

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

# MGF0920A

L & S BAND / 1.6W  
SMD non - matched

## DESCRIPTION

The MGF0920A GaAs FET with an N-channel schottky Gate, is designed for use UHF band amplifiers.

## FEATURES

- High output power  
Po=32dBm(TYP.) @f=1.9GHz,Pin=15dBm
- High power gain  
Gp=18dB(TYP.) @f=1.9GHz
- High power added efficiency  
ηadd=45%(TYP.) @f=1.9GHz,Pin=15dBm
- Hermetic Package

## APPLICATION

- For UHF Band power amplifiers

## QUALITY

- GG

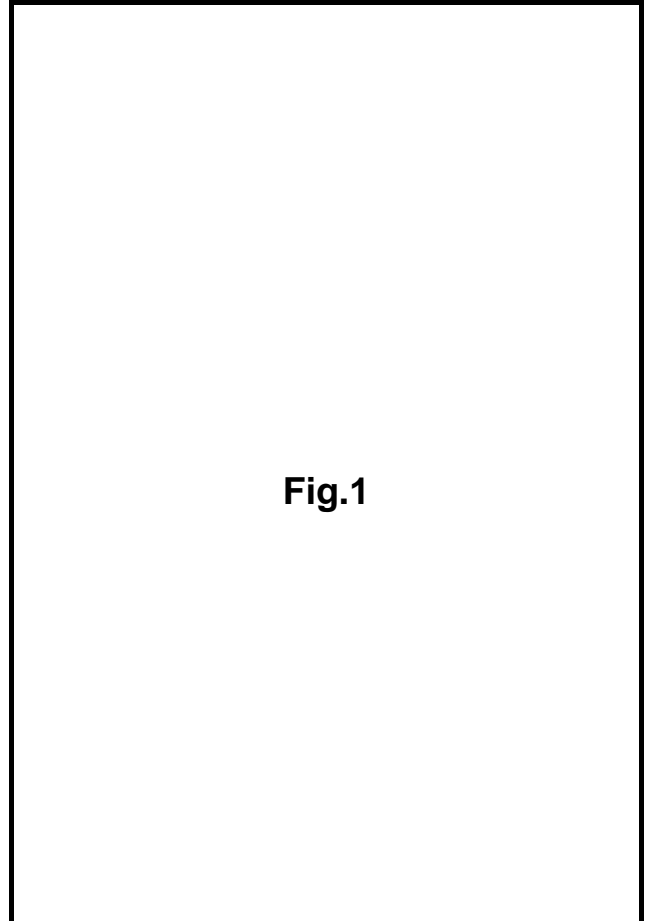
## RECOMMENDED BIAS CONDITIONS

- Vds=10V • Ids=400mA • Rg=200Ω

**Delivery**     -01:Tape & Reel(1K), -03:Trai(50pcs)

## Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VGSO	Gate to source breakdown voltage	-15	V
VGDO	Gate to drain breakdown voltage	-15	V
ID	Drain current	1500	mA
IGR	Reverse gate current	-3.6	mA
IGF	Forward gate current	15	mA
PT	Total power dissipation	8.3	W
Tch	Channel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C



