8
1.32	4.8	247.3	470	21.0	125.9	36.0	3.990	15.0	1352	61.5
1.32	4.8	247.3	470	22.0	158.5	36.2	4.169	14.2	1383	62.8
1.32	4.8	247.3	470	23.0	199.5	36.4	4.335	13.4	1411	64.0
1.32	4.8	247.3	470	24.0	251.2	36.5	4.477	12.5	1437	64.9
1.32	4.8	247.3	470	25.0	316.2	36.6	4.613	11.6	1460	65.8

Input-Output Characteristics $V_{ds}=4.8V$, $I_{bias}=350mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=349.5mA$

@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=349.5mA$

Data

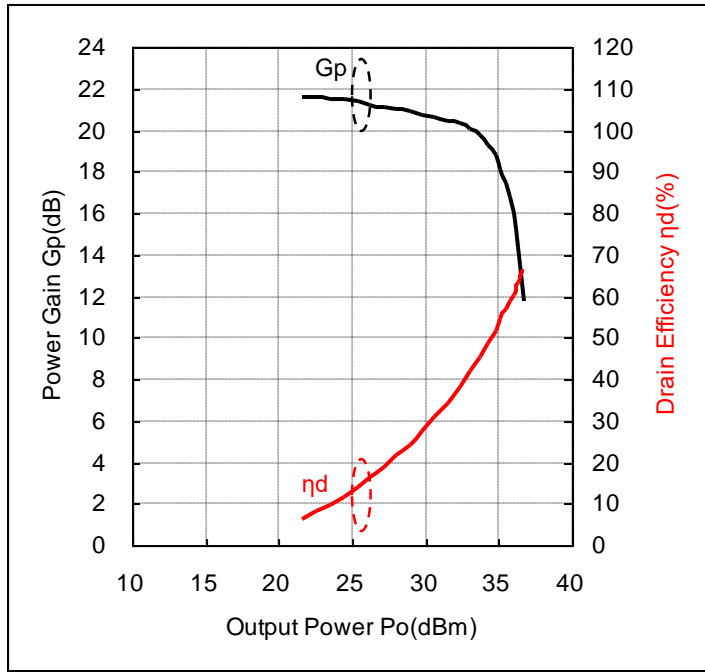
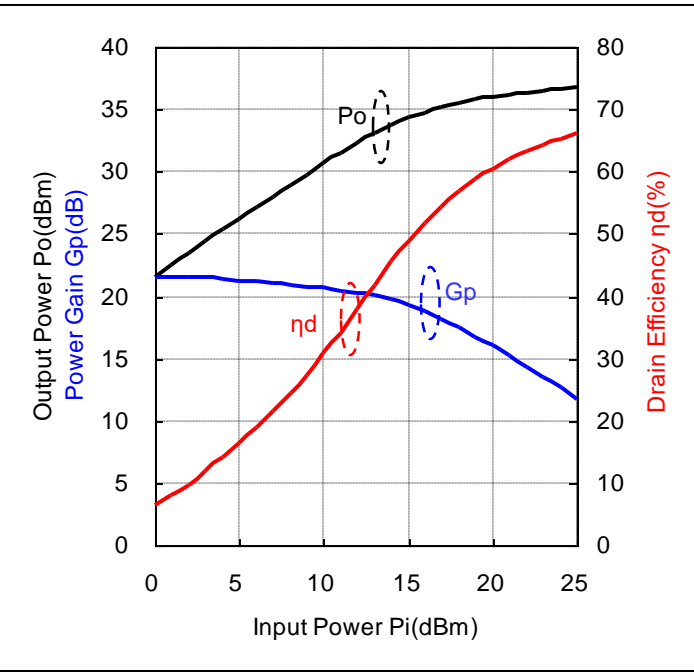
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.38	4.8	349.5	470	0.0	1.0	21.2	0.133	21.2	380	7.3
1.38	4.8	349.5	470	1.0	1.3	22.2	0.164	21.2	391	8.8
1.38	4.8	349.5	470	2.0	1.6	23.1	0.203	21.1	404	10.5
1.38	4.8	349.5	470	3.0	2.0	24.0	0.249	21.0	423	12.3
1.38	4.8	349.5	470	4.0	2.5	24.9	0.306	20.9	448	14.2
1.38	4.8	349.5	470	5.0	3.2	25.8	0.377	20.8	480	16.4
1.38	4.8	349.5	470	6.0	4.0	26.6	0.460	20.6	515	18.6
1.38	4.8	349.5	470	7.0	5.0	27.5	0.568	20.5	558	21.2
1.38	4.8	349.5	470	8.0	6.3	28.4	0.695	20.4	608	23.8
1.38	4.8	349.5	470	9.0	7.9	29.3	0.857	20.3	669	26.7
1.38	4.8	349.5	470	10.0	10.0	30.2	1.052	20.2	735	29.8
1.38	4.8	349.5	470	11.0	12.6	31.1	1.294	20.1	807	33.4
1.38	4.8	349.5	470	12.0	15.8	32.0	1.574	20.0	885	37.0
1.38	4.8	349.5	470	13.0	20.0	32.8	1.897	19.8	965	41.0
1.38	4.8	349.5	470	14.0	25.1	33.5	2.234	19.5	1040	44.7
1.38	4.8	349.5	470	15.0	31.6	34.1	2.570	19.1	1109	48.3
1.38	4.8	349.5	470	16.0	39.8	34.6	2.877	18.6	1170	51.2
1.38	4.8	349.5	470	17.0	50.1	35.0	3.170	18.0	1224	53.9
1.38	4.8	349.5	470	18.0	63.1	35.4	3.436	17.4	1269	56.4
1.38	4.8	349.5	470	19.0	79.4	35.7	3.673	16.7	1309	58.4
1.38	4.8	349.5	470	20.0	100.0	35.9	3.890	15.9	1347	60.2
1.38	4.8	349.5	470	21.0	125.9	36.1	4.083	15.1	1377	61.8
1.38	4.8	349.5	470	22.0	158.5	36.3	4.256	14.3	1406	63.1
1.38	4.8	349.5	470	23.0	199.5	36.5	4.416	13.5	1432	64.2
1.38	4.8	349.5	470	24.0	251.2	36.6	4.550	12.6	1455	65.2
1.38	4.8	349.5	470	25.0	316.2	36.7	4.677	11.7	1476	66.0

Input-Output Characteristics $V_{ds}=4.8V$, $I_{bias}=450mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=444.1mA$

@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=444.1mA$

Data

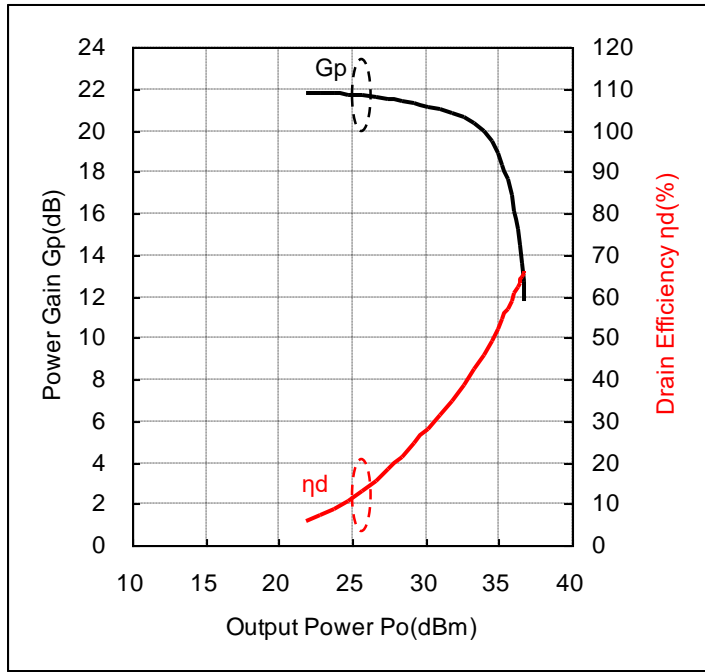
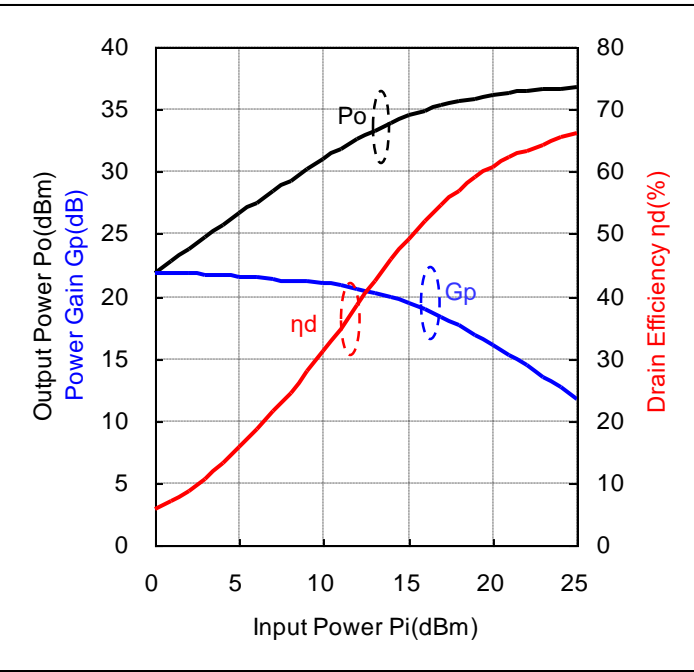
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.44	4.8	444.1	470	0.0	1.0	21.6	0.145	21.6	468	6.4
1.44	4.8	444.1	470	1.0	1.3	22.6	0.180	21.6	469	8.0
1.44	4.8	444.1	470	2.0	1.6	23.5	0.224	21.5	481	9.7
1.44	4.8	444.1	470	3.0	2.0	24.5	0.279	21.5	494	11.7
1.44	4.8	444.1	470	4.0	2.5	25.4	0.344	21.4	512	14.0
1.44	4.8	444.1	470	5.0	3.2	26.3	0.422	21.3	539	16.3
1.44	4.8	444.1	470	6.0	4.0	27.1	0.516	21.1	570	18.9
1.44	4.8	444.1	470	7.0	5.0	28.0	0.632	21.0	612	21.5
1.44	4.8	444.1	470	8.0	6.3	28.9	0.774	20.9	665	24.3
1.44	4.8	444.1	470	9.0	7.9	29.8	0.948	20.8	723	27.3
1.44	4.8	444.1	470	10.0	10.0	30.6	1.161	20.6	786	30.8
1.44	4.8	444.1	470	11.0	12.6	31.5	1.406	20.5	859	34.1
1.44	4.8	444.1	470	12.0	15.8	32.3	1.706	20.3	938	37.9
1.44	4.8	444.1	470	13.0	20.0	33.1	2.028	20.1	1013	41.7
1.44	4.8	444.1	470	14.0	25.1	33.7	2.360	19.7	1082	45.5
1.44	4.8	444.1	470	15.0	31.6	34.3	2.692	19.3	1149	48.8
1.44	4.8	444.1	470	16.0	39.8	34.8	2.992	18.8	1206	51.7
1.44	4.8	444.1	470	17.0	50.1	35.2	3.273	18.2	1255	54.4
1.44	4.8	444.1	470	18.0	63.1	35.5	3.532	17.5	1297	56.7
1.44	4.8	444.1	470	19.0	79.4	35.8	3.776	16.8	1336	58.9
1.44	4.8	444.1	470	20.0	100.0	36.0	3.972	16.0	1369	60.4
1.44	4.8	444.1	470	21.0	125.9	36.2	4.159	15.2	1399	61.9
1.44	4.8	444.1	470	22.0	158.5	36.4	4.325	14.4	1425	63.2
1.44	4.8	444.1	470	23.0	199.5	36.5	4.467	13.5	1449	64.2
1.44	4.8	444.1	470	24.0	251.2	36.6	4.613	12.6	1470	65.4
1.44	4.8	444.1	470	25.0	316.2	36.8	4.732	11.8	1489	66.2

Input-Output Characteristics $V_{ds}=4.8V$, $I_{bias}=550mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=542.9mA$

@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=542.9mA$

Data

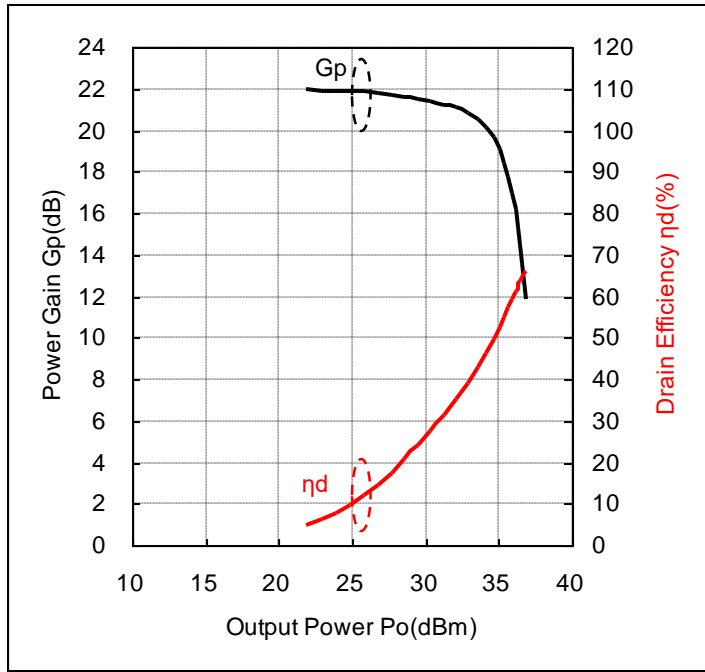
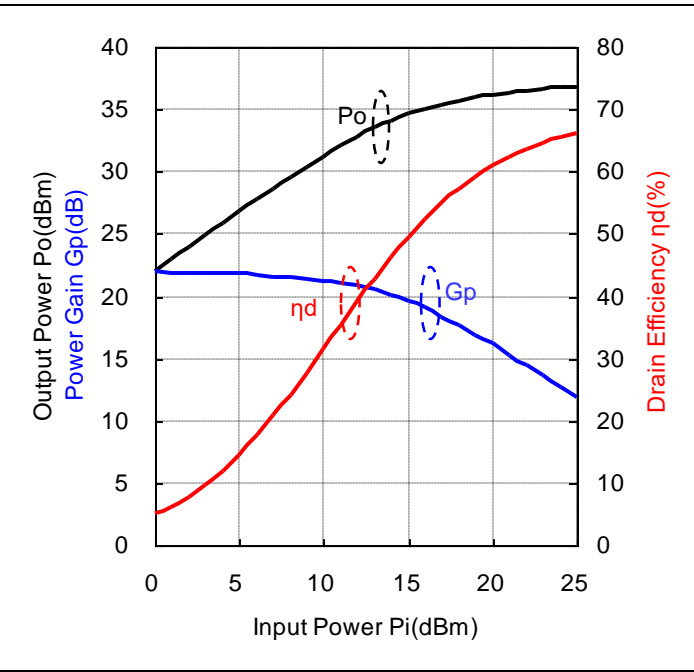
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.49	4.8	542.9	470	0.0	1.0	21.8	0.152	21.8	560	5.6
1.49	4.8	542.9	470	1.0	1.3	22.8	0.191	21.8	563	7.1
1.49	4.8	542.9	470	2.0	1.6	23.8	0.238	21.8	571	8.7
1.49	4.8	542.9	470	3.0	2.0	24.7	0.297	21.7	578	10.7
1.49	4.8	542.9	470	4.0	2.5	25.7	0.370	21.7	592	13.0
1.49	4.8	542.9	470	5.0	3.2	26.6	0.457	21.6	609	15.6
1.49	4.8	542.9	470	6.0	4.0	27.5	0.564	21.5	635	18.5
1.49	4.8	542.9	470	7.0	5.0	28.4	0.692	21.4	673	21.4
1.49	4.8	542.9	470	8.0	6.3	29.3	0.847	21.3	719	24.6
1.49	4.8	542.9	470	9.0	7.9	30.1	1.035	21.1	775	27.8
1.49	4.8	542.9	470	10.0	10.0	31.0	1.256	21.0	840	31.2
1.49	4.8	542.9	470	11.0	12.6	31.8	1.521	20.8	910	34.8
1.49	4.8	542.9	470	12.0	15.8	32.6	1.828	20.6	986	38.6
1.49	4.8	542.9	470	13.0	20.0	33.3	2.148	20.3	1055	42.4
1.49	4.8	542.9	470	14.0	25.1	34.0	2.483	20.0	1127	45.9
1.49	4.8	542.9	470	15.0	31.6	34.5	2.805	19.5	1187	49.3
1.49	4.8	542.9	470	16.0	39.8	34.9	3.105	18.9	1239	52.2
1.49	4.8	542.9	470	17.0	50.1	35.3	3.373	18.3	1286	54.6
1.49	4.8	542.9	470	18.0	63.1	35.6	3.631	17.6	1327	57.0
1.49	4.8	542.9	470	19.0	79.4	35.9	3.855	16.9	1362	59.0
1.49	4.8	542.9	470	20.0	100.0	36.1	4.055	16.1	1391	60.7
1.49	4.8	542.9	470	21.0	125.9	36.3	4.236	15.3	1418	62.2
1.49	4.8	542.9	470	22.0	158.5	36.4	4.385	14.4	1443	63.3
1.49	4.8	542.9	470	23.0	199.5	36.6	4.529	13.6	1465	64.4
1.49	4.8	542.9	470	24.0	251.2	36.7	4.667	12.7	1485	65.5
1.49	4.8	542.9	470	25.0	316.2	36.8	4.775	11.8	1503	66.2

Input-Output Characteristics $V_{ds}=4.8V$, $I_{bias}=650mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



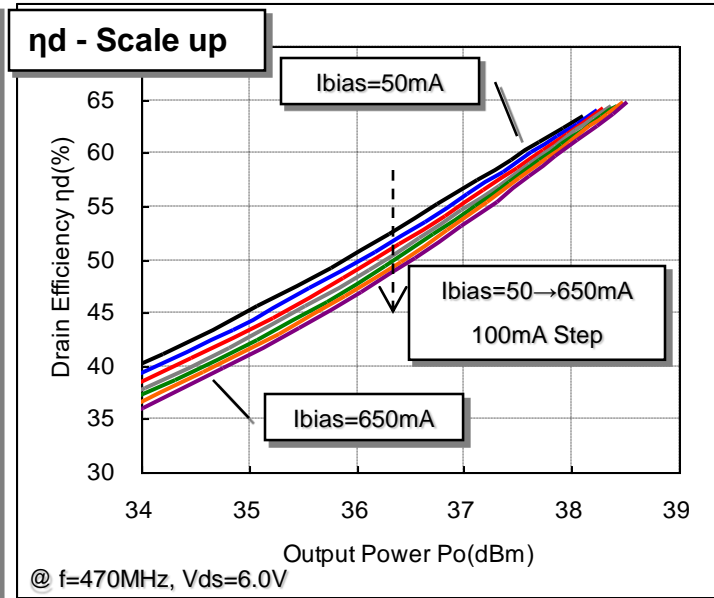
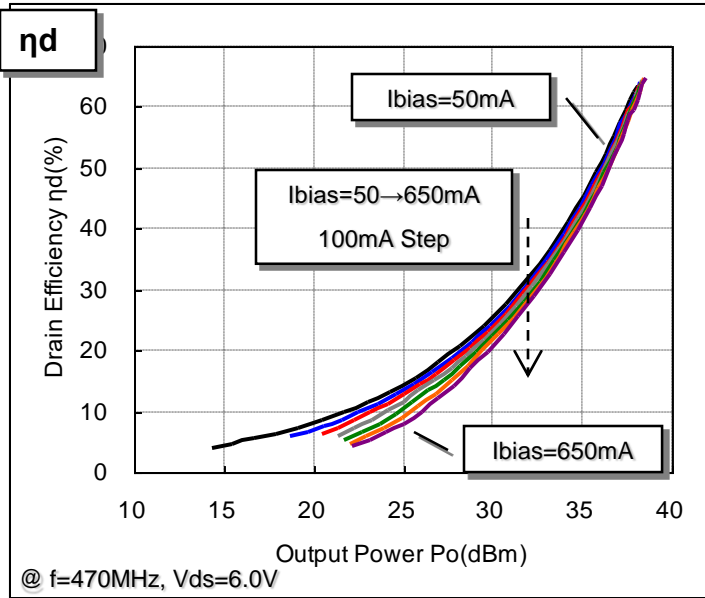
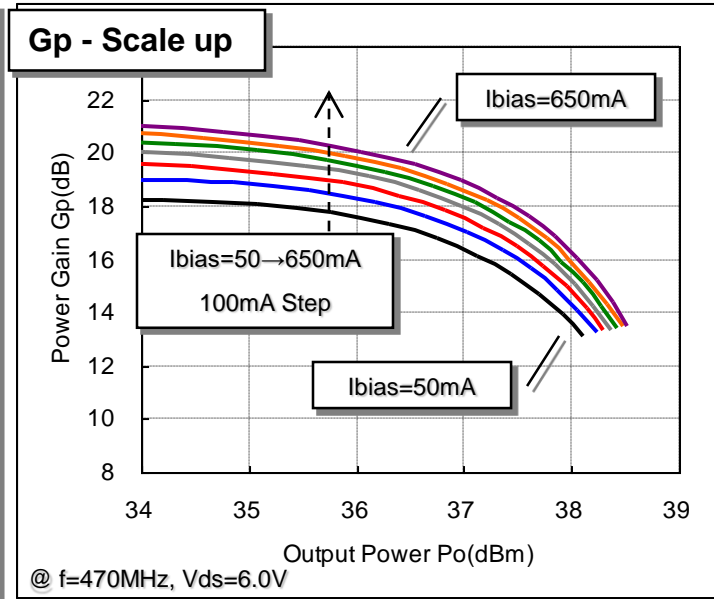
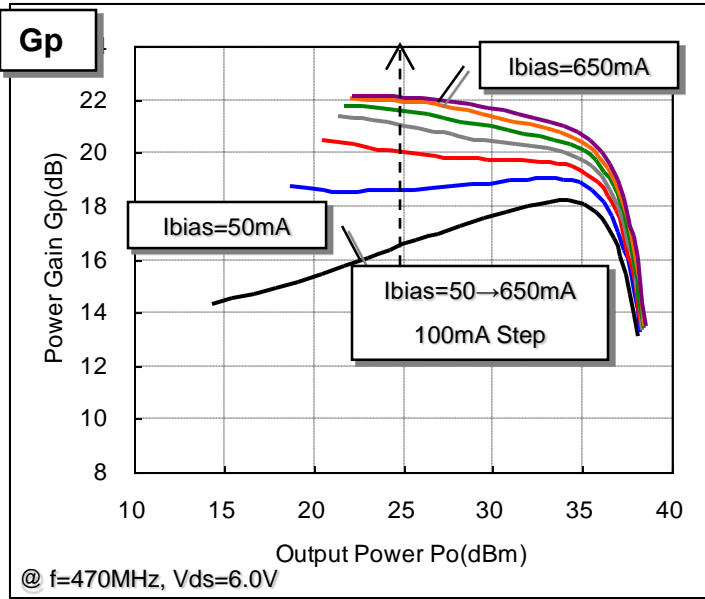
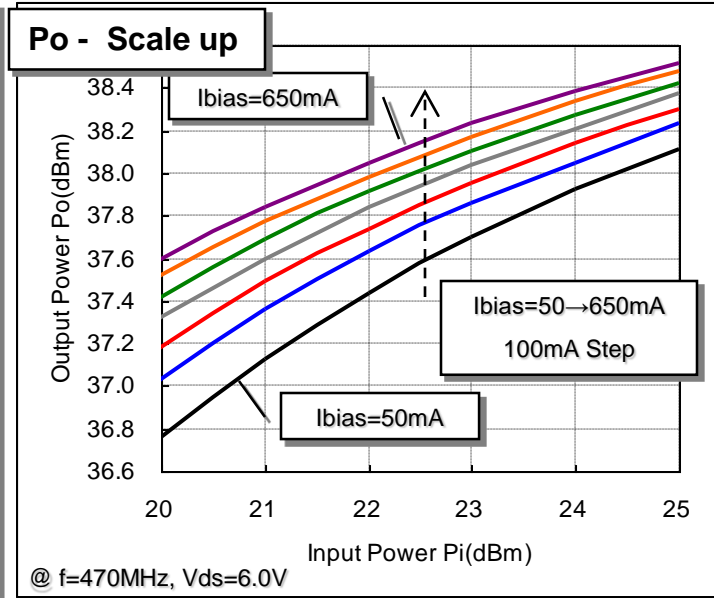
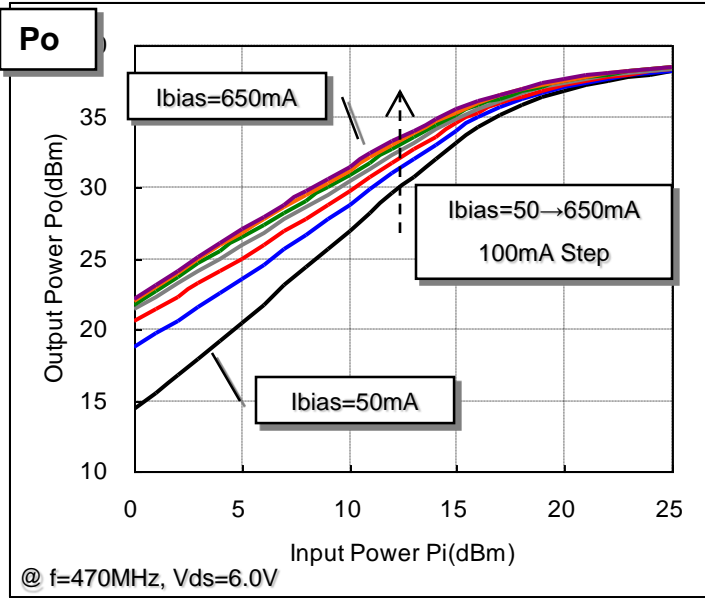
@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=638.6mA$

