MITSUBISHI ELECTRIC

< X/Ku band internally matched power GaAs FET >

MGFK30V4045

14.0 – 14.5 GHz BAND / 1.1W

DESCRIPTION

The MGFK30V4045 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=1.1W (TYP.) @f=14.0 – 14.5GHz
- High linear power gain
  GLP=8.0dB (TYP.) @f=14.0 – 14.5GHz
- High power added efficiency
  P.A.E.=24% (TYP.) @f=14.0 – 14.5GHz

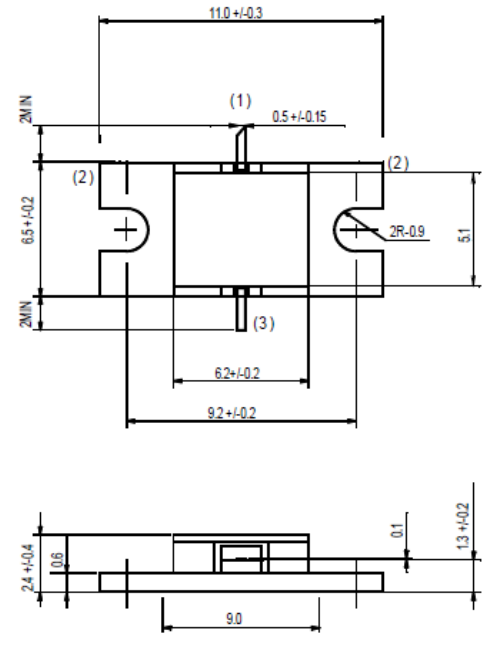
APPLICATION

- 14.0 – 14.5 GHz band power amplifiers

QUALITY GRADE

- IG

OUTLINE DRAWING Unit : millimeters



RECOMMENDED BIAS CONDITIONS

- VDS=8V - ID=350mA 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	1000	mA
IGR	Reverse gate current	-3	mA
IGF	Forward gate current	5	mA
PT *1	Total power dissipation	11	W
Tch	Cannel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

*1 : Tc=25°C

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 measure such as (I) placement of substitutive , auxiliary circuits , (ii) use of non-flammable material or (iii) prevention against any malfunction or mishap.

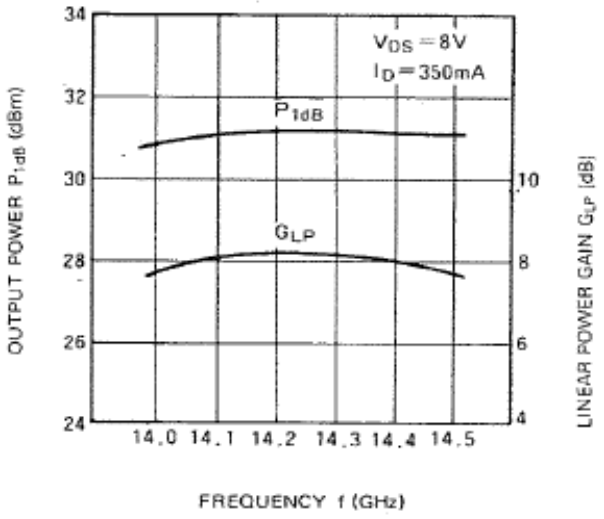
Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	-	800	1000	mA
gm	Transconductance	VDS=3V,ID=350mA	-	300	-	mS
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=2mA	-2	-	-5	V
P1dB	Output power at 1dB gain compression	VDS=8V,ID(RF off)=350mA	29.5	31	-	dBm
GLP	Linear Power Gain	f=14.0 – 14.5GHz	7	8	-	dB
PAE	Power added efficiency		-	24	-	%
Rth(ch-c) *2	Thermal resistance	delta Vf method	-	-	20	°C/W

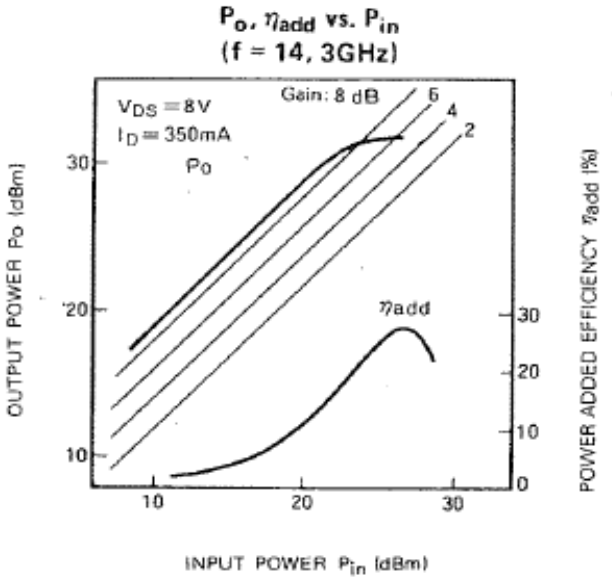
*2 : Channel-case

MGFK30V4045 TYPICAL CHARACTERISTICS

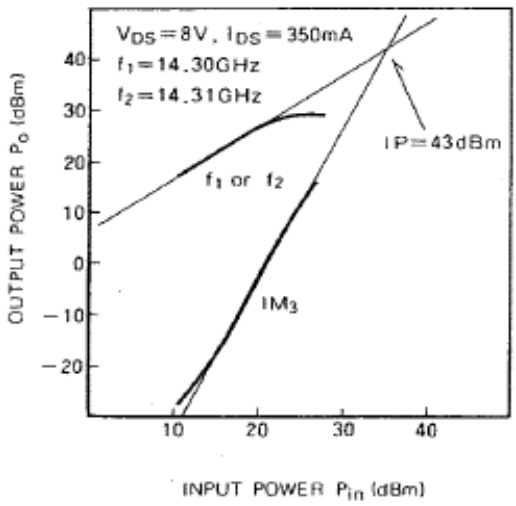
P_{1dB}, G_{LP} vs. f



P_o, η_{add} vs. P_{in} (f = 14, 3GHz)



IM_3 vs. P_{in}



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