

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

# MGF0907B

L & S BAND /10W

non - matched

## DESCRIPTION

The MGF0907B, GaAs FET with an N-channel schottky gate, is designed for use L & S band applications.

## FEATURES

- Class A operation
- High output power  
P1dB=40.0dBm(T.Y.P) @f=2.3GHz
- High power gain  
GLP=10.0dB(TYP.) @f=2.3GHz
- High power added efficiency  
P.A.E=37%(TYP.) @f=2.3GHz,P1dB
- Hermetically sealed metal-ceramic package with ceramic lid

## APPLICATION

- For L & S band power amplifiers

## QUALITY

- IG

## RECOMMENDED BIAS CONDITIONS

- Vds=10V • Ids=2.4A • Rg=50Ω

## Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VGDO	Gate to Source Voltage	-15	V
VGSO	Gate to source voltage	-15	V
ID	Drain Current	7	A
IGR	Reverse gate current	-20	mA
IGF	Forward gate current	42	mA
PT*1	Total power dissipation	37.5	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	-	5	7	A
gm	Transconductance	VDS=3V, ID=2.2A	-	2	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=20mA	-	-3.0	-4.5	V
P1dB	1dB gain compression power	VDS=10V, ID(RF off)=2.4A	38.5	40	-	dBm
GLP *2	Linear power gain	f=2.3GHz	8	10	-	dB
ID	Drain current	*2 : Pin=20dBm	-	2.2	-	A
P.A.E	Power added efficiency			37	-	%
Rth(ch-c) *3	Thermal resistance	Δ Vf method	-	-	4.0	°C/W

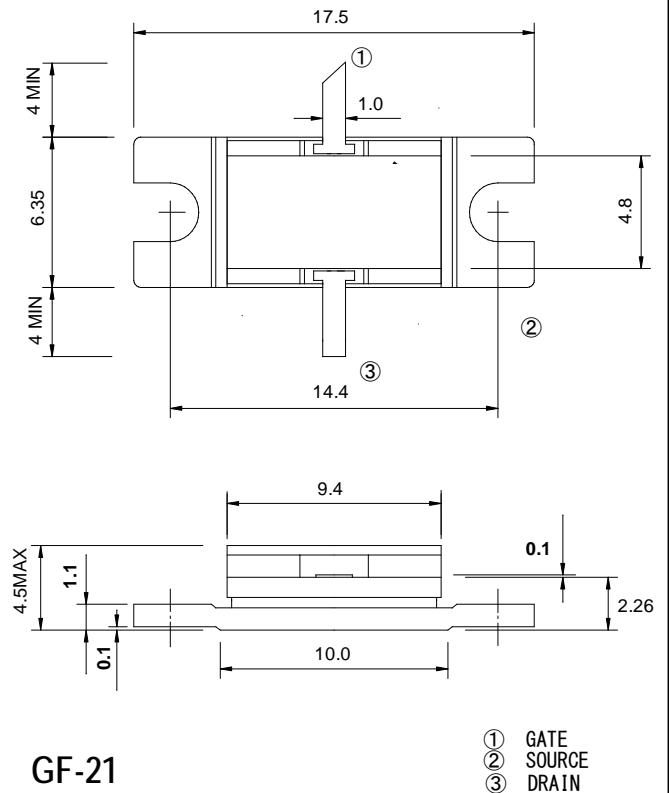
\*3 :Channel-case

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CSTG-16251

## OUTLINE DRAWING

Unit : millimeters



GF-21

① GATE  
② SOURCE  
③ DRAIN

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Specification are subject to change without notice.

