

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

MGF2415A

L to Ku BAND / 0.55W
non - matched

DESCRIPTION

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

FEATURES

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

APPLICATION

- For L to Ku band power amplifiers

QUALITY

- IG

RECOMMENDED BIAS CONDITIONS

- Vds=10V • Ids=150mA • Rg=1KΩ

Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VGDO	Gate to Source Voltage	-15	V
VGSO	Gate to source voltage	-15	V
IDSS	Saturated 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	Channel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

*1:Tc=25°C

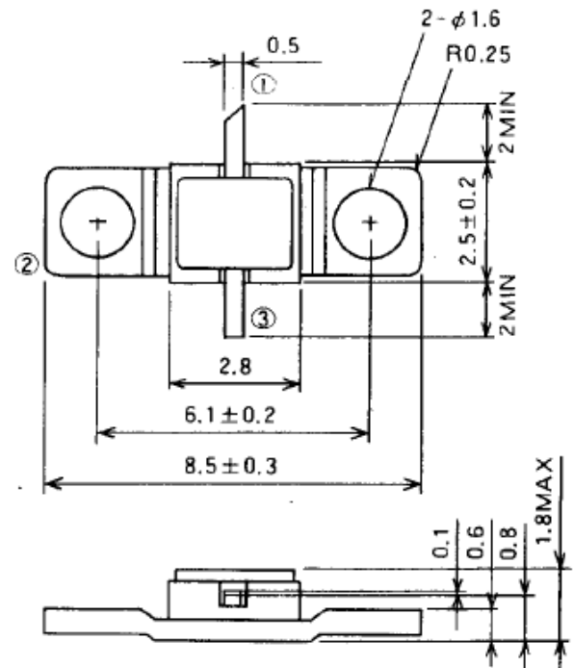
Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V, VGS=0V	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	-4.0	V
P1dB	1dB gain compression power	VDS=10V, ID(RF off)=150mA	26	27.5	-	dBm
GLP *2	Linear power gain	f=14.5GHz	6.5	7.5	-	dB
P.A.E	Power added efficiency	*2 : Pin=15dBm		29	-	%
Rth(ch-c) *3	Thermal resistance	Δ Vf method	-	-	60	°C/W

*3 :Channel-case

OUTLINE DRAWING

Unit : millimeters



GF-17

① GATE
② SOURCE
③ DRAIN

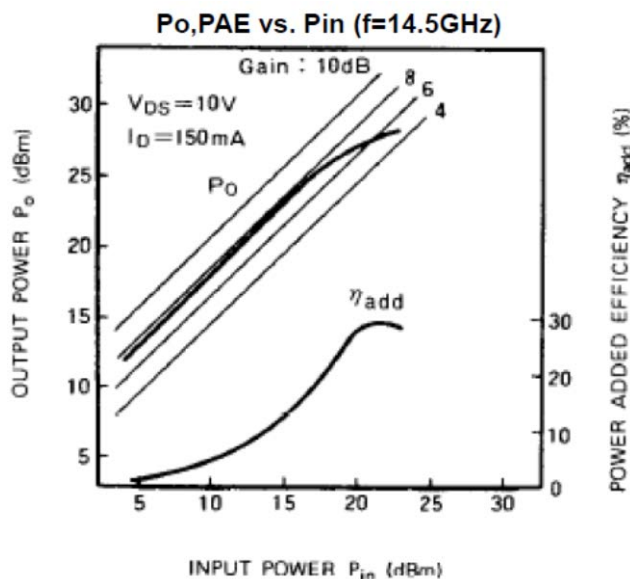
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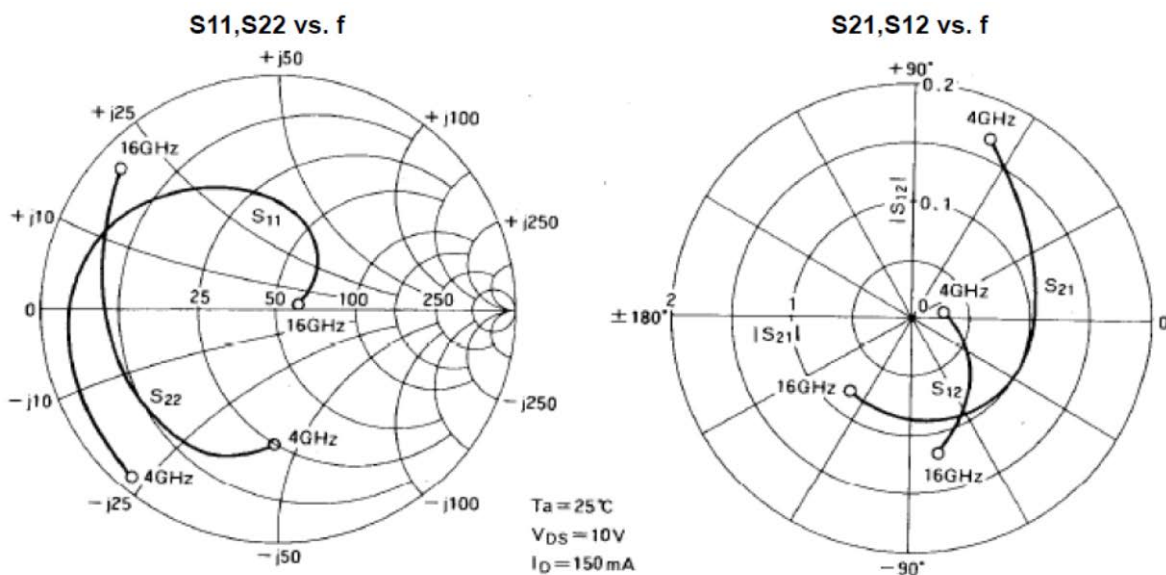
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MGF2415A TYPICAL CHARACTERISTICS (Ta=25deg.C)



MGF2415A S-parameters (Ta=25deg.C, VDS=10(V), IDS=150mA)



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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