

< X/Ku band internally matched power GaAs FET >

MGFK33V4045

14.0 – 14.5 GHz BAND / 2W

DESCRIPTION

The MGFK33V4045 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

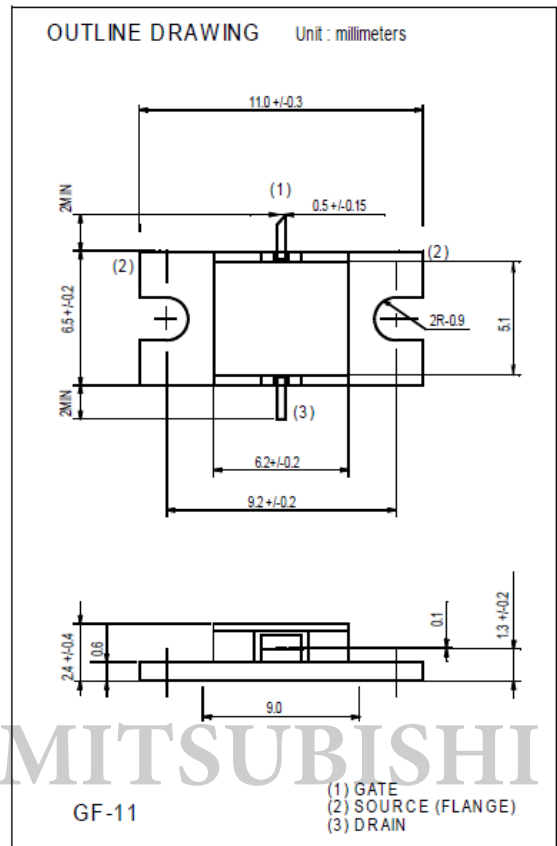
- High output power
P1dB=2.0W (TYP.) @f=14.0 – 14.5GHz
- High linear power gain
GLP=7.0dB (TYP.) @f=14.0 – 14.5GHz
- High power added efficiency
P.A.E.=22% (TYP.) @f=14.0 – 14.5GHz

APPLICATION

- 14.0 – 14.5 GHz band power amplifiers

QUALITY GRADE

- IG



RECOMMENDED BIAS CONDITIONS

- VDS=8V • ID=700mA 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	1800	mA
IGR	Reverse gate current	-5	mA
IGF	Forward gate current	10	mA
PT *1	Total power dissipation	17	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	-	1.1	1.8	A
gm	Transconductance	VDS=3V, ID=700mA	-	600	-	mS
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=4mA	-2	-	-5	V
P1dB	Output power at 1dB gain compression	VDS=8V, ID(RF off)=700mA f=14.0 – 14.5GHz	32	33	-	dBm
GLP	Linear Power Gain		5.5	7	-	dB
PAE	Power added efficiency		-	22	-	%
Rth(ch-c) *2	Thermal resistance	delta Vf method	-	-	10	°C/W

*2 : Channel-case

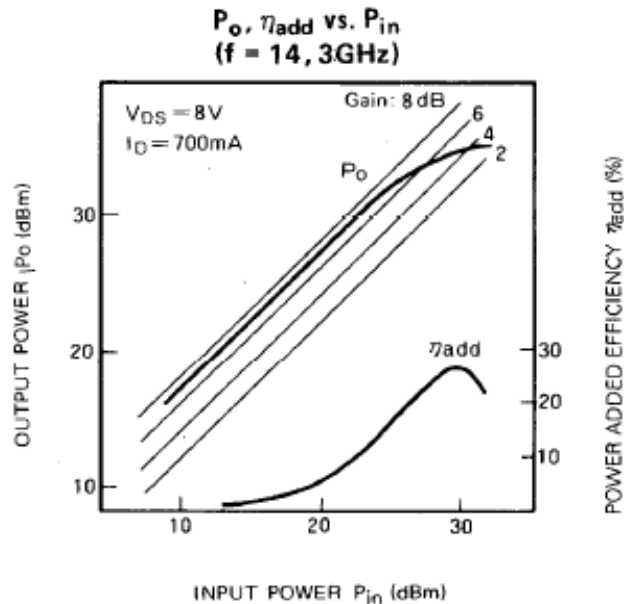
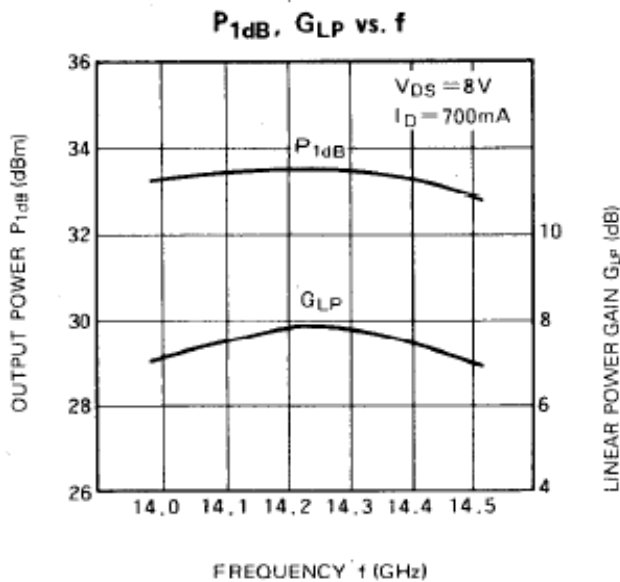
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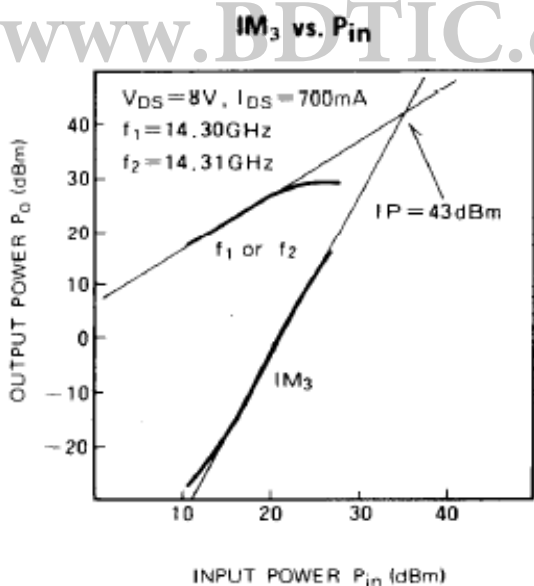
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MGFK33V4045 TYPICAL CHARACTERISTICS