@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=638.6mA$

Data

V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.53	4.8	638.6	470	0.0	1.0	21.9	0.156	21.9	649	5.0
1.53	4.8	638.6	470	1.0	1.3	22.9	0.196	21.9	652	6.3
1.53	4.8	638.6	470	2.0	1.6	23.9	0.245	21.9	658	7.8
1.53	4.8	638.6	470	3.0	2.0	24.9	0.308	21.9	664	9.6
1.53	4.8	638.6	470	4.0	2.5	25.9	0.385	21.9	674	11.9
1.53	4.8	638.6	470	5.0	3.2	26.8	0.479	21.8	687	14.5
1.53	4.8	638.6	470	6.0	4.0	27.7	0.593	21.7	705	17.5
1.53	4.8	638.6	470	7.0	5.0	28.6	0.724	21.6	727	20.8
1.53	4.8	638.6	470	8.0	6.3	29.5	0.891	21.5	769	24.1
1.53	4.8	638.6	470	9.0	7.9	30.4	1.091	21.4	822	27.7
1.53	4.8	638.6	470	10.0	10.0	31.2	1.330	21.2	884	31.4
1.53	4.8	638.6	470	11.0	12.6	32.1	1.614	21.1	954	35.3
1.53	4.8	638.6	470	12.0	15.8	32.8	1.928	20.8	1029	39.0
1.53	4.8	638.6	470	13.0	20.0	33.5	2.254	20.5	1096	42.9
1.53	4.8	638.6	470	14.0	25.1	34.1	2.582	20.1	1160	46.4
1.53	4.8	638.6	470	15.0	31.6	34.6	2.897	19.6	1219	49.5
1.53	4.8	638.6	470	16.0	39.8	35.0	3.192	19.0	1269	52.4
1.53	4.8	638.6	470	17.0	50.1	35.4	3.459	18.4	1312	55.0
1.53	4.8	638.6	470	18.0	63.1	35.7	3.715	17.7	1351	57.3
1.53	4.8	638.6	470	19.0	79.4	35.9	3.926	16.9	1382	59.2
1.53	4.8	638.6	470	20.0	100.0	36.2	4.130	16.2	1411	61.0
1.53	4.8	638.6	470	21.0	125.9	36.3	4.295	15.3	1437	62.3
1.53	4.8	638.6	470	22.0	158.5	36.5	4.446	14.5	1460	63.5
1.53	4.8	638.6	470	23.0	199.5	36.6	4.581	13.6	1479	64.5
1.53	4.8	638.6	470	24.0	251.2	36.7	4.710	12.7	1499	65.5
1.53	4.8	638.6	470	25.0	316.2	36.8	4.819	11.8	1516	66.3

Input - Output Characteristics $V_{ds}=6.0V$ - Condition 1

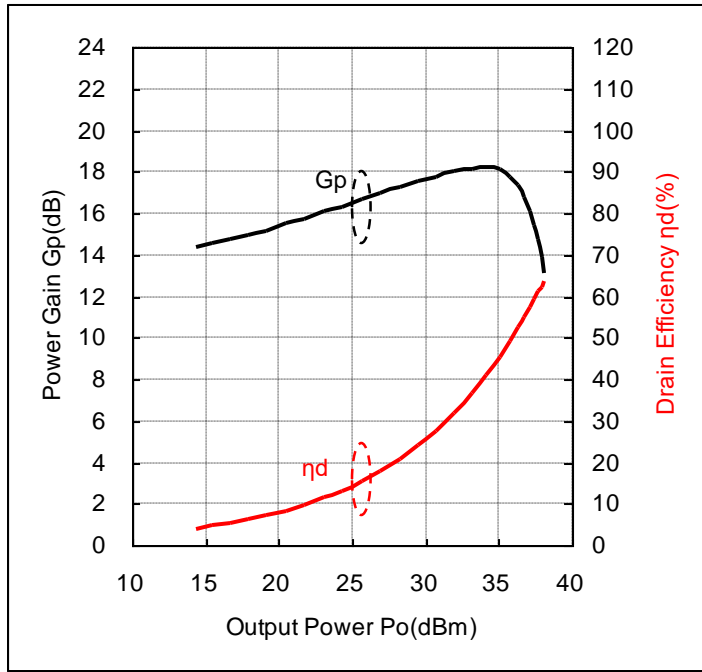
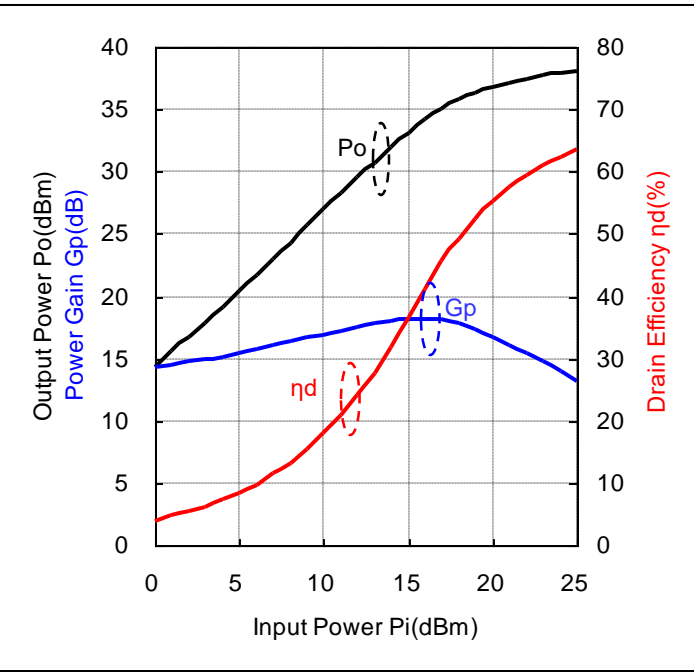


Input-Output Characteristics $V_{ds}=6.0V$, $I_{bias}=50mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=49.7mA$

@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=49.7mA$

Data

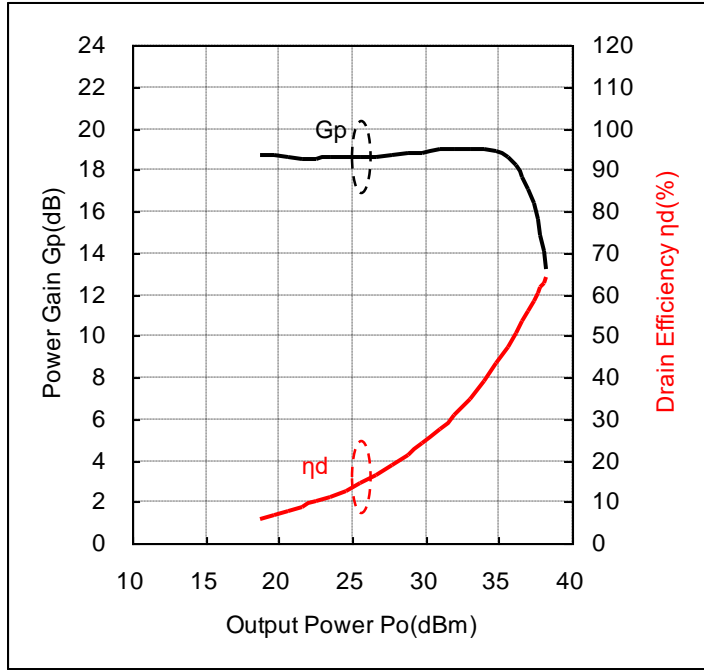
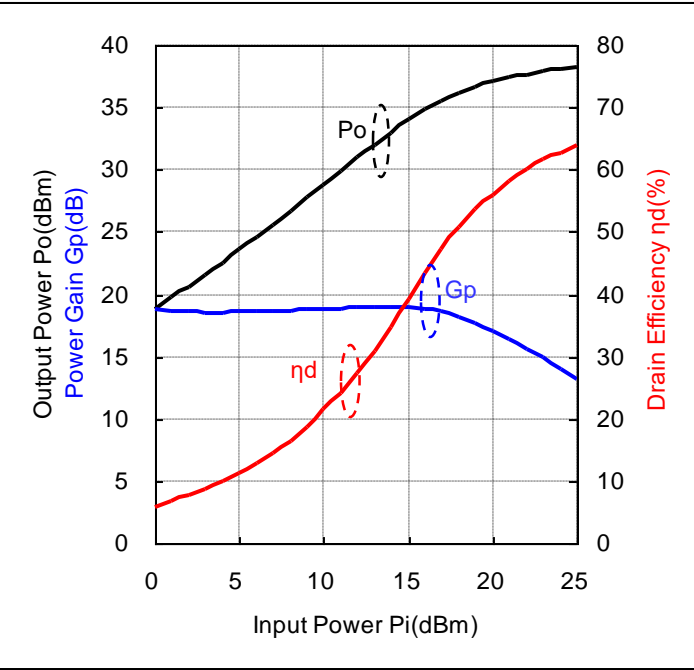
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.12	6.0	49.7	470	0.0	1.0	14.3	0.027	14.3	113	4.0
1.12	6.0	49.7	470	1.0	1.3	15.5	0.036	14.5	126	4.7
1.12	6.0	49.7	470	2.0	1.6	16.7	0.047	14.7	144	5.4
1.12	6.0	49.7	470	3.0	2.0	17.9	0.062	14.9	165	6.2
1.12	6.0	49.7	470	4.0	2.5	19.2	0.083	15.2	190	7.3
1.12	6.0	49.7	470	5.0	3.2	20.5	0.111	15.5	221	8.4
1.12	6.0	49.7	470	6.0	4.0	21.7	0.149	15.7	253	9.8
1.12	6.0	49.7	470	7.0	5.0	23.0	0.202	16.0	295	11.4
1.12	6.0	49.7	470	8.0	6.3	24.3	0.271	16.3	343	13.2
1.12	6.0	49.7	470	9.0	7.9	25.7	0.371	16.7	398	15.5
1.12	6.0	49.7	470	10.0	10.0	26.9	0.494	16.9	457	18.0
1.12	6.0	49.7	470	11.0	12.6	28.2	0.665	17.2	534	20.8
1.12	6.0	49.7	470	12.0	15.8	29.5	0.895	17.5	619	24.1
1.12	6.0	49.7	470	13.0	20.0	30.8	1.191	17.8	718	27.6
1.12	6.0	49.7	470	14.0	25.1	32.0	1.585	18.0	828	31.9
1.12	6.0	49.7	470	15.0	31.6	33.2	2.070	18.2	944	36.6
1.12	6.0	49.7	470	16.0	39.8	34.2	2.630	18.2	1066	41.1
1.12	6.0	49.7	470	17.0	50.1	35.1	3.221	18.1	1180	45.5
1.12	6.0	49.7	470	18.0	63.1	35.8	3.767	17.8	1277	49.1
1.12	6.0	49.7	470	19.0	79.4	36.3	4.276	17.3	1361	52.4
1.12	6.0	49.7	470	20.0	100.0	36.8	4.742	16.8	1434	55.1
1.12	6.0	49.7	470	21.0	125.9	37.1	5.164	16.1	1499	57.4
1.12	6.0	49.7	470	22.0	158.5	37.4	5.546	15.4	1558	59.3
1.12	6.0	49.7	470	23.0	199.5	37.7	5.888	14.7	1610	61.0
1.12	6.0	49.7	470	24.0	251.2	37.9	6.194	13.9	1657	62.3
1.12	6.0	49.7	470	25.0	316.2	38.1	6.471	13.1	1698	63.5

Input-Output Characteristics $V_{ds}=6.0V$, $I_{bias}=150mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=147.8mA$

@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=147.8mA$

Data

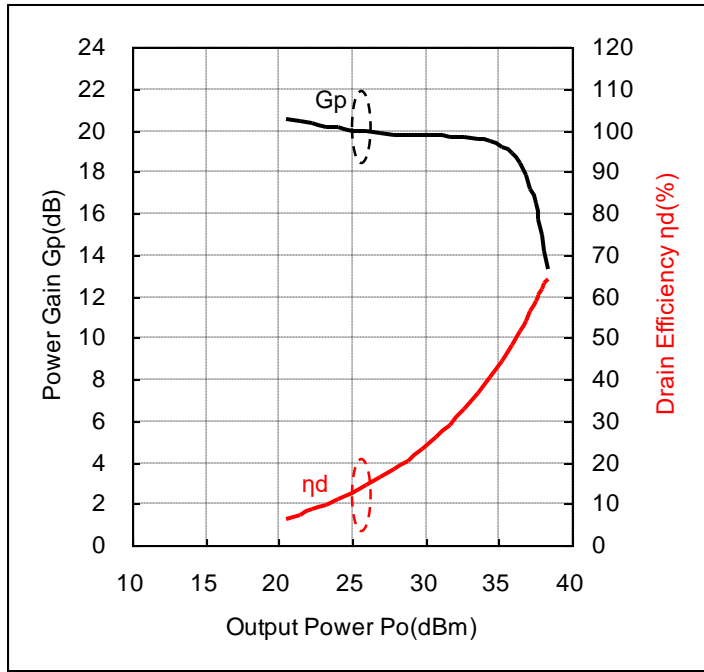
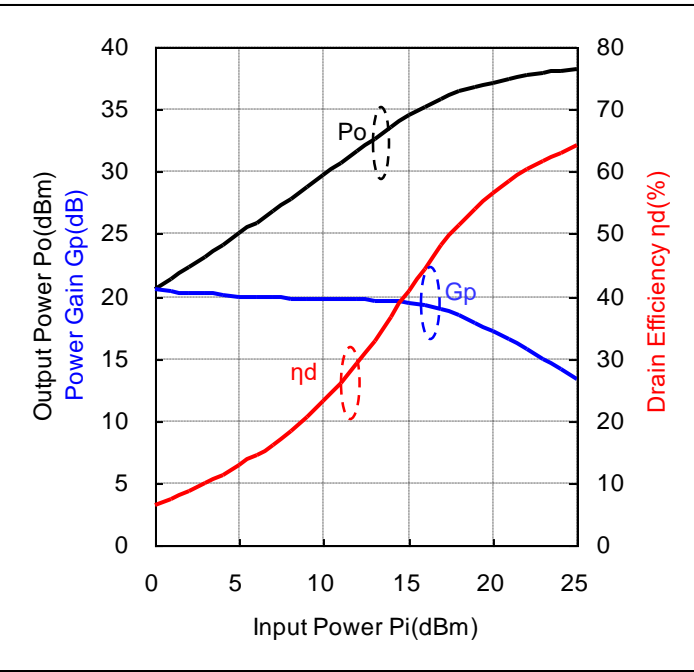
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.22	6.0	147.8	470	0.0	1.0	18.7	0.075	18.7	213	5.9
1.22	6.0	147.8	470	1.0	1.3	19.7	0.093	18.7	232	6.7
1.22	6.0	147.8	470	2.0	1.6	20.6	0.115	18.6	250	7.7
1.22	6.0	147.8	470	3.0	2.0	21.5	0.143	18.5	275	8.7
1.22	6.0	147.8	470	4.0	2.5	22.5	0.179	18.5	299	10.0
1.22	6.0	147.8	470	5.0	3.2	23.6	0.227	18.6	335	11.3
1.22	6.0	147.8	470	6.0	4.0	24.6	0.286	18.6	374	12.8
1.22	6.0	147.8	470	7.0	5.0	25.6	0.362	18.6	417	14.5
1.22	6.0	147.8	470	8.0	6.3	26.6	0.462	18.6	466	16.5
1.22	6.0	147.8	470	9.0	7.9	27.7	0.592	18.7	528	18.7
1.22	6.0	147.8	470	10.0	10.0	28.8	0.759	18.8	591	21.4
1.22	6.0	147.8	470	11.0	12.6	29.8	0.964	18.8	668	24.1
1.22	6.0	147.8	470	12.0	15.8	30.9	1.242	18.9	755	27.4
1.22	6.0	147.8	470	13.0	20.0	32.0	1.574	19.0	847	31.0
1.22	6.0	147.8	470	14.0	25.1	33.0	2.000	19.0	957	34.8
1.22	6.0	147.8	470	15.0	31.6	34.0	2.506	19.0	1068	39.1
1.22	6.0	147.8	470	16.0	39.8	34.9	3.062	18.9	1176	43.4
1.22	6.0	147.8	470	17.0	50.1	35.6	3.606	18.6	1272	47.2
1.22	6.0	147.8	470	18.0	63.1	36.2	4.140	18.2	1361	50.7
1.22	6.0	147.8	470	19.0	79.4	36.6	4.613	17.6	1437	53.5
1.22	6.0	147.8	470	20.0	100.0	37.0	5.047	17.0	1501	56.0
1.22	6.0	147.8	470	21.0	125.9	37.4	5.445	16.4	1559	58.2
1.22	6.0	147.8	470	22.0	158.5	37.6	5.794	15.6	1608	60.1
1.22	6.0	147.8	470	23.0	199.5	37.9	6.109	14.9	1654	61.6
1.22	6.0	147.8	470	24.0	251.2	38.0	6.383	14.0	1696	62.7
1.22	6.0	147.8	470	25.0	316.2	38.2	6.653	13.2	1733	64.0

Input-Output Characteristics $V_{ds}=6.0V$, $I_{bias}=250mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=246.7mA$

@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=246.7mA$

Data

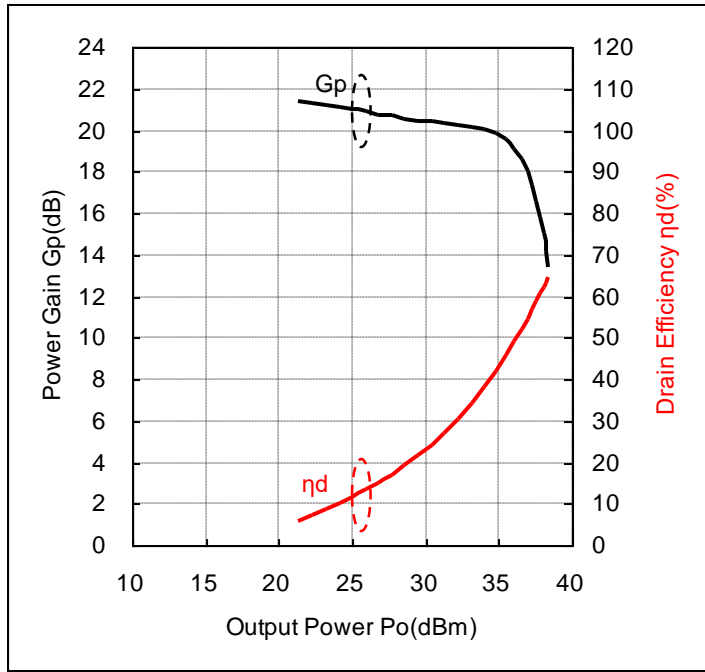
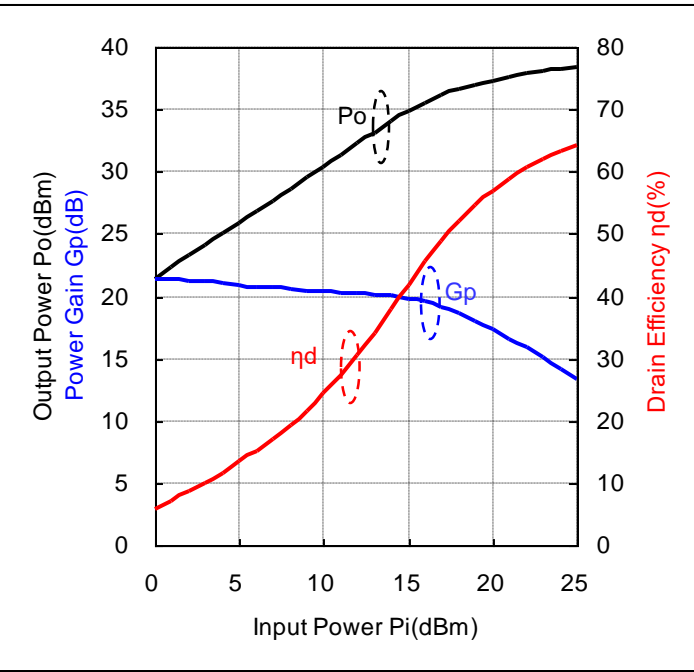
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.30	6.0	246.7	470	0.0	1.0	20.5	0.112	20.5	298	6.3
1.30	6.0	246.7	470	1.0	1.3	21.4	0.138	20.4	313	7.4
1.30	6.0	246.7	470	2.0	1.6	22.3	0.170	20.3	330	8.6
1.30	6.0	246.7	470	3.0	2.0	23.2	0.208	20.2	352	9.9
1.30	6.0	246.7	470	4.0	2.5	24.1	0.258	20.1	385	11.2
1.30	6.0	246.7	470	5.0	3.2	25.0	0.316	20.0	415	12.7
1.30	6.0	246.7	470	6.0	4.0	25.9	0.393	19.9	456	14.4
1.30	6.0	246.7	470	7.0	5.0	26.9	0.486	19.9	502	16.2
1.30	6.0	246.7	470	8.0	6.3	27.8	0.603	19.8	550	18.3
1.30	6.0	246.7	470	9.0	7.9	28.8	0.755	19.8	615	20.4
1.30	6.0	246.7	470	10.0	10.0	29.8	0.944	19.8	681	23.1
1.30	6.0	246.7	470	11.0	12.6	30.7	1.180	19.7	757	26.0
1.30	6.0	246.7	470	12.0	15.8	31.7	1.476	19.7	845	29.1
1.30	6.0	246.7	470	13.0	20.0	32.7	1.845	19.7	940	32.7
1.30	6.0	246.7	470	14.0	25.1	33.6	2.286	19.6	1039	36.7
1.30	6.0	246.7	470	15.0	31.6	34.5	2.799	19.5	1146	40.7
1.30	6.0	246.7	470	16.0	39.8	35.2	3.327	19.2	1247	44.5
1.30	6.0	246.7	470	17.0	50.1	35.9	3.873	18.9	1338	48.2
1.30	6.0	246.7	470	18.0	63.1	36.4	4.365	18.4	1417	51.4
1.30	6.0	246.7	470	19.0	79.4	36.8	4.819	17.8	1484	54.1
1.30	6.0	246.7	470	20.0	100.0	37.2	5.224	17.2	1541	56.5
1.30	6.0	246.7	470	21.0	125.9	37.5	5.610	16.5	1597	58.6
1.30	6.0	246.7	470	22.0	158.5	37.7	5.943	15.7	1643	60.3
1.30	6.0	246.7	470	23.0	199.5	38.0	6.237	15.0	1684	61.7
1.30	6.0	246.7	470	24.0	251.2	38.1	6.516	14.1	1722	63.1
1.30	6.0	246.7	470	25.0	316.2	38.3	6.761	13.3	1758	64.1

Input-Output Characteristics $V_{ds}=6.0V$, $I_{bias}=350mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=348.9mA$

@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=348.9mA$

Data

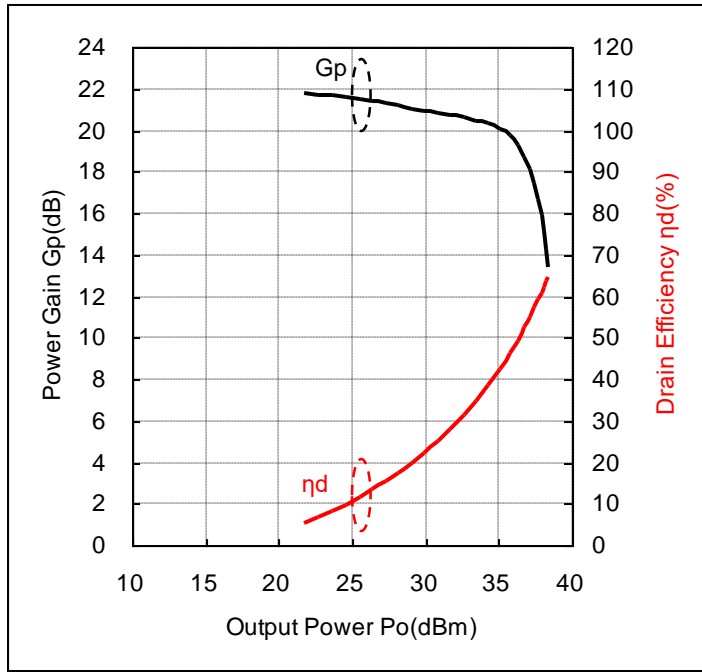
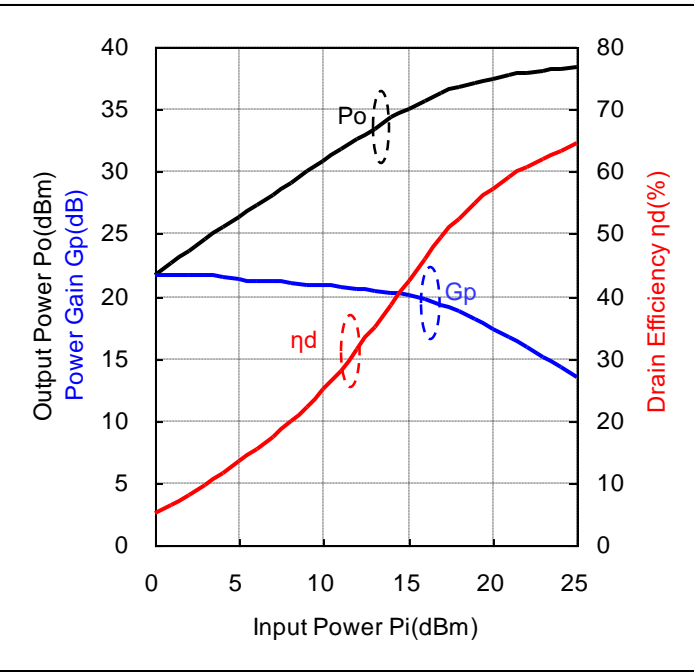
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.36	6.0	348.9	470	0.0	1.0	21.4	0.137	21.4	386	5.9
1.36	6.0	348.9	470	1.0	1.3	22.3	0.170	21.3	394	7.2
1.36	6.0	348.9	470	2.0	1.6	23.2	0.210	21.2	408	8.6
1.36	6.0	348.9	470	3.0	2.0	24.1	0.259	21.1	428	10.1
1.36	6.0	348.9	470	4.0	2.5	25.0	0.316	21.0	452	11.7
1.36	6.0	348.9	470	5.0	3.2	25.9	0.388	20.9	484	13.4
1.36	6.0	348.9	470	6.0	4.0	26.8	0.475	20.8	523	15.2
1.36	6.0	348.9	470	7.0	5.0	27.7	0.586	20.7	571	17.1
1.36	6.0	348.9	470	8.0	6.3	28.6	0.718	20.6	623	19.2
1.36	6.0	348.9	470	9.0	7.9	29.5	0.887	20.5	683	21.6
1.36	6.0	348.9	470	10.0	10.0	30.4	1.094	20.4	751	24.3
1.36	6.0	348.9	470	11.0	12.6	31.3	1.355	20.3	830	27.2
1.36	6.0	348.9	470	12.0	15.8	32.2	1.671	20.2	913	30.5
1.36	6.0	348.9	470	13.0	20.0	33.1	2.061	20.1	1006	34.1
1.36	6.0	348.9	470	14.0	25.1	34.0	2.529	20.0	1111	37.9
1.36	6.0	348.9	470	15.0	31.6	34.8	3.027	19.8	1209	41.7
1.36	6.0	348.9	470	16.0	39.8	35.5	3.565	19.5	1304	45.6
1.36	6.0	348.9	470	17.0	50.1	36.1	4.083	19.1	1389	49.0
1.36	6.0	348.9	470	18.0	63.1	36.6	4.550	18.6	1460	52.0
1.36	6.0	348.9	470	19.0	79.4	37.0	4.989	18.0	1523	54.6
1.36	6.0	348.9	470	20.0	100.0	37.3	5.395	17.3	1579	56.9
1.36	6.0	348.9	470	21.0	125.9	37.6	5.754	16.6	1627	58.9
1.36	6.0	348.9	470	22.0	158.5	37.8	6.081	15.8	1672	60.6
1.36	6.0	348.9	470	23.0	199.5	38.0	6.368	15.0	1710	62.1
1.36	6.0	348.9	470	24.0	251.2	38.2	6.622	14.2	1746	63.2
1.36	6.0	348.9	470	25.0	316.2	38.4	6.871	13.4	1779	64.4

