

Preliminary

MGF0916A

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

DESCRIPTION

The MGF0916A GaAs FET with an N-channel schottky Gate, is designed for use UHF band amplifiers.

FEATURES

- High output power
Po=23dBm(TYP.) @f=1.9GHz,Pin=5dBm
- High power gain
Gp=19dB(TYP.) @f=1.9GHz
- High power added efficiency
 η_{add} =30%(TYP.) @f=1.9GHz,Pin=5dBm
- Hermetic Package

APPLICATION

- For UHF Band power amplifiers

QUALITY

- GG

RECOMMENDED BIAS CONDITIONS

- Vds=6V
- Ids=100mA
- Rg=1k Ω

Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VGSO	Gate to source breakdown voltage	-8	V
VGDO	Gate to drain breakdown voltage	-8	V
ID	Drain current	250	mA
IGR	Reverse gate current	-0.6	mA
IGF	Forward gate current	1.5	mA
PT	Total power dissipation	5	W
Tch	Channel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

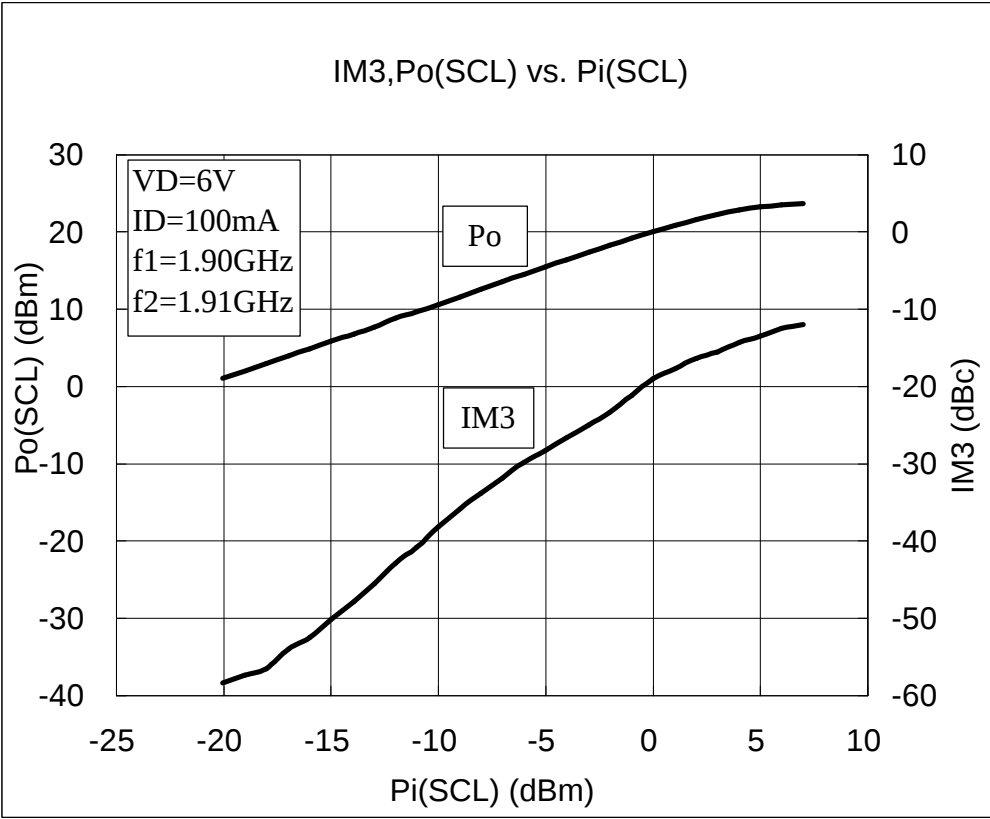
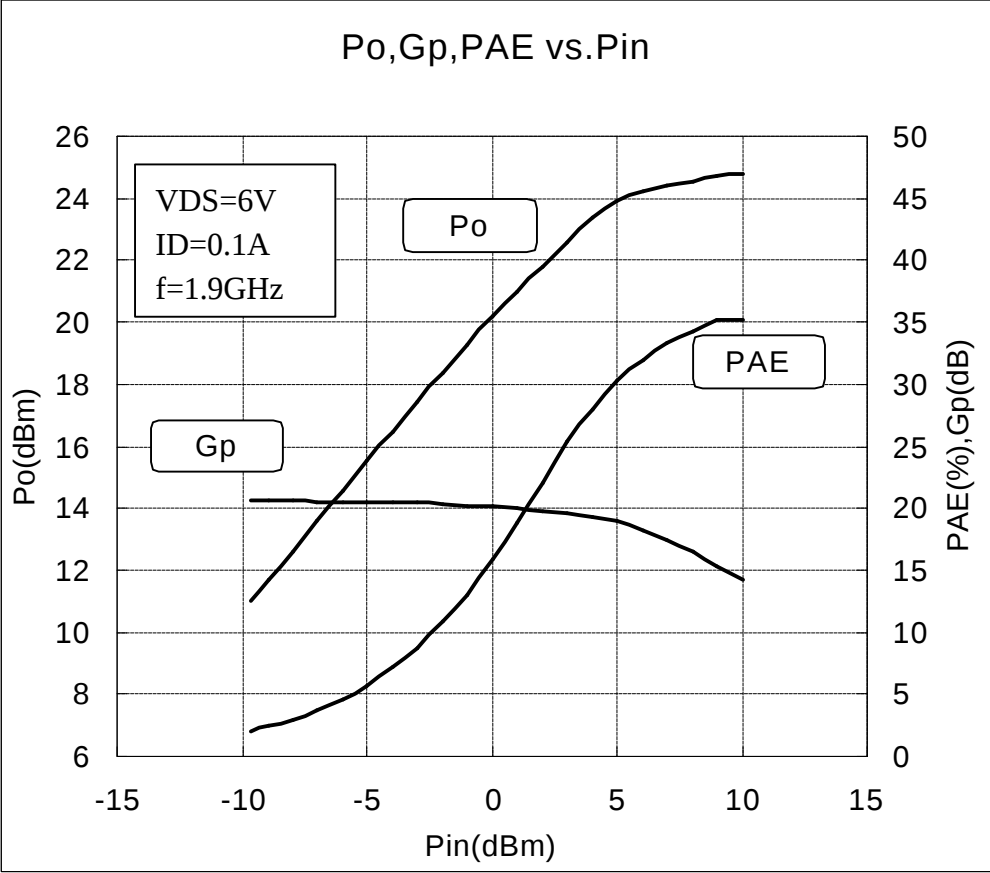
Fig.1