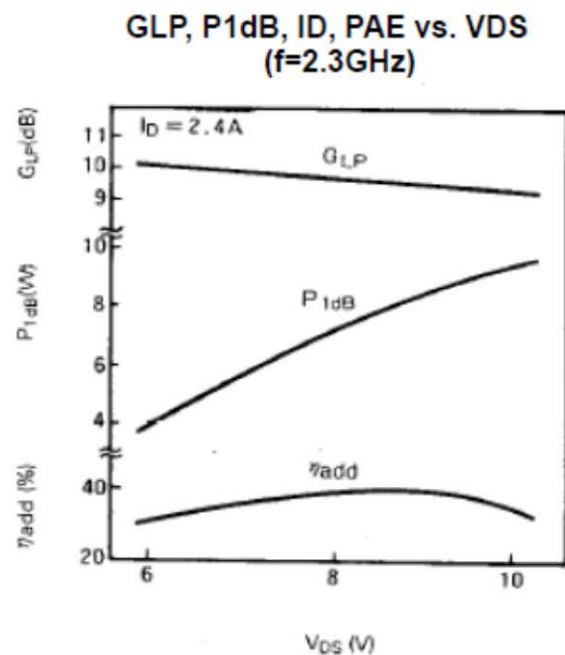
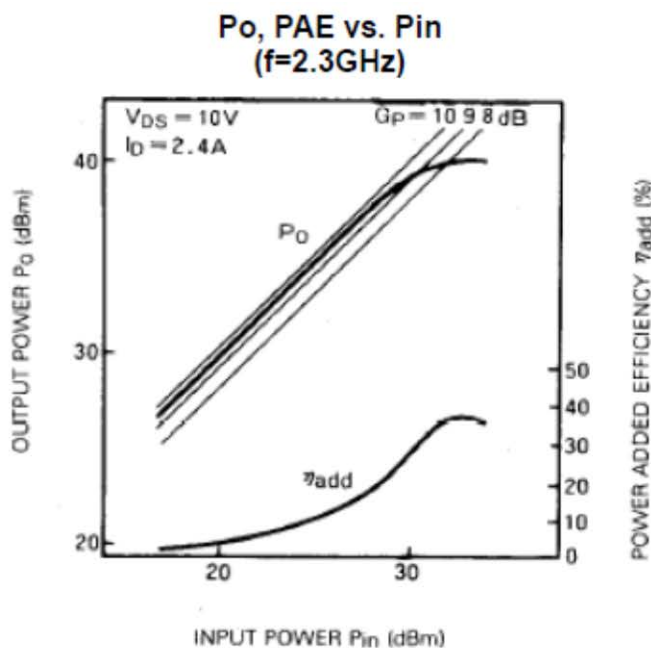
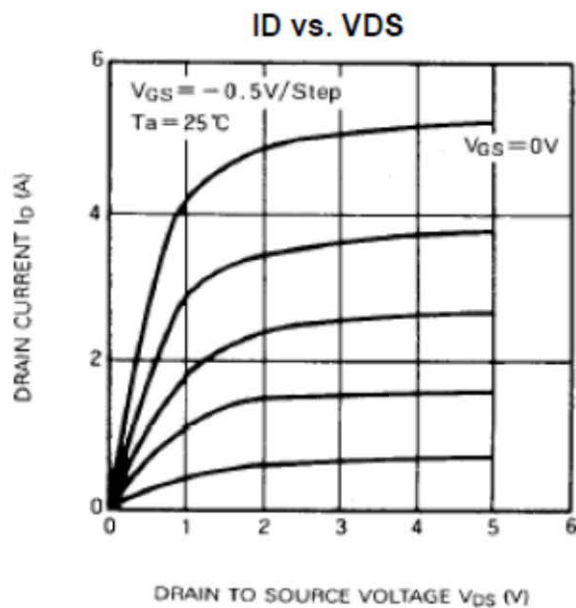
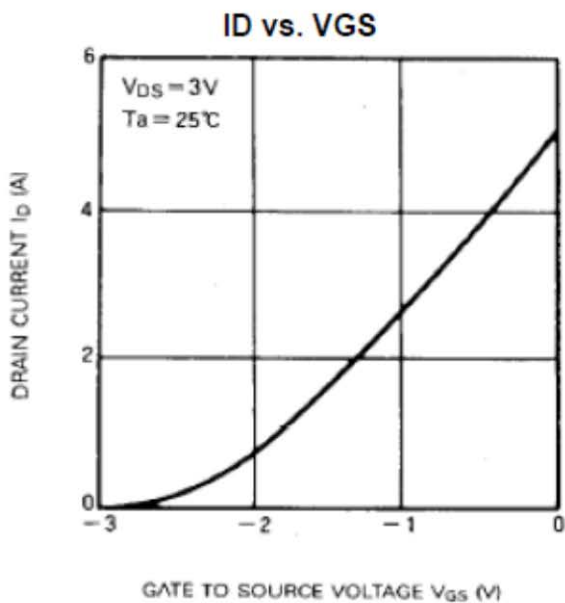
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## MGF0907B TYPICAL CHARACTERISTICS (Ta=25deg.C)