Input-Output Characteristics $V_{ds}=6.0V$, $I_{bias}=450mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=446.5mA$

@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=446.5mA$

Data

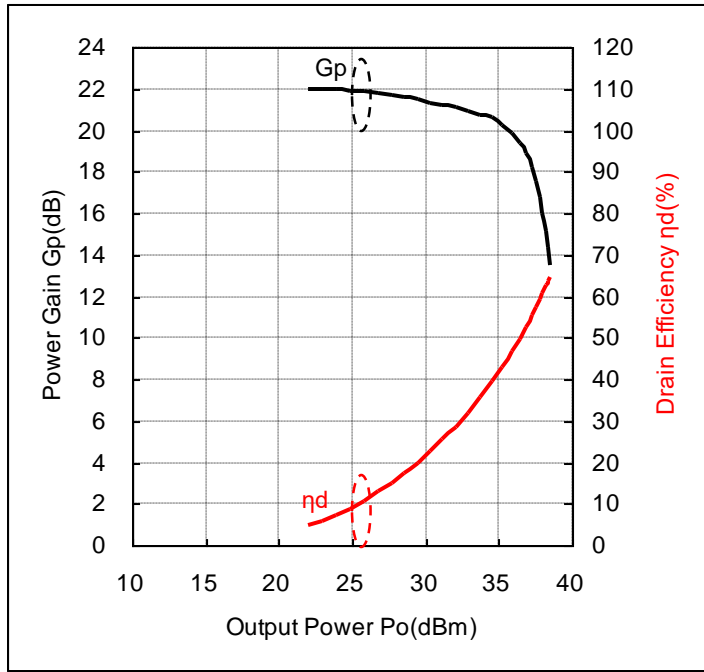
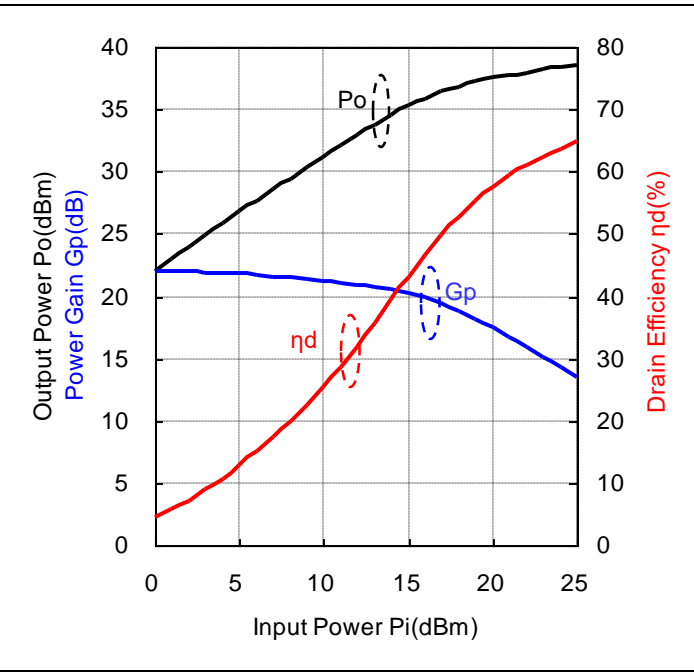
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.41	6.0	446.5	470	0.0	1.0	21.8	0.150	21.8	473	5.3
1.41	6.0	446.5	470	1.0	1.3	22.7	0.187	21.7	478	6.5
1.41	6.0	446.5	470	2.0	1.6	23.7	0.234	21.7	488	8.0
1.41	6.0	446.5	470	3.0	2.0	24.6	0.289	21.6	503	9.6
1.41	6.0	446.5	470	4.0	2.5	25.5	0.356	21.5	521	11.4
1.41	6.0	446.5	470	5.0	3.2	26.4	0.438	21.4	547	13.3
1.41	6.0	446.5	470	6.0	4.0	27.3	0.535	21.3	584	15.3
1.41	6.0	446.5	470	7.0	5.0	28.2	0.656	21.2	626	17.5
1.41	6.0	446.5	470	8.0	6.3	29.1	0.805	21.1	679	19.8
1.41	6.0	446.5	470	9.0	7.9	30.0	0.991	21.0	740	22.3
1.41	6.0	446.5	470	10.0	10.0	30.9	1.216	20.9	808	25.1
1.41	6.0	446.5	470	11.0	12.6	31.7	1.489	20.7	885	28.0
1.41	6.0	446.5	470	12.0	15.8	32.6	1.824	20.6	970	31.4
1.41	6.0	446.5	470	13.0	20.0	33.5	2.223	20.5	1063	34.9
1.41	6.0	446.5	470	14.0	25.1	34.3	2.698	20.3	1161	38.7
1.41	6.0	446.5	470	15.0	31.6	35.1	3.214	20.1	1261	42.5
1.41	6.0	446.5	470	16.0	39.8	35.7	3.733	19.7	1351	46.0
1.41	6.0	446.5	470	17.0	50.1	36.3	4.227	19.3	1426	49.4
1.41	6.0	446.5	470	18.0	63.1	36.7	4.699	18.7	1495	52.4
1.41	6.0	446.5	470	19.0	79.4	37.1	5.140	18.1	1557	55.0
1.41	6.0	446.5	470	20.0	100.0	37.4	5.521	17.4	1608	57.2
1.41	6.0	446.5	470	21.0	125.9	37.7	5.875	16.7	1653	59.2
1.41	6.0	446.5	470	22.0	158.5	37.9	6.180	15.9	1693	60.8
1.41	6.0	446.5	470	23.0	199.5	38.1	6.457	15.1	1732	62.1
1.41	6.0	446.5	470	24.0	251.2	38.3	6.714	14.3	1764	63.4
1.41	6.0	446.5	470	25.0	316.2	38.4	6.950	13.4	1797	64.4

Input-Output Characteristics $V_{ds}=6.0V$, $I_{bias}=550mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=547.3mA$

@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=547.3mA$

Data

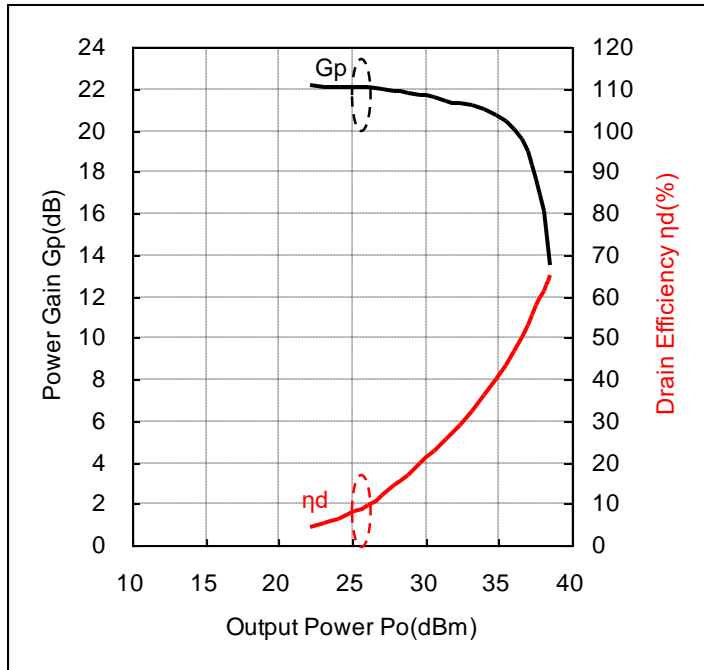
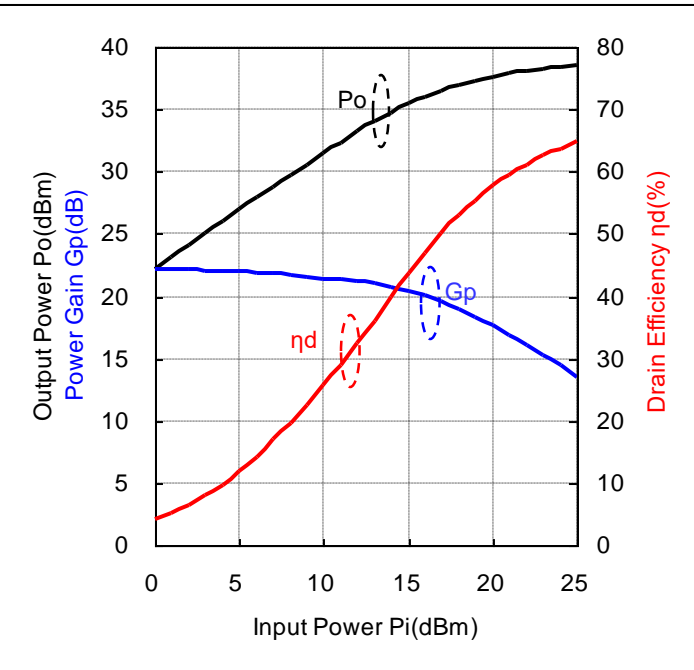
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.46	6.0	547.3	470	0.0	1.0	22.0	0.159	22.0	569	4.7
1.46	6.0	547.3	470	1.0	1.3	23.0	0.199	22.0	568	5.8
1.46	6.0	547.3	470	2.0	1.6	24.0	0.249	22.0	579	7.2
1.46	6.0	547.3	470	3.0	2.0	24.9	0.310	21.9	586	8.8
1.46	6.0	547.3	470	4.0	2.5	25.9	0.385	21.9	601	10.7
1.46	6.0	547.3	470	5.0	3.2	26.8	0.478	21.8	621	12.8
1.46	6.0	547.3	470	6.0	4.0	27.7	0.586	21.7	647	15.1
1.46	6.0	547.3	470	7.0	5.0	28.6	0.721	21.6	687	17.5
1.46	6.0	547.3	470	8.0	6.3	29.5	0.881	21.5	735	20.0
1.46	6.0	547.3	470	9.0	7.9	30.3	1.076	21.3	794	22.6
1.46	6.0	547.3	470	10.0	10.0	31.2	1.312	21.2	859	25.5
1.46	6.0	547.3	470	11.0	12.6	32.1	1.611	21.1	937	28.6
1.46	6.0	547.3	470	12.0	15.8	32.9	1.959	20.9	1025	31.9
1.46	6.0	547.3	470	13.0	20.0	33.8	2.382	20.8	1117	35.5
1.46	6.0	547.3	470	14.0	25.1	34.6	2.871	20.6	1215	39.4
1.46	6.0	547.3	470	15.0	31.6	35.3	3.373	20.3	1307	43.0
1.46	6.0	547.3	470	16.0	39.8	35.9	3.882	19.9	1390	46.5
1.46	6.0	547.3	470	17.0	50.1	36.4	4.375	19.4	1466	49.7
1.46	6.0	547.3	470	18.0	63.1	36.8	4.842	18.8	1531	52.7
1.46	6.0	547.3	470	19.0	79.4	37.2	5.260	18.2	1586	55.3
1.46	6.0	547.3	470	20.0	100.0	37.5	5.649	17.5	1637	57.5
1.46	6.0	547.3	470	21.0	125.9	37.8	5.984	16.8	1678	59.4
1.46	6.0	547.3	470	22.0	158.5	38.0	6.281	16.0	1718	60.9
1.46	6.0	547.3	470	23.0	199.5	38.2	6.561	15.2	1752	62.4
1.46	6.0	547.3	470	24.0	251.2	38.3	6.823	14.3	1786	63.7
1.46	6.0	547.3	470	25.0	316.2	38.5	7.047	13.5	1813	64.8

Input-Output Characteristics $V_{ds}=6.0V$, $I_{bias}=650mA$ - Condition 1

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=643.8mA$

@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=643.8mA$

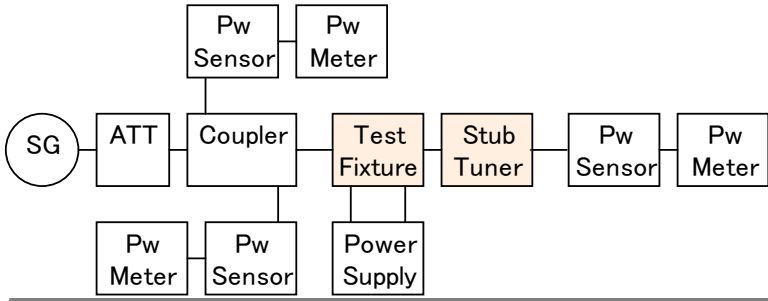
Data

V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.51	6.0	643.8	470	0.0	1.0	22.1	0.164	22.1	656	4.2
1.51	6.0	643.8	470	1.0	1.3	23.1	0.205	22.1	664	5.1
1.51	6.0	643.8	470	2.0	1.6	24.1	0.257	22.1	664	6.4
1.51	6.0	643.8	470	3.0	2.0	25.1	0.322	22.1	675	8.0
1.51	6.0	643.8	470	4.0	2.5	26.0	0.402	22.0	684	9.8
1.51	6.0	643.8	470	5.0	3.2	27.0	0.501	22.0	695	12.0
1.51	6.0	643.8	470	6.0	4.0	27.9	0.614	21.9	717	14.3
1.51	6.0	643.8	470	7.0	5.0	28.8	0.757	21.8	743	17.0
1.51	6.0	643.8	470	8.0	6.3	29.7	0.931	21.7	787	19.7
1.51	6.0	643.8	470	9.0	7.9	30.6	1.143	21.6	842	22.6
1.51	6.0	643.8	470	10.0	10.0	31.4	1.393	21.4	907	25.6
1.51	6.0	643.8	470	11.0	12.6	32.3	1.710	21.3	986	28.9
1.51	6.0	643.8	470	12.0	15.8	33.2	2.080	21.2	1069	32.4
1.51	6.0	643.8	470	13.0	20.0	34.0	2.518	21.0	1163	36.1
1.51	6.0	643.8	470	14.0	25.1	34.8	2.999	20.8	1257	39.8
1.51	6.0	643.8	470	15.0	31.6	35.5	3.516	20.5	1346	43.5
1.51	6.0	643.8	470	16.0	39.8	36.0	4.027	20.0	1431	46.9
1.51	6.0	643.8	470	17.0	50.1	36.5	4.508	19.5	1499	50.1
1.51	6.0	643.8	470	18.0	63.1	37.0	4.977	19.0	1563	53.1
1.51	6.0	643.8	470	19.0	79.4	37.3	5.370	18.3	1615	55.4
1.51	6.0	643.8	470	20.0	100.0	37.6	5.754	17.6	1661	57.7
1.51	6.0	643.8	470	21.0	125.9	37.8	6.081	16.8	1701	59.6
1.51	6.0	643.8	470	22.0	158.5	38.0	6.383	16.0	1739	61.2
1.51	6.0	643.8	470	23.0	199.5	38.2	6.653	15.2	1773	62.5
1.51	6.0	643.8	470	24.0	251.2	38.4	6.887	14.4	1802	63.7
1.51	6.0	643.8	470	25.0	316.2	38.5	7.112	13.5	1828	64.8

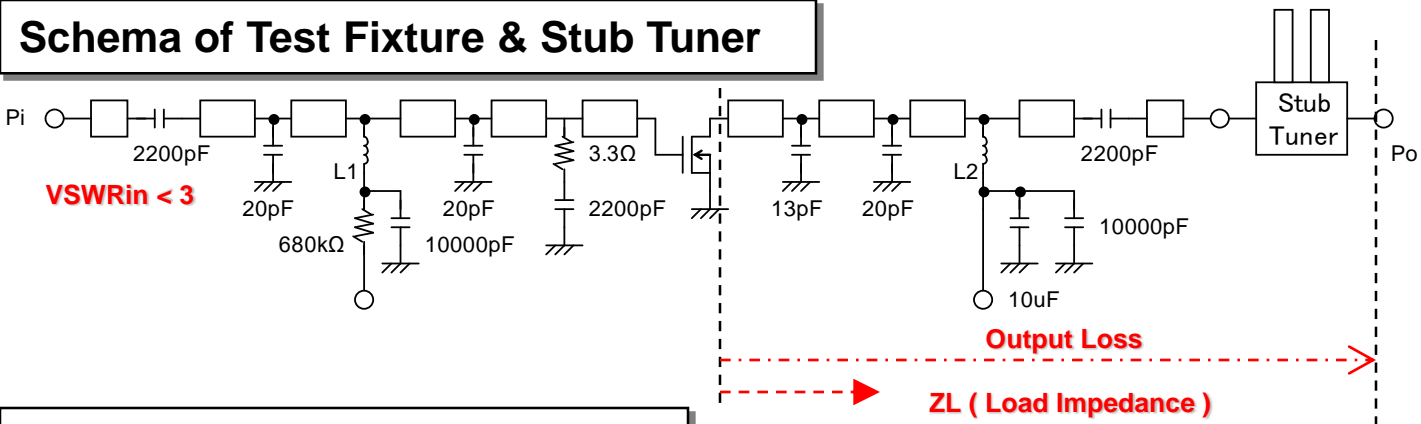
Test System – Condition 2

RF Test Block

Test Fixture

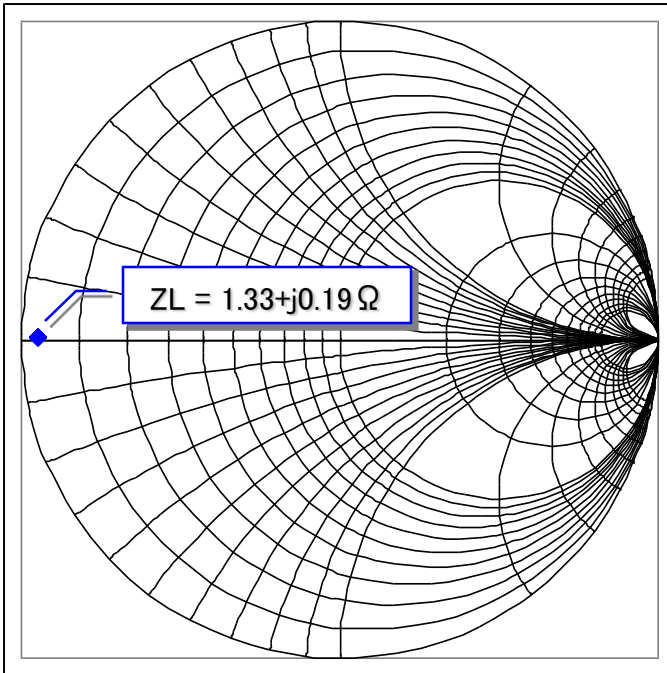


Schema of Test Fixture & Stub Tuner

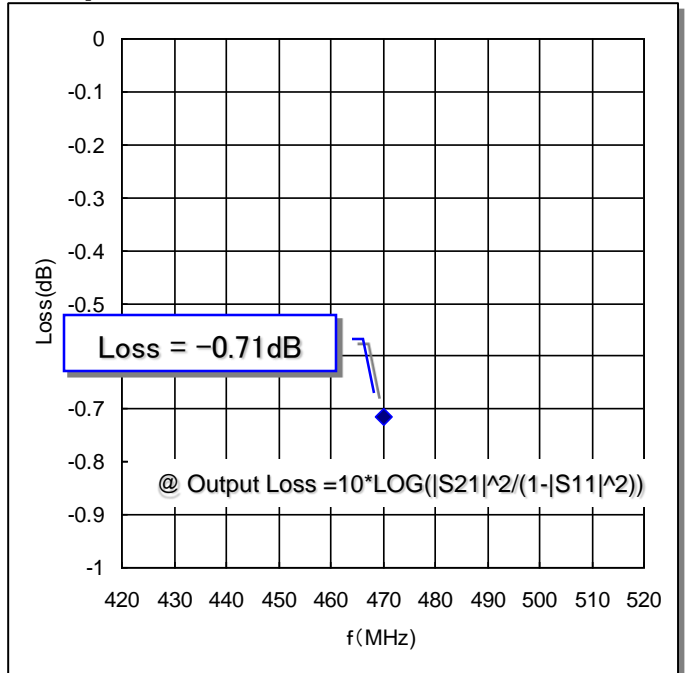


Load Impedance & Output Loss

Smith Chart



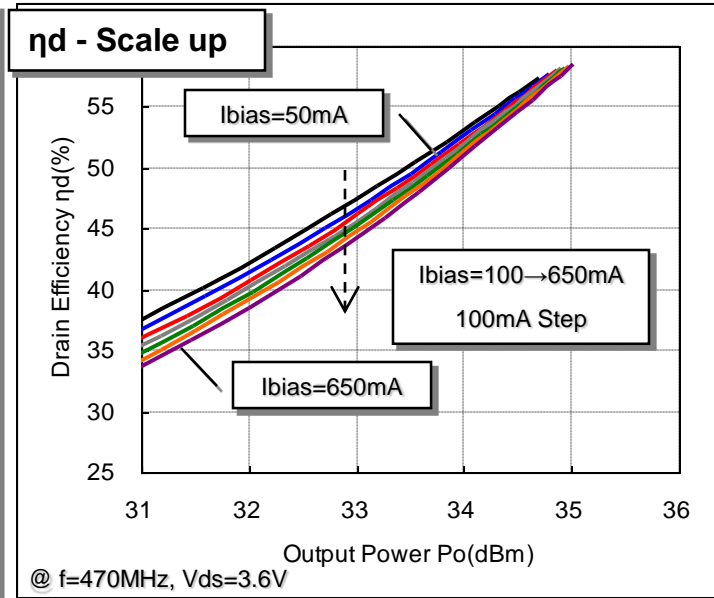
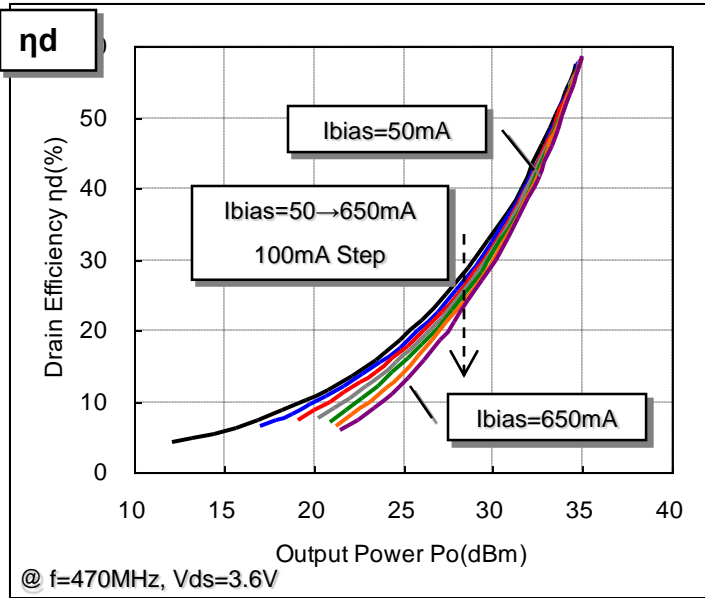
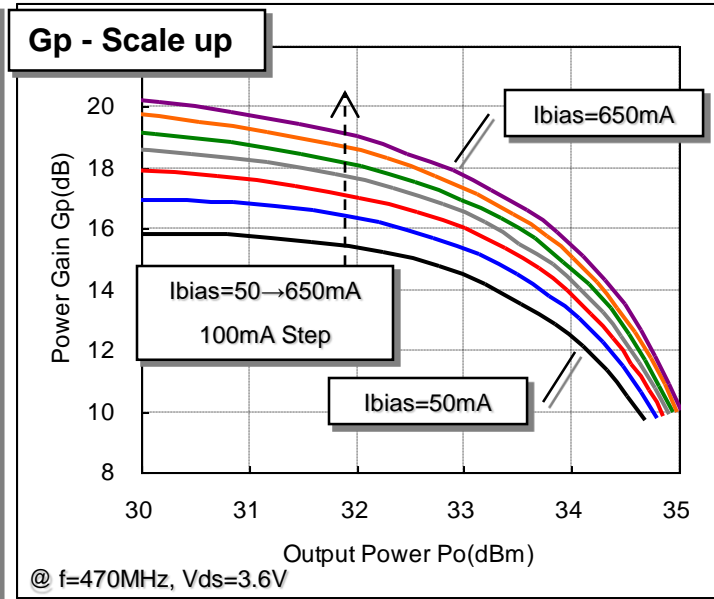
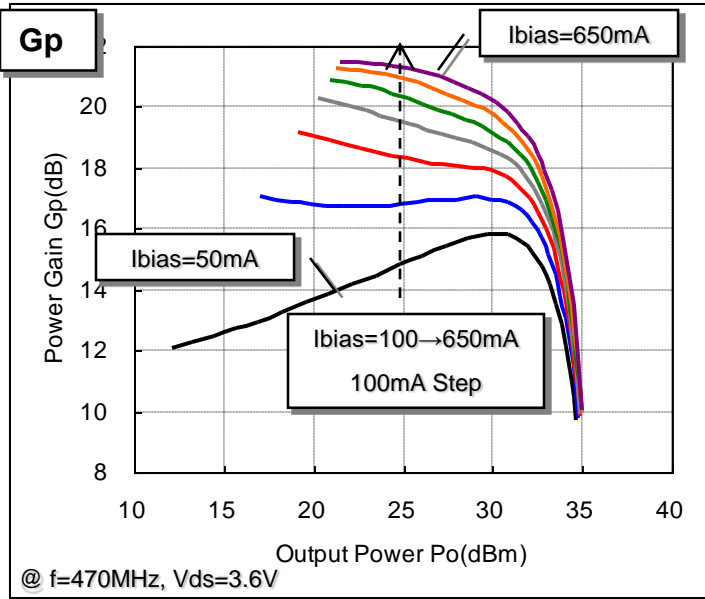
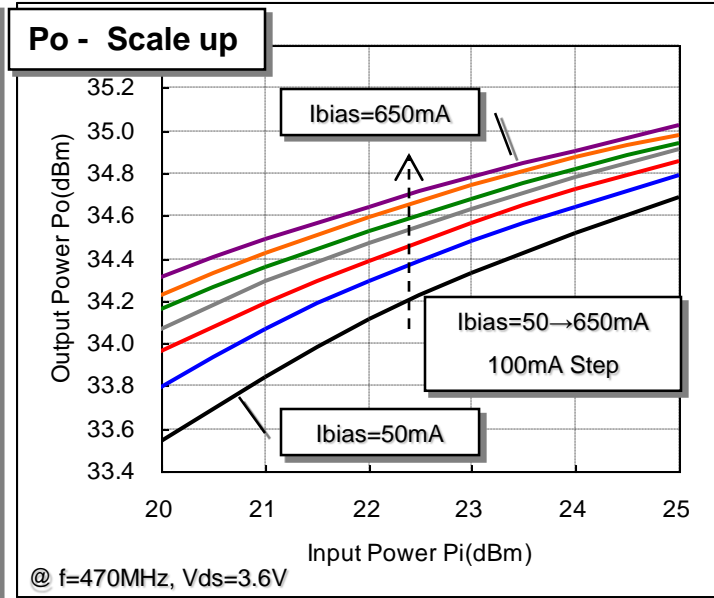
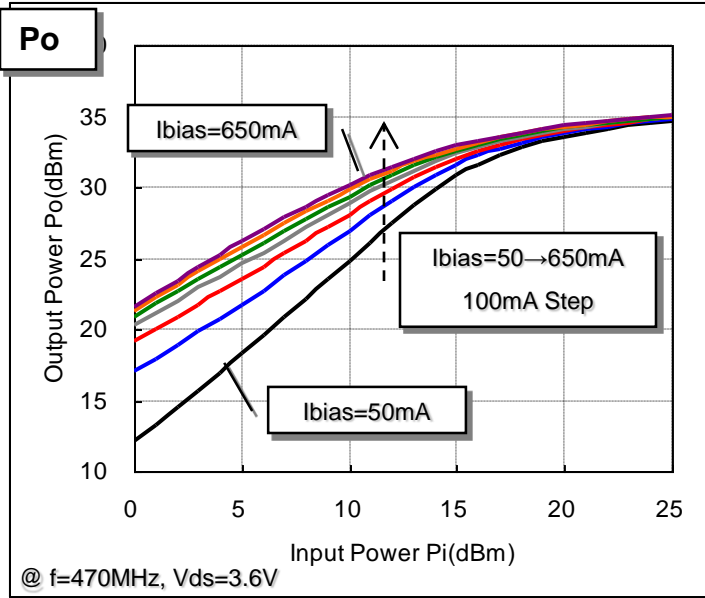
Output Loss



$ZL = 1.33 + j 0.19 \Omega$, Output Circuit Loss = -0.71dB (@ $f=470\text{MHz}$)

※ The test value in this application note includes the output loss.

