MITSUBISHI ELECTRIC

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

MGF0805A

L & S BAND / 4.5W
SMD non - matched

DESCRIPTION

The MGF0805A GaAs FET with an N-channel schottky Gate, is designed for use in L & S band amplifiers.

FEATURES

- High output power
  Po=36.5dBm(TYP.) @f=1.9GHz,Pin=22dBm
- High power gain
  GLP=14.5dB(TYP.) @f=1.9GHz
- High power added efficiency
  ηadd=50%(TYP.) @f=1.9GHz,Pin=22dBm
- Hermetic Package

APPLICATION

- For L & S Band power amplifiers

QUALITY

- GG

RECOMMENDED BIAS CONDITIONS

- Vds=10V • Ids=400mA • Rg=100Ω

Delivery -Tape & Reel(1K)

Fig.1

Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VGDO	Gate to Drain Voltage	-15	V
VGSO	Gate to source voltage	-15	V
ID	Drain current	2500	mA
IGR	Reverse gate current	-10	mA
IGF	Forward gate current	21	mA
PT*1	Total power dissipation	21	W
Tch	Cannel temperature	175	°C
Tstg	Storage temperature	-55 to +150	°C

*1:Tc=25°C

Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	-	1800	-	mA
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=10mA	-0.5	-1.1	-2	V
gm	Transconductance	VDS=3V,ID=300mA	-	1000	-	mS
Po	Output power	VDS=10V,ID=400mA,f=1.9GHz	35	36.5	-	dBm
ηadd	Power added Efficiency	Pin=22dBm	-	50	-	%
GLP	Linear Power Gain	VDS=10V,ID=400mA,Pi=15dBm	13	14.5	-	dB
Rth(ch-c)	Thermal Resistance *1	ΔVf Method	-	5	7	°C/W

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

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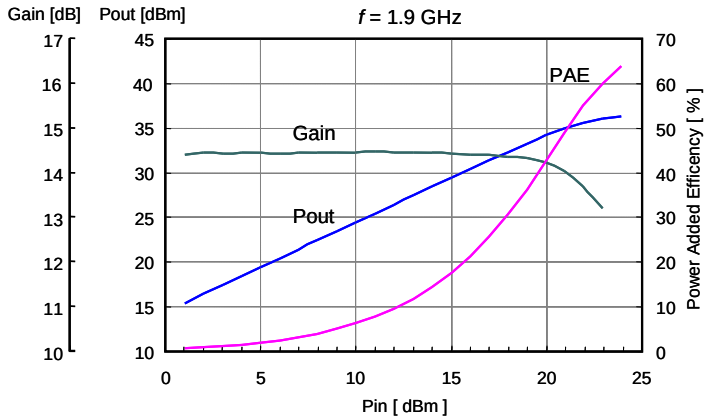
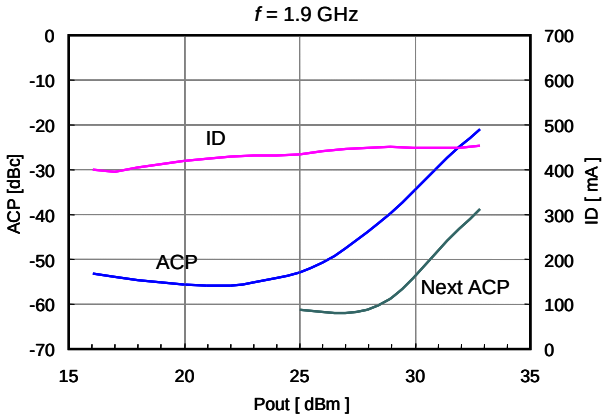
MGF0805A TYPICAL CHARACTERISTICS

