

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

# **MGF0904A**

L & S BAND / 0.6W non - matched

#### **DESCRIPTION**

The MGF0904A, GaAs FET with an N-channel schottky gate, is designed for use in UHF band amplifiers.

### **FEATURES**

- High output power Po=28.0dBm(TYP.) @f=1.65GHz,Pin=15dBm
- High power gain
   Gp=13.0dB(TYP.) @f=1.65GHz,Pin=15dBm
- High power added efficiency
   P.A.E =40%(TYP.) @f=1.65GHz,Pin=15dBm

#### **APPLICATION**

• For UHF Band power amplifiers

#### **QUALITY**

• GG

### RECOMMENDED BIAS CONDITIONS

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

VGDO Gate to drain voltage -17 VGSO Gate to source voltage -17 VGSO ID Drain current 800 mIGR Reverse gate current -2.5 m	
VGSO         Gate to source voltage         -17         \           ID         Drain current         800         m           IGR         Reverse gate current         -2.5         m	nit
ID     Drain current     800     m       IGR     Reverse gate current     -2.5     m	/
IGR Reverse gate current -2.5 m	/
	Α
IGE Forward gate current 5.4 m	Α
101   101 Wald gate culterit 3.4 III	Α
PT*1 Total power dissipation 3.75 V	٧
Tch Cannel temperature 175 °C	С
Tstg Storage temperature -65 to +175 °C	C

<sup>\*1:</sup>Tc=25°C

Electrical characteristics (Ta=25°C)

OUTLINE DRAWING	Unit: millimeters
② φ2. 2	© SMIN 4. 4+0/-0.3
0 1 1 65	9. 0±0. 2
GF-7	(1) GATE (2) SOURCE (FLANGE) (3) DRAIN

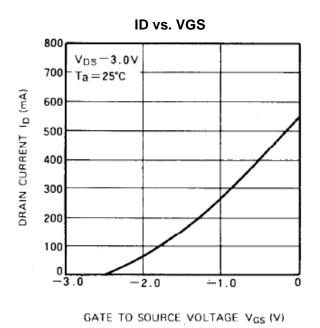
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Тур.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	400	550	800	mA
gm	Transconductance	nsconductance VDS=3V,ID=300mA		200	-	mS
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=2.5mA	-1	-3	-5	V
Po	Output power	VDS=8V,ID(RF off)=200mA		28	-	dBm
P.A.E.	Power added efficiency	f=1.65GHz,Pin=15dBm	-	40	-	%
Rth(ch-c) *2	Thermal resistance	Δ Vf method	-	-	40	°C/W
Rth(ch-a) *3	Thermal resistance		-	-	100	°C/W

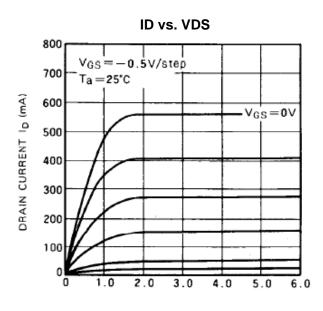
<sup>\*2 :</sup>Channel-case

<sup>\*3 :</sup>Channel-ambient

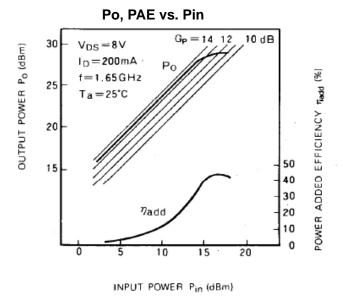
non - matched

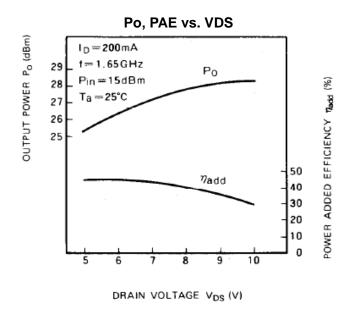
## MGF0904A TYPICAL CHARACTERISTICS (Ta=25deg.C)





DRAIN TO SOURCE VOLTAGE VDS (V)



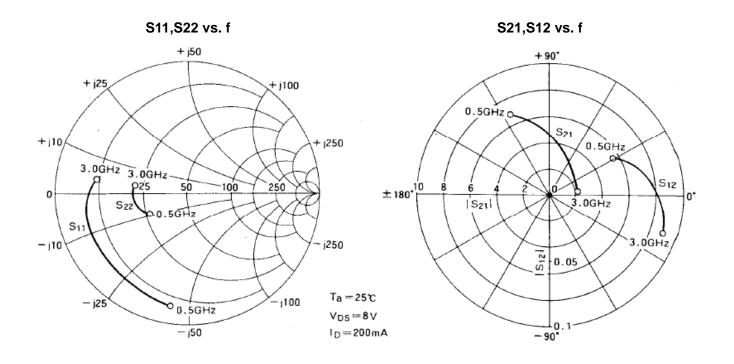


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## MGF0904A S-parameters( Ta=25deg.C , VDS=8(V),IDS=200(mA) )



f (GHz)					S Parame	eters(Typ.)				
	S	11	S	21	S	12	S	22	K	MSG/MAG
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	-	dB
0.5	0.851	-99.0	6.855	116.0	0.055	31.0	0.338	-149.0	0.277	21.0
1.0	0.801	-138.0	4.265	89.0	0.064	22.5	0.368	-162.0	0.521	18.2
1.5	0.788	-161.5	3.192	71.0	0.072	13.0	0.390	-173.3	0.655	16.5
2.0	0.740	-177.0	2.544	52.0	0.079	4.0	0.409	-178.0	0.847	15.1
2.5	0.713	176.5	2.180	30.0	0.085	-7.0	0.411	177.0	0.940	14.1
3.0	0.670	171.5	2.040	9.0	0.091	-18.0	0.402	172.0	1.070	11.9

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