

< High-power GaAs FET (small signal gain stage)>

MGF0906B

L & S BAND / 5W
non - matched

DESCRIPTION

The MGF0906B, GaAs FET with an N-channel schottky gate, is designed for use in UHF band amplifiers.

FEATURES

- Class A operation
- High output power
P1dB=37.0dBm(TYP.) @f=2.3GHz
- High power gain
GLP=11.0dB(TYP.) @f=2.3GHz
- High power added efficiency
P.A.E =40%(TYP.) @f=2.3GHz,P1dB
- Hermetically sealed metal-ceramic package with ceramic lid

APPLICATION

- For UHF Band power amplifiers

QUALITY

- IG

RECOMMENDED BIAS CONDITIONS

- Vds=10V • Ids=1.2A • Rg=100Ω Refer to Bias Procedure

Absolute maximum ratings (Ta=25°C)

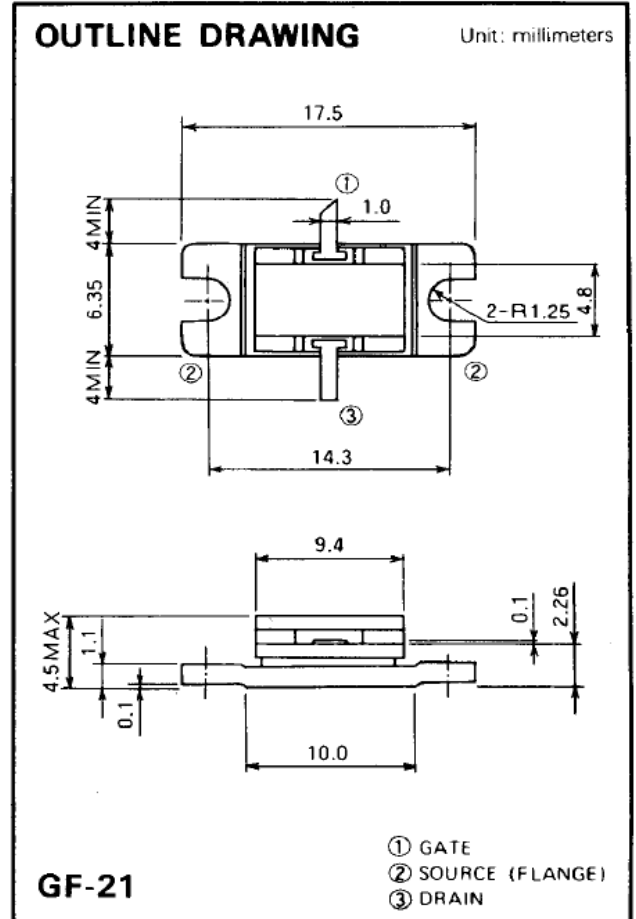
Symbol	Parameter	Ratings	Unit
VGDO	Gate to drain voltage	-15	V
VGSO	Gate to source voltage	-15	V
ID	Drain current	3	A
IGR	Reverse gate current	-10	mA
IGF	Forward gate current	21	mA
PT*1	Total power dissipation	23	W
Tch	Channel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

*1:Tc=25°C

Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	-	2	3	A
gm	Transconductance	VDS=3V,ID=1.1A	-	1	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=10mA	-1	-2.5	-4	V
P1dB	Output power at 1dB gain compression	VDS=10V,ID(RF off)=1.2A f=2.3GHz	35.5	37	-	dBm
GLP	Linear Power Gain		10	11	-	dB
ID	Drain current		-	1.1	1.5	A
P.A.E.	Power added efficiency		-	40	-	%
Rth(ch-c) *2	Thermal resistance	ΔVf method	-	-	6.5	°C/W

*2 :Channel-case



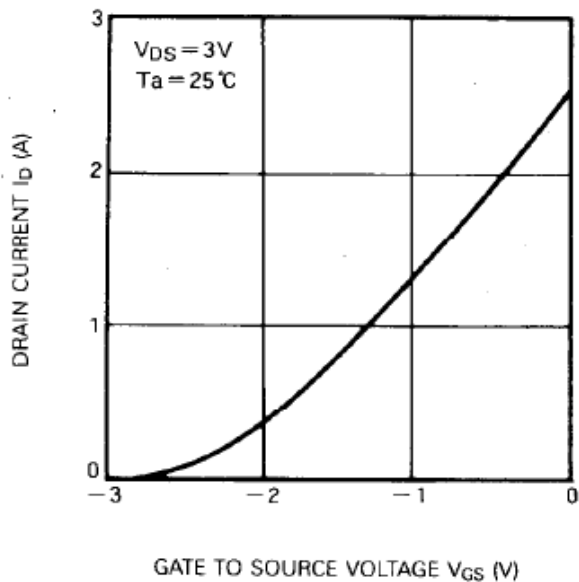
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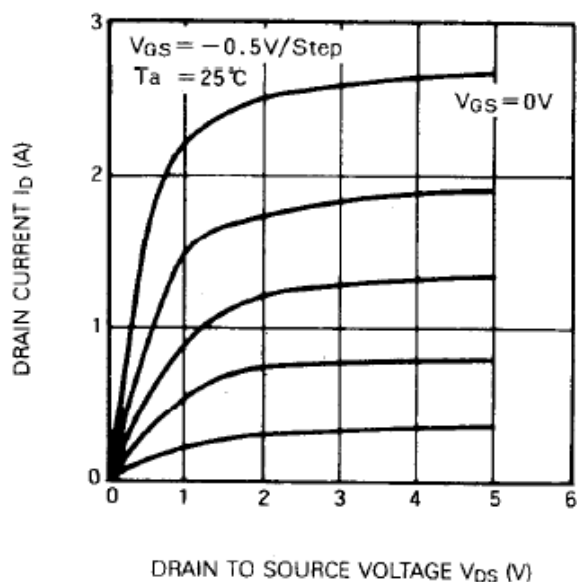
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MGF0906B TYPICAL CHARACTERISTICS (Ta=25deg.C)

