TOSHIBA

TOSHIBA Discrete Devices
RF Power MOS FET
2SK3078A
Application Note

Contents

- Bias Current / DC Characteristics
  - Vds = 3.6V, 4.8V, 6.0V
  - Vgs = 0.5V ～ 1.7V (0.05V Step)

- Input – Output Characteristics / RF Characteristics
  - Vds = 3.6V, 4.8V, 6.0V
  - Ibias= 10mA, 30mA, 50mA, 70mA, 90mA, 110mA
  - f = 470MHz
  - Pi = -5 ～ 23dBm (1dB step)
  - ZL=12.16+j4.78Ω, 4.52+3.60Ω

・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 = 12.16 + j4.78Ω)
⇒ "Condition 1" is the load impedance setup which gave priority to "Drain Efficiency".

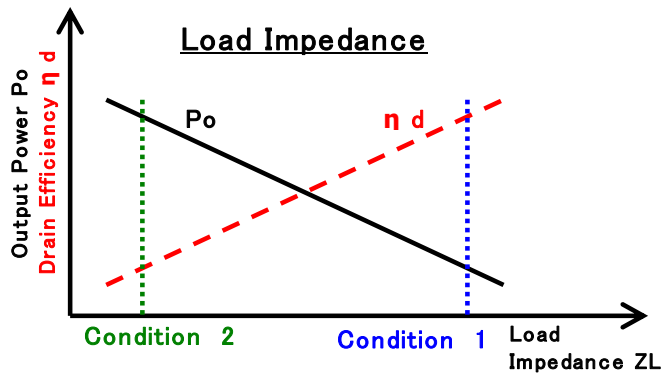
Condition 2 (ZL = 4.52 + j3.60Ω)
⇒ "Condition 2" is the load impedance setup which gave priority to "Output Power".

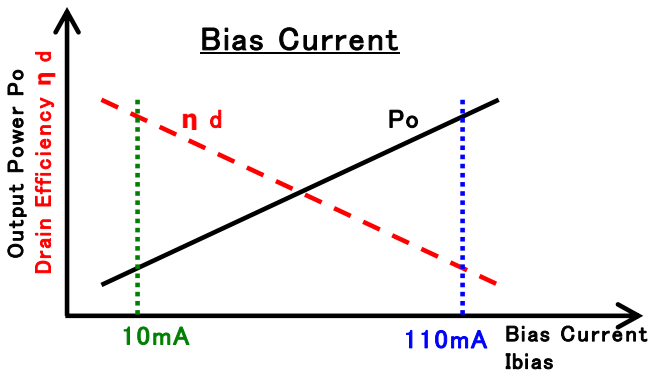
Symbol

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

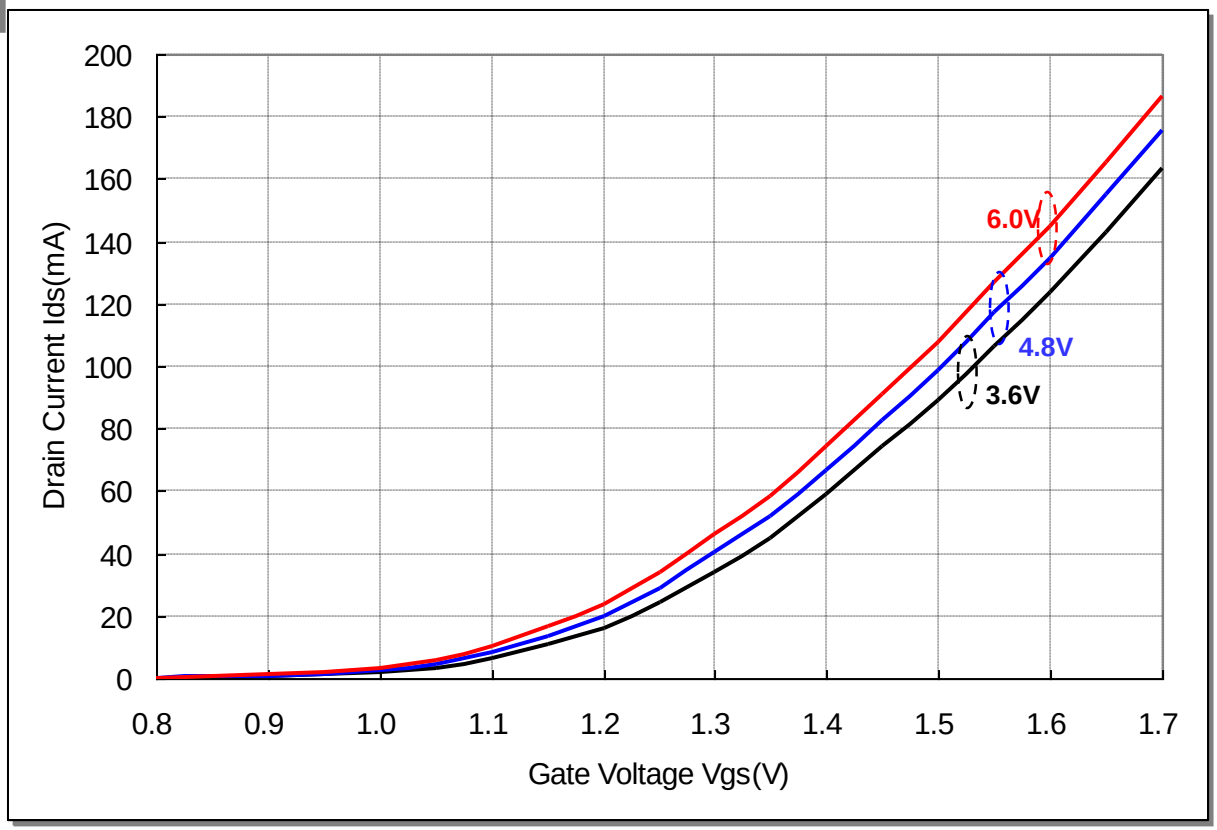
Selection Guide

Load Impedance	Drain-Source Voltage	Bias Current	Contents (Input-Output Characteristics)	Page No
Priority Performance Drain Efficiency Condition 1 12.16 + j4.78Ω *(Please refer to P5 for details.)*	3.6V	10mA～110mA Step 20mA	Graph	6
			Data	7～12
	4.8V	10mA～110mA Step 20mA	Graph	13
			Data	14～19
	6.0V	10mA～110mA Step 20mA	Graph	20
			Data	21～26
Priority Performance Output Power Condition 2 4.52 + j3.60Ω *(Please refer to P27 for details.)*	3.6V	10mA～110mA Step 20mA	Graph	28
			Data	29～34
	4.8V	10mA～110mA Step 20mA	Graph	35
			Data	36～41
	6.0V	10mA～110mA Step 20mA	Graph	42
			Data	43～48





Graph



Data

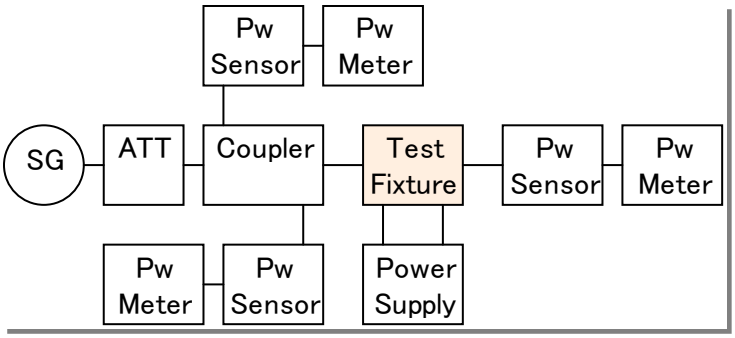
Vgs (V)	Vds (V)	Ids (mA)
0.50	3.6	0.0
0.55	3.6	0.0
0.60	3.6	0.0
0.65	3.6	0.0
0.70	3.6	0.0
0.75	3.6	0.1
0.80	3.6	0.1
0.85	3.6	0.3
0.90	3.6	0.5
0.95	3.6	1.0
1.00	3.6	1.9
1.05	3.6	3.4
1.10	3.6	6.2
1.15	3.6	10.6
1.20	3.6	16.1
1.25	3.6	24.1
1.30	3.6	34.1
1.35	3.6	45.0
1.40	3.6	58.7
1.45	3.6	74.0
1.50	3.6	89.1
1.55	3.6	106.7
1.60	3.6	123.6
1.65	3.6	143.1
1.70	3.6	163.4

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	0.1
0.75	4.8	0.1
0.80	4.8	0.2
0.85	4.8	0.4
0.90	4.8	0.7
0.95	4.8	1.3
1.00	4.8	2.6
1.05	4.8	4.6
1.10	4.8	8.2
1.15	4.8	13.4
1.20	4.8	19.8
1.25	4.8	28.8
1.30	4.8	40.1
1.35	4.8	51.9
1.40	4.8	66.5
1.45	4.8	82.8
1.50	4.8	98.6
1.55	4.8	117.3
1.60	4.8	134.8
1.65	4.8	154.8
1.70	4.8	175.7

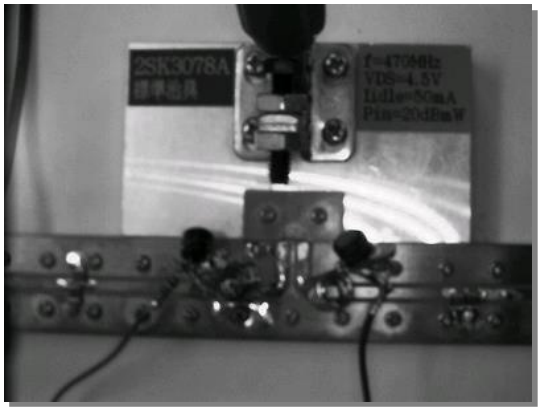
Vgs (V)	Vds (V)	Ids (mA)
0.50	6.0	0.0
0.55	6.0	0.0
0.60	6.0	0.0
0.65	6.0	0.0
0.70	6.0	0.1
0.75	6.0	0.1
0.80	6.0	0.2
0.85	6.0	0.5
0.90	6.0	1.0
0.95	6.0	1.8
1.00	6.0	3.5
1.05	6.0	6.0
1.10	6.0	10.3
1.15	6.0	16.4
1.20	6.0	23.7
1.25	6.0	33.8
1.30	6.0	45.9
1.35	6.0	58.6
1.40	6.0	74.1
1.45	6.0	91.3
1.50	6.0	107.8
1.55	6.0	126.9
1.60	6.0	145.0
1.65	6.0	165.7
1.70	6.0	186.7

Test System – Condition 1

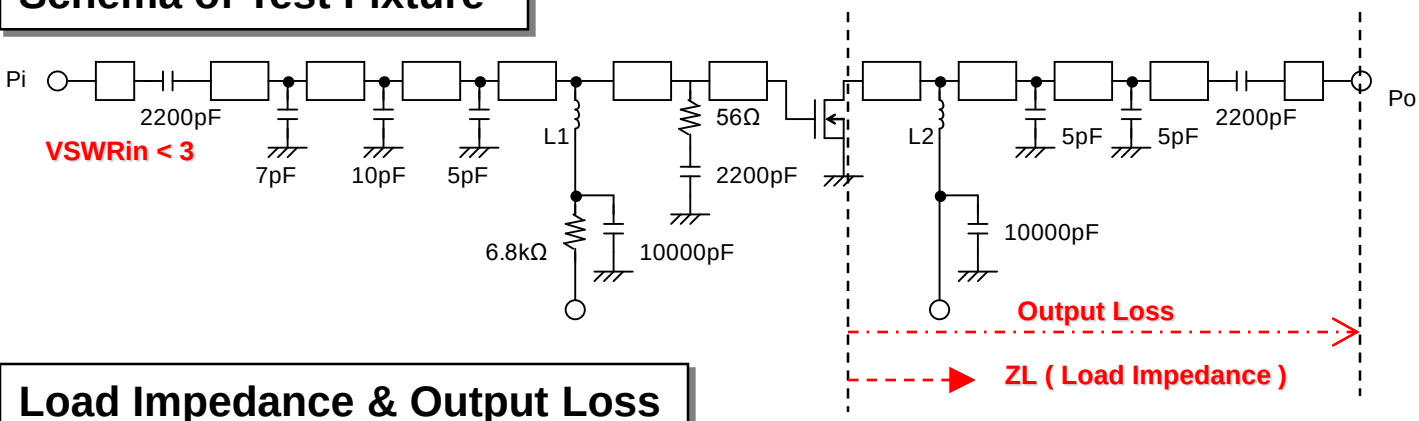
RF Test Block



Test Fixture

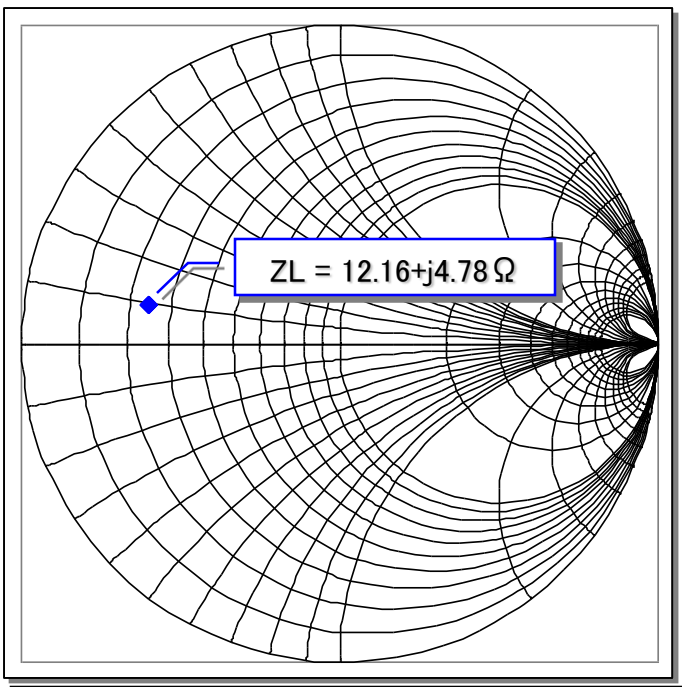


Schema of Test Fixture

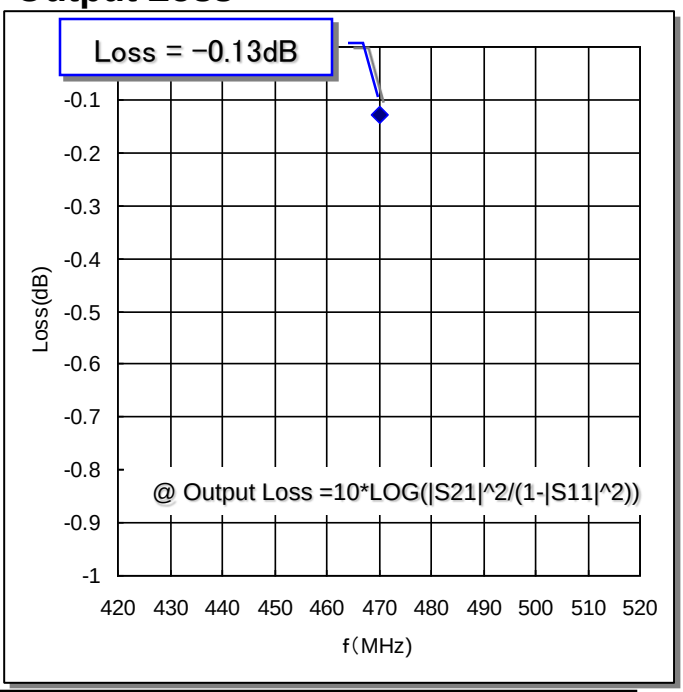


Load Impedance & Output Loss

Smith Chart



Output Loss

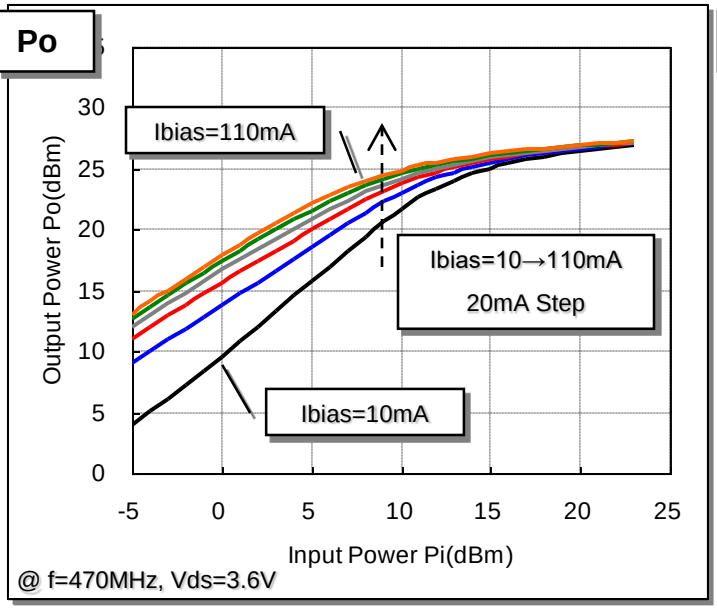


ZL = 12.16 + j 4.78Ω, Output Circuit Loss = −0.13dB (@ f=470MHz)

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

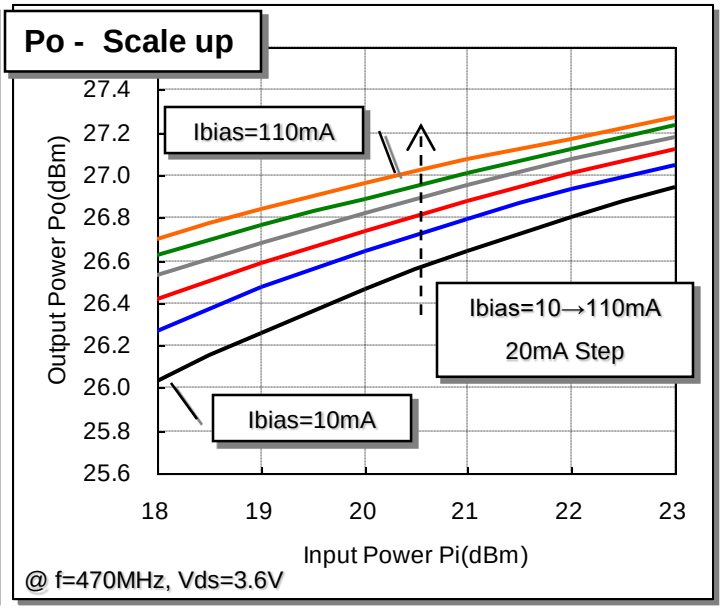
Input - Output Characteristics Vds =3.6V - Condition 1

Po



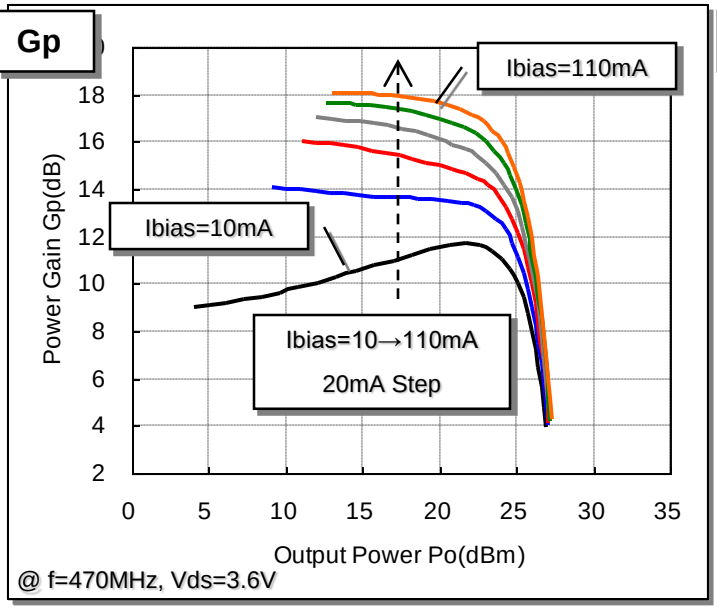
@ f=470MHz, Vds=3.6V

Po - Scale up



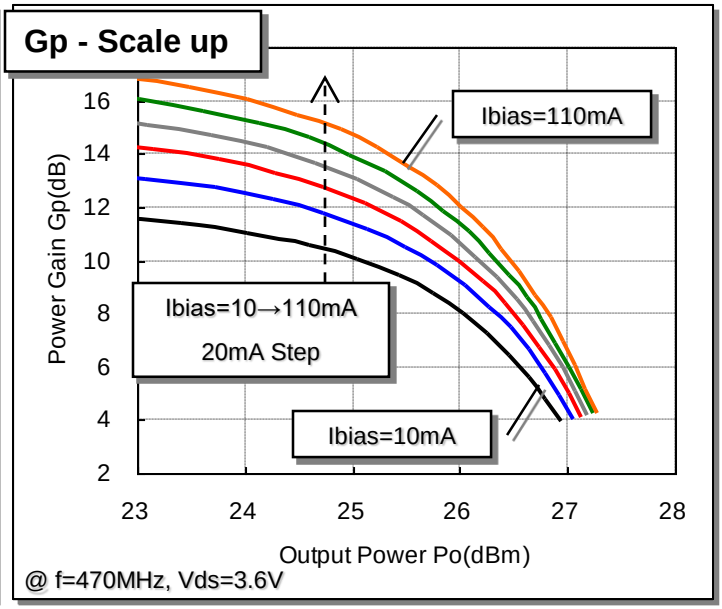
@ f=470MHz, Vds=3.6V

Gp



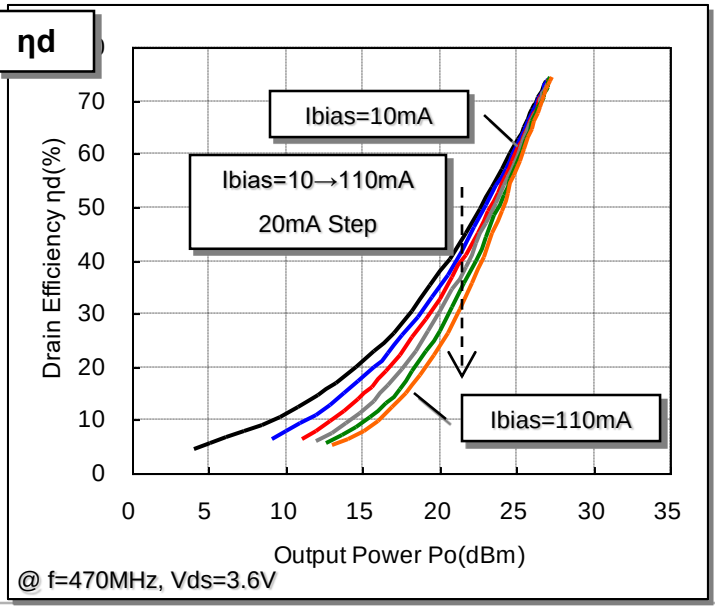
@ f=470MHz, Vds=3.6V

Gp - Scale up



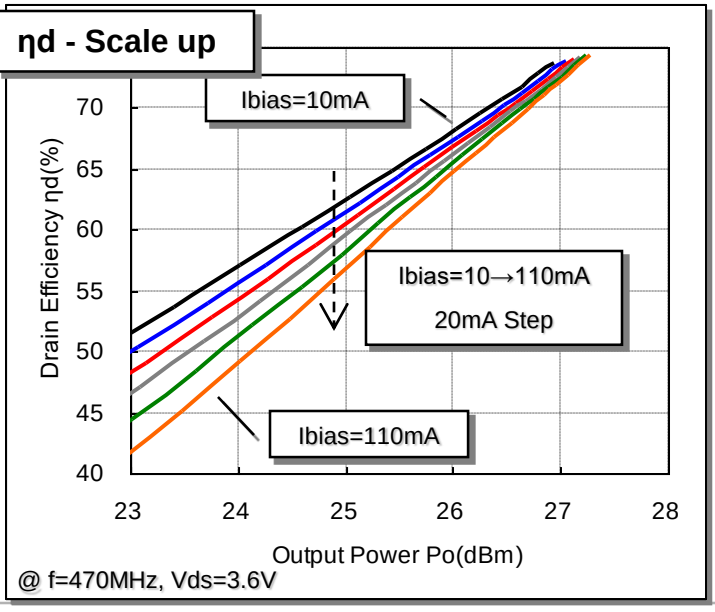
@ f=470MHz, Vds=3.6V

ηd



@ f=470MHz, Vds=3.6V

ηd - Scale up

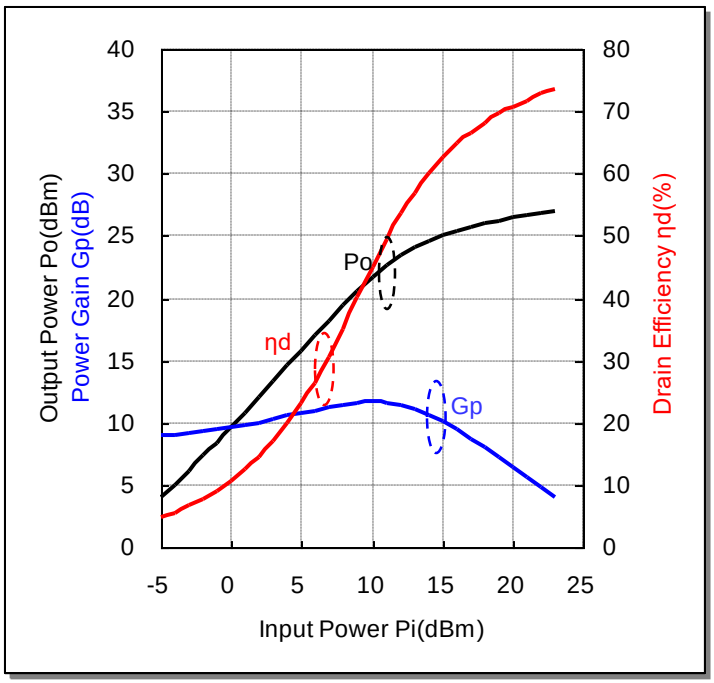


@ f=470MHz, Vds=3.6V

Input-Output Characteristics Vds＝3.6V, Ibias=10mA - Condition 1

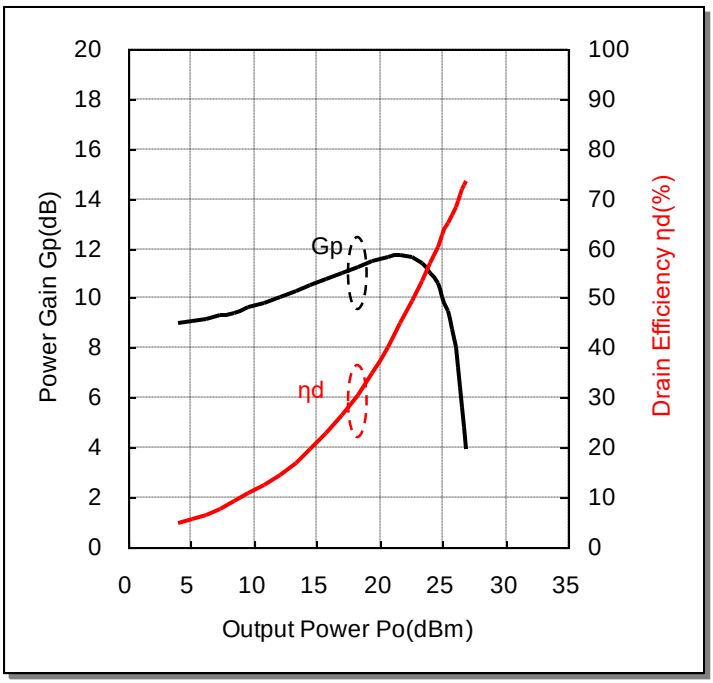
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=3.6V, Ibias=10.0mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=3.6V, Ibias=10.0mA

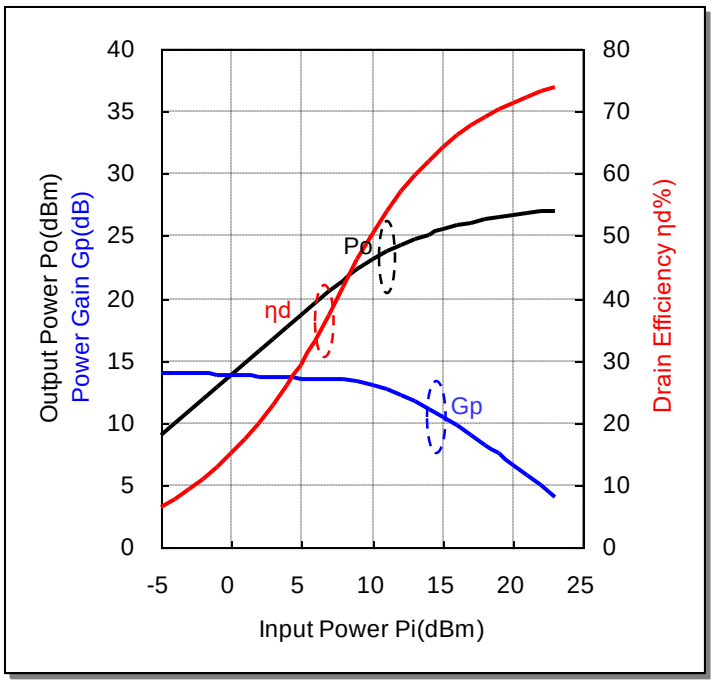
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.14	3.6	10.0	470	-5.0	0.3	4.0	0.003	9.0	15	4.7
1.14	3.6	10.0	470	-4.0	0.4	5.1	0.003	9.1	16	5.6
1.14	3.6	10.0	470	-3.0	0.5	6.2	0.004	9.2	17	6.6
1.14	3.6	10.0	470	-2.0	0.6	7.3	0.005	9.3	19	7.8
1.14	3.6	10.0	470	-1.0	0.8	8.4	0.007	9.4	21	9.1
1.14	3.6	10.0	470	0.0	1.0	9.6	0.009	9.6	24	10.7
1.14	3.6	10.0	470	1.0	1.3	10.8	0.012	9.8	27	12.6
1.14	3.6	10.0	470	2.0	1.6	12.0	0.016	10.0	30	14.6
1.14	3.6	10.0	470	3.0	2.0	13.3	0.021	10.3	35	17.0
1.14	3.6	10.0	470	4.0	2.5	14.6	0.029	10.6	40	19.8
1.14	3.6	10.0	470	5.0	3.2	15.8	0.038	10.8	46	23.0
1.14	3.6	10.0	470	6.0	4.0	17.0	0.050	11.0	52	26.4
1.14	3.6	10.0	470	7.0	5.0	18.2	0.067	11.2	61	30.5
1.14	3.6	10.0	470	8.0	6.3	19.5	0.088	11.5	70	35.1
1.14	3.6	10.0	470	9.0	7.9	20.6	0.116	11.6	80	40.1
1.14	3.6	10.0	470	10.0	10.0	21.7	0.148	11.7	91	44.9
1.14	3.6	10.0	470	11.0	12.6	22.6	0.183	11.6	102	49.6
1.14	3.6	10.0	470	12.0	15.8	23.4	0.219	11.4	113	53.6
1.14	3.6	10.0	470	13.0	20.0	24.0	0.253	11.0	123	57.0
1.14	3.6	10.0	470	14.0	25.1	24.6	0.288	10.6	133	60.2
1.14	3.6	10.0	470	15.0	31.6	25.0	0.320	10.0	142	62.6
1.14	3.6	10.0	470	16.0	39.8	25.4	0.350	9.4	150	64.9
1.14	3.6	10.0	470	17.0	50.1	25.8	0.376	8.8	157	66.6
1.14	3.6	10.0	470	18.0	63.1	26.0	0.401	8.0	163	68.3
1.14	3.6	10.0	470	19.0	79.4	26.3	0.423	7.3	169	69.6
1.14	3.6	10.0	470	20.0	100.0	26.5	0.443	6.5	174	70.7
1.14	3.6	10.0	470	21.0	125.9	26.6	0.461	5.6	178	71.8
1.14	3.6	10.0	470	22.0	158.5	26.8	0.479	4.8	183	72.8
1.14	3.6	10.0	470	23.0	199.5	26.9	0.494	3.9	186	73.7

Input-Output Characteristics Vds＝3.6V, Ibias=30mA - Condition 1

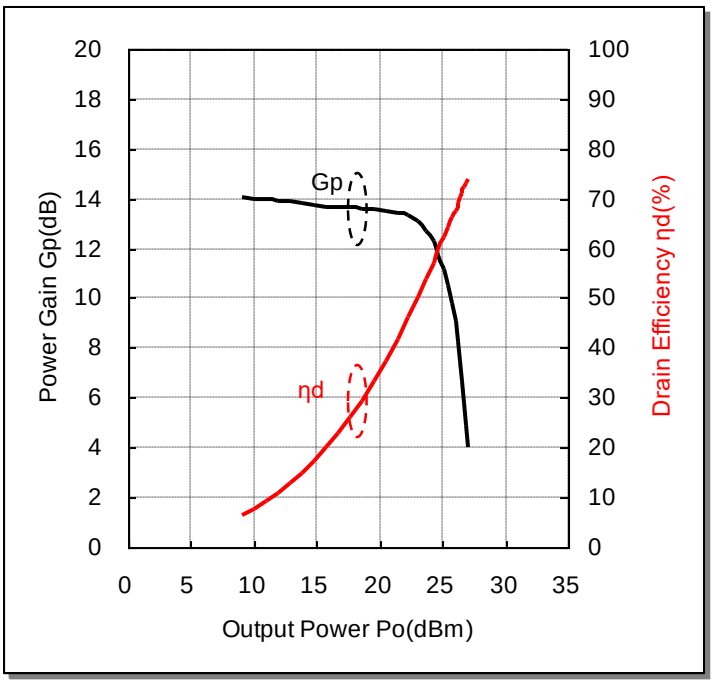
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=3.6V, Ibias=29.9mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=3.6V, Ibias=29.9mA

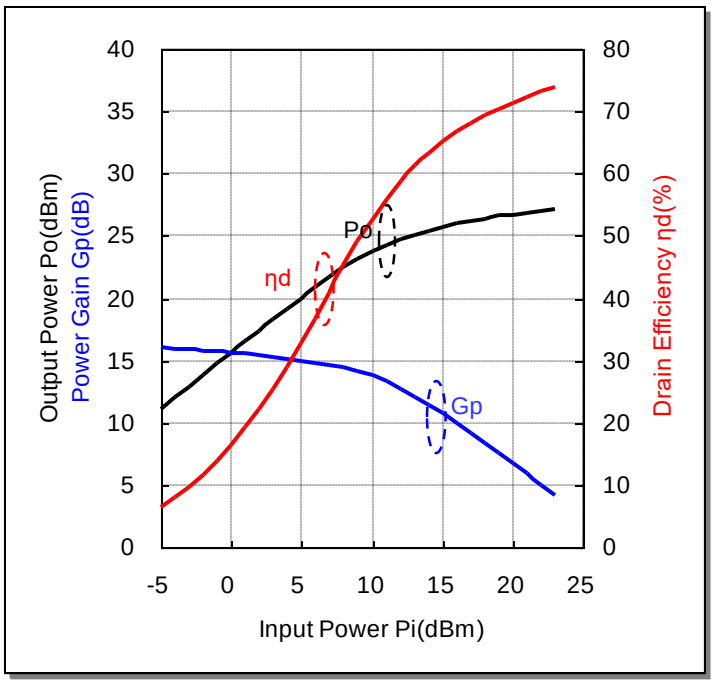
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.28	3.6	29.9	470	-5.0	0.3	9.1	0.008	14.1	35	6.4
1.28	3.6	29.9	470	-4.0	0.4	10.0	0.010	14.0	36	7.8
1.28	3.6	29.9	470	-3.0	0.5	11.0	0.013	14.0	37	9.3
1.28	3.6	29.9	470	-2.0	0.6	11.9	0.016	13.9	39	11.0
1.28	3.6	29.9	470	-1.0	0.8	12.9	0.019	13.9	42	12.9
1.28	3.6	29.9	470	0.0	1.0	13.8	0.024	13.8	44	15.0
1.28	3.6	29.9	470	1.0	1.3	14.8	0.030	13.8	48	17.4
1.28	3.6	29.9	470	2.0	1.6	15.7	0.037	13.7	52	19.9
1.28	3.6	29.9	470	3.0	2.0	16.6	0.046	13.6	56	22.7
1.28	3.6	29.9	470	4.0	2.5	17.6	0.058	13.6	62	26.0
1.28	3.6	29.9	470	5.0	3.2	18.6	0.072	13.6	68	29.4
1.28	3.6	29.9	470	6.0	4.0	19.5	0.090	13.5	75	33.2
1.28	3.6	29.9	470	7.0	5.0	20.5	0.112	13.5	84	37.3
1.28	3.6	29.9	470	8.0	6.3	21.4	0.139	13.4	93	41.7
1.28	3.6	29.9	470	9.0	7.9	22.3	0.170	13.3	102	46.2
1.28	3.6	29.9	470	10.0	10.0	23.1	0.203	13.1	112	50.3
1.28	3.6	29.9	470	11.0	12.6	23.7	0.236	12.7	121	53.9
1.28	3.6	29.9	470	12.0	15.8	24.3	0.267	12.3	130	57.1
1.28	3.6	29.9	470	13.0	20.0	24.7	0.297	11.7	138	59.9
1.28	3.6	29.9	470	14.0	25.1	25.1	0.326	11.1	146	62.1
1.28	3.6	29.9	470	15.0	31.6	25.5	0.354	10.5	153	64.3
1.28	3.6	29.9	470	16.0	39.8	25.8	0.379	9.8	159	66.1
1.28	3.6	29.9	470	17.0	50.1	26.0	0.403	9.0	165	67.6
1.28	3.6	29.9	470	18.0	63.1	26.3	0.424	8.3	171	68.9
1.28	3.6	29.9	470	19.0	79.4	26.5	0.444	7.5	175	70.2
1.28	3.6	29.9	470	20.0	100.0	26.6	0.461	6.6	180	71.2
1.28	3.6	29.9	470	21.0	125.9	26.8	0.478	5.8	184	72.2
1.28	3.6	29.9	470	22.0	158.5	26.9	0.493	4.9	187	73.1
1.28	3.6	29.9	470	23.0	199.5	27.0	0.507	4.0	191	73.9

