

MITSUBISHI SEMICONDUCTOR <GaAs FET>
MGFK36V4045

14.0-14.5GHz BAND 4W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFK36V4045 is an internally impedance matched GaAs power FET especially designed for use in 14.0-14.5 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES

- Internally impedance matched
- High output power
P1dB = 4W(TYP.) @f=14.0-14.5GHz
- High linear power gain
GLP = 7.0dB(TYP.) @f=14.0-14.5GHz

APPLICATION

- For use in 14.0-14.5GHz band amplifiers

QUALITY GRADE

- IG

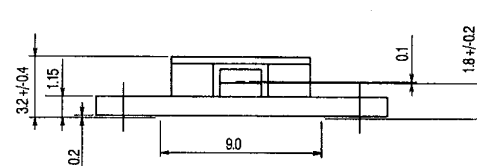
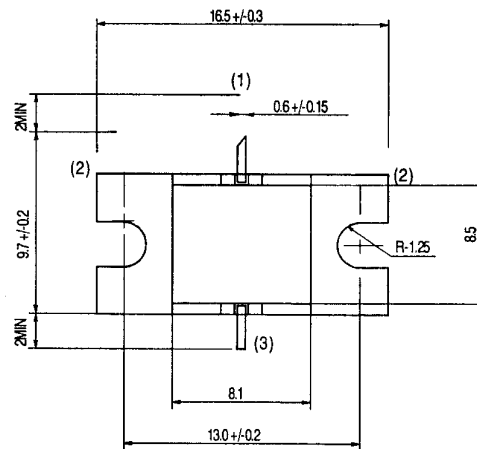
RECOMMENDED BIAS CONDITIONS

- V_{DS}=10V , I_D=1.2A

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



GF-27

- (1) GATE
- (2) SOURCE (FLANGE)
- (3) DRAIN

ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

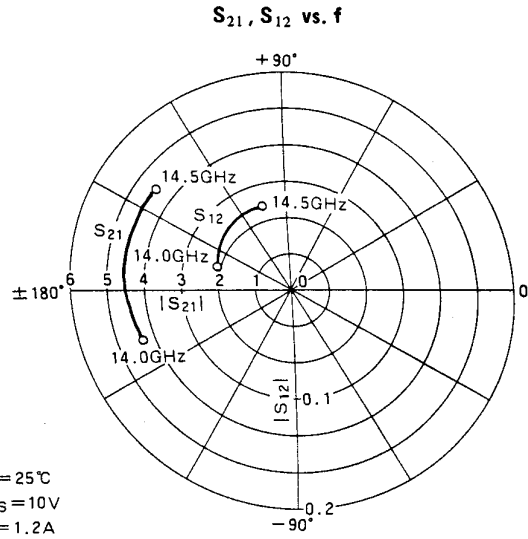
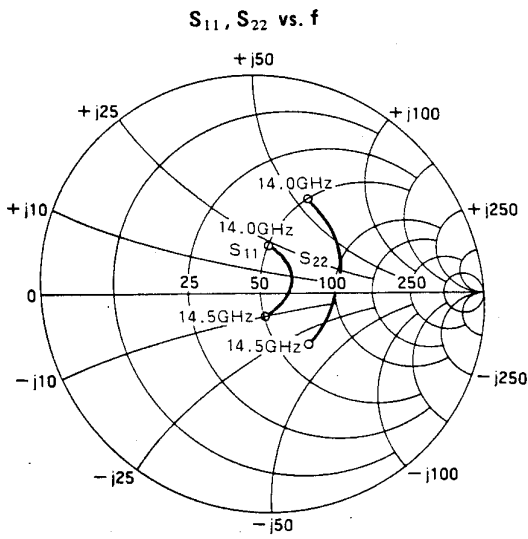
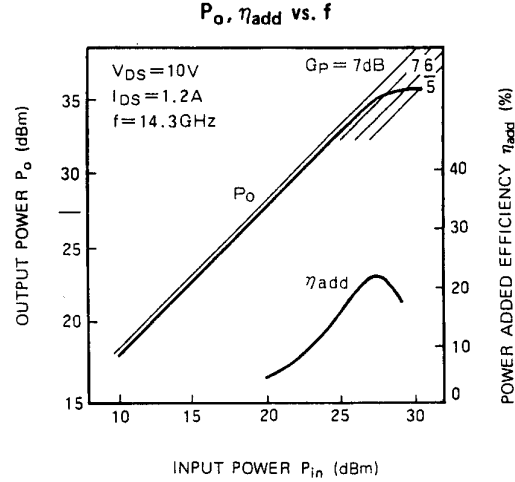
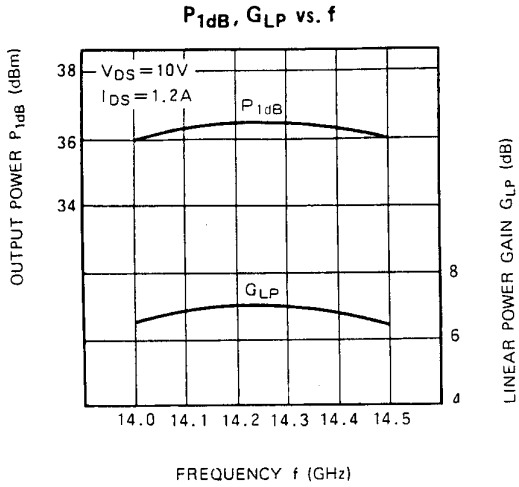
Symbol	Parameter	Ratings	Unit
V _{GDO}	Gate to drain voltage	-15	V
V _{GSO}	Gate to source voltage	-15	V
I _D	Drain current	3.0	A
I _{GR}	Reverse gate current	-9	mA
I _{GF}	Forward gate current	18	mA
PT	Total power dissipation	25	W
T _{ch}	Channel temperature	175	°C
T _{stg}	Storage temperature	-65~+175	°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	--	2.0	3.0	A
gm	Transconductance	V _{DS} =0V, I _D =1.2A	--	1.0	--	S
V _{GS(off)}	Gate to source cut-off voltage	V _{DS} =3V, I _D =10mA	-2.0	--	-5.0	V
P1dB	Output power at 1dB gain compressin	V _{DS} =10V, I _D =1.2A f=14.0-14.5GHz	34.5	36.0	--	dBm
GLP	Linear power gain		6	7	--	dB
η _{add}	Power added efficiency		--	22	--	%
R _{th(ch-c)}	Thermal resistance	ΔVf method	--	6.0	--	°C/W

MITSUBISHI
ELECTRIC

TYPICAL CHARACTERISTICS (Ta=25°C)



Ta = 25°C
V_{DS} = 10V
I_D = 1.2A

S PARAMETERS (Ta = 25°C, V_{DS} = 10V, I_{DS} = 1.2A)

f (GHz)	S Parameters (TYP.)							
	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	Magn.	Angle (deg.)	Magn.	Angle (deg.)	Magn.	Angle (deg.)	Magn.	Angle (deg.)
14.0	0.510	60.8	2.155	-161.1	0.099	164.0	0.228	73.2
14.1	0.452	43.5	2.233	-172.7	0.112	153.0	0.181	53.9
14.2	0.403	24.8	2.273	175.7	0.119	140.9	0.139	27.5
14.3	0.348	2.5	2.297	163.6	0.122	129.7	0.100	-2.6
14.4	0.305	-12.3	2.286	151.8	0.122	117.0	0.103	-42.0
14.5	0.288	-50.4	2.234	140.5	0.122	105.5	0.109	-79.7