

Applications

- VHF and UHF wide band amplifier

Features

- Power gain

$G_P = 12.5 \text{ dB}$ at $V_{DS} = 4.5 \text{ V}$, $I_{Dset} = 200 \text{ mA}$, $f = 470 \text{ MHz}$

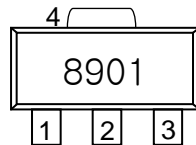
- Output power

$P_{OUT} = 32 \text{ dBm}$ at $V_{DS} = 4.5 \text{ V}$, $I_{Dset} = 200 \text{ mA}$, $f = 470 \text{ MHz}$

- Drain efficiency

$\eta_D = 60 \%$ (typ.)

Marking

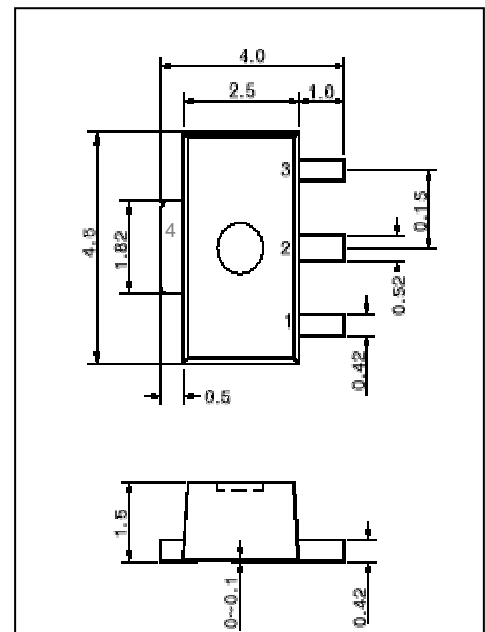


Absolute Maximum Ratings ($T_A = 25 \text{ }^\circ\text{C}$)

Parameter	Symbol	Ratings	Unit
Drain to Source Voltage	V_{DS}	13.0	V
Gate to Source Voltage	V_{GS}	4.0	V
Drain Current	I_D	1.2	A
Total Power Dissipation	P_{tot}	3	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-65 ~ 150	$^\circ\text{C}$

SOT-89

Unit in mm



Pin Configuration

1. Gate
2. Source
3. Drain
4. Source

TMF8901F

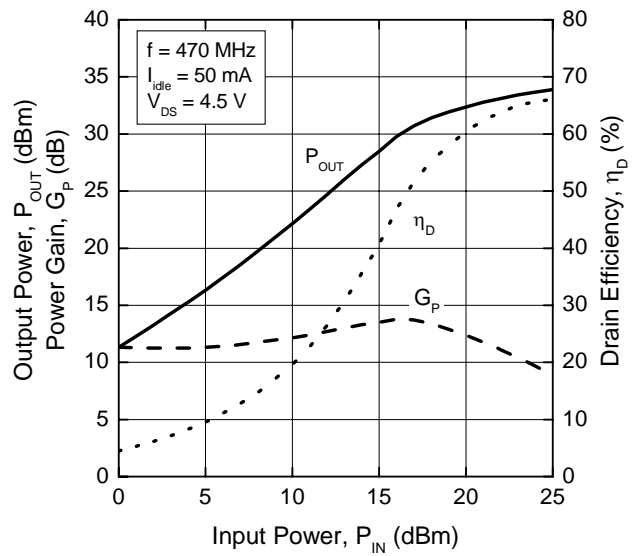
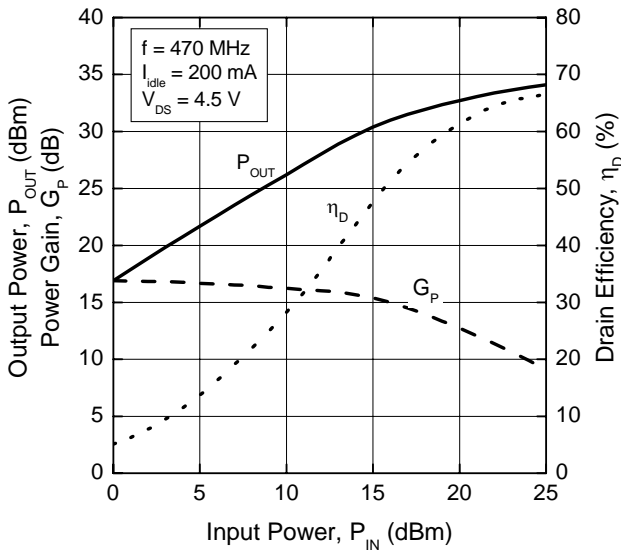
□ Electrical Characteristics ($T_A = 25\text{ }^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Gate to Source Leakage Current	I_{GSS}	$V_{GSS} = 3.0\text{ V}$			1	μA
Drain to Source Leakage Current	I_{DSS}	$V_{DSS} = 8.5\text{ V}$, $V_{GS} = 0\text{ V}$			10	μA
Threshold Voltage	V_{th}	$V_{DS} = 4.8\text{ V}$, $I_D = 1\text{ mA}$	0.8	1.0	1.4	V
Transconductance	G_m	$V_{DS} = 4.8\text{ V}$, $I_D = 400\text{ mA}$		700		mS
Drain to Source Breakdown Voltage	BV_{DSS}	$I_{DSS} = 10\text{ }\mu\text{A}$	13			V
Drain to Source On-Voltage	V_{DSon}	$V_{GS} = 4\text{ V}$, $I_D = 600\text{ mA}$		0.4		V
Power Gain	G_P	$f = 470\text{ MHz}$, $P_{IN} = 20\text{ dBm}$ $V_{DS} = 4.5\text{ V}$, $I_{Dset} = 200\text{ mA}$		12.5		dB
Output Power	P_{OUT}	$f = 470\text{ MHz}$, $P_{IN} = 20\text{ dBm}$ $V_{DS} = 4.5\text{ V}$, $I_{Dset} = 200\text{ mA}$		32		dBm
Operating Current	I_{op}			670		mA
Drain Efficiency	η_D			60		%
Power Gain	G_P	$f = 470\text{ MHz}$, $P_{IN} = 15\text{ dBm}$ $V_{DS} = 4.5\text{ V}$, $I_{Dset} = 50\text{ mA}$		14		dB
Output Power	P_{OUT}	$f = 470\text{ MHz}$, $P_{IN} = 15\text{ dBm}$ $V_{DS} = 4.5\text{ V}$, $I_{Dset} = 50\text{ mA}$		29		dBm
Operating Current	I_{op}			400		mA
Drain Efficiency	η_D			44		%