Input - Output Characteristics $V_{ds}=3.6V$ - Condition 2

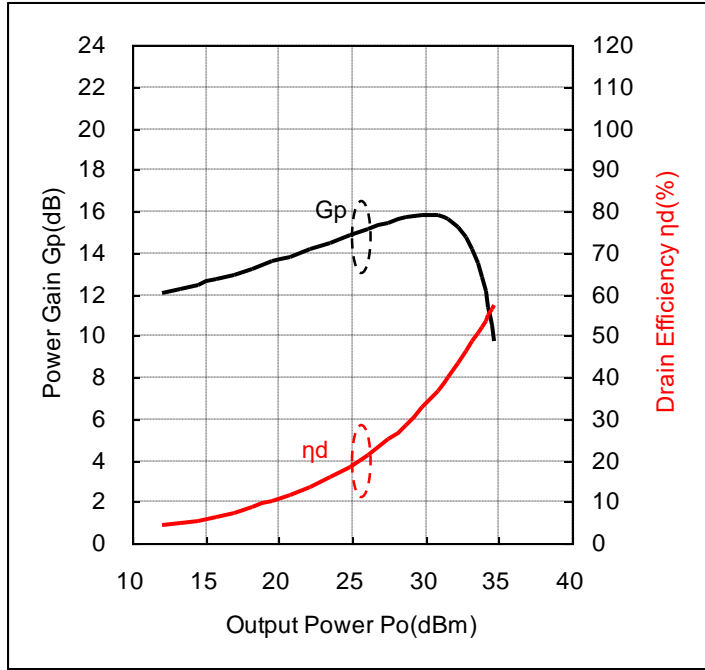
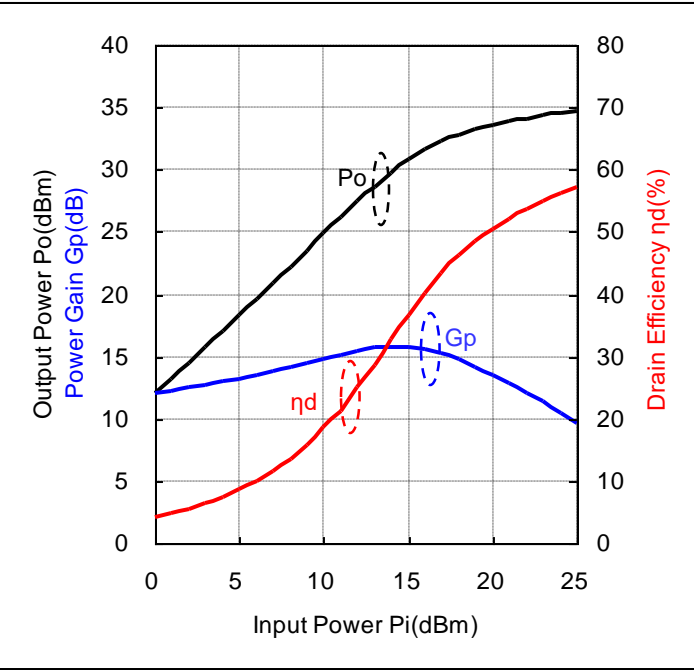


Input-Output Characteristics $V_{ds}=3.6V, I_{bias}=50mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz, V_{ds}=3.6V, I_{bias}=49.2mA$

@ $f=470MHz, V_{ds}=3.6V, I_{bias}=49.2mA$

Data

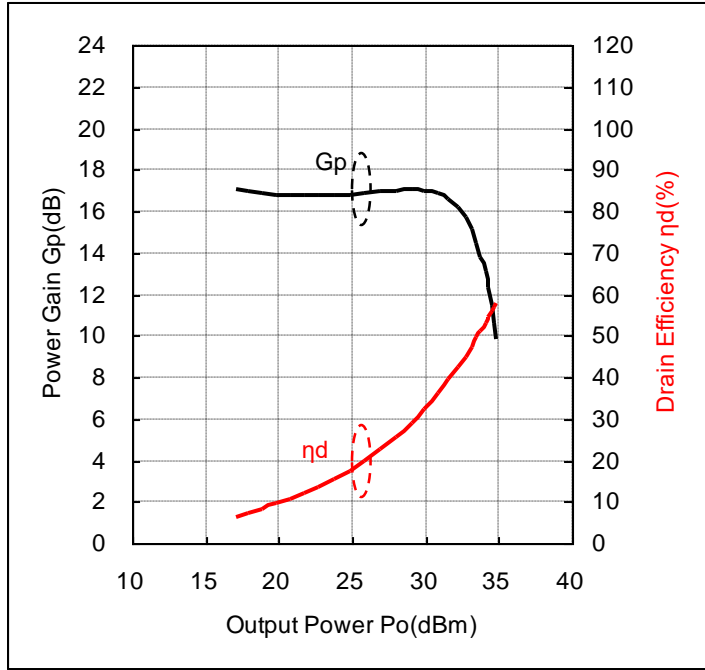
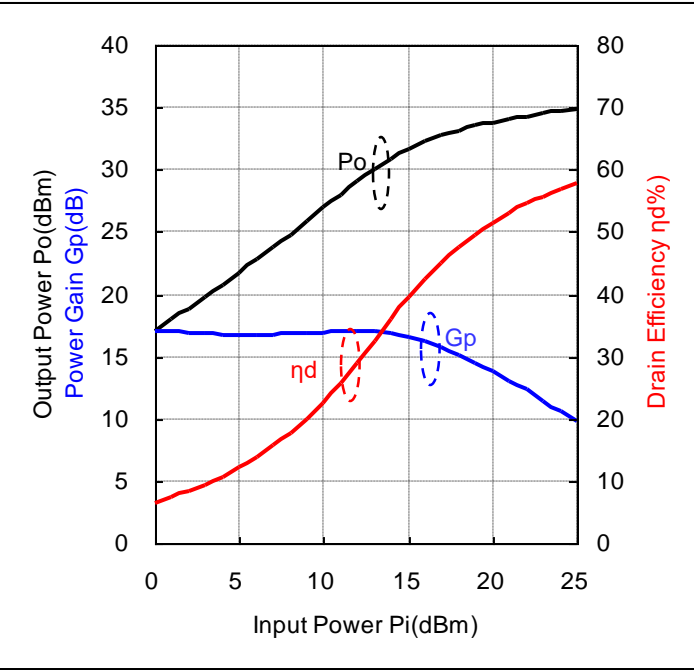
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.17	3.6	49.2	470	0.0	1.0	12.1	0.016	12.1	110	4.1
1.17	3.6	49.2	470	1.0	1.3	13.3	0.021	12.3	125	4.7
1.17	3.6	49.2	470	2.0	1.6	14.5	0.028	12.5	141	5.5
1.17	3.6	49.2	470	3.0	2.0	15.7	0.037	12.7	163	6.3
1.17	3.6	49.2	470	4.0	2.5	17.0	0.050	13.0	186	7.4
1.17	3.6	49.2	470	5.0	3.2	18.2	0.067	13.2	215	8.6
1.17	3.6	49.2	470	6.0	4.0	19.6	0.091	13.6	251	10.0
1.17	3.6	49.2	470	7.0	5.0	20.8	0.121	13.8	289	11.7
1.17	3.6	49.2	470	8.0	6.3	22.2	0.165	14.2	337	13.6
1.17	3.6	49.2	470	9.0	7.9	23.5	0.222	14.5	391	15.8
1.17	3.6	49.2	470	10.0	10.0	24.8	0.305	14.8	457	18.5
1.17	3.6	49.2	470	11.0	12.6	26.1	0.408	15.1	532	21.3
1.17	3.6	49.2	470	12.0	15.8	27.4	0.551	15.4	614	24.9
1.17	3.6	49.2	470	13.0	20.0	28.7	0.736	15.7	715	28.6
1.17	3.6	49.2	470	14.0	25.1	29.8	0.953	15.8	810	32.7
1.17	3.6	49.2	470	15.0	31.6	30.8	1.202	15.8	909	36.7
1.17	3.6	49.2	470	16.0	39.8	31.6	1.439	15.6	997	40.1
1.17	3.6	49.2	470	17.0	50.1	32.2	1.675	15.2	1073	43.4
1.17	3.6	49.2	470	18.0	63.1	32.8	1.892	14.8	1139	46.1
1.17	3.6	49.2	470	19.0	79.4	33.2	2.089	14.2	1197	48.5
1.17	3.6	49.2	470	20.0	100.0	33.5	2.259	13.5	1245	50.4
1.17	3.6	49.2	470	21.0	125.9	33.8	2.421	12.8	1290	52.1
1.17	3.6	49.2	470	22.0	158.5	34.1	2.576	12.1	1333	53.7
1.17	3.6	49.2	470	23.0	199.5	34.3	2.710	11.3	1367	55.1
1.17	3.6	49.2	470	24.0	251.2	34.5	2.831	10.5	1399	56.2
1.17	3.6	49.2	470	25.0	316.2	34.7	2.944	9.7	1427	57.3

Input-Output Characteristics $V_{ds}=3.6V$, $I_{bias}=150mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=147.2mA$

@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=147.2mA$

Data

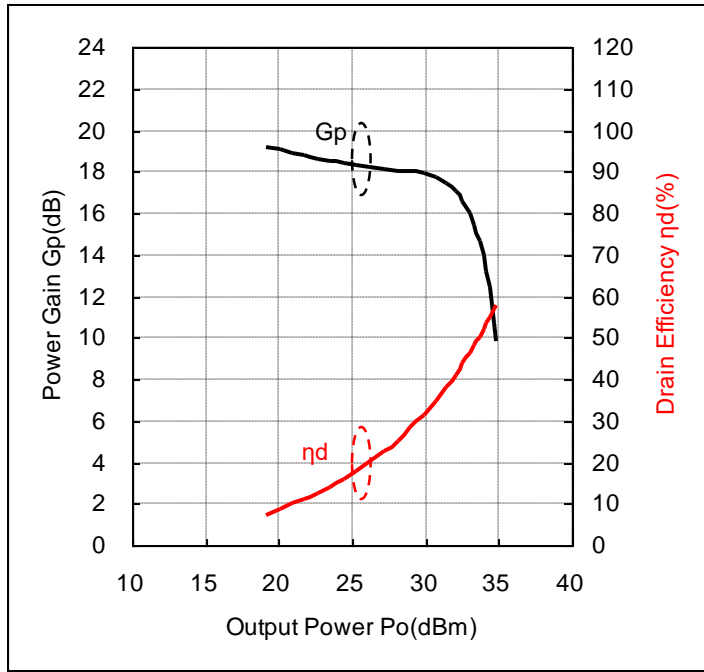
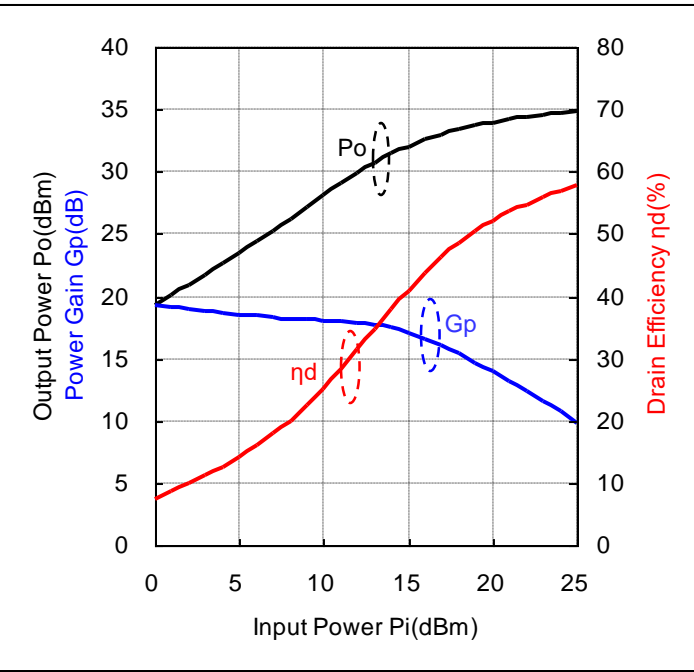
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.27	3.6	147.2	470	0.0	1.0	17.0	0.051	17.0	219	6.4
1.27	3.6	147.2	470	1.0	1.3	18.0	0.062	17.0	236	7.3
1.27	3.6	147.2	470	2.0	1.6	18.9	0.077	16.9	257	8.3
1.27	3.6	147.2	470	3.0	2.0	19.8	0.095	16.8	280	9.4
1.27	3.6	147.2	470	4.0	2.5	20.8	0.119	16.8	310	10.6
1.27	3.6	147.2	470	5.0	3.2	21.7	0.149	16.7	343	12.1
1.27	3.6	147.2	470	6.0	4.0	22.7	0.188	16.7	381	13.7
1.27	3.6	147.2	470	7.0	5.0	23.8	0.238	16.8	423	15.6
1.27	3.6	147.2	470	8.0	6.3	24.8	0.302	16.8	478	17.6
1.27	3.6	147.2	470	9.0	7.9	25.9	0.385	16.9	536	20.0
1.27	3.6	147.2	470	10.0	10.0	26.9	0.493	16.9	605	22.6
1.27	3.6	147.2	470	11.0	12.6	28.0	0.627	17.0	679	25.6
1.27	3.6	147.2	470	12.0	15.8	29.0	0.802	17.0	768	29.0
1.27	3.6	147.2	470	13.0	20.0	30.0	0.993	17.0	851	32.4
1.27	3.6	147.2	470	14.0	25.1	30.9	1.216	16.9	939	36.0
1.27	3.6	147.2	470	15.0	31.6	31.6	1.442	16.6	1017	39.4
1.27	3.6	147.2	470	16.0	39.8	32.2	1.663	16.2	1091	42.4
1.27	3.6	147.2	470	17.0	50.1	32.7	1.866	15.7	1152	45.0
1.27	3.6	147.2	470	18.0	63.1	33.1	2.061	15.1	1207	47.4
1.27	3.6	147.2	470	19.0	79.4	33.5	2.239	14.5	1255	49.6
1.27	3.6	147.2	470	20.0	100.0	33.8	2.393	13.8	1295	51.3
1.27	3.6	147.2	470	21.0	125.9	34.1	2.553	13.1	1336	53.1
1.27	3.6	147.2	470	22.0	158.5	34.3	2.685	12.3	1369	54.5
1.27	3.6	147.2	470	23.0	199.5	34.5	2.805	11.5	1399	55.7
1.27	3.6	147.2	470	24.0	251.2	34.6	2.911	10.6	1426	56.7
1.27	3.6	147.2	470	25.0	316.2	34.8	3.013	9.8	1450	57.7

Input-Output Characteristics $V_{ds}=3.6V$, $I_{bias}=250mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=251.2mA$

@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=251.2mA$

Data

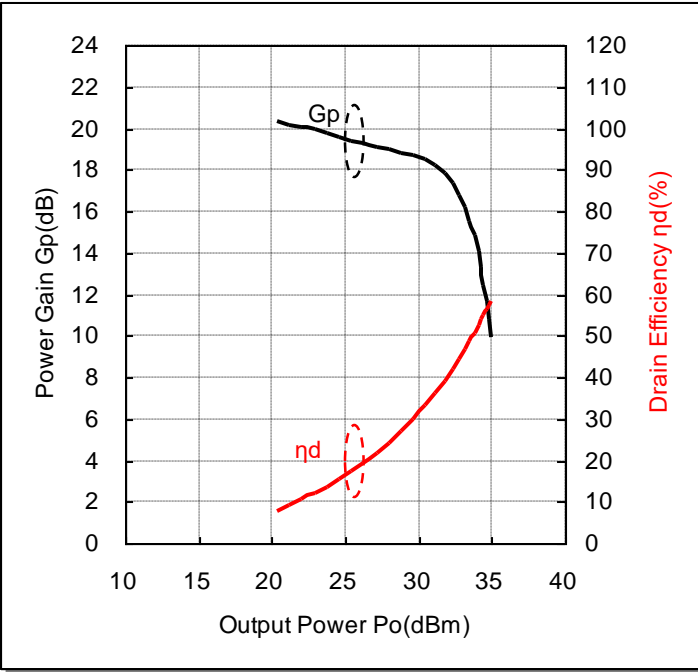
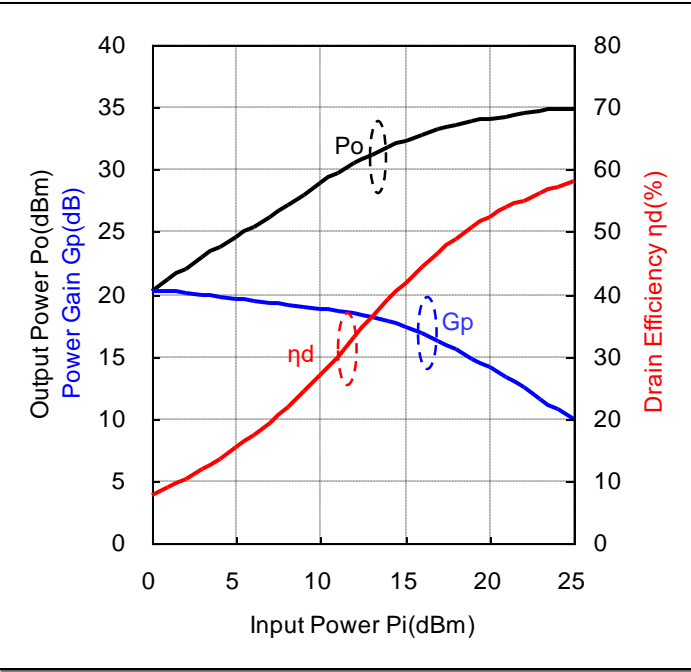
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.35	3.6	251.2	470	0.0	1.0	19.2	0.083	19.2	311	7.4
1.35	3.6	251.2	470	1.0	1.3	20.0	0.101	19.0	327	8.6
1.35	3.6	251.2	470	2.0	1.6	20.9	0.123	18.9	346	9.9
1.35	3.6	251.2	470	3.0	2.0	21.8	0.150	18.8	372	11.2
1.35	3.6	251.2	470	4.0	2.5	22.6	0.183	18.6	403	12.6
1.35	3.6	251.2	470	5.0	3.2	23.5	0.224	18.5	439	14.2
1.35	3.6	251.2	470	6.0	4.0	24.4	0.275	18.4	480	15.9
1.35	3.6	251.2	470	7.0	5.0	25.3	0.339	18.3	527	17.8
1.35	3.6	251.2	470	8.0	6.3	26.2	0.418	18.2	579	20.0
1.35	3.6	251.2	470	9.0	7.9	27.1	0.518	18.1	639	22.5
1.35	3.6	251.2	470	10.0	10.0	28.1	0.641	18.1	708	25.2
1.35	3.6	251.2	470	11.0	12.6	29.0	0.794	18.0	783	28.2
1.35	3.6	251.2	470	12.0	15.8	29.9	0.979	17.9	866	31.4
1.35	3.6	251.2	470	13.0	20.0	30.7	1.175	17.7	942	34.6
1.35	3.6	251.2	470	14.0	25.1	31.4	1.390	17.4	1020	37.8
1.35	3.6	251.2	470	15.0	31.6	32.0	1.596	17.0	1086	40.8
1.35	3.6	251.2	470	16.0	39.8	32.6	1.803	16.6	1148	43.6
1.35	3.6	251.2	470	17.0	50.1	33.0	2.000	16.0	1203	46.2
1.35	3.6	251.2	470	18.0	63.1	33.4	2.178	15.4	1251	48.4
1.35	3.6	251.2	470	19.0	79.4	33.7	2.339	14.7	1292	50.3
1.35	3.6	251.2	470	20.0	100.0	34.0	2.489	14.0	1329	52.0
1.35	3.6	251.2	470	21.0	125.9	34.2	2.624	13.2	1363	53.5
1.35	3.6	251.2	470	22.0	158.5	34.4	2.748	12.4	1394	54.8
1.35	3.6	251.2	470	23.0	199.5	34.6	2.858	11.6	1420	55.9
1.35	3.6	251.2	470	24.0	251.2	34.7	2.965	10.7	1445	57.0
1.35	3.6	251.2	470	25.0	316.2	34.9	3.062	9.9	1467	58.0

Input-Output Characteristics $V_{ds}=3.6V$, $I_{bias}=350mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=350.5mA$

@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=350.5mA$

Data

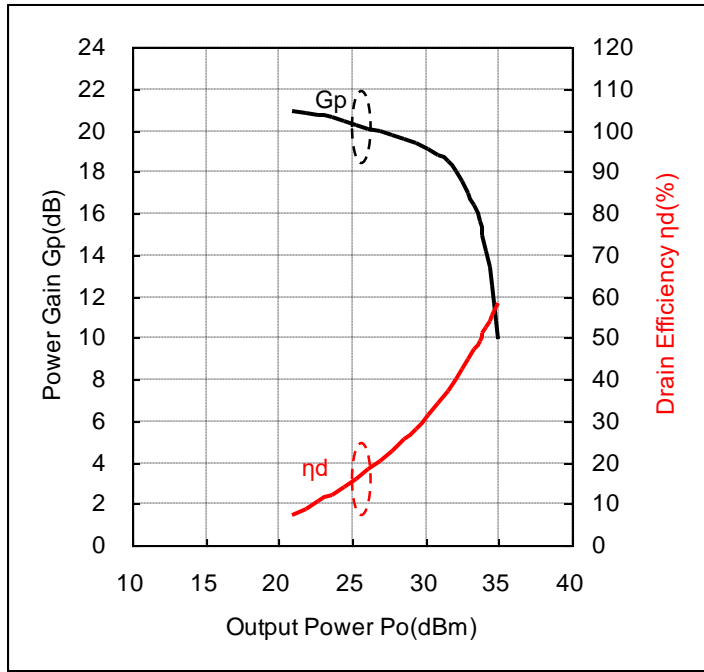
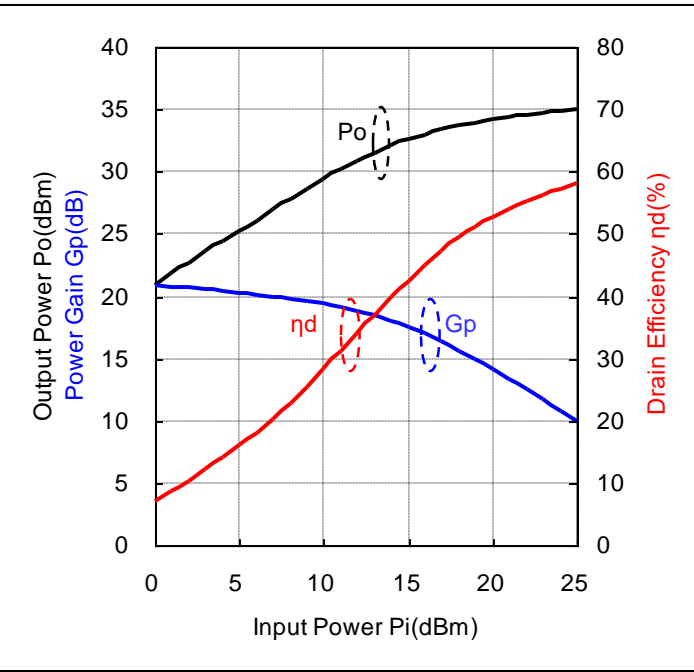
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.41	3.6	350.5	470	0.0	1.0	20.3	0.107	20.3	395	7.6
1.41	3.6	350.5	470	1.0	1.3	21.2	0.131	20.2	407	8.9
1.41	3.6	350.5	470	2.0	1.6	22.0	0.160	20.0	429	10.4
1.41	3.6	350.5	470	3.0	2.0	22.9	0.195	19.9	452	12.0
1.41	3.6	350.5	470	4.0	2.5	23.7	0.236	19.7	480	13.7
1.41	3.6	350.5	470	5.0	3.2	24.6	0.287	19.6	518	15.4
1.41	3.6	350.5	470	6.0	4.0	25.4	0.348	19.4	558	17.3
1.41	3.6	350.5	470	7.0	5.0	26.3	0.422	19.3	605	19.4
1.41	3.6	350.5	470	8.0	6.3	27.1	0.515	19.1	657	21.8
1.41	3.6	350.5	470	9.0	7.9	28.0	0.630	19.0	721	24.3
1.41	3.6	350.5	470	10.0	10.0	28.8	0.766	18.8	789	26.9
1.41	3.6	350.5	470	11.0	12.6	29.7	0.927	18.7	859	30.0
1.41	3.6	350.5	470	12.0	15.8	30.5	1.112	18.5	935	33.0
1.41	3.6	350.5	470	13.0	20.0	31.2	1.312	18.2	1007	36.2
1.41	3.6	350.5	470	14.0	25.1	31.8	1.514	17.8	1074	39.2
1.41	3.6	350.5	470	15.0	31.6	32.3	1.714	17.3	1136	41.9
1.41	3.6	350.5	470	16.0	39.8	32.8	1.905	16.8	1192	44.4
1.41	3.6	350.5	470	17.0	50.1	33.2	2.084	16.2	1239	46.7
1.41	3.6	350.5	470	18.0	63.1	33.5	2.249	15.5	1281	48.8
1.41	3.6	350.5	470	19.0	79.4	33.8	2.415	14.8	1321	50.8
1.41	3.6	350.5	470	20.0	100.0	34.1	2.553	14.1	1354	52.4
1.41	3.6	350.5	470	21.0	125.9	34.3	2.685	13.3	1384	53.9
1.41	3.6	350.5	470	22.0	158.5	34.5	2.799	12.5	1412	55.1
1.41	3.6	350.5	470	23.0	199.5	34.6	2.904	11.6	1436	56.2
1.41	3.6	350.5	470	24.0	251.2	34.8	3.006	10.8	1459	57.2
1.41	3.6	350.5	470	25.0	316.2	34.9	3.097	9.9	1479	58.2