Electrical characteristics (Ta=25°C)

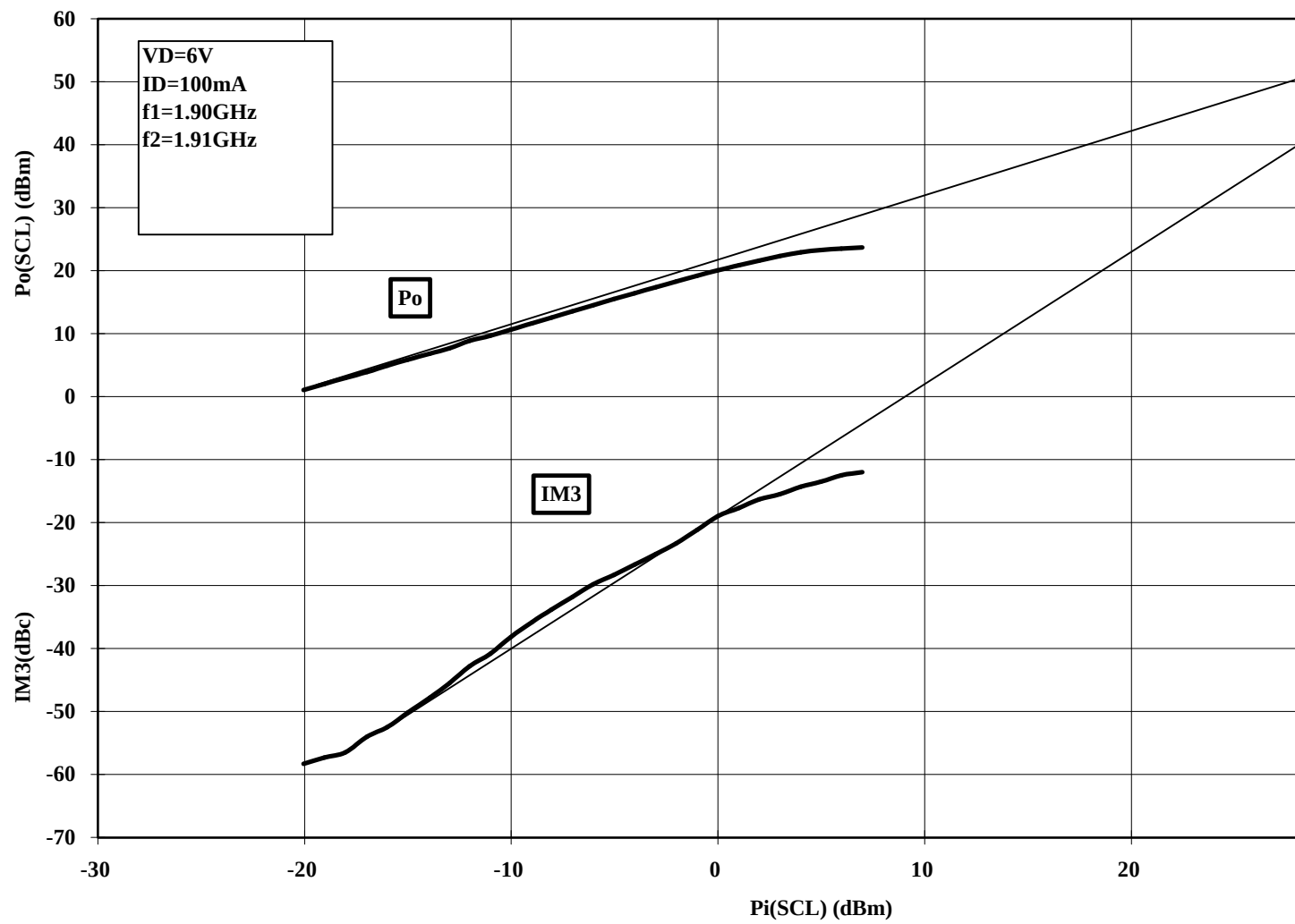
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	150	200	250	mA
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=0.1mA	-1.5	-	-4.5	V
gm	Transconductance	VDS=3V,ID=100mA	-	90	-	mS
Po	Output power	VDS=6V,ID=100mA,f=1.9GHz Pin=5dBm	-	23	-	dBm
η_{add}	Power added Efficiency		-	30	-	%
GLP	Linear Power Gain	VDS=6V,ID=100mA,f=1.9GHz	-	19	-	dB
NF	Noise figure		-	1.0	-	dB
Rth(ch-c)	Thermal Resistance *1	ΔV_f Method	-	20	30	°C/W