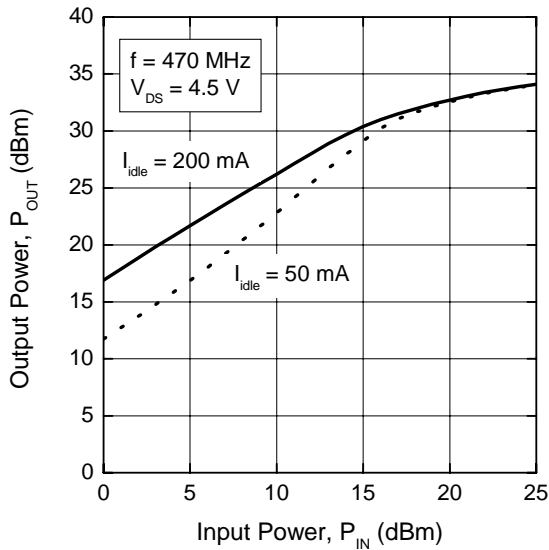
TMF8901F

□ **Typical Characteristics ($T_A = 25\text{ }^\circ\text{C}$, unless otherwise specified)**

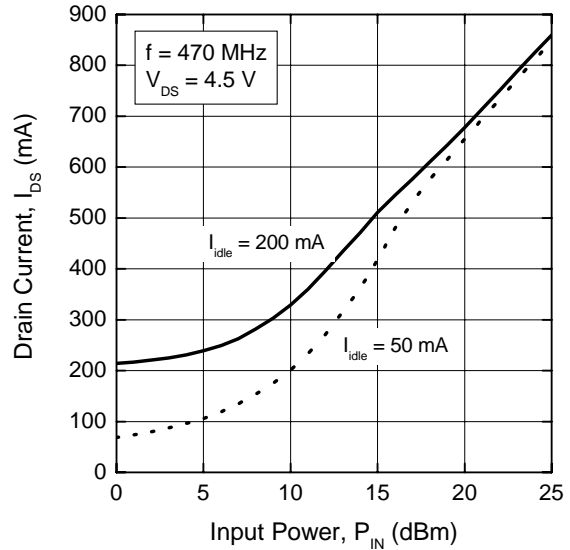
Output Power, Power Gain, Drain Efficiency vs. Input Power