**Fig.1**

## Electrical characteristics (Ta=25°C)

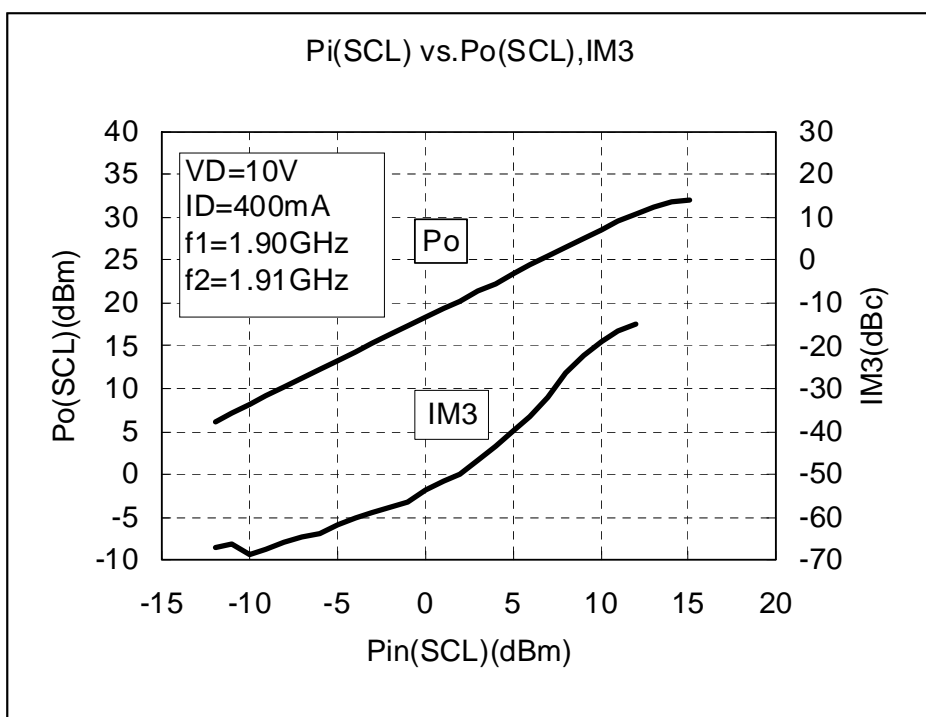
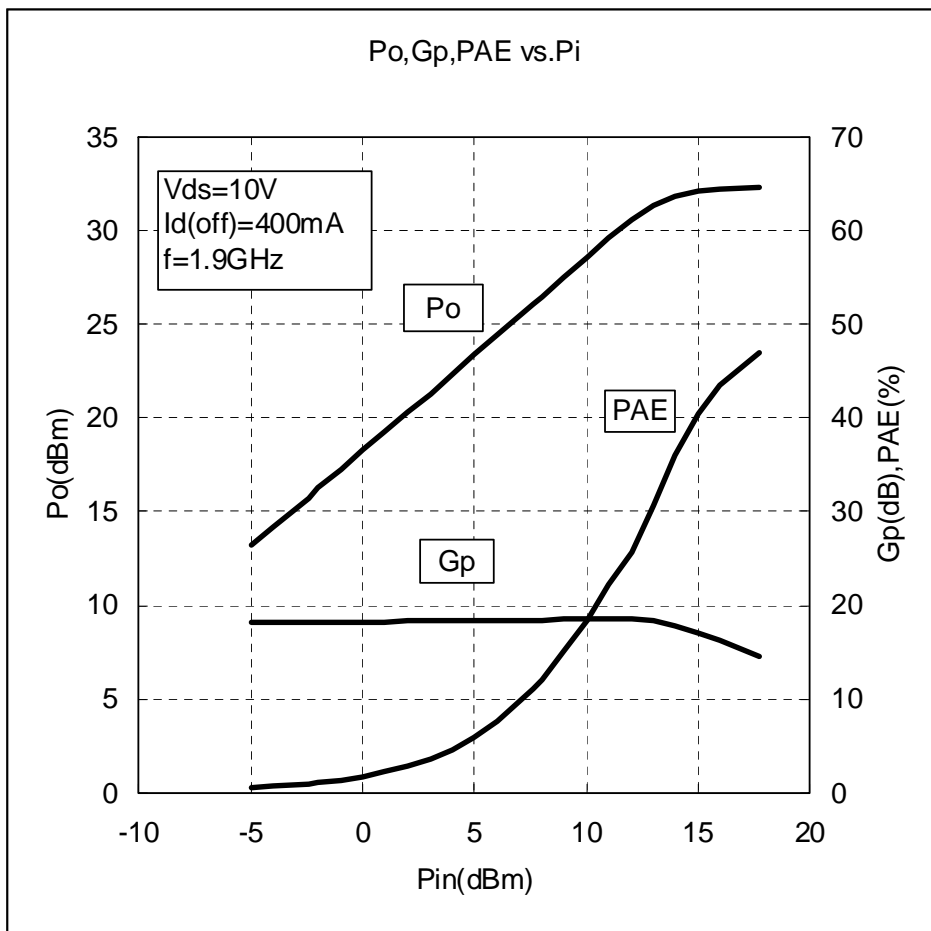
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	-	1000	1500	mA
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=3.0mA	-1.0	-	-5.0	V
gm	Transconductance	VDS=3V,ID=400mA	-	370	-	mS
Po	Output power	VDS=10V,ID=400mA,f=1.9GHz	30	32	-	dBm
ηadd	Power added Efficiency	Pin=15dBm	-	35	-	%
GLP	Linear Power Gain	VDS=10V,ID=400mA,f=1.9GHz	16	18	-	dB
Rth(ch-c)	Thermal Resistance *1	ΔVf Method	-	13	18	°C/W