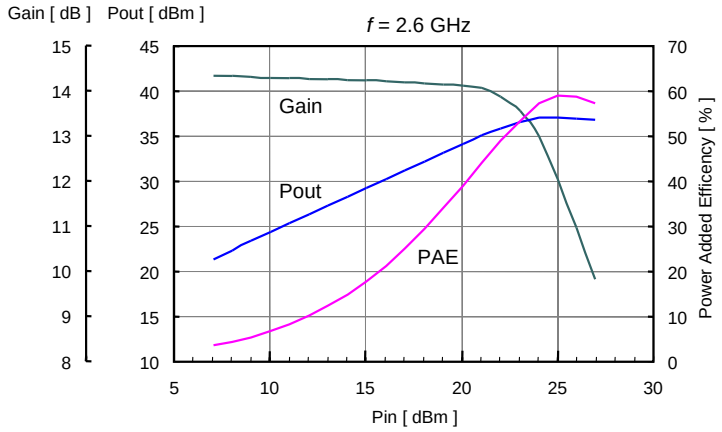


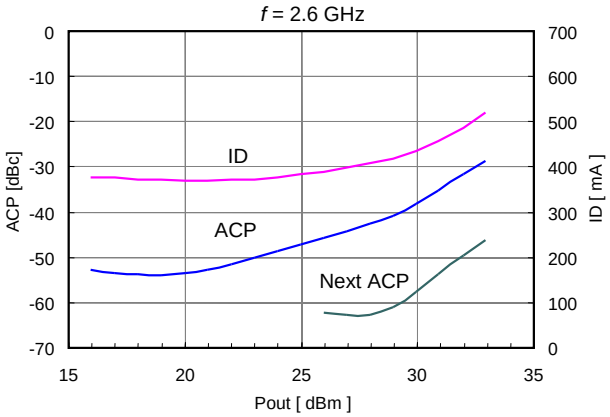


Bias conditions: VDD = 10 V, IDQ = 400mA, Frequency: 1.9 GHz

Modulation Signal: 3GPP TEST MODEL 1 (W-CDMA)

Reference plane: Connector Edge



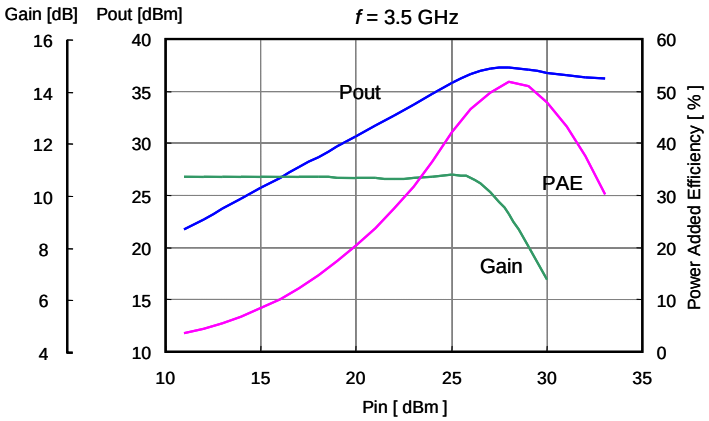


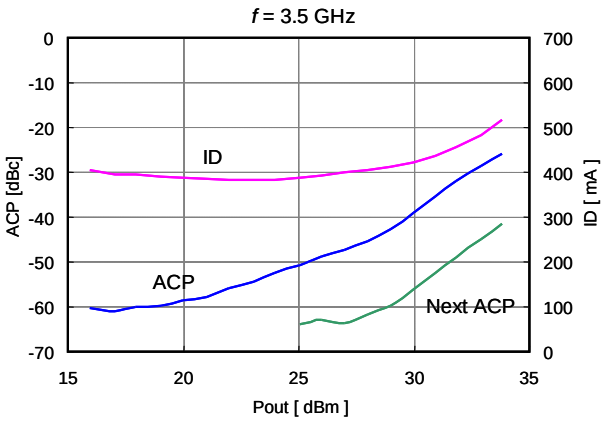
Bias conditions: VDD = 10 V, IDQ = 400mA, Frequency: 2.6 GHz

Modulation Signal: 3GPP TEST MODEL 1 (W-CDMA)

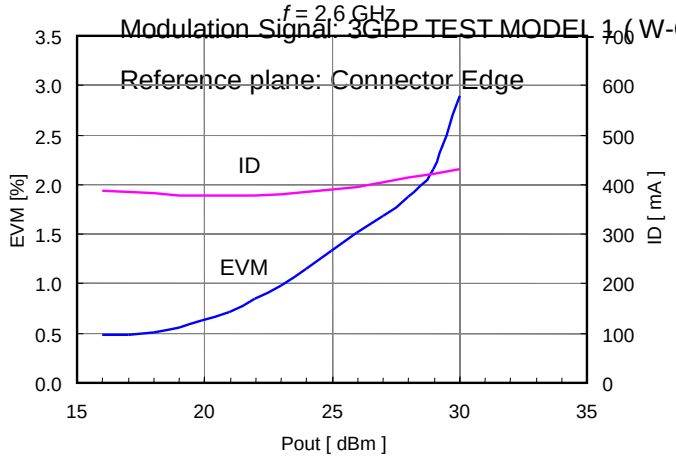
Reference plane: Connector Edge

MGF0805A TYPICAL CHARACTERISTICS





Bias conditions: VDD = 10 V, IDQ = 400mA, Frequency: 3.5 GHz,
Modulation Signal: 3GPP TEST MODEL 1 (W-CDMA)
Reference plane: Connector Edge



