MITSUBISHI ELECTRIC

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

MGF2415A

S to Ku BAND / 0.55W
non - matched

DESCRIPTION

The MGF2415A, power GaAs FET with an N-channel schottky gate, is designed for use in S to Ku band amplifiers.

FEATURES

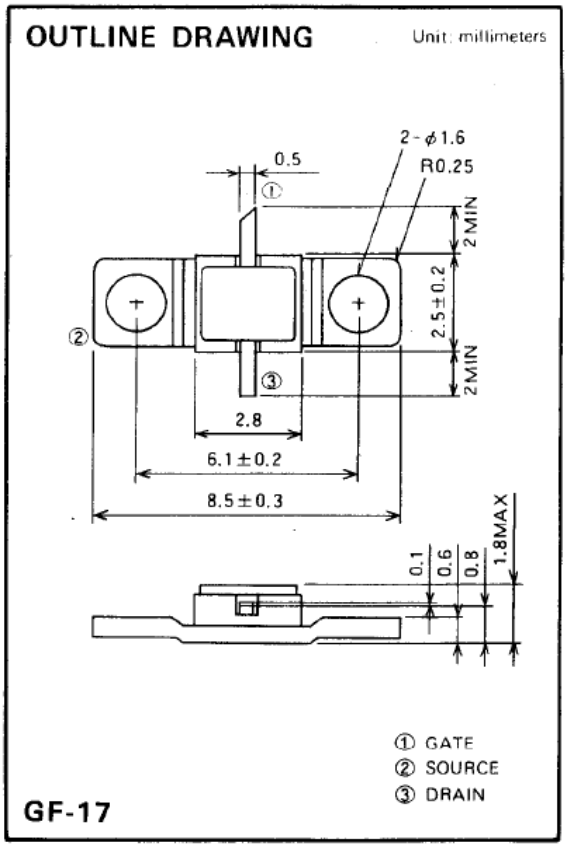
- High output power
  Po=27.5dBm(TYP.) @f=14.5GHz
- High linear power gain
  GLP=7.5dB(TYP.) @f=14.5GHz
- High power added efficiency
  P.A.E.=29%(TYP.) @f=14.5GHz,P1dB

APPLICATION

- S to Ku Band power amplifiers

QUALITY

- IG



RECOMMENDED BIAS CONDITIONS

- Vds=10V • Ids=150mA Refer to Bias Procedure

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	400	mA
IGR	Reverse gate current	-1.2	mA
IGF	Forward gate current	5	mA
PT*1	Total power dissipation	2.5	W
Tch	Cannel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

*1:Tc=25°C

Keep Safety first in your circuit designs!

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Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	200	300	400	mA
gm	Transconductance	VDS=3V,ID=150mA	100	130	-	mS
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=1mA	-1	-2.5	-4	V
P1dB	Output power	VDS=10V,ID(RF off)=150mA	26	27.5	-	dBm
GLP	Linear power gain	f=14.5GHz	6.5	7.5	-	dB
P.A.E.	Power added efficiency		-	29	-	%
Rth(ch-c) *2	Thermal resistance	ΔVf method	-	-	60	°C/W

