

Preliminary

MITSUBISHI SEMICONDUCTOR<GaAs FET>  
**MGF0920A**

L & S BAND GaAs FET [ 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** Tape & Reel

**Absolute maximum ratings** (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VGSO	Gate to sourcebreakdown 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	Cannel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

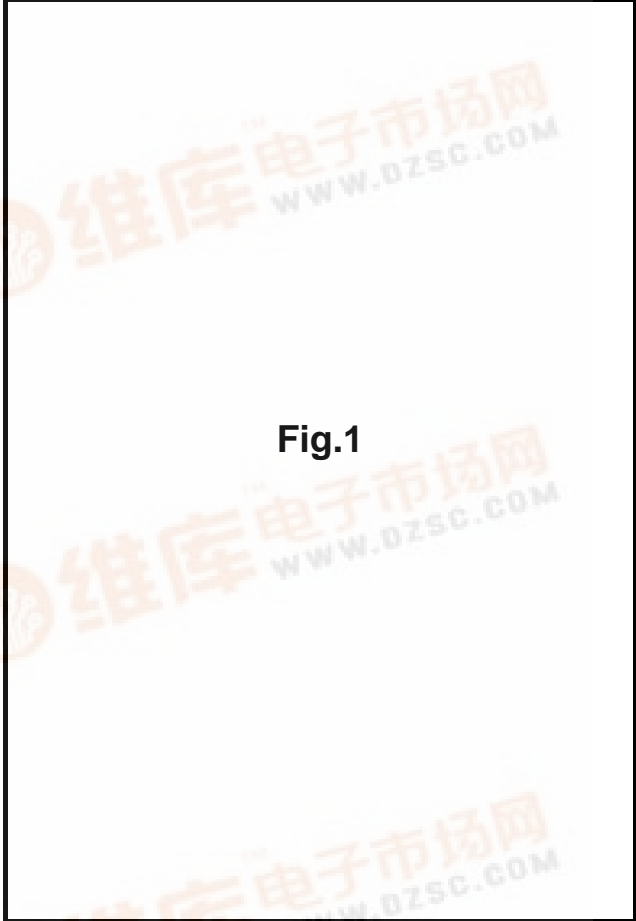


