

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

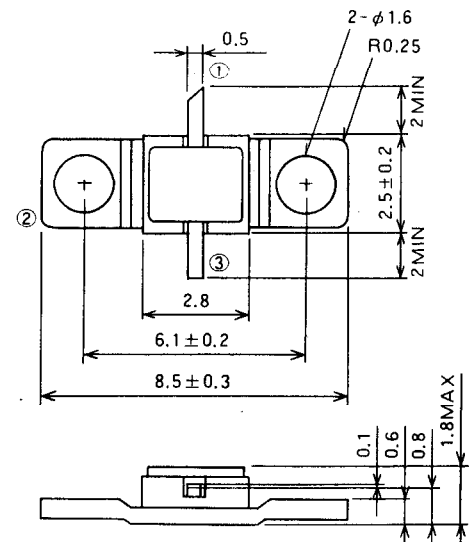
- V_{DS}=10V, I_D=450mA

Keep safety first in your circuit designs!

Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of non-flammable material or (iii) prevention against any malfunction or mishap.

OUTLINE DRAWING

Unit: millimeters



- ① GATE
- ② SOURCE
- ③ DRAIN

GF-17

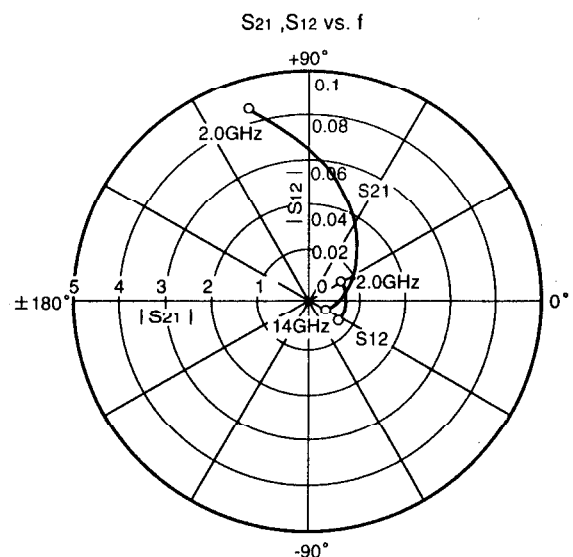
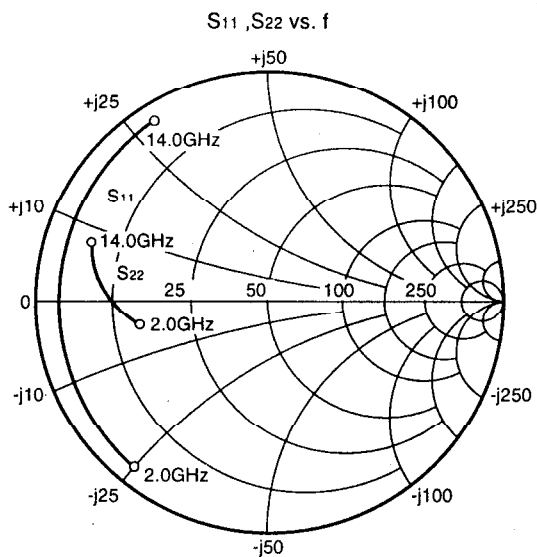
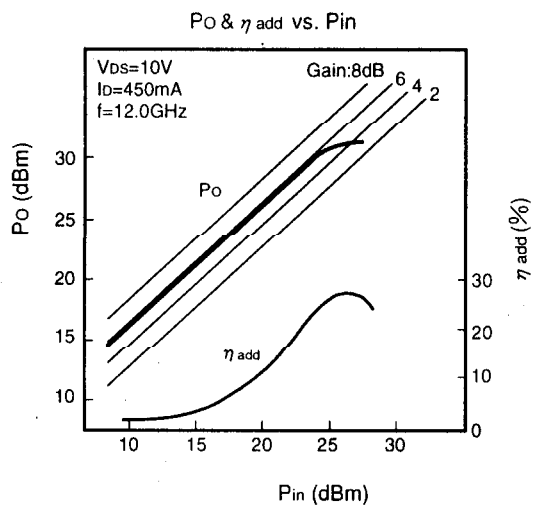
ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

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.	1YP.	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 ($T_a = 25^\circ\text{C}$)



S PARAMETERS ($T_a = 25^\circ\text{C}$, $V_{DS} = 10\text{V}$, $I_D = 450\text{mA}$)

f (GHz)	S Parameters (TYP.)							
	S_{11}		S_{21}		S_{12}		S_{22}	
	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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