\*1:Channel to case /     Above parameters, ratings, limits are subject to change.

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## MGF09120A TYPICAL CHARACTERISTICS



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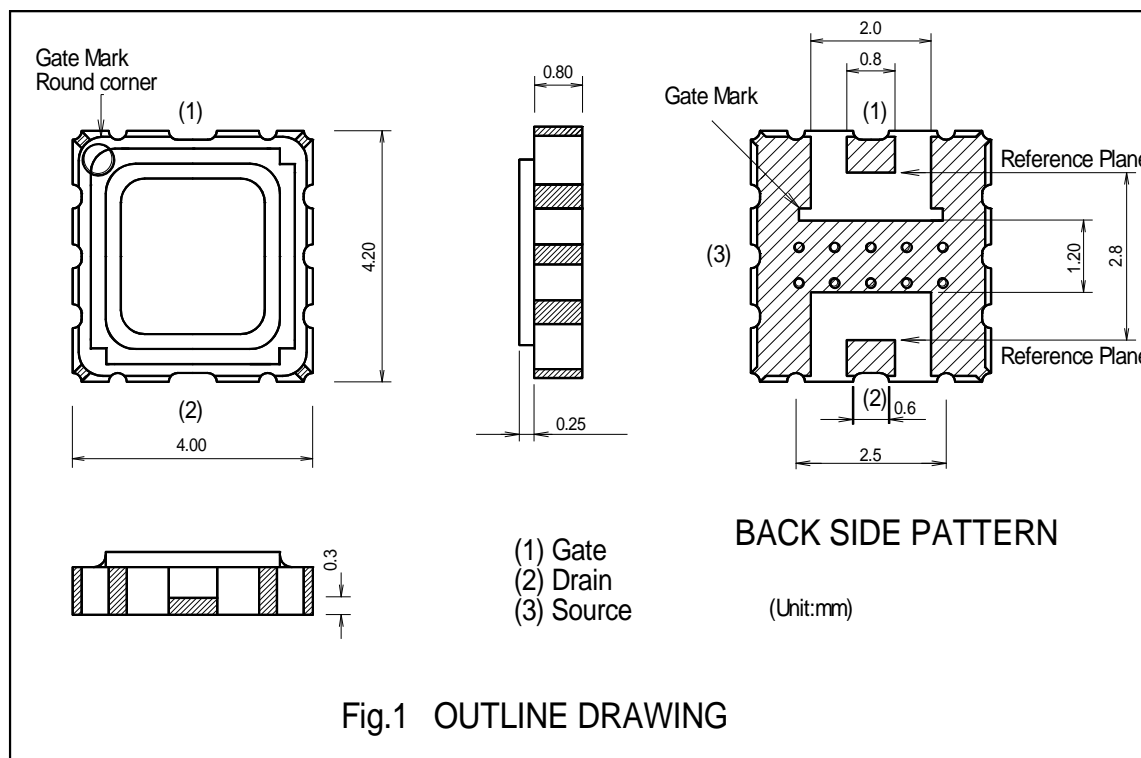
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## MGF0920A S PARAMETERS (Ta=25°C,VD=10V,ID=400mA, Reference Plane see Fig.1)