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

MGF0916A TYPICAL CHARACTERISTICS

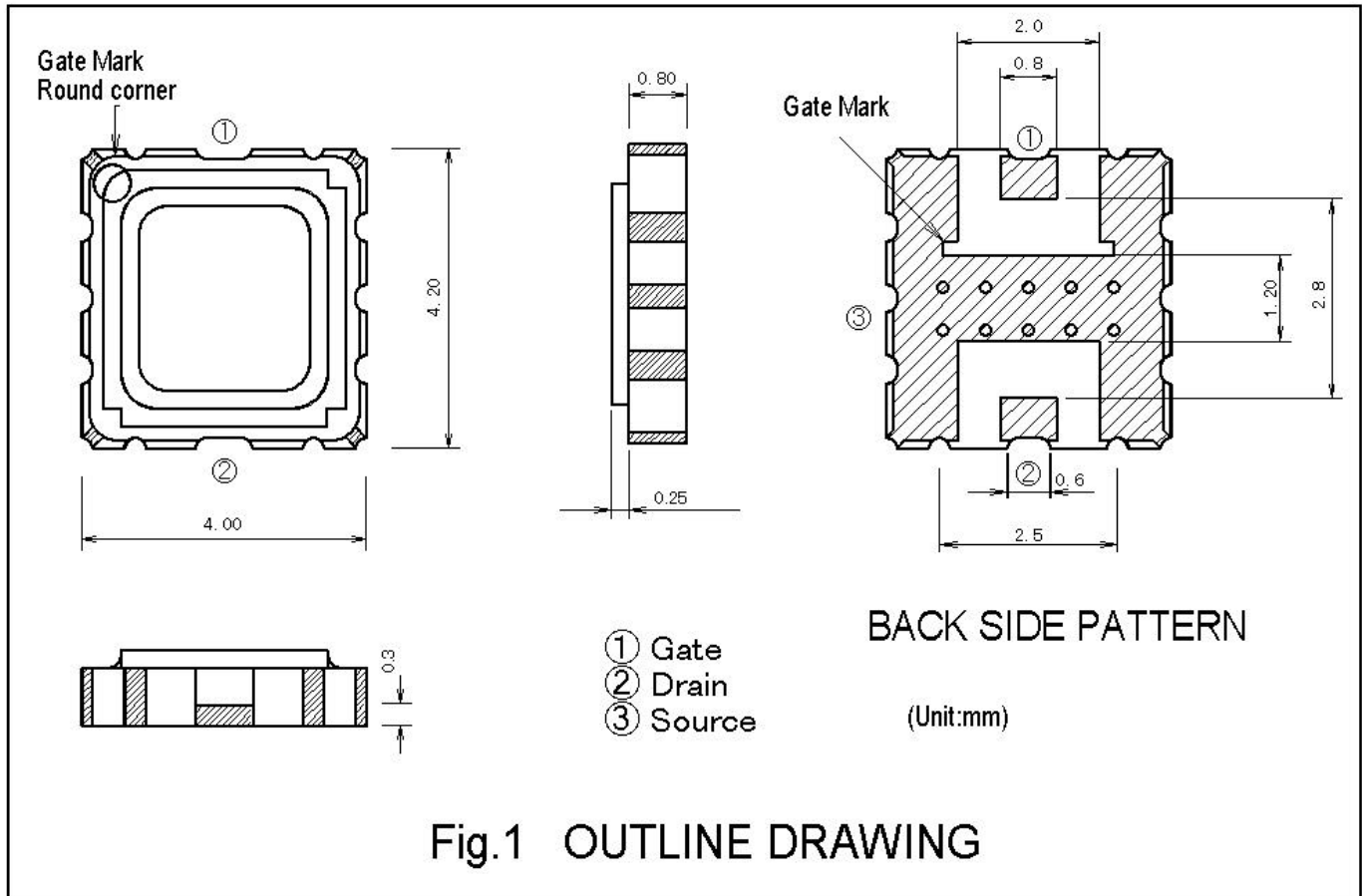


MGF0916A
IM3,Po(SCL) vs. Pi(SCL)