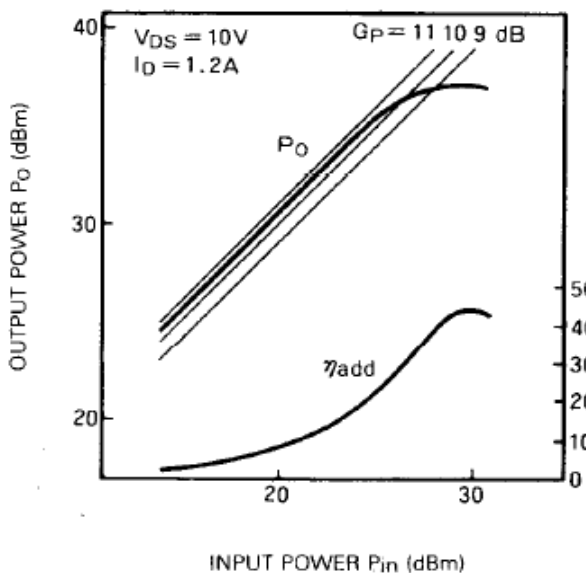
ID vs. VGS



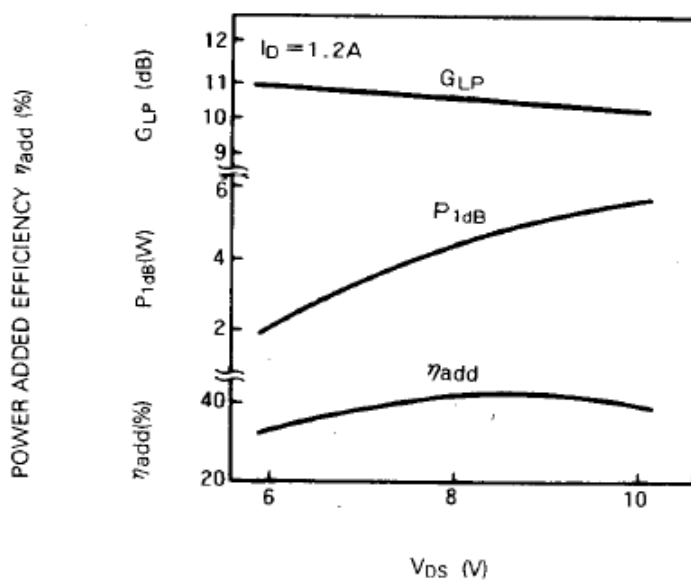
ID vs. VDS



Po, PAE vs. Pin (f=2.3GHz)



GLP, P1dB, ID, PAE vs. VDS (f=2.3GHz)