Input-Output Characteristics $V_{ds}=3.6V$, $I_{bias}=450mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=442.5mA$

@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=442.5mA$

Data

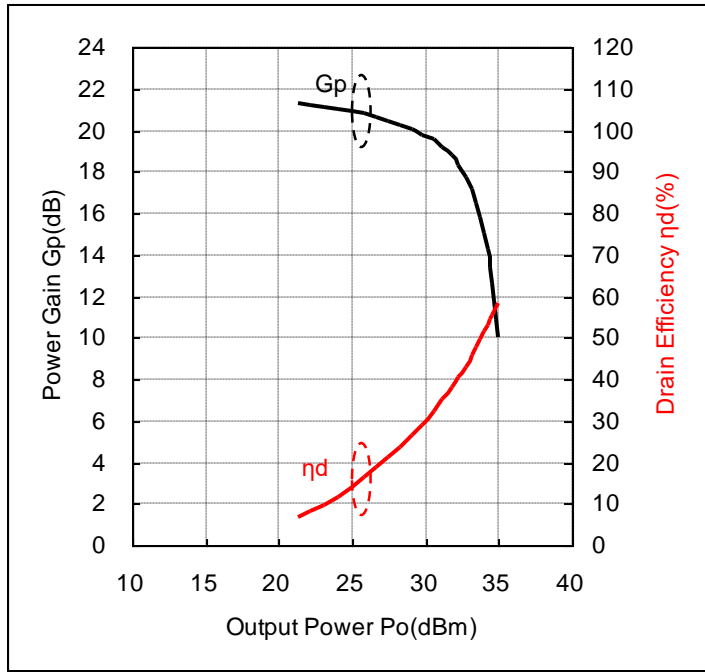
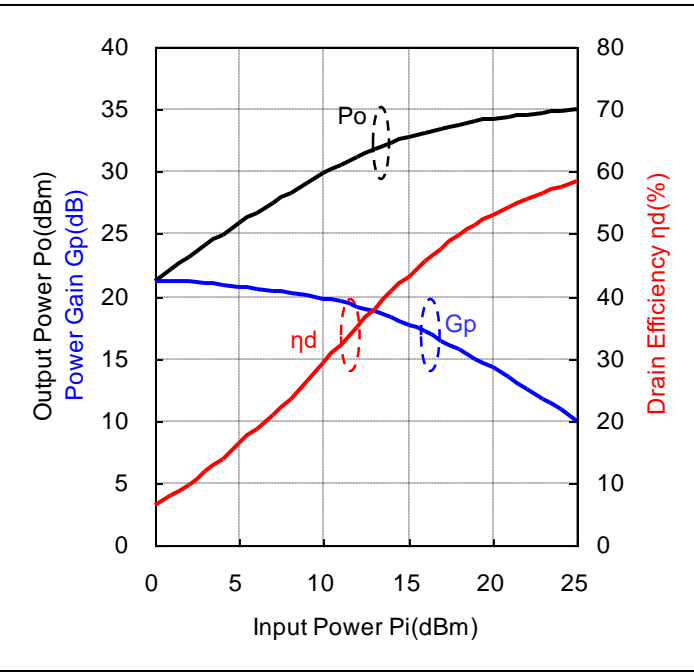
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.47	3.6	442.5	470	0.0	1.0	20.9	0.122	20.9	478	7.1
1.47	3.6	442.5	470	1.0	1.3	21.8	0.151	20.8	489	8.6
1.47	3.6	442.5	470	2.0	1.6	22.7	0.187	20.7	500	10.4
1.47	3.6	442.5	470	3.0	2.0	23.6	0.229	20.6	520	12.2
1.47	3.6	442.5	470	4.0	2.5	24.4	0.277	20.4	547	14.0
1.47	3.6	442.5	470	5.0	3.2	25.3	0.337	20.3	583	16.0
1.47	3.6	442.5	470	6.0	4.0	26.1	0.406	20.1	623	18.1
1.47	3.6	442.5	470	7.0	5.0	26.9	0.491	19.9	671	20.3
1.47	3.6	442.5	470	8.0	6.3	27.7	0.594	19.7	725	22.8
1.47	3.6	442.5	470	9.0	7.9	28.5	0.716	19.5	781	25.5
1.47	3.6	442.5	470	10.0	10.0	29.4	0.863	19.4	852	28.1
1.47	3.6	442.5	470	11.0	12.6	30.1	1.030	19.1	919	31.1
1.47	3.6	442.5	470	12.0	15.8	30.8	1.213	18.8	989	34.1
1.47	3.6	442.5	470	13.0	20.0	31.5	1.406	18.5	1056	37.0
1.47	3.6	442.5	470	14.0	25.1	32.0	1.603	18.0	1119	39.8
1.47	3.6	442.5	470	15.0	31.6	32.5	1.799	17.5	1174	42.6
1.47	3.6	442.5	470	16.0	39.8	33.0	1.982	17.0	1224	45.0
1.47	3.6	442.5	470	17.0	50.1	33.3	2.158	16.3	1267	47.3
1.47	3.6	442.5	470	18.0	63.1	33.7	2.323	15.7	1307	49.4
1.47	3.6	442.5	470	19.0	79.4	33.9	2.472	14.9	1344	51.1
1.47	3.6	442.5	470	20.0	100.0	34.2	2.606	14.2	1374	52.7
1.47	3.6	442.5	470	21.0	125.9	34.4	2.729	13.4	1401	54.1
1.47	3.6	442.5	470	22.0	158.5	34.5	2.838	12.5	1426	55.3
1.47	3.6	442.5	470	23.0	199.5	34.7	2.938	11.7	1450	56.3
1.47	3.6	442.5	470	24.0	251.2	34.8	3.034	10.8	1470	57.3
1.47	3.6	442.5	470	25.0	316.2	34.9	3.119	9.9	1489	58.2

Input-Output Characteristics $V_{ds}=3.6V$, $I_{bias}=550mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=545.6mA$

@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=545.6mA$

Data

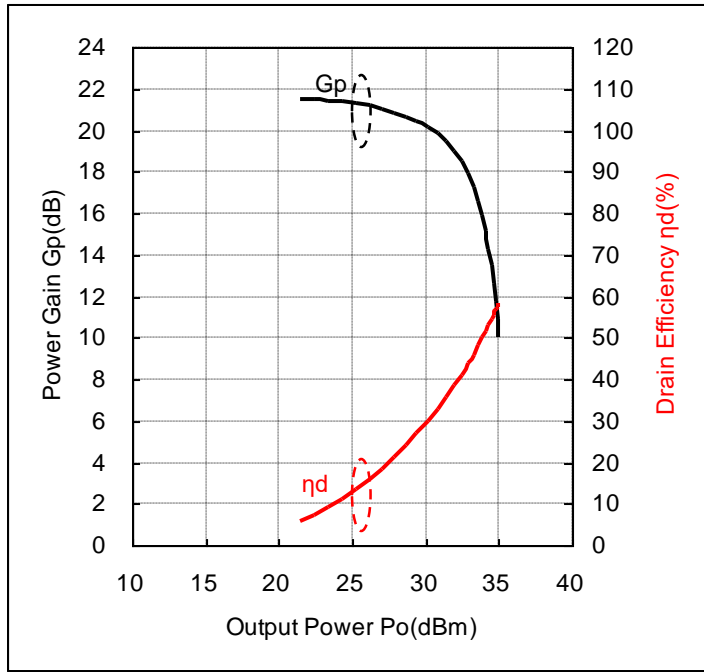
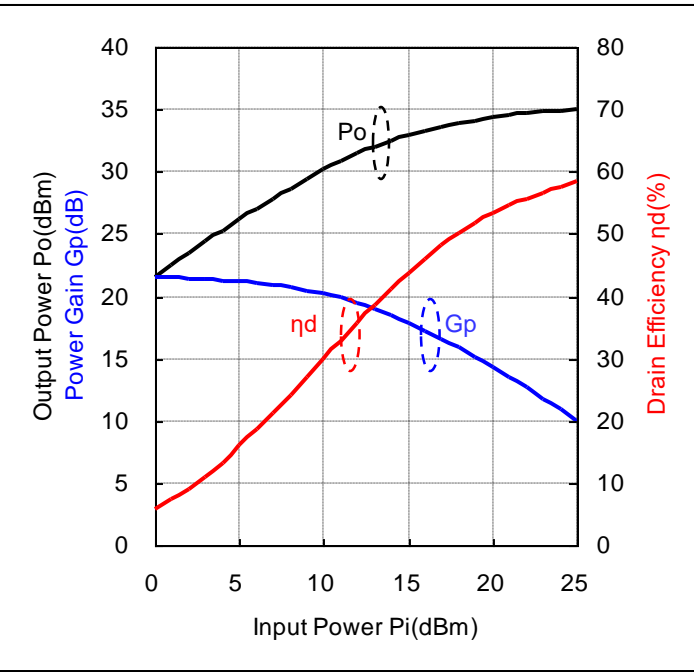
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.52	3.6	545.6	470	0.0	1.0	21.3	0.134	21.3	568	6.5
1.52	3.6	545.6	470	1.0	1.3	22.2	0.166	21.2	572	8.1
1.52	3.6	545.6	470	2.0	1.6	23.1	0.206	21.1	585	9.8
1.52	3.6	545.6	470	3.0	2.0	24.1	0.255	21.1	600	11.8
1.52	3.6	545.6	470	4.0	2.5	24.9	0.312	20.9	622	13.9
1.52	3.6	545.6	470	5.0	3.2	25.8	0.380	20.8	647	16.3
1.52	3.6	545.6	470	6.0	4.0	26.6	0.458	20.6	685	18.6
1.52	3.6	545.6	470	7.0	5.0	27.4	0.553	20.4	732	21.0
1.52	3.6	545.6	470	8.0	6.3	28.2	0.667	20.2	785	23.6
1.52	3.6	545.6	470	9.0	7.9	29.0	0.800	20.0	845	26.3
1.52	3.6	545.6	470	10.0	10.0	29.8	0.955	19.8	910	29.1
1.52	3.6	545.6	470	11.0	12.6	30.5	1.130	19.5	977	32.1
1.52	3.6	545.6	470	12.0	15.8	31.2	1.312	19.2	1042	35.0
1.52	3.6	545.6	470	13.0	20.0	31.8	1.503	18.8	1101	37.9
1.52	3.6	545.6	470	14.0	25.1	32.3	1.694	18.3	1157	40.7
1.52	3.6	545.6	470	15.0	31.6	32.7	1.875	17.7	1209	43.1
1.52	3.6	545.6	470	16.0	39.8	33.1	2.056	17.1	1254	45.6
1.52	3.6	545.6	470	17.0	50.1	33.5	2.218	16.5	1294	47.6
1.52	3.6	545.6	470	18.0	63.1	33.8	2.382	15.8	1331	49.7
1.52	3.6	545.6	470	19.0	79.4	34.0	2.523	15.0	1363	51.4
1.52	3.6	545.6	470	20.0	100.0	34.2	2.648	14.2	1391	52.9
1.52	3.6	545.6	470	21.0	125.9	34.4	2.767	13.4	1417	54.2
1.52	3.6	545.6	470	22.0	158.5	34.6	2.877	12.6	1440	55.5
1.52	3.6	545.6	470	23.0	199.5	34.7	2.979	11.7	1462	56.6
1.52	3.6	545.6	470	24.0	251.2	34.9	3.069	10.9	1481	57.6
1.52	3.6	545.6	470	25.0	316.2	35.0	3.148	10.0	1499	58.3

Input-Output Characteristics $V_{ds}=3.6V$, $I_{bias}=650mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



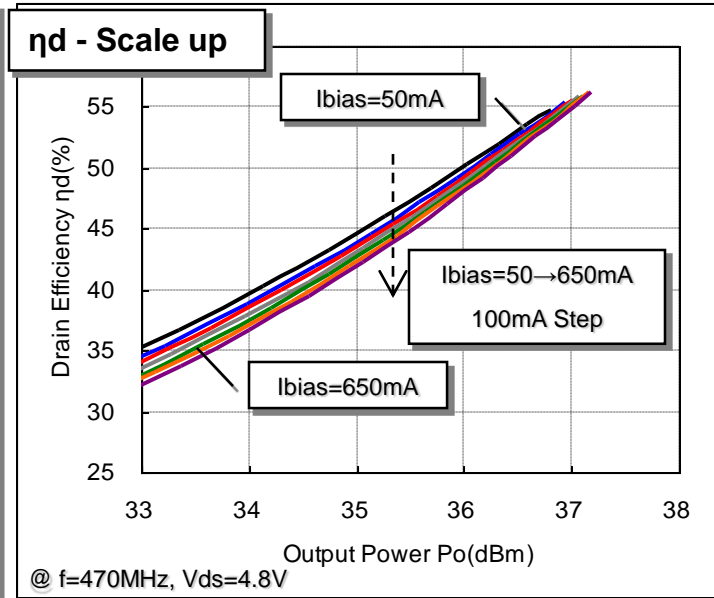
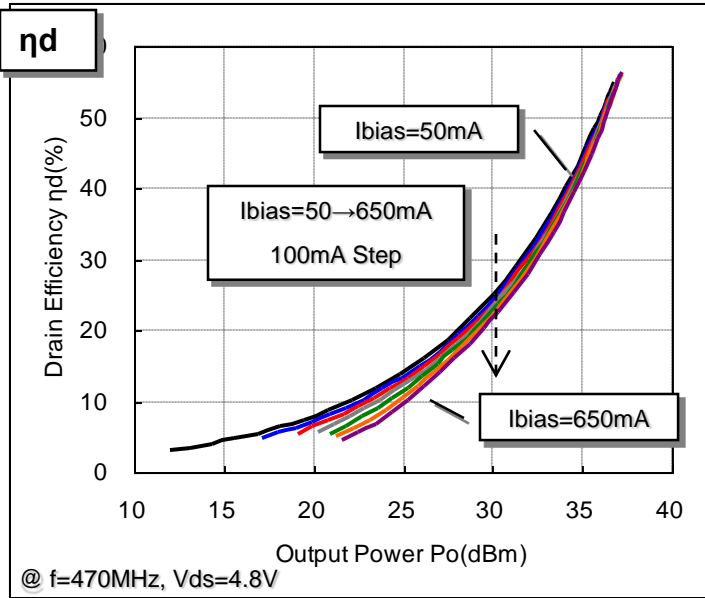
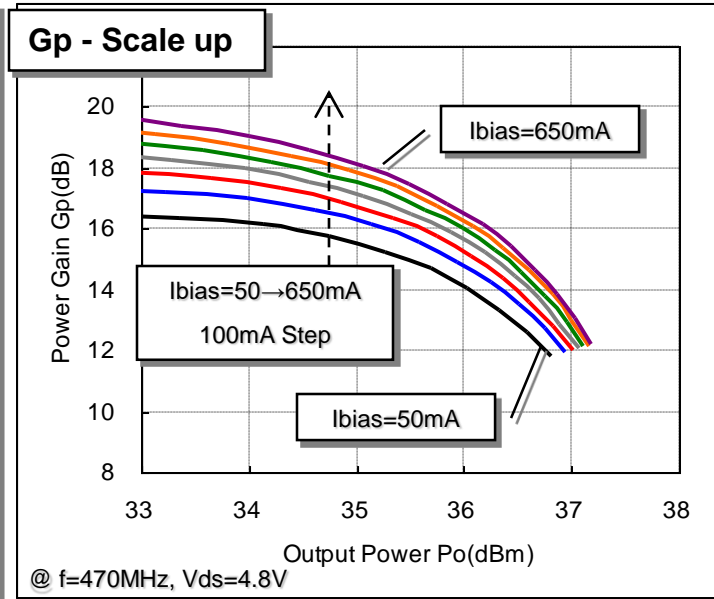
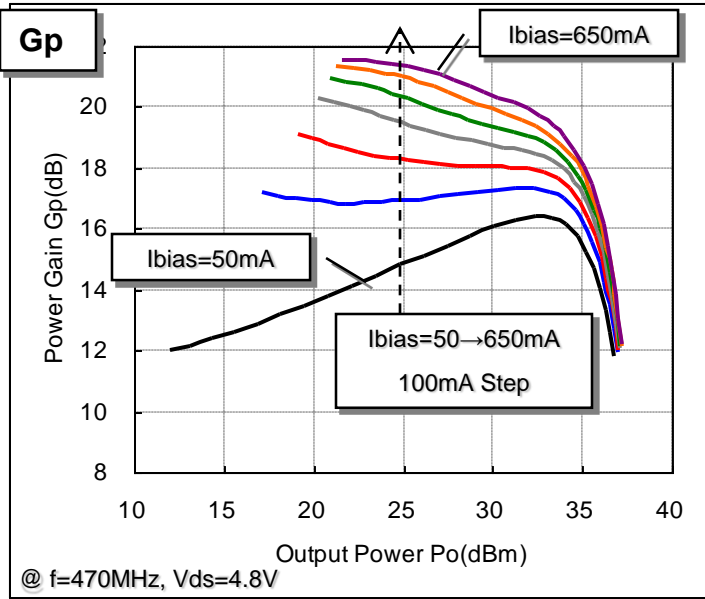
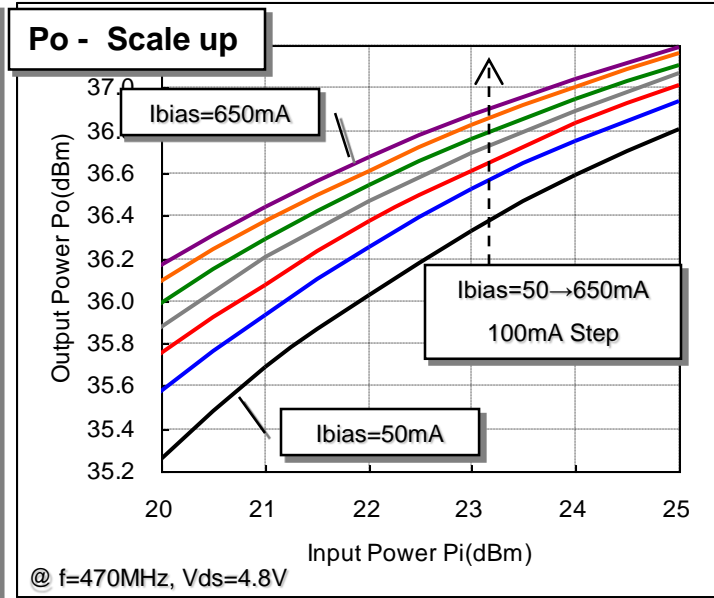
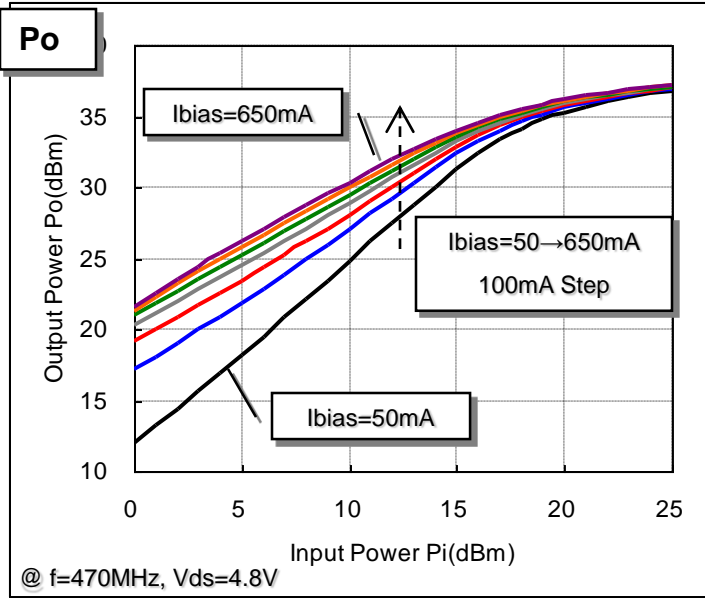
@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=647.0mA$

@ $f=470MHz$, $V_{ds}=3.6V$, $I_{bias}=647.0mA$

Data

V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.57	3.6	647.0	470	0.0	1.0	21.5	0.141	21.5	666	5.9
1.57	3.6	647.0	470	1.0	1.3	22.5	0.177	21.5	674	7.3
1.57	3.6	647.0	470	2.0	1.6	23.4	0.220	21.4	676	9.1
1.57	3.6	647.0	470	3.0	2.0	24.4	0.273	21.4	689	11.0
1.57	3.6	647.0	470	4.0	2.5	25.3	0.337	21.3	702	13.3
1.57	3.6	647.0	470	5.0	3.2	26.2	0.414	21.2	723	15.9
1.57	3.6	647.0	470	6.0	4.0	27.0	0.502	21.0	752	18.5
1.57	3.6	647.0	470	7.0	5.0	27.8	0.608	20.8	794	21.3
1.57	3.6	647.0	470	8.0	6.3	28.6	0.733	20.6	845	24.1
1.57	3.6	647.0	470	9.0	7.9	29.4	0.877	20.4	904	27.0
1.57	3.6	647.0	470	10.0	10.0	30.2	1.040	20.2	964	30.0
1.57	3.6	647.0	470	11.0	12.6	30.8	1.213	19.8	1026	32.8
1.57	3.6	647.0	470	12.0	15.8	31.5	1.400	19.5	1086	35.8
1.57	3.6	647.0	470	13.0	20.0	32.0	1.589	19.0	1145	38.5
1.57	3.6	647.0	470	14.0	25.1	32.5	1.770	18.5	1194	41.2
1.57	3.6	647.0	470	15.0	31.6	32.9	1.950	17.9	1241	43.6
1.57	3.6	647.0	470	16.0	39.8	33.3	2.118	17.3	1283	45.9
1.57	3.6	647.0	470	17.0	50.1	33.6	2.286	16.6	1320	48.1
1.57	3.6	647.0	470	18.0	63.1	33.9	2.438	15.9	1353	50.0
1.57	3.6	647.0	470	19.0	79.4	34.1	2.576	15.1	1382	51.8
1.57	3.6	647.0	470	20.0	100.0	34.3	2.698	14.3	1408	53.2
1.57	3.6	647.0	470	21.0	125.9	34.5	2.812	13.5	1432	54.6
1.57	3.6	647.0	470	22.0	158.5	34.6	2.911	12.6	1453	55.6
1.57	3.6	647.0	470	23.0	199.5	34.8	3.006	11.8	1473	56.7
1.57	3.6	647.0	470	24.0	251.2	34.9	3.090	10.9	1491	57.6
1.57	3.6	647.0	470	25.0	316.2	35.0	3.177	10.0	1508	58.5

Input - Output Characteristics $V_{ds}=4.8V$ - Condition 2

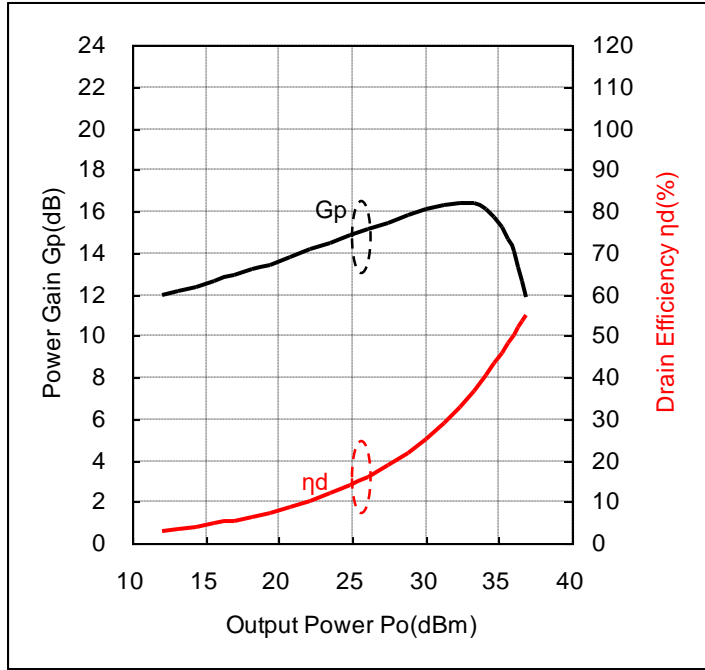
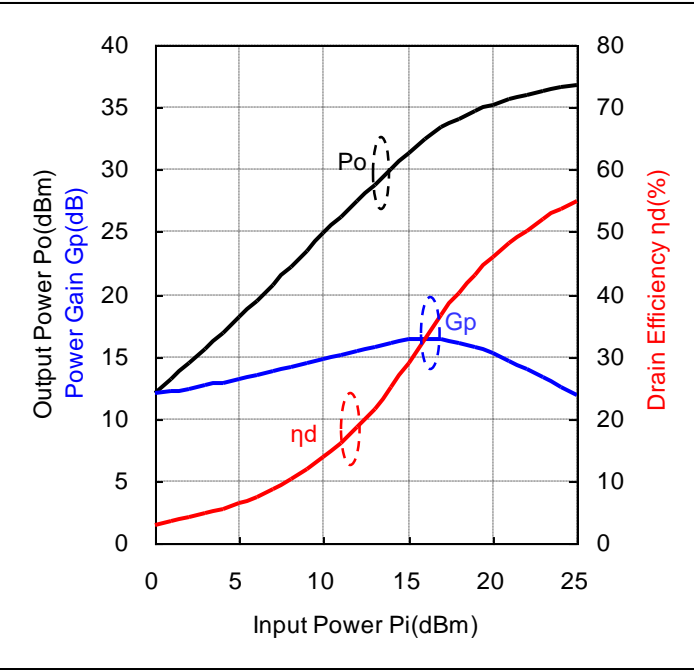


Input-Output Characteristics $V_{ds}=4.8V, I_{bias}=50mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz, V_{ds}=4.8V, I_{bias}=49.4mA$

