

Preliminary

MITSUBISHI SEMICONDUCTOR<GaAs FET>
MGF0921A

L & S BAND GaAs FET [SMD non – matched]

DESCRIPTION

The MGF0921A GaAs FET with an N-channel schottky Gate, is designed for use UHF band amplifiers.

FEATURES

- High output power
Po=33dBm(TYP.) @f=1.9GHz,Pin=17dBm
- High power gain
Gp=17dB(TYP.) @f=1.9GHz
- High power added efficiency
ηadd=40%(TYP.) @f=1.9GHz,Pin=17dBm
- Hermetic Package

APPLICATION

- For UHF Band power amplifiers

QUALITY

- GG

RECOMMENDED BIAS CONDITIONS

- Vds=10V • Ids=500mA • 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	1800	mA
IGR	Reverse gate current	-5.0	mA
IGF	Forward gate current	15	mA
PT	Total power dissipation	1	W
Tch	Cannel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

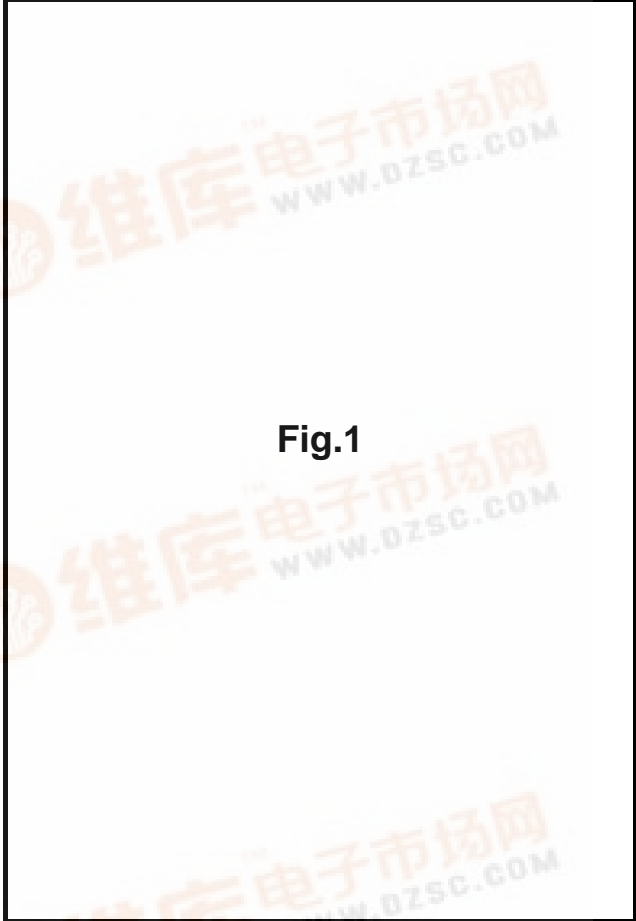


Fig.1

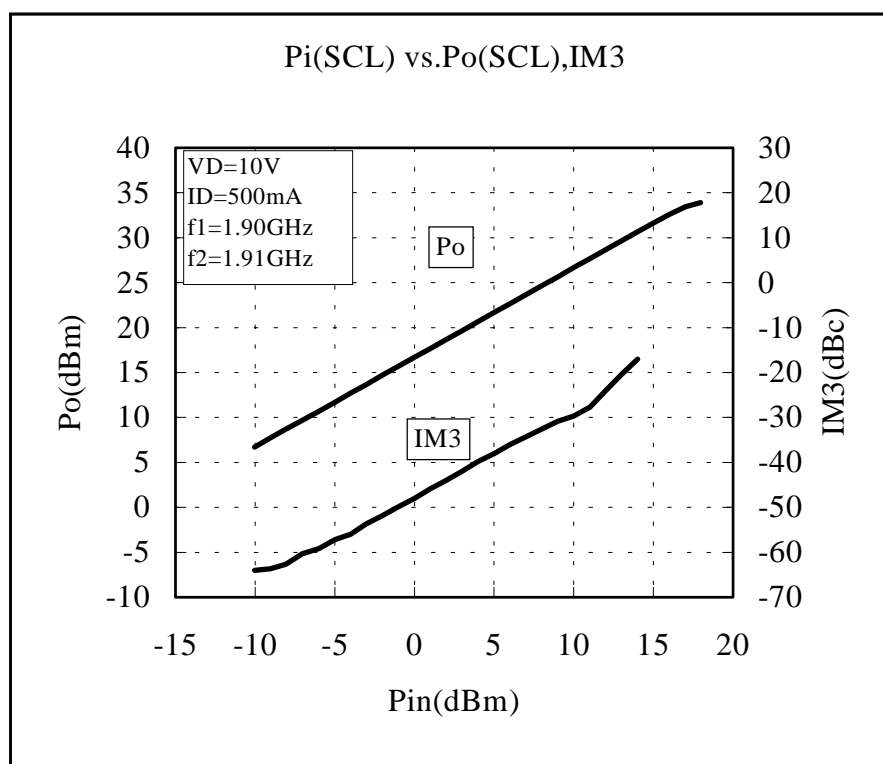
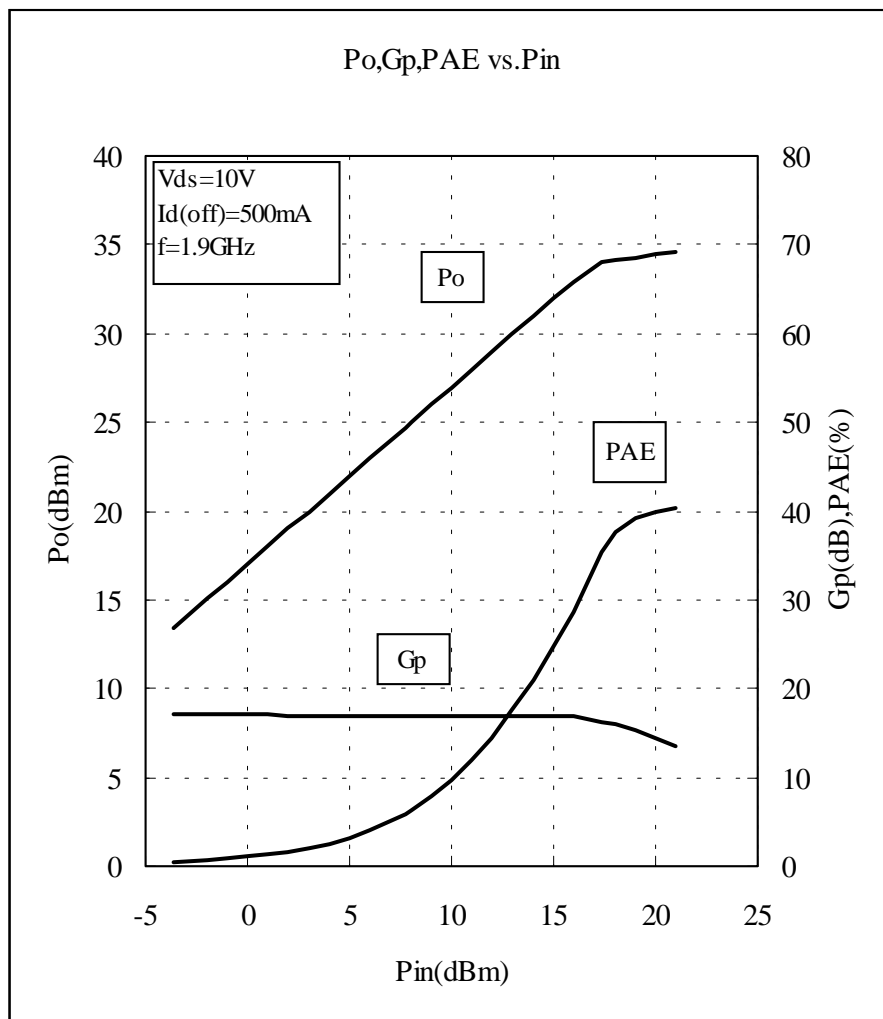
Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	--	1100	1800	mA
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=4.0mA	-1.0	-	-5.0	V
gm	Transconductance	VDS=3V,ID=500mA	-	370	-	mS
Po	Output power	VDS=10V,ID=500mA,f=1.9GHz	31	33	-	dBm
ηadd	Power added Efficiency	Pin=17dBm	-	40	-	%
GLP	Linear Power Gain	VDS=10V,ID=500mA,f=1.9GHz	15	17	-	dB
NF	Noise figure		-	TBD	-	dB
Rth(ch-c)	Thermal Resistance *1	ΔVf Method	-	11	15	°C/W