Input-Output Characteristics Vds＝3.6V, Ibias=50mA - Condition 1

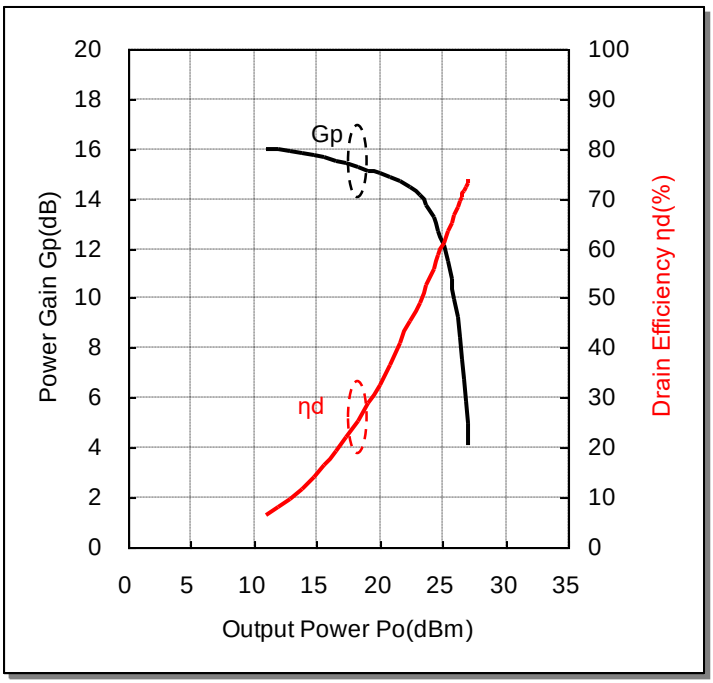
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=3.6V, Ibias=50.1mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=3.6V, Ibias=50.1mA

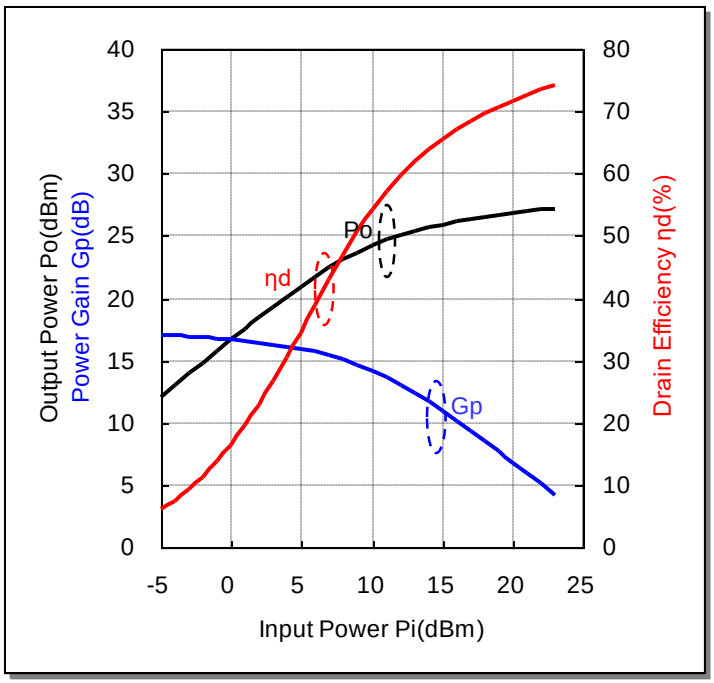
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.37	3.6	50.1	470	-5.0	0.3	11.0	0.013	16.0	54	6.5
1.37	3.6	50.1	470	-4.0	0.4	12.0	0.016	16.0	55	7.9
1.37	3.6	50.1	470	-3.0	0.5	12.9	0.020	15.9	56	9.6
1.37	3.6	50.1	470	-2.0	0.6	13.8	0.024	15.8	58	11.6
1.37	3.6	50.1	470	-1.0	0.8	14.7	0.030	15.7	60	13.9
1.37	3.6	50.1	470	0.0	1.0	15.6	0.037	15.6	62	16.3
1.37	3.6	50.1	470	1.0	1.3	16.5	0.045	15.5	65	19.2
1.37	3.6	50.1	470	2.0	1.6	17.4	0.055	15.4	69	22.2
1.37	3.6	50.1	470	3.0	2.0	18.3	0.067	15.3	73	25.5
1.37	3.6	50.1	470	4.0	2.5	19.1	0.082	15.1	79	28.9
1.37	3.6	50.1	470	5.0	3.2	20.0	0.100	15.0	85	32.7
1.37	3.6	50.1	470	6.0	4.0	20.8	0.121	14.8	92	36.7
1.37	3.6	50.1	470	7.0	5.0	21.7	0.147	14.7	100	40.9
1.37	3.6	50.1	470	8.0	6.3	22.5	0.176	14.5	108	45.2
1.37	3.6	50.1	470	9.0	7.9	23.1	0.207	14.1	117	49.1
1.37	3.6	50.1	470	10.0	10.0	23.8	0.238	13.8	125	52.8
1.37	3.6	50.1	470	11.0	12.6	24.3	0.268	13.3	133	55.9
1.37	3.6	50.1	470	12.0	15.8	24.7	0.297	12.7	141	58.7
1.37	3.6	50.1	470	13.0	20.0	25.1	0.325	12.1	148	61.2
1.37	3.6	50.1	470	14.0	25.1	25.5	0.351	11.5	154	63.3
1.37	3.6	50.1	470	15.0	31.6	25.7	0.375	10.7	160	65.1
1.37	3.6	50.1	470	16.0	39.8	26.0	0.398	10.0	166	66.8
1.37	3.6	50.1	470	17.0	50.1	26.2	0.419	9.2	171	68.1
1.37	3.6	50.1	470	18.0	63.1	26.4	0.439	8.4	176	69.4
1.37	3.6	50.1	470	19.0	79.4	26.6	0.456	7.6	180	70.5
1.37	3.6	50.1	470	20.0	100.0	26.7	0.472	6.7	184	71.4
1.37	3.6	50.1	470	21.0	125.9	26.9	0.488	5.9	187	72.4
1.37	3.6	50.1	470	22.0	158.5	27.0	0.502	5.0	190	73.3
1.37	3.6	50.1	470	23.0	199.5	27.1	0.515	4.1	193	74.0

Input-Output Characteristics Vds＝3.6V, Ibias=70mA - Condition 1

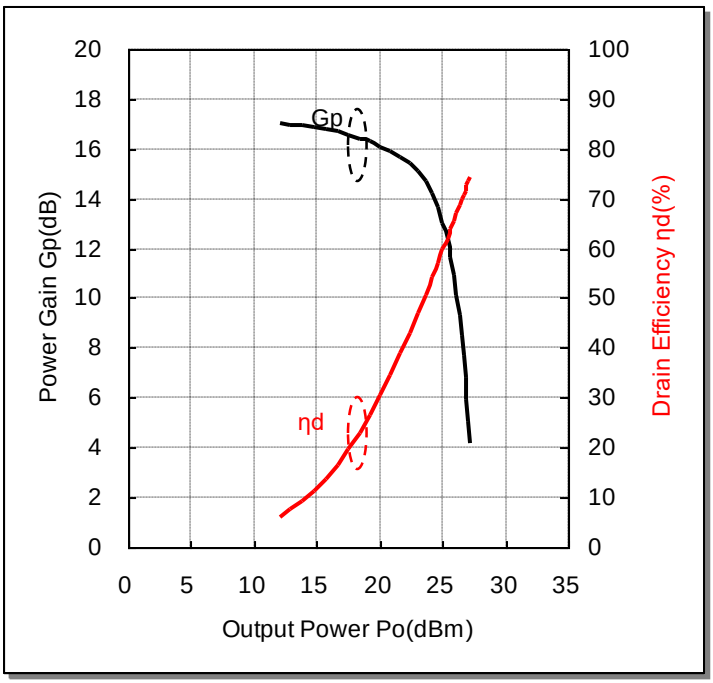
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=3.6V, Ibias=69.3mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=3.6V, Ibias=69.3mA

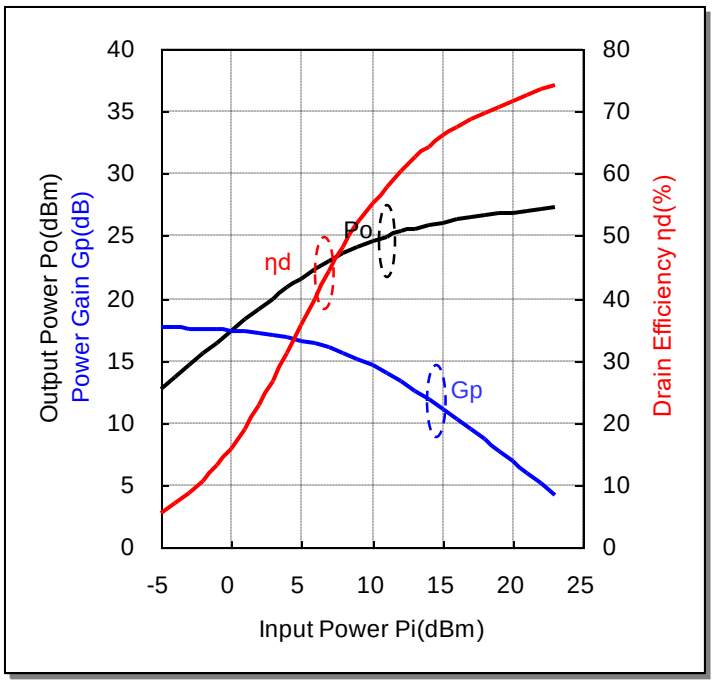
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.44	3.6	69.3	470	-5.0	0.3	12.0	0.016	17.0	72	6.1
1.44	3.6	69.3	470	-4.0	0.4	12.9	0.020	16.9	73	7.5
1.44	3.6	69.3	470	-3.0	0.5	13.9	0.025	16.9	74	9.3
1.44	3.6	69.3	470	-2.0	0.6	14.8	0.030	16.8	75	11.3
1.44	3.6	69.3	470	-1.0	0.8	15.8	0.038	16.8	76	13.7
1.44	3.6	69.3	470	0.0	1.0	16.7	0.047	16.7	79	16.5
1.44	3.6	69.3	470	1.0	1.3	17.6	0.057	16.6	81	19.5
1.44	3.6	69.3	470	2.0	1.6	18.4	0.070	16.4	84	23.0
1.44	3.6	69.3	470	3.0	2.0	19.3	0.085	16.3	88	26.6
1.44	3.6	69.3	470	4.0	2.5	20.1	0.102	16.1	93	30.4
1.44	3.6	69.3	470	5.0	3.2	20.9	0.122	15.9	99	34.5
1.44	3.6	69.3	470	6.0	4.0	21.7	0.147	15.7	105	38.8
1.44	3.6	69.3	470	7.0	5.0	22.4	0.175	15.4	113	43.0
1.44	3.6	69.3	470	8.0	6.3	23.1	0.204	15.1	120	47.0
1.44	3.6	69.3	470	9.0	7.9	23.7	0.234	14.7	128	50.8
1.44	3.6	69.3	470	10.0	10.0	24.2	0.264	14.2	135	54.2
1.44	3.6	69.3	470	11.0	12.6	24.7	0.292	13.7	142	57.2
1.44	3.6	69.3	470	12.0	15.8	25.0	0.320	13.0	148	59.8
1.44	3.6	69.3	470	13.0	20.0	25.4	0.345	12.4	155	62.0
1.44	3.6	69.3	470	14.0	25.1	25.7	0.368	11.7	160	63.9
1.44	3.6	69.3	470	15.0	31.6	25.9	0.391	10.9	165	65.6
1.44	3.6	69.3	470	16.0	39.8	26.1	0.412	10.1	170	67.2
1.44	3.6	69.3	470	17.0	50.1	26.4	0.432	9.4	175	68.5
1.44	3.6	69.3	470	18.0	63.1	26.5	0.450	8.5	179	69.7
1.44	3.6	69.3	470	19.0	79.4	26.7	0.466	7.7	183	70.6
1.44	3.6	69.3	470	20.0	100.0	26.8	0.481	6.8	187	71.6
1.44	3.6	69.3	470	21.0	125.9	27.0	0.495	6.0	190	72.5
1.44	3.6	69.3	470	22.0	158.5	27.1	0.509	5.1	193	73.4
1.44	3.6	69.3	470	23.0	199.5	27.2	0.522	4.2	195	74.2

Input-Output Characteristics Vds＝3.6V, Ibias=90mA - Condition 1

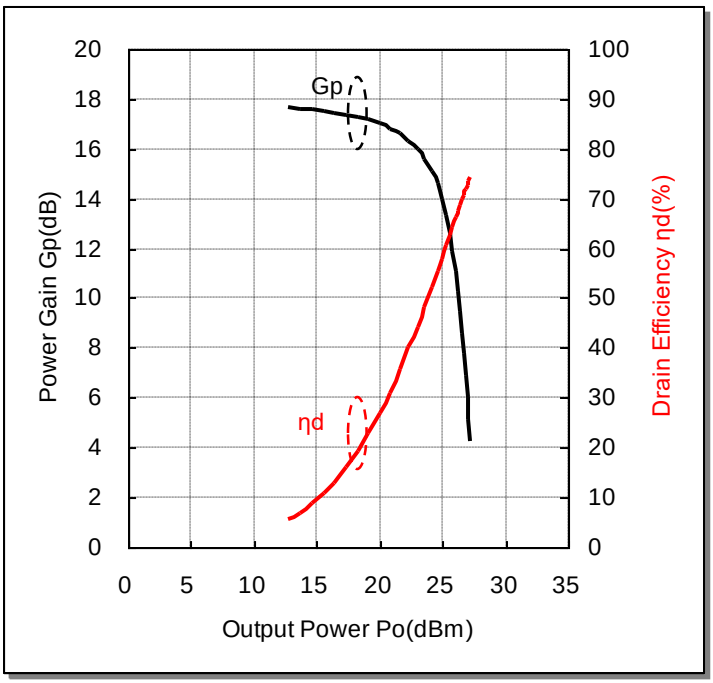
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=3.6V, Ibias=88.8mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=3.6V, Ibias=88.8mA

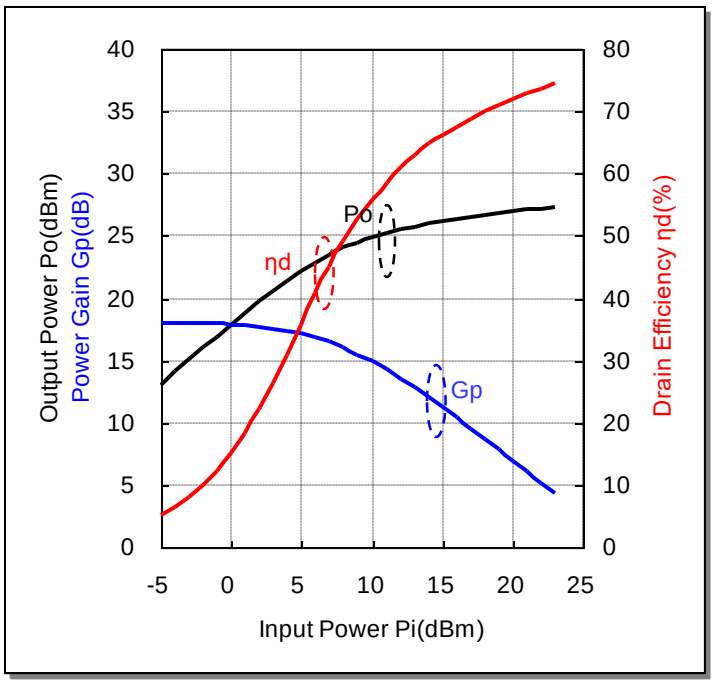
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.50	3.6	88.8	470	-5.0	0.3	12.6	0.018	17.6	91	5.6
1.50	3.6	88.8	470	-4.0	0.4	13.6	0.023	17.6	92	7.0
1.50	3.6	88.8	470	-3.0	0.5	14.6	0.029	17.6	92	8.7
1.50	3.6	88.8	470	-2.0	0.6	15.5	0.036	17.5	93	10.7
1.50	3.6	88.8	470	-1.0	0.8	16.5	0.044	17.5	94	13.0
1.50	3.6	88.8	470	0.0	1.0	17.4	0.055	17.4	96	15.9
1.50	3.6	88.8	470	1.0	1.3	18.3	0.067	17.3	98	19.1
1.50	3.6	88.8	470	2.0	1.6	19.2	0.082	17.2	100	22.8
1.50	3.6	88.8	470	3.0	2.0	20.0	0.100	17.0	104	26.8
1.50	3.6	88.8	470	4.0	2.5	20.8	0.121	16.8	108	31.1
1.50	3.6	88.8	470	5.0	3.2	21.6	0.145	16.6	113	35.6
1.50	3.6	88.8	470	6.0	4.0	22.3	0.171	16.3	119	40.0
1.50	3.6	88.8	470	7.0	5.0	23.0	0.200	16.0	125	44.4
1.50	3.6	88.8	470	8.0	6.3	23.6	0.230	15.6	132	48.3
1.50	3.6	88.8	470	9.0	7.9	24.1	0.259	15.1	138	52.1
1.50	3.6	88.8	470	10.0	10.0	24.6	0.288	14.6	145	55.3
1.50	3.6	88.8	470	11.0	12.6	25.0	0.314	14.0	150	58.0
1.50	3.6	88.8	470	12.0	15.8	25.3	0.340	13.3	156	60.5
1.50	3.6	88.8	470	13.0	20.0	25.6	0.363	12.6	161	62.6
1.50	3.6	88.8	470	14.0	25.1	25.9	0.385	11.9	166	64.4
1.50	3.6	88.8	470	15.0	31.6	26.1	0.406	11.1	171	66.1
1.50	3.6	88.8	470	16.0	39.8	26.3	0.425	10.3	175	67.5
1.50	3.6	88.8	470	17.0	50.1	26.5	0.443	9.5	179	68.7
1.50	3.6	88.8	470	18.0	63.1	26.6	0.459	8.6	183	69.8
1.50	3.6	88.8	470	19.0	79.4	26.8	0.474	7.8	186	70.8
1.50	3.6	88.8	470	20.0	100.0	26.9	0.489	6.9	189	71.7
1.50	3.6	88.8	470	21.0	125.9	27.0	0.502	6.0	192	72.6
1.50	3.6	88.8	470	22.0	158.5	27.1	0.515	5.1	195	73.5
1.50	3.6	88.8	470	23.0	199.5	27.2	0.528	4.2	197	74.4

Input-Output Characteristics Vds=3.6V, Ibias=110mA - Condition 1

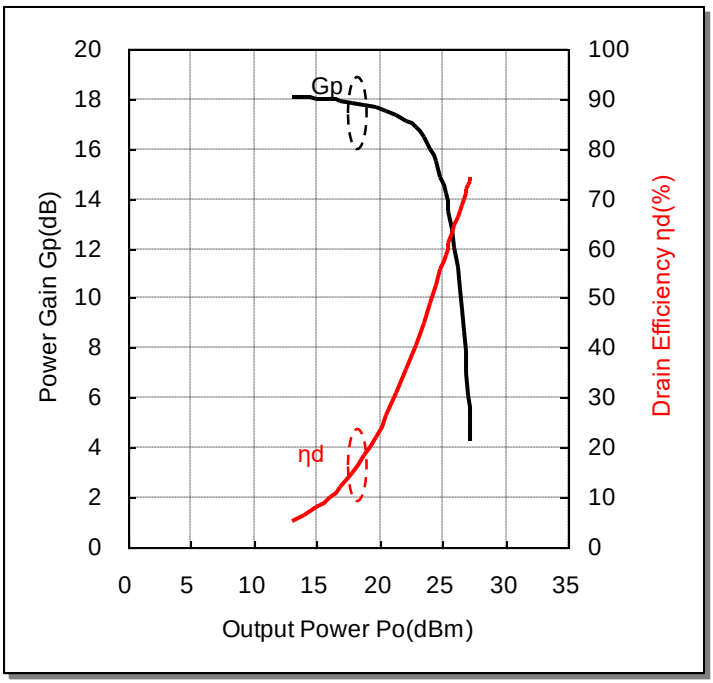
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=3.6V, Ibias=108.6mA

Power Gain, Drain Efficiency vs Output Power

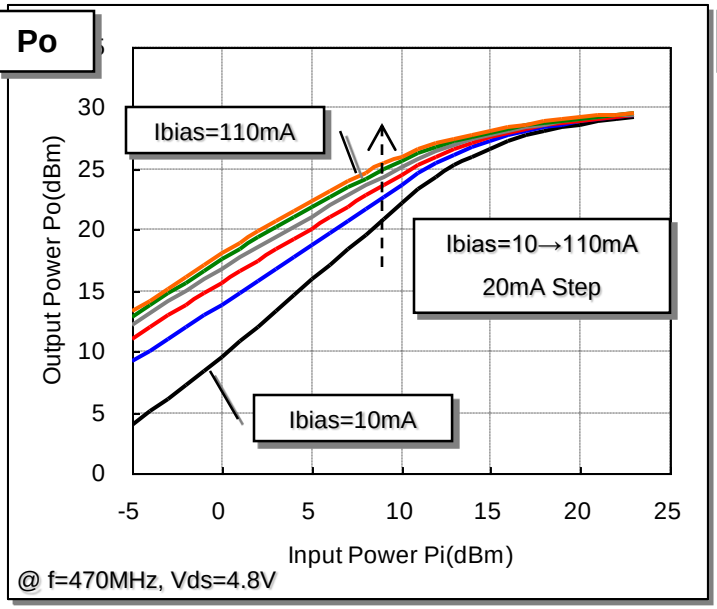


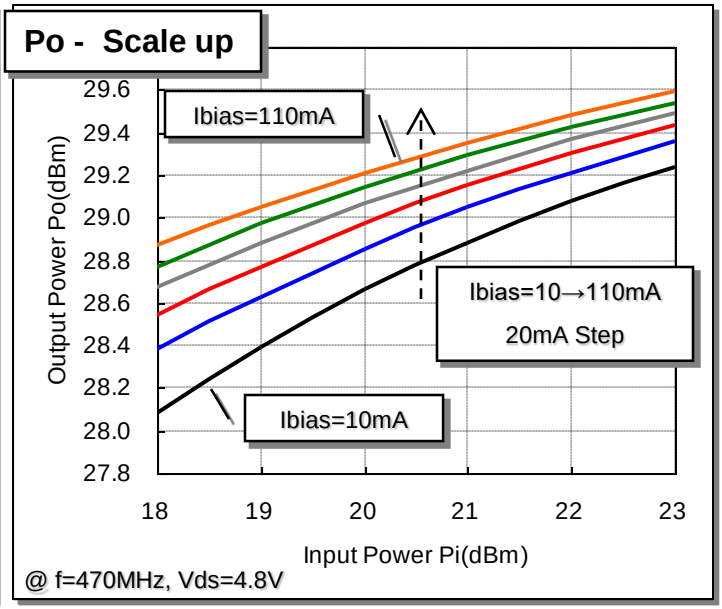
@ f=470MHz, Vds=3.6V, Ibias=108.6mA

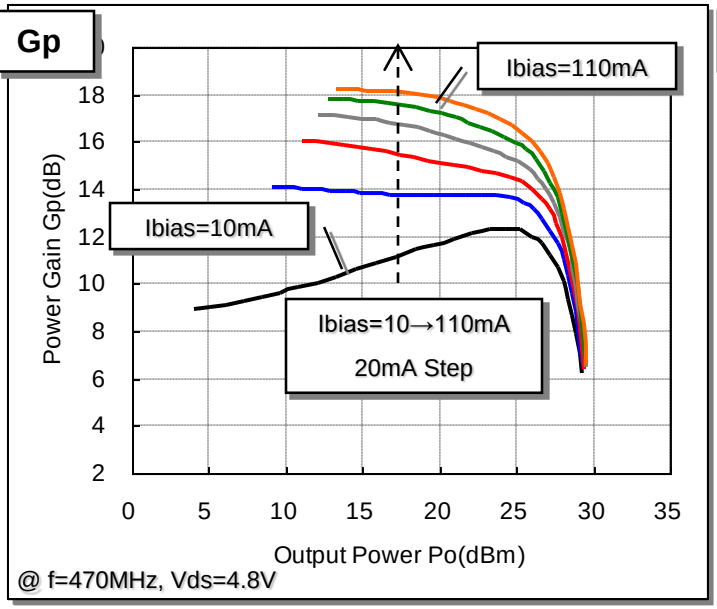
Data

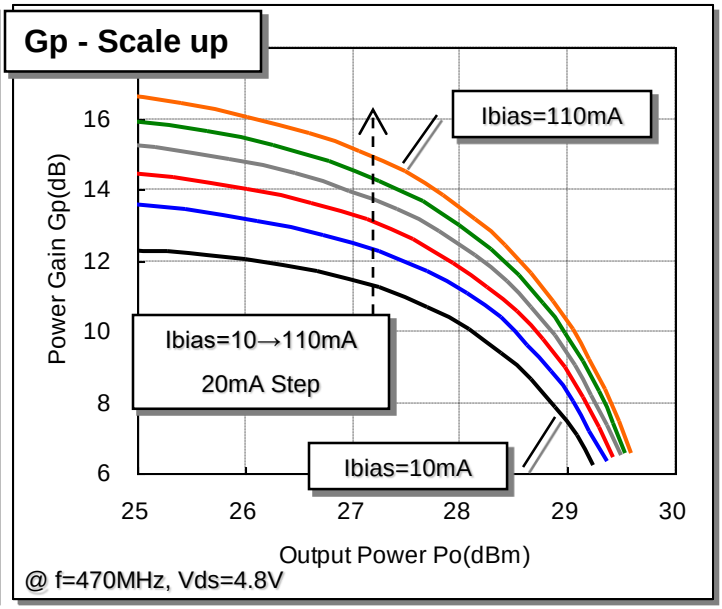
Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.55	3.6	108.6	470	-5.0	0.3	13.0	0.020	18.0	110	5.1
1.55	3.6	108.6	470	-4.0	0.4	14.1	0.025	18.1	110	6.4
1.55	3.6	108.6	470	-3.0	0.5	15.0	0.032	18.0	111	8.0
1.55	3.6	108.6	470	-2.0	0.6	16.0	0.040	18.0	111	9.9
1.55	3.6	108.6	470	-1.0	0.8	16.9	0.049	17.9	112	12.2
1.55	3.6	108.6	470	0.0	1.0	17.9	0.061	17.9	113	15.0
1.55	3.6	108.6	470	1.0	1.3	18.8	0.076	17.8	115	18.3
1.55	3.6	108.6	470	2.0	1.6	19.7	0.093	17.7	117	22.1
1.55	3.6	108.6	470	3.0	2.0	20.5	0.113	17.5	119	26.3
1.55	3.6	108.6	470	4.0	2.5	21.4	0.136	17.4	123	30.9
1.55	3.6	108.6	470	5.0	3.2	22.1	0.163	17.1	127	35.7
1.55	3.6	108.6	470	6.0	4.0	22.9	0.193	16.9	132	40.7
1.55	3.6	108.6	470	7.0	5.0	23.5	0.223	16.5	137	45.1
1.55	3.6	108.6	470	8.0	6.3	24.0	0.252	16.0	143	49.1
1.55	3.6	108.6	470	9.0	7.9	24.5	0.281	15.5	148	52.7
1.55	3.6	108.6	470	10.0	10.0	24.9	0.308	14.9	153	55.9
1.55	3.6	108.6	470	11.0	12.6	25.2	0.333	14.2	158	58.6
1.55	3.6	108.6	470	12.0	15.8	25.5	0.357	13.5	163	61.0
1.55	3.6	108.6	470	13.0	20.0	25.8	0.378	12.8	167	62.9
1.55	3.6	108.6	470	14.0	25.1	26.0	0.399	12.0	171	64.8
1.55	3.6	108.6	470	15.0	31.6	26.2	0.418	11.2	175	66.3
1.55	3.6	108.6	470	16.0	39.8	26.4	0.436	10.4	179	67.6
1.55	3.6	108.6	470	17.0	50.1	26.5	0.452	9.5	182	68.8
1.55	3.6	108.6	470	18.0	63.1	26.7	0.468	8.7	186	69.9
1.55	3.6	108.6	470	19.0	79.4	26.8	0.483	7.8	189	71.1
1.55	3.6	108.6	470	20.0	100.0	27.0	0.497	7.0	192	72.0
1.55	3.6	108.6	470	21.0	125.9	27.1	0.509	6.1	194	72.8
1.55	3.6	108.6	470	22.0	158.5	27.2	0.521	5.2	197	73.6
1.55	3.6	108.6	470	23.0	199.5	27.3	0.533	4.3	199	74.4

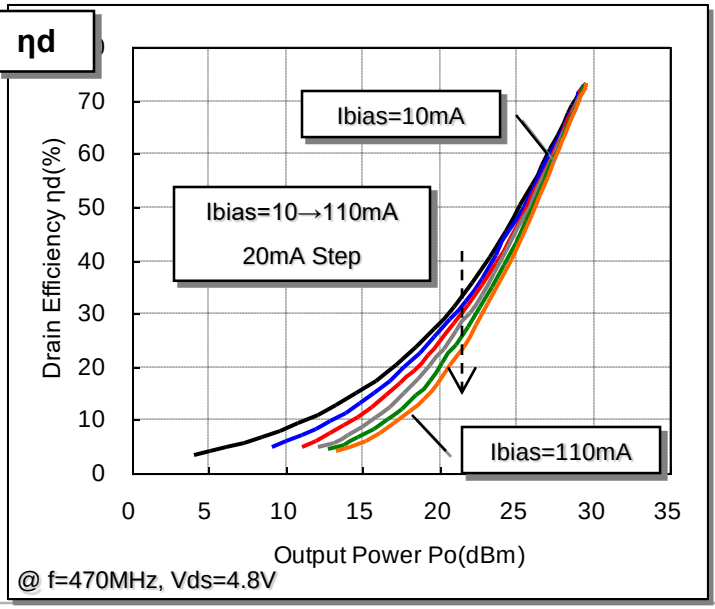
Input - Output Characteristics Vds =4.8V - Condition 1

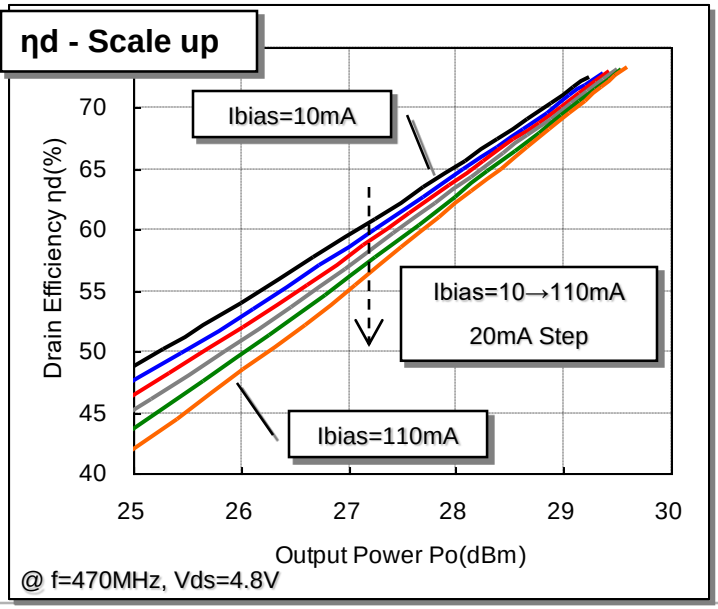








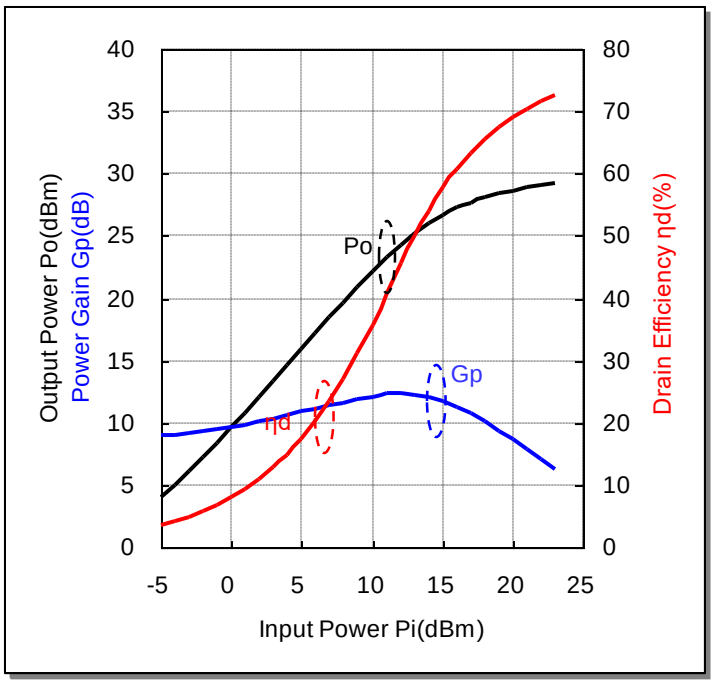




Input-Output Characteristics Vds =4.8V, Ibias=10mA - Condition 1

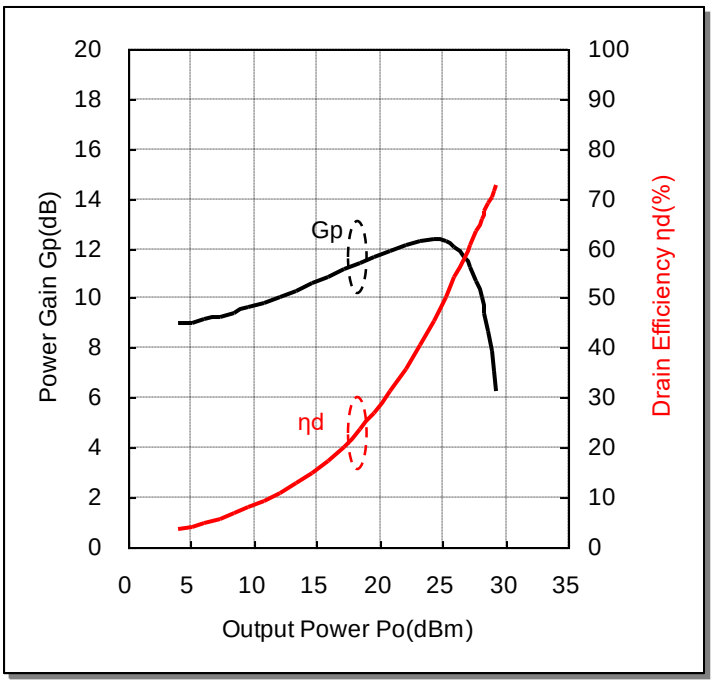
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=4.8V, Ibias=10.0mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=4.8V, Ibias=10.0mA