@ $f=470MHz, V_{ds}=4.8V, I_{bias}=49.4mA$

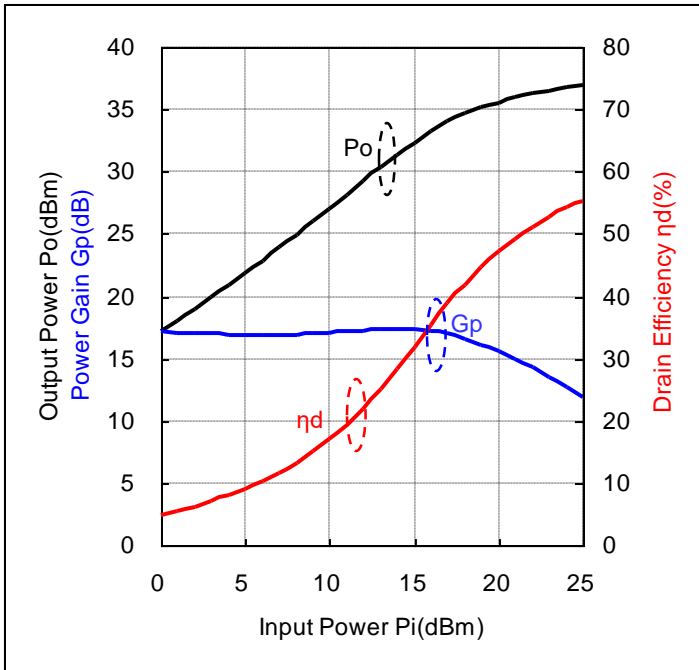
Data

V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.14	4.8	49.4	470	0.0	1.0	12.0	0.016	12.0	109	3.0
1.14	4.8	49.4	470	1.0	1.3	13.2	0.021	12.2	124	3.5
1.14	4.8	49.4	470	2.0	1.6	14.4	0.027	12.4	141	4.1
1.14	4.8	49.4	470	3.0	2.0	15.6	0.037	12.6	160	4.8
1.14	4.8	49.4	470	4.0	2.5	16.9	0.049	12.9	187	5.4
1.14	4.8	49.4	470	5.0	3.2	18.2	0.066	13.2	214	6.4
1.14	4.8	49.4	470	6.0	4.0	19.4	0.088	13.4	248	7.4
1.14	4.8	49.4	470	7.0	5.0	20.8	0.120	13.8	289	8.6
1.14	4.8	49.4	470	8.0	6.3	22.1	0.164	14.1	336	10.1
1.14	4.8	49.4	470	9.0	7.9	23.4	0.221	14.4	389	11.8
1.14	4.8	49.4	470	10.0	10.0	24.8	0.303	14.8	459	13.8
1.14	4.8	49.4	470	11.0	12.6	26.1	0.410	15.1	535	16.0
1.14	4.8	49.4	470	12.0	15.8	27.5	0.557	15.5	625	18.6
1.14	4.8	49.4	470	13.0	20.0	28.8	0.755	15.8	727	21.7
1.14	4.8	49.4	470	14.0	25.1	30.1	1.014	16.1	839	25.2
1.14	4.8	49.4	470	15.0	31.6	31.3	1.352	16.3	973	28.9
1.14	4.8	49.4	470	16.0	39.8	32.4	1.742	16.4	1104	32.9
1.14	4.8	49.4	470	17.0	50.1	33.3	2.163	16.3	1226	36.7
1.14	4.8	49.4	470	18.0	63.1	34.1	2.588	16.1	1339	40.3
1.14	4.8	49.4	470	19.0	79.4	34.7	2.979	15.7	1437	43.2
1.14	4.8	49.4	470	20.0	100.0	35.3	3.357	15.3	1521	46.0
1.14	4.8	49.4	470	21.0	125.9	35.7	3.707	14.7	1597	48.4
1.14	4.8	49.4	470	22.0	158.5	36.0	4.009	14.0	1661	50.3
1.14	4.8	49.4	470	23.0	199.5	36.3	4.295	13.3	1720	52.0
1.14	4.8	49.4	470	24.0	251.2	36.6	4.560	12.6	1775	53.5
1.14	4.8	49.4	470	25.0	316.2	36.8	4.797	11.8	1823	54.8

Input-Output Characteristics $V_{ds}=4.8V$, $I_{bias}=150mA$ - Condition 2

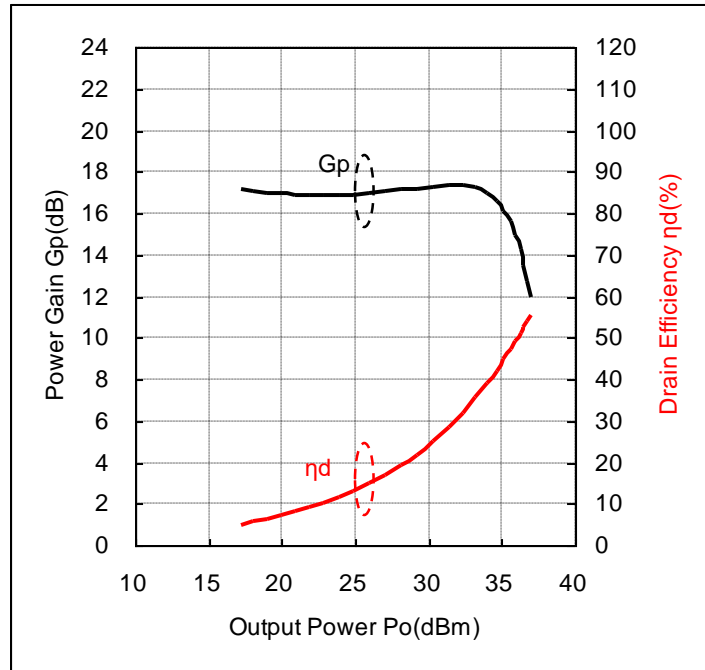
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=152.7mA$

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=152.7mA$

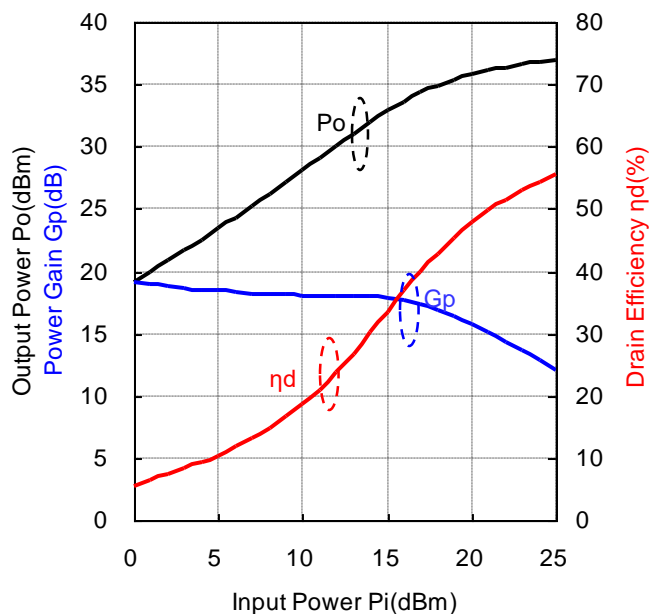
Data

V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.25	4.8	152.7	470	0.0	1.0	17.2	0.052	17.2	223	4.9
1.25	4.8	152.7	470	1.0	1.3	18.1	0.064	17.1	241	5.5
1.25	4.8	152.7	470	2.0	1.6	19.0	0.079	17.0	264	6.2
1.25	4.8	152.7	470	3.0	2.0	20.0	0.099	17.0	290	7.1
1.25	4.8	152.7	470	4.0	2.5	20.9	0.123	16.9	318	8.0
1.25	4.8	152.7	470	5.0	3.2	21.8	0.153	16.8	352	9.0
1.25	4.8	152.7	470	6.0	4.0	22.9	0.193	16.9	391	10.3
1.25	4.8	152.7	470	7.0	5.0	23.9	0.243	16.9	433	11.7
1.25	4.8	152.7	470	8.0	6.3	24.9	0.310	16.9	490	13.2
1.25	4.8	152.7	470	9.0	7.9	26.0	0.395	17.0	549	15.0
1.25	4.8	152.7	470	10.0	10.0	27.0	0.507	17.0	620	17.0
1.25	4.8	152.7	470	11.0	12.6	28.1	0.647	17.1	698	19.3
1.25	4.8	152.7	470	12.0	15.8	29.2	0.832	17.2	791	21.9
1.25	4.8	152.7	470	13.0	20.0	30.3	1.069	17.3	891	25.0
1.25	4.8	152.7	470	14.0	25.1	31.4	1.365	17.4	1004	28.3
1.25	4.8	152.7	470	15.0	31.6	32.3	1.714	17.3	1121	31.9
1.25	4.8	152.7	470	16.0	39.8	33.2	2.104	17.2	1237	35.4
1.25	4.8	152.7	470	17.0	50.1	34.0	2.506	17.0	1346	38.8
1.25	4.8	152.7	470	18.0	63.1	34.6	2.897	16.6	1440	41.9
1.25	4.8	152.7	470	19.0	79.4	35.1	3.266	16.1	1525	44.6
1.25	4.8	152.7	470	20.0	100.0	35.6	3.614	15.6	1598	47.1
1.25	4.8	152.7	470	21.0	125.9	35.9	3.917	14.9	1661	49.1
1.25	4.8	152.7	470	22.0	158.5	36.3	4.217	14.3	1719	51.1
1.25	4.8	152.7	470	23.0	199.5	36.5	4.487	13.5	1773	52.7
1.25	4.8	152.7	470	24.0	251.2	36.8	4.732	12.8	1820	54.2
1.25	4.8	152.7	470	25.0	316.2	36.9	4.943	11.9	1861	55.3

Input-Output Characteristics $V_{ds}=4.8V$, $I_{bias}=250mA$ - Condition 2

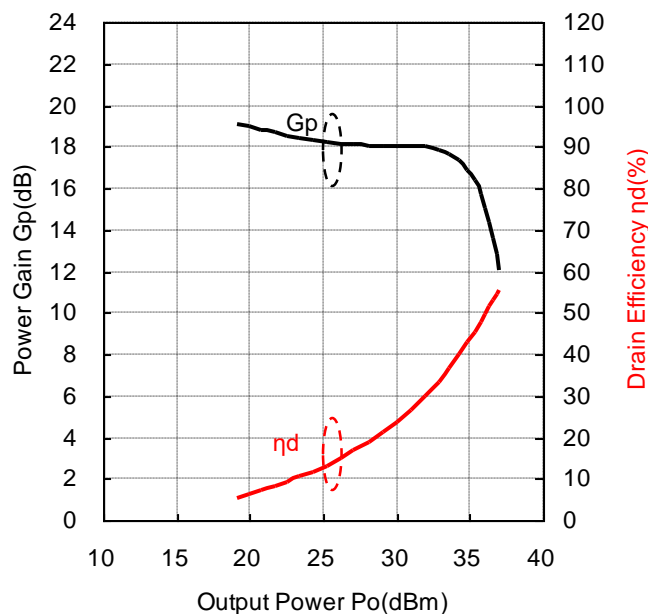
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=245.7mA$,

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=245.7mA$

Data

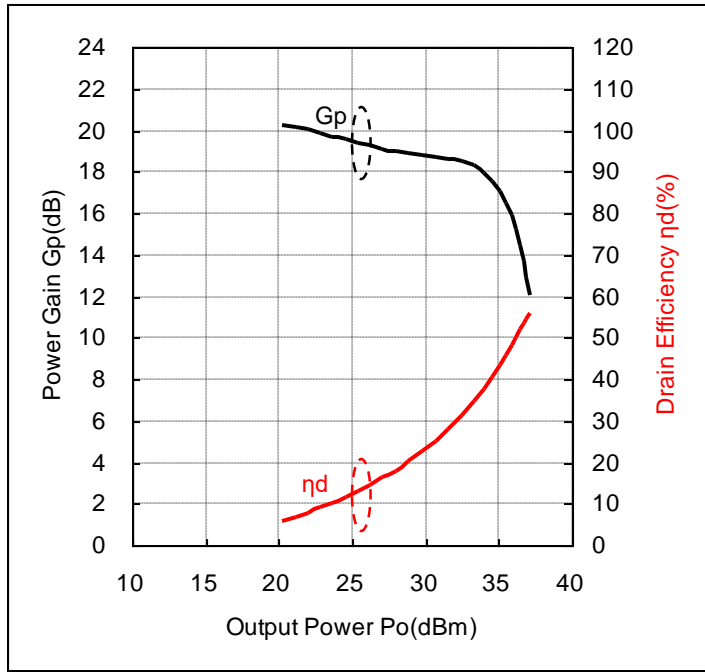
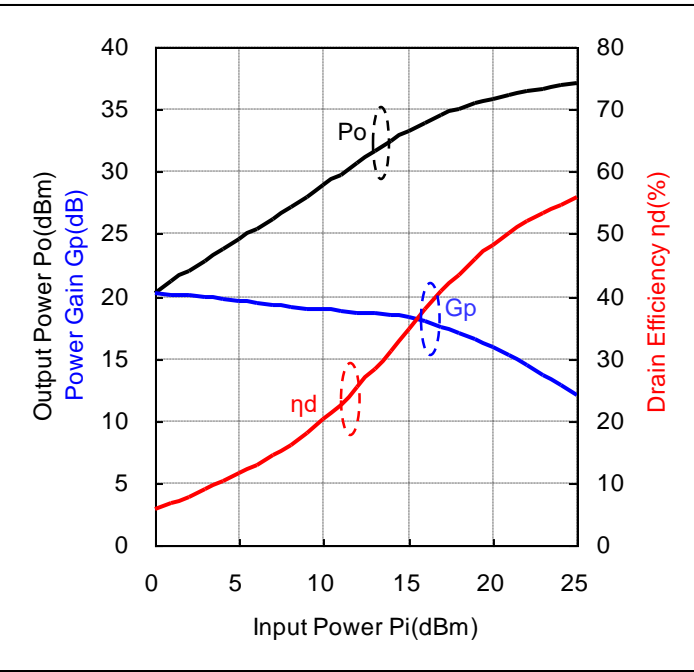
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.32	4.8	245.7	470	0.0	1.0	19.1	0.081	19.1	309	5.5
1.32	4.8	245.7	470	1.0	1.3	20.0	0.099	19.0	323	6.4
1.32	4.8	245.7	470	2.0	1.6	20.8	0.121	18.8	346	7.3
1.32	4.8	245.7	470	3.0	2.0	21.7	0.147	18.7	373	8.2
1.32	4.8	245.7	470	4.0	2.5	22.5	0.179	18.5	402	9.3
1.32	4.8	245.7	470	5.0	3.2	23.4	0.219	18.4	438	10.4
1.32	4.8	245.7	470	6.0	4.0	24.3	0.270	18.3	479	11.8
1.32	4.8	245.7	470	7.0	5.0	25.2	0.333	18.2	527	13.2
1.32	4.8	245.7	470	8.0	6.3	26.2	0.413	18.2	580	14.8
1.32	4.8	245.7	470	9.0	7.9	27.1	0.514	18.1	643	16.7
1.32	4.8	245.7	470	10.0	10.0	28.1	0.641	18.1	711	18.8
1.32	4.8	245.7	470	11.0	12.6	29.0	0.802	18.0	795	21.0
1.32	4.8	245.7	470	12.0	15.8	30.0	1.009	18.0	884	23.8
1.32	4.8	245.7	470	13.0	20.0	31.0	1.259	18.0	984	26.6
1.32	4.8	245.7	470	14.0	25.1	32.0	1.585	18.0	1097	30.1
1.32	4.8	245.7	470	15.0	31.6	32.9	1.932	17.9	1206	33.4
1.32	4.8	245.7	470	16.0	39.8	33.7	2.317	17.7	1311	36.8
1.32	4.8	245.7	470	17.0	50.1	34.3	2.698	17.3	1407	39.9
1.32	4.8	245.7	470	18.0	63.1	34.9	3.062	16.9	1494	42.7
1.32	4.8	245.7	470	19.0	79.4	35.3	3.428	16.3	1573	45.4
1.32	4.8	245.7	470	20.0	100.0	35.8	3.758	15.8	1640	47.7
1.32	4.8	245.7	470	21.0	125.9	36.1	4.046	15.1	1697	49.7
1.32	4.8	245.7	470	22.0	158.5	36.4	4.335	14.4	1753	51.5
1.32	4.8	245.7	470	23.0	199.5	36.6	4.581	13.6	1801	53.0
1.32	4.8	245.7	470	24.0	251.2	36.8	4.819	12.8	1844	54.4
1.32	4.8	245.7	470	25.0	316.2	37.0	5.023	12.0	1882	55.6

Input-Output Characteristics $V_{ds}=4.8V$, $I_{bias}=350mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=346.4mA$

@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=346.4mA$,

Data

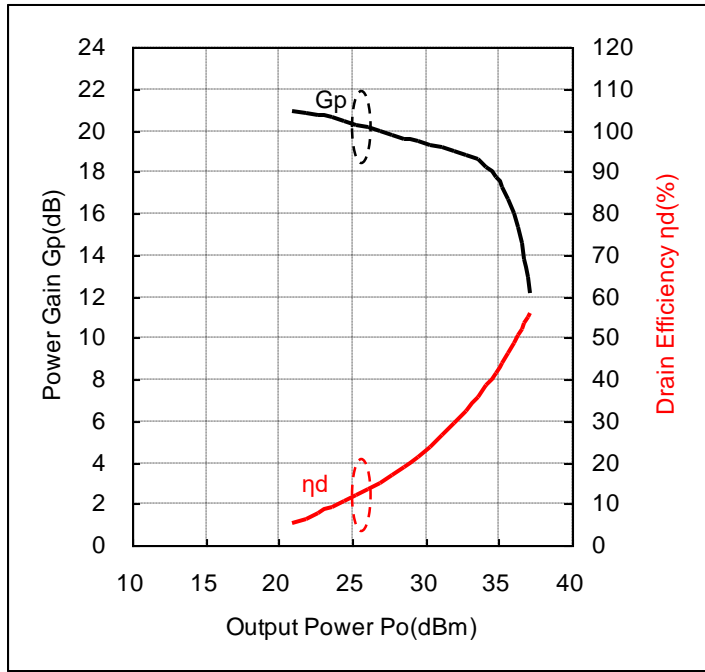
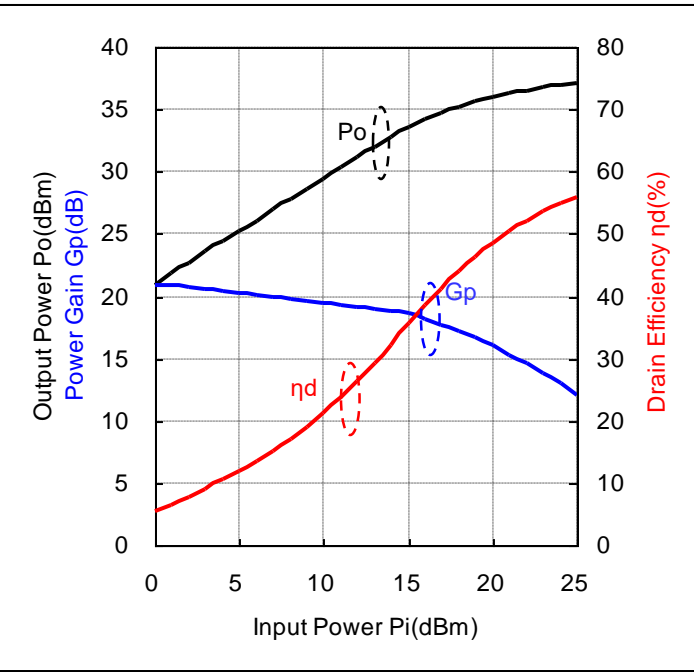
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.38	4.8	346.4	470	0.0	1.0	20.3	0.107	20.3	392	5.7
1.38	4.8	346.4	470	1.0	1.3	21.2	0.131	20.2	408	6.7
1.38	4.8	346.4	470	2.0	1.6	22.0	0.160	20.0	429	7.8
1.38	4.8	346.4	470	3.0	2.0	22.9	0.194	19.9	450	9.0
1.38	4.8	346.4	470	4.0	2.5	23.7	0.234	19.7	481	10.2
1.38	4.8	346.4	470	5.0	3.2	24.5	0.284	19.5	518	11.4
1.38	4.8	346.4	470	6.0	4.0	25.4	0.345	19.4	558	12.9
1.38	4.8	346.4	470	7.0	5.0	26.2	0.420	19.2	608	14.4
1.38	4.8	346.4	470	8.0	6.3	27.1	0.514	19.1	663	16.2
1.38	4.8	346.4	470	9.0	7.9	28.0	0.630	19.0	728	18.0
1.38	4.8	346.4	470	10.0	10.0	28.9	0.773	18.9	800	20.1
1.38	4.8	346.4	470	11.0	12.6	29.8	0.951	18.8	880	22.5
1.38	4.8	346.4	470	12.0	15.8	30.7	1.169	18.7	965	25.2
1.38	4.8	346.4	470	13.0	20.0	31.6	1.445	18.6	1069	28.2
1.38	4.8	346.4	470	14.0	25.1	32.5	1.762	18.5	1173	31.3
1.38	4.8	346.4	470	15.0	31.6	33.3	2.128	18.3	1281	34.6
1.38	4.8	346.4	470	16.0	39.8	34.0	2.489	18.0	1372	37.8
1.38	4.8	346.4	470	17.0	50.1	34.6	2.858	17.6	1465	40.6
1.38	4.8	346.4	470	18.0	63.1	35.1	3.214	17.1	1542	43.4
1.38	4.8	346.4	470	19.0	79.4	35.5	3.556	16.5	1613	45.9
1.38	4.8	346.4	470	20.0	100.0	35.9	3.873	15.9	1674	48.2
1.38	4.8	346.4	470	21.0	125.9	36.2	4.169	15.2	1731	50.2
1.38	4.8	346.4	470	22.0	158.5	36.5	4.436	14.5	1781	51.9
1.38	4.8	346.4	470	23.0	199.5	36.7	4.667	13.7	1825	53.3
1.38	4.8	346.4	470	24.0	251.2	36.9	4.887	12.9	1865	54.6
1.38	4.8	346.4	470	25.0	316.2	37.1	5.093	12.1	1899	55.9

Input-Output Characteristics $V_{ds}=4.8V$, $I_{bias}=450mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=443.7mA$

@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=443.7mA$

Data

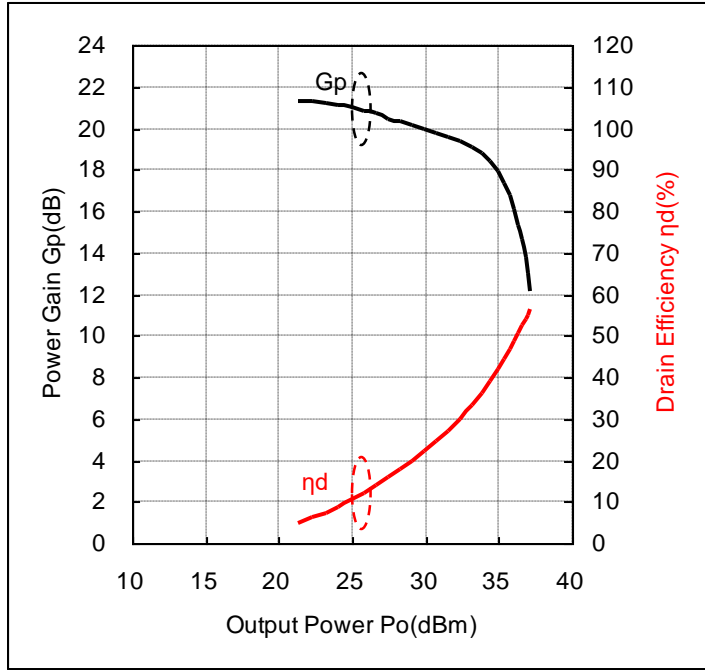
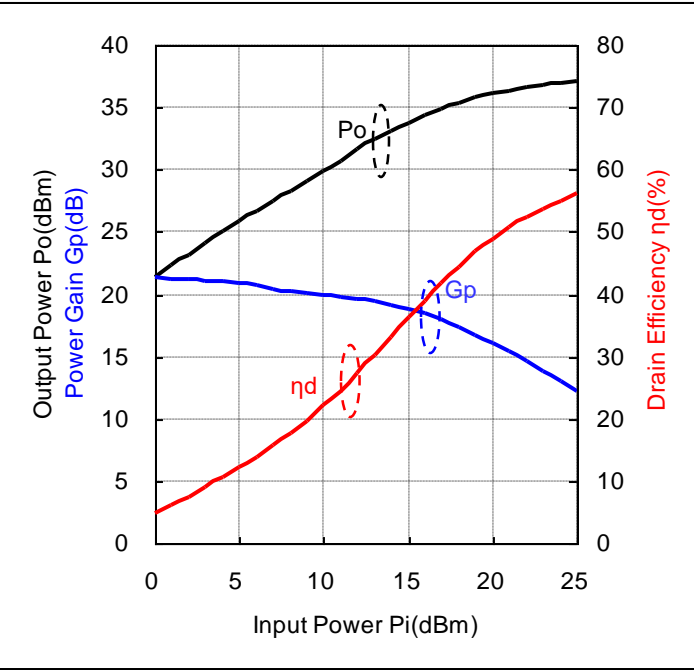
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.44	4.8	443.7	470	0.0	1.0	20.9	0.124	20.9	476	5.4
1.44	4.8	443.7	470	1.0	1.3	21.8	0.152	20.8	490	6.5
1.44	4.8	443.7	470	2.0	1.6	22.7	0.187	20.7	502	7.8
1.44	4.8	443.7	470	3.0	2.0	23.6	0.229	20.6	524	9.1
1.44	4.8	443.7	470	4.0	2.5	24.4	0.277	20.4	551	10.5
1.44	4.8	443.7	470	5.0	3.2	25.3	0.336	20.3	586	11.9
1.44	4.8	443.7	470	6.0	4.0	26.1	0.407	20.1	624	13.6
1.44	4.8	443.7	470	7.0	5.0	26.9	0.492	19.9	677	15.1
1.44	4.8	443.7	470	8.0	6.3	27.8	0.598	19.8	730	17.1
1.44	4.8	443.7	470	9.0	7.9	28.6	0.724	19.6	794	19.0
1.44	4.8	443.7	470	10.0	10.0	29.5	0.881	19.5	867	21.2
1.44	4.8	443.7	470	11.0	12.6	30.3	1.074	19.3	948	23.6
1.44	4.8	443.7	470	12.0	15.8	31.2	1.309	19.2	1036	26.3
1.44	4.8	443.7	470	13.0	20.0	32.0	1.592	19.0	1136	29.2
1.44	4.8	443.7	470	14.0	25.1	32.8	1.919	18.8	1238	32.3
1.44	4.8	443.7	470	15.0	31.6	33.6	2.280	18.6	1338	35.5
1.44	4.8	443.7	470	16.0	39.8	34.2	2.630	18.2	1425	38.4
1.44	4.8	443.7	470	17.0	50.1	34.8	2.985	17.8	1507	41.3
1.44	4.8	443.7	470	18.0	63.1	35.2	3.342	17.2	1581	44.0
1.44	4.8	443.7	470	19.0	79.4	35.6	3.664	16.6	1647	46.3
1.44	4.8	443.7	470	20.0	100.0	36.0	3.972	16.0	1704	48.6
1.44	4.8	443.7	470	21.0	125.9	36.3	4.256	15.3	1757	50.5
1.44	4.8	443.7	470	22.0	158.5	36.5	4.508	14.5	1803	52.1
1.44	4.8	443.7	470	23.0	199.5	36.8	4.742	13.8	1843	53.6
1.44	4.8	443.7	470	24.0	251.2	37.0	4.955	13.0	1882	54.9
1.44	4.8	443.7	470	25.0	316.2	37.1	5.140	12.1	1915	55.9

Input-Output Characteristics $V_{ds}=4.8V$, $I_{bias}=550mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=543.5mA$