Fig.1

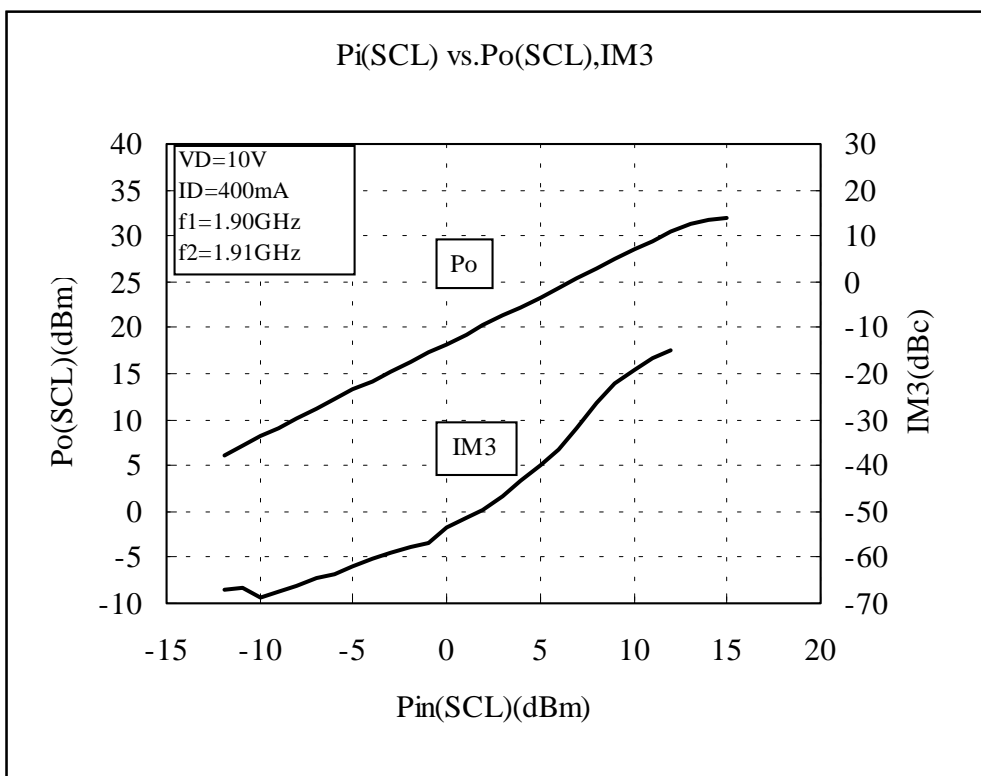
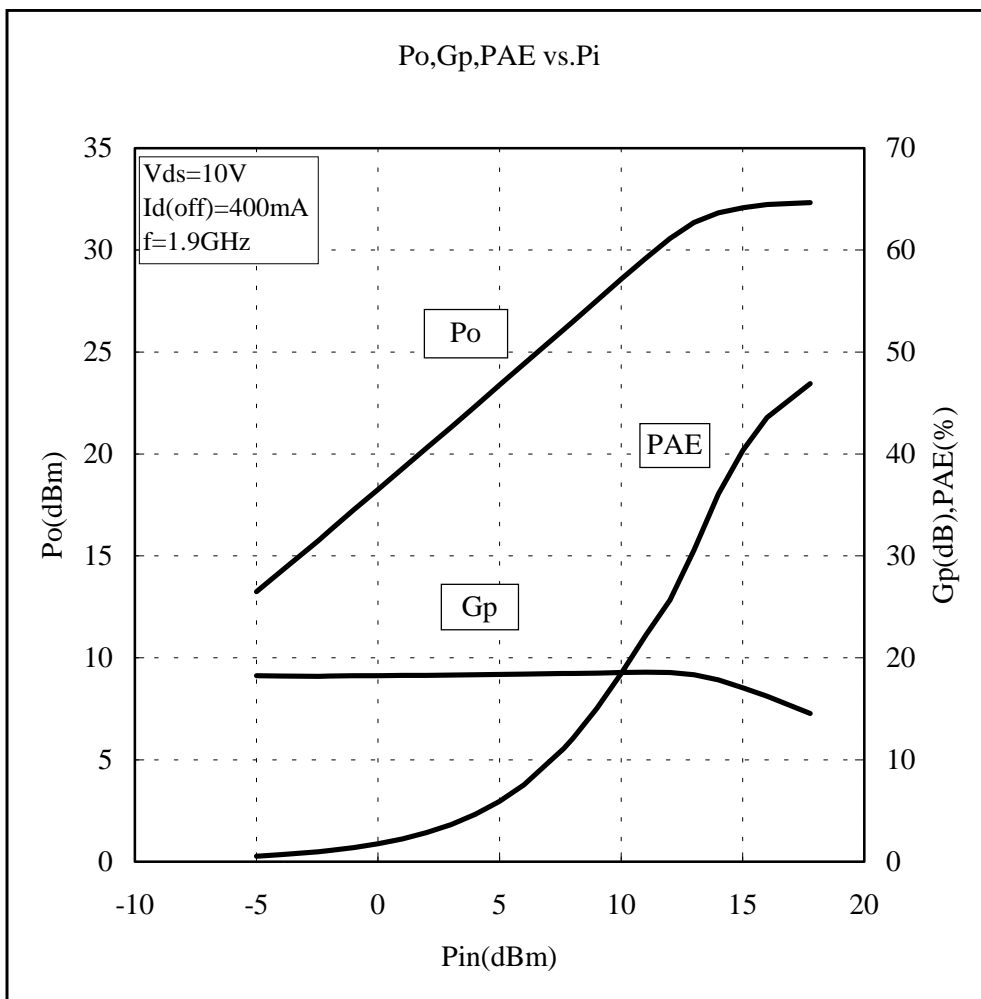
**Electrical characteristics** (Ta=25°C)

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	-	45	-	%
GLP	Linear Power Gain	VDS=10V,ID=400mA,f=1.9GHz	16	18	-	dB
NF	Noise figure		-	TBD	-	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.