Output Power vs. Input Power

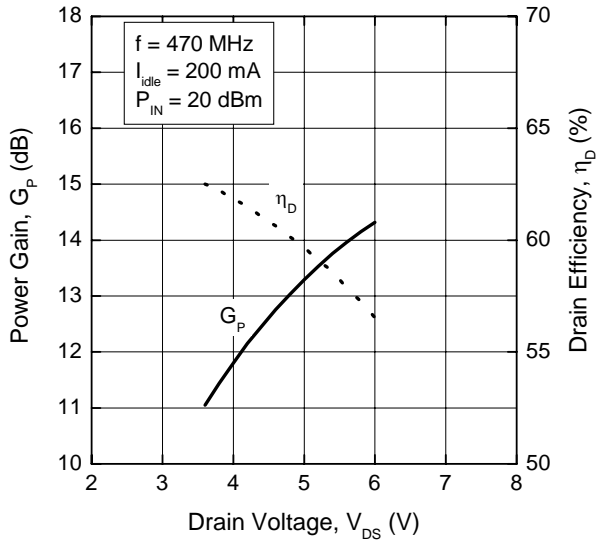


Drain Current vs. Input Power

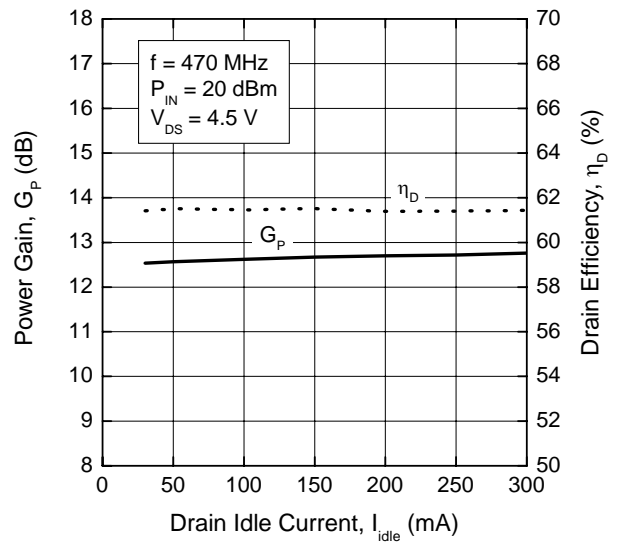


TMF8901F

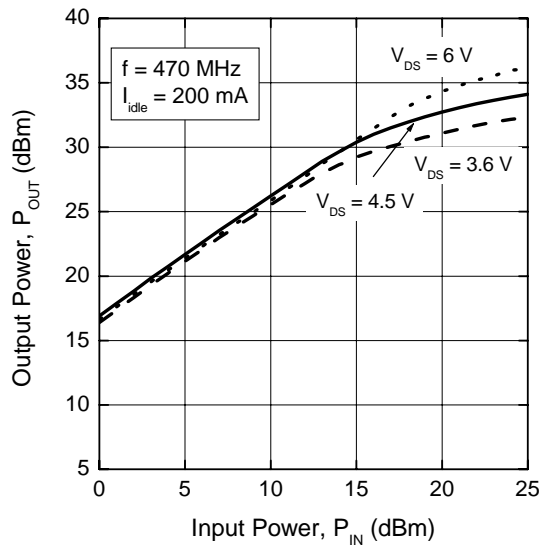
Power Gain, Drain Efficiency vs. Drain Voltage



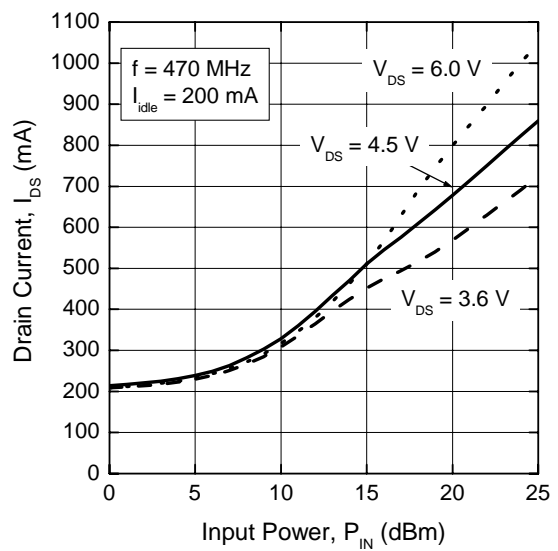
Power Gain, Drain Efficiency vs. Drain Current