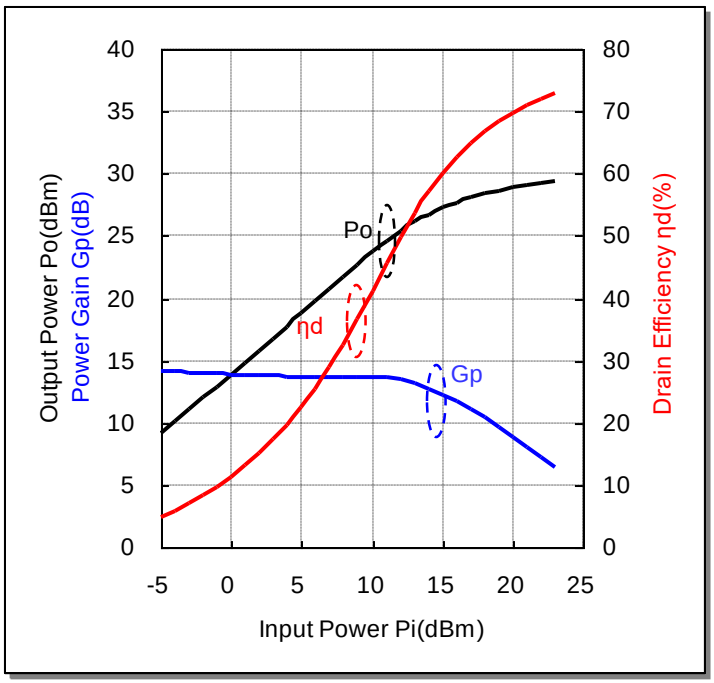
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.12	4.8	10.0	470	-5.0	0.3	4.0	0.002	9.0	15	3.5
1.12	4.8	10.0	470	-4.0	0.4	5.0	0.003	9.0	16	4.2
1.12	4.8	10.0	470	-3.0	0.5	6.1	0.004	9.1	17	4.9
1.12	4.8	10.0	470	-2.0	0.6	7.3	0.005	9.3	19	5.8
1.12	4.8	10.0	470	-1.0	0.8	8.4	0.007	9.4	21	6.8
1.12	4.8	10.0	470	0.0	1.0	9.6	0.009	9.6	24	8.0
1.12	4.8	10.0	470	1.0	1.3	10.8	0.012	9.8	27	9.4
1.12	4.8	10.0	470	2.0	1.6	12.1	0.016	10.1	31	11.0
1.12	4.8	10.0	470	3.0	2.0	13.3	0.021	10.3	35	12.8
1.12	4.8	10.0	470	4.0	2.5	14.6	0.029	10.6	40	14.9
1.12	4.8	10.0	470	5.0	3.2	15.9	0.039	10.9	46	17.4
1.12	4.8	10.0	470	6.0	4.0	17.1	0.052	11.1	53	20.3
1.12	4.8	10.0	470	7.0	5.0	18.4	0.070	11.4	62	23.5
1.12	4.8	10.0	470	8.0	6.3	19.6	0.092	11.6	71	27.0
1.12	4.8	10.0	470	9.0	7.9	20.9	0.123	11.9	82	31.2
1.12	4.8	10.0	470	10.0	10.0	22.1	0.163	12.1	95	35.8
1.12	4.8	10.0	470	11.0	12.6	23.3	0.213	12.3	109	40.7
1.12	4.8	10.0	470	12.0	15.8	24.3	0.271	12.3	124	45.5
1.12	4.8	10.0	470	13.0	20.0	25.3	0.337	12.3	140	50.2
1.12	4.8	10.0	470	14.0	25.1	26.0	0.399	12.0	154	54.0
1.12	4.8	10.0	470	15.0	31.6	26.7	0.466	11.7	168	57.7
1.12	4.8	10.0	470	16.0	39.8	27.2	0.530	11.2	182	60.8
1.12	4.8	10.0	470	17.0	50.1	27.7	0.589	10.7	193	63.4
1.12	4.8	10.0	470	18.0	63.1	28.1	0.643	10.1	204	65.7
1.12	4.8	10.0	470	19.0	79.4	28.4	0.690	9.4	213	67.5
1.12	4.8	10.0	470	20.0	100.0	28.7	0.735	8.7	222	69.1
1.12	4.8	10.0	470	21.0	125.9	28.9	0.773	7.9	229	70.4
1.12	4.8	10.0	470	22.0	158.5	29.1	0.809	7.1	235	71.6
1.12	4.8	10.0	470	23.0	199.5	29.2	0.839	6.2	241	72.6

Input-Output Characteristics Vds =4.8V, Ibias=30mA - Condition 1

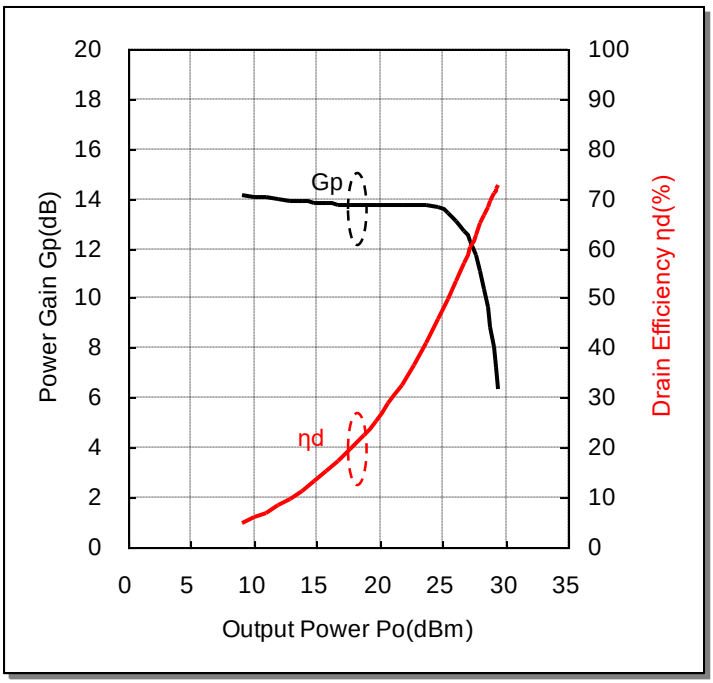
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=4.8V, Ibias=29.9mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=4.8V, Ibias=29.9mA

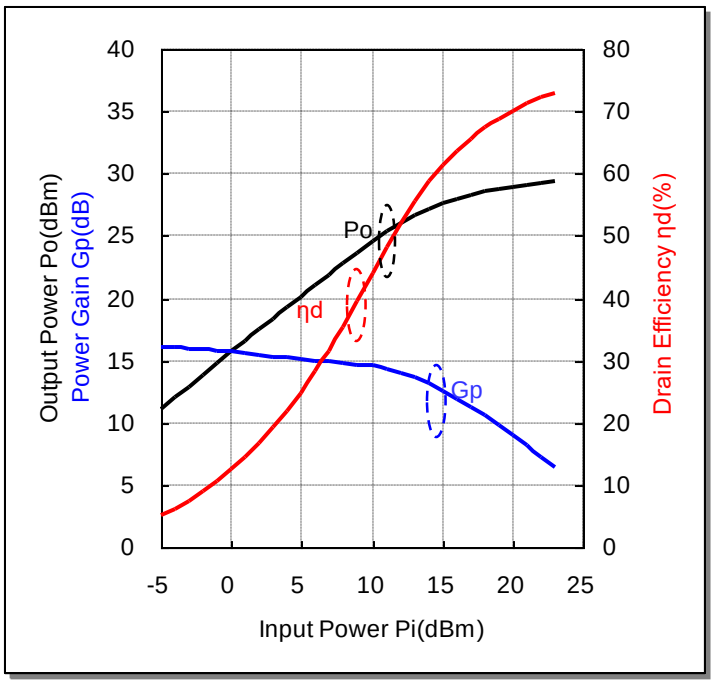
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.25	4.8	29.9	470	-5.0	0.3	9.1	0.008	14.1	35	4.9
1.25	4.8	29.9	470	-4.0	0.4	10.1	0.010	14.1	36	5.9
1.25	4.8	29.9	470	-3.0	0.5	11.0	0.013	14.0	38	7.0
1.25	4.8	29.9	470	-2.0	0.6	12.0	0.016	14.0	40	8.3
1.25	4.8	29.9	470	-1.0	0.8	12.9	0.020	13.9	42	9.8
1.25	4.8	29.9	470	0.0	1.0	13.9	0.024	13.9	45	11.4
1.25	4.8	29.9	470	1.0	1.3	14.8	0.030	13.8	48	13.1
1.25	4.8	29.9	470	2.0	1.6	15.8	0.038	13.8	52	15.1
1.25	4.8	29.9	470	3.0	2.0	16.8	0.047	13.8	57	17.3
1.25	4.8	29.9	470	4.0	2.5	17.7	0.059	13.7	63	19.7
1.25	4.8	29.9	470	5.0	3.2	18.7	0.074	13.7	69	22.4
1.25	4.8	29.9	470	6.0	4.0	19.7	0.094	13.7	77	25.4
1.25	4.8	29.9	470	7.0	5.0	20.7	0.118	13.7	85	28.8
1.25	4.8	29.9	470	8.0	6.3	21.7	0.149	13.7	95	32.5
1.25	4.8	29.9	470	9.0	7.9	22.7	0.187	13.7	106	36.6
1.25	4.8	29.9	470	10.0	10.0	23.7	0.235	13.7	119	41.1
1.25	4.8	29.9	470	11.0	12.6	24.6	0.291	13.6	133	45.7
1.25	4.8	29.9	470	12.0	15.8	25.5	0.351	13.5	147	49.9
1.25	4.8	29.9	470	13.0	20.0	26.1	0.409	13.1	159	53.5
1.25	4.8	29.9	470	14.0	25.1	26.7	0.471	12.7	172	57.0
1.25	4.8	29.9	470	15.0	31.6	27.3	0.531	12.3	184	60.1
1.25	4.8	29.9	470	16.0	39.8	27.7	0.587	11.7	195	62.7
1.25	4.8	29.9	470	17.0	50.1	28.1	0.641	11.1	206	64.9
1.25	4.8	29.9	470	18.0	63.1	28.4	0.689	10.4	215	66.8
1.25	4.8	29.9	470	19.0	79.4	28.6	0.729	9.6	222	68.3
1.25	4.8	29.9	470	20.0	100.0	28.9	0.767	8.9	230	69.6
1.25	4.8	29.9	470	21.0	125.9	29.0	0.804	8.0	236	71.0
1.25	4.8	29.9	470	22.0	158.5	29.2	0.834	7.2	242	71.9
1.25	4.8	29.9	470	23.0	199.5	29.4	0.863	6.4	247	72.9

Input-Output Characteristics Vds =4.8V, Ibias=50mA - Condition 1

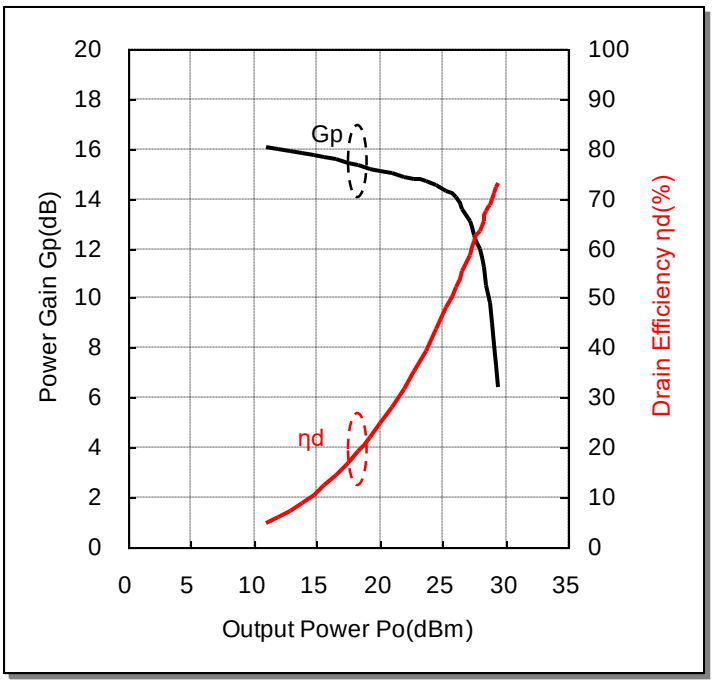
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=4.8V, Ibias=49.1mA,

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=4.8V, Ibias=49.1mA

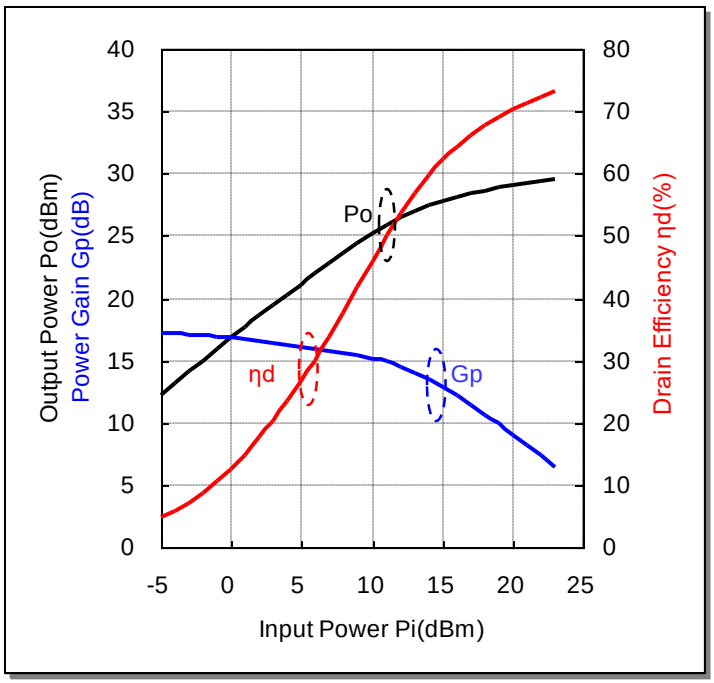
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.34	4.8	49.1	470	-5.0	0.3	11.0	0.013	16.0	53	5.0
1.34	4.8	49.1	470	-4.0	0.4	12.0	0.016	16.0	54	6.1
1.34	4.8	49.1	470	-3.0	0.5	12.9	0.020	15.9	56	7.4
1.34	4.8	49.1	470	-2.0	0.6	13.9	0.024	15.9	57	8.8
1.34	4.8	49.1	470	-1.0	0.8	14.8	0.030	15.8	59	10.5
1.34	4.8	49.1	470	0.0	1.0	15.7	0.037	15.7	62	12.4
1.34	4.8	49.1	470	1.0	1.3	16.6	0.045	15.6	65	14.6
1.34	4.8	49.1	470	2.0	1.6	17.5	0.056	15.5	69	16.9
1.34	4.8	49.1	470	3.0	2.0	18.3	0.068	15.3	73	19.3
1.34	4.8	49.1	470	4.0	2.5	19.2	0.084	15.2	79	22.0
1.34	4.8	49.1	470	5.0	3.2	20.1	0.102	15.1	85	24.9
1.34	4.8	49.1	470	6.0	4.0	21.0	0.126	15.0	93	28.2
1.34	4.8	49.1	470	7.0	5.0	21.9	0.155	14.9	102	31.6
1.34	4.8	49.1	470	8.0	6.3	22.8	0.190	14.8	112	35.4
1.34	4.8	49.1	470	9.0	7.9	23.7	0.233	14.7	123	39.5
1.34	4.8	49.1	470	10.0	10.0	24.5	0.284	14.5	135	43.9
1.34	4.8	49.1	470	11.0	12.6	25.3	0.341	14.3	147	48.2
1.34	4.8	49.1	470	12.0	15.8	26.0	0.400	14.0	160	52.1
1.34	4.8	49.1	470	13.0	20.0	26.6	0.458	13.6	172	55.5
1.34	4.8	49.1	470	14.0	25.1	27.1	0.516	13.1	183	58.7
1.34	4.8	49.1	470	15.0	31.6	27.6	0.571	12.6	194	61.4
1.34	4.8	49.1	470	16.0	39.8	27.9	0.622	11.9	204	63.6
1.34	4.8	49.1	470	17.0	50.1	28.3	0.670	11.3	213	65.6
1.34	4.8	49.1	470	18.0	63.1	28.5	0.714	10.5	221	67.4
1.34	4.8	49.1	470	19.0	79.4	28.8	0.753	9.8	228	68.8
1.34	4.8	49.1	470	20.0	100.0	29.0	0.789	9.0	235	70.0
1.34	4.8	49.1	470	21.0	125.9	29.1	0.822	8.1	240	71.3
1.34	4.8	49.1	470	22.0	158.5	29.3	0.851	7.3	246	72.2
1.34	4.8	49.1	470	23.0	199.5	29.4	0.877	6.4	250	73.0

Input-Output Characteristics Vds =4.8V, Ibias=70mA - Condition 1

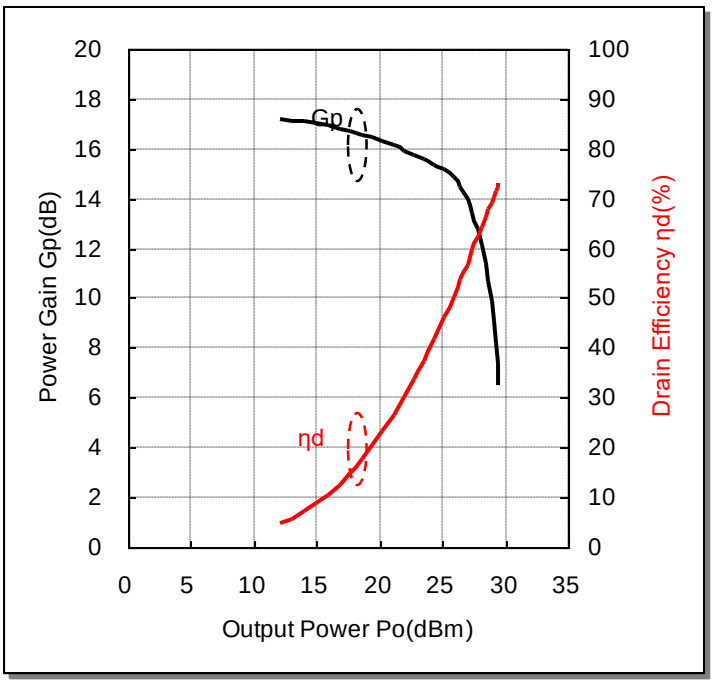
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=4.8V, Ibias=69.7mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=4.8V, Ibias=69.7mA

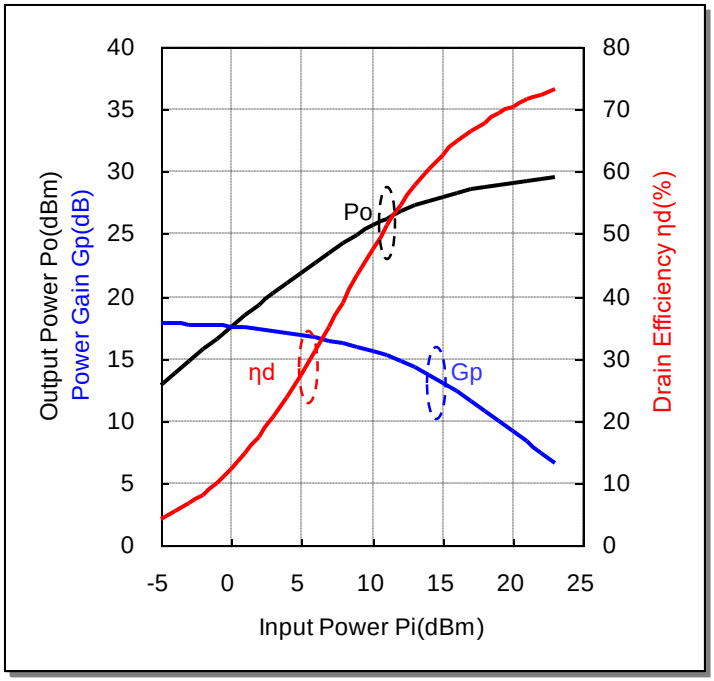
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.41	4.8	69.7	470	-5.0	0.3	12.2	0.016	17.2	73	4.7
1.41	4.8	69.7	470	-4.0	0.4	13.1	0.020	17.1	74	5.8
1.41	4.8	69.7	470	-3.0	0.5	14.1	0.026	17.1	75	7.1
1.41	4.8	69.7	470	-2.0	0.6	15.0	0.032	17.0	76	8.7
1.41	4.8	69.7	470	-1.0	0.8	15.9	0.039	16.9	78	10.5
1.41	4.8	69.7	470	0.0	1.0	16.8	0.048	16.8	80	12.6
1.41	4.8	69.7	470	1.0	1.3	17.7	0.059	16.7	82	14.9
1.41	4.8	69.7	470	2.0	1.6	18.6	0.072	16.6	86	17.5
1.41	4.8	69.7	470	3.0	2.0	19.4	0.088	16.4	90	20.3
1.41	4.8	69.7	470	4.0	2.5	20.3	0.106	16.3	95	23.3
1.41	4.8	69.7	470	5.0	3.2	21.1	0.129	16.1	101	26.5
1.41	4.8	69.7	470	6.0	4.0	21.9	0.156	15.9	109	30.0
1.41	4.8	69.7	470	7.0	5.0	22.8	0.189	15.8	117	33.6
1.41	4.8	69.7	470	8.0	6.3	23.6	0.228	15.6	127	37.5
1.41	4.8	69.7	470	9.0	7.9	24.4	0.274	15.4	137	41.6
1.41	4.8	69.7	470	10.0	10.0	25.2	0.329	15.2	149	46.0
1.41	4.8	69.7	470	11.0	12.6	25.9	0.385	14.9	161	50.0
1.41	4.8	69.7	470	12.0	15.8	26.5	0.443	14.5	172	53.7
1.41	4.8	69.7	470	13.0	20.0	27.0	0.498	14.0	183	56.8
1.41	4.8	69.7	470	14.0	25.1	27.4	0.552	13.4	193	59.7
1.41	4.8	69.7	470	15.0	31.6	27.8	0.604	12.8	202	62.2
1.41	4.8	69.7	470	16.0	39.8	28.1	0.652	12.1	211	64.3
1.41	4.8	69.7	470	17.0	50.1	28.4	0.697	11.4	219	66.2
1.41	4.8	69.7	470	18.0	63.1	28.7	0.736	10.7	226	67.7
1.41	4.8	69.7	470	19.0	79.4	28.9	0.773	9.9	233	69.1
1.41	4.8	69.7	470	20.0	100.0	29.1	0.807	9.1	239	70.4
1.41	4.8	69.7	470	21.0	125.9	29.2	0.836	8.2	244	71.3
1.41	4.8	69.7	470	22.0	158.5	29.4	0.865	7.4	249	72.4
1.41	4.8	69.7	470	23.0	199.5	29.5	0.889	6.5	253	73.2

Input-Output Characteristics Vds=4.8V, Ibias=90mA - Condition 1

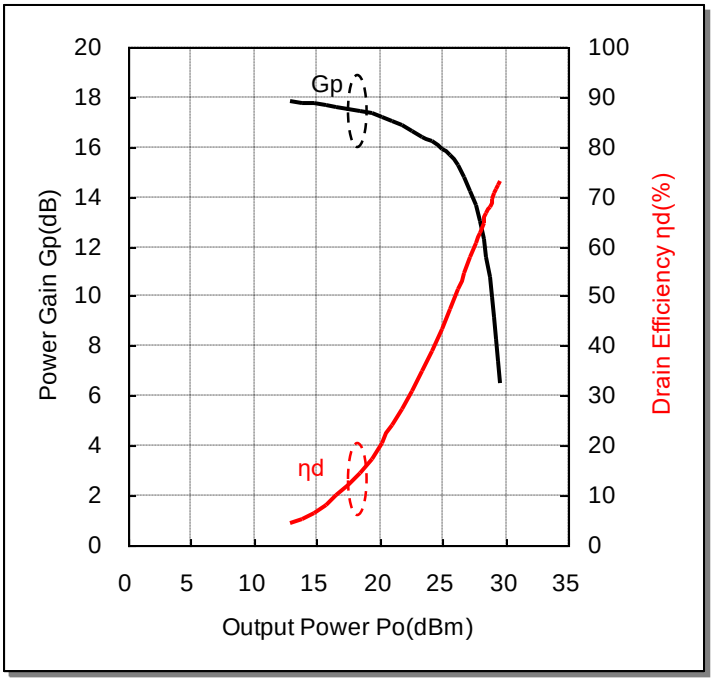
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=4.8V, Ibias=89.8mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=4.8V, Ibias=89.8mA

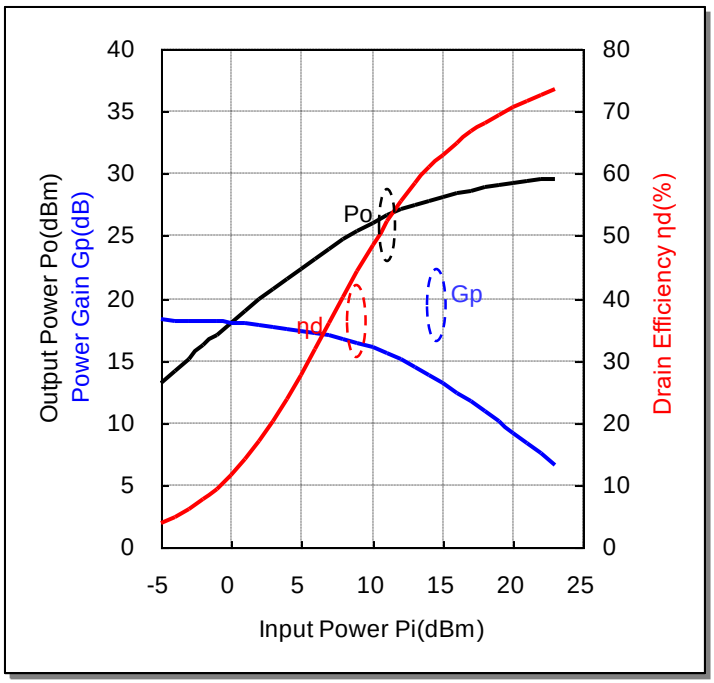
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.47	4.8	89.8	470	-5.0	0.3	12.8	0.019	17.8	92	4.3
1.47	4.8	89.8	470	-4.0	0.4	13.8	0.024	17.8	93	5.4
1.47	4.8	89.8	470	-3.0	0.5	14.7	0.030	17.7	93	6.6
1.47	4.8	89.8	470	-2.0	0.6	15.7	0.037	17.7	94	8.2
1.47	4.8	89.8	470	-1.0	0.8	16.6	0.046	17.6	96	10.0
1.47	4.8	89.8	470	0.0	1.0	17.5	0.057	17.5	97	12.1
1.47	4.8	89.8	470	1.0	1.3	18.5	0.070	17.5	100	14.7
1.47	4.8	89.8	470	2.0	1.6	19.3	0.086	17.3	102	17.4
1.47	4.8	89.8	470	3.0	2.0	20.2	0.104	17.2	106	20.5
1.47	4.8	89.8	470	4.0	2.5	21.0	0.127	17.0	110	23.9
1.47	4.8	89.8	470	5.0	3.2	21.8	0.152	16.8	116	27.4
1.47	4.8	89.8	470	6.0	4.0	22.6	0.184	16.6	123	31.1
1.47	4.8	89.8	470	7.0	5.0	23.4	0.220	16.4	131	35.0
1.47	4.8	89.8	470	8.0	6.3	24.2	0.262	16.2	140	39.0
1.47	4.8	89.8	470	9.0	7.9	24.9	0.312	15.9	150	43.2
1.47	4.8	89.8	470	10.0	10.0	25.6	0.367	15.6	161	47.5
1.47	4.8	89.8	470	11.0	12.6	26.3	0.423	15.3	172	51.3
1.47	4.8	89.8	470	12.0	15.8	26.8	0.478	14.8	182	54.7
1.47	4.8	89.8	470	13.0	20.0	27.3	0.531	14.3	192	57.7
1.47	4.8	89.8	470	14.0	25.1	27.6	0.582	13.6	201	60.5
1.47	4.8	89.8	470	15.0	31.6	28.0	0.630	13.0	209	62.7
1.47	4.8	89.8	470	16.0	39.8	28.3	0.675	12.3	217	64.8
1.47	4.8	89.8	470	17.0	50.1	28.5	0.716	11.5	224	66.5
1.47	4.8	89.8	470	18.0	63.1	28.8	0.753	10.8	231	67.9
1.47	4.8	89.8	470	19.0	79.4	29.0	0.789	10.0	237	69.3
1.47	4.8	89.8	470	20.0	100.0	29.1	0.820	9.1	242	70.5
1.47	4.8	89.8	470	21.0	125.9	29.3	0.849	8.3	247	71.5
1.47	4.8	89.8	470	22.0	158.5	29.4	0.875	7.4	252	72.4
1.47	4.8	89.8	470	23.0	199.5	29.5	0.899	6.5	256	73.2

Input-Output Characteristics Vds=4.8V, Ibias=110mA - Condition 1

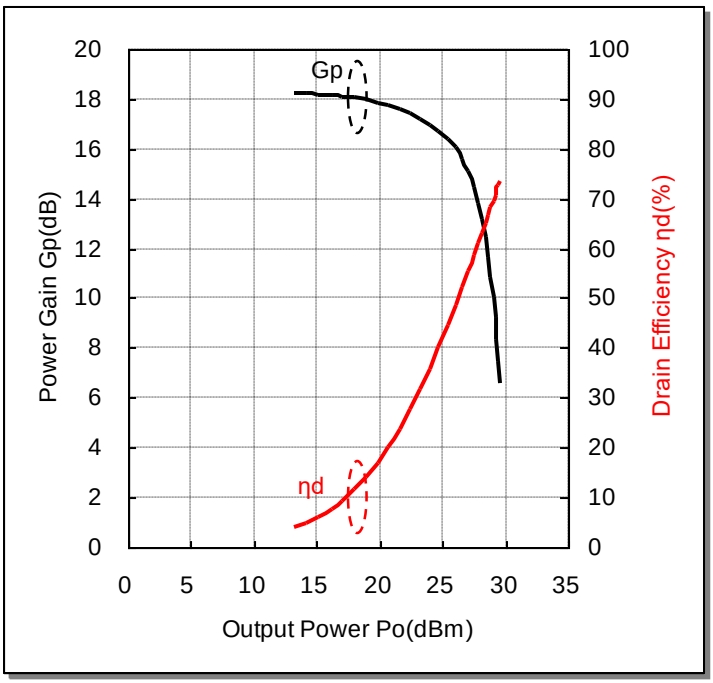
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=4.8V, Ibias=109.2mA

Power Gain, Drain Efficiency vs Output Power

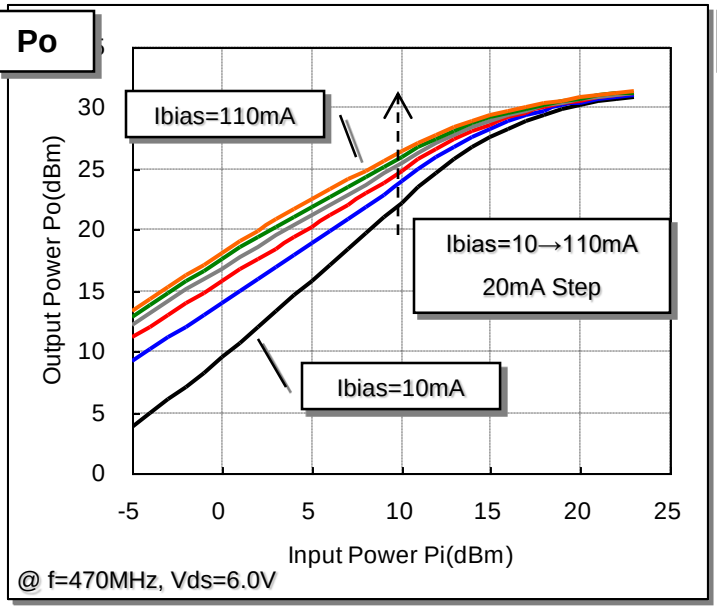


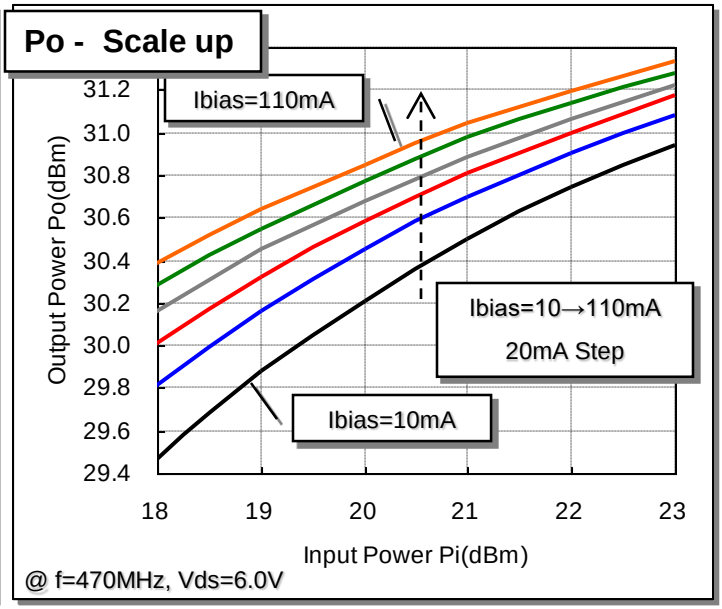
@ f=470MHz, Vds=4.8V, Ibias=109.2mA

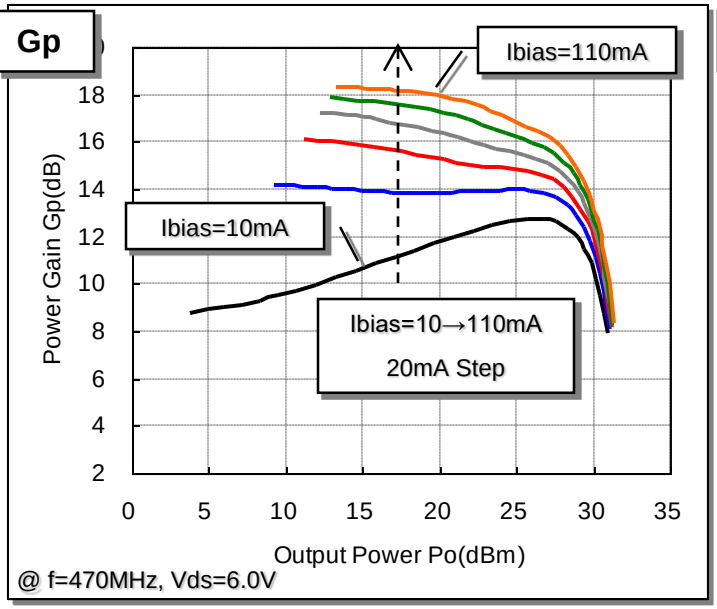
Data

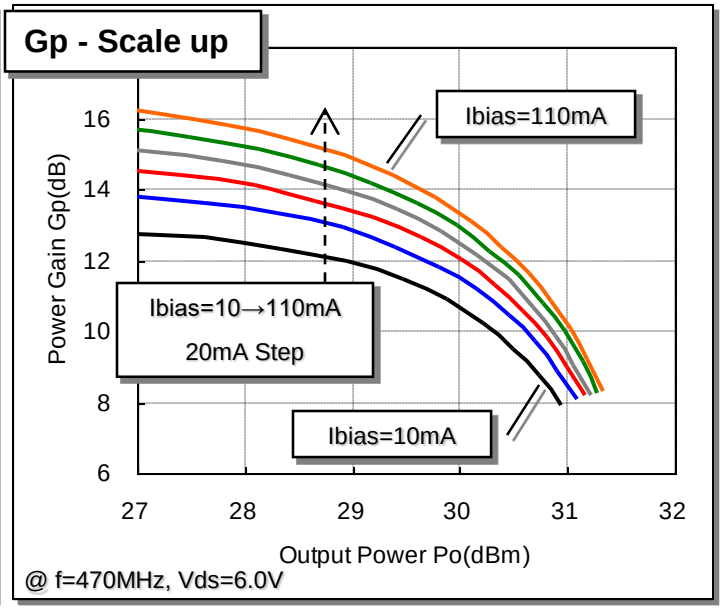
Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.53	4.8	109.6	470	-5.0	0.3	13.2	0.021	18.2	111	3.9
1.53	4.8	109.6	470	-4.0	0.4	14.2	0.026	18.2	112	4.9
1.53	4.8	109.6	470	-3.0	0.5	15.2	0.033	18.2	112	6.1
1.53	4.8	109.6	470	-2.0	0.6	16.1	0.041	18.1	113	7.6
1.53	4.8	109.6	470	-1.0	0.8	17.1	0.051	18.1	114	9.4
1.53	4.8	109.6	470	0.0	1.0	18.0	0.064	18.0	115	11.5
1.53	4.8	109.6	470	1.0	1.3	19.0	0.079	18.0	117	14.0
1.53	4.8	109.6	470	2.0	1.6	19.9	0.097	17.9	119	16.9
1.53	4.8	109.6	470	3.0	2.0	20.7	0.119	17.7	122	20.2
1.53	4.8	109.6	470	4.0	2.5	21.6	0.144	17.6	126	23.8
1.53	4.8	109.6	470	5.0	3.2	22.4	0.174	17.4	131	27.7
1.53	4.8	109.6	470	6.0	4.0	23.2	0.208	17.2	137	31.7
1.53	4.8	109.6	470	7.0	5.0	24.0	0.249	17.0	144	35.9
1.53	4.8	109.6	470	8.0	6.3	24.7	0.295	16.7	153	40.2
1.53	4.8	109.6	470	9.0	7.9	25.4	0.347	16.4	163	44.4
1.53	4.8	109.6	470	10.0	10.0	26.0	0.401	16.0	172	48.5
1.53	4.8	109.6	470	11.0	12.6	26.6	0.456	15.6	182	52.2
1.53	4.8	109.6	470	12.0	15.8	27.1	0.509	15.1	191	55.5
1.53	4.8	109.6	470	13.0	20.0	27.5	0.561	14.5	200	58.5
1.53	4.8	109.6	470	14.0	25.1	27.9	0.610	13.9	208	61.1
1.53	4.8	109.6	470	15.0	31.6	28.1	0.653	13.1	216	63.1
1.53	4.8	109.6	470	16.0	39.8	28.4	0.695	12.4	223	65.0
1.53	4.8	109.6	470	17.0	50.1	28.7	0.735	11.7	229	66.7
1.53	4.8	109.6	470	18.0	63.1	28.9	0.771	10.9	235	68.2
1.53	4.8	109.6	470	19.0	79.4	29.0	0.804	10.0	241	69.5
1.53	4.8	109.6	470	20.0	100.0	29.2	0.834	9.2	246	70.6
1.53	4.8	109.6	470	21.0	125.9	29.4	0.861	8.4	250	71.6
1.53	4.8	109.6	470	22.0	158.5	29.5	0.887	7.5	255	72.6
1.53	4.8	109.6	470	23.0	199.5	29.6	0.910	6.6	258	73.4