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



MGF0921A TYPICAL CHARACTERISTICS



MGF0921A S PARAMETERS (Ta=25°C,VD=10V,ID=500mA, 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	0.912	-106.34	6.799	130.67	0.057	37.37	0.326	-147.76	0.25	20.73
0.6	0.905	-118.84	6.141	118.82	0.056	35.62	0.352	-147.87	0.25	20.38
0.8	0.899	-131.17	5.495	107.04	0.055	33.94	0.379	-147.94	0.25	19.99
1.0	0.894	-140.67	4.998	97.79	0.054	32.39	0.404	-148.04	0.26	19.67
1.2	0.891	-147.97	4.593	90.14	0.054	30.84	0.429	-148.28	0.26	19.31
1.4	0.887	-153.49	4.251	83.49	0.054	29.49	0.453	-148.55	0.25	18.98
1.6	0.884	-157.81	3.956	77.65	0.053	28.05	0.478	-149.05	0.25	18.75
1.8	0.882	-161.15	3.694	72.40	0.053	26.80	0.500	-149.56	0.24	18.46
2.0	0.879	-163.89	3.462	67.66	0.053	25.56	0.522	-150.10	0.23	18.18
2.2	0.877	-166.24	3.251	63.32	0.053	24.42	0.542	-150.84	0.23	17.92
2.4	0.876	-168.30	3.058	59.30	0.052	23.40	0.562	-151.60	0.21	17.66
2.6	0.874	-170.16	2.882	55.47	0.052	22.47	0.581	-152.45	0.21	17.41
2.8	0.873	-172.02	2.720	51.96	0.052	21.56	0.598	-153.31	0.20	17.16
3.0	0.870	-173.88	2.570	48.55	0.053	20.75	0.616	-154.26	0.19	16.84
3.2	0.869	-175.65	2.429	45.45	0.053	19.95	0.631	-155.31	0.19	16.59
3.4	0.868	-177.42	2.298	42.46	0.054	19.36	0.646	-156.35	0.18	16.28
3.6	0.866	-179.09	2.175	39.57	0.054	18.77	0.660	-157.49	0.19	16.04
3.8	0.865	-179.23	2.060	36.79	0.055	18.19	0.673	-158.71	0.18	15.72
4.0	0.863	177.64	1.951	34.20	0.056	17.80	0.684	-159.93	0.18	15.41
4.2	0.862	176.15	1.847	31.62	0.057	17.42	0.695	-161.23	0.19	15.10
4.4	0.861	174.76	1.749	29.15	0.058	17.15	0.706	-162.63	0.19	14.78
4.6	0.859	173.45	1.655	26.87	0.059	16.87	0.714	-164.02	0.20	14.47
4.8	0.859	172.04	1.567	24.51	0.060	16.81	0.723	-165.51	0.20	14.15
5.0	0.857	170.52	1.482	22.33	0.061	16.73	0.730	-167.08	0.22	13.83
5.2	0.855	168.59	1.402	20.15	0.063	16.65	0.735	-168.73	0.25	13.50
5.4	0.853	166.23	1.326	17.95	0.065	16.75	0.740	-170.38	0.27	13.11
5.6	0.851	163.00	1.255	15.95	0.066	16.85	0.745	-172.04	0.31	12.77
5.8	0.848	160.79	1.185	13.83	0.069	17.03	0.748	-173.87	0.34	12.37
6.0	0.846	158.12	1.117	11.78	0.070	17.28	0.749	-175.72	0.40	12.03
6.2	0.844	155.31	1.054	9.82	0.073	17.52	0.751	-177.65	0.45	11.61
6.4	0.840	152.24	0.991	7.81	0.075	17.81	0.751	-179.59	0.51	11.19
6.6	0.837	149.12	0.927	5.78	0.078	18.08	0.752	-178.45	0.59	10.74
6.8	0.833	145.94	0.862	3.73	0.081	18.33	0.752	-176.48	0.67	10.28
7.0	0.830	142.70	0.797	1.64	0.084	18.54	0.752	-174.49	0.76	9.78

