

DESCRIPTION

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

FEATURES

- High output power
P_{1dB} = 32dBmW(TYP.) @f=12GHz
- High linear power gain
GLP = 6.0dB(TYP.) @f=12GHz

APPLICATION

- S to Ku band power amplifiers

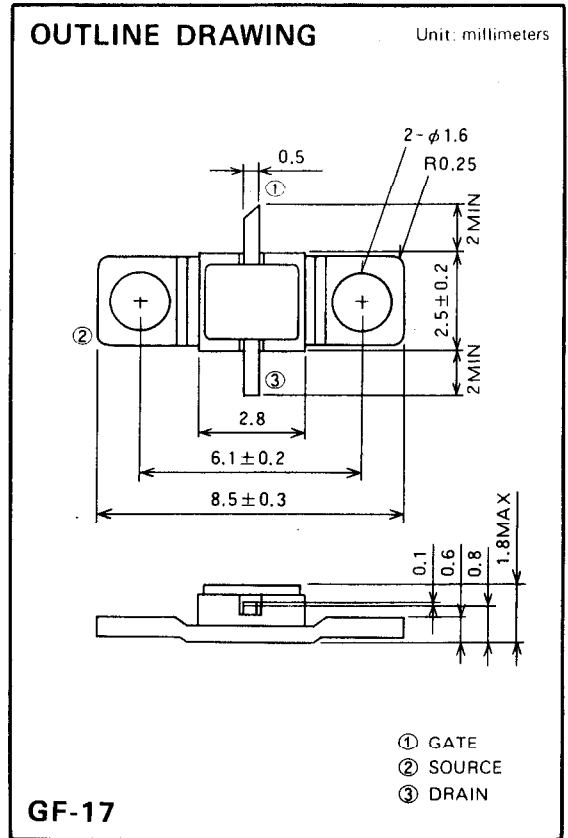
QUALITY GRADE

- IG

RECOMMENDED BIAS CONDITIONS

- V_{DS}=10V, I_D=450mA

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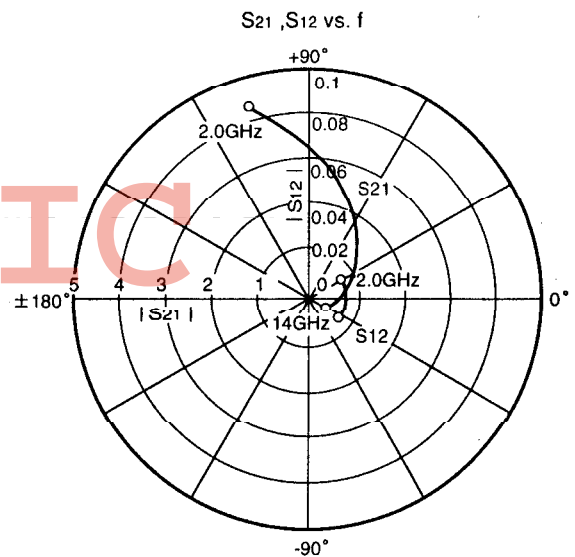
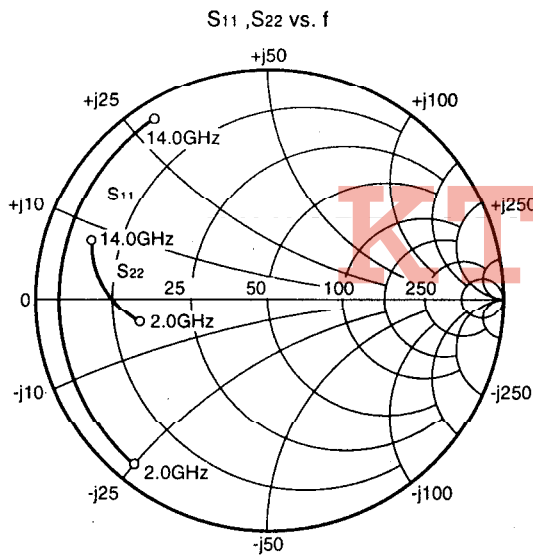
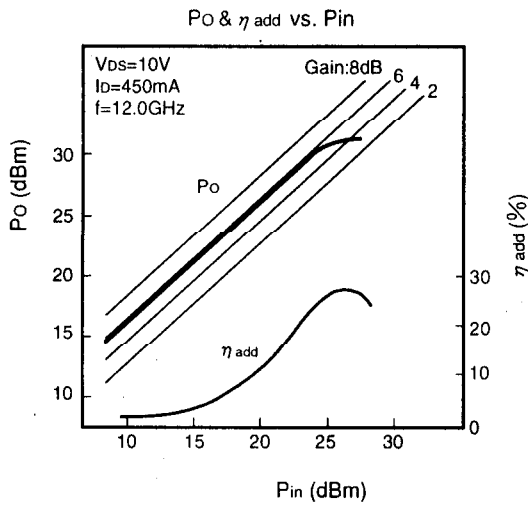
ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	Unit
V _{GDO}	Gate to drain voltage	-15	V
V _{GSO}	Gate to source voltage	-15	V
I _D	Drain current	1500	mA
I _{GR}	Reverse gate current	-3.6	mA
I _{GF}	Forward gate current	15	mA
PT	Total power dissipation	10.0	W
T _{ch}	Channel temperature	175	°C
T _{stg}	Storage temperature	-65~+175	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			MIN.	TYP.	MAX.	
I _{DSS}	Saturated drain current	V _{DS} =3V, V _G =0V	--	--	1500	mA
g _m	Transconductance	V _{DS} =0V, I _D =450mA	--	400	--	mS
V _{GS(off)}	Gate to source cut-off voltage	V _{DS} =3V, I _D =3mA	--	--	-4.5	V
P _{1dB}	Output power at 1dB gain compression	V _{DS} =10V, I _D =450mA f=12GHz	31	32	--	dBm
GLP	Linear power gain		5.5	6.0	--	dB
η _{add}	Power added efficiency		--	20	--	%
R _{th(ch-c)}	Thermal resistance	ΔVf method	--	--	15	°C/W

TYPICAL CHARACTERISTICS (Ta = 25°C)



Ta=25°C
Vds=10V
Id=450mA

S PARAMETERS (Ta = 25°C, VDS = 10V, ID = 450mA)

f (GHz)	S Parameters (TYP.)							
	S11		S21		S12		S22	
	Mag.	Angle (deg.)	Mag.	Angle (deg.)	Mag.	Angle (deg.)	Mag.	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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