@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=543.5mA$

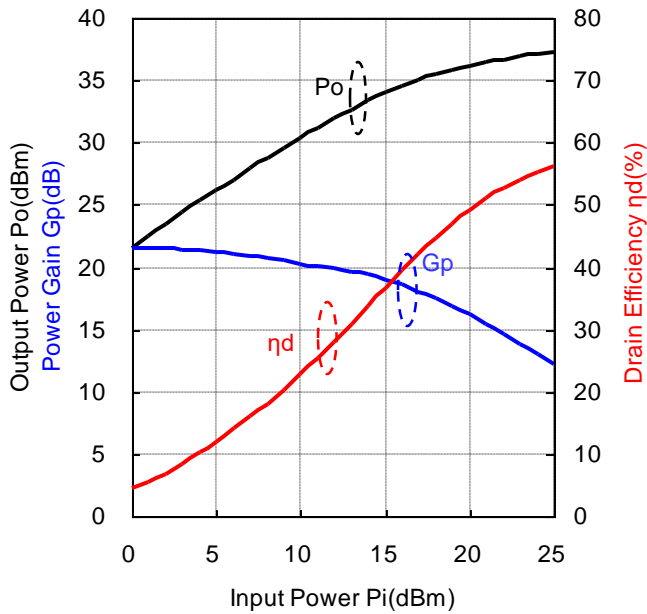
Data

V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.49	4.8	543.5	470	0.0	1.0	21.3	0.135	21.3	570	4.9
1.49	4.8	543.5	470	1.0	1.3	22.3	0.169	21.3	579	6.1
1.49	4.8	543.5	470	2.0	1.6	23.2	0.209	21.2	585	7.5
1.49	4.8	543.5	470	3.0	2.0	24.1	0.257	21.1	604	8.9
1.49	4.8	543.5	470	4.0	2.5	25.0	0.316	21.0	627	10.5
1.49	4.8	543.5	470	5.0	3.2	25.8	0.383	20.8	656	12.2
1.49	4.8	543.5	470	6.0	4.0	26.7	0.466	20.7	694	14.0
1.49	4.8	543.5	470	7.0	5.0	27.5	0.558	20.5	739	15.7
1.49	4.8	543.5	470	8.0	6.3	28.3	0.676	20.3	798	17.7
1.49	4.8	543.5	470	9.0	7.9	29.1	0.817	20.1	861	19.8
1.49	4.8	543.5	470	10.0	10.0	30.0	0.989	20.0	934	22.1
1.49	4.8	543.5	470	11.0	12.6	30.8	1.191	19.8	1014	24.5
1.49	4.8	543.5	470	12.0	15.8	31.6	1.442	19.6	1104	27.2
1.49	4.8	543.5	470	13.0	20.0	32.4	1.734	19.4	1199	30.1
1.49	4.8	543.5	470	14.0	25.1	33.1	2.056	19.1	1291	33.2
1.49	4.8	543.5	470	15.0	31.6	33.8	2.404	18.8	1385	36.2
1.49	4.8	543.5	470	16.0	39.8	34.4	2.754	18.4	1470	39.0
1.49	4.8	543.5	470	17.0	50.1	34.9	3.112	17.9	1547	41.9
1.49	4.8	543.5	470	18.0	63.1	35.4	3.443	17.4	1615	44.4
1.49	4.8	543.5	470	19.0	79.4	35.8	3.767	16.8	1676	46.8
1.49	4.8	543.5	470	20.0	100.0	36.1	4.064	16.1	1732	48.9
1.49	4.8	543.5	470	21.0	125.9	36.4	4.335	15.4	1781	50.7
1.49	4.8	543.5	470	22.0	158.5	36.6	4.581	14.6	1823	52.4
1.49	4.8	543.5	470	23.0	199.5	36.8	4.808	13.8	1862	53.8
1.49	4.8	543.5	470	24.0	251.2	37.0	5.012	13.0	1897	55.0
1.49	4.8	543.5	470	25.0	316.2	37.2	5.200	12.2	1929	56.2

Input-Output Characteristics $V_{ds}=4.8V$, $I_{bias}=650mA$ - Condition 2

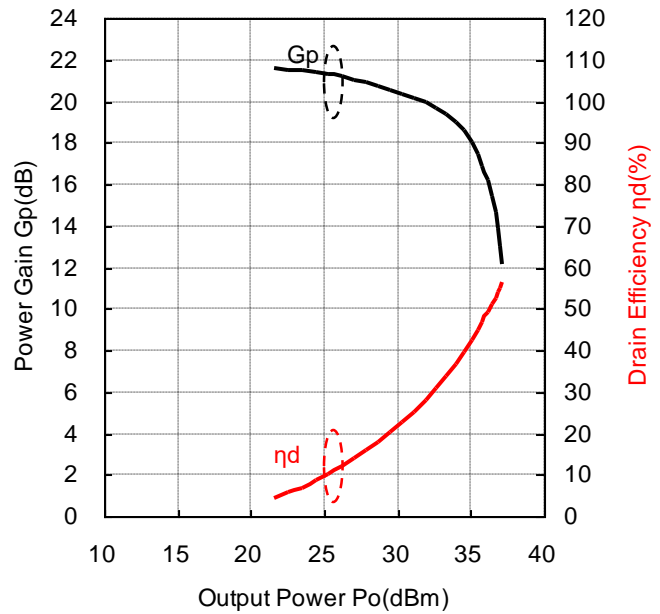
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=639.3mA$

Power Gain, Drain Efficiency vs Output Power

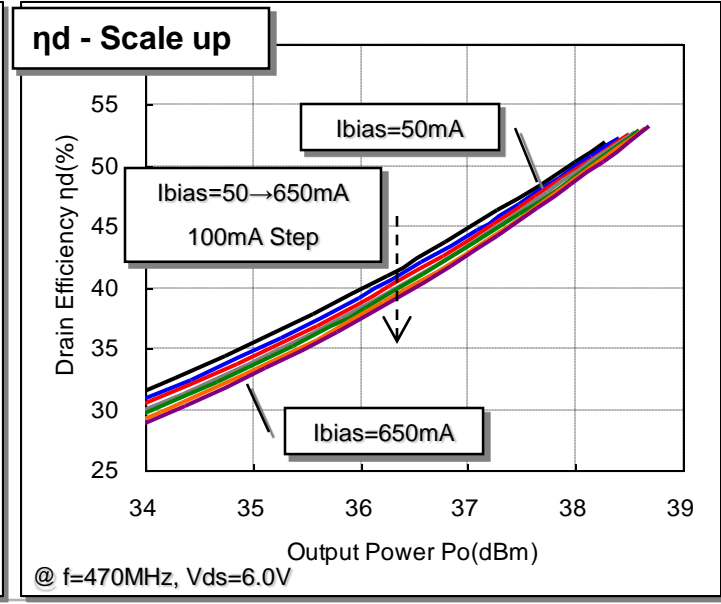
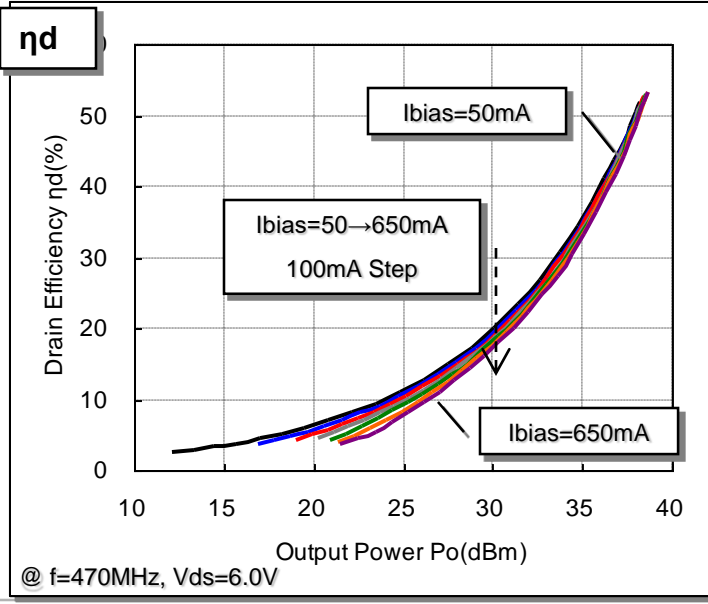
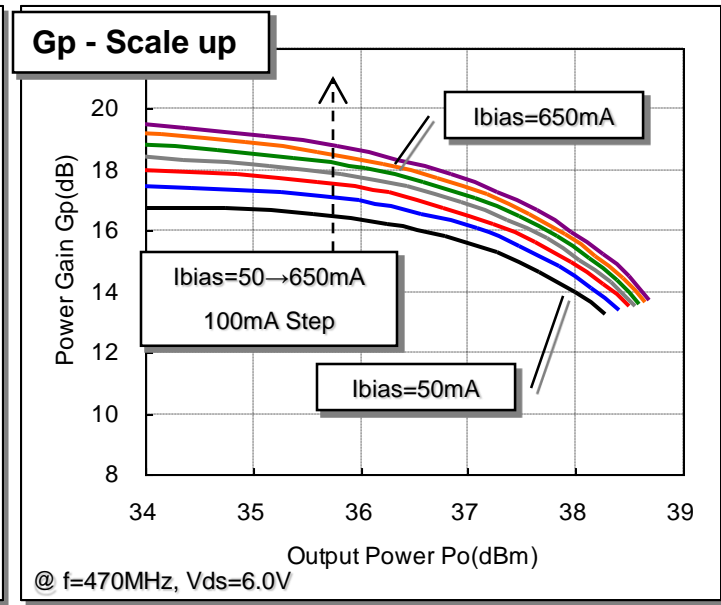
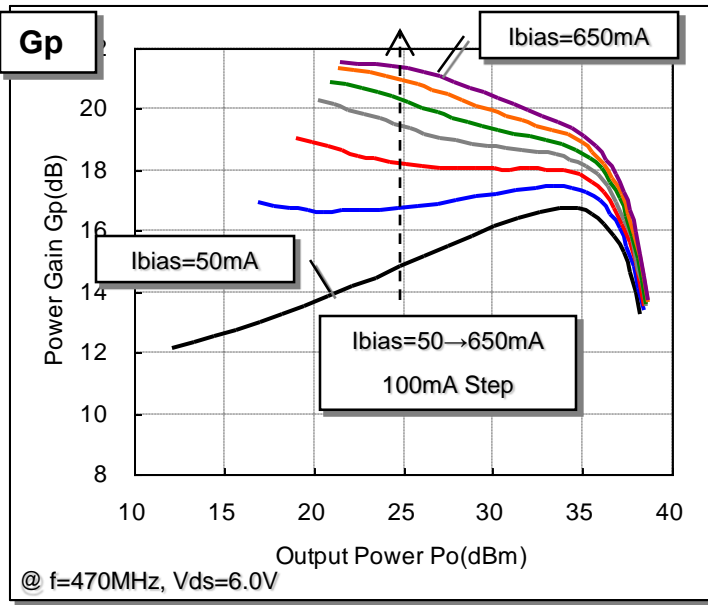
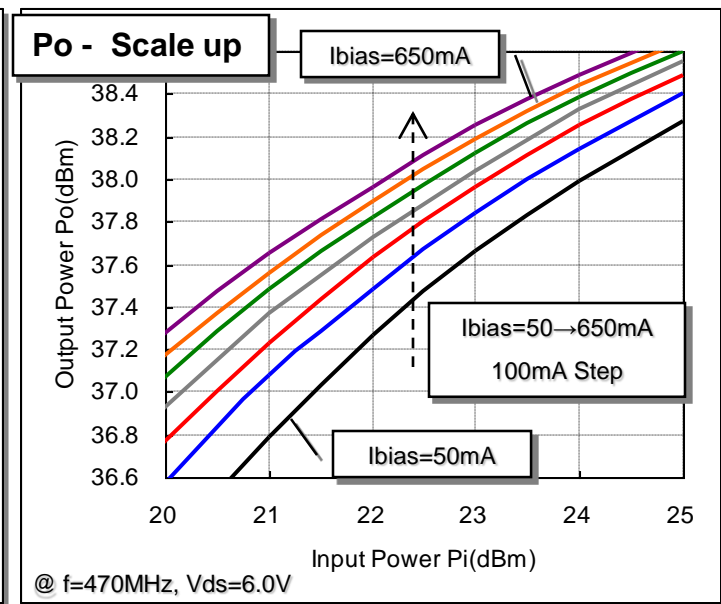
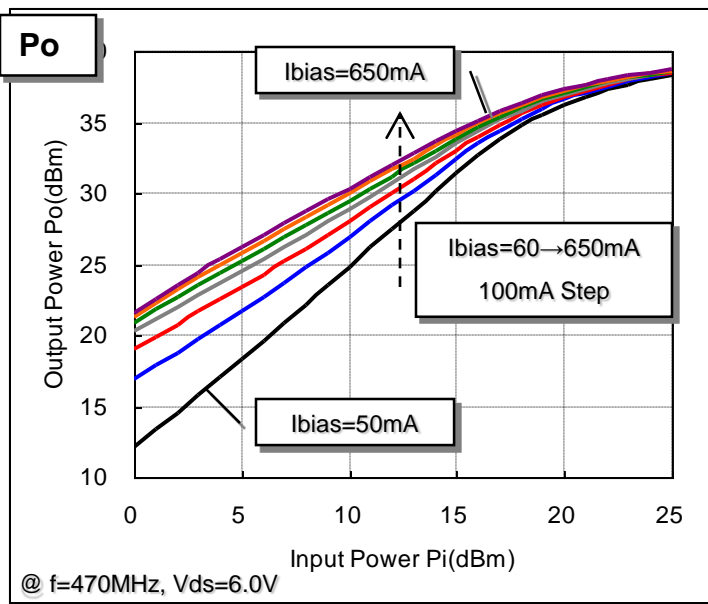


@ $f=470MHz$, $V_{ds}=4.8V$, $I_{bias}=639.3mA$

Data

V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.53	4.8	639.3	470	0.0	1.0	21.5	0.143	21.5	656	4.5
1.53	4.8	639.3	470	1.0	1.3	22.5	0.178	21.5	664	5.6
1.53	4.8	639.3	470	2.0	1.6	23.5	0.222	21.5	670	6.9
1.53	4.8	639.3	470	3.0	2.0	24.4	0.277	21.4	683	8.4
1.53	4.8	639.3	470	4.0	2.5	25.3	0.340	21.3	699	10.1
1.53	4.8	639.3	470	5.0	3.2	26.2	0.418	21.2	723	12.0
1.53	4.8	639.3	470	6.0	4.0	27.1	0.508	21.1	753	14.1
1.53	4.8	639.3	470	7.0	5.0	27.9	0.614	20.9	801	16.0
1.53	4.8	639.3	470	8.0	6.3	28.7	0.741	20.7	855	18.1
1.53	4.8	639.3	470	9.0	7.9	29.5	0.893	20.5	918	20.3
1.53	4.8	639.3	470	10.0	10.0	30.3	1.076	20.3	989	22.7
1.53	4.8	639.3	470	11.0	12.6	31.1	1.300	20.1	1073	25.2
1.53	4.8	639.3	470	12.0	15.8	31.9	1.560	19.9	1161	28.0
1.53	4.8	639.3	470	13.0	20.0	32.7	1.849	19.7	1250	30.8
1.53	4.8	639.3	470	14.0	25.1	33.4	2.178	19.4	1344	33.8
1.53	4.8	639.3	470	15.0	31.6	34.0	2.518	19.0	1428	36.7
1.53	4.8	639.3	470	16.0	39.8	34.6	2.858	18.6	1509	39.5
1.53	4.8	639.3	470	17.0	50.1	35.1	3.206	18.1	1582	42.2
1.53	4.8	639.3	470	18.0	63.1	35.5	3.540	17.5	1647	44.8
1.53	4.8	639.3	470	19.0	79.4	35.8	3.837	16.8	1702	47.0
1.53	4.8	639.3	470	20.0	100.0	36.2	4.140	16.2	1755	49.2
1.53	4.8	639.3	470	21.0	125.9	36.4	4.406	15.4	1800	51.0
1.53	4.8	639.3	470	22.0	158.5	36.7	4.645	14.7	1841	52.6
1.53	4.8	639.3	470	23.0	199.5	36.9	4.864	13.9	1878	54.0
1.53	4.8	639.3	470	24.0	251.2	37.0	5.058	13.0	1911	55.1
1.53	4.8	639.3	470	25.0	316.2	37.2	5.236	12.2	1941	56.2

Input - Output Characteristics $V_{ds}=6.0V$ - Condition 2

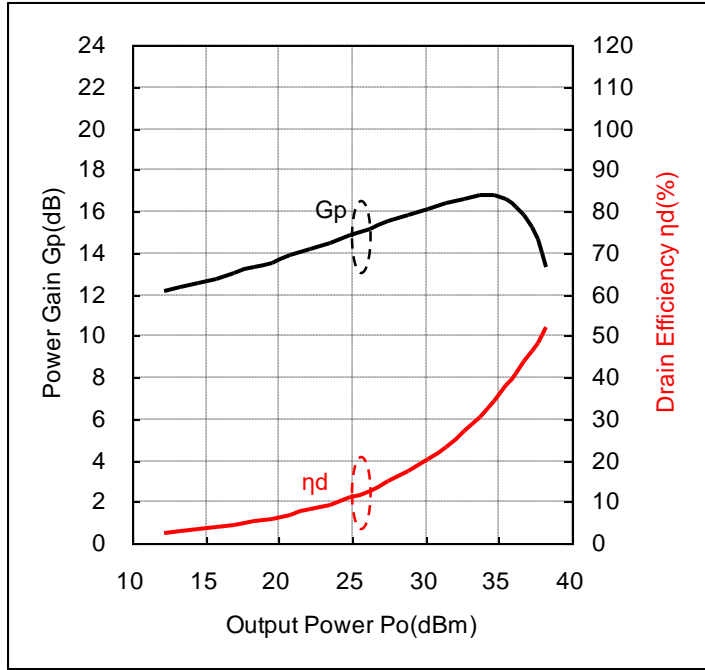
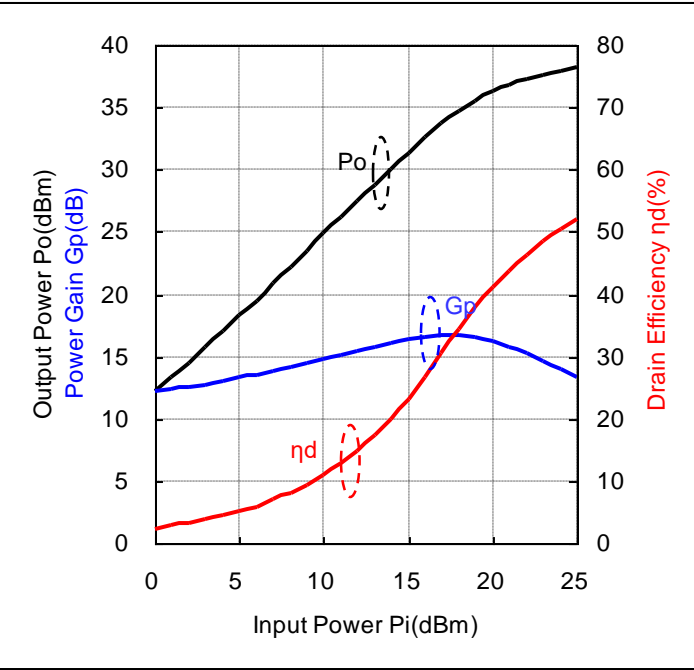


Input-Output Characteristics $V_{ds}=6.0V$, $I_{bias}=50mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=50.7mA$

@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=50.7mA$

Data

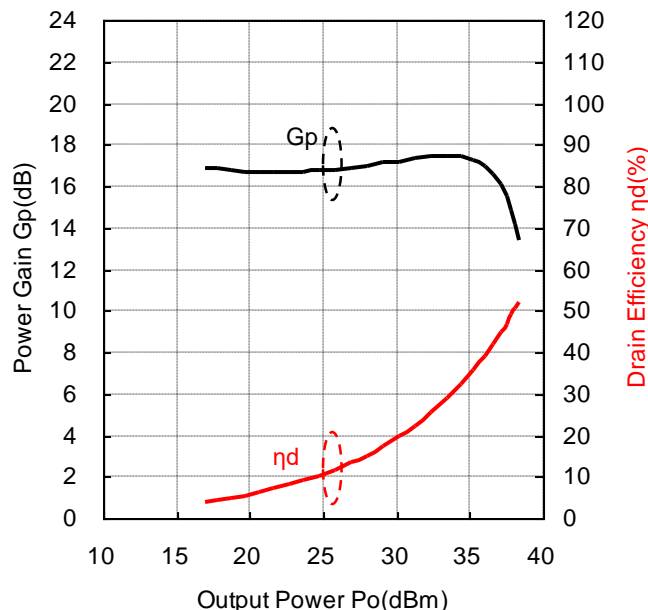
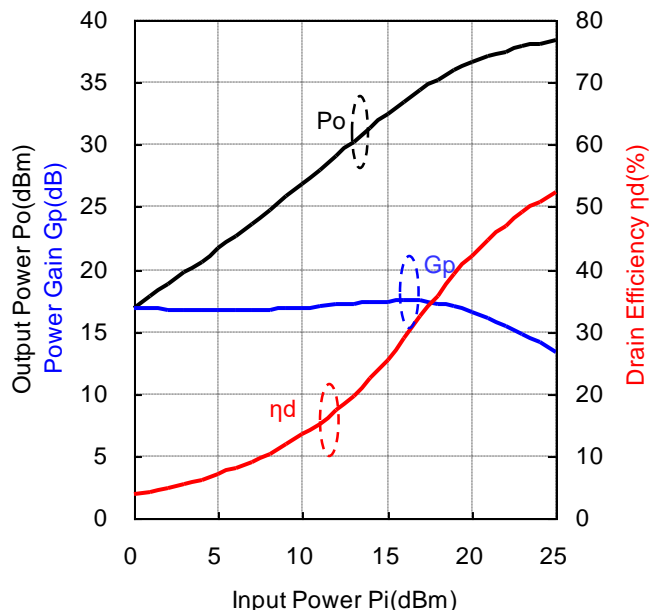
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.12	6.0	50.7	470	0.0	1.0	12.1	0.016	12.1	114	2.4
1.12	6.0	50.7	470	1.0	1.3	13.3	0.021	12.3	126	2.8
1.12	6.0	50.7	470	2.0	1.6	14.5	0.028	12.5	145	3.3
1.12	6.0	50.7	470	3.0	2.0	15.7	0.037	12.7	165	3.8
1.12	6.0	50.7	470	4.0	2.5	17.0	0.050	13.0	189	4.4
1.12	6.0	50.7	470	5.0	3.2	18.3	0.067	13.3	220	5.1
1.12	6.0	50.7	470	6.0	4.0	19.5	0.089	13.5	251	5.9
1.12	6.0	50.7	470	7.0	5.0	20.8	0.121	13.8	290	7.0
1.12	6.0	50.7	470	8.0	6.3	22.2	0.165	14.2	340	8.1
1.12	6.0	50.7	470	9.0	7.9	23.5	0.222	14.5	397	9.3
1.12	6.0	50.7	470	10.0	10.0	24.8	0.305	14.8	464	10.9
1.12	6.0	50.7	470	11.0	12.6	26.2	0.413	15.2	541	12.7
1.12	6.0	50.7	470	12.0	15.8	27.5	0.561	15.5	629	14.9
1.12	6.0	50.7	470	13.0	20.0	28.8	0.759	15.8	735	17.2
1.12	6.0	50.7	470	14.0	25.1	30.1	1.028	16.1	853	20.1
1.12	6.0	50.7	470	15.0	31.6	31.4	1.380	16.4	989	23.3
1.12	6.0	50.7	470	16.0	39.8	32.6	1.824	16.6	1135	26.8
1.12	6.0	50.7	470	17.0	50.1	33.8	2.371	16.8	1293	30.6
1.12	6.0	50.7	470	18.0	63.1	34.7	2.979	16.7	1444	34.4
1.12	6.0	50.7	470	19.0	79.4	35.6	3.597	16.6	1583	37.9
1.12	6.0	50.7	470	20.0	100.0	36.2	4.207	16.2	1710	41.0
1.12	6.0	50.7	470	21.0	125.9	36.8	4.775	15.8	1820	43.7
1.12	6.0	50.7	470	22.0	158.5	37.3	5.333	15.3	1921	46.3
1.12	6.0	50.7	470	23.0	199.5	37.7	5.834	14.7	2009	48.4
1.12	6.0	50.7	470	24.0	251.2	38.0	6.295	14.0	2086	50.3
1.12	6.0	50.7	470	25.0	316.2	38.3	6.714	13.3	2155	51.9

Input-Output Characteristics $V_{ds}=6.0V$, $I_{bias}=150mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=148.1mA$

@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=148.1mA$

Data

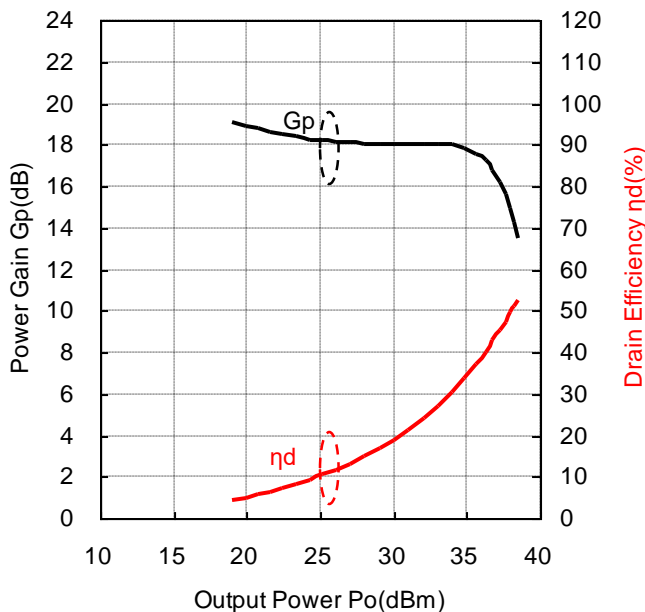
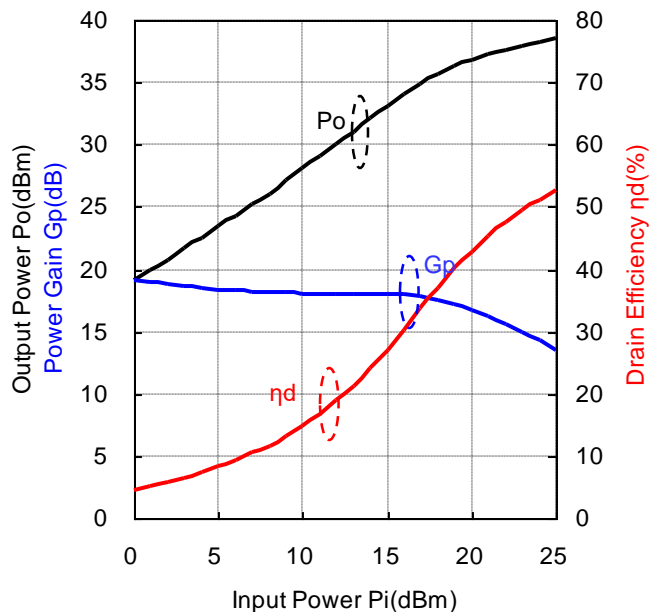
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.22	6.0	148.1	470	0.0	1.0	16.9	0.049	16.9	221	3.7
1.22	6.0	148.1	470	1.0	1.3	17.8	0.061	16.8	238	4.2
1.22	6.0	148.1	470	2.0	1.6	18.7	0.075	16.7	259	4.8
1.22	6.0	148.1	470	3.0	2.0	19.7	0.093	16.7	284	5.5
1.22	6.0	148.1	470	4.0	2.5	20.6	0.116	16.6	311	6.2
1.22	6.0	148.1	470	5.0	3.2	21.6	0.146	16.6	345	7.1
1.22	6.0	148.1	470	6.0	4.0	22.6	0.184	16.6	380	8.1
1.22	6.0	148.1	470	7.0	5.0	23.7	0.234	16.7	429	9.1
1.22	6.0	148.1	470	8.0	6.3	24.7	0.298	16.7	482	10.3
1.22	6.0	148.1	470	9.0	7.9	25.8	0.381	16.8	539	11.8
1.22	6.0	148.1	470	10.0	10.0	26.9	0.490	16.9	609	13.4
1.22	6.0	148.1	470	11.0	12.6	28.0	0.630	17.0	694	15.1
1.22	6.0	148.1	470	12.0	15.8	29.1	0.817	17.1	787	17.3
1.22	6.0	148.1	470	13.0	20.0	30.2	1.047	17.2	885	19.7
1.22	6.0	148.1	470	14.0	25.1	31.3	1.352	17.3	1006	22.4
1.22	6.0	148.1	470	15.0	31.6	32.4	1.738	17.4	1137	25.5
1.22	6.0	148.1	470	16.0	39.8	33.5	2.218	17.5	1278	28.9
1.22	6.0	148.1	470	17.0	50.1	34.4	2.773	17.4	1426	32.4
1.22	6.0	148.1	470	18.0	63.1	35.3	3.357	17.3	1562	35.8
1.22	6.0	148.1	470	19.0	79.4	36.0	3.963	17.0	1688	39.1
1.22	6.0	148.1	470	20.0	100.0	36.6	4.539	16.6	1799	42.1
1.22	6.0	148.1	470	21.0	125.9	37.1	5.105	16.1	1902	44.7
1.22	6.0	148.1	470	22.0	158.5	37.5	5.598	15.5	1989	46.9
1.22	6.0	148.1	470	23.0	199.5	37.8	6.081	14.8	2068	49.0
1.22	6.0	148.1	470	24.0	251.2	38.1	6.516	14.1	2139	50.8
1.22	6.0	148.1	470	25.0	316.2	38.4	6.918	13.4	2206	52.3