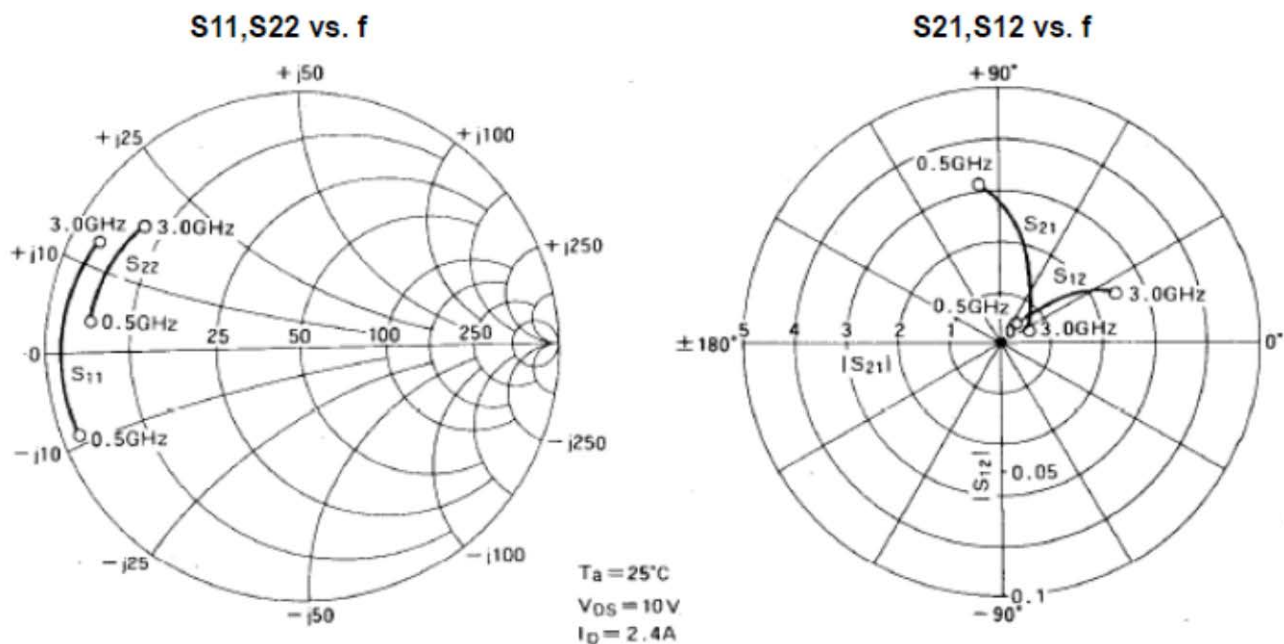
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## MGF0907B S-parameters( Ta=25deg.C , VDS=10(V), IDS=2.4(A) )



f (GHz)	S <sub>11</sub>		S <sub>21</sub>		S <sub>12</sub>		S <sub>22</sub>		K	MAG (dB)
	Magn.	Ang. (deg)	Magn.	Ang. (deg)	Magn.	Ang. (deg)	Magn.	Ang. (deg)		
0.5	0.947	-162.1	3.089	96.7	0.010	45.8	0.823	171.6	1.086	23.1
0.6	0.943	-165.6	2.793	90.8	0.012	44.1	0.822	170.1	1.055	22.2
0.7	0.939	-168.7	2.524	85.5	0.014	42.7	0.822	168.7	1.038	21.4
0.8	0.936	-171.4	2.281	80.7	0.014	41.5	0.821	167.5	1.024	20.6
0.9	0.934	-173.8	2.092	76.4	0.017	40.5	0.821	166.4	1.043	19.6
1.0	0.932	-175.9	1.865	72.7	0.018	39.7	0.820	165.5	1.072	18.5
1.1	0.931	-177.7	1.691	69.3	0.019	39.0	0.819	164.7	1.095	17.6
1.2	0.930	-179.3	1.537	66.4	0.020	38.4	0.818	164.0	1.124	16.7
1.3	0.929	-179.3	1.401	63.7	0.021	37.9	0.817	163.3	1.157	15.8
1.4	0.929	-178.1	1.284	61.4	0.021	37.5	0.816	162.7	1.219	15.0
1.5	0.928	-177.0	1.183	59.3	0.022	37.2	0.815	162.1	1.257	14.3
1.6	0.928	-176.0	1.096	57.4	0.022	36.9	0.813	161.5	1.328	13.6
1.7	0.927	-175.1	1.024	55.6	0.023	36.6	0.811	160.8	1.367	12.7
1.8	0.927	-174.2	0.964	54.0	0.023	36.3	0.810	160.2	1.430	12.3
1.9	0.926	-173.3	0.915	52.4	0.024	35.9	0.808	159.4	1.461	11.8
2.0	0.925	-172.3	0.875	50.9	0.025	35.5	0.806	158.6	1.488	11.3
2.1	0.923	-171.2	0.844	49.3	0.026	35.0	0.803	157.7	1.527	10.8
2.2	0.921	-170.0	0.820	47.6	0.027	34.4	0.801	156.7	1.555	10.4
2.3	0.919	-168.6	0.801	45.8	0.028	33.7	0.798	155.5	1.584	10.1
2.4	0.916	-167.1	0.787	43.9	0.030	32.8	0.769	154.1	1.574	9.7
2.5	0.912	-165.3	0.776	41.7	0.032	31.8	0.792	152.6	1.587	9.4
2.6	0.907	-163.3	0.767	39.2	0.035	30.6	0.789	150.9	1.570	9.0
2.7	0.902	-160.9	0.757	36.5	0.037	29.1	0.786	148.9	1.594	8.6
2.8	0.895	-158.3	0.746	33.4	0.040	27.4	0.782	146.6	1.614	8.1
2.9	0.887	-155.2	0.735	29.9	0.044	25.4	0.778	144.1	1.620	7.6
3.0	0.879	-151.7	0.719	26.0	0.048	23.1	0.774	141.4	1.636	7.1

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