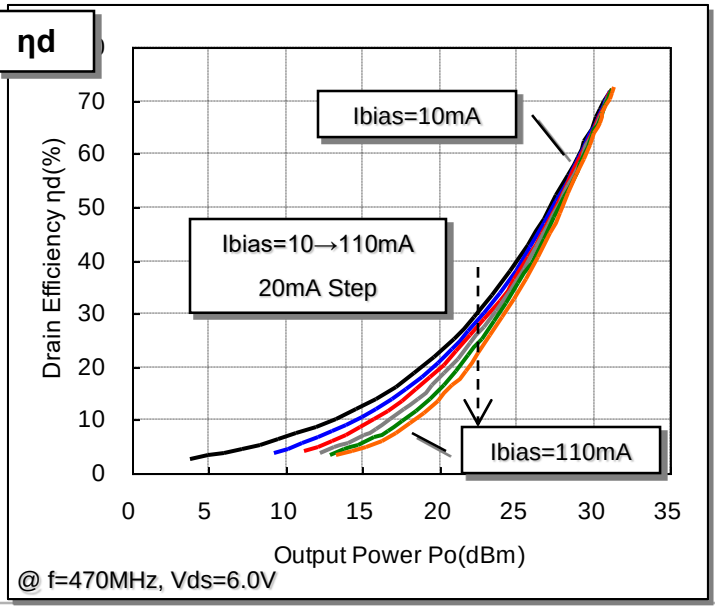
Input - Output Characteristics Vds =6.0V - Condition 1

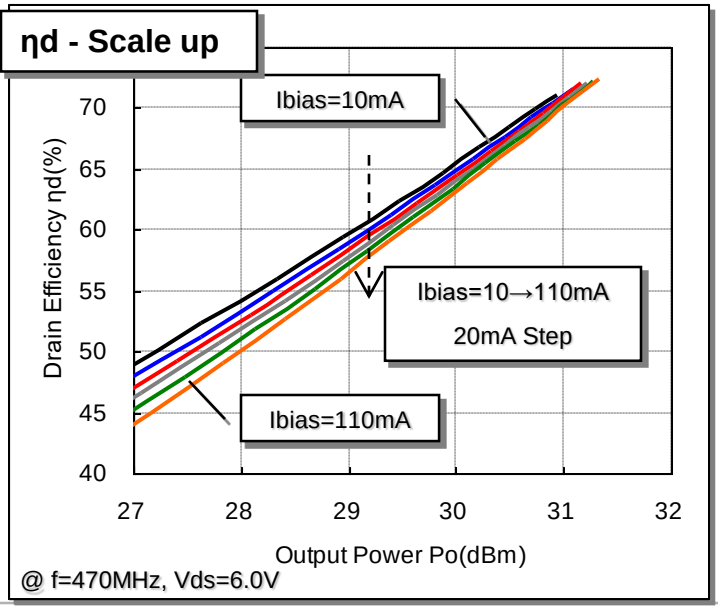








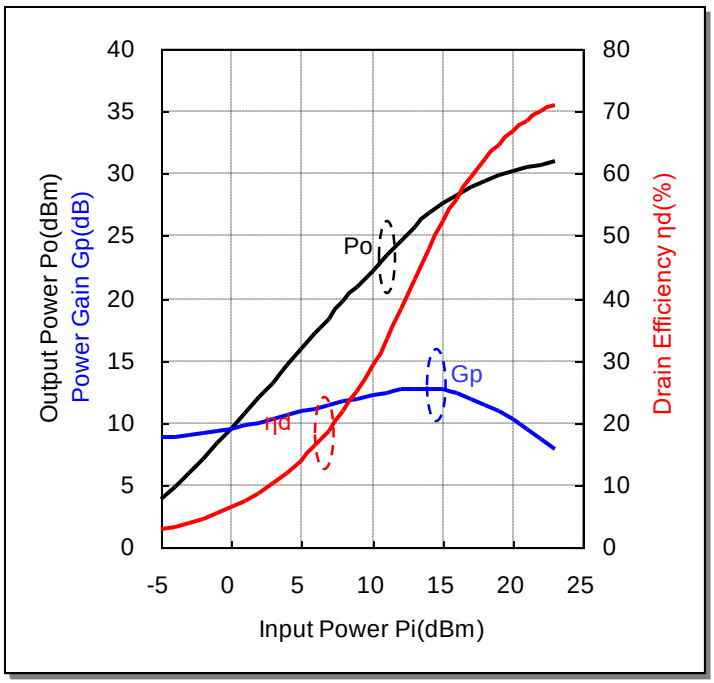




Input-Output Characteristics Vds＝6.0V, Ibias=10mA - Condition 1

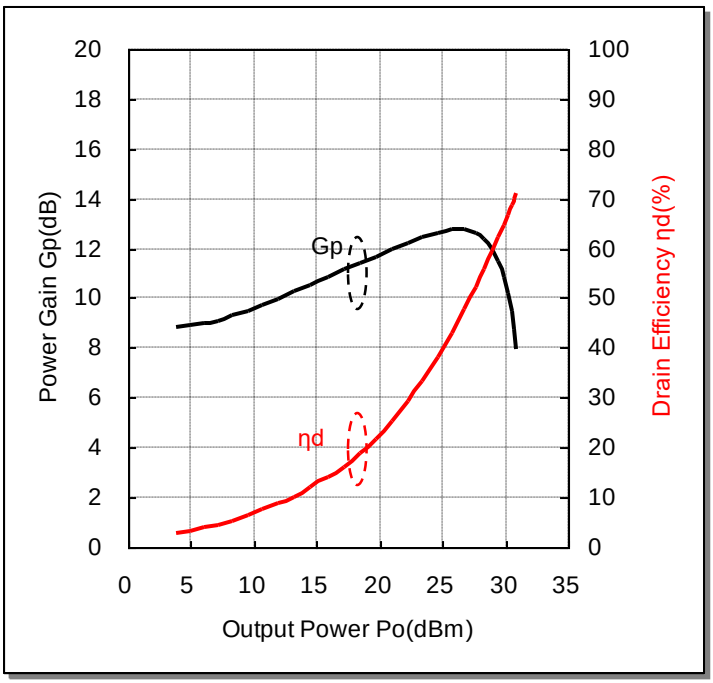
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=6.0V, Ibias=9.8mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=6.0V, Ibias=9.8mA

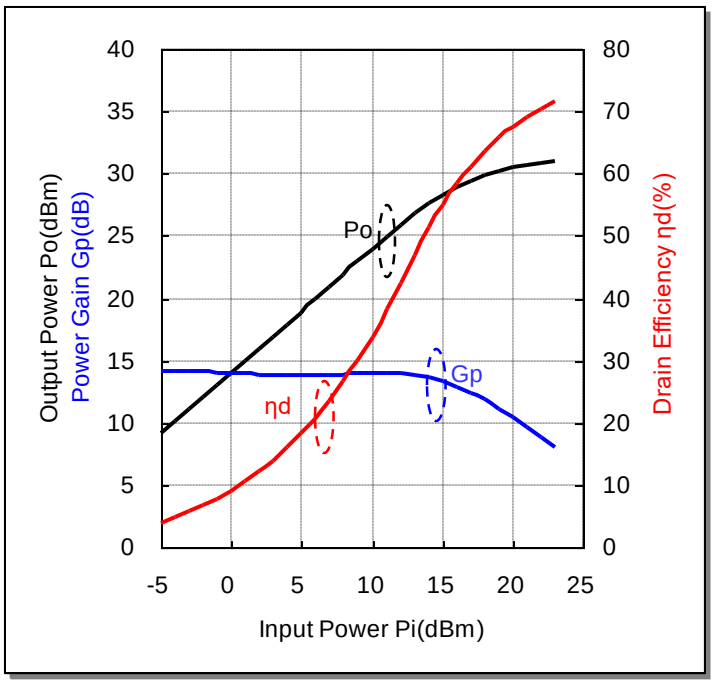
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.09	6.0	9.8	470	-5.0	0.3	3.8	0.002	8.8	14	2.8
1.09	6.0	9.8	470	-4.0	0.4	4.9	0.003	8.9	16	3.3
1.09	6.0	9.8	470	-3.0	0.5	6.0	0.004	9.0	17	3.9
1.09	6.0	9.8	470	-2.0	0.6	7.1	0.005	9.1	19	4.6
1.09	6.0	9.8	470	-1.0	0.8	8.3	0.007	9.3	21	5.4
1.09	6.0	9.8	470	0.0	1.0	9.5	0.009	9.5	23	6.3
1.09	6.0	9.8	470	1.0	1.3	10.7	0.012	9.7	27	7.4
1.09	6.0	9.8	470	2.0	1.6	12.0	0.016	10.0	30	8.7
1.09	6.0	9.8	470	3.0	2.0	13.3	0.021	10.3	35	10.2
1.09	6.0	9.8	470	4.0	2.5	14.6	0.029	10.6	40	11.9
1.09	6.0	9.8	470	5.0	3.2	15.9	0.038	10.9	46	14.0
1.09	6.0	9.8	470	6.0	4.0	17.1	0.052	11.1	53	16.2
1.09	6.0	9.8	470	7.0	5.0	18.4	0.069	11.4	61	18.8
1.09	6.0	9.8	470	8.0	6.3	19.7	0.093	11.7	71	21.8
1.09	6.0	9.8	470	9.0	7.9	21.0	0.125	12.0	83	25.2
1.09	6.0	9.8	470	10.0	10.0	22.2	0.167	12.2	96	29.1
1.09	6.0	9.8	470	11.0	12.6	23.4	0.221	12.4	110	33.3
1.09	6.0	9.8	470	12.0	15.8	24.6	0.292	12.6	128	38.1
1.09	6.0	9.8	470	13.0	20.0	25.8	0.376	12.8	146	42.9
1.09	6.0	9.8	470	14.0	25.1	26.8	0.475	12.8	166	47.8
1.09	6.0	9.8	470	15.0	31.6	27.6	0.581	12.6	185	52.2
1.09	6.0	9.8	470	16.0	39.8	28.3	0.681	12.3	203	55.9
1.09	6.0	9.8	470	17.0	50.1	29.0	0.785	12.0	221	59.3
1.09	6.0	9.8	470	18.0	63.1	29.5	0.885	11.5	236	62.4
1.09	6.0	9.8	470	19.0	79.4	29.9	0.973	10.9	251	64.7
1.09	6.0	9.8	470	20.0	100.0	30.2	1.050	10.2	262	66.7
1.09	6.0	9.8	470	21.0	125.9	30.5	1.122	9.5	273	68.5
1.09	6.0	9.8	470	22.0	158.5	30.7	1.186	8.7	283	69.9
1.09	6.0	9.8	470	23.0	199.5	30.9	1.242	7.9	291	71.0

Input-Output Characteristics Vds=6.0V, Ibias=30mA - Condition 1

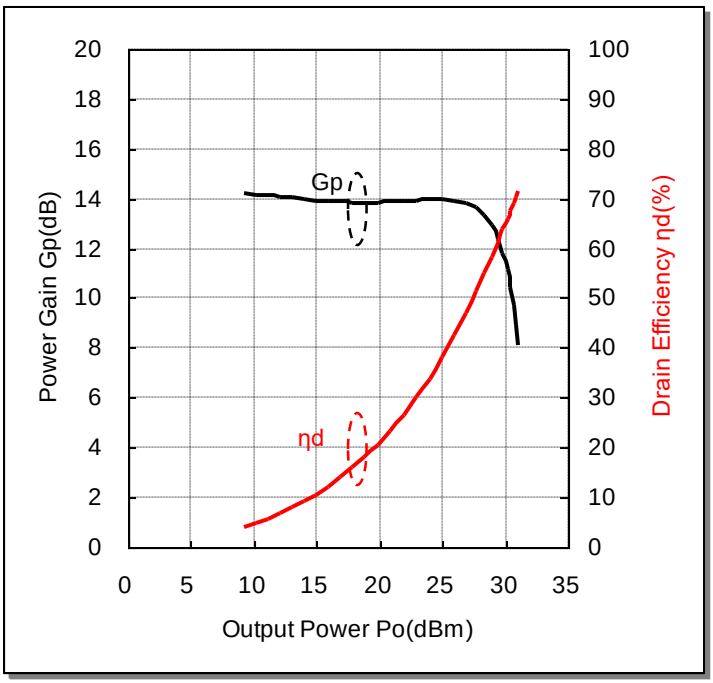
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=6.0V, Ibias=30.4mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=6.0V, Ibias=30.4mA

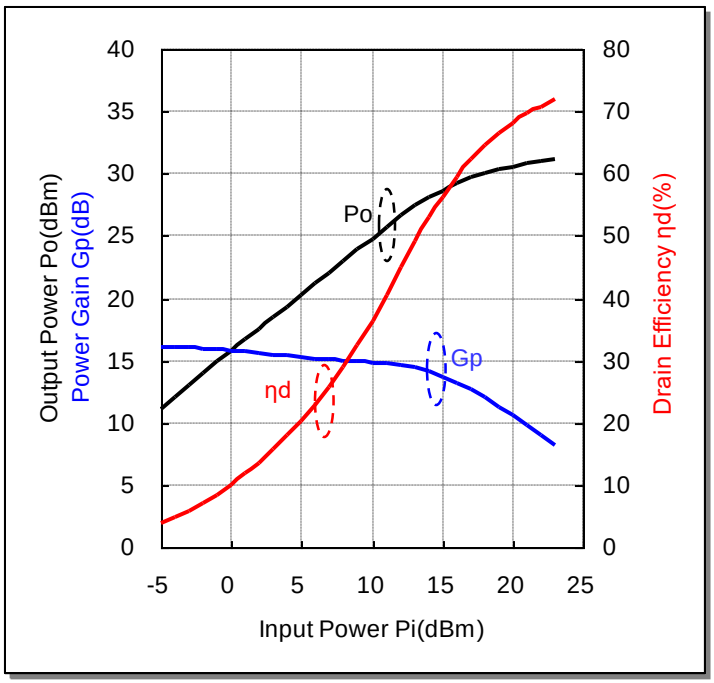
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.23	6.0	30.4	470	-5.0	0.3	9.2	0.008	14.2	36	3.9
1.23	6.0	30.4	470	-4.0	0.4	10.1	0.010	14.1	37	4.7
1.23	6.0	30.4	470	-3.0	0.5	11.1	0.013	14.1	38	5.6
1.23	6.0	30.4	470	-2.0	0.6	12.1	0.016	14.1	40	6.7
1.23	6.0	30.4	470	-1.0	0.8	13.0	0.020	14.0	43	7.8
1.23	6.0	30.4	470	0.0	1.0	14.0	0.025	14.0	45	9.1
1.23	6.0	30.4	470	1.0	1.3	14.9	0.031	13.9	49	10.6
1.23	6.0	30.4	470	2.0	1.6	15.9	0.039	13.9	53	12.2
1.23	6.0	30.4	470	3.0	2.0	16.9	0.049	13.9	58	13.9
1.23	6.0	30.4	470	4.0	2.5	17.8	0.061	13.8	64	15.9
1.23	6.0	30.4	470	5.0	3.2	18.8	0.077	13.8	70	18.2
1.23	6.0	30.4	470	6.0	4.0	19.9	0.097	13.9	78	20.7
1.23	6.0	30.4	470	7.0	5.0	20.9	0.122	13.9	87	23.4
1.23	6.0	30.4	470	8.0	6.3	21.9	0.155	13.9	97	26.5
1.23	6.0	30.4	470	9.0	7.9	22.9	0.196	13.9	109	30.0
1.23	6.0	30.4	470	10.0	10.0	24.0	0.248	14.0	122	33.9
1.23	6.0	30.4	470	11.0	12.6	25.0	0.314	14.0	137	38.1
1.23	6.0	30.4	470	12.0	15.8	25.9	0.390	13.9	153	42.4
1.23	6.0	30.4	470	13.0	20.0	26.8	0.482	13.8	171	47.0
1.23	6.0	30.4	470	14.0	25.1	27.6	0.579	13.6	188	51.2
1.23	6.0	30.4	470	15.0	31.6	28.3	0.678	13.3	206	54.9
1.23	6.0	30.4	470	16.0	39.8	28.9	0.778	12.9	222	58.3
1.23	6.0	30.4	470	17.0	50.1	29.4	0.869	12.4	237	61.2
1.23	6.0	30.4	470	18.0	63.1	29.8	0.957	11.8	251	63.7
1.23	6.0	30.4	470	19.0	79.4	30.2	1.038	11.2	263	65.8
1.23	6.0	30.4	470	20.0	100.0	30.5	1.109	10.5	274	67.6
1.23	6.0	30.4	470	21.0	125.9	30.7	1.175	9.7	283	69.2
1.23	6.0	30.4	470	22.0	158.5	30.9	1.230	8.9	291	70.4
1.23	6.0	30.4	470	23.0	199.5	31.1	1.282	8.1	299	71.6

Input-Output Characteristics Vds=6.0V, Ibias=50mA - Condition 1

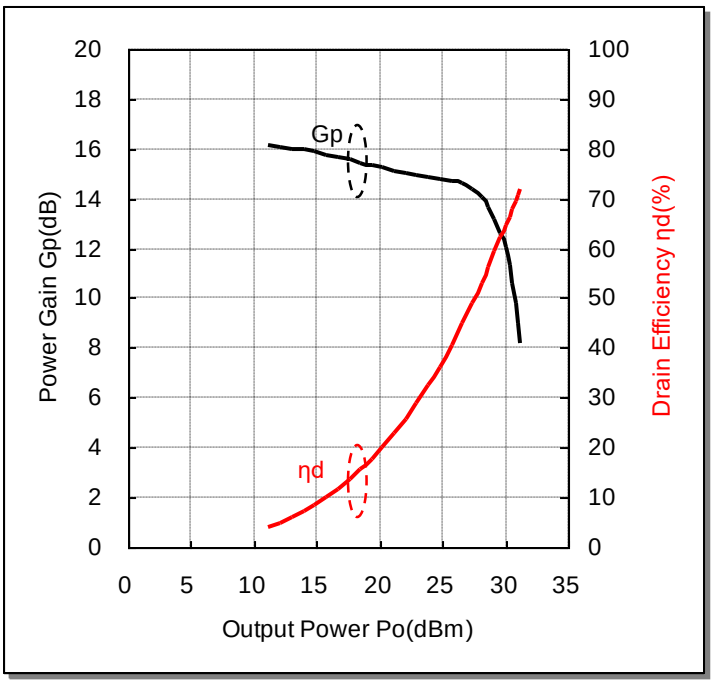
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=6.0V, Ibias=49.9mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=6.0V, Ibias=49.9mA

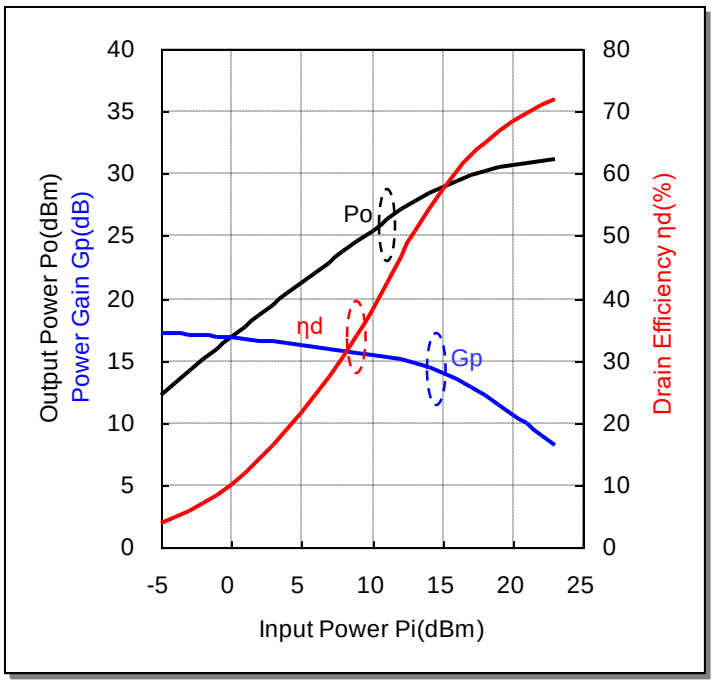
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.32	6.0	49.9	470	-5.0	0.3	11.1	0.013	16.1	54	4.0
1.32	6.0	49.9	470	-4.0	0.4	12.1	0.016	16.1	55	4.9
1.32	6.0	49.9	470	-3.0	0.5	13.0	0.020	16.0	57	5.9
1.32	6.0	49.9	470	-2.0	0.6	13.9	0.025	15.9	58	7.1
1.32	6.0	49.9	470	-1.0	0.8	14.9	0.031	15.9	60	8.5
1.32	6.0	49.9	470	0.0	1.0	15.8	0.038	15.8	63	10.0
1.32	6.0	49.9	470	1.0	1.3	16.7	0.047	15.7	66	11.7
1.32	6.0	49.9	470	2.0	1.6	17.6	0.057	15.6	70	13.6
1.32	6.0	49.9	470	3.0	2.0	18.5	0.070	15.5	75	15.6
1.32	6.0	49.9	470	4.0	2.5	19.4	0.086	15.4	80	17.8
1.32	6.0	49.9	470	5.0	3.2	20.2	0.106	15.2	87	20.2
1.32	6.0	49.9	470	6.0	4.0	21.1	0.130	15.1	95	22.9
1.32	6.0	49.9	470	7.0	5.0	22.0	0.160	15.0	104	25.8
1.32	6.0	49.9	470	8.0	6.3	23.0	0.198	15.0	114	28.9
1.32	6.0	49.9	470	9.0	7.9	23.9	0.245	14.9	126	32.5
1.32	6.0	49.9	470	10.0	10.0	24.8	0.303	14.8	139	36.3
1.32	6.0	49.9	470	11.0	12.6	25.7	0.374	14.7	154	40.6
1.32	6.0	49.9	470	12.0	15.8	26.6	0.458	14.6	170	45.0
1.32	6.0	49.9	470	13.0	20.0	27.4	0.550	14.4	186	49.1
1.32	6.0	49.9	470	14.0	25.1	28.1	0.644	14.1	202	53.0
1.32	6.0	49.9	470	15.0	31.6	28.7	0.735	13.7	217	56.3
1.32	6.0	49.9	470	16.0	39.8	29.2	0.830	13.2	233	59.5
1.32	6.0	49.9	470	17.0	50.1	29.6	0.920	12.6	246	62.2
1.32	6.0	49.9	470	18.0	63.1	30.0	1.002	12.0	259	64.5
1.32	6.0	49.9	470	19.0	79.4	30.3	1.076	11.3	270	66.4
1.32	6.0	49.9	470	20.0	100.0	30.6	1.143	10.6	280	68.1
1.32	6.0	49.9	470	21.0	125.9	30.8	1.205	9.8	289	69.6
1.32	6.0	49.9	470	22.0	158.5	31.0	1.259	9.0	296	70.8
1.32	6.0	49.9	470	23.0	199.5	31.2	1.309	8.2	303	72.0

Input-Output Characteristics Vds=6.0V, Ibias=70mA - Condition 1

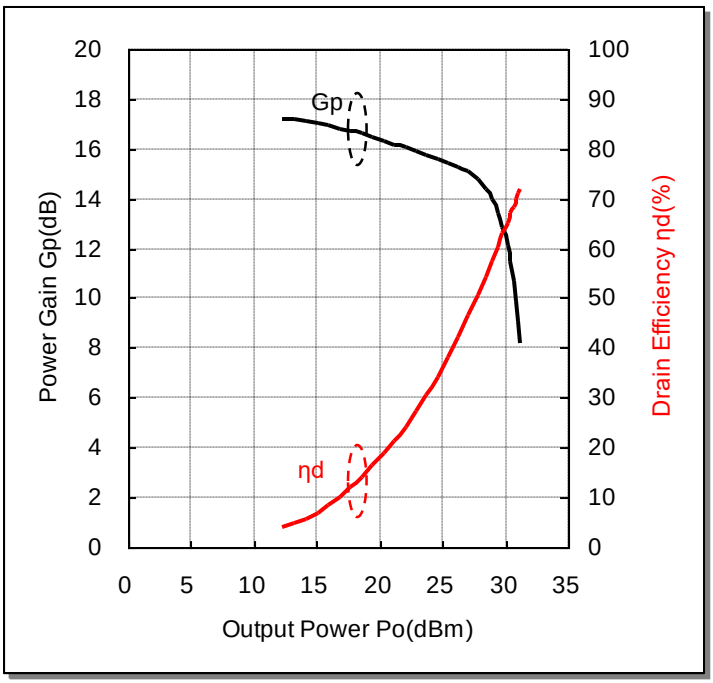
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=6.0V, Ibias=69.2mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=6.0V, Ibias=69.2mA

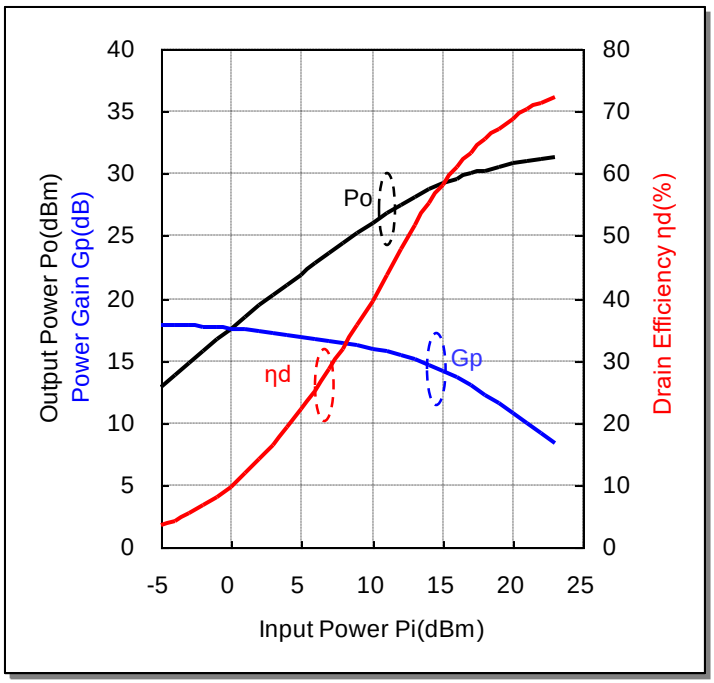
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.38	6.0	69.2	470	-5.0	0.3	12.2	0.017	17.2	72	3.8
1.38	6.0	69.2	470	-4.0	0.4	13.2	0.021	17.2	73	4.7
1.38	6.0	69.2	470	-3.0	0.5	14.1	0.026	17.1	74	5.7
1.38	6.0	69.2	470	-2.0	0.6	15.0	0.032	17.0	76	7.0
1.38	6.0	69.2	470	-1.0	0.8	15.9	0.039	16.9	78	8.4
1.38	6.0	69.2	470	0.0	1.0	16.8	0.048	16.8	80	10.1
1.38	6.0	69.2	470	1.0	1.3	17.7	0.059	16.7	82	12.0
1.38	6.0	69.2	470	2.0	1.6	18.6	0.072	16.6	86	14.0
1.38	6.0	69.2	470	3.0	2.0	19.5	0.089	16.5	90	16.4
1.38	6.0	69.2	470	4.0	2.5	20.3	0.108	16.3	96	18.8
1.38	6.0	69.2	470	5.0	3.2	21.2	0.131	16.2	102	21.4
1.38	6.0	69.2	470	6.0	4.0	22.0	0.160	16.0	110	24.3
1.38	6.0	69.2	470	7.0	5.0	22.9	0.194	15.9	118	27.3
1.38	6.0	69.2	470	8.0	6.3	23.7	0.236	15.7	129	30.5
1.38	6.0	69.2	470	9.0	7.9	24.6	0.287	15.6	140	34.2
1.38	6.0	69.2	470	10.0	10.0	25.4	0.350	15.4	153	38.1
1.38	6.0	69.2	470	11.0	12.6	26.3	0.425	15.3	167	42.3
1.38	6.0	69.2	470	12.0	15.8	27.1	0.511	15.1	183	46.5
1.38	6.0	69.2	470	13.0	20.0	27.8	0.603	14.8	198	50.6
1.38	6.0	69.2	470	14.0	25.1	28.4	0.693	14.4	213	54.2
1.38	6.0	69.2	470	15.0	31.6	29.0	0.785	14.0	228	57.5
1.38	6.0	69.2	470	16.0	39.8	29.4	0.875	13.4	242	60.4
1.38	6.0	69.2	470	17.0	50.1	29.8	0.959	12.8	254	62.9
1.38	6.0	69.2	470	18.0	63.1	30.2	1.038	12.2	266	65.1
1.38	6.0	69.2	470	19.0	79.4	30.5	1.109	11.5	276	67.0
1.38	6.0	69.2	470	20.0	100.0	30.7	1.169	10.7	285	68.5
1.38	6.0	69.2	470	21.0	125.9	30.9	1.225	9.9	293	69.7
1.38	6.0	69.2	470	22.0	158.5	31.1	1.276	9.1	300	70.9
1.38	6.0	69.2	470	23.0	199.5	31.2	1.324	8.2	307	72.0

Input-Output Characteristics Vds=6.0V, Ibias=90mA - Condition 1

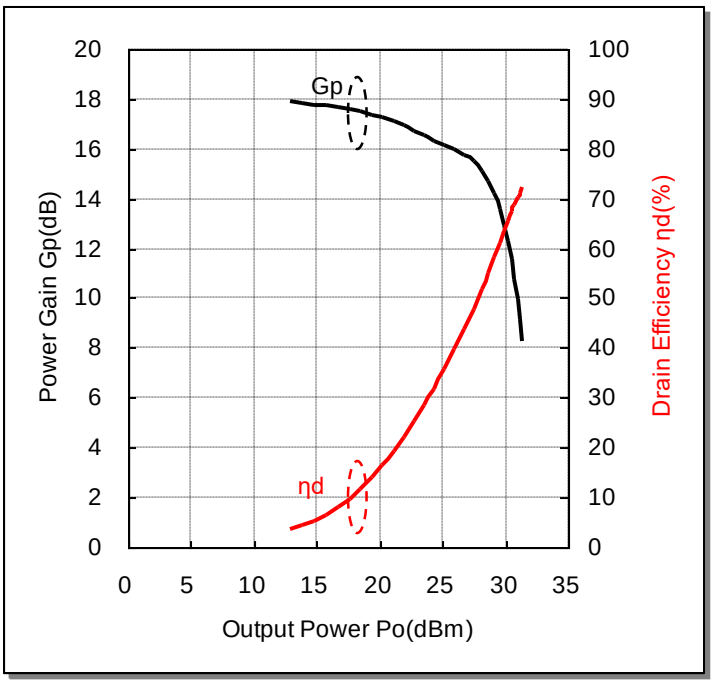
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=6.0V, Ibias=89.4mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=6.0V, Ibias=89.4mA

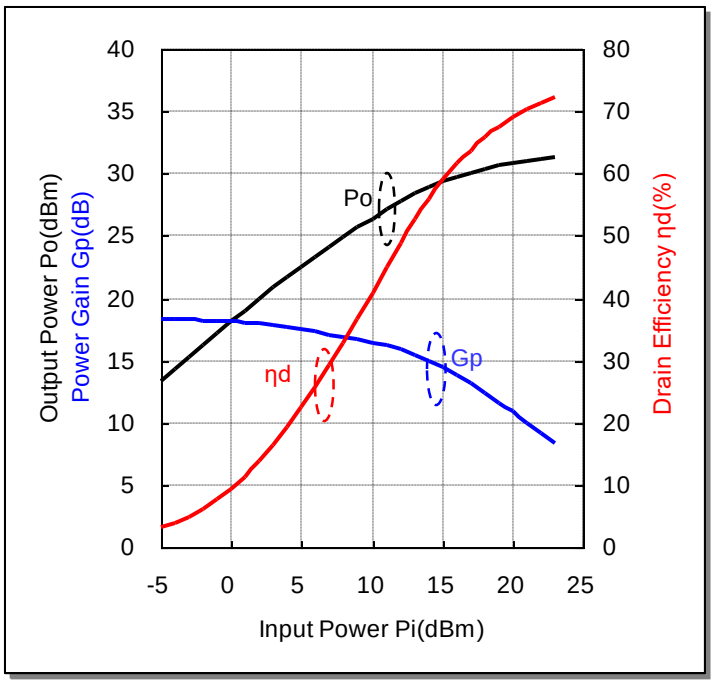
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.45	6.0	89.4	470	-5.0	0.3	12.9	0.019	17.9	92	3.5
1.45	6.0	89.4	470	-4.0	0.4	13.8	0.024	17.8	93	4.3
1.45	6.0	89.4	470	-3.0	0.5	14.8	0.030	17.8	93	5.3
1.45	6.0	89.4	470	-2.0	0.6	15.7	0.037	17.7	94	6.6
1.45	6.0	89.4	470	-1.0	0.8	16.6	0.046	17.6	96	8.1
1.45	6.0	89.4	470	0.0	1.0	17.6	0.057	17.6	98	9.8
1.45	6.0	89.4	470	1.0	1.3	18.5	0.071	17.5	100	11.8
1.45	6.0	89.4	470	2.0	1.6	19.4	0.087	17.4	103	14.1
1.45	6.0	89.4	470	3.0	2.0	20.2	0.106	17.2	107	16.5
1.45	6.0	89.4	470	4.0	2.5	21.1	0.129	17.1	111	19.3
1.45	6.0	89.4	470	5.0	3.2	21.9	0.156	16.9	117	22.1
1.45	6.0	89.4	470	6.0	4.0	22.7	0.188	16.7	124	25.2
1.45	6.0	89.4	470	7.0	5.0	23.5	0.226	16.5	133	28.4
1.45	6.0	89.4	470	8.0	6.3	24.3	0.272	16.3	143	31.8
1.45	6.0	89.4	470	9.0	7.9	25.2	0.329	16.2	154	35.6
1.45	6.0	89.4	470	10.0	10.0	26.0	0.395	16.0	167	39.6
1.45	6.0	89.4	470	11.0	12.6	26.8	0.474	15.8	180	43.8
1.45	6.0	89.4	470	12.0	15.8	27.5	0.561	15.5	195	47.9
1.45	6.0	89.4	470	13.0	20.0	28.1	0.652	15.1	210	51.8
1.45	6.0	89.4	470	14.0	25.1	28.7	0.740	14.7	223	55.2
1.45	6.0	89.4	470	15.0	31.6	29.2	0.828	14.2	237	58.3
1.45	6.0	89.4	470	16.0	39.8	29.6	0.914	13.6	249	61.1
1.45	6.0	89.4	470	17.0	50.1	30.0	0.993	13.0	261	63.4
1.45	6.0	89.4	470	18.0	63.1	30.3	1.067	12.3	272	65.4
1.45	6.0	89.4	470	19.0	79.4	30.5	1.135	11.5	281	67.3
1.45	6.0	89.4	470	20.0	100.0	30.8	1.194	10.8	290	68.7
1.45	6.0	89.4	470	21.0	125.9	31.0	1.253	10.0	297	70.3
1.45	6.0	89.4	470	22.0	158.5	31.1	1.300	9.1	304	71.3
1.45	6.0	89.4	470	23.0	199.5	31.3	1.343	8.3	310	72.2

