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

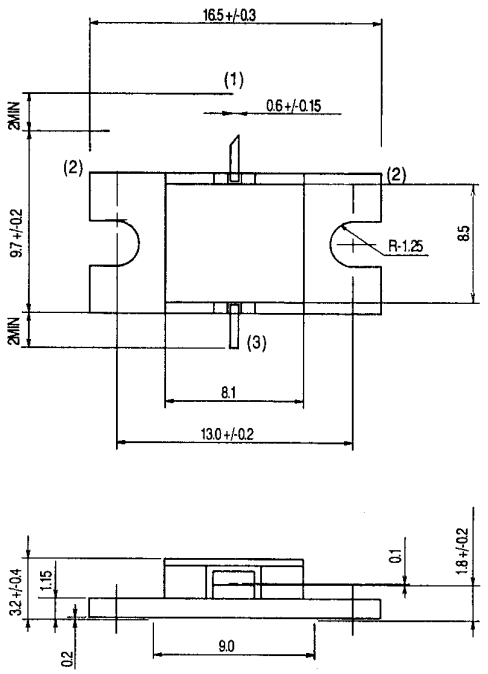
RECOMMENDED BIAS CONDITIONS

- 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



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

ABSOLUTE MAXIMUM RATINGS (Ta=25℃)

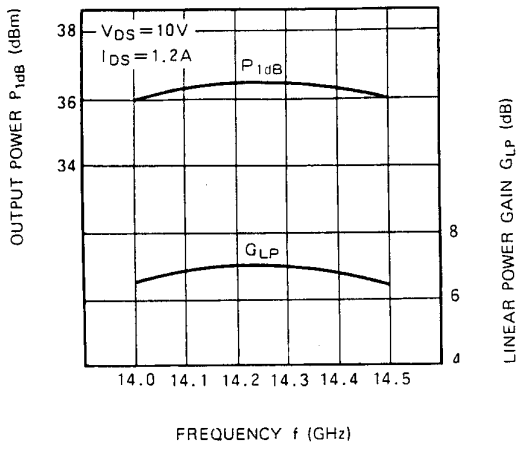
Symbol	Parameter	Ratings	Unit
V_{GDO}	Gate to drain voltage	-15	V
V_{GSO}	Gate to source voltage	-15	V
I_D	Drain current	3.0	A
I_{GR}	Reverse gate current	-9	mA
I_{GF}	Forward gate current	18	mA
PT	Total power dissipation	25	W
T_{ch}	Channel temperature	175	℃
T_{stg}	Storage temperature	-65～+175	℃

ELECTRICAL CHARACTERISTICS (Ta=25℃)

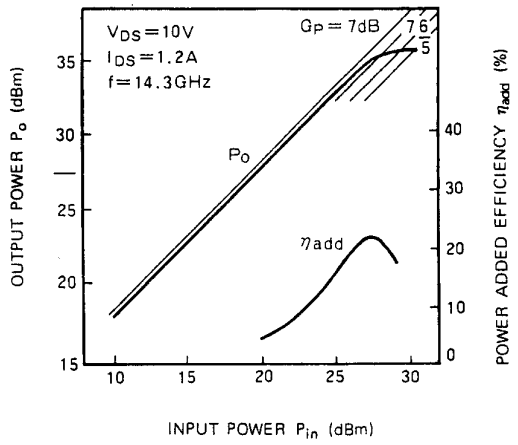
Symbol	Parameter	Test conditions	Limits			Unit
			MIN.	TYP.	MAX.	
I_{DSS}	Saturated drain current	V_{DS}=3V,VG=0V	--	2.0	3.0	A
gm	Transconductance	V_{DS}=0V,I_D=1.2A	--	1.0	--	S
$V_{GS(off)}$	Gate to source cut-off voltage	V_{DS}=3V,I_D=10mA	-2.0	--	-5.0	V
P1dB	Output power at 1dB gain compressin	V_{DS}=10V,I_D=1.2A	34.5	36.0	--	dBm
GLP	Linear power gain	f=14.0-14.5GHz	6	7	--	dB
η add	Power added efficiency		--	22	--	%
Rth(ch-c)	Thermal resistance	ΔVf method	--	6.0	--	℃/W

TYPICAL CHARACTERISTICS (T_a=25°C)

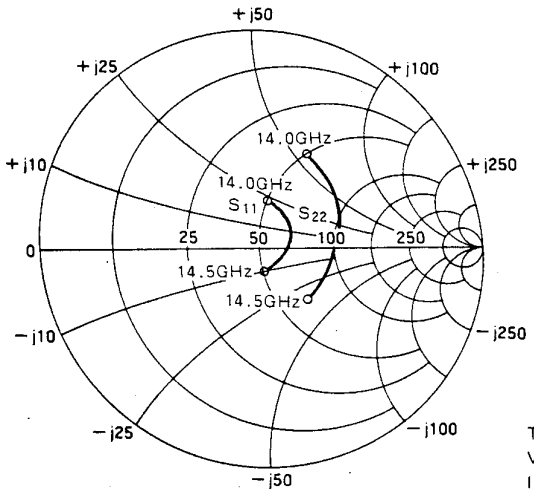
P_{1dB}, G_{LP} vs. f



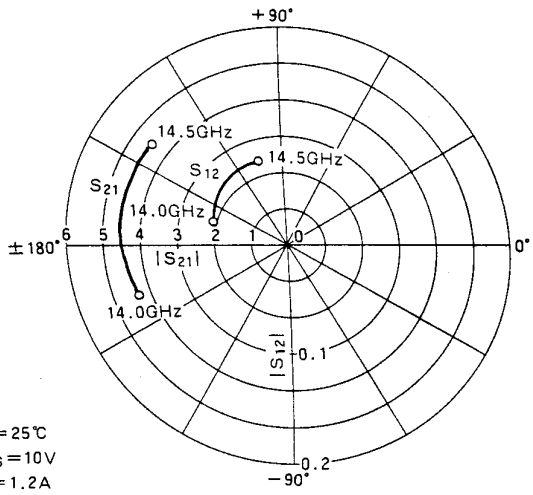
P_o, η_{add} vs. f



S_{11}, S_{22} vs. f



S_{21}, S_{12} vs. f



Ta=25°C
VDS=10V
ID=1.2A

S PARAMETERS (T_a=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