freq. (MHz)	S11		S21		S12		S22		K	MAG/MSG (dB)
	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)		
600	0.930	-96.03	7.784	119.71	0.019	39.54	0.367	-155.36	0.25	26.12
1000	0.912	-124.52	5.692	100.24	0.023	26.68	0.427	-155.22	0.32	23.94
1400	0.903	-140.36	4.233	85.39	0.024	17.80	0.476	-154.99	0.42	22.46
1800	0.899	-149.63	3.242	73.85	0.024	12.03	0.516	-154.82	0.54	21.31
2200	0.899	-155.96	2.584	64.56	0.022	8.64	0.552	-154.81	0.75	20.70
2600	0.900	-161.19	2.156	56.76	0.021	7.04	0.583	-155.02	0.91	20.11
3000	0.901	-165.84	1.879	49.88	0.020	6.70	0.612	-155.50	1.06	18.23
3400	0.901	-169.78	1.696	43.51	0.019	7.24	0.638	-156.24	1.20	16.82
3800	0.900	-172.74	1.565	37.40	0.019	8.31	0.662	-157.24	1.24	16.23
4200	0.897	-174.91	1.462	31.40	0.020	9.66	0.684	-158.46	1.20	15.95
4600	0.893	-177.52	1.370	25.42	0.021	11.07	0.703	-159.84	1.19	15.54
5000	0.887	178.90	1.283	19.44	0.023	12.38	0.718	-161.35	1.15	15.13
5400	0.880	176.64	1.199	13.46	0.025	13.47	0.730	-162.91	1.15	14.48
5800	0.871	172.31	1.121	7.49	0.028	14.22	0.738	-164.48	1.14	13.73
6200	0.861	167.25	1.054	1.52	0.031	14.56	0.742	-166.00	1.18	12.76
6600	0.849	162.24	1.003	-4.44	0.034	14.40	0.744	-167.44	1.24	11.78
7000	0.836	157.65	0.971	-10.45	0.039	13.69	0.743	-168.79	1.20	11.27
7400	0.822	153.50	0.963	-16.57	0.044	12.36	0.739	-170.03	1.16	10.94
7800	0.805	149.52	0.978	-22.92	0.050	10.31	0.734	-171.21	1.10	10.98
8200	0.785	145.30	1.016	-29.63	0.058	7.49	0.728	-172.37	0.99	12.43
8600	0.761	140.29	1.071	-36.87	0.067	3.78	0.720	-173.62	0.90	12.04
9000	0.730	133.94	1.139	-44.85	0.078	-0.92	0.712	-175.10	0.82	11.64
9400	0.690	125.77	1.212	-53.74	0.093	-6.73	0.703	-176.99	0.75	11.15
9800	0.638	115.44	1.282	-63.76	0.110	-13.79	0.690	-179.52	0.74	10.66
10200	0.588	102.87	1.344	-75.07	0.131	-22.25	0.671	-176.62	0.73	10.11
10600	0.547	88.25	1.393	-87.81	0.156	-32.28	0.644	-172.09	0.72	9.51
11000	0.534	72.23	1.431	-102.03	0.186	-44.04	0.601	-167.44	0.70	8.86
11400	0.562	55.90	1.464	-117.69	0.221	-57.73	0.537	-162.49	0.66	8.21
11800	0.641	40.93	1.509	-134.63	0.260	-73.53	0.440	-158.74	0.61	7.64
12200	0.770	29.66	1.597	-152.53	0.305	-91.61	0.300	-165.54	0.58	7.19



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