Bias conditions: VDD = 10 V, IDQ = 400mA, Frequency: 2.6 GHz
Modulation Signal:
IEEE.802.16 WiMAX A, Downlink, 64QAM3/4
Reference plane: Connector Edge

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L & S BAND / 4.5W
SMD non – matched

MGF0805A S PARAMETERS (Ta=25°C,VD=10V,ID=400mA, Reference plane: Device Edge)

Freq.	S11		S21		S12		S22	
(GHz)	(mag.)	(ang.)	(mag.)	(ang.)	(mag.)	(ang.)	(mag.)	(ang.)
0.2	0.950	−123.43	14.739	116.08	0.0113	31.52	0.688	−172.47
0.4	0.945	−152.04	8.230	97.64	0.0129	19.66	0.718	−176.39
0.6	0.945	−164.12	5.586	87.81	0.0130	13.83	0.719	−179.14
0.8	0.944	−171.19	4.189	81.01	0.0134	14.00	0.714	179.31
1.0	0.943	−176.04	3.345	75.44	0.0135	13.74	0.713	177.95
1.2	0.942	−179.83	2.783	70.47	0.0137	13.78	0.716	176.81
1.4	0.943	177.14	2.382	65.82	0.0142	14.83	0.721	175.72
1.6	0.942	174.48	2.082	61.40	0.0141	15.26	0.726	174.71
1.8	0.945	169.43	1.825	57.03	0.0143	16.77	0.731	176.65
2.0	0.944	167.34	1.637	52.96	0.0146	17.79	0.735	176.20
2.2	0.943	165.28	1.484	49.08	0.0151	19.37	0.739	175.37
2.4	0.943	163.55	1.360	45.30	0.0155	19.70	0.744	174.66
2.6	0.944	161.96	1.255	41.64	0.0160	20.15	0.748	173.77
2.8	0.944	160.46	1.166	38.03	0.0160	19.63	0.753	172.74
3.0	0.944	159.04	1.092	34.59	0.0167	24.19	0.756	171.79
3.2	0.944	157.71	1.028	31.12	0.0172	26.10	0.761	170.66
3.4	0.944	156.24	0.974	27.55	0.0181	25.81	0.763	169.44
3.6	0.945	155.07	0.926	24.07	0.0192	27.47	0.766	168.23
3.8	0.944	153.58	0.885	20.61	0.0204	27.70	0.767	166.82
4.0	0.942	152.15	0.849	17.19	0.0215	26.47	0.770	165.40

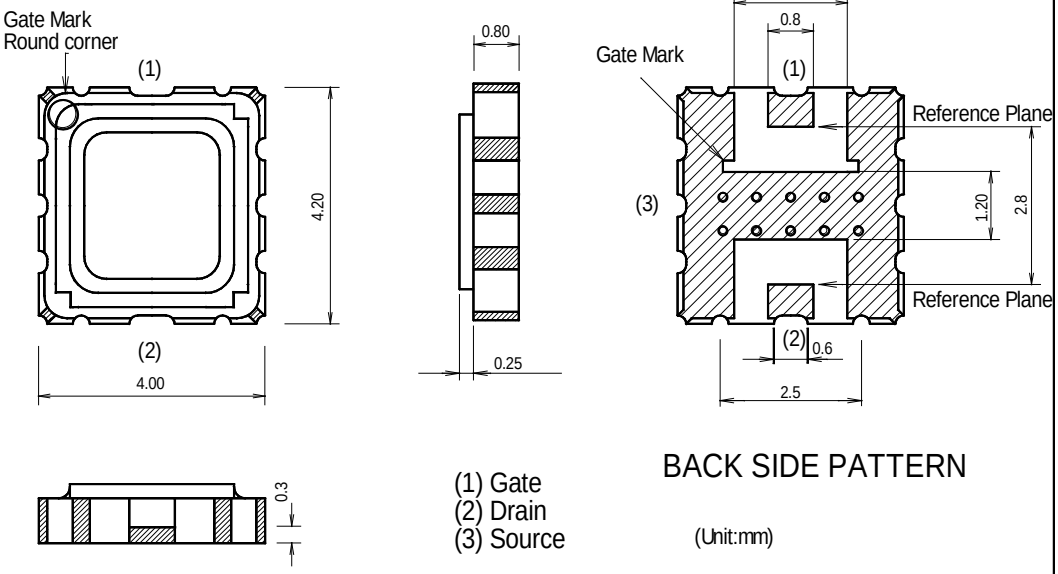

Fig.1 OUTLINE DRAWING

Keep safety first in your circuit designs!

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