Input-Output Characteristics $V_{ds}=6.0V$, $I_{bias}=250mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=246.8mA$

@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=246.8mA$

Data

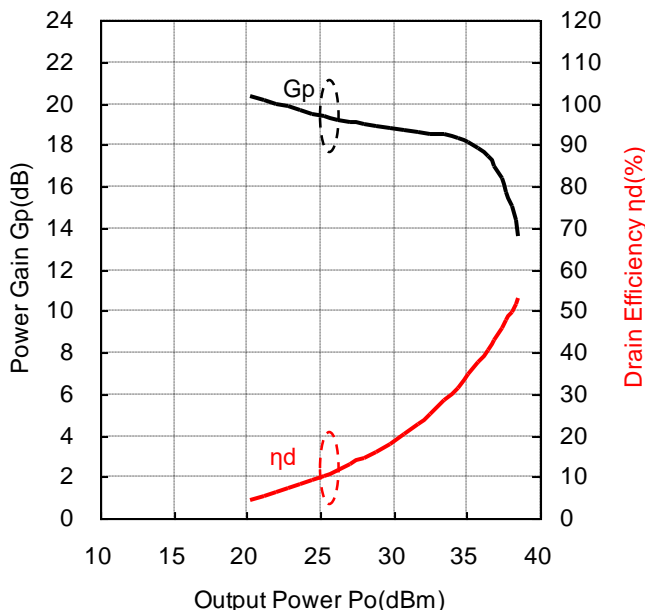
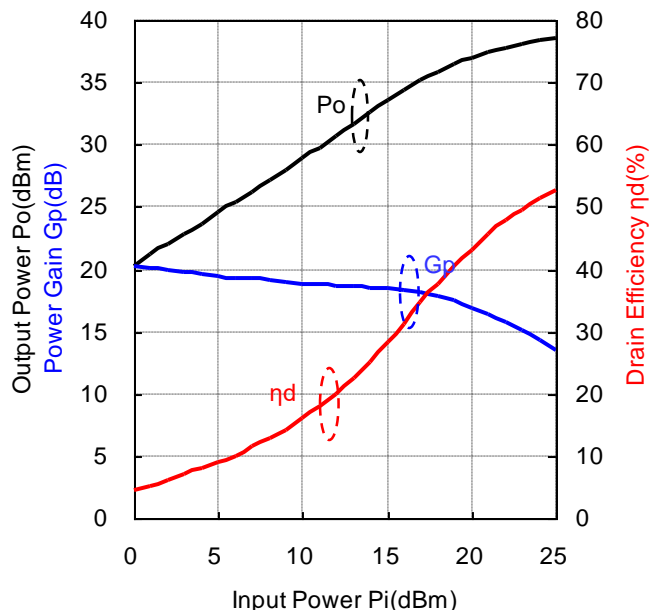
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.30	6.0	246.8	470	0.0	1.0	19.1	0.081	19.1	308	4.4
1.30	6.0	246.8	470	1.0	1.3	19.9	0.098	18.9	325	5.0
1.30	6.0	246.8	470	2.0	1.6	20.8	0.119	18.8	348	5.7
1.30	6.0	246.8	470	3.0	2.0	21.6	0.146	18.6	375	6.5
1.30	6.0	246.8	470	4.0	2.5	22.5	0.177	18.5	400	7.4
1.30	6.0	246.8	470	5.0	3.2	23.4	0.218	18.4	437	8.3
1.30	6.0	246.8	470	6.0	4.0	24.3	0.267	18.3	477	9.3
1.30	6.0	246.8	470	7.0	5.0	25.2	0.330	18.2	526	10.5
1.30	6.0	246.8	470	8.0	6.3	26.1	0.407	18.1	579	11.7
1.30	6.0	246.8	470	9.0	7.9	27.1	0.511	18.1	643	13.2
1.30	6.0	246.8	470	10.0	10.0	28.0	0.637	18.0	712	14.9
1.30	6.0	246.8	470	11.0	12.6	29.0	0.800	18.0	796	16.8
1.30	6.0	246.8	470	12.0	15.8	30.0	1.007	18.0	889	18.9
1.30	6.0	246.8	470	13.0	20.0	31.0	1.262	18.0	993	21.2
1.30	6.0	246.8	470	14.0	25.1	32.1	1.607	18.1	1114	24.0
1.30	6.0	246.8	470	15.0	31.6	33.0	2.004	18.0	1241	26.9
1.30	6.0	246.8	470	16.0	39.8	34.0	2.500	18.0	1373	30.4
1.30	6.0	246.8	470	17.0	50.1	34.8	3.055	17.8	1510	33.7
1.30	6.0	246.8	470	18.0	63.1	35.6	3.622	17.6	1636	36.9
1.30	6.0	246.8	470	19.0	79.4	36.3	4.227	17.3	1760	40.0
1.30	6.0	246.8	470	20.0	100.0	36.8	4.753	16.8	1857	42.7
1.30	6.0	246.8	470	21.0	125.9	37.2	5.284	16.2	1951	45.2
1.30	6.0	246.8	470	22.0	158.5	37.6	5.794	15.6	2036	47.4
1.30	6.0	246.8	470	23.0	199.5	38.0	6.252	15.0	2109	49.4
1.30	6.0	246.8	470	24.0	251.2	38.3	6.683	14.3	2176	51.2
1.30	6.0	246.8	470	25.0	316.2	38.5	7.063	13.5	2236	52.6

Input-Output Characteristics $V_{ds}=6.0V$, $I_{bias}=350mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=351.7mA$

@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=351.7mA$

Data

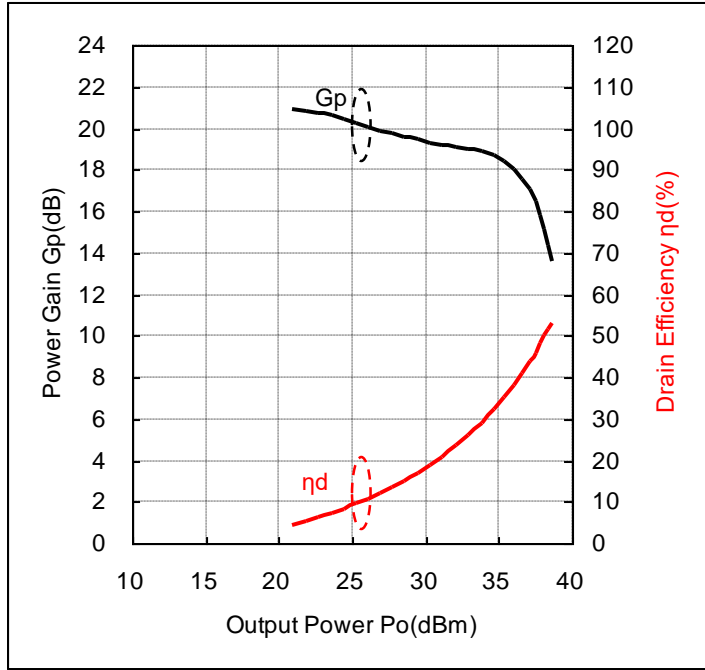
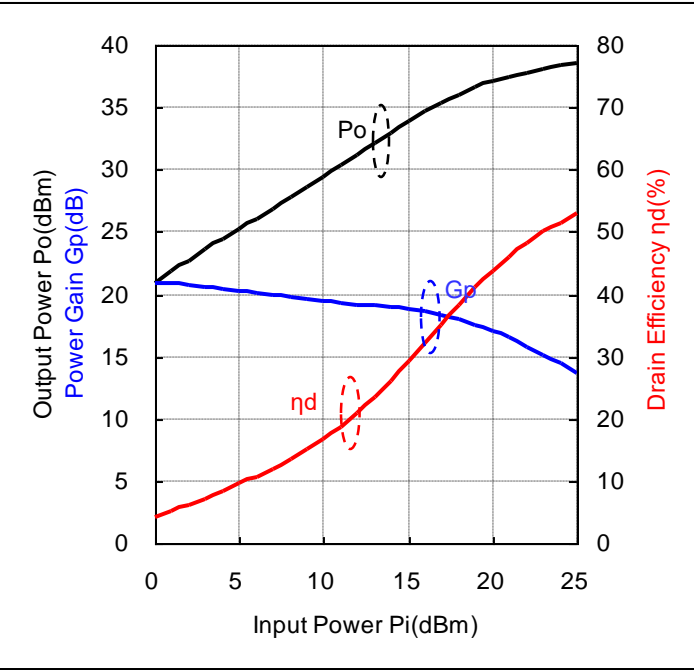
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.36	6.0	351.7	470	0.0	1.0	20.3	0.107	20.3	398	4.5
1.36	6.0	351.7	470	1.0	1.3	21.1	0.130	20.1	411	5.3
1.36	6.0	351.7	470	2.0	1.6	22.0	0.157	20.0	428	6.1
1.36	6.0	351.7	470	3.0	2.0	22.8	0.191	19.8	452	7.1
1.36	6.0	351.7	470	4.0	2.5	23.7	0.233	19.7	482	8.1
1.36	6.0	351.7	470	5.0	3.2	24.5	0.282	19.5	517	9.1
1.36	6.0	351.7	470	6.0	4.0	25.3	0.342	19.3	563	10.1
1.36	6.0	351.7	470	7.0	5.0	26.2	0.417	19.2	609	11.4
1.36	6.0	351.7	470	8.0	6.3	27.1	0.509	19.1	664	12.8
1.36	6.0	351.7	470	9.0	7.9	28.0	0.625	19.0	731	14.3
1.36	6.0	351.7	470	10.0	10.0	28.9	0.769	18.9	802	16.0
1.36	6.0	351.7	470	11.0	12.6	29.8	0.946	18.8	883	17.9
1.36	6.0	351.7	470	12.0	15.8	30.7	1.172	18.7	974	20.1
1.36	6.0	351.7	470	13.0	20.0	31.6	1.462	18.6	1084	22.5
1.36	6.0	351.7	470	14.0	25.1	32.5	1.799	18.5	1195	25.1
1.36	6.0	351.7	470	15.0	31.6	33.5	2.244	18.5	1325	28.2
1.36	6.0	351.7	470	16.0	39.8	34.3	2.723	18.3	1450	31.3
1.36	6.0	351.7	470	17.0	50.1	35.2	3.273	18.2	1579	34.6
1.36	6.0	351.7	470	18.0	63.1	35.8	3.828	17.8	1700	37.5
1.36	6.0	351.7	470	19.0	79.4	36.4	4.406	17.4	1813	40.5
1.36	6.0	351.7	470	20.0	100.0	36.9	4.932	16.9	1906	43.1
1.36	6.0	351.7	470	21.0	125.9	37.4	5.458	16.4	1994	45.6
1.36	6.0	351.7	470	22.0	158.5	37.7	5.929	15.7	2069	47.8
1.36	6.0	351.7	470	23.0	199.5	38.0	6.368	15.0	2138	49.6
1.36	6.0	351.7	470	24.0	251.2	38.3	6.808	14.3	2204	51.5
1.36	6.0	351.7	470	25.0	316.2	38.5	7.161	13.5	2261	52.8

Input-Output Characteristics $V_{ds}=6.0V$, $I_{bias}=450mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=442.5mA$

@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=442.5mA$

Data

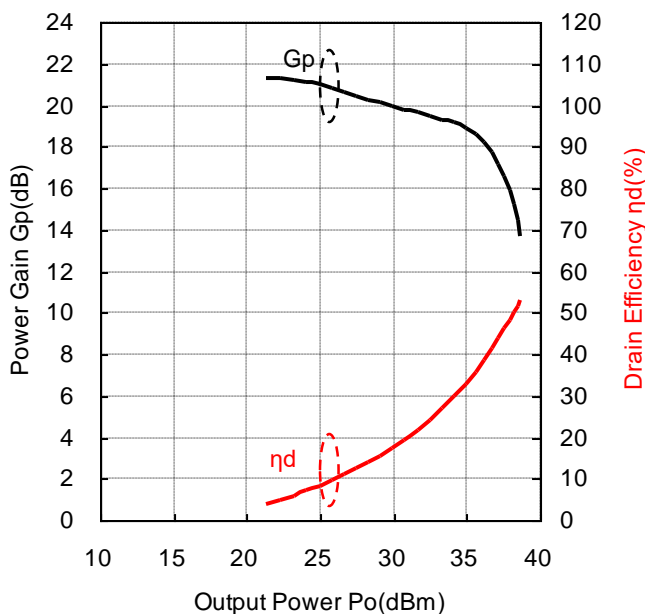
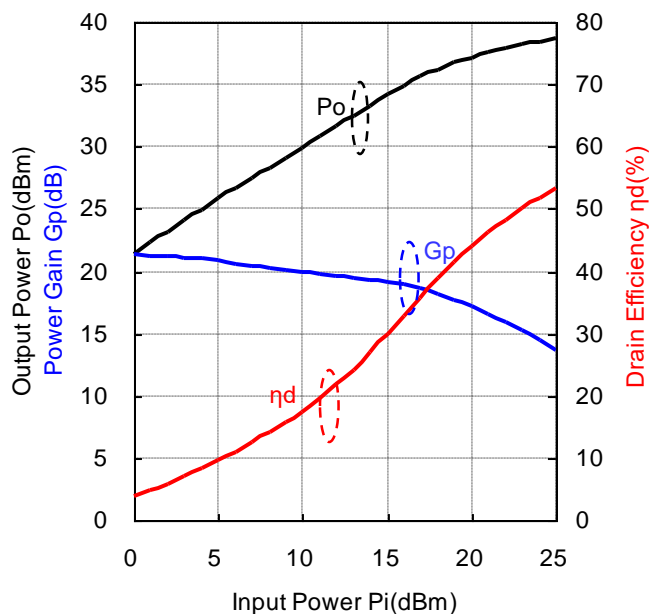
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.41	6.0	442.5	470	0.0	1.0	20.9	0.123	20.9	482	4.3
1.41	6.0	442.5	470	1.0	1.3	21.8	0.152	20.8	493	5.2
1.41	6.0	442.5	470	2.0	1.6	22.7	0.186	20.7	508	6.1
1.41	6.0	442.5	470	3.0	2.0	23.6	0.228	20.6	528	7.2
1.41	6.0	442.5	470	4.0	2.5	24.4	0.275	20.4	551	8.3
1.41	6.0	442.5	470	5.0	3.2	25.3	0.335	20.3	589	9.5
1.41	6.0	442.5	470	6.0	4.0	26.1	0.404	20.1	630	10.7
1.41	6.0	442.5	470	7.0	5.0	26.9	0.490	19.9	679	12.0
1.41	6.0	442.5	470	8.0	6.3	27.7	0.593	19.7	735	13.4
1.41	6.0	442.5	470	9.0	7.9	28.6	0.721	19.6	799	15.0
1.41	6.0	442.5	470	10.0	10.0	29.4	0.879	19.4	873	16.8
1.41	6.0	442.5	470	11.0	12.6	30.3	1.072	19.3	952	18.8
1.41	6.0	442.5	470	12.0	15.8	31.2	1.312	19.2	1048	20.9
1.41	6.0	442.5	470	13.0	20.0	32.1	1.614	19.1	1151	23.4
1.41	6.0	442.5	470	14.0	25.1	33.0	1.982	19.0	1265	26.1
1.41	6.0	442.5	470	15.0	31.6	33.9	2.432	18.9	1394	29.1
1.41	6.0	442.5	470	16.0	39.8	34.7	2.924	18.7	1514	32.2
1.41	6.0	442.5	470	17.0	50.1	35.4	3.451	18.4	1638	35.1
1.41	6.0	442.5	470	18.0	63.1	36.0	4.027	18.0	1755	38.2
1.41	6.0	442.5	470	19.0	79.4	36.6	4.560	17.6	1851	41.1
1.41	6.0	442.5	470	20.0	100.0	37.1	5.093	17.1	1944	43.7
1.41	6.0	442.5	470	21.0	125.9	37.5	5.598	16.5	2027	46.0
1.41	6.0	442.5	470	22.0	158.5	37.8	6.053	15.8	2100	48.0
1.41	6.0	442.5	470	23.0	199.5	38.1	6.486	15.1	2164	50.0
1.41	6.0	442.5	470	24.0	251.2	38.4	6.887	14.4	2226	51.6
1.41	6.0	442.5	470	25.0	316.2	38.6	7.244	13.6	2278	53.0

Input-Output Characteristics $V_{ds}=6.0V$, $I_{bias}=550mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=545.6mA$

@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=545.6mA$

Data

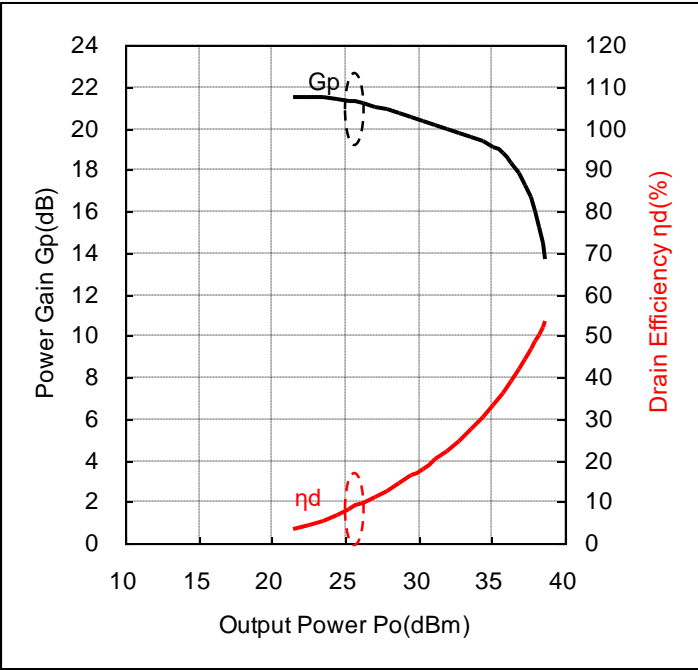
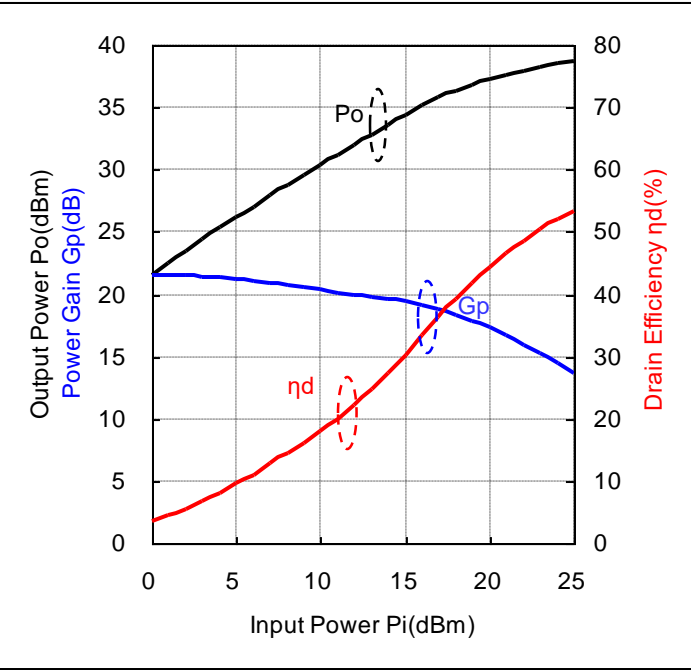
V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.46	6.0	545.6	470	0.0	1.0	21.3	0.136	21.3	571	4.0
1.46	6.0	545.6	470	1.0	1.3	22.3	0.168	21.3	581	4.8
1.46	6.0	545.6	470	2.0	1.6	23.2	0.208	21.2	596	5.8
1.46	6.0	545.6	470	3.0	2.0	24.1	0.256	21.1	608	7.0
1.46	6.0	545.6	470	4.0	2.5	25.0	0.314	21.0	631	8.3
1.46	6.0	545.6	470	5.0	3.2	25.8	0.382	20.8	661	9.6
1.46	6.0	545.6	470	6.0	4.0	26.6	0.461	20.6	700	11.0
1.46	6.0	545.6	470	7.0	5.0	27.5	0.558	20.5	748	12.4
1.46	6.0	545.6	470	8.0	6.3	28.3	0.673	20.3	802	14.0
1.46	6.0	545.6	470	9.0	7.9	29.1	0.815	20.1	867	15.7
1.46	6.0	545.6	470	10.0	10.0	29.9	0.984	19.9	942	17.4
1.46	6.0	545.6	470	11.0	12.6	30.8	1.197	19.8	1026	19.4
1.46	6.0	545.6	470	12.0	15.8	31.6	1.452	19.6	1114	21.7
1.46	6.0	545.6	470	13.0	20.0	32.5	1.762	19.5	1220	24.1
1.46	6.0	545.6	470	14.0	25.1	33.3	2.148	19.3	1331	26.9
1.46	6.0	545.6	470	15.0	31.6	34.2	2.600	19.2	1457	29.7
1.46	6.0	545.6	470	16.0	39.8	34.9	3.112	18.9	1577	32.9
1.46	6.0	545.6	470	17.0	50.1	35.6	3.622	18.6	1691	35.7
1.46	6.0	545.6	470	18.0	63.1	36.2	4.188	18.2	1799	38.8
1.46	6.0	545.6	470	19.0	79.4	36.7	4.688	17.7	1892	41.3
1.46	6.0	545.6	470	20.0	100.0	37.2	5.212	17.2	1981	43.9
1.46	6.0	545.6	470	21.0	125.9	37.6	5.702	16.6	2056	46.2
1.46	6.0	545.6	470	22.0	158.5	37.9	6.166	15.9	2127	48.3
1.46	6.0	545.6	470	23.0	199.5	38.2	6.592	15.2	2191	50.1
1.46	6.0	545.6	470	24.0	251.2	38.4	6.982	14.4	2247	51.8
1.46	6.0	545.6	470	25.0	316.2	38.7	7.328	13.7	2297	53.2

Input-Output Characteristics $V_{ds}=6.0V$, $I_{bias}=650mA$ - Condition 2

Graph

Output Power, Power Gain, Drain Efficiency vs Input Power

Power Gain, Drain Efficiency vs Output Power



@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=643.0mA$

@ $f=470MHz$, $V_{ds}=6.0V$, $I_{bias}=643.0mA$

Data

V_{gs} (V)	V_{ds} (V)	I_{bias} (mA)	f (MHz)	P_i (dBm)	P_i (mW)	P_o (dBm)	P_o (W)	G_p (dB)	I_{ds} (mA)	η_d (%)
1.51	6.0	643.0	470	0.0	1.0	21.5	0.142	21.5	666	3.6
1.51	6.0	643.0	470	1.0	1.3	22.5	0.178	21.5	673	4.4
1.51	6.0	643.0	470	2.0	1.6	23.5	0.222	21.5	681	5.4
1.51	6.0	643.0	470	3.0	2.0	24.4	0.275	21.4	690	6.7
1.51	6.0	643.0	470	4.0	2.5	25.3	0.341	21.3	707	8.0
1.51	6.0	643.0	470	5.0	3.2	26.2	0.418	21.2	731	9.5
1.51	6.0	643.0	470	6.0	4.0	27.1	0.508	21.1	765	11.1
1.51	6.0	643.0	470	7.0	5.0	27.9	0.615	20.9	805	12.7
1.51	6.0	643.0	470	8.0	6.3	28.7	0.741	20.7	862	14.3
1.51	6.0	643.0	470	9.0	7.9	29.5	0.897	20.5	925	16.2
1.51	6.0	643.0	470	10.0	10.0	30.3	1.079	20.3	1000	18.0
1.51	6.0	643.0	470	11.0	12.6	31.1	1.303	20.1	1084	20.0
1.51	6.0	643.0	470	12.0	15.8	32.0	1.578	20.0	1178	22.3
1.51	6.0	643.0	470	13.0	20.0	32.8	1.901	19.8	1281	24.7
1.51	6.0	643.0	470	14.0	25.1	33.6	2.291	19.6	1392	27.4
1.51	6.0	643.0	470	15.0	31.6	34.4	2.742	19.4	1508	30.3
1.51	6.0	643.0	470	16.0	39.8	35.1	3.243	19.1	1623	33.3
1.51	6.0	643.0	470	17.0	50.1	35.8	3.784	18.8	1737	36.3
1.51	6.0	643.0	470	18.0	63.1	36.3	4.315	18.3	1837	39.1
1.51	6.0	643.0	470	19.0	79.4	36.8	4.842	17.8	1931	41.8
1.51	6.0	643.0	470	20.0	100.0	37.3	5.346	17.3	2013	44.3
1.51	6.0	643.0	470	21.0	125.9	37.7	5.821	16.7	2084	46.6
1.51	6.0	643.0	470	22.0	158.5	38.0	6.252	16.0	2149	48.5
1.51	6.0	643.0	470	23.0	199.5	38.3	6.683	15.3	2212	50.4
1.51	6.0	643.0	470	24.0	251.2	38.5	7.063	14.5	2265	52.0
1.51	6.0	643.0	470	25.0	316.2	38.7	7.396	13.7	2313	53.3

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