*2 :Channel-case

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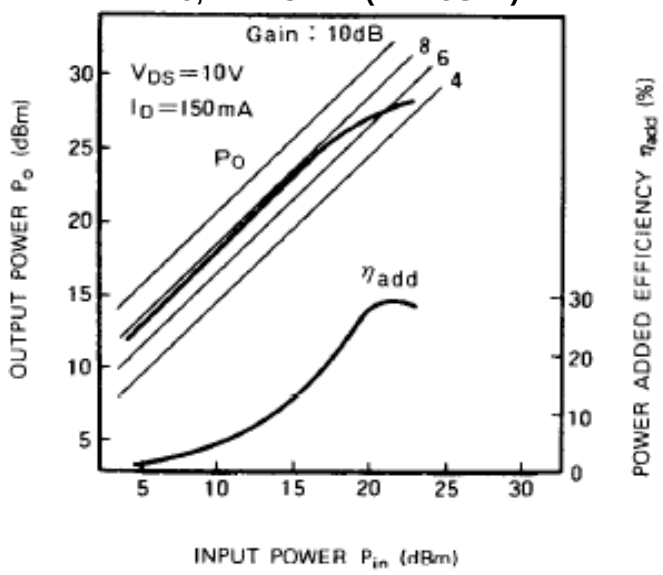
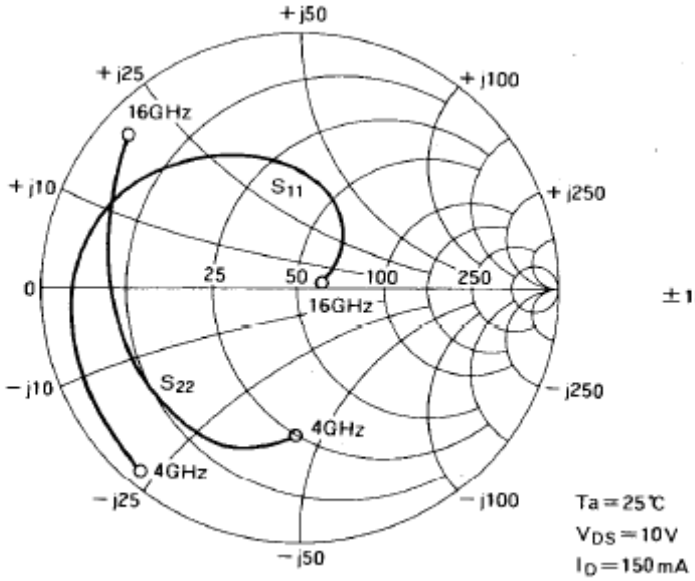
MGF2415A TYPICAL CHARACTERISTICS(Ta=25deg.C)

Po,PAE vs. Pin (f=14.5GHz)

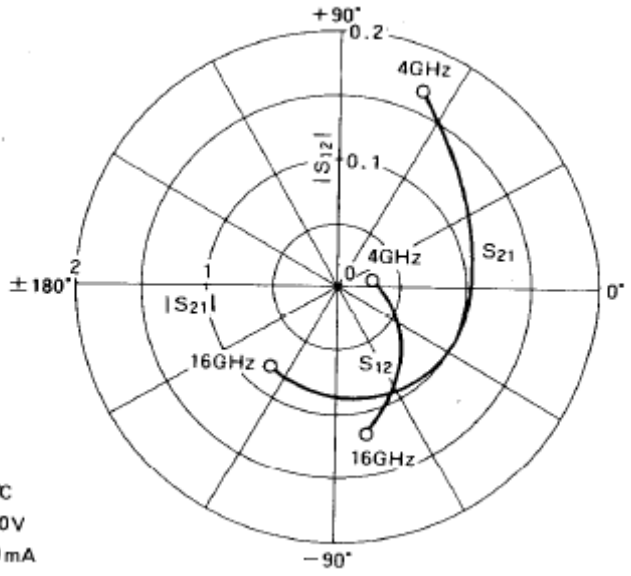


MGF2430A S-parameters(Ta=25deg.C , VDS=10(V),IDS=150(mA))

S11,S22 vs. f



S21,S12 vs. f



f (GHz)	S Parameters(Typ.)									
	S11		S21		S12		S22		K	MSG/MAG
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	-	dB
4	0.930	-132.0	1.656	62.0	0.028	10.0	0.564	-93.5	0.774	17.7
6	0.904	-156.0	1.250	42.5	0.034	2.0	0.654	-108.0	0.884	15.7
8	0.847	-177.0	1.067	22.5	0.040	-6.0	0.699	-128.5	1.248	11.3
10	0.804	162.0	1.010	-8.5	0.045	-14.0	0.704	-149.5	1.521	9.3
12	0.709	141.0	0.968	-30.0	0.052	-22.0	0.721	-173.0	1.917	7.2
14	0.530	109.5	0.869	-78.0	0.069	-41.0	0.772	163.5	2.106	5.0
16	0.083	21.0	0.779	-130.0	0.113	-77.0	0.889	139.5	1.154	6.0

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