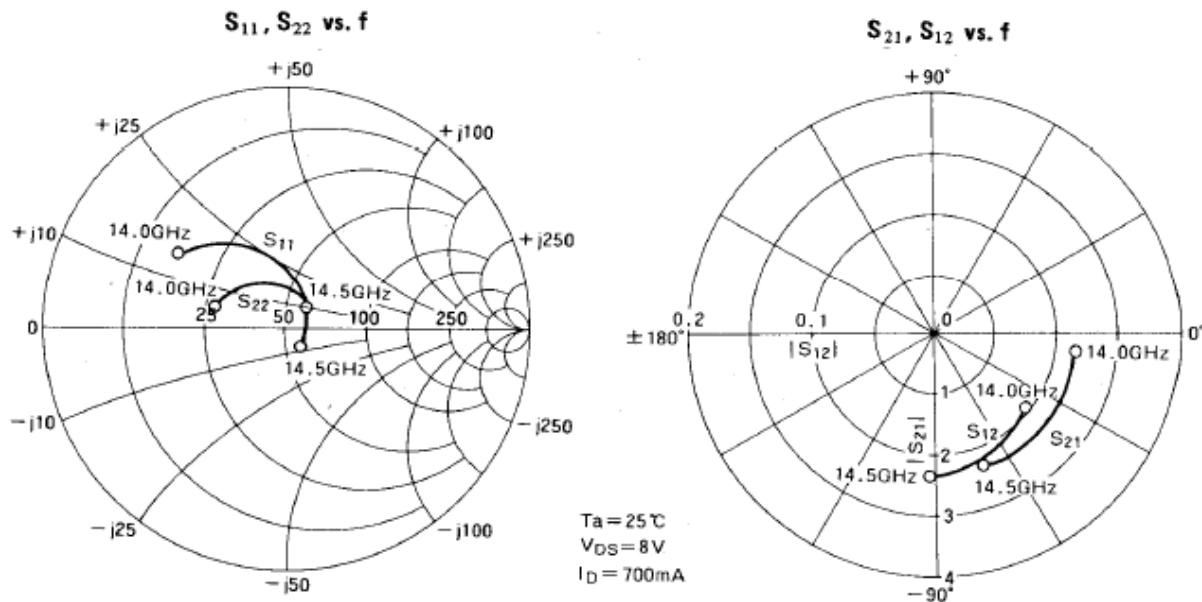
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MGFK33V4045 S-parameters (Ta=25deg.C , VDS=8(V),IDS=700(mA))



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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	0.50	136	2.28	-10	0.099	-41	0.32	164
14.1	0.38	121	2.35	-25	0.108	-52	0.29	153
14.2	0.27	103	2.39	-38	0.113	-61	0.25	142
14.3	0.19	78	2.43	-51	0.127	-71	0.20	130
14.4	0.13	42	2.37	-62	0.134	-82	0.15	115
14.5	0.18	5	2.29	-72	0.142	-93	0.12	93

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