

< X/Ku band internally matched power GaAs FET >

MGFK37V4045

14.0 – 14.5 GHz BAND / 5.5W

DESCRIPTION

The MGFK37V4045 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 matched to 50(ohm) system
Flip-chip mounted

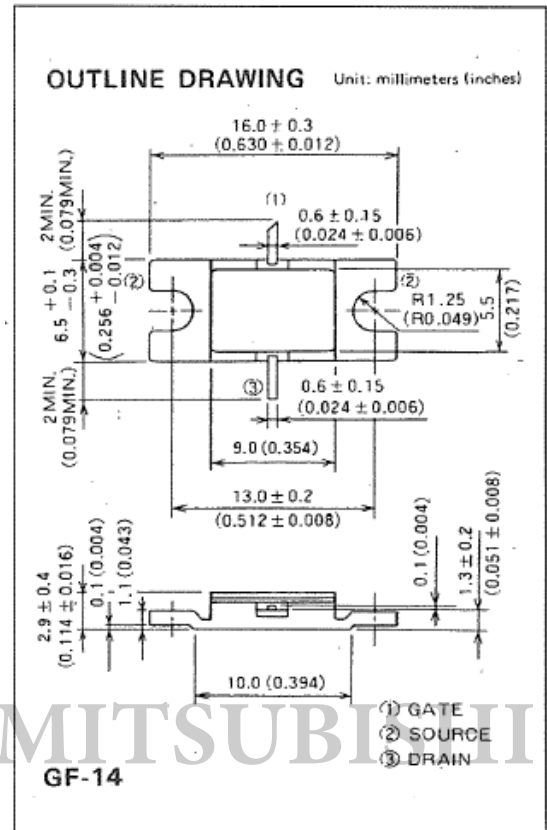
- High output power
P1dB=5.5W (TYP.) @f=14.0 – 14.5GHz
- High linear power gain
GLP=5.5dB (TYP.) @f=14.0 – 14.5GHz
- High power added efficiency
P.A.E.=17% (TYP.) @f=14.0 – 14.5GHz

APPLICATION

- 14.0 – 14.5 GHz band power amplifiers

QUALITY GRADE

- IG



RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=2.4A Refer to Bias Procedure

Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VGDO	Gate to drain breakdown voltage	-15	V
VGSO	Gate to source breakdown voltage	-15	V
ID	Drain current	6600	mA
IGR	Reverse gate current	-17.5	mA
IGF	Forward gate current	35	mA
PT *1	Total power dissipation	42.8	W
Tch	Channel 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	3600	5200	6600	mA
gm	Transconductance	VDS=3V, ID=2400mA	1200	1700	-	mS
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=20mA	-2	-	-5	V
P1dB	Output power at 1dB gain compression	VDS=10V, ID(RF off)=2400mA	36.5	37.4	-	dBm
GLP	Linear Power Gain	f=14.0 – 14.5GHz	4.5	5.5	-	dB
PAE	Power added efficiency		-	17	-	%
Rth(ch-c) *2	Thermal resistance	delta Vf method	-	-	3.5	°C/W

