MITSUBISHI ELECTRIC

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

MGF2445A

L to Ku BAND / 1.6W
non - matched

DESCRIPTION

The MGF2445A, GaAs FET with an N-channel schottky gate, is designed for L to Ku band amplifiers.

FEATURES

- High output power
  P1dB=32.0dBm(T.Y.P) @f=12.0GHz
- High linear gain
  GLP=6.0dB(TYP.) @f=12.0GHz
- High power added efficiency
  P.A.E=20%(TYP.) @f=12.0GHz,P1dB
- Hermetically sealed metal package

APPLICATION

- For L to Ku band power amplifiers

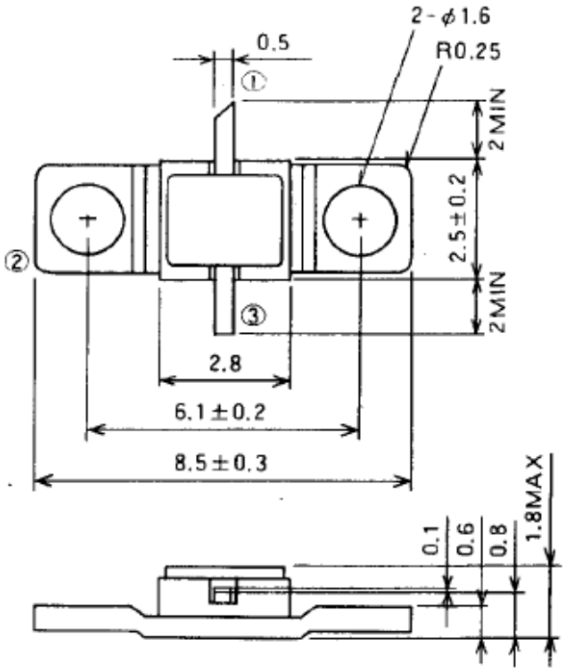
QUALITY

- IG

RECOMMENDED BIAS CONDITIONS

- Vds=10V • Ids=450mA • Rg=200Ω

OUTLINE DRAWING Unit : millimeters



GF-17

① GATE
② SOURCE
③ DRAIN

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	800	mA
IGR	Reverse gate current	-2.4	mA
IGF	Forward gate current	10	mA
PT*1	Total power dissipation	5	W
Tch	Cannel 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	-	-	1500	mA
gm	Transconductance	VDS=3V, ID=450mA	-	400	-	mS
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=3mA	-	-	-4.5	V
P1dB	1dB gain compression power	VDS=10V,ID(RF off)=450mA	31	32	-	dBm
GLP *2	Linear power gain	f=12.0GHz	5.5	6.0	-	dB
P.A.E	Power added efficiency	*2 : Pin=20dBm		20	-	%
Rth(ch-c) *3	Thermal resistance	ΔVf method	-	-	15	°C/W

*3 :Channel-case

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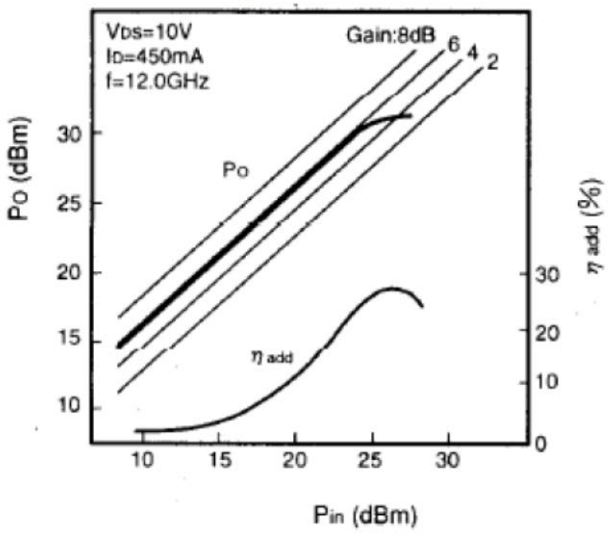
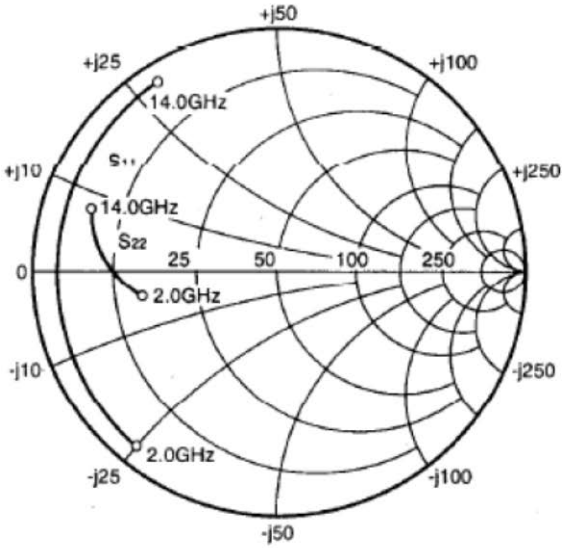
MGF2445A TYPICAL CHARACTERISTICS(Ta=25deg.C)

Po,PAE vs. Pin

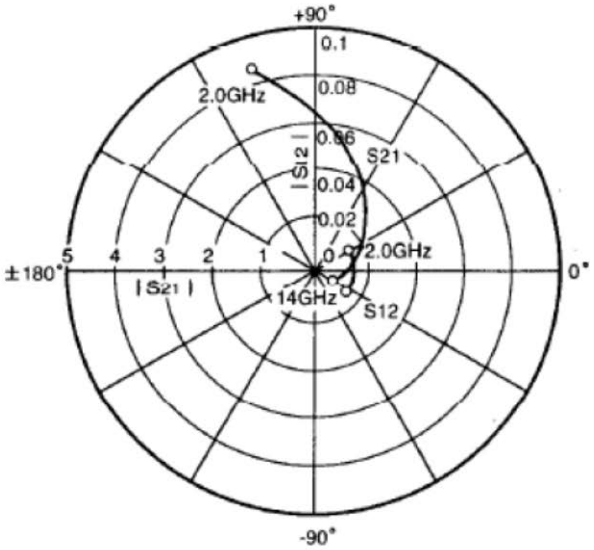


MGF2445A S-parameters(Ta=25deg.C , VDS=10(V),IDS=450mA)

S11,S22 vs. f



S21,S12 vs. f



Ta=25℃
VDS=10V
ID=450mA

f (GHz)	S Parameters(Typ.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
2.0	0.914	-127.4	4.336	103.4	0.011	21.9	0.589	-175.6
4.0	0.889	-167.6	2.292	71.7	0.012	0.2	0.634	-177.1
6.0	0.886	170.5	1.451	49.6	0.012	-12.4	0.682	-179.6
8.0	0.889	154.7	0.999	31.2	0.012	-22.3	0.729	176.7
10.0	0.895	141.8	0.721	14.9	0.011	-31.0	0.773	172.2
12.0	0.902	130.7	0.535	0.4	0.011	-38.8	0.811	167.3
14.0	0.910	121.1	0.406	-12.7	0.010	-45.9	0.843	162.2

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