Input-Output Characteristics Vds=6.0V, Ibias=110mA - Condition 1

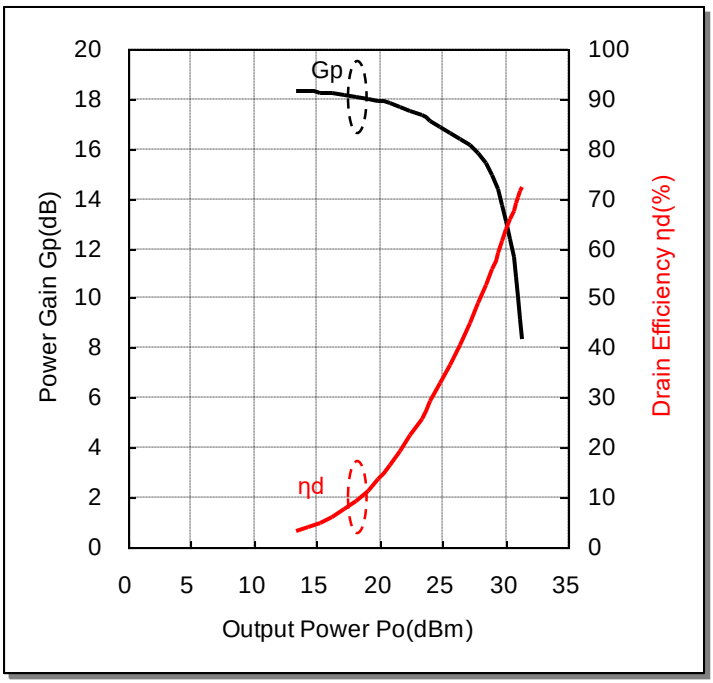
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=6.0V, Ibias=109.5mA

Power Gain, Drain Efficiency vs Output Power



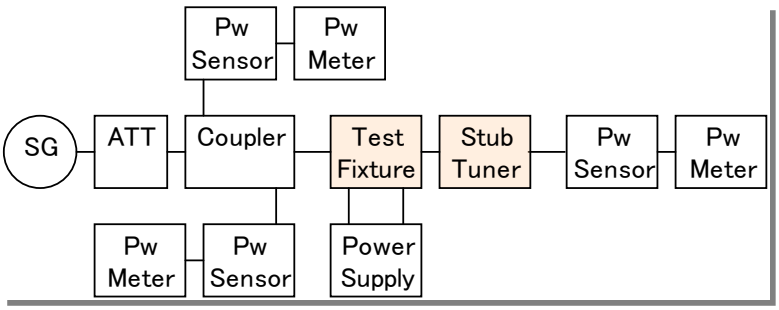
@ f=470MHz, Vds=6.0V, Ibias=109.5mA

Data

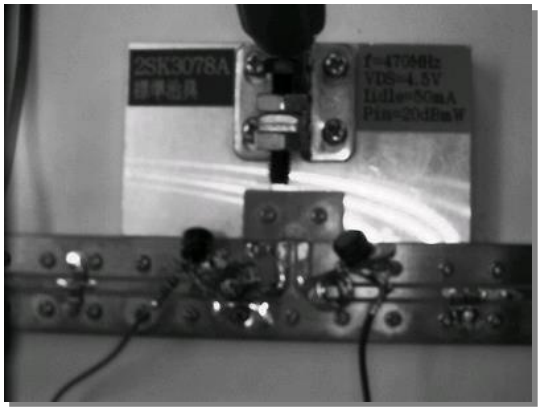
Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.50	6.0	109.5	470	-5.0	0.3	13.3	0.021	18.3	111	3.2
1.50	6.0	109.5	470	-4.0	0.4	14.3	0.027	18.3	112	4.0
1.50	6.0	109.5	470	-3.0	0.5	15.3	0.033	18.3	112	5.0
1.50	6.0	109.5	470	-2.0	0.6	16.2	0.042	18.2	113	6.2
1.50	6.0	109.5	470	-1.0	0.8	17.2	0.052	18.2	114	7.6
1.50	6.0	109.5	470	0.0	1.0	18.1	0.065	18.1	116	9.3
1.50	6.0	109.5	470	1.0	1.3	19.0	0.080	18.0	118	11.3
1.50	6.0	109.5	470	2.0	1.6	19.9	0.099	17.9	120	13.7
1.50	6.0	109.5	470	3.0	2.0	20.8	0.121	17.8	123	16.4
1.50	6.0	109.5	470	4.0	2.5	21.7	0.147	17.7	127	19.3
1.50	6.0	109.5	470	5.0	3.2	22.5	0.178	17.5	132	22.5
1.50	6.0	109.5	470	6.0	4.0	23.3	0.214	17.3	139	25.7
1.50	6.0	109.5	470	7.0	5.0	24.1	0.256	17.1	147	29.1
1.50	6.0	109.5	470	8.0	6.3	24.9	0.307	16.9	156	32.8
1.50	6.0	109.5	470	9.0	7.9	25.6	0.366	16.6	167	36.6
1.50	6.0	109.5	470	10.0	10.0	26.4	0.439	16.4	179	40.7
1.50	6.0	109.5	470	11.0	12.6	27.2	0.520	16.2	193	44.9
1.50	6.0	109.5	470	12.0	15.8	27.8	0.607	15.8	206	49.0
1.50	6.0	109.5	470	13.0	20.0	28.4	0.695	15.4	220	52.7
1.50	6.0	109.5	470	14.0	25.1	28.9	0.782	14.9	233	56.0
1.50	6.0	109.5	470	15.0	31.6	29.4	0.867	14.4	245	59.0
1.50	6.0	109.5	470	16.0	39.8	29.8	0.948	13.8	257	61.6
1.50	6.0	109.5	470	17.0	50.1	30.1	1.023	13.1	268	63.8
1.50	6.0	109.5	470	18.0	63.1	30.4	1.094	12.4	277	65.8
1.50	6.0	109.5	470	19.0	79.4	30.6	1.159	11.6	286	67.5
1.50	6.0	109.5	470	20.0	100.0	30.9	1.216	10.9	294	68.9
1.50	6.0	109.5	470	21.0	125.9	31.0	1.271	10.0	301	70.4
1.50	6.0	109.5	470	22.0	158.5	31.2	1.315	9.2	307	71.3
1.50	6.0	109.5	470	23.0	199.5	31.3	1.358	8.3	313	72.4

Test System – Condition 2

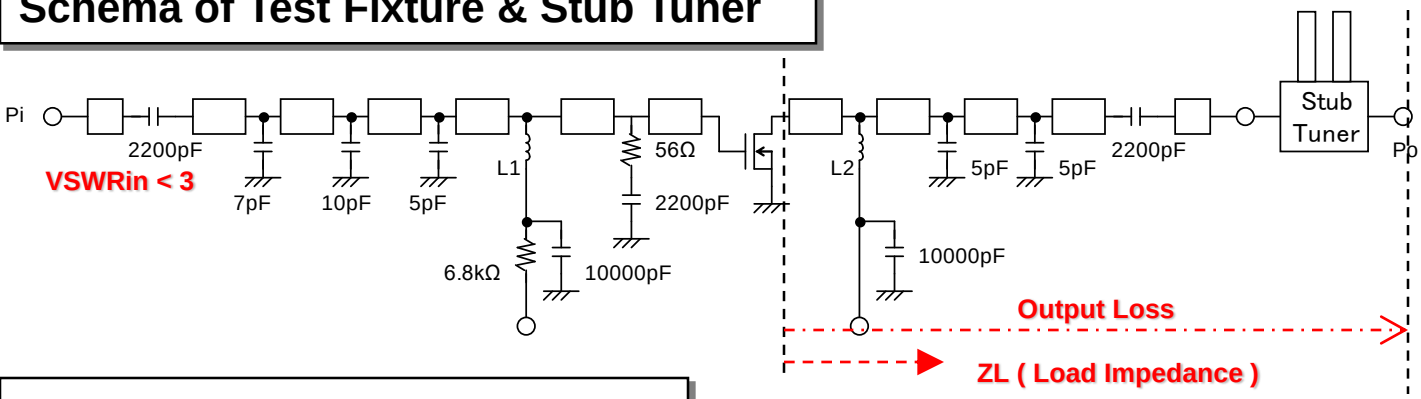
RF Test Block



Test Fixture

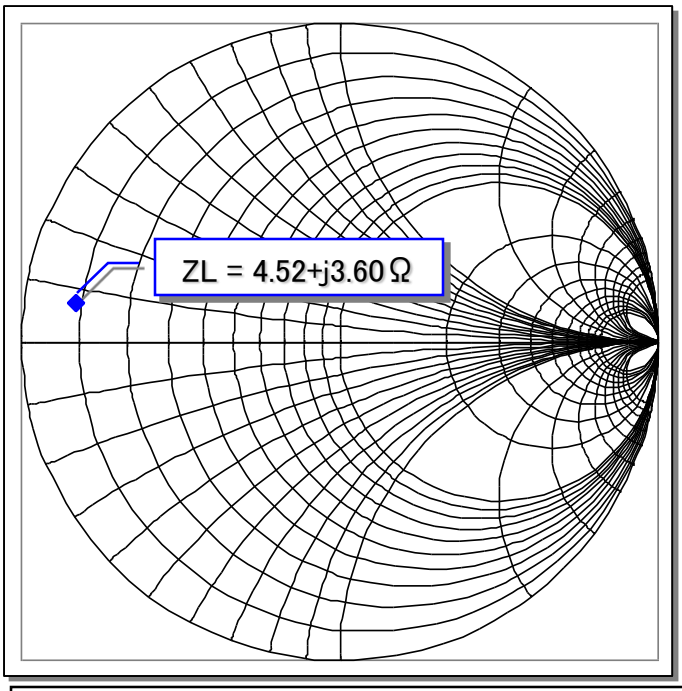


Schema of Test Fixture & Stub Tuner

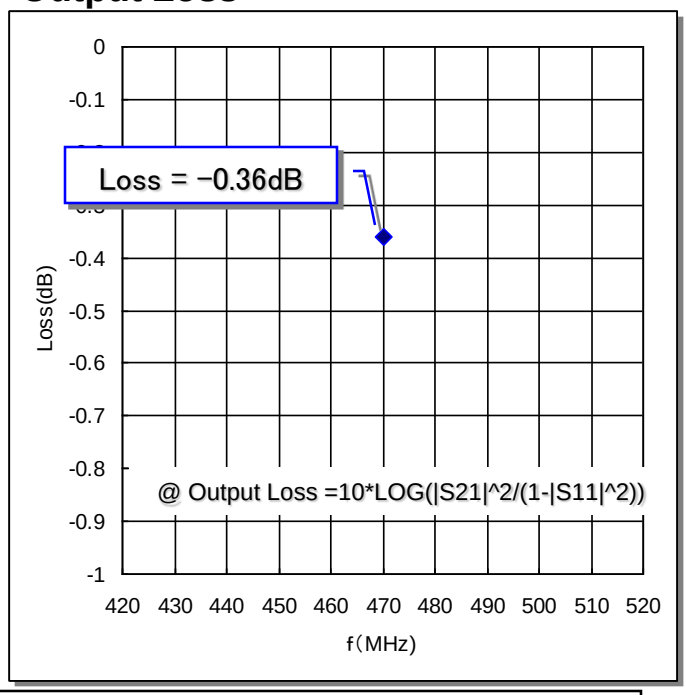


Load Impedance & Output Loss

Smith Chart



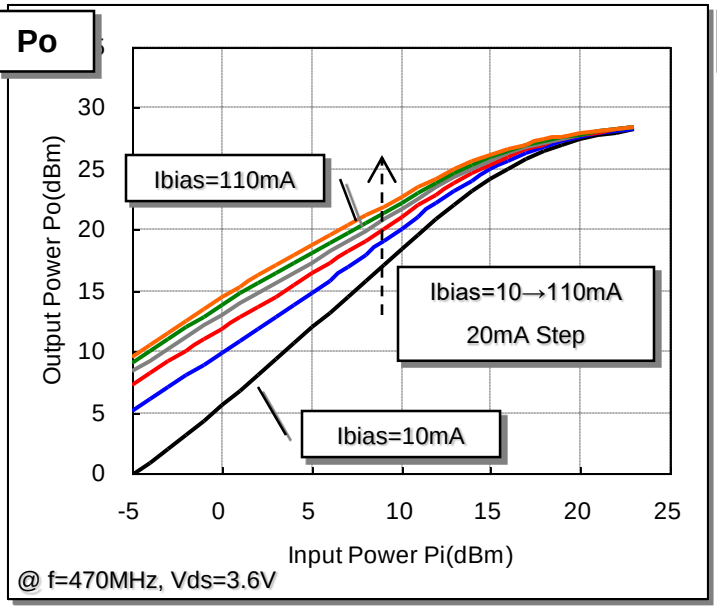
Output Loss

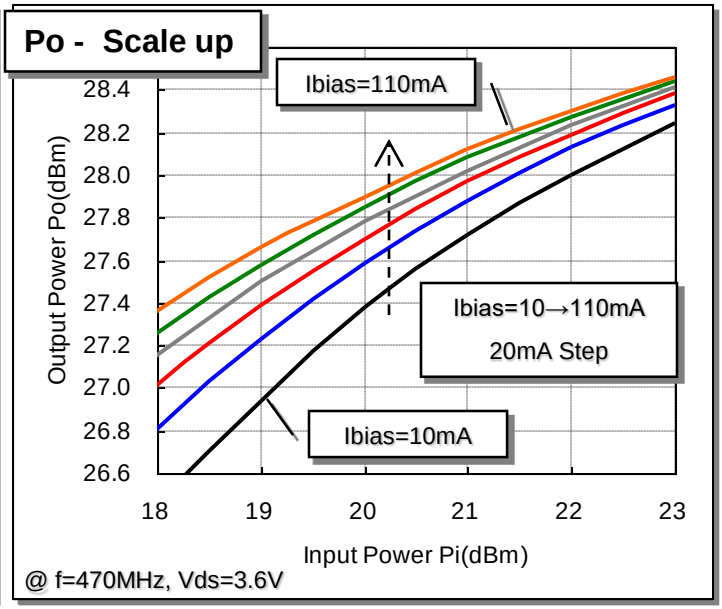


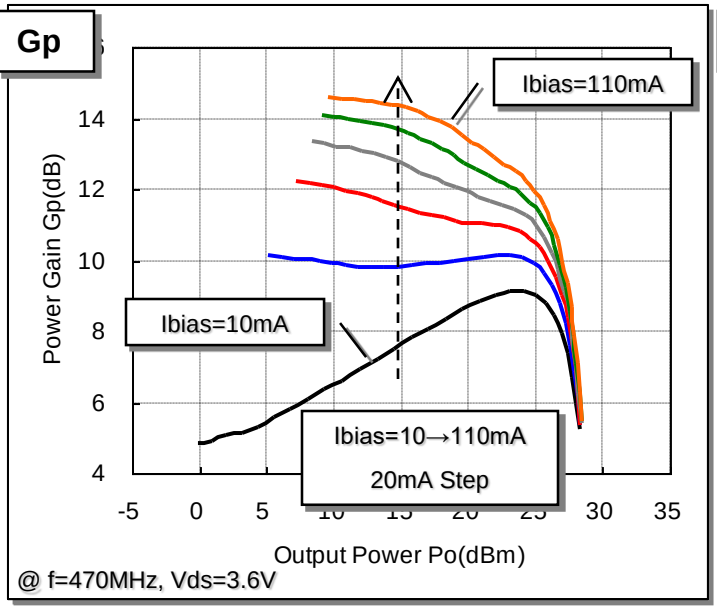
ZL = 4.52 + j 3.60Ω, Output Circuit Loss = −0.36dB (@ f=470MHz)

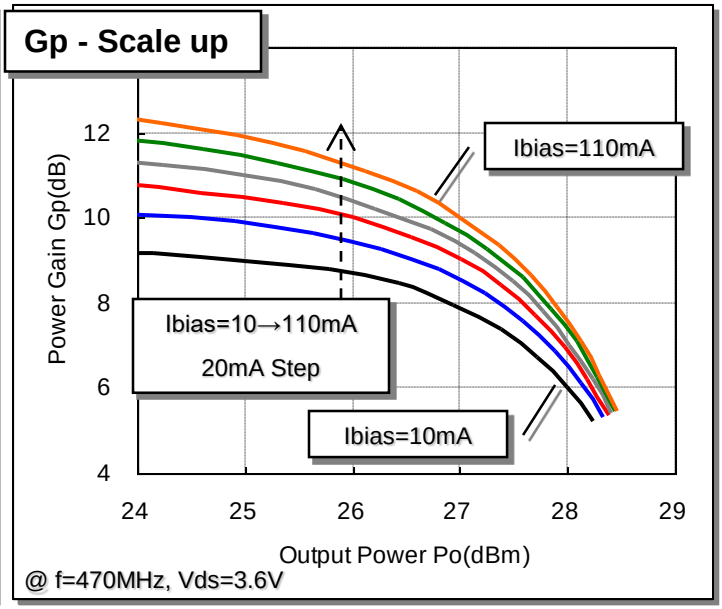
※ The test value in this application note includes the output loss.

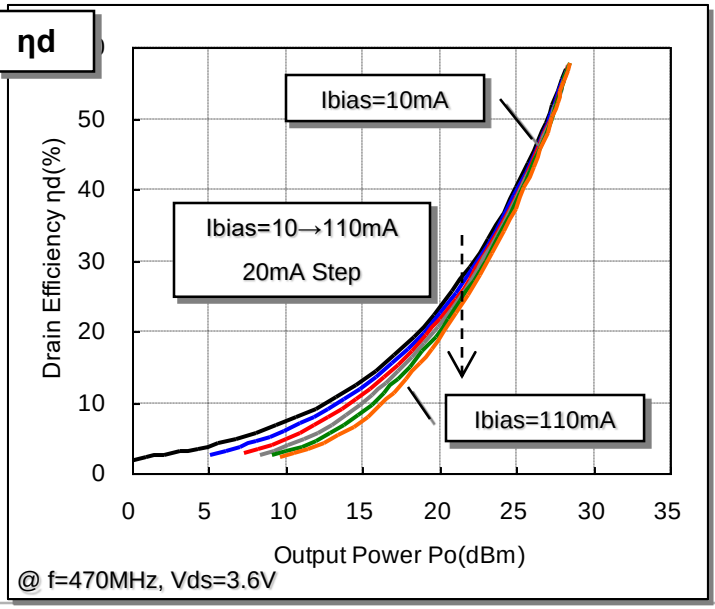
Input - Output Characteristics Vds＝3.6V - Condition 2

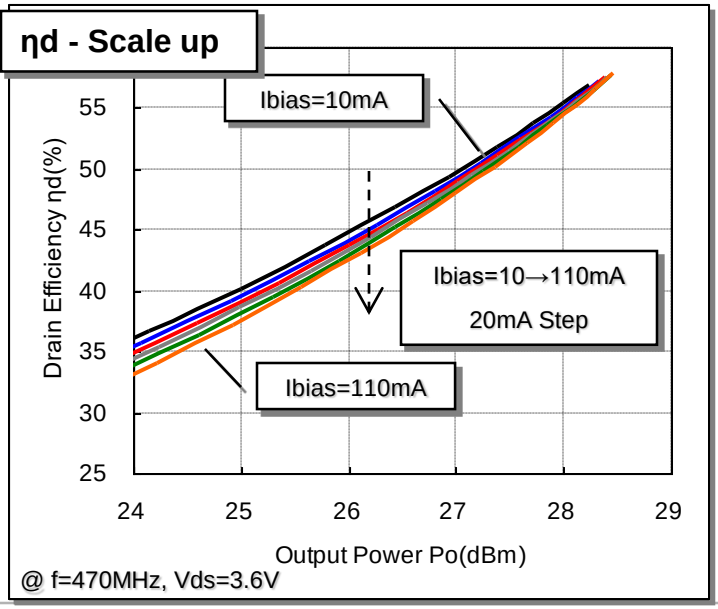








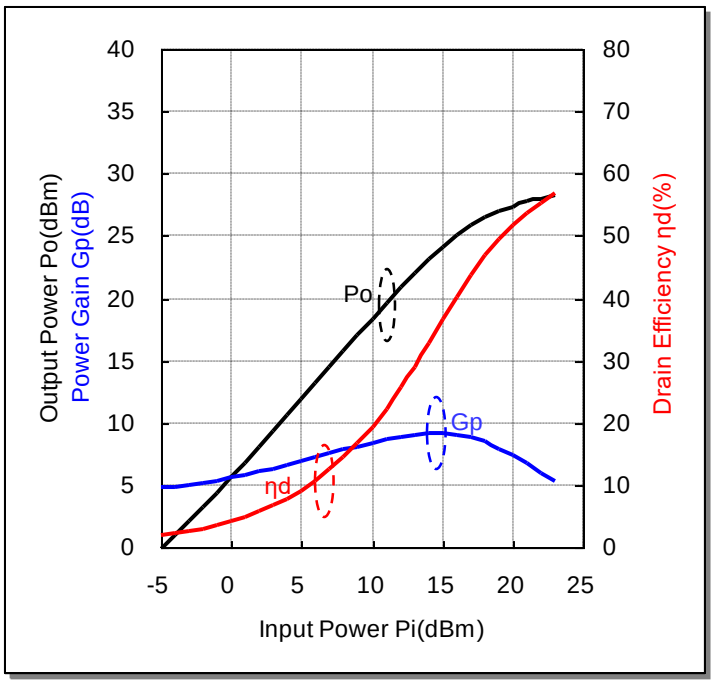




Input-Output Characteristics Vds＝3.6V, Ibias=10mA - Condition 2

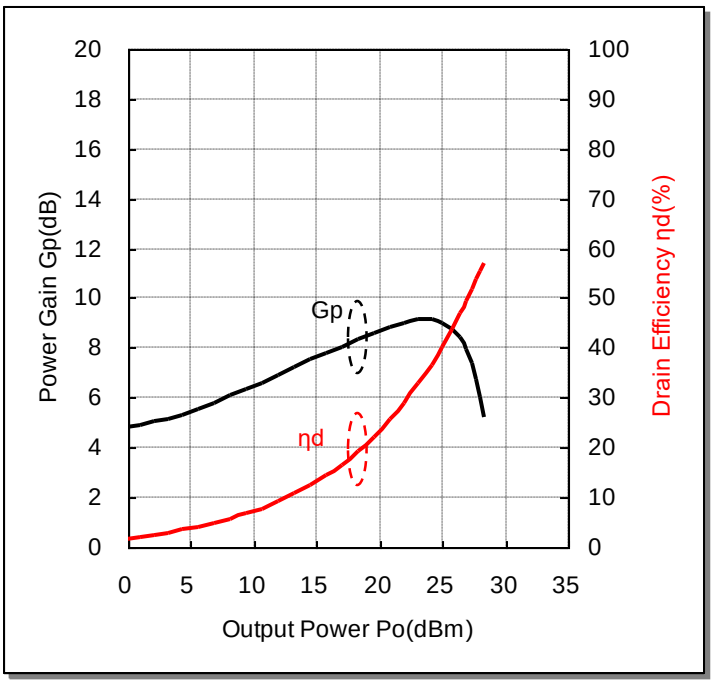
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=3.6V, Ibias=10.0mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=3.6V, Ibias=10.0mA

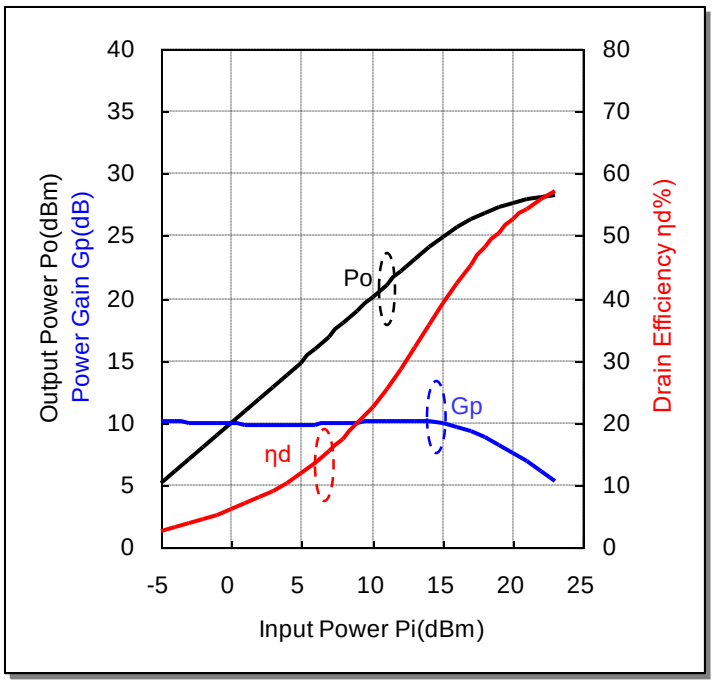
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.15	3.6	10.0	470	-5.0	0.3	-0.2	0.001	4.8	15	1.8
1.15	3.6	10.0	470	-4.0	0.4	0.9	0.001	4.9	16	2.1
1.15	3.6	10.0	470	-3.0	0.5	2.0	0.002	5.0	18	2.5
1.15	3.6	10.0	470	-2.0	0.6	3.2	0.002	5.2	19	3.0
1.15	3.6	10.0	470	-1.0	0.8	4.3	0.003	5.3	21	3.5
1.15	3.6	10.0	470	0.0	1.0	5.6	0.004	5.6	24	4.1
1.15	3.6	10.0	470	1.0	1.3	6.8	0.005	5.8	27	4.9
1.15	3.6	10.0	470	2.0	1.6	8.1	0.006	6.1	31	5.7
1.15	3.6	10.0	470	3.0	2.0	9.3	0.009	6.3	36	6.7
1.15	3.6	10.0	470	4.0	2.5	10.6	0.012	6.6	41	7.8
1.15	3.6	10.0	470	5.0	3.2	11.9	0.016	6.9	47	9.1
1.15	3.6	10.0	470	6.0	4.0	13.2	0.021	7.2	55	10.6
1.15	3.6	10.0	470	7.0	5.0	14.5	0.028	7.5	64	12.4
1.15	3.6	10.0	470	8.0	6.3	15.8	0.038	7.8	74	14.4
1.15	3.6	10.0	470	9.0	7.9	17.0	0.051	8.0	85	16.6
1.15	3.6	10.0	470	10.0	10.0	18.3	0.068	8.3	99	19.2
1.15	3.6	10.0	470	11.0	12.6	19.6	0.091	8.6	114	22.2
1.15	3.6	10.0	470	12.0	15.8	20.9	0.122	8.9	132	25.6
1.15	3.6	10.0	470	13.0	20.0	22.0	0.158	9.0	152	29.0
1.15	3.6	10.0	470	14.0	25.1	23.1	0.205	9.1	174	32.8
1.15	3.6	10.0	470	15.0	31.6	24.1	0.260	9.1	197	36.7
1.15	3.6	10.0	470	16.0	39.8	25.0	0.316	9.0	219	40.2
1.15	3.6	10.0	470	17.0	50.1	25.8	0.379	8.8	241	43.7
1.15	3.6	10.0	470	18.0	63.1	26.4	0.441	8.4	261	46.8
1.15	3.6	10.0	470	19.0	79.4	26.9	0.494	7.9	278	49.4
1.15	3.6	10.0	470	20.0	100.0	27.4	0.547	7.4	293	51.8
1.15	3.6	10.0	470	21.0	125.9	27.7	0.592	6.7	306	53.7
1.15	3.6	10.0	470	22.0	158.5	28.0	0.631	6.0	316	55.4
1.15	3.6	10.0	470	23.0	199.5	28.2	0.667	5.2	326	56.9

Input-Output Characteristics Vds＝3.6V, Ibias=30mA - Condition 2

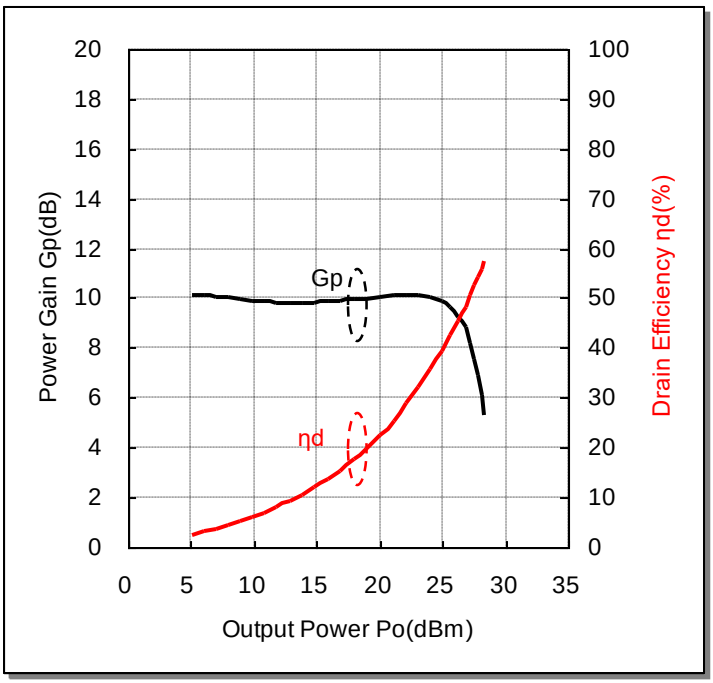
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=3.6V, Ibias=29.7mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=3.6V, Ibias=29.7mA

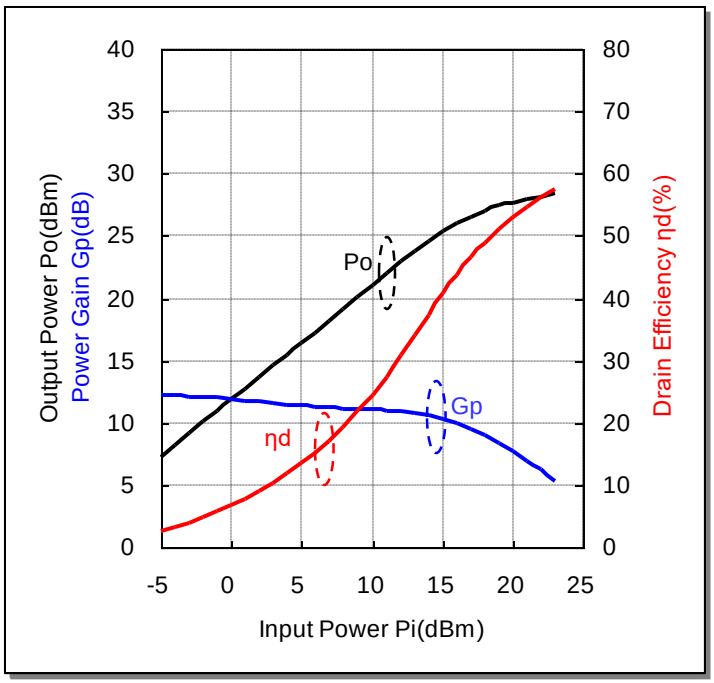
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.28	3.6	29.7	470	-5.0	0.3	5.1	0.003	10.1	35	2.6
1.28	3.6	29.7	470	-4.0	0.4	6.1	0.004	10.1	36	3.1
1.28	3.6	29.7	470	-3.0	0.5	7.0	0.005	10.0	38	3.7
1.28	3.6	29.7	470	-2.0	0.6	8.0	0.006	10.0	40	4.4
1.28	3.6	29.7	470	-1.0	0.8	8.9	0.008	9.9	42	5.1
1.28	3.6	29.7	470	0.0	1.0	9.9	0.010	9.9	45	6.0
1.28	3.6	29.7	470	1.0	1.3	10.9	0.012	9.9	49	6.9
1.28	3.6	29.7	470	2.0	1.6	11.8	0.015	9.8	53	7.9
1.28	3.6	29.7	470	3.0	2.0	12.8	0.019	9.8	58	9.1
1.28	3.6	29.7	470	4.0	2.5	13.8	0.024	9.8	64	10.4
1.28	3.6	29.7	470	5.0	3.2	14.8	0.030	9.8	71	11.9
1.28	3.6	29.7	470	6.0	4.0	15.8	0.038	9.8	79	13.5
1.28	3.6	29.7	470	7.0	5.0	16.9	0.049	9.9	88	15.4
1.28	3.6	29.7	470	8.0	6.3	17.9	0.062	9.9	99	17.5
1.28	3.6	29.7	470	9.0	7.9	19.0	0.079	10.0	111	19.8
1.28	3.6	29.7	470	10.0	10.0	20.0	0.101	10.0	125	22.5
1.28	3.6	29.7	470	11.0	12.6	21.1	0.129	10.1	141	25.4
1.28	3.6	29.7	470	12.0	15.8	22.2	0.164	10.2	159	28.7
1.28	3.6	29.7	470	13.0	20.0	23.1	0.206	10.1	178	32.1
1.28	3.6	29.7	470	14.0	25.1	24.1	0.255	10.1	199	35.7
1.28	3.6	29.7	470	15.0	31.6	24.9	0.310	9.9	220	39.2
1.28	3.6	29.7	470	16.0	39.8	25.6	0.366	9.6	240	42.4
1.28	3.6	29.7	470	17.0	50.1	26.3	0.424	9.3	259	45.4
1.28	3.6	29.7	470	18.0	63.1	26.8	0.480	8.8	276	48.2
1.28	3.6	29.7	470	19.0	79.4	27.2	0.528	8.2	291	50.5
1.28	3.6	29.7	470	20.0	100.0	27.6	0.574	7.6	303	52.6
1.28	3.6	29.7	470	21.0	125.9	27.9	0.614	6.9	314	54.3
1.28	3.6	29.7	470	22.0	158.5	28.1	0.650	6.1	323	55.9
1.28	3.6	29.7	470	23.0	199.5	28.3	0.681	5.3	330	57.3

Input-Output Characteristics Vds=3.6V, Ibias=50mA - Condition 2

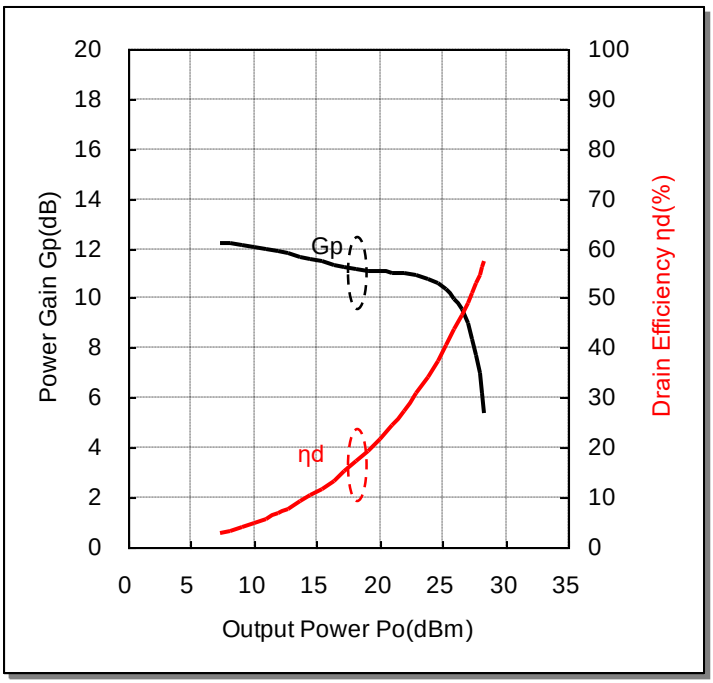
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=3.6V, Ibias=50.0mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=3.6V, Ibias=50.0mA