# MGF0920A TYPICAL CHARACTERISTICS



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

freq. (GHz)	S11		S21		S12		S22		K	MSG/MAG (dB)
	Mag	Ang(deg)	Mag	Ang(deg)	Mag	Ang(deg)	Mag	Ang(deg)		
0.4	0.931	-81.23	6.040	138.10	0.034	54.00	0.319	-145.29	0.24	22.55
0.6	0.928	-96.41	5.427	123.74	0.034	49.04	0.348	-146.37	0.24	21.97
0.8	0.925	-111.37	4.862	109.76	0.035	43.56	0.377	-147.39	0.23	21.39
1.0	0.923	-123.25	4.427	98.93	0.036	39.13	0.404	-148.42	0.23	20.88
1.2	0.921	-132.60	4.076	89.82	0.036	35.42	0.431	-149.46	0.23	20.53
1.4	0.919	-139.95	3.780	82.12	0.036	32.22	0.457	-150.44	0.22	20.21
1.6	0.917	-145.82	3.525	75.32	0.037	29.32	0.480	-151.52	0.21	19.80
1.8	0.916	-150.42	3.301	69.22	0.037	26.72	0.504	-152.52	0.19	19.52
2.0	0.915	-154.13	3.100	63.72	0.037	24.32	0.526	-153.63	0.18	19.26
2.2	0.914	-157.07	2.919	58.72	0.037	22.02	0.548	-154.66	0.17	19.00
2.4	0.913	-159.60	2.754	54.03	0.038	19.93	0.567	-155.68	0.14	18.64
2.6	0.913	-161.76	2.601	49.74	0.038	17.94	0.586	-156.72	0.13	18.40
2.8	0.912	-163.81	2.461	45.65	0.038	15.95	0.603	-157.76	0.12	18.17
3.0	0.911	-165.67	2.332	41.77	0.038	14.17	0.620	-158.70	0.11	17.94
3.2	0.912	-167.43	2.210	38.20	0.037	12.50	0.635	-159.74	0.10	17.71
3.4	0.911	-169.19	2.098	34.72	0.037	10.82	0.650	-160.69	0.10	17.48
3.6	0.910	-171.05	1.992	31.46	0.037	9.16	0.663	-161.72	0.10	17.26
3.8	0.910	-172.80	1.893	28.39	0.038	7.59	0.674	-162.64	0.08	16.93
4.0	0.909	-174.67	1.798	25.33	0.038	6.13	0.686	-163.58	0.09	16.71
4.2	0.909	-176.44	1.710	22.47	0.038	4.67	0.695	-164.51	0.09	16.48
4.4	0.907	-178.31	1.625	19.70	0.038	3.20	0.704	-165.44	0.11	16.26
4.6	0.907	179.91	1.545	16.94	0.039	1.84	0.711	-166.37	0.12	16.03
4.8	0.907	178.12	1.468	14.36	0.039	0.46	0.718	-167.19	0.14	15.81
5.0	0.906	176.23	1.396	11.78	0.039	-0.92	0.723	-168.11	0.17	15.58
5.2	0.905	174.32	1.326	9.30	0.039	-2.20	0.727	-168.92	0.19	15.35
5.4	0.904	172.31	1.260	6.90	0.039	-3.50	0.730	-169.83	0.24	15.11
5.6	0.903	170.18	1.196	4.59	0.039	-4.81	0.733	-170.63	0.28	14.87
5.8	0.902	167.63	1.135	2.27	0.039	-6.13	0.734	-171.44	0.32	14.62
6.0	0.900	164.64	1.077	-0.09	0.040	-7.49	0.733	-172.21	0.37	14.27
6.2	0.899	160.98	1.024	-2.38	0.041	-8.78	0.733	-173.00	0.43	14.01
6.4	0.898	158.96	0.968	-4.56	0.041	-10.06	0.730	-173.77	0.51	13.75
6.6	0.897	156.91	0.911	-6.75	0.041	-11.35	0.727	-174.55	0.60	13.47
6.8	0.896	154.84	0.855	-8.96	0.041	-12.66	0.725	-175.32	0.70	13.17
7.0	0.895	152.74	0.797	-11.18	0.041	-13.98	0.722	-176.09	0.81	12.84