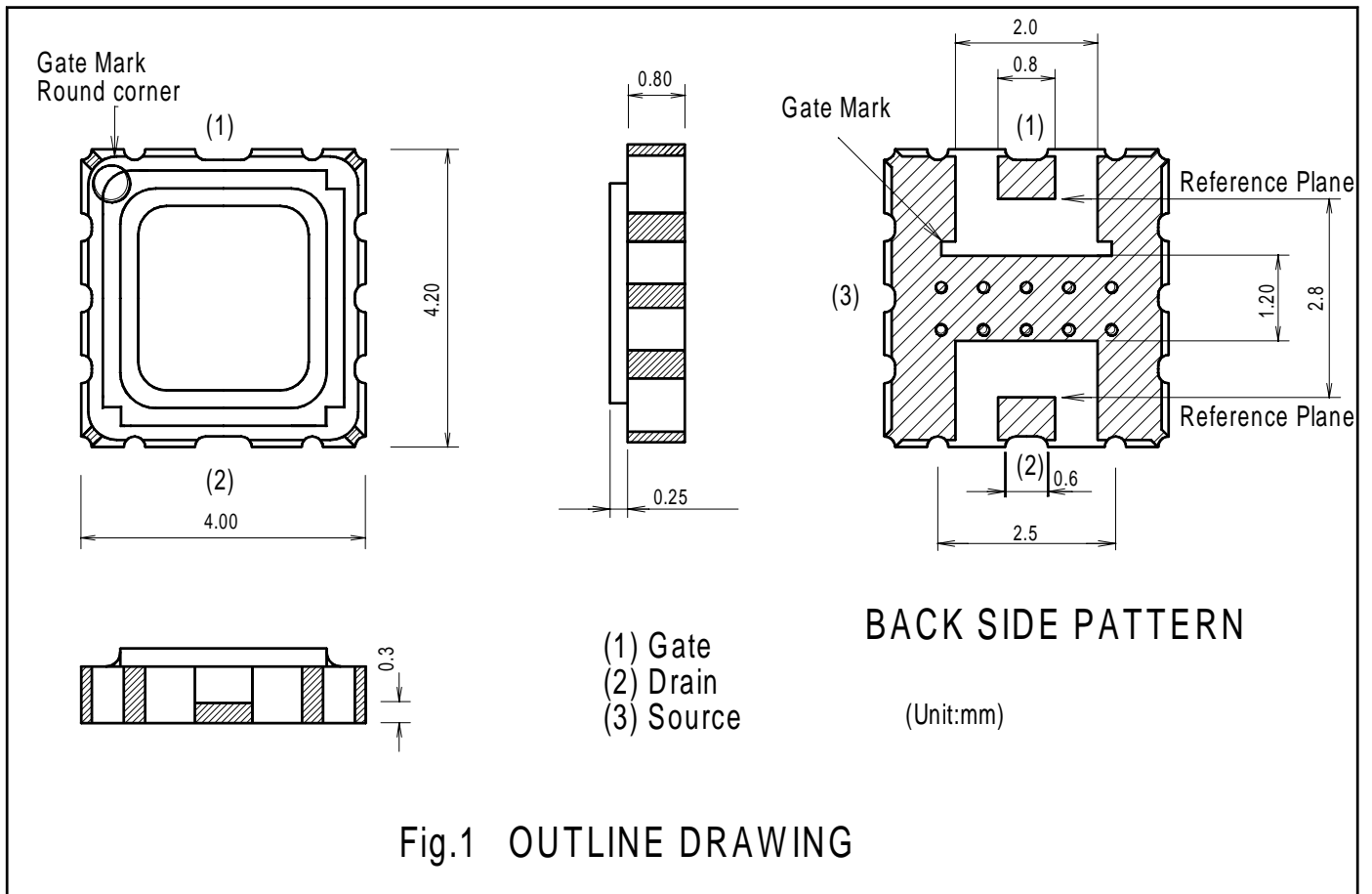


Fig.1 OUTLINE DRAWING