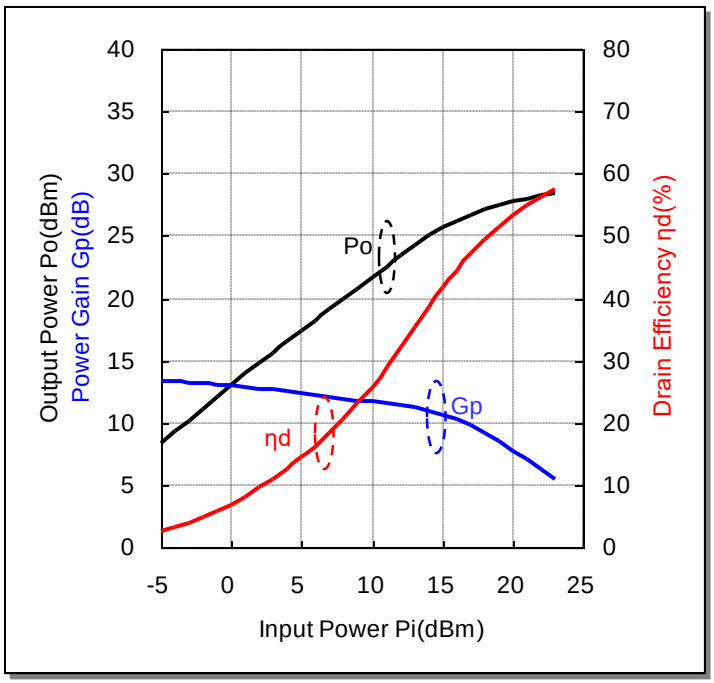
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.37	3.6	50.0	470	-5.0	0.3	7.2	0.005	12.2	54	2.7
1.37	3.6	50.0	470	-4.0	0.4	8.2	0.007	12.2	56	3.3
1.37	3.6	50.0	470	-3.0	0.5	9.1	0.008	12.1	57	4.0
1.37	3.6	50.0	470	-2.0	0.6	10.1	0.010	12.1	59	4.8
1.37	3.6	50.0	470	-1.0	0.8	11.0	0.013	12.0	61	5.7
1.37	3.6	50.0	470	0.0	1.0	11.9	0.015	11.9	64	6.7
1.37	3.6	50.0	470	1.0	1.3	12.8	0.019	11.8	67	7.8
1.37	3.6	50.0	470	2.0	1.6	13.7	0.023	11.7	71	9.0
1.37	3.6	50.0	470	3.0	2.0	14.5	0.028	11.5	76	10.3
1.37	3.6	50.0	470	4.0	2.5	15.4	0.035	11.4	82	11.8
1.37	3.6	50.0	470	5.0	3.2	16.4	0.043	11.4	89	13.4
1.37	3.6	50.0	470	6.0	4.0	17.3	0.053	11.3	97	15.2
1.37	3.6	50.0	470	7.0	5.0	18.2	0.066	11.2	107	17.1
1.37	3.6	50.0	470	8.0	6.3	19.1	0.082	11.1	117	19.3
1.37	3.6	50.0	470	9.0	7.9	20.1	0.101	11.1	130	21.7
1.37	3.6	50.0	470	10.0	10.0	21.0	0.126	11.0	144	24.5
1.37	3.6	50.0	470	11.0	12.6	22.0	0.157	11.0	159	27.5
1.37	3.6	50.0	470	12.0	15.8	22.9	0.195	10.9	177	30.7
1.37	3.6	50.0	470	13.0	20.0	23.8	0.240	10.8	196	34.1
1.37	3.6	50.0	470	14.0	25.1	24.6	0.288	10.6	215	37.3
1.37	3.6	50.0	470	15.0	31.6	25.4	0.343	10.4	234	40.7
1.37	3.6	50.0	470	16.0	39.8	26.0	0.398	10.0	253	43.7
1.37	3.6	50.0	470	17.0	50.1	26.5	0.451	9.5	270	46.4
1.37	3.6	50.0	470	18.0	63.1	27.0	0.502	9.0	285	48.9
1.37	3.6	50.0	470	19.0	79.4	27.4	0.548	8.4	298	51.1
1.37	3.6	50.0	470	20.0	100.0	27.7	0.589	7.7	309	52.9
1.37	3.6	50.0	470	21.0	125.9	28.0	0.627	7.0	318	54.6
1.37	3.6	50.0	470	22.0	158.5	28.2	0.659	6.2	326	56.1
1.37	3.6	50.0	470	23.0	199.5	28.4	0.689	5.4	333	57.5

Input-Output Characteristics Vds=3.6V, Ibias=70mA - Condition 2

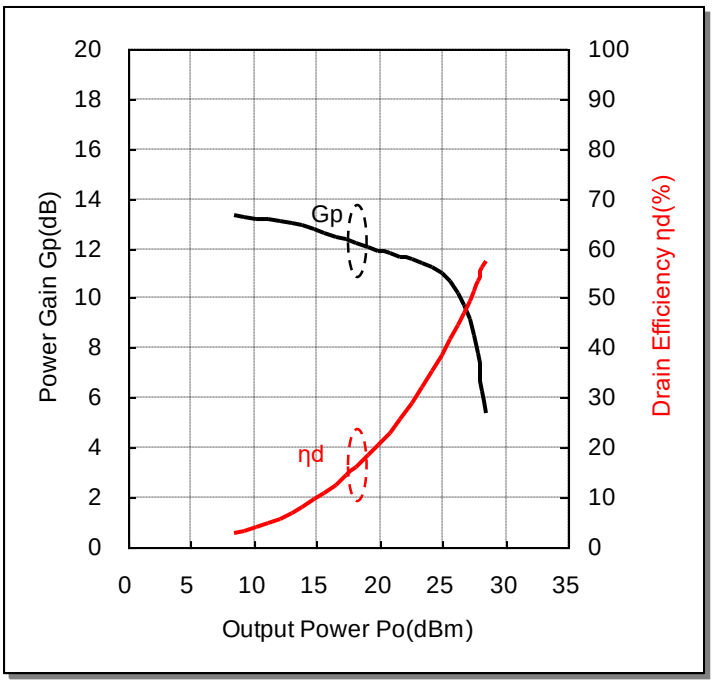
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=3.6V, Ibias=69.0mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=3.6V, Ibias=69.0mA

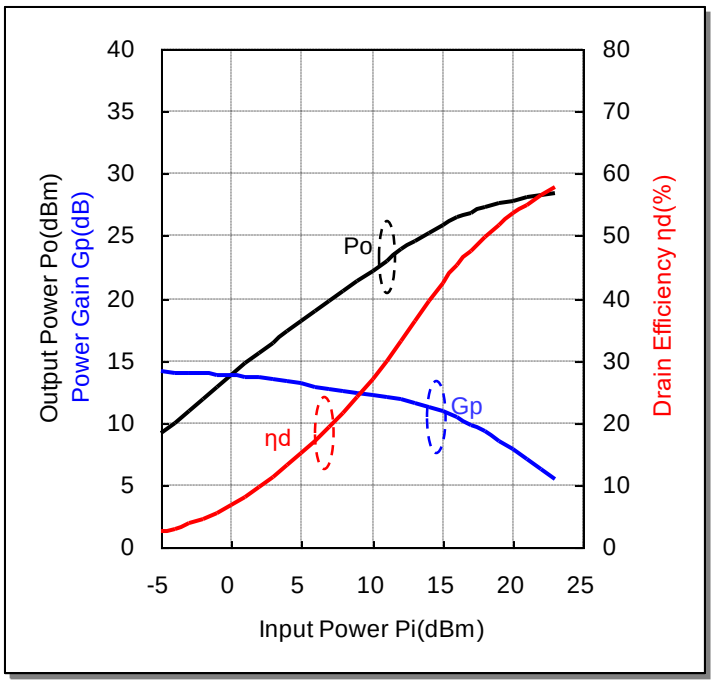
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.44	3.6	69.0	470	-5.0	0.3	8.4	0.007	13.4	73	2.6
1.44	3.6	69.0	470	-4.0	0.4	9.3	0.008	13.3	73	3.2
1.44	3.6	69.0	470	-3.0	0.5	10.2	0.010	13.2	75	3.9
1.44	3.6	69.0	470	-2.0	0.6	11.2	0.013	13.2	76	4.8
1.44	3.6	69.0	470	-1.0	0.8	12.1	0.016	13.1	78	5.7
1.44	3.6	69.0	470	0.0	1.0	13.0	0.020	13.0	80	6.9
1.44	3.6	69.0	470	1.0	1.3	13.9	0.025	12.9	84	8.2
1.44	3.6	69.0	470	2.0	1.6	14.8	0.030	12.8	87	9.5
1.44	3.6	69.0	470	3.0	2.0	15.6	0.037	12.6	92	11.0
1.44	3.6	69.0	470	4.0	2.5	16.5	0.044	12.5	98	12.6
1.44	3.6	69.0	470	5.0	3.2	17.3	0.054	12.3	105	14.4
1.44	3.6	69.0	470	6.0	4.0	18.2	0.066	12.2	112	16.2
1.44	3.6	69.0	470	7.0	5.0	19.0	0.080	12.0	122	18.3
1.44	3.6	69.0	470	8.0	6.3	19.9	0.098	11.9	132	20.6
1.44	3.6	69.0	470	9.0	7.9	20.8	0.120	11.8	145	23.1
1.44	3.6	69.0	470	10.0	10.0	21.7	0.147	11.7	158	25.8
1.44	3.6	69.0	470	11.0	12.6	22.5	0.180	11.5	174	28.8
1.44	3.6	69.0	470	12.0	15.8	23.4	0.220	11.4	191	32.0
1.44	3.6	69.0	470	13.0	20.0	24.2	0.265	11.2	209	35.3
1.44	3.6	69.0	470	14.0	25.1	25.0	0.316	11.0	227	38.6
1.44	3.6	69.0	470	15.0	31.6	25.7	0.368	10.7	245	41.7
1.44	3.6	69.0	470	16.0	39.8	26.2	0.419	10.2	262	44.4
1.44	3.6	69.0	470	17.0	50.1	26.7	0.471	9.7	278	47.1
1.44	3.6	69.0	470	18.0	63.1	27.1	0.519	9.1	292	49.4
1.44	3.6	69.0	470	19.0	79.4	27.5	0.562	8.5	303	51.5
1.44	3.6	69.0	470	20.0	100.0	27.8	0.600	7.8	313	53.2
1.44	3.6	69.0	470	21.0	125.9	28.0	0.634	7.0	321	54.8
1.44	3.6	69.0	470	22.0	158.5	28.2	0.665	6.2	329	56.3
1.44	3.6	69.0	470	23.0	199.5	28.4	0.693	5.4	335	57.6

Input-Output Characteristics Vds=3.6V, Ibias=90mA - Condition 2

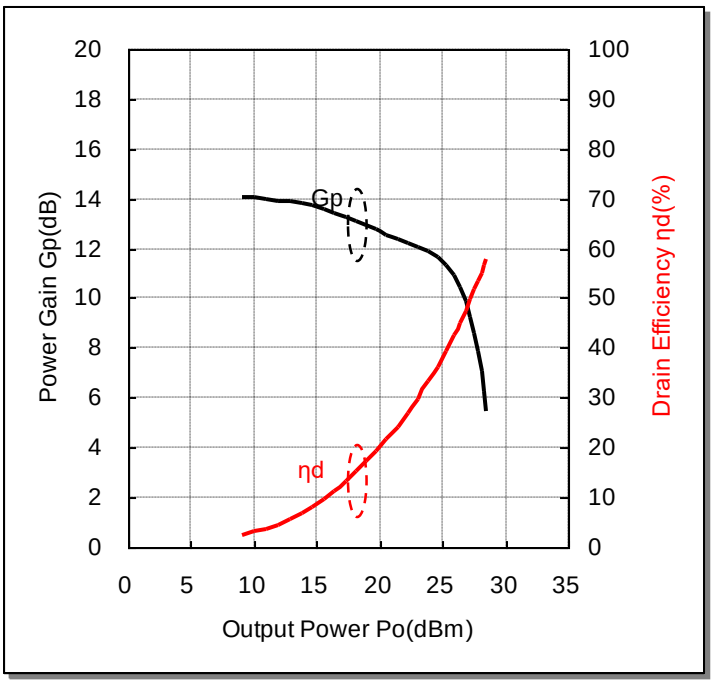
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=3.6V, Ibias=88.7mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=3.6V, Ibias=88.7mA

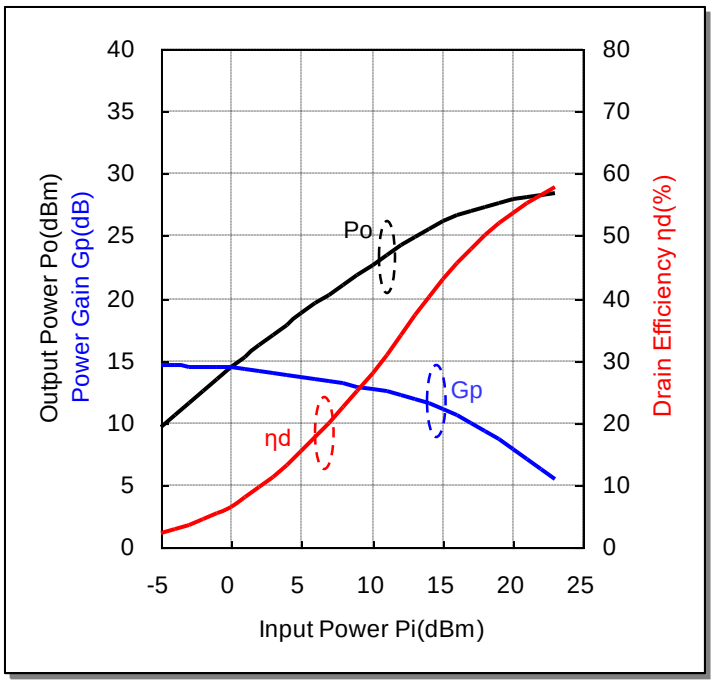
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.50	3.6	88.7	470	-5.0	0.3	9.1	0.008	14.1	92	2.5
1.50	3.6	88.7	470	-4.0	0.4	10.0	0.010	14.0	92	3.0
1.50	3.6	88.7	470	-3.0	0.5	11.0	0.013	14.0	93	3.7
1.50	3.6	88.7	470	-2.0	0.6	11.9	0.016	13.9	95	4.6
1.50	3.6	88.7	470	-1.0	0.8	12.9	0.019	13.9	96	5.6
1.50	3.6	88.7	470	0.0	1.0	13.8	0.024	13.8	98	6.8
1.50	3.6	88.7	470	1.0	1.3	14.7	0.030	13.7	100	8.2
1.50	3.6	88.7	470	2.0	1.6	15.6	0.036	13.6	104	9.7
1.50	3.6	88.7	470	3.0	2.0	16.4	0.044	13.4	108	11.3
1.50	3.6	88.7	470	4.0	2.5	17.3	0.053	13.3	113	13.1
1.50	3.6	88.7	470	5.0	3.2	18.1	0.065	13.1	120	15.1
1.50	3.6	88.7	470	6.0	4.0	18.9	0.078	12.9	127	17.1
1.50	3.6	88.7	470	7.0	5.0	19.7	0.094	12.7	136	19.2
1.50	3.6	88.7	470	8.0	6.3	20.6	0.114	12.6	147	21.6
1.50	3.6	88.7	470	9.0	7.9	21.4	0.138	12.4	159	24.1
1.50	3.6	88.7	470	10.0	10.0	22.2	0.167	12.2	172	26.9
1.50	3.6	88.7	470	11.0	12.6	23.0	0.202	12.0	187	29.9
1.50	3.6	88.7	470	12.0	15.8	23.9	0.243	11.9	204	33.1
1.50	3.6	88.7	470	13.0	20.0	24.6	0.289	11.6	221	36.3
1.50	3.6	88.7	470	14.0	25.1	25.3	0.339	11.3	238	39.5
1.50	3.6	88.7	470	15.0	31.6	25.9	0.390	10.9	255	42.4
1.50	3.6	88.7	470	16.0	39.8	26.4	0.441	10.4	271	45.2
1.50	3.6	88.7	470	17.0	50.1	26.9	0.486	9.9	284	47.5
1.50	3.6	88.7	470	18.0	63.1	27.3	0.532	9.3	297	49.8
1.50	3.6	88.7	470	19.0	79.4	27.6	0.573	8.6	307	51.8
1.50	3.6	88.7	470	20.0	100.0	27.9	0.610	7.9	316	53.5
1.50	3.6	88.7	470	21.0	125.9	28.1	0.643	7.1	324	55.1
1.50	3.6	88.7	470	22.0	158.5	28.3	0.671	6.3	330	56.5
1.50	3.6	88.7	470	23.0	199.5	28.4	0.698	5.4	336	57.7

Input-Output Characteristics Vds＝3.6V, Ibias=110mA - Condition 2

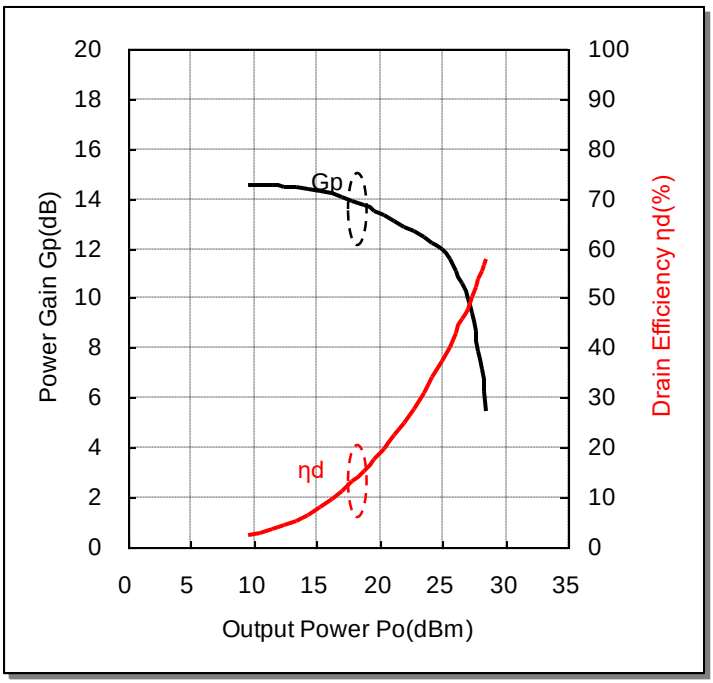
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=3.6V, Ibias=108.5mA

Power Gain, Drain Efficiency vs Output Power



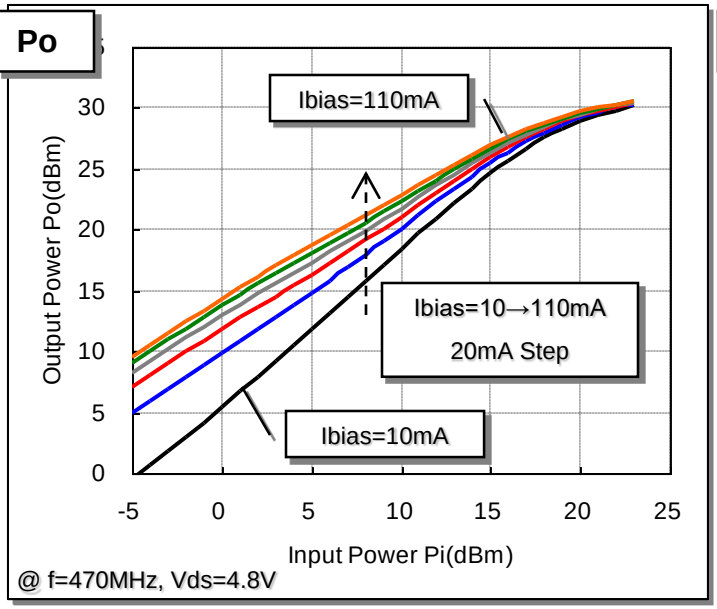
@ f=470MHz, Vds=3.6V, Ibias=108.5mA

Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.55	3.6	108.5	470	-5.0	0.3	9.6	0.009	14.6	111	2.3
1.55	3.6	108.5	470	-4.0	0.4	10.5	0.011	14.5	111	2.8
1.55	3.6	108.5	470	-3.0	0.5	11.5	0.014	14.5	112	3.5
1.55	3.6	108.5	470	-2.0	0.6	12.5	0.018	14.5	113	4.3
1.55	3.6	108.5	470	-1.0	0.8	13.4	0.022	14.4	114	5.4
1.55	3.6	108.5	470	0.0	1.0	14.4	0.027	14.4	116	6.6
1.55	3.6	108.5	470	1.0	1.3	15.3	0.034	14.3	118	8.0
1.55	3.6	108.5	470	2.0	1.6	16.2	0.042	14.2	121	9.6
1.55	3.6	108.5	470	3.0	2.0	17.0	0.051	14.0	124	11.4
1.55	3.6	108.5	470	4.0	2.5	17.9	0.062	13.9	129	13.3
1.55	3.6	108.5	470	5.0	3.2	18.7	0.075	13.7	135	15.4
1.55	3.6	108.5	470	6.0	4.0	19.5	0.090	13.5	142	17.6
1.55	3.6	108.5	470	7.0	5.0	20.3	0.107	13.3	150	19.9
1.55	3.6	108.5	470	8.0	6.3	21.1	0.129	13.1	160	22.4
1.55	3.6	108.5	470	9.0	7.9	21.9	0.155	12.9	172	24.9
1.55	3.6	108.5	470	10.0	10.0	22.7	0.186	12.7	185	27.9
1.55	3.6	108.5	470	11.0	12.6	23.5	0.223	12.5	200	30.9
1.55	3.6	108.5	470	12.0	15.8	24.2	0.264	12.2	216	34.0
1.55	3.6	108.5	470	13.0	20.0	24.9	0.311	11.9	232	37.2
1.55	3.6	108.5	470	14.0	25.1	25.6	0.360	11.6	248	40.2
1.55	3.6	108.5	470	15.0	31.6	26.1	0.408	11.1	264	43.0
1.55	3.6	108.5	470	16.0	39.8	26.6	0.457	10.6	278	45.7
1.55	3.6	108.5	470	17.0	50.1	27.0	0.501	10.0	290	48.0
1.55	3.6	108.5	470	18.0	63.1	27.4	0.545	9.4	301	50.2
1.55	3.6	108.5	470	19.0	79.4	27.7	0.583	8.7	311	52.1
1.55	3.6	108.5	470	20.0	100.0	27.9	0.617	7.9	319	53.7
1.55	3.6	108.5	470	21.0	125.9	28.1	0.649	7.1	326	55.3
1.55	3.6	108.5	470	22.0	158.5	28.3	0.676	6.3	332	56.6
1.55	3.6	108.5	470	23.0	199.5	28.5	0.701	5.5	337	57.8

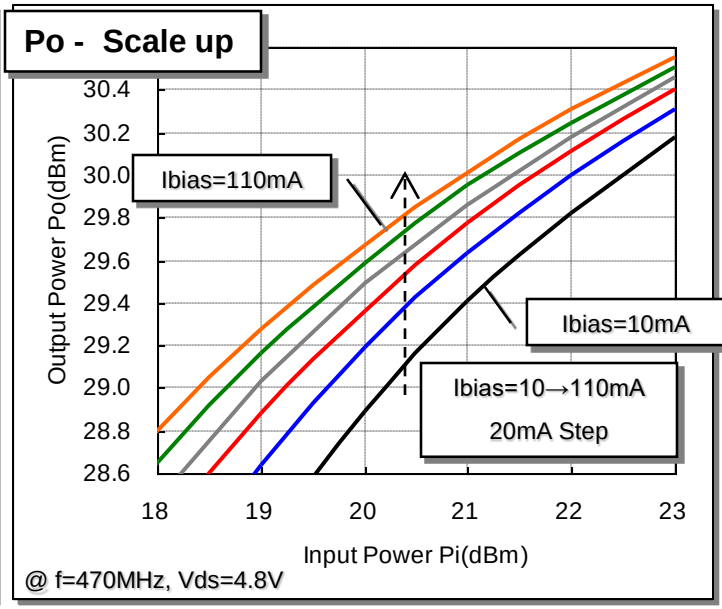
Input - Output Characteristics Vds＝4.8V - Condition 2

Po



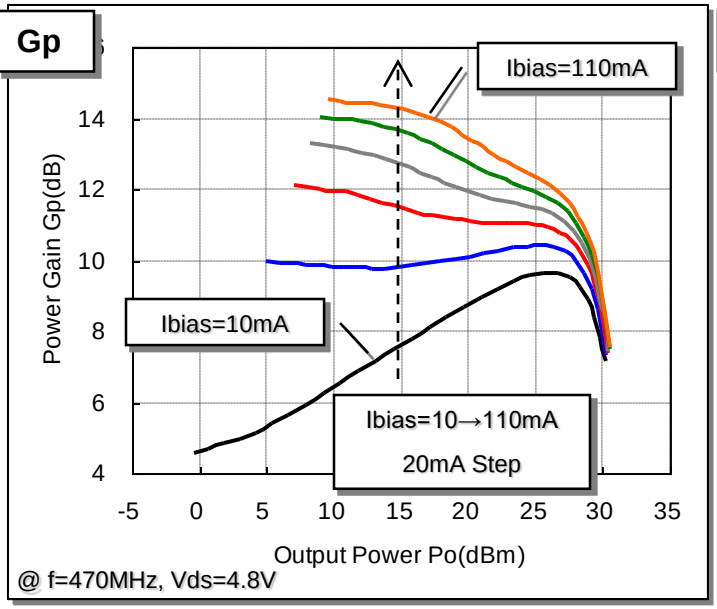
@ f=470MHz, Vds=4.8V

Po - Scale up



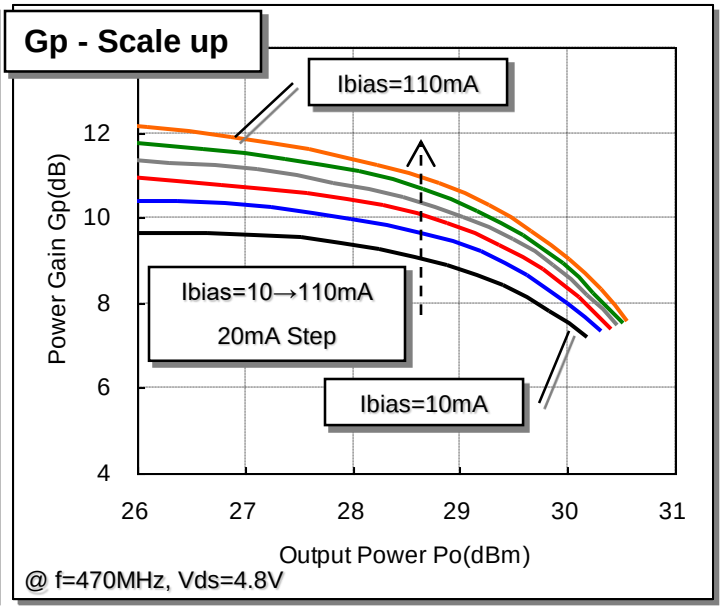
@ f=470MHz, Vds=4.8V

Gp



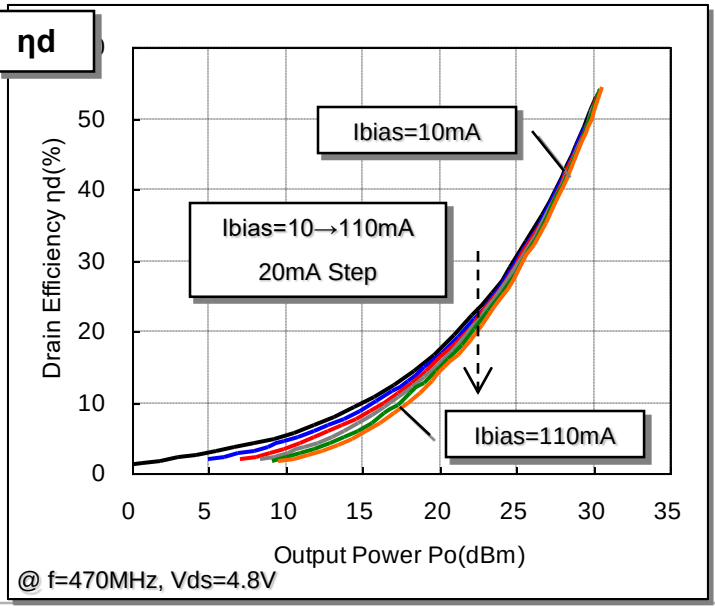
@ f=470MHz, Vds=4.8V

Gp - Scale up



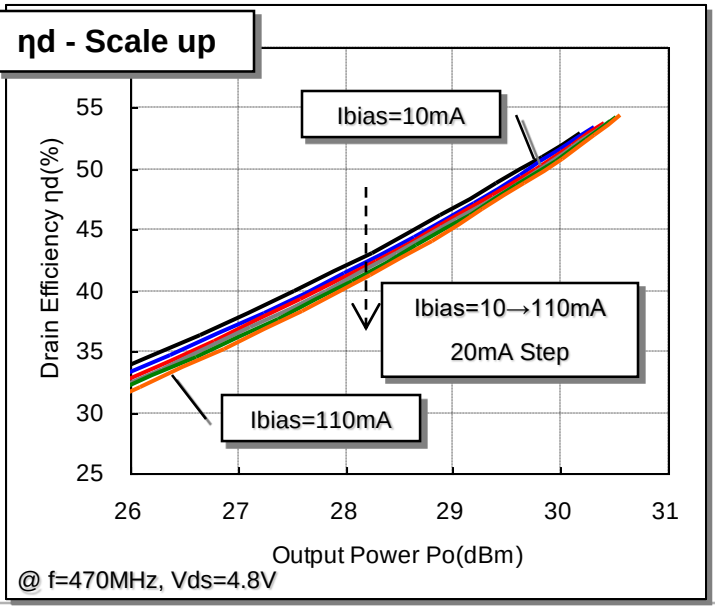
@ f=470MHz, Vds=4.8V

ηd



@ f=470MHz, Vds=4.8V

ηd - Scale up

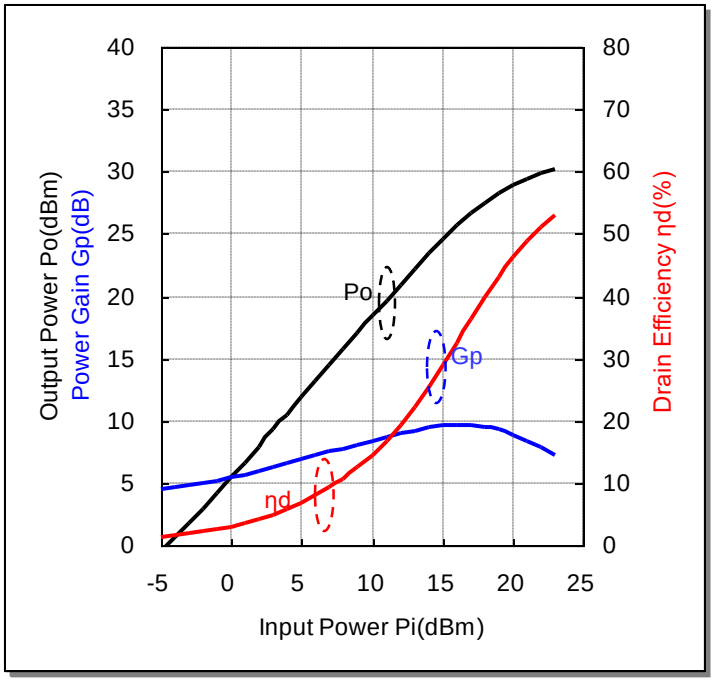


@ f=470MHz, Vds=4.8V

Input-Output Characteristics Vds=4.8V, Ibias=10mA - Condition 2

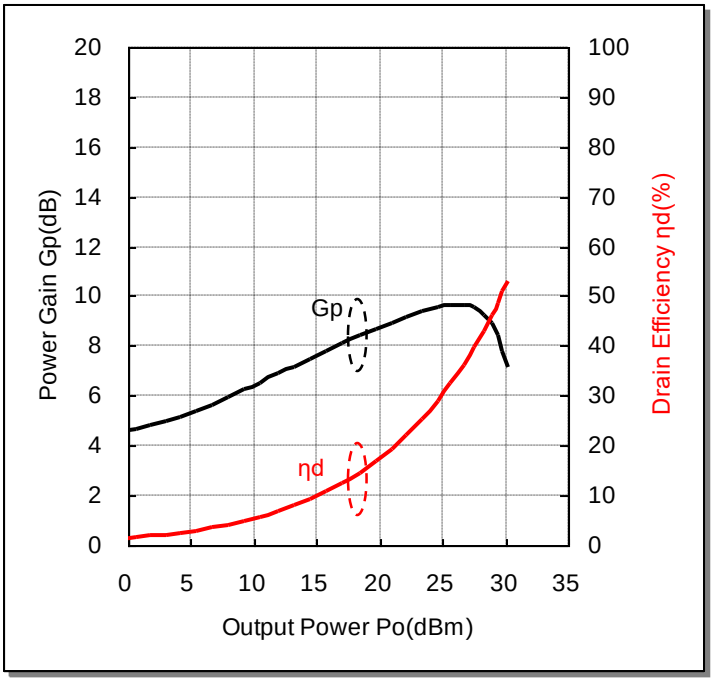
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=4.8V, Ibias=10.0mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=4.8V, Ibias=10.0mA

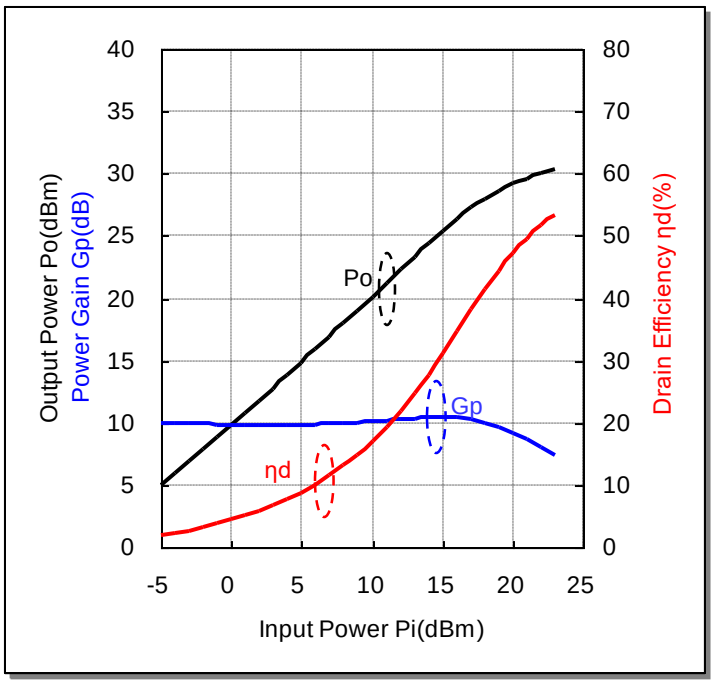
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.12	4.8	10.0	470	-5.0	0.3	-0.4	0.001	4.6	15	1.3
1.12	4.8	10.0	470	-4.0	0.4	0.6	0.001	4.6	16	1.5
1.12	4.8	10.0	470	-3.0	0.5	1.8	0.002	4.8	17	1.8
1.12	4.8	10.0	470	-2.0	0.6	3.0	0.002	5.0	19	2.1
1.12	4.8	10.0	470	-1.0	0.8	4.2	0.003	5.2	21	2.5
1.12	4.8	10.0	470	0.0	1.0	5.4	0.003	5.4	24	3.0
1.12	4.8	10.0	470	1.0	1.3	6.7	0.005	5.7	27	3.5
1.12	4.8	10.0	470	2.0	1.6	7.9	0.006	5.9	31	4.2
1.12	4.8	10.0	470	3.0	2.0	9.2	0.008	6.2	36	4.9
1.12	4.8	10.0	470	4.0	2.5	10.5	0.011	6.5	41	5.7
1.12	4.8	10.0	470	5.0	3.2	11.9	0.015	6.9	47	6.8
1.12	4.8	10.0	470	6.0	4.0	13.2	0.021	7.2	55	7.9
1.12	4.8	10.0	470	7.0	5.0	14.5	0.028	7.5	64	9.2
1.12	4.8	10.0	470	8.0	6.3	15.8	0.038	7.8	74	10.7
1.12	4.8	10.0	470	9.0	7.9	17.1	0.051	8.1	86	12.5
1.12	4.8	10.0	470	10.0	10.0	18.4	0.069	8.4	100	14.4
1.12	4.8	10.0	470	11.0	12.6	19.7	0.092	8.7	115	16.7
1.12	4.8	10.0	470	12.0	15.8	21.0	0.124	9.0	134	19.3
1.12	4.8	10.0	470	13.0	20.0	22.2	0.164	9.2	155	22.1
1.12	4.8	10.0	470	14.0	25.1	23.4	0.219	9.4	179	25.4
1.12	4.8	10.0	470	15.0	31.6	24.6	0.288	9.6	207	29.0
1.12	4.8	10.0	470	16.0	39.8	25.6	0.366	9.6	235	32.5
1.12	4.8	10.0	470	17.0	50.1	26.6	0.462	9.6	265	36.3
1.12	4.8	10.0	470	18.0	63.1	27.5	0.566	9.5	296	39.9
1.12	4.8	10.0	470	19.0	79.4	28.3	0.668	9.3	323	43.1
1.12	4.8	10.0	470	20.0	100.0	28.9	0.774	8.9	350	46.1
1.12	4.8	10.0	470	21.0	125.9	29.4	0.873	8.4	373	48.7
1.12	4.8	10.0	470	22.0	158.5	29.8	0.959	7.8	392	50.9
1.12	4.8	10.0	470	23.0	199.5	30.2	1.042	7.2	410	53.0

Input-Output Characteristics Vds＝4.8V, Ibias=30mA - Condition 2

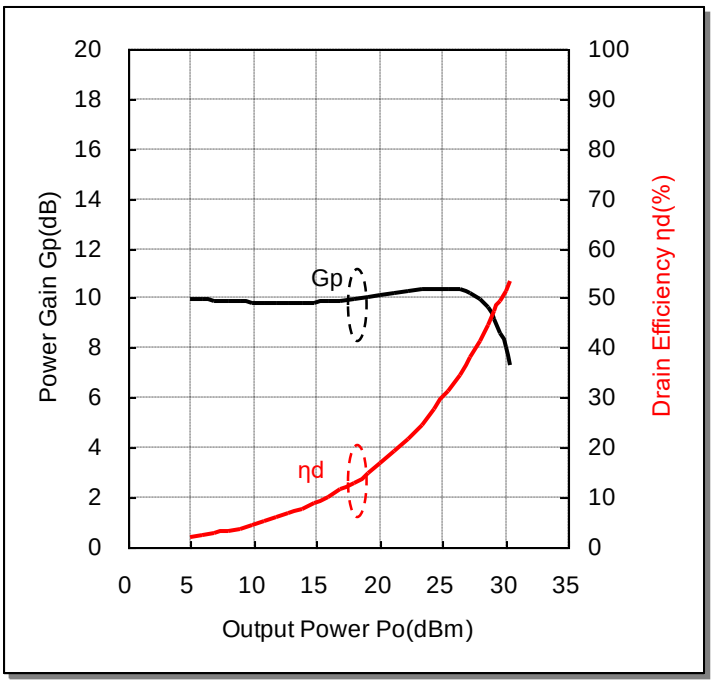
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=4.8V, Ibias=29.8mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=4.8V, Ibias=29.8mA