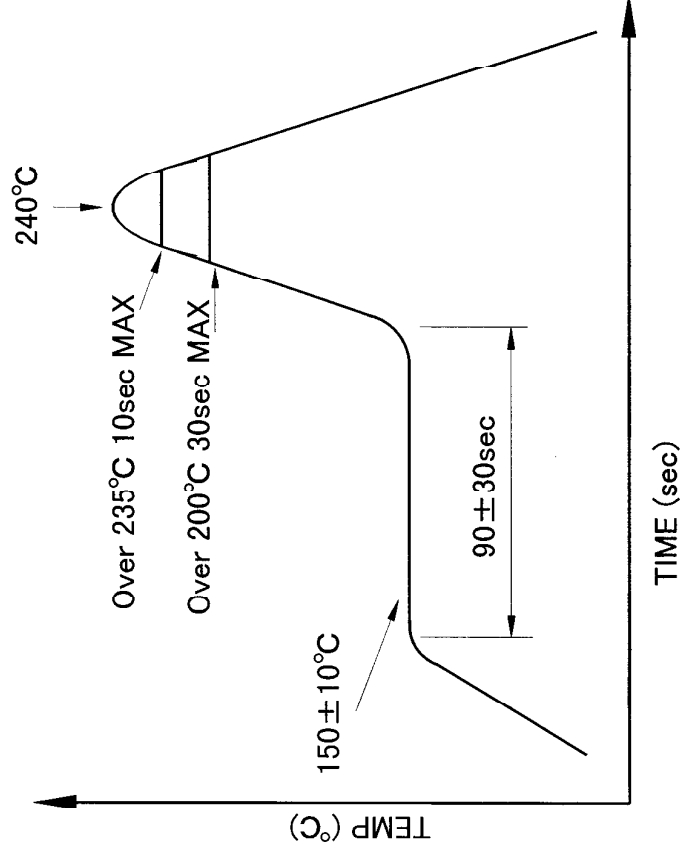
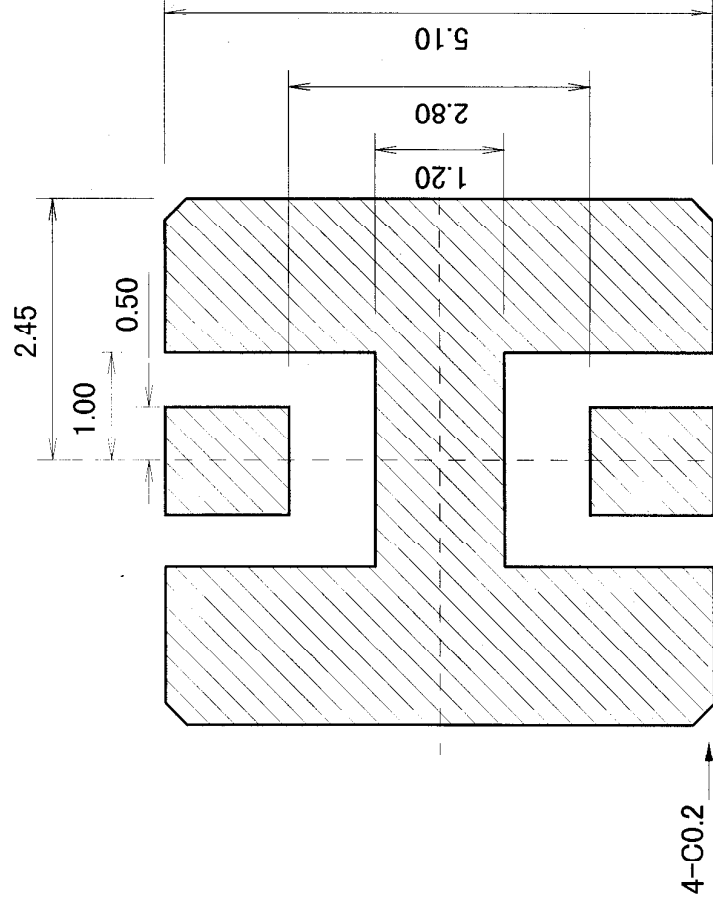
MGF0916A S PARAMETERS (Ta=25°C, VDS=6V, ID=100mA)