Output Power vs. Input Power

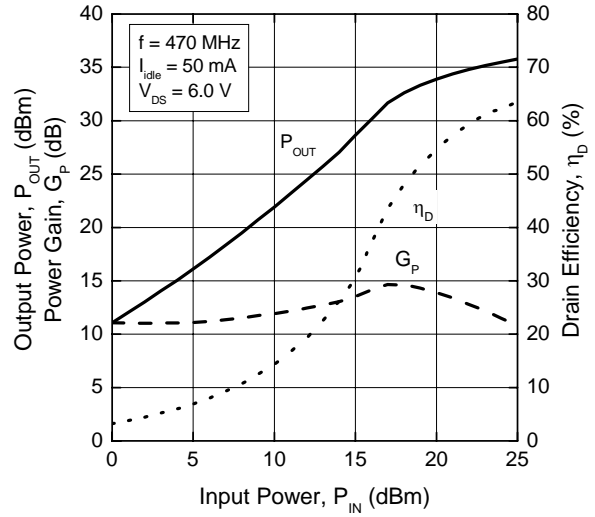
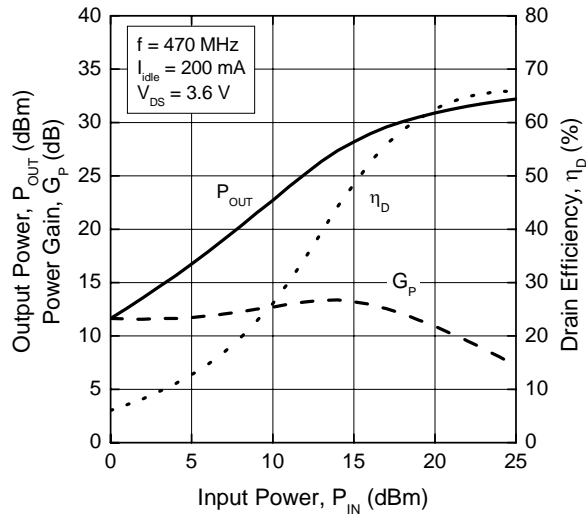


Drain Current vs. Input Power

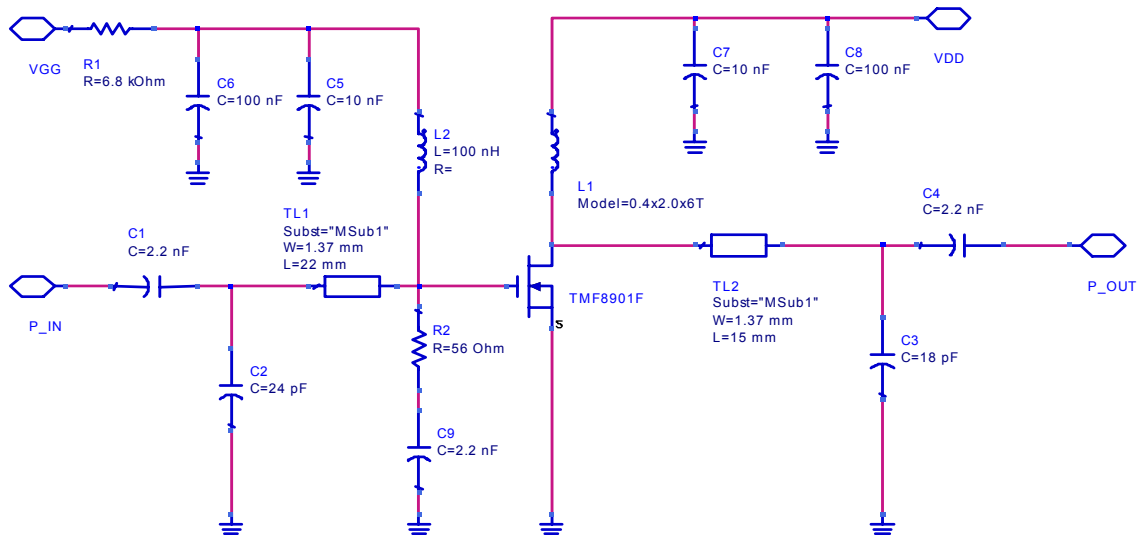


TMF8901F

Output Power, Power Gain, Drain Efficiency vs. Input Power



Test Circuit Schematic Diagram



Test Board : 0.8mm FR4 glass epoxy