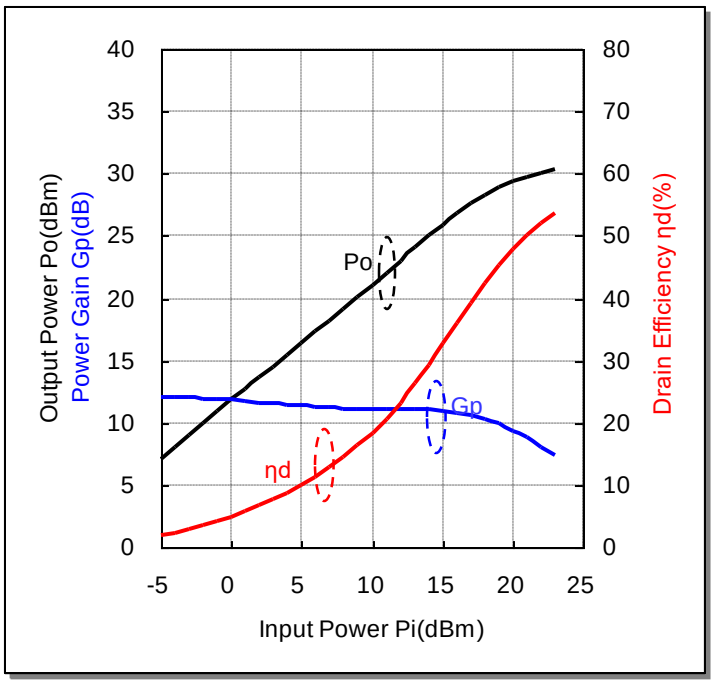
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.25	4.8	29.8	470	-5.0	0.3	4.9	0.003	9.9	35	1.9
1.25	4.8	29.8	470	-4.0	0.4	5.9	0.004	9.9	36	2.3
1.25	4.8	29.8	470	-3.0	0.5	6.9	0.005	9.9	38	2.7
1.25	4.8	29.8	470	-2.0	0.6	7.9	0.006	9.9	40	3.2
1.25	4.8	29.8	470	-1.0	0.8	8.9	0.008	9.9	43	3.8
1.25	4.8	29.8	470	0.0	1.0	9.8	0.010	9.8	46	4.4
1.25	4.8	29.8	470	1.0	1.3	10.8	0.012	9.8	49	5.1
1.25	4.8	29.8	470	2.0	1.6	11.8	0.015	9.8	53	5.9
1.25	4.8	29.8	470	3.0	2.0	12.8	0.019	9.8	58	6.7
1.25	4.8	29.8	470	4.0	2.5	13.8	0.024	9.8	65	7.7
1.25	4.8	29.8	470	5.0	3.2	14.8	0.030	9.8	72	8.8
1.25	4.8	29.8	470	6.0	4.0	15.9	0.038	9.9	80	10.1
1.25	4.8	29.8	470	7.0	5.0	16.9	0.049	9.9	89	11.5
1.25	4.8	29.8	470	8.0	6.3	18.0	0.062	10.0	100	13.0
1.25	4.8	29.8	470	9.0	7.9	19.0	0.080	10.0	112	14.9
1.25	4.8	29.8	470	10.0	10.0	20.1	0.103	10.1	126	16.9
1.25	4.8	29.8	470	11.0	12.6	21.2	0.132	10.2	143	19.2
1.25	4.8	29.8	470	12.0	15.8	22.3	0.169	10.3	162	21.8
1.25	4.8	29.8	470	13.0	20.0	23.4	0.217	10.4	183	24.7
1.25	4.8	29.8	470	14.0	25.1	24.4	0.274	10.4	206	27.7
1.25	4.8	29.8	470	15.0	31.6	25.4	0.347	10.4	232	31.1
1.25	4.8	29.8	470	16.0	39.8	26.4	0.434	10.4	260	34.7
1.25	4.8	29.8	470	17.0	50.1	27.2	0.530	10.2	289	38.2
1.25	4.8	29.8	470	18.0	63.1	28.0	0.628	10.0	316	41.4
1.25	4.8	29.8	470	19.0	79.4	28.6	0.731	9.6	343	44.5
1.25	4.8	29.8	470	20.0	100.0	29.2	0.830	9.2	366	47.2
1.25	4.8	29.8	470	21.0	125.9	29.6	0.918	8.6	386	49.6
1.25	4.8	29.8	470	22.0	158.5	30.0	1.000	8.0	404	51.6
1.25	4.8	29.8	470	23.0	199.5	30.3	1.074	7.3	419	53.4

Input-Output Characteristics Vds=4.8V, Ibias=50mA - Condition 2

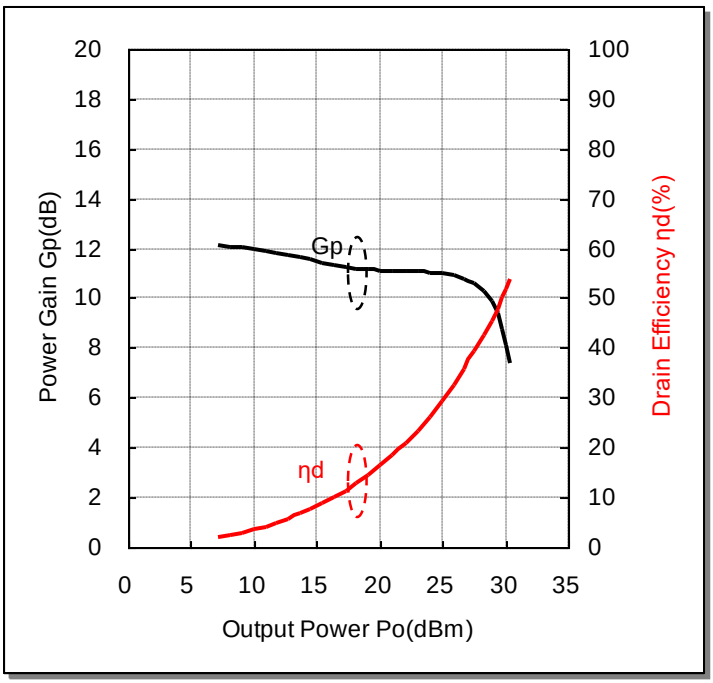
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=4.8V, Ibias=50.2mA,

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=4.8V, Ibias=50.2mA

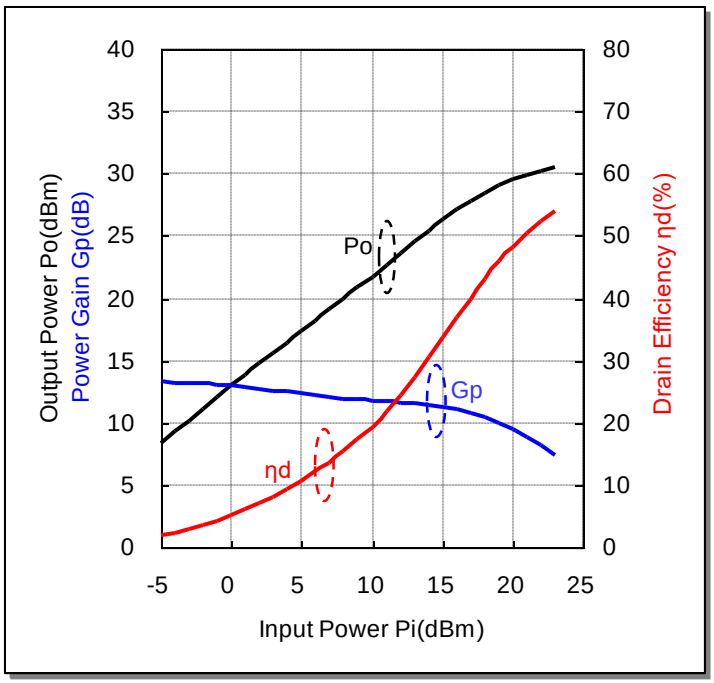
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.34	4.8	50.2	470	-5.0	0.3	7.1	0.005	12.1	55	1.9
1.34	4.8	50.2	470	-4.0	0.4	8.1	0.006	12.1	56	2.4
1.34	4.8	50.2	470	-3.0	0.5	9.0	0.008	12.0	57	2.9
1.34	4.8	50.2	470	-2.0	0.6	9.9	0.010	11.9	59	3.5
1.34	4.8	50.2	470	-1.0	0.8	10.9	0.012	11.9	61	4.2
1.34	4.8	50.2	470	0.0	1.0	11.8	0.015	11.8	64	4.9
1.34	4.8	50.2	470	1.0	1.3	12.7	0.019	11.7	68	5.8
1.34	4.8	50.2	470	2.0	1.6	13.6	0.023	11.6	72	6.7
1.34	4.8	50.2	470	3.0	2.0	14.5	0.028	11.5	77	7.7
1.34	4.8	50.2	470	4.0	2.5	15.4	0.035	11.4	83	8.8
1.34	4.8	50.2	470	5.0	3.2	16.3	0.043	11.3	90	10.0
1.34	4.8	50.2	470	6.0	4.0	17.3	0.053	11.3	98	11.3
1.34	4.8	50.2	470	7.0	5.0	18.2	0.066	11.2	108	12.8
1.34	4.8	50.2	470	8.0	6.3	19.1	0.082	11.1	119	14.4
1.34	4.8	50.2	470	9.0	7.9	20.1	0.102	11.1	131	16.3
1.34	4.8	50.2	470	10.0	10.0	21.1	0.128	11.1	145	18.3
1.34	4.8	50.2	470	11.0	12.6	22.1	0.161	11.1	162	20.7
1.34	4.8	50.2	470	12.0	15.8	23.0	0.202	11.0	181	23.3
1.34	4.8	50.2	470	13.0	20.0	24.0	0.254	11.0	202	26.2
1.34	4.8	50.2	470	14.0	25.1	25.0	0.317	11.0	225	29.3
1.34	4.8	50.2	470	15.0	31.6	25.9	0.393	10.9	251	32.6
1.34	4.8	50.2	470	16.0	39.8	26.8	0.476	10.8	277	35.9
1.34	4.8	50.2	470	17.0	50.1	27.6	0.573	10.6	304	39.3
1.34	4.8	50.2	470	18.0	63.1	28.3	0.673	10.3	331	42.4
1.34	4.8	50.2	470	19.0	79.4	28.9	0.773	9.9	355	45.3
1.34	4.8	50.2	470	20.0	100.0	29.4	0.863	9.4	376	47.8
1.34	4.8	50.2	470	21.0	125.9	29.8	0.948	8.8	395	50.0
1.34	4.8	50.2	470	22.0	158.5	30.1	1.026	8.1	411	52.0
1.34	4.8	50.2	470	23.0	199.5	30.4	1.096	7.4	425	53.7

Input-Output Characteristics Vds=4.8V, Ibias=70mA - Condition 2

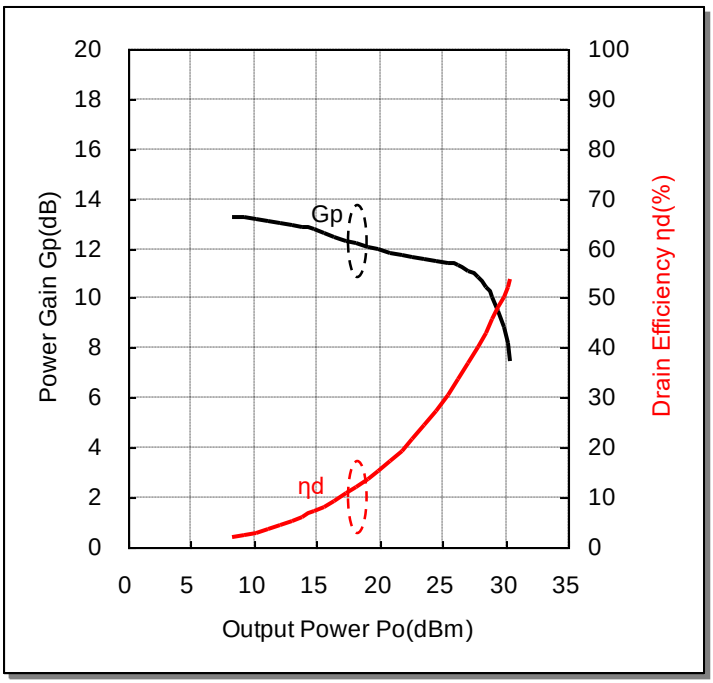
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=4.8V, Ibias=69.5mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=4.8V, Ibias=69.5mA,

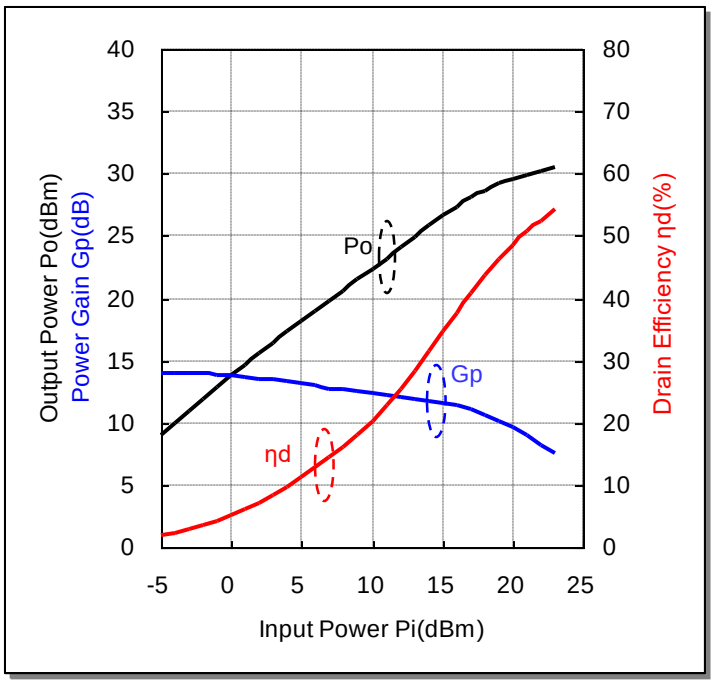
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.41	4.8	69.5	470	-5.0	0.3	8.3	0.007	13.3	73	1.9
1.41	4.8	69.5	470	-4.0	0.4	9.2	0.008	13.2	74	2.4
1.41	4.8	69.5	470	-3.0	0.5	10.2	0.010	13.2	75	2.9
1.41	4.8	69.5	470	-2.0	0.6	11.1	0.013	13.1	77	3.5
1.41	4.8	69.5	470	-1.0	0.8	12.0	0.016	13.0	79	4.2
1.41	4.8	69.5	470	0.0	1.0	13.0	0.020	13.0	81	5.1
1.41	4.8	69.5	470	1.0	1.3	13.9	0.024	12.9	84	6.0
1.41	4.8	69.5	470	2.0	1.6	14.7	0.030	12.7	88	7.0
1.41	4.8	69.5	470	3.0	2.0	15.6	0.036	12.6	93	8.2
1.41	4.8	69.5	470	4.0	2.5	16.5	0.044	12.5	98	9.3
1.41	4.8	69.5	470	5.0	3.2	17.3	0.054	12.3	105	10.7
1.41	4.8	69.5	470	6.0	4.0	18.2	0.066	12.2	113	12.1
1.41	4.8	69.5	470	7.0	5.0	19.0	0.080	12.0	123	13.6
1.41	4.8	69.5	470	8.0	6.3	19.9	0.098	11.9	134	15.3
1.41	4.8	69.5	470	9.0	7.9	20.8	0.121	11.8	146	17.3
1.41	4.8	69.5	470	10.0	10.0	21.7	0.149	11.7	161	19.4
1.41	4.8	69.5	470	11.0	12.6	22.7	0.185	11.7	177	21.8
1.41	4.8	69.5	470	12.0	15.8	23.6	0.229	11.6	195	24.4
1.41	4.8	69.5	470	13.0	20.0	24.5	0.283	11.5	216	27.3
1.41	4.8	69.5	470	14.0	25.1	25.4	0.349	11.4	239	30.4
1.41	4.8	69.5	470	15.0	31.6	26.3	0.427	11.3	264	33.6
1.41	4.8	69.5	470	16.0	39.8	27.1	0.515	11.1	291	36.9
1.41	4.8	69.5	470	17.0	50.1	27.8	0.605	10.8	315	40.0
1.41	4.8	69.5	470	18.0	63.1	28.5	0.703	10.5	341	43.0
1.41	4.8	69.5	470	19.0	79.4	29.0	0.800	10.0	364	45.8
1.41	4.8	69.5	470	20.0	100.0	29.5	0.889	9.5	384	48.2
1.41	4.8	69.5	470	21.0	125.9	29.9	0.968	8.9	401	50.3
1.41	4.8	69.5	470	22.0	158.5	30.2	1.042	8.2	416	52.2
1.41	4.8	69.5	470	23.0	199.5	30.5	1.112	7.5	429	54.0

Input-Output Characteristics Vds=4.8V, Ibias=90mA - Condition 2

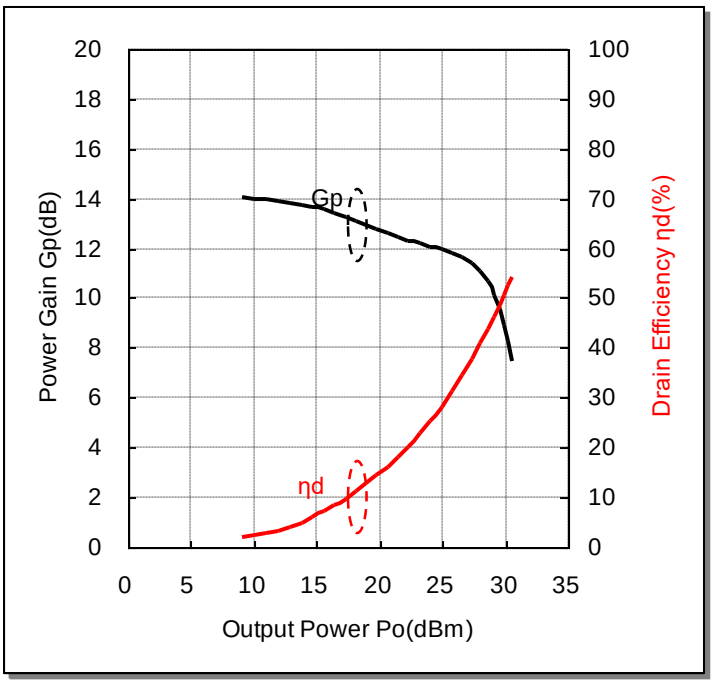
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=4.8V, Ibias=89.5mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=4.8V, Ibias=89.5mA

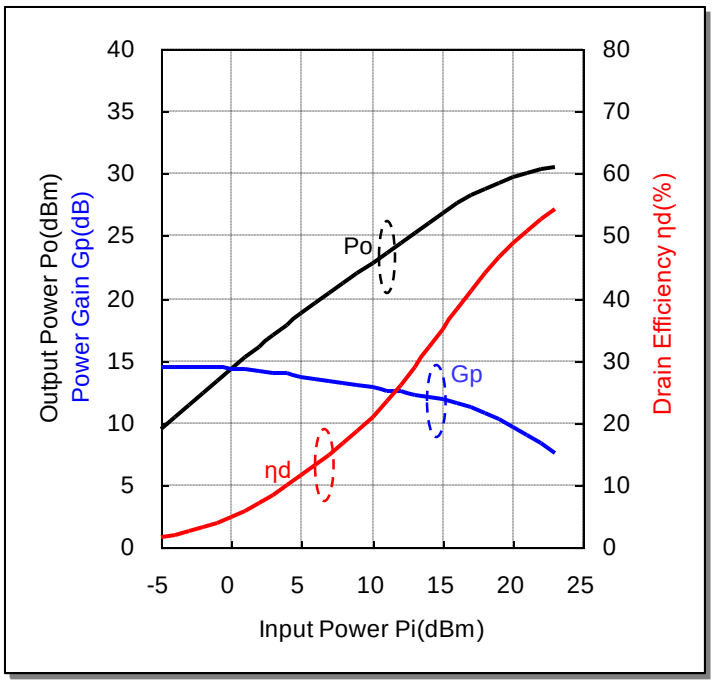
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.47	4.8	89.5	470	-5.0	0.3	9.1	0.008	14.1	92	1.8
1.47	4.8	89.5	470	-4.0	0.4	10.0	0.010	14.0	93	2.2
1.47	4.8	89.5	470	-3.0	0.5	10.9	0.012	13.9	94	2.8
1.47	4.8	89.5	470	-2.0	0.6	11.9	0.015	13.9	95	3.4
1.47	4.8	89.5	470	-1.0	0.8	12.9	0.019	13.9	97	4.1
1.47	4.8	89.5	470	0.0	1.0	13.8	0.024	13.8	99	5.0
1.47	4.8	89.5	470	1.0	1.3	14.7	0.029	13.7	102	6.0
1.47	4.8	89.5	470	2.0	1.6	15.6	0.036	13.6	105	7.2
1.47	4.8	89.5	470	3.0	2.0	16.4	0.044	13.4	109	8.4
1.47	4.8	89.5	470	4.0	2.5	17.3	0.053	13.3	114	9.7
1.47	4.8	89.5	470	5.0	3.2	18.1	0.065	13.1	121	11.1
1.47	4.8	89.5	470	6.0	4.0	19.0	0.079	13.0	129	12.7
1.47	4.8	89.5	470	7.0	5.0	19.8	0.095	12.8	138	14.3
1.47	4.8	89.5	470	8.0	6.3	20.6	0.115	12.6	149	16.2
1.47	4.8	89.5	470	9.0	7.9	21.5	0.140	12.5	161	18.1
1.47	4.8	89.5	470	10.0	10.0	22.3	0.170	12.3	175	20.3
1.47	4.8	89.5	470	11.0	12.6	23.2	0.208	12.2	191	22.7
1.47	4.8	89.5	470	12.0	15.8	24.1	0.255	12.1	210	25.3
1.47	4.8	89.5	470	13.0	20.0	24.9	0.312	11.9	230	28.2
1.47	4.8	89.5	470	14.0	25.1	25.8	0.380	11.8	253	31.3
1.47	4.8	89.5	470	15.0	31.6	26.6	0.459	11.6	277	34.5
1.47	4.8	89.5	470	16.0	39.8	27.4	0.547	11.4	302	37.7
1.47	4.8	89.5	470	17.0	50.1	28.1	0.641	11.1	327	40.9
1.47	4.8	89.5	470	18.0	63.1	28.6	0.733	10.6	350	43.7
1.47	4.8	89.5	470	19.0	79.4	29.2	0.824	10.2	371	46.2
1.47	4.8	89.5	470	20.0	100.0	29.6	0.910	9.6	390	48.6
1.47	4.8	89.5	470	21.0	125.9	30.0	0.989	9.0	406	50.7
1.47	4.8	89.5	470	22.0	158.5	30.2	1.057	8.2	420	52.4
1.47	4.8	89.5	470	23.0	199.5	30.5	1.125	7.5	432	54.2

Input-Output Characteristics Vds＝4.8V, Ibias=110mA - Condition 2

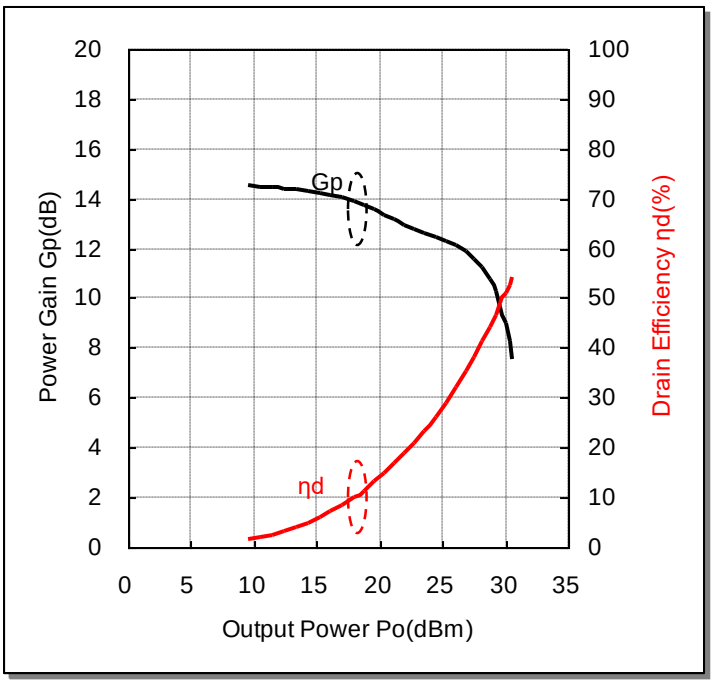
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=4.8V, Ibias=109.3mA

Power Gain, Drain Efficiency vs Output Power



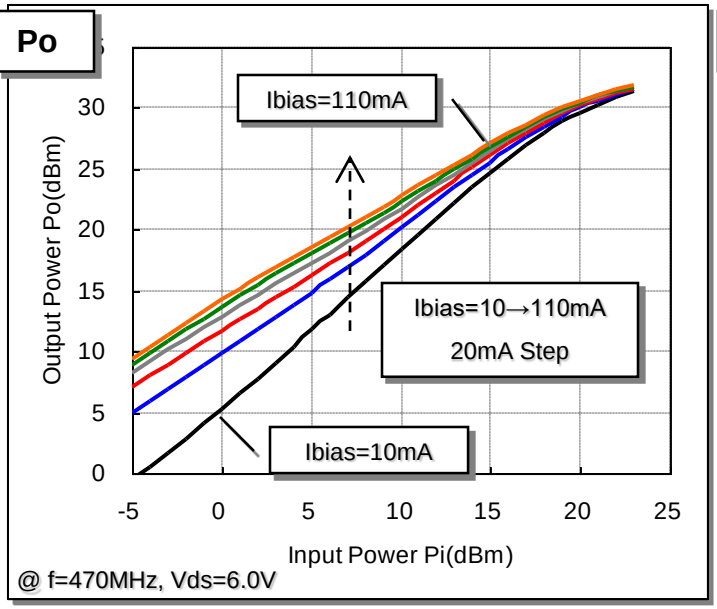
@ f=470MHz, Vds=4.8V, Ibias=109.3mA

Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.53	4.8	109.3	470	-5.0	0.3	9.5	0.009	14.5	112	1.7
1.53	4.8	109.3	470	-4.0	0.4	10.5	0.011	14.5	112	2.1
1.53	4.8	109.3	470	-3.0	0.5	11.4	0.014	14.4	113	2.6
1.53	4.8	109.3	470	-2.0	0.6	12.4	0.017	14.4	114	3.2
1.53	4.8	109.3	470	-1.0	0.8	13.4	0.022	14.4	115	3.9
1.53	4.8	109.3	470	0.0	1.0	14.3	0.027	14.3	117	4.8
1.53	4.8	109.3	470	1.0	1.3	15.2	0.033	14.2	119	5.8
1.53	4.8	109.3	470	2.0	1.6	16.1	0.041	14.1	122	7.0
1.53	4.8	109.3	470	3.0	2.0	17.0	0.051	14.0	126	8.4
1.53	4.8	109.3	470	4.0	2.5	17.9	0.062	13.9	130	9.9
1.53	4.8	109.3	470	5.0	3.2	18.7	0.074	13.7	136	11.4
1.53	4.8	109.3	470	6.0	4.0	19.5	0.090	13.5	143	13.1
1.53	4.8	109.3	470	7.0	5.0	20.4	0.108	13.4	152	14.8
1.53	4.8	109.3	470	8.0	6.3	21.2	0.131	13.2	163	16.7
1.53	4.8	109.3	470	9.0	7.9	22.0	0.157	13.0	175	18.7
1.53	4.8	109.3	470	10.0	10.0	22.8	0.190	12.8	189	20.9
1.53	4.8	109.3	470	11.0	12.6	23.6	0.230	12.6	205	23.3
1.53	4.8	109.3	470	12.0	15.8	24.5	0.279	12.5	223	26.1
1.53	4.8	109.3	470	13.0	20.0	25.3	0.337	12.3	243	28.9
1.53	4.8	109.3	470	14.0	25.1	26.1	0.407	12.1	265	32.0
1.53	4.8	109.3	470	15.0	31.6	26.9	0.486	11.9	288	35.1
1.53	4.8	109.3	470	16.0	39.8	27.6	0.574	11.6	313	38.3
1.53	4.8	109.3	470	17.0	50.1	28.2	0.665	11.2	336	41.2
1.53	4.8	109.3	470	18.0	63.1	28.8	0.759	10.8	359	44.1
1.53	4.8	109.3	470	19.0	79.4	29.3	0.847	10.3	379	46.6
1.53	4.8	109.3	470	20.0	100.0	29.7	0.927	9.7	395	48.8
1.53	4.8	109.3	470	21.0	125.9	30.0	1.002	9.0	411	50.9
1.53	4.8	109.3	470	22.0	158.5	30.3	1.074	8.3	424	52.8
1.53	4.8	109.3	470	23.0	199.5	30.5	1.135	7.5	435	54.3

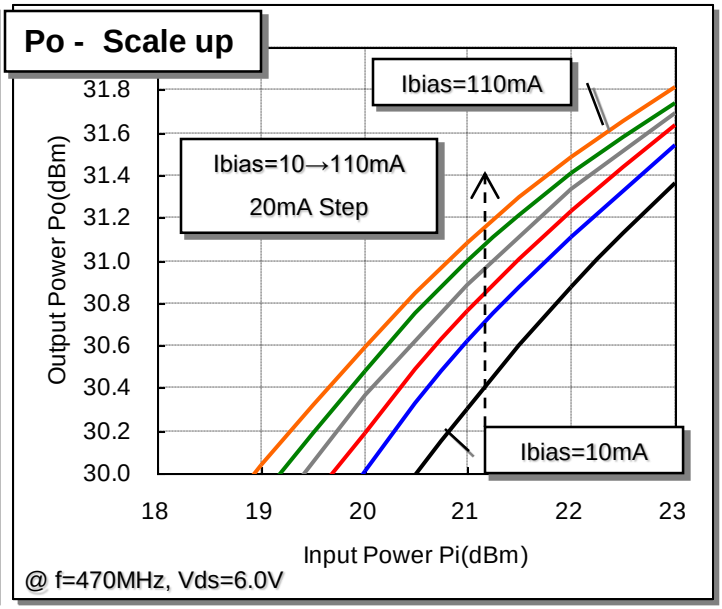
Input - Output Characteristics Vds＝6.0V - Condition 2

Po



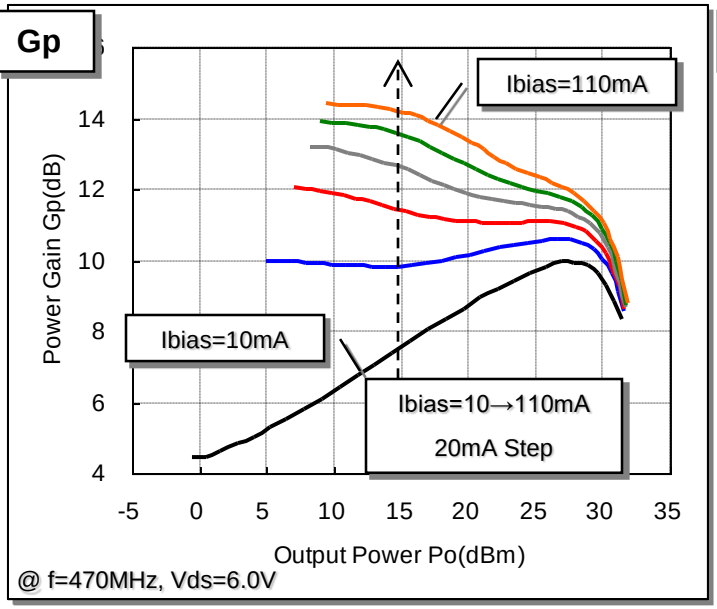
@ f=470MHz, Vds=6.0V

Po - Scale up



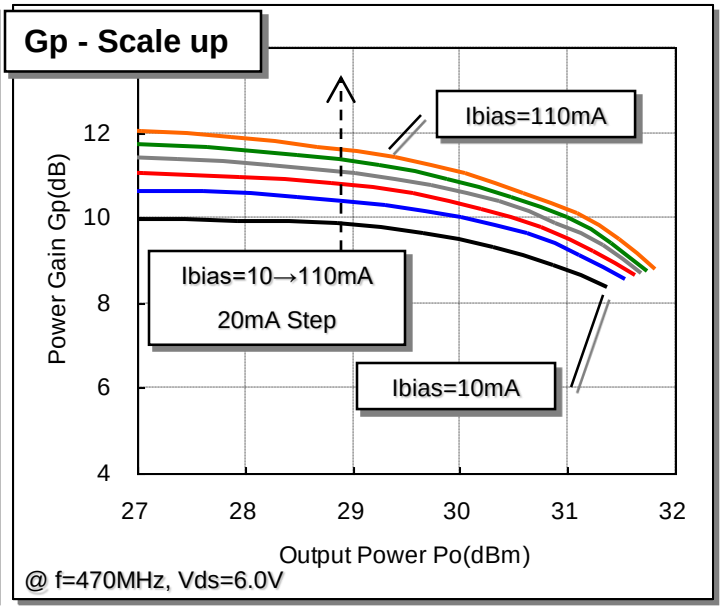
@ f=470MHz, Vds=6.0V

Gp



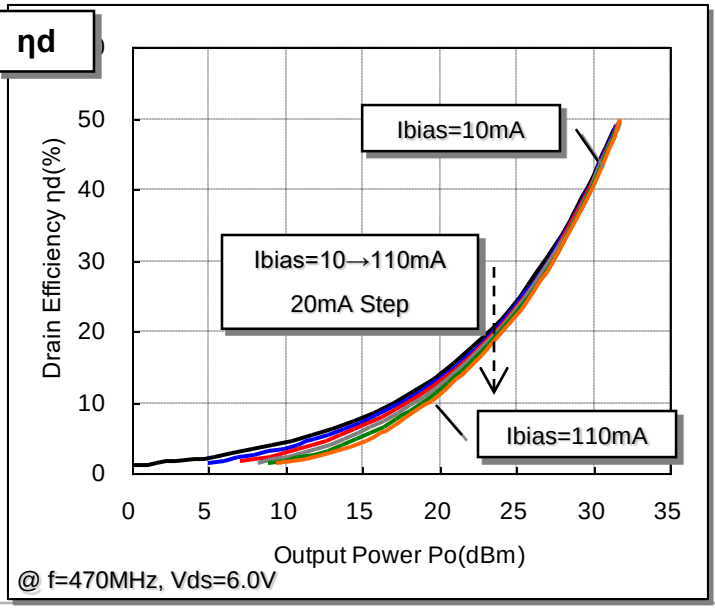
@ f=470MHz, Vds=6.0V

Gp - Scale up



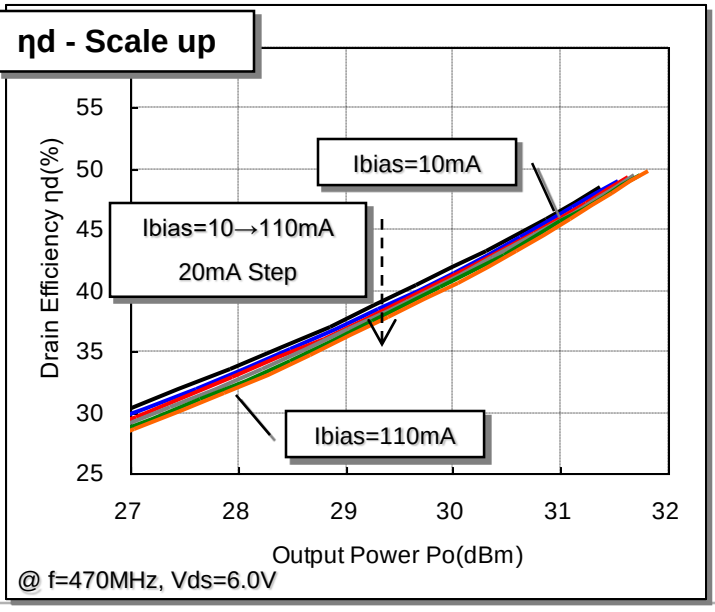
@ f=470MHz, Vds=6.0V

ηd



@ f=470MHz, Vds=6.0V

ηd - Scale up

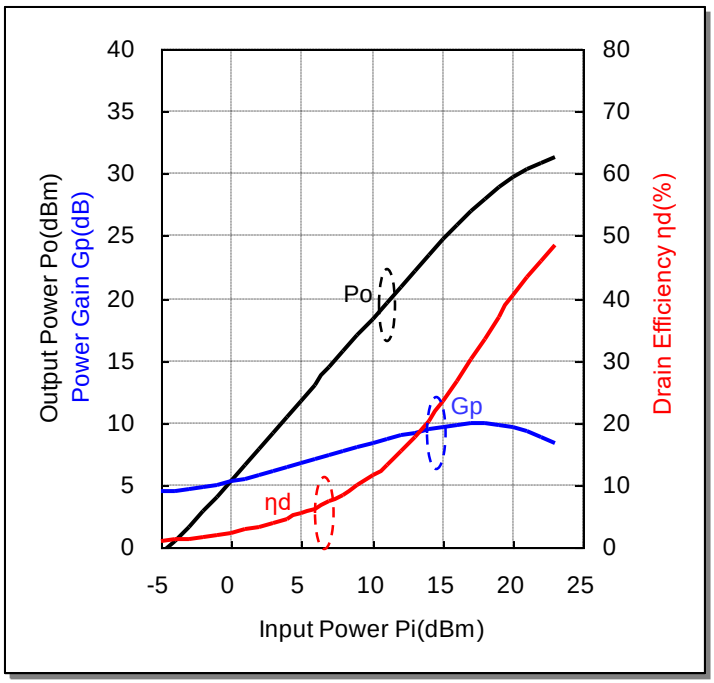


@ f=470MHz, Vds=6.0V

Input-Output Characteristics Vds＝6.0V, Ibias=10mA - Condition 2

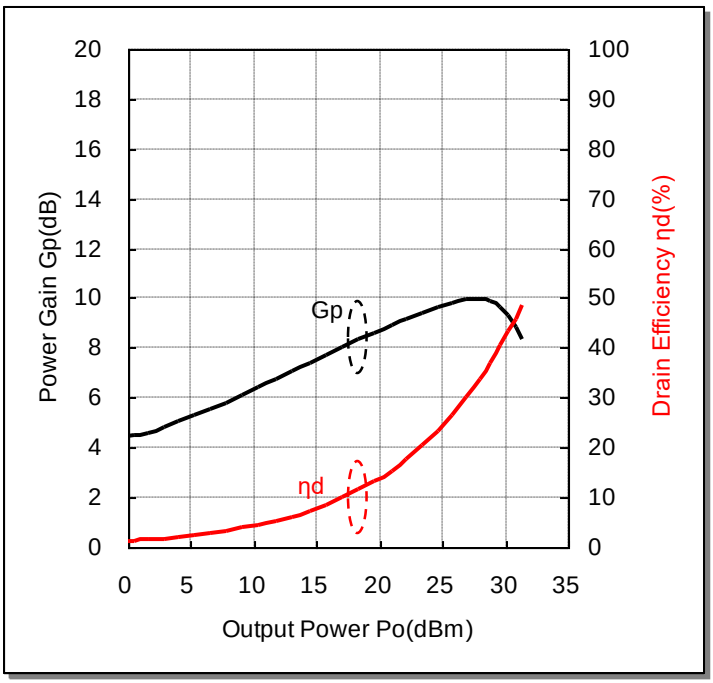
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=6.0V, Ibias=10.2mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=6.0V, Ibias=10.2mA