f	S11		S21		S12		S22		K	MSG/MAG
(GHz)	Mag.	Ang.(deg)	Mag.	Ang.(deg)	Mag.	Ang.(deg)	Mag.	Ang.(deg)		(dB)
0.4	0.986	-28.50	7.928	155.42	0.015	58.78	0.459	-27.52	0.21	27.09
0.6	0.957	-41.42	7.350	144.47	0.019	56.46	0.477	-38.99	0.31	25.97
0.8	0.933	-53.04	6.804	134.61	0.021	53.10	0.493	-48.75	0.38	25.09
1.0	0.913	-63.45	6.291	125.73	0.023	49.04	0.509	-57.06	0.44	24.37
1.2	0.896	-72.74	5.813	117.71	0.024	44.59	0.524	-64.14	0.50	23.76
1.4	0.883	-81.01	5.369	110.45	0.026	40.01	0.540	-70.20	0.57	23.22
1.6	0.872	-88.32	4.961	103.84	0.026	35.49	0.555	-75.42	0.63	22.75
1.8	0.863	-94.78	4.587	97.81	0.027	31.20	0.570	-79.95	0.69	22.32
2.0	0.856	-100.46	4.247	92.27	0.027	27.26	0.585	-83.94	0.74	21.92
2.2	0.850	-105.45	3.939	87.16	0.027	23.76	0.601	-87.48	0.80	21.56
2.4	0.845	-109.81	3.663	82.41	0.028	20.74	0.617	-90.68	0.84	21.23
2.6	0.841	-113.62	3.417	77.96	0.028	18.22	0.633	-93.61	0.88	20.92
2.8	0.837	-116.95	3.198	73.77	0.028	16.21	0.649	-96.34	0.91	20.63
3.0	0.834	-119.86	3.006	69.79	0.028	14.67	0.665	-98.91	0.93	20.36
3.2	0.830	-122.43	2.837	65.99	0.028	13.56	0.680	-101.37	0.94	20.11
3.4	0.827	-124.70	2.690	62.33	0.028	12.83	0.696	-103.72	0.94	19.89
3.6	0.823	-126.73	2.562	58.78	0.028	12.39	0.711	-106.00	0.94	19.68
3.8	0.819	-128.59	2.451	55.32	0.028	12.18	0.726	-108.20	0.92	19.48
4.0	0.814	-130.31	2.354	51.93	0.028	12.09	0.740	-110.33	0.90	19.30
4.2	0.809	-131.94	2.271	48.59	0.028	12.07	0.754	-112.38	0.88	19.14
4.4	0.803	-133.53	2.197	45.28	0.028	12.01	0.766	-114.34	0.86	18.99
4.6	0.796	-135.11	2.132	42.00	0.028	11.84	0.778	-116.21	0.85	18.85
4.8	0.788	-136.71	2.074	38.72	0.028	11.51	0.789	-117.97	0.84	18.73
5.0	0.780	-138.38	2.021	35.44	0.028	10.95	0.799	-119.62	0.83	18.61
5.2	0.770	-140.12	1.971	32.14	0.028	10.15	0.808	-121.16	0.84	18.50
5.4	0.760	-141.97	1.925	28.82	0.028	9.07	0.816	-122.57	0.86	18.39
5.6	0.748	-143.95	1.881	25.47	0.028	7.73	0.824	-123.87	0.89	18.29
5.8	0.736	-146.06	1.840	22.06	0.028	6.18	0.831	-125.07	0.92	18.19
6.0	0.722	-148.31	1.801	18.59	0.028	4.48	0.838	-126.19	0.96	18.10
6.2	0.706	-150.72	1.765	15.04	0.028	2.74	0.844	-127.27	1.00	17.61
6.4	0.690	-153.28	1.733	11.39	0.028	1.11	0.851	-128.34	1.04	16.70
6.6	0.672	-155.98	1.708	7.62	0.028	-0.24	0.859	-129.47	1.06	16.35



RECOMMENDATION FOR SOLDERING OF H/P SMD

- SOLDER: CREAM SLDER (Sn63%, Pb37%)
- SOLDER THICKNESS: $150 \pm 50 \mu m$



RECOMMENDED PCB PATTERN

RECOMMENDED TEMP. PROFILE