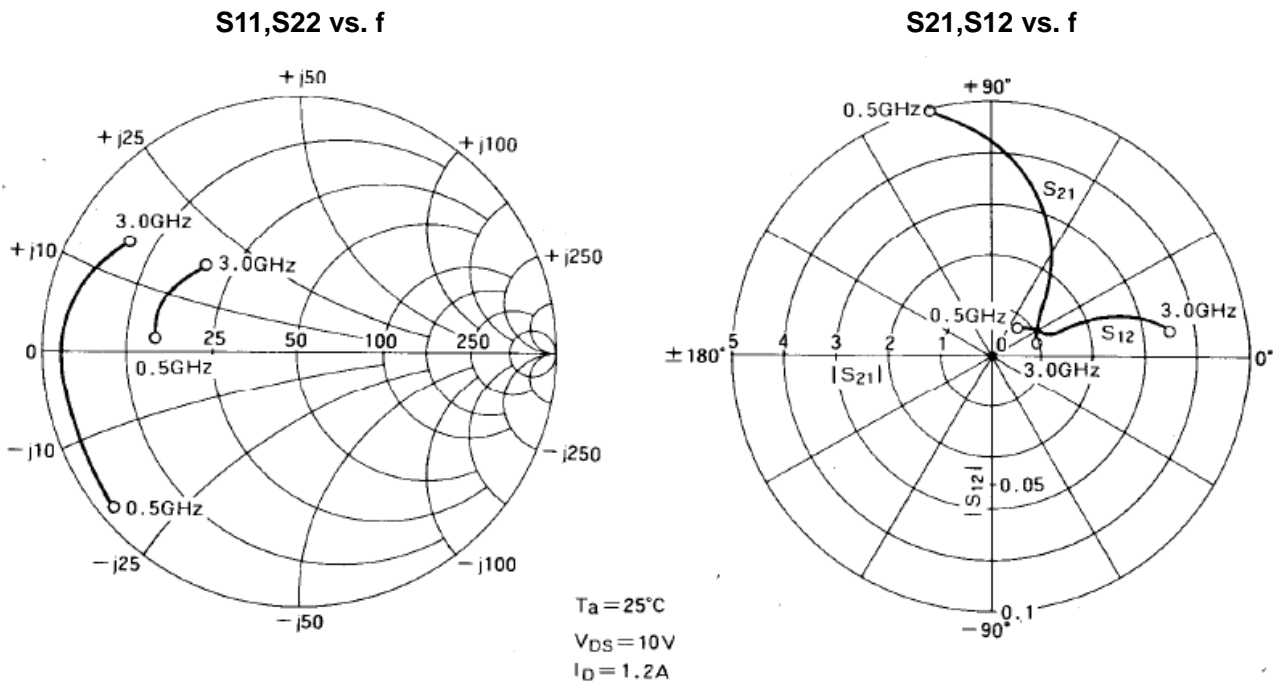
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MGF0906B S-parameters (Ta=25deg.C , VDS=10(V), IDS=1.2(A))



f (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	MSG/MAG (dB)
	Magn.	Ang. (deg.)	Magn.	Ang. (deg.)	Magn.	Ang. (deg.)	Magn.	Ang. (deg.)		
0.5	0.922	-139.9	4.997	104.1	0.016	51.5	0.673	174.9	0.869	25.0
0.6	0.913	-146.2	4.570	97.5	0.019	44.9	0.674	172.5	0.837	23.8
0.7	0.906	-151.8	4.176	91.5	0.022	39.3	0.676	170.4	0.807	22.8
0.8	0.900	-156.8	3.815	85.9	0.023	34.6	0.677	168.6	0.826	22.1
0.9	0.896	-161.2	3.484	80.9	0.025	30.7	0.679	167.0	0.819	21.4
1.0	0.894	-165.0	3.182	76.3	0.026	27.7	0.680	165.7	0.834	20.9
1.1	0.892	-168.4	2.909	72.2	0.026	25.2	0.680	164.5	0.883	20.5
1.2	0.891	-171.4	2.662	68.3	0.027	23.4	0.681	163.5	0.906	19.9
1.3	0.891	-174.0	2.440	64.8	0.027	22.1	0.681	162.6	0.959	19.6
1.4	0.891	-176.3	2.242	61.6	0.027	21.3	0.680	161.8	1.024	18.2
1.5	0.892	-178.3	2.067	58.7	0.027	20.9	0.679	161.1	1.086	17.1
1.6	0.892	-179.9	1.913	55.9	0.027	20.7	0.678	160.5	1.160	16.1
1.7	0.892	-178.2	1.779	53.2	0.028	20.8	0.676	159.8	1.202	15.3
1.8	0.892	-176.6	1.664	50.7	0.028	21.0	0.673	159.2	1.285	14.5
1.9	0.891	-175.1	1.565	48.2	0.029	21.3	0.670	158.6	1.334	13.9
2.0	0.890	-173.6	1.482	45.8	0.030	21.6	0.666	157.9	1.384	13.2
2.1	0.887	-172.0	1.414	43.4	0.031	21.9	0.661	157.1	1.455	12.6
2.2	0.883	-170.2	1.359	40.8	0.033	21.9	0.655	156.3	1.487	12.0
2.3	0.877	-168.3	1.315	38.2	0.035	21.8	0.649	155.3	1.538	11.4
2.4	0.870	-166.2	1.282	35.4	0.038	21.3	0.642	154.1	1.553	10.9
2.5	0.861	-163.8	1.258	32.5	0.042	20.5	0.633	152.8	1.554	10.4
2.6	0.850	-161.1	1.241	29.3	0.046	19.2	0.624	151.3	1.569	9.9
2.7	0.837	-157.9	1.231	25.8	0.051	17.4	0.614	149.5	1.569	9.4
2.8	0.821	-154.4	1.226	22.0	0.057	15.0	0.602	147.5	1.566	8.9
2.9	0.803	-150.3	1.224	17.9	0.064	11.9	0.589	145.1	1.566	8.4
3.0	0.781	-145.6	1.224	13.4	0.072	8.0	0.576	142.5	1.549	7.9

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