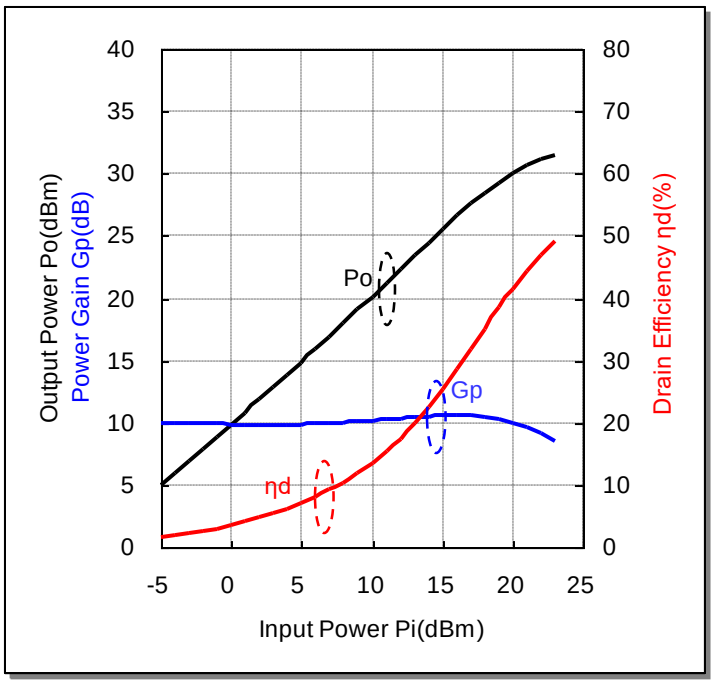
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.09	6.0	10.2	470	-5.0	0.3	-0.6	0.001	4.4	14	1.0
1.09	6.0	10.2	470	-4.0	0.4	0.5	0.001	4.5	16	1.2
1.09	6.0	10.2	470	-3.0	0.5	1.6	0.001	4.6	17	1.4
1.09	6.0	10.2	470	-2.0	0.6	2.8	0.002	4.8	19	1.7
1.09	6.0	10.2	470	-1.0	0.8	4.0	0.003	5.0	21	2.0
1.09	6.0	10.2	470	0.0	1.0	5.3	0.003	5.3	24	2.4
1.09	6.0	10.2	470	1.0	1.3	6.5	0.004	5.5	27	2.8
1.09	6.0	10.2	470	2.0	1.6	7.8	0.006	5.8	31	3.3
1.09	6.0	10.2	470	3.0	2.0	9.1	0.008	6.1	35	3.9
1.09	6.0	10.2	470	4.0	2.5	10.4	0.011	6.4	40	4.5
1.09	6.0	10.2	470	5.0	3.2	11.8	0.015	6.8	47	5.3
1.09	6.0	10.2	470	6.0	4.0	13.1	0.020	7.1	54	6.2
1.09	6.0	10.2	470	7.0	5.0	14.4	0.028	7.4	63	7.3
1.09	6.0	10.2	470	8.0	6.3	15.7	0.037	7.7	73	8.5
1.09	6.0	10.2	470	9.0	7.9	17.0	0.051	8.0	86	9.9
1.09	6.0	10.2	470	10.0	10.0	18.4	0.069	8.4	100	11.5
1.09	6.0	10.2	470	11.0	12.6	19.6	0.092	8.6	115	13.3
1.09	6.0	10.2	470	12.0	15.8	20.9	0.124	8.9	134	15.4
1.09	6.0	10.2	470	13.0	20.0	22.2	0.165	9.2	155	17.7
1.09	6.0	10.2	470	14.0	25.1	23.4	0.220	9.4	180	20.4
1.09	6.0	10.2	470	15.0	31.6	24.7	0.292	9.7	208	23.4
1.09	6.0	10.2	470	16.0	39.8	25.8	0.382	9.8	239	26.6
1.09	6.0	10.2	470	17.0	50.1	27.0	0.495	10.0	274	30.1
1.09	6.0	10.2	470	18.0	63.1	27.9	0.621	9.9	309	33.5
1.09	6.0	10.2	470	19.0	79.4	28.9	0.767	9.9	345	37.1
1.09	6.0	10.2	470	20.0	100.0	29.6	0.923	9.6	381	40.4
1.09	6.0	10.2	470	21.0	125.9	30.3	1.072	9.3	413	43.3
1.09	6.0	10.2	470	22.0	158.5	30.9	1.222	8.9	443	45.9
1.09	6.0	10.2	470	23.0	199.5	31.4	1.368	8.4	470	48.5

Input-Output Characteristics Vds＝6.0V, Ibias=30mA - Condition 2

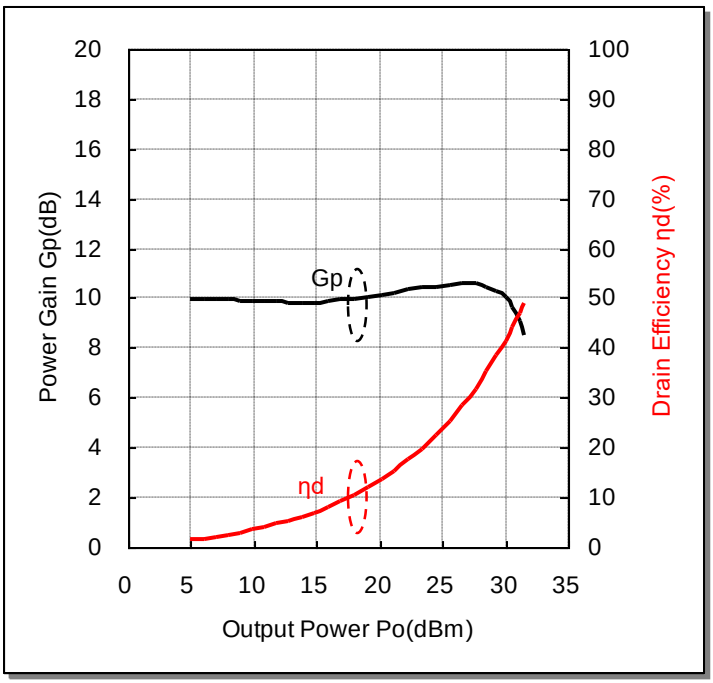
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=6.0V, Ibias=30.2mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=6.0V, Ibias=30.2mA

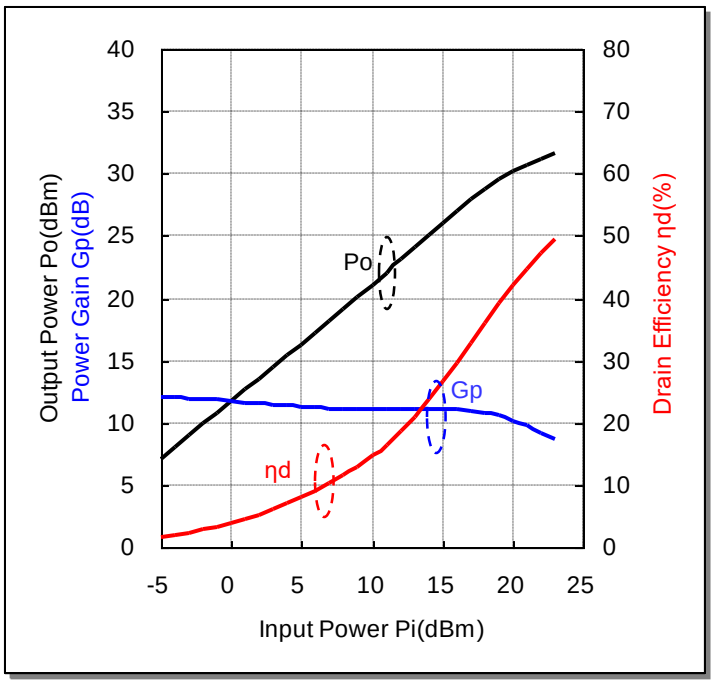
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.23	6.0	30.2	470	-5.0	0.3	5.0	0.003	10.0	36	1.5
1.23	6.0	30.2	470	-4.0	0.4	6.0	0.004	10.0	37	1.8
1.23	6.0	30.2	470	-3.0	0.5	6.9	0.005	9.9	39	2.1
1.23	6.0	30.2	470	-2.0	0.6	7.9	0.006	9.9	41	2.6
1.23	6.0	30.2	470	-1.0	0.8	8.9	0.008	9.9	43	3.0
1.23	6.0	30.2	470	0.0	1.0	9.9	0.010	9.9	46	3.5
1.23	6.0	30.2	470	1.0	1.3	10.8	0.012	9.8	50	4.1
1.23	6.0	30.2	470	2.0	1.6	11.8	0.015	9.8	54	4.7
1.23	6.0	30.2	470	3.0	2.0	12.8	0.019	9.8	59	5.4
1.23	6.0	30.2	470	4.0	2.5	13.8	0.024	9.8	65	6.2
1.23	6.0	30.2	470	5.0	3.2	14.8	0.030	9.8	72	7.0
1.23	6.0	30.2	470	6.0	4.0	15.9	0.039	9.9	80	8.0
1.23	6.0	30.2	470	7.0	5.0	16.9	0.049	9.9	90	9.2
1.23	6.0	30.2	470	8.0	6.3	18.0	0.063	10.0	101	10.4
1.23	6.0	30.2	470	9.0	7.9	19.1	0.081	10.1	113	11.9
1.23	6.0	30.2	470	10.0	10.0	20.1	0.104	10.1	127	13.5
1.23	6.0	30.2	470	11.0	12.6	21.2	0.133	10.2	144	15.3
1.23	6.0	30.2	470	12.0	15.8	22.3	0.171	10.3	163	17.5
1.23	6.0	30.2	470	13.0	20.0	23.4	0.220	10.4	185	19.8
1.23	6.0	30.2	470	14.0	25.1	24.5	0.279	10.5	208	22.3
1.23	6.0	30.2	470	15.0	31.6	25.5	0.359	10.5	236	25.3
1.23	6.0	30.2	470	16.0	39.8	26.6	0.458	10.6	267	28.6
1.23	6.0	30.2	470	17.0	50.1	27.6	0.577	10.6	301	31.9
1.23	6.0	30.2	470	18.0	63.1	28.5	0.705	10.5	334	35.1
1.23	6.0	30.2	470	19.0	79.4	29.3	0.851	10.3	369	38.4
1.23	6.0	30.2	470	20.0	100.0	30.0	1.002	10.0	402	41.5
1.23	6.0	30.2	470	21.0	125.9	30.6	1.153	9.6	433	44.4
1.23	6.0	30.2	470	22.0	158.5	31.1	1.291	9.1	460	46.8
1.23	6.0	30.2	470	23.0	199.5	31.5	1.426	8.5	484	49.1

Input-Output Characteristics Vds＝6.0V, Ibias=50mA - Condition 2

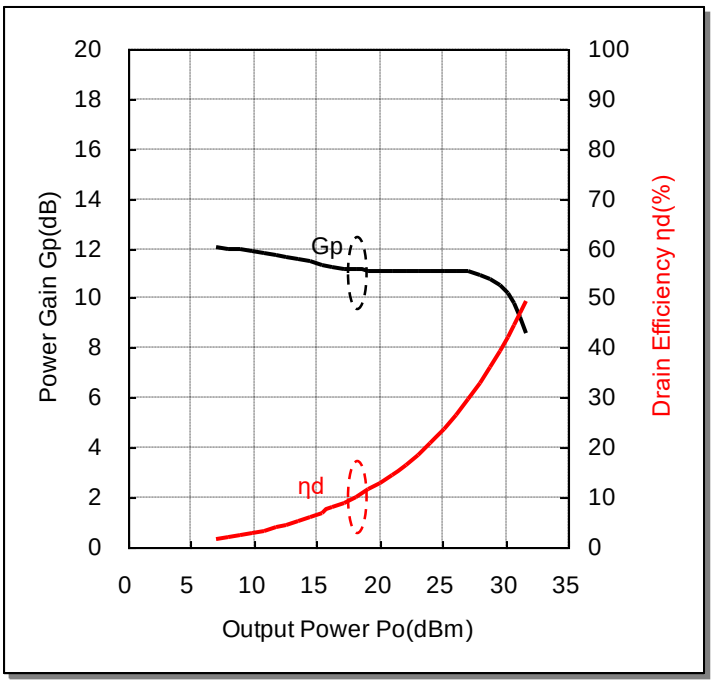
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=6.0V, Ibias=49.6mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=6.0V, Ibias=49.6mA

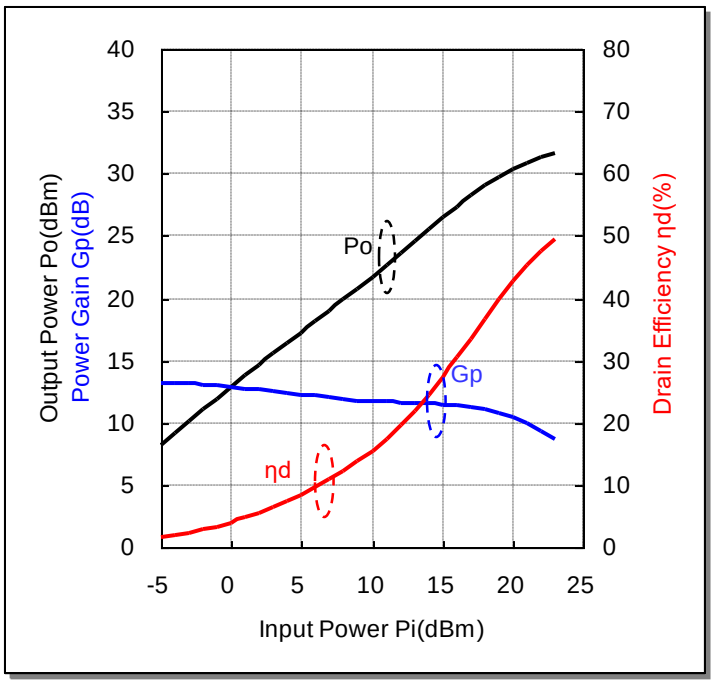
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.32	6.0	49.6	470	-5.0	0.3	7.0	0.005	12.0	54	1.6
1.32	6.0	49.6	470	-4.0	0.4	8.0	0.006	12.0	55	1.9
1.32	6.0	49.6	470	-3.0	0.5	8.9	0.008	11.9	57	2.3
1.32	6.0	49.6	470	-2.0	0.6	9.9	0.010	11.9	59	2.8
1.32	6.0	49.6	470	-1.0	0.8	10.8	0.012	11.8	61	3.3
1.32	6.0	49.6	470	0.0	1.0	11.7	0.015	11.7	64	3.9
1.32	6.0	49.6	470	1.0	1.3	12.6	0.018	11.6	67	4.6
1.32	6.0	49.6	470	2.0	1.6	13.5	0.023	11.5	71	5.3
1.32	6.0	49.6	470	3.0	2.0	14.5	0.028	11.5	77	6.1
1.32	6.0	49.6	470	4.0	2.5	15.4	0.034	11.4	83	6.9
1.32	6.0	49.6	470	5.0	3.2	16.3	0.042	11.3	90	7.9
1.32	6.0	49.6	470	6.0	4.0	17.2	0.052	11.2	98	9.0
1.32	6.0	49.6	470	7.0	5.0	18.1	0.065	11.1	107	10.1
1.32	6.0	49.6	470	8.0	6.3	19.1	0.081	11.1	118	11.5
1.32	6.0	49.6	470	9.0	7.9	20.1	0.102	11.1	131	13.0
1.32	6.0	49.6	470	10.0	10.0	21.1	0.128	11.1	146	14.6
1.32	6.0	49.6	470	11.0	12.6	22.1	0.161	11.1	162	16.5
1.32	6.0	49.6	470	12.0	15.8	23.1	0.202	11.1	181	18.6
1.32	6.0	49.6	470	13.0	20.0	24.1	0.255	11.1	203	21.0
1.32	6.0	49.6	470	14.0	25.1	25.1	0.322	11.1	227	23.6
1.32	6.0	49.6	470	15.0	31.6	26.1	0.406	11.1	255	26.6
1.32	6.0	49.6	470	16.0	39.8	27.1	0.508	11.1	286	29.7
1.32	6.0	49.6	470	17.0	50.1	28.0	0.624	11.0	317	32.8
1.32	6.0	49.6	470	18.0	63.1	28.8	0.759	10.8	351	36.1
1.32	6.0	49.6	470	19.0	79.4	29.6	0.904	10.6	384	39.2
1.32	6.0	49.6	470	20.0	100.0	30.2	1.045	10.2	414	42.1
1.32	6.0	49.6	470	21.0	125.9	30.8	1.191	9.8	443	44.8
1.32	6.0	49.6	470	22.0	158.5	31.2	1.327	9.2	469	47.1
1.32	6.0	49.6	470	23.0	199.5	31.6	1.455	8.6	492	49.4

Input-Output Characteristics Vds=6.0V, Ibias=70mA - Condition 2

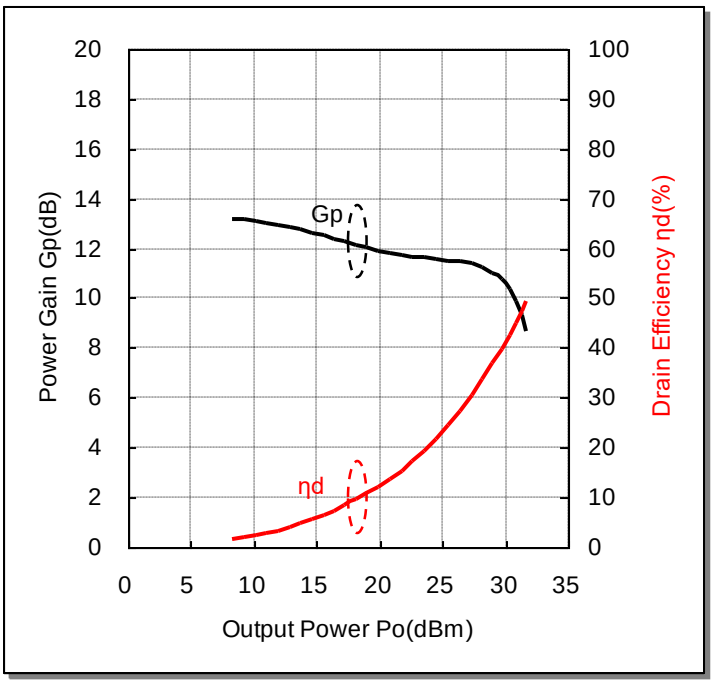
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=6.0V, Ibias=68.9mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=6.0V, Ibias=68.9mA

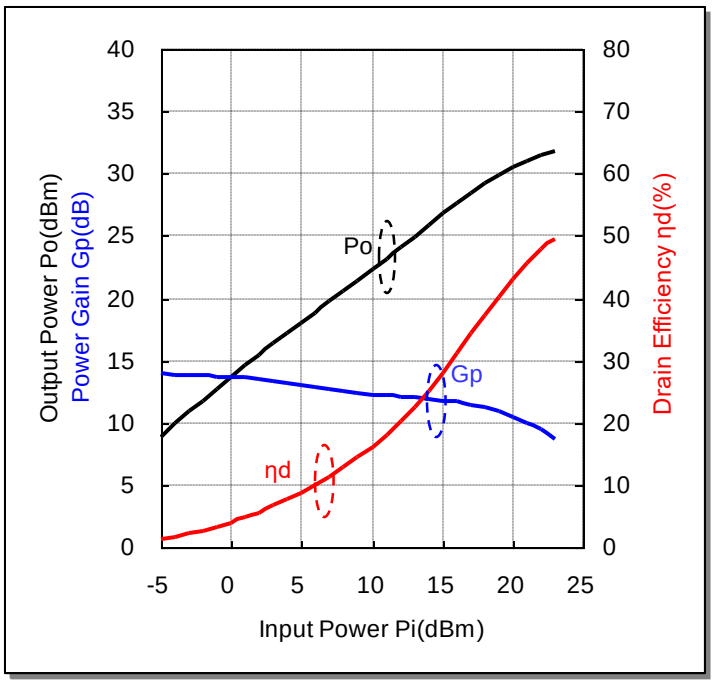
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.38	6.0	68.9	470	-5.0	0.3	8.2	0.007	13.2	73	1.5
1.38	6.0	68.9	470	-4.0	0.4	9.2	0.008	13.2	74	1.9
1.38	6.0	68.9	470	-3.0	0.5	10.1	0.010	13.1	75	2.3
1.38	6.0	68.9	470	-2.0	0.6	11.0	0.013	13.0	76	2.8
1.38	6.0	68.9	470	-1.0	0.8	12.0	0.016	13.0	78	3.3
1.38	6.0	68.9	470	0.0	1.0	12.9	0.019	12.9	81	4.0
1.38	6.0	68.9	470	1.0	1.3	13.8	0.024	12.8	84	4.7
1.38	6.0	68.9	470	2.0	1.6	14.6	0.029	12.6	88	5.5
1.38	6.0	68.9	470	3.0	2.0	15.5	0.036	12.5	92	6.5
1.38	6.0	68.9	470	4.0	2.5	16.4	0.044	12.4	98	7.4
1.38	6.0	68.9	470	5.0	3.2	17.3	0.053	12.3	105	8.4
1.38	6.0	68.9	470	6.0	4.0	18.1	0.065	12.1	113	9.6
1.38	6.0	68.9	470	7.0	5.0	19.0	0.080	12.0	123	10.8
1.38	6.0	68.9	470	8.0	6.3	19.9	0.098	11.9	134	12.2
1.38	6.0	68.9	470	9.0	7.9	20.8	0.120	11.8	146	13.7
1.38	6.0	68.9	470	10.0	10.0	21.7	0.149	11.7	161	15.4
1.38	6.0	68.9	470	11.0	12.6	22.7	0.185	11.7	177	17.4
1.38	6.0	68.9	470	12.0	15.8	23.6	0.230	11.6	197	19.5
1.38	6.0	68.9	470	13.0	20.0	24.6	0.286	11.6	218	21.8
1.38	6.0	68.9	470	14.0	25.1	25.5	0.356	11.5	242	24.5
1.38	6.0	68.9	470	15.0	31.6	26.5	0.442	11.5	269	27.3
1.38	6.0	68.9	470	16.0	39.8	27.4	0.547	11.4	299	30.5
1.38	6.0	68.9	470	17.0	50.1	28.2	0.664	11.2	330	33.5
1.38	6.0	68.9	470	18.0	63.1	29.0	0.800	11.0	363	36.8
1.38	6.0	68.9	470	19.0	79.4	29.7	0.942	10.7	395	39.8
1.38	6.0	68.9	470	20.0	100.0	30.4	1.089	10.4	425	42.7
1.38	6.0	68.9	470	21.0	125.9	30.9	1.225	9.9	452	45.2
1.38	6.0	68.9	470	22.0	158.5	31.3	1.358	9.3	476	47.5
1.38	6.0	68.9	470	23.0	199.5	31.7	1.476	8.7	498	49.4

Input-Output Characteristics Vds＝6.0V, Ibias=90mA - Condition 2

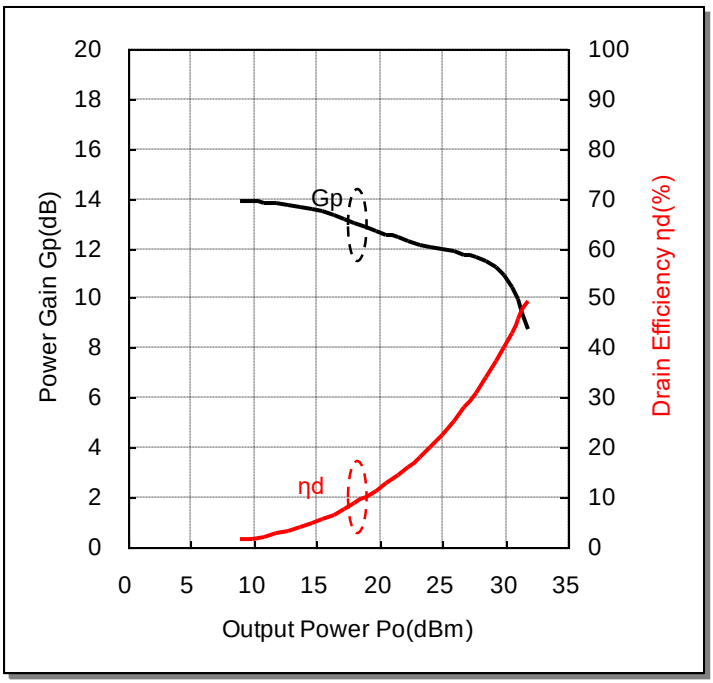
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=6.0V, Ibias=89.0mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=6.0V, Ibias=89.0mA

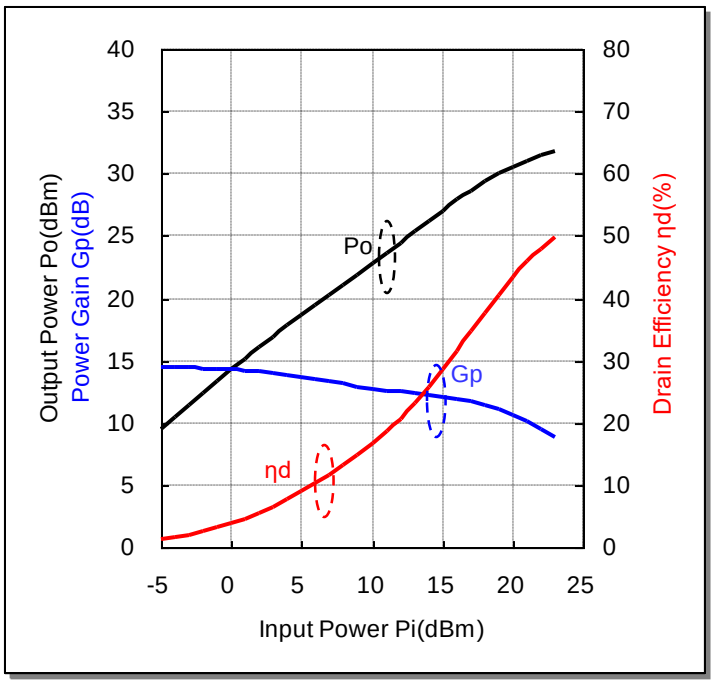
Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.45	6.0	89.0	470	-5.0	0.3	8.9	0.008	13.9	92	1.4
1.45	6.0	89.0	470	-4.0	0.4	9.9	0.010	13.9	93	1.7
1.45	6.0	89.0	470	-3.0	0.5	10.9	0.012	13.9	94	2.2
1.45	6.0	89.0	470	-2.0	0.6	11.8	0.015	13.8	95	2.6
1.45	6.0	89.0	470	-1.0	0.8	12.7	0.019	13.7	97	3.2
1.45	6.0	89.0	470	0.0	1.0	13.7	0.023	13.7	99	3.9
1.45	6.0	89.0	470	1.0	1.3	14.6	0.029	13.6	101	4.7
1.45	6.0	89.0	470	2.0	1.6	15.5	0.035	13.5	105	5.6
1.45	6.0	89.0	470	3.0	2.0	16.4	0.043	13.4	109	6.6
1.45	6.0	89.0	470	4.0	2.5	17.2	0.052	13.2	114	7.6
1.45	6.0	89.0	470	5.0	3.2	18.0	0.064	13.0	121	8.8
1.45	6.0	89.0	470	6.0	4.0	18.9	0.077	12.9	129	10.0
1.45	6.0	89.0	470	7.0	5.0	19.7	0.094	12.7	138	11.3
1.45	6.0	89.0	470	8.0	6.3	20.6	0.114	12.6	149	12.8
1.45	6.0	89.0	470	9.0	7.9	21.4	0.139	12.4	161	14.3
1.45	6.0	89.0	470	10.0	10.0	22.3	0.169	12.3	176	16.0
1.45	6.0	89.0	470	11.0	12.6	23.2	0.207	12.2	192	18.0
1.45	6.0	89.0	470	12.0	15.8	24.1	0.255	12.1	211	20.1
1.45	6.0	89.0	470	13.0	20.0	25.0	0.314	12.0	232	22.6
1.45	6.0	89.0	470	14.0	25.1	25.9	0.386	11.9	256	25.2
1.45	6.0	89.0	470	15.0	31.6	26.8	0.474	11.8	282	28.0
1.45	6.0	89.0	470	16.0	39.8	27.6	0.582	11.6	312	31.1
1.45	6.0	89.0	470	17.0	50.1	28.5	0.705	11.5	343	34.3
1.45	6.0	89.0	470	18.0	63.1	29.3	0.841	11.3	375	37.4
1.45	6.0	89.0	470	19.0	79.4	29.9	0.975	10.9	404	40.2
1.45	6.0	89.0	470	20.0	100.0	30.5	1.117	10.5	433	42.9
1.45	6.0	89.0	470	21.0	125.9	31.0	1.259	10.0	460	45.6
1.45	6.0	89.0	470	22.0	158.5	31.4	1.384	9.4	483	47.7
1.45	6.0	89.0	470	23.0	199.5	31.7	1.493	8.7	503	49.5

Input-Output Characteristics Vds＝6.0V, Ibias=110mA - Condition 2

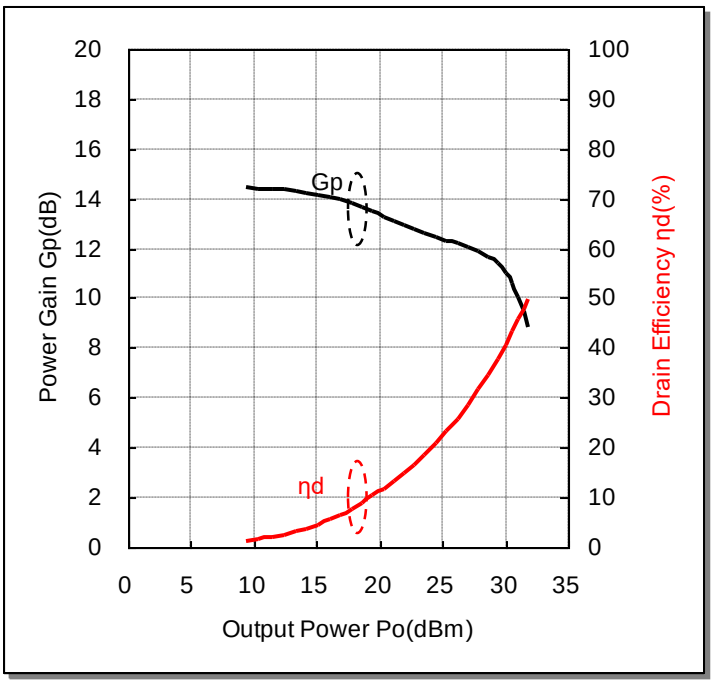
Graph

Output Power, Power Gain, Drain Efficiency vs Input Power



@ f=470MHz, Vds=6.0V, Ibias=108.8mA

Power Gain, Drain Efficiency vs Output Power



@ f=470MHz, Vds=6.0V, Ibias=108.8mA

Data

Vgs (V)	Vds (V)	Ibias (mA)	f (MHz)	Pi (dBm)	Pi (mW)	Po (dBm)	Po (W)	Gp (dB)	Ids (mA)	ηd (%)
1.50	6.0	108.8	470	-5.0	0.3	9.4	0.009	14.4	111	1.3
1.50	6.0	108.8	470	-4.0	0.4	10.4	0.011	14.4	112	1.6
1.50	6.0	108.8	470	-3.0	0.5	11.4	0.014	14.4	113	2.0
1.50	6.0	108.8	470	-2.0	0.6	12.3	0.017	14.3	114	2.5
1.50	6.0	108.8	470	-1.0	0.8	13.3	0.021	14.3	115	3.1
1.50	6.0	108.8	470	0.0	1.0	14.2	0.026	14.2	117	3.8
1.50	6.0	108.8	470	1.0	1.3	15.2	0.033	14.2	119	4.6
1.50	6.0	108.8	470	2.0	1.6	16.1	0.040	14.1	122	5.5
1.50	6.0	108.8	470	3.0	2.0	16.9	0.049	13.9	125	6.6
1.50	6.0	108.8	470	4.0	2.5	17.8	0.061	13.8	130	7.8
1.50	6.0	108.8	470	5.0	3.2	18.6	0.073	13.6	136	9.0
1.50	6.0	108.8	470	6.0	4.0	19.5	0.089	13.5	144	10.3
1.50	6.0	108.8	470	7.0	5.0	20.3	0.107	13.3	153	11.7
1.50	6.0	108.8	470	8.0	6.3	21.1	0.129	13.1	163	13.2
1.50	6.0	108.8	470	9.0	7.9	21.9	0.156	12.9	175	14.8
1.50	6.0	108.8	470	10.0	10.0	22.8	0.189	12.8	189	16.6
1.50	6.0	108.8	470	11.0	12.6	23.6	0.229	12.6	206	18.5
1.50	6.0	108.8	470	12.0	15.8	24.5	0.279	12.5	224	20.7
1.50	6.0	108.8	470	13.0	20.0	25.3	0.340	12.3	245	23.1
1.50	6.0	108.8	470	14.0	25.1	26.2	0.415	12.2	269	25.7
1.50	6.0	108.8	470	15.0	31.6	27.0	0.506	12.0	295	28.6
1.50	6.0	108.8	470	16.0	39.8	27.9	0.614	11.9	324	31.6
1.50	6.0	108.8	470	17.0	50.1	28.7	0.736	11.7	354	34.7
1.50	6.0	108.8	470	18.0	63.1	29.4	0.871	11.4	385	37.7
1.50	6.0	108.8	470	19.0	79.4	30.0	1.009	11.0	414	40.6
1.50	6.0	108.8	470	20.0	100.0	30.6	1.146	10.6	442	43.2
1.50	6.0	108.8	470	21.0	125.9	31.1	1.282	10.1	467	45.8
1.50	6.0	108.8	470	22.0	158.5	31.5	1.406	9.5	489	47.9
1.50	6.0	108.8	470	23.0	199.5	31.8	1.517	8.8	508	49.8

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