*2 : Channel-case

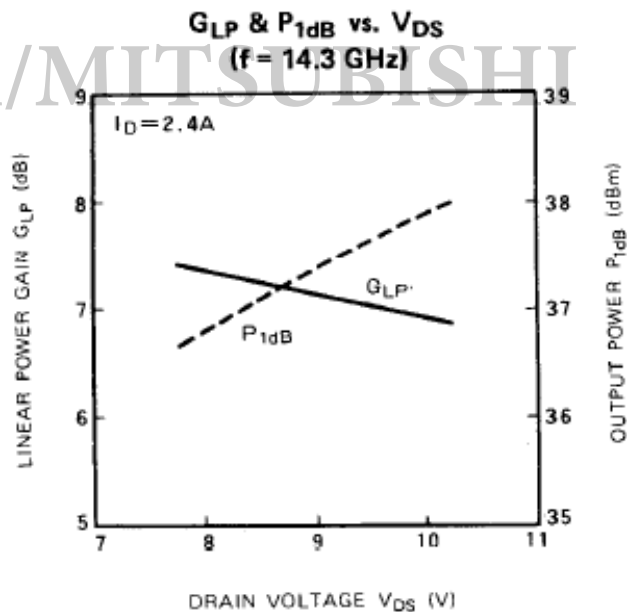
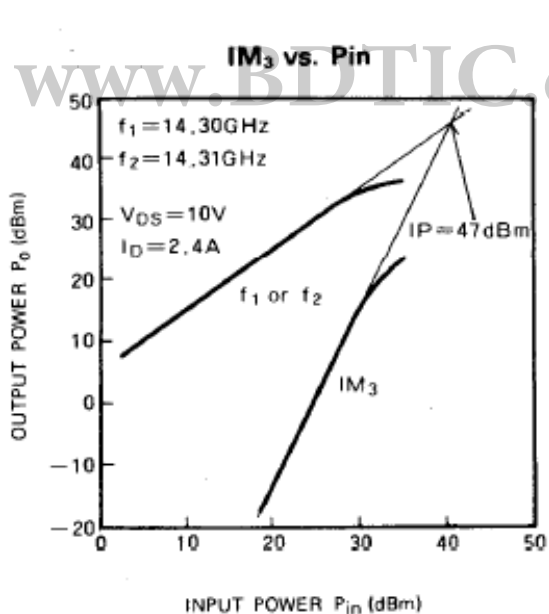
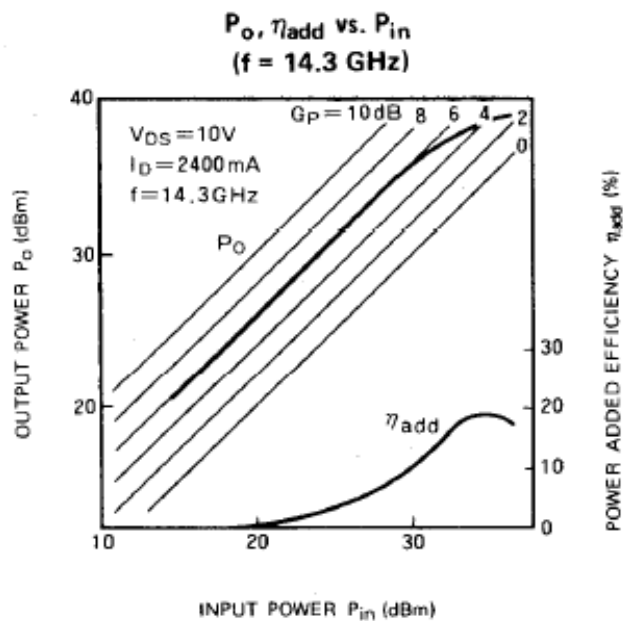
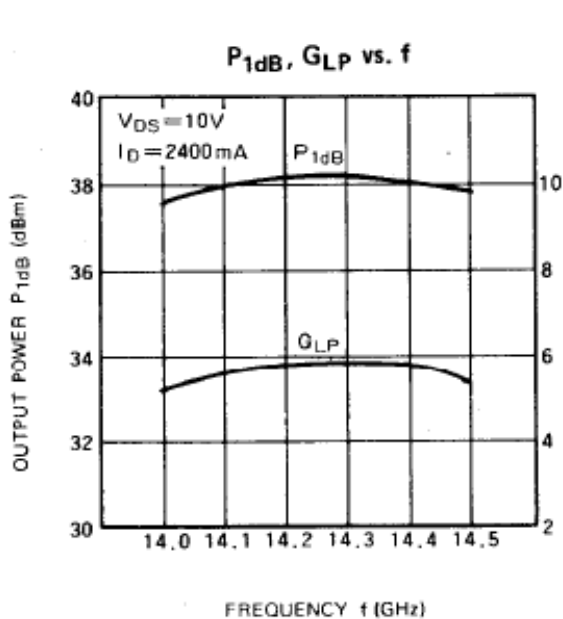
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MGFK37V4045 TYPICAL CHARACTERISTICS

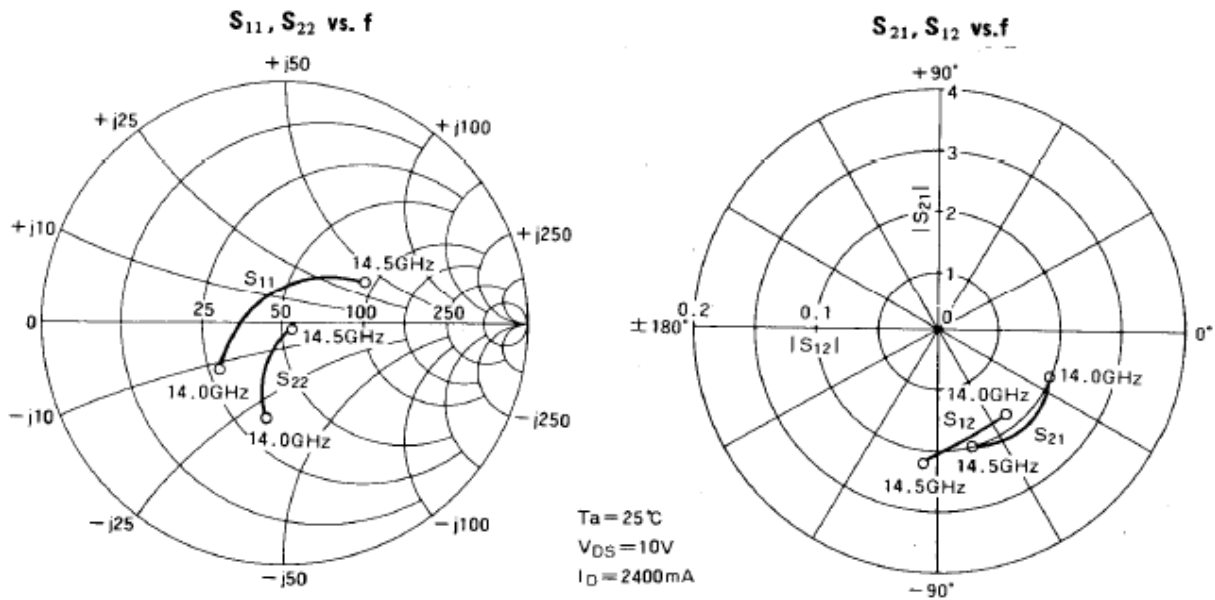


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MGFK37V4045 S-parameters(Ta=25deg.C , VDS=10(V),IDS=2400(mA))



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f (GHz)	S Parameters(Typ.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
14.0	0.336	-143	1.950	-24	0.074	-52	0.396	-99
14.1	0.201	-168	2.018	-34	0.081	-64	0.314	-104
14.2	0.128	145	2.042	-43	0.083	-72	0.228	-103
14.3	0.132	87	2.055	-54	0.094	-83	0.167	-99
14.4	0.247	47	2.018	-64	0.099	-90	0.096	-100
14.5	0.398	26	1.950	-75	0